City of Franklin

109 3rd Ave S
Franklin, TN 37064
(615) 791-3217

Meeting Agenda

Work Session

Tuesday, July 11, 2023 | **4:00 PM** | **Board Room**

CALL TO ORDER

CITIZEN COMMENTS

Comments on agenda items may be made in person at City Hall or by emailing recorder@franklintn.gov before noon on the day of the meeting. Comments will be submitted for the record.

WORK SESSION DISCUSSION ITEMS

1. Presentation Of The Williamson County CCTE STEM Emerging Careers Camp

   Sponsors: Vernon Gerth, Amy Diaz-Barriga

2. Presentation Update On The New City Hall Architecture Elevations

   Sponsors: Vernon Gerth, Kelly Dannenfelser, Anna Ruth Kimbrough

3. *Consideration Of Resolution 2023-52, A Resolution To Award The Construction Contract (COF Contract No. 2022-0315) For The "Bicentennial Park" Project (COF Project No. 2016-005) To Sain Construction Company In The Amount Of $10,281,197

   Sponsors: Paul Holzen, Lisa Clayton, Jonathan Marston, Shahad Abdulrahman

4. Discussion Concerning The City Of Franklin Capital Investment Program

   Sponsors: Paul Holzen

5. Presentation On Road Impact Fee Study Update

   Sponsors: Vernon Gerth, Paul Holzen, David Diaz

6. Consideration Of Ordinance 2023-22, An Ordinance To Rezone 2.906 Acres From Regional Commerce 6 (RC-6) District To Planned (PD 61.3/3,362) District For The Property Located East Of Mack Hatcher Memorial Parkway And North Of Cool Springs Boulevard (101 Cool Springs Boulevard PUD Subdivision). Establishing A Public Hearing On September 12, 2023
   FMPC 5/25/23, 6-0 deferral to 6/22/23; 6/22/23, 6-1 to disapprove
   Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

7. Consideration Of Resolution 2023-42, A Resolution Approving A Development Plan For 101 Cool Springs Boulevard PUD Subdivision, For The Property Located East Of Mack Hatcher Memorial Parkway And North Of Cool Springs Boulevard. Establishing A Public Hearing On September 12, 2023
   FMPC 5/25/23, 6-0 deferral to 6/22/23; 6/22/23, 6-1 to disapprove
   Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

8. Consideration Of Resolution 2023-49, A Resolution Adopting A Plan Of Services For The Annexation Of Property Located South Of The Intersection Of Peytonsville Road And Pratt Lane, Outside Of The Southeastern Part Of The Franklin Urban Growth Boundary (UGB), By The City Of Franklin, Tennessee. Establishing A Public Hearing On September 12, 2023
   FMPC 6/22/23, 7-0
   Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

9. Consideration Of Resolution 2023-48, A Resolution Requesting A Referendum For The Annexation Of Property Located South Of The Intersection Of Peytonsville Road And Pratt Lane, And Outside Of The Southeastern Part Of The Franklin Urban Growth Boundary (UGB), By The City Of Franklin, Tennessee. Establishing A Public Hearing On September 12, 2023
   FMPC 6/22/23, 7-0
   Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

10. Consideration Of Ordinance 2023-24, An Ordinance To Zone 5 Acres Estate Residential (ER) District, For The Property Located South Of The Intersection Of Peytonsville Road And Pratt Lane, At 4436 Pratt Lane. Establishing A Public Hearing On September 12, 2023
    FMPC 6/22/23, 7-0
    Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

11. Consideration Of Resolution 2023-44, A Resolution To Recommend Changes To The Williamson County Growth Plan To The Williamson County Coordinating Committee. Establishing A Public Hearing On August 8, 2023

    Sponsors: Eric Stuckey, Emily Wright, Andrew Orr

12. Consideration Of Ordinance 2023-16, An Ordinance To Amend Title 8, Chapter 2, Section 211 Of The Franklin Municipal Code Relative To Special Event Beer Permits
    Beer 6/13/23, 2-0
    WS 6/27/23, deferred
    Sponsors: Shauna Billingsley, Jessica Davey

13. Consideration Of COF Contract No. 2023-0063, With The Hard Bargain Association For The Reimbursement Of $100,000 For The Cost Of Purchasing Vacant Land In The Hard Bargain Neighborhood To Further The Goal Of Building Affordable, Deed Restricted Home(s) In The Hard Bargin Neighborhood

    Sponsors: Tom Marsh, Kathleen Sauseda

14. Consideration Of Liquor License For Life Of Reilly, LLC, DBA Happy Ours Wine & Spirits, Owned By Jody W. Reilly (Managing Agent) 595 Hillsboro Road, Franklin, TN 37064

    Sponsors: Angie Johnson

15. Consideration Of Ordinance 2022-18 An Ordinance To Amend The City Of Franklin Municipal Code For Alarm Fees - Apendix A, Chapter 20 Miscellaneous For The Purpose Of Increasing The Alarm Permit Fees, Failure To Respond To Activated Alarm Fees, False Alarm Fees, And Reinstatement Fees

    Sponsors: Shauna Billingsley, Deb Faulkner

16. Consideration Of Resolution 2023-53, A Resolution Approving The City's On-Call Title Opinion Professional Services Agreements, COF Contracts 2023-0190, 2023-0191, 2023-1092, 2023-1093, And

2023-0194 And Authorizing The Use Of These Contracts Once Executed

Sponsors: Bill Squires

17. Discussion Of Peddlers, Solicitors, And Itinerant Merchants - Pop-Up Commercial Merchandise Sales, Services, And Permitting Requirements
6/27/23, deferred

Sponsors: Eric Stuckey, Vernon Gerth, Jessica Davey

OTHER BUSINESS

ADJOURN

Anyone needing accommodations due to disabilities please contact the ADA Coordinator at 615-791-3277 at least 24 hours prior to the meeting.

HISTORIC FRANKLIN TENNESSEE

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04829

DATE: June 19, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Vernon Gerth, Asst. City Administrator Community Development
Amy Diaz-Barriga, Asst Director of Planning Development

SUBJECT:

Presentation Of The Williamson County CCTE STEM Emerging Careers Camp

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) concerning the results of Day One of the Williamson County CCTE STEM Emerging Careers Camp, held June 5, 2023.

BACKGROUND/STAFF COMMENTS:

From architecture and engineering to graphic design and photography, rising seventh and eighth grade girls were introduced to numerous vocations at the 2023 Emerging Careers Camp. The camp, which was held June 5-8, is hosted each year by the Williamson County Schools (WCS) College, Career and Technical Education program.

Day One was the Land Development Challenge, in which the girls were given an RFP for the former Williamson County Animal Shelter site, and were charged with finding a new use for the site. Each team of 4-6 girls were responsible for identifying a new use, identifying their development team, outlining their construction timeline, and providing a budget. At the end of the day, each team had to "pitch" their proposal to the panel of design professionals whom provided guidance throughout the day. The volunteer design professionals were Amy Diaz-Barriga (Planner), Holly Walker (architect) of 906 Studios, Katie Rudowsky (landscape architect) of Kiser+Vogrin, Morgan Miller (Project Manager) of Scalora Consulting Group, and Kennedy Adams (Traffic Engineer), Mary McGowan (Civil Engineer) and Sheena Francis (Marketing) of Kimley-Horn. The Mock RFP and overview used in the exercise are attached for reference. The girls did a great job on their crash course into the world of Land Development, and all the projects were unique takes for this future development site.

FINANCIAL IMPACT:

N/A

RECOMMENDATION:

Staff recommends that the Board of Mayor and Aldermen acknowledge this presentation.

Request for Proposal (RFP)

Master Developer for Williamson County—Old Animal Shelter Redevelopment

Issued: June 5, 2023

Due: June 5, 2023

Submit Responses to:

Compliance Officer/Procurement Manager: Sheena Francis, by 1:30 PM CT for a Compliance Check

Compliant Proponents will move to the next round and present their proposals to the Selection Committee on June 5, 2023, at 2:00 PM CT

Award Date: June 5, 2023

Solicitation Objective

To find a Master Developer (“Proponent”) who can leverage their vision and finances to take this outdated building and parcel of land and transform it into a destination for the local community that will add value and fill an existing need for 30+ years.

Scope Summary

The proposed development can be either profit-generating, or if not, must be developable within Williamson County’s (“Owner”) budget of $20,500,000. This budget must cover all developer and consultant fees and total cost of construction resulting in a turn-key development upon completion. Should the Proponent decide to develop a profit-generating development, the Proponent will purchase the land from the Owner for $1,000,000 and spend at least $19,500,000 on the development. Consider the project start date June 6, 2023. The project must be completed and ready for opening/Ribbon Cutting on August 4, 2024.

Property

The subject property is the Old Williamson County Animal Shelter next to Franklin High (site area outlined in red below). The property is 25-acres and the RFP will be to develop approximately 5.6 acres of it. The site is currently zoned CI – Civic and Institutional. The team should work within the current zoning to meet the required deadlines.



Solicitation Requirements

For Round 1 of this procurement process, all Proponents must submit a response, in the form of a presentation, addressing all the below sections to the Compliance Officer/Procurement Manager by June 5, 2023, 1:30 PM CT. Failure to address any of the below will deem the Proponent's proposal "non-compliant" and result in disqualification. All proposals deemed "compliant" will proceed to Round 2 of the procurement process which includes a presentation of your proposal to the Selection Committee.

Proposal contents must include the below in the following order:

1. Executive Summary—provide a concisely written 1-page/slide maximum summary of your proposed project for this site and why it is the most valuable option for the surrounding community. Why is your proposed project the best use of the County's asset?

2. Key Personnel—provide a quick background on the Proponent's key team members, and a quick overview of the Proponents company.

   Create an Organization Chart that outlines all Key Team Members (including consultants you will hire for this project and have leveraged for your proposal's response content). You should comment on what relevant experience your consultant team brings to this project.

3. Development Vision Outline—describe using a combination of diagrams and text your proposed plan for the redevelopment of this parcel and existing facility. Demonstrate how it aligns with both the Envision Franklin Plan, and the needs of the surrounding community.

4. Schedule—provide a project schedule including design, preconstruction, construction, through to opening day.

5. Fees & Cost Breakdown—the Proponent's proposal must include a breakdown of their proposed development's budget, including:
   - Lump Sum Fee for Design Services, including Landscape Architecture
   - Lump Sum Fee for Permitting and Municipalities
   - Lump Sum Fee for Construction Management Services
   - Lump Sum Cost of Construction (Core & Shell), including Hard and Softscape Landscaping
   - Lump Sum Budget remaining from overall budget for the fit-out, i.e., FF&E, fit-out fees, soft and hard costs, data/IT, contingency, and Shared Savings (optional). Have a reputable consultant validate that your budget remaining can adequately cover the required fit-out costs for a Class B level fit-out

   The fees need to equate to equal to or less than your overall budget available and ultimately prove that your vision is designable and buildable by August 4, 2024.

Evaluation Criteria

1. Executive Summary

3 Points	2 Points	1 Point
• Extremely well written and concise Executive Summary • Proponent's proposed project shows that the Proponent has does their due diligence and that their proposed project will fill a desperate community need that will be very well utilized for 30+ years	• Relatively well written and somewhat concise Executive Summary • Proponent's proposed project shows that the Proponent has somewhat done their due diligence and that their proposed project will fill a somewhat required community need that will be utilized for 30 or less years	• Poorly written and somewhat concise Executive Summary; or the Executive Summary is too ambiguous resulting in a lack of clarity • Proponent's proposed project does not show that the Proponent has done their due diligence and does not show reflect a project that will fill a required community need for 30+ years

2. Key Personnel

3 Points	2 Points	1 Point
• Well organized Organization Chart • Presentation addresses the relevant experience of the Proponent's Consultants and why they are the best consultant for this project site and proposed project type	• Somewhat well-organized Organization Chart • Presentation somewhat addresses the relevant experience of the Proponent's Consultants and why they are the best consultant for this project site and proposed project type	• The Organization Chart is missing roles and/or is not well organized • Presentation barely addresses the relevant experience of the Proponent's Consultants and why they are the best consultant for this project site and proposed project type

3. Development Vision Outline

3 Points	2 Points	1 Point
• The Proponent's project presents a creative solution for this redevelopment • The Proponent has very creatively presented their vision using text and diagrams • The Proponent has well outlined how their proposed redevelopment aligns with the Envision Franklin Plan and the needs of the surrounding community for 30+ years	• The Proponent's project presents a relatively creative solution for this redevelopment • The Proponent has somewhat creatively presented their vision using text and diagrams • The Proponent has somewhat outlined how their proposed redevelopment aligns with the Envision Franklin Plan and the needs of the surrounding community for 30+ years	• The Proponent's project does not present a realistic or creative solution for this redevelopment • The Proponent has not creatively presented their vision using text and diagrams • The Proponent has not outlined how their proposed redevelopment aligns with the Envision Franklin Plan and the needs of the surrounding community for 30+ years

4. Schedule

3 Points	2 Points	1 Point
• The Proponent's Schedule is reflective of a realistic timeline for design, preconstruction, construction, through to opening day	• The Proponent's Schedule is reflective of a somewhat realistic timeline for design, preconstruction, construction, through to opening day	• The Proponent's Schedule is not reflective of a realistic timeline for design, preconstruction, construction, through to opening day

5. Fees & Cost Breakdown

3 Points	2 Points	1 Point
• The Proponent's proposed Fees & Cost Breakdown is well organized and details each of the requested Lump Sum Fees accurately • The Proponent's Project is proven to be buildable within the Budget they have and considers well current market conditions • The Proponent has a decent (not too small or too large) Budget remaining for Fit-Out/Contingency and Shared Savings which can be shared amongst the Proponent's Team	• The Proponent's proposed Fees & Cost Breakdown is somewhat organized and relatively well details each of the requested Lump Sum Fees accurately • The Proponent's Project is seemingly buildable within the Budget they have considering current market conditions • The Proponent has too much or too little Budget remaining for Fit-Out/Contingency and/or Shared Savings which can be shared amongst the Proponent's Team	• The Proponent's proposed Fees & Cost Breakdown is not well organized and doesn't well detail each of the requested Lump Sum Fees accurately • The Proponent's Project is not buildable within the Budget they have considering current market conditions • The Proponent has zero Budget remaining for Fit-Out/Contingency and/or Shared Savings which can be shared amongst the Proponent's Team

6. Overall Presentation

3 Points	2 Points	1 Point
• The Proponent's team presented very well and as an integrated team • The Proponent's team members equally contributed during the presentation and Q&A • The Proponent's presentation was aesthetically pleasing and easy to read	• The Proponent's team presented somewhat well and somewhat as an integrated team • The Proponent's team members somewhat equally contributed during the presentation and Q&A • The Proponent's presentation was somewhat aesthetically pleasing and easy to read	• The Proponent's team did not present as an integrated team • The Proponent's team members did not equally contribute during the presentation and Q&A • The Proponent's presentation was not easy to read

- End -

Emerging Careers for Women in the Construction Industry:

Land Development and the Architecture/Engineering/Construction (A/E/C) Sector

Williamson County STEM Students | June 2023

Introduction

The Construction industry has many sectors, one of which is the Architecture/Engineering/Construction (A/E/C) sector. Within this sector the career types available are inclusive of many more roles and responsibilities than we see driving past a construction site. Land development and the development of buildings or destinations involves a complex process requiring many different skillsets and technical backgrounds.

In this CCTE Program Camp Day you will have the chance to explore the A/E/C sector of the construction industry during the early stages of the land development process—the initial Request for Proposal (RFP) stage. Although RFPs come in many types and sizes, we have compiled a *mock RFP* and *pretend land development opportunity* based on a real parcel of land in Williamson County that will soon be redeveloped into a STEM Innovation Hub. This mock proposal process will allow female students to see the vast career opportunities available to them within this otherwise male-dominated industry. It will afford them the opportunity to witness the intricacies and necessity for collaboration and partnership amongst a group of consultants that each have a unique yet important role within the overall lifecycle of a development project.

Case Summary for Mock RFP

Williamson County, via the Planning Department and Planning Commission, has issued an RFP targeted at potential master private development companies. They would like developers to submit a proposal in response to their RFP which outlines their plan for redeveloping a parcel of land in Williamson County. Developers have two options for the type of development they will undertake, which is detailed in the mock RFP document. The development must ultimately align with the Franklin Municipal Planning Commission's (FMPC) adopted "Envision Franklin Plan".

Case "Facts" for Mock RFP

- You and your team are a Privately-owned Development Company
- You have $30,000,000 (total) to spend on your company's next development opportunity. That includes the purchasing of the land, due diligence, entitlement/re-zoning, site design and planning, building design, site work, building(s) core and shell construction, interior fit-out construction, FF&E, hardscaping and softscaping.
- Your company does not have architecture, engineering, and construction "in-house"—you will have to partner with prequalified consultants to help you develop a plan for this site that results in a winning proposal, but that also fits into your overall budget.
- Although in the real-world developers would probably not all partner with the exact same consultants, there can be overlaps if exclusivity teaming agreements are not in place. For this exercise, you will all be using/partnering with the same consultants who will not divulge what the other teams are working on.

Emerging Careers for Women in the Construction Industry:

Land Development and the Architecture/Engineering/Construction (A/E/C) Sector

Williamson County STEM Students | June 2023

Your Mock RFP Consultants and Real-Life Career

Owner's Representative / Construction Manager	Architect	Civil Engineer
		
Morgan Miller *Project Manager* *Scalora Consulting Group*	**Holly Walker** AIA, LEED AP *Architect at* *906 Studio Architects + Interiors*	**Mary McGowan** PE *Civil Engineer, Owner* *Kimley-Horn and Associates*
Landscape Architect	**Traffic Engineer**	**City Planner**
		
Katie Rudowsky PLA *Landscape Architect, Partner* *Kiser + Vogrin Design*	**Kennedy Adams** PE *Traffic Engineer* *Kimley-Horn and Associates*	**Amy Diaz-Barriga** AICP *Assistant Director of Current Planning and Development* *City of Franklin*

Williamson County STEM Students | June 2023

Instructions

1. Listen closely to the 1-hour introduction and kick-off presentation.

2. Each team is a different Development Company, you will be competing against the other groups. Give yourselves a company name.

3. You will be given 3-hours *(2-hours pre-lunch, 1-hour post-lunch)* to prepare a winning proposal response *(in the form of a presentation)* for the mock RFP called *"Master Developer for Williamson County—Old Animal Shelter Redevelopment."* You will partner with the consultants in the room *(who will be rotating between groups)* to help you prepare a response that aligns with the Envision Franklin Plan and that can be delivered within, or under, your available total budget and schedule.

   You must follow the instructions of the RFP very closely as the winning Development Company must provide a compliment RFP response as Stage 1, to then be considered for Stage 2, presentations. If you are missing and requested component of the RFP you could be disqualified during the initial compliance check.

4. Each team will be given 5 mins to present their RFP response during the 1-hour presentation session at the end of this program.

Emerging Careers

CCTE Program Day Camp for Williamson County Middle School Girls

July 2023

Local Consultant Volunteers



Morgan Miller

Project Manager

SCALORA CONSULTING GROUP



Holly Walker, *AIA, LEED AP*

Architect

906



Mary McGowan, *PE*

Civil Engineer

Kimley»Horn



Katie Rudowsky, *PLA*

Landscape Architect

KV+D KISER VOGRIN DESIGN



Kennedy Adams, *PE*

Traffic Engineer

Kimley»Horn



Amy Diaz-Barriga, *AICP*

Assistant Director of Current Planning and Development

HISTORIC CITY OF FRANKLIN, TENNESSEE 17 99

Redevelopment RFP

Areas of Scoring:

1. **Executive Summary** – What is proposed?
2. **Key Personnel/Organization Chart** – Who is your team?
3. **Development Vision Outline** – How does your proposed development align with Envision Franklin?
4. **Schedule**
5. **Fees and Cost Breakdown**
6. **Presentation**



Team 1

Our team plans transform this old animal shelter into a physical therapy office for people who need to recover from past injuries. We will also utilise the woods by turning it into a relaxing nature trail for this community to enjoy. We will save money by reusing the existing building and parking, as well as the existing woods. Due to zoning restrictions, this plan is practical because this area is lacking any close by physical therapy for those who need it.



Team 2



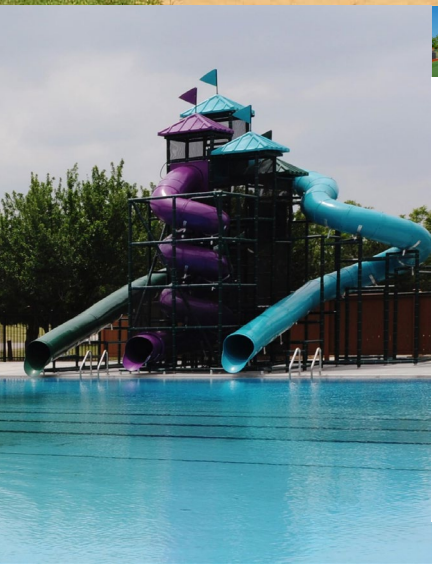












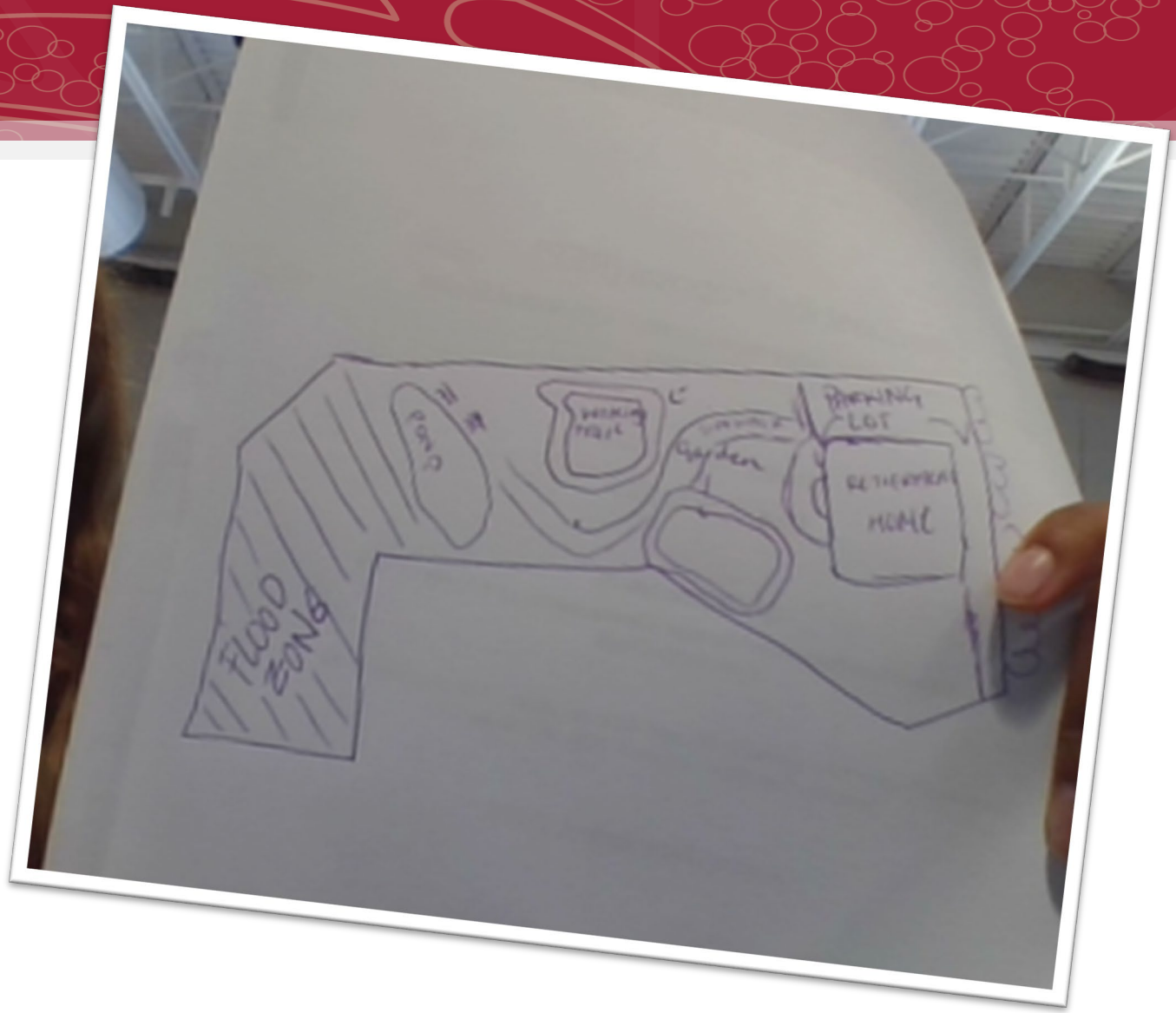


We chose to have an outdoor recreation center and a garden because they are good for the health of the people. The recreation center is a place for the community members to be able to go and play sports and workout. We also chose to grow a garden, so the community can work together and create a fun garden. The food from the garden would be given to a homeless shelter.We ended up with 13.8 million dollars after adding all of our additional charges.Our project was less about people's own entertainment but more about the people's health, which is the most important in the end!



Team 3

We plan to build a nursing home; it will be two stories with an elevator. The second story will be where the patients sleep and live, while the first story is where they “hang out” and have activities. There will also be a little doctors office, dining room, and nurses' station on the first floor. This aligns with the Envision Franklin Plan because eventually people get old and need a place to stay, this retirement home is the perfect place.



Team 4

JARM - Request for Proposal - Old Animal Shelter Renovation

Building this daycare will help the community by giving many kids from the nearby neighborhoods a safe place for their kids to go. Parents can drop their older kids off at the nearby Franklin High School, and their younger siblings off at our Daycare/Preschool soon after. This saves effort and time on their commute to work. The Academy Preschool won the Best of Parenting Award since 2008 and the Three Star Rated Educational Preschools. The Academy of Claude Yates will provide some of the best education in the city for children 6 weeks - 5 years old.

SCALORA CONSULTING GROUP

KV+D KISER VOGRIN DESIGN

906

Kimley»Horn

HISTORIC CITY OF FRANKLIN, TENNESSEE 1799

CCTE WILLIAMSON COUNTY SCHOOLS COLLEGE, CAREER & TECHNICAL EDUCATION



City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04839

DATE: June 21, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Vernon Gerth, Asst. City Administrator Community Development
Kelly Dannenfelser, Asst. Director of Planning
Anna Ruth Kimbrough

SUBJECT:

Presentation Update On The New City Hall Architecture Elevations

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) concerning an update on the New City Hall architectural elevations.

BACKGROUND/STAFF COMMENTS:

In Fall 2020, the Board of Mayor and Aldermen (BOMA) selected Orchard, Hiltz, & McCliment, Inc d/b/a OHM Advisors and Studio 8 Design consulting team to work with the City on developing a masterplan for a new city hall, for the purposes of replacing the existing 'old mall' with a functional, efficient building and site that provides a plan for the long-term siting of City Hall on the historic Public Square. The resulting community engagement process established consensus on a broad vision for this public building and quadrant of Public Square. During the subsequent masterplanning process, the BOMA approved in concept the New City Hall Masterplan along with a goal for a reduced building size and full subgrade parking level. On April 13, 2022, the BOMA approved an amended Professional Services Agreement that authorized our consultant to proceed with Phase II - Schematic Design. The first few months included a reprogramming effort to reduce the building square footage, which included reductions in meeting and storage spaces, adjustments to office sizes, reductions in circulation areas, and maximization of the subgrade parking garage for certain programmatic elements. In late 2022, the BOMA requested staff evaluate the cost-benefit of developing a New City Hall on a site other than our current location on Franklin's Historic Public Square. While staff evaluated alternative sites within our historic downtown, the BOMA did authorize staff and our consultant, OHM Advisors and Studio 8 Design to proceed to 50% Schematic Design until a decision could be reached on the future location of our new City Hall.

Discussions with the BOMA occurred during sessions of April 25th and May 9th and on May 23, 2023 the BOMA passed Resolution 2023-43 to proceed with completion of the 100% Schematic Design plans for Franklin's New City Hall at its present location on the historic Public Square. The consultant team is proceeding with work and has completed its scheduled feedback discussion with the Design Review Committee of the Historic Zoning Commission on June 21, 2023. This presentation is intended as an update on the architectural elevation design work which is included as an attachment.

FINANCIAL IMPACT:

An amended Professional Services Agreement with OMH Advisors and Studio 8 Design for Phase II - Schematic Design was previously approved by the Board.

RECOMMENDATION:

Staff recommends that the Board of Mayor and Aldermen acknowledge the presentation update with the understanding the 75% Schematic Design will be presented in August/September.



Franklin City Hall

BOMA Work Session

Overview of Feedback on Elevation Concepts

11 July 2023

Overview of the Feedback Received

- **The Consultant team and staff surveyed BOMA and DRC members to gather individual feedback on four elevation concepts following the initial elevation study.**

- **The following five recurring themes were in the feedback received:**

1. An arched entrance is preferred facing Public Square

2. The use of more stone and architectural detailing gives the building a Civic presence while still blending well with the historic buildings on the Square and Main Street

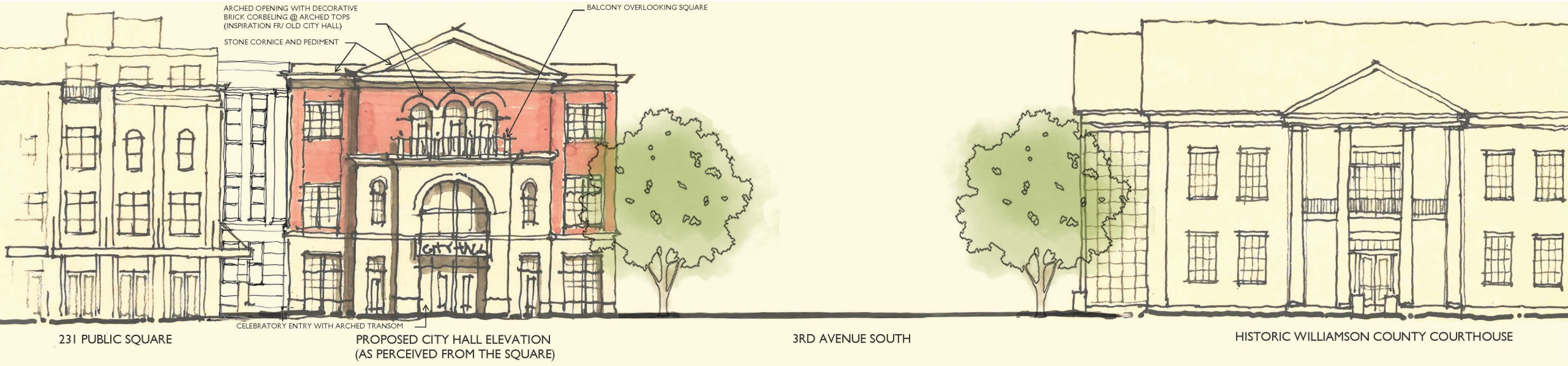
3. More variation in building materials, fenestration, roof parapet, and breaks in the façade are preferred along 3rd Avenue

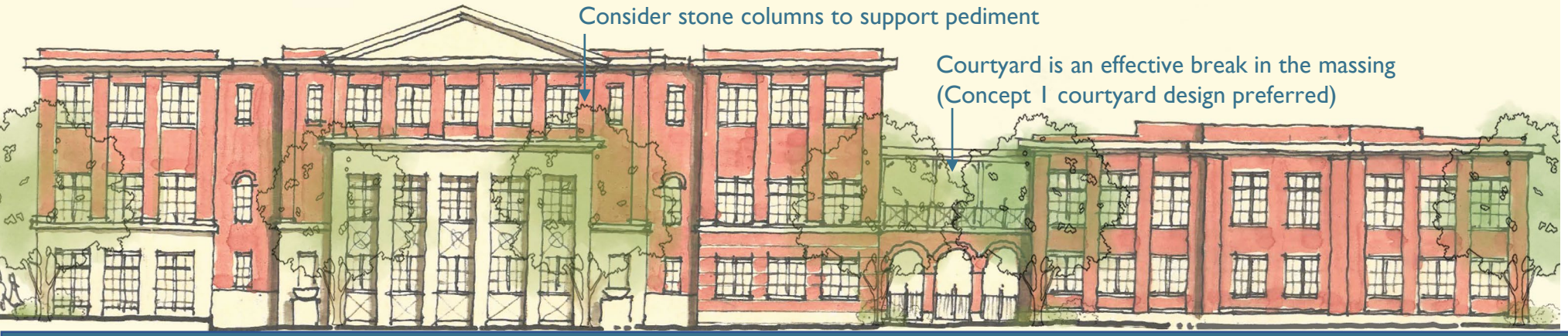
4. The courtyard and breezeway provide a nice transition between the three-story and two-story portion of the building on 3rd Avenue

5. The respondents generally agreed that the design of the two-story portion of city hall on 3rd Avenue needs further development

Feedback Received:

- Concept 1 is preferred
- In favor of an arched entry
- The use of more stone and architectural detailing gives the building a Civic presence
- The arched openings pay homage to the old city hall without mimicking
- Brings in classical elements such as the pediment and balcony without overtly copying the Courthouse
- The architectural detailing harmonizes nicely with the historic architecture of the Square and Main Street



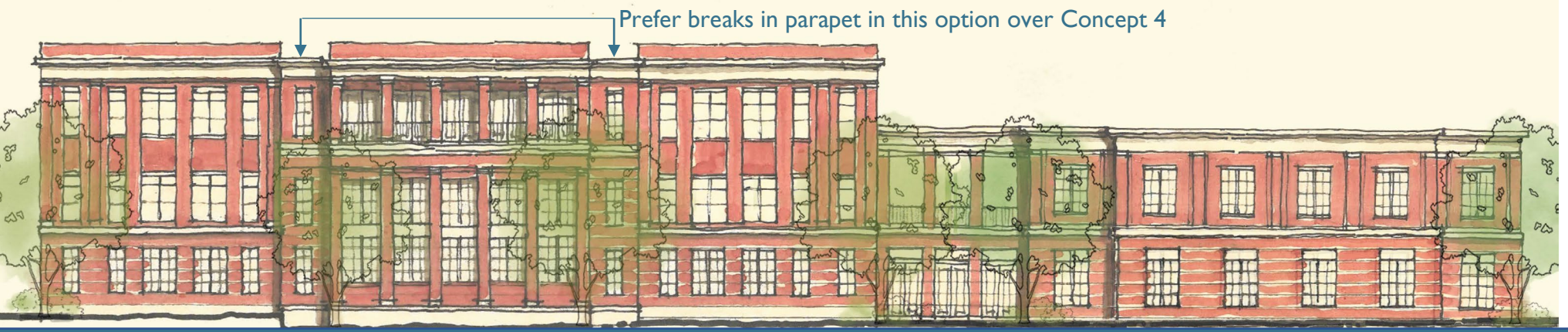


CONCEPT 1

Concept 1 Feedback:
Concept 1 is preferred

Use more stone to break up massing
(Look at stone on 2-story portion)

Portion of elevation @ Board Room still looks like an entrance



CONCEPT 3

Concept 3 Feedback:
Use more stone to break up massing

Further development of 2 story portion

Prefer breaks in the parapet in this option over Concept 4.

Mixed feedback on balcony



CONCEPT 4

Concept 4 Feedback:
Positive response to variation in materials and windows

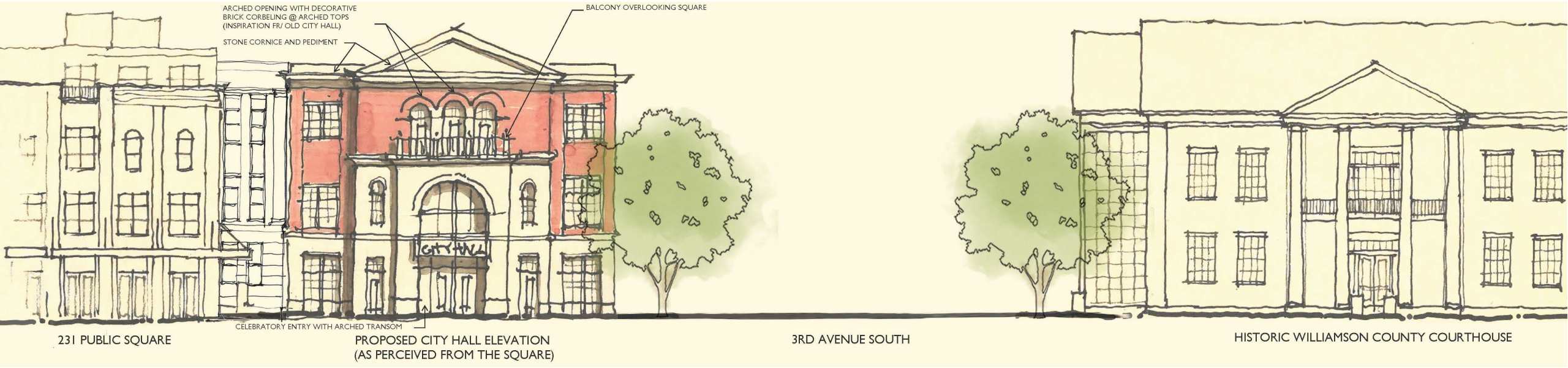
Mixed feedback on balcony

Two story should read as a different building

Like the Courtyard but prefer arches in Concept 1

Public Square Elevation:

- Concept 1 preferred
- Need to see 231 Public Square and Courthouse in color in future renderings
- No precedent for a balcony, maybe unoccupied balcony so railings can be lower than code required height
- Devil is in the details – look at traditional proportions
- Arch can come off as cheap if storefront and the stone around it is not detailed properly
- Keep simple, black canopy in the middle of the arch to provide covering and break up scale of arch
- Look at more space above arch to top of 2-story stone element
- Look to the Four Corners of Government in Charleston as good examples of arched openings



Third Avenue Elevation:

- Concept 1 is preferred
- Like transition at corner from Public Square elevation on Concept 1
- Look at stone columns supporting pediment at level 3 instead of brick
- Study the incorporation of a balcony / terrace at level 3 above the Board Room
- Like variation in the height of the stone along the base of Concept 1
- Like the arches in the courtyard connector/breezeway of Concept 1
- Prefer variation in the parapet breaks and window types
- Incorporate bases on the pilasters at the ground level of the Board Room
- Look at a 3-window bay on center of two-story portion of building
- Study a change in materiality on the cornice of the two-story portion



Next Steps

- **July 31st, 2023: Special DRC Meeting**
  Review 75% Schematic Design Building Elevations

- **August 22nd, 2023: BOMA Work Session**
  Update on 75% Schematic Design Progress

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04840

DATE: June 21, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Paul Holzen, Director of Engineering
Lisa Clayton, Director of Parks
Jonathan Marston, Asst. Director of Engineering
Shahad Abdulrahman, Staff Engineer

SUBJECT:

*Consideration Of Resolution 2023-52, A Resolution To Award The Construction Contract (COF Contract No. 2022-0315) For The "Bicentennial Park" Project (COF Project No. 2016-005) To Sain Construction Company In The Amount Of $10,281,197

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) concerning Resolution 2023-52 to award the construction contract for the Bicentennial Park project.

BACKGROUND/STAFF COMMENTS:

In 2019, the BOMA included the Bicentennial Park project on its list of adopted projects for the fiscal years (FYs) 2019-2028 Capital Investment Program (CIP). On June 15, 2023, city staff received, opened, and publicly read aloud bid submittals for the construction of Bicentennial Park. Three (3) bids were received, but only 2 of the bids were deemed to be fully responsive. One (1) of the bidders did not return the full Project Manual as stated in the "Instructions to Bidders." Fortunately, this bidding error did not affect the selection of the apparent low bid. The apparent low bidder is Sain Construction Company. During the review and tabulation of the bid submittals, staff discovered several small math errors in the bid submittals. After adjusting the bid totals to account for these minor errors, the *corrected* total for the apparent low bidder, Sain Construction Company, is $10,281,197.00.

FINANCIAL IMPACT:

The construction contract for this project totals $10,281,197. This project is included in the approved Capital Investment Program and Capital Project Funding Plan. Project funding is from Parkland Dedication (Quadrant 4) and general capital project sources. This bid cost will be included in the updated CIP funding model.

RECOMMENDATION:

Staff recommends that the Board of Mayor and Aldermen approve Resolution 2023-52.

RESOLUTION 2023-52

A RESOLUTION TO AWARD THE CONSTRUCTION CONTRACT (COF CONTRACT NO. 2022-0315) FOR THE "BICENTENNIAL PARK" PROJECT (COF PROJECT NO. 2016-005) TO SAIN CONSTRUCTION COMPANY IN THE AMOUNT OF $10,281,197.00.

WHEREAS, on August 13, 2019, the City of Franklin Board of Mayor and Aldermen (BOMA) approved Resolution 2019-68 to adopt the project list for fiscal years (FYs) 2019-2028 Capital Investment Program (CIP); and

WHEREAS, said Resolution 2019-68 included "Bicentennial Park" as an approved project; and

WHEREAS, on June 15, 2023, sealed bids for the construction of "Bicentennial Park" were received by the City of Franklin staff at City Hall, 109 3rd Avenue South, Franklin, Tennessee 37064, were opened, and were read aloud; and

WHEREAS, after careful review and tabulation of the submitted bids, City staff recommends award of the construction contract (COF Contract No. 2022-0315) for "Bicentennial Park" (COF Project No. 2016-005) to the lowest responsive and responsive bidder, Sain Construction Company, in the corrected bid amount of Ten Million Two Hundred Eighty-One Thousand One Hundred Ninety-Seven and No/100 Dollars ($10,281,197.00).

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF FRANKLIN, TENNESSEE, AS FOLLOWS:

Approval is granted to award the construction contract (COF Contract No. 2022-0315) for "Bicentennial Park" (COF Project No. 2016-005) to Sain Construction Company in the amount of Ten Million Two Hundred Eighty-One Thousand One Ninety-Seven and No/100 Dollars ($10,281,197.00).

IT IS SO RESOLVED AND DONE on this ____ day of _____, 2023.

ATTEST:

By: _____
Eric S. Stuckey
City Administrator

CITY OF FRANKLIN, TENNESSEE:

By: _____
Dr. Ken Moore
Mayor

Approved as to form:

By: _____
William E. Squires
Assistant City Attorney

Law Dept approved 06.21.23

HISTORIC
FRANKLIN
TENNESSEE

PROJECT MANUAL

Bicentennial Park
COF Contract No. 2022-0315

May 2023

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PROJECT MANUAL
Bicentennial Park
Contract No: **2022-0315**
CITY OF FRANKLIN, TENNESSEE

SECTION 00000
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00520	Agreement Between Owner and Contractor for Construction Contract
00540	Retainage Agreement (Required on all contracts greater than or equal to $500,000)
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Appendix A – Supplemental Specifications

Appendix B – Special Provisions

Appendix C - Permits

ATTENTION

It shall be the bidders' responsibility to confirm that the Proposal Contract contains all the documents indicated on the Table of Contents. Should any omissions occur, the appropriate documents may be obtained from the City of Franklin upon request.

END OF TABLE OF CONTENTS

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CITY OF FRANKLIN, TENNESSEE

ADVERTISEMENT FOR BIDS

NOTICE IS HEREBY GIVEN that the City of Franklin, Tennessee will receive sealed bids, subject to the conditions contained herein, in the **Building and Neighborhood Services (BNS) Department at Suite 110 of City Hall, 109 3rd Avenue South, Franklin, TN 37064 until 2:00 PM (CDT) on Thursday, June 15, 2023**, at which time the Bids will be publicly opened and read aloud for the following Project:

BICENTENNIAL PARK
COF Contract No: **2022-0315**

The Project generally consists of the furnishing of all materials, equipment and labor for the construction of the following Work: **earthwork, utilities, construction of pre-engineered metal building (PEMB), concrete flatwork, paving, landscaping, and hardscape installation as shown on the design plans.**

The Issuing Office for the Bidding Documents is the Engineering Department for the City of Franklin, TN. Copies of the Contract Documents may be obtained at the Building and Neighborhood Services (BNS) Department, City Hall, 109 Third Ave South, Suite 110, Franklin, Tennessee, by paying a **non-refundable** fee of $**100** per set of said Bidding Documents. Receipt of payment will place Bidder on an approved list. Prospective bidders may examine the Bidding Documents by visiting the City of Franklin, TN "Business Opportunities with the City" webpage.

https://www.franklintn.gov/business/business-opportunities-with-the-city-1494

Each Bid must be submitted on the Bid Form(s) provided in the Contract Documents along with the other documents required, including but not limited to the Drug Free Affidavit as required by T.C.A. § 50-9-113, and either accompanied by a Bid security, properly executed on the form provided or a Certified Check or Cashier's Check drawn on a National or Tennessee Bank in the amount of 5% of the Total Bid Price.

The envelope containing the vendors bid must be sealed and contain on the face of the envelope the word "BID", the name of the Project, Bidder's Name, license number, expiration date thereof and license classification in accordance with State law (TCA § 62-6-119). Masonry, electrical, plumbing, heating, ventilation, and air conditioning as well as any additionally required Subcontractors' name, license number, expiration date thereof, and license classification in accordance with State Law (TCA § 62-6-119), and the Time and Date of the Bid Opening shall also appear on the envelope. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

All Bidders' must be licensed contractors as required by the Contractor Licensing Act of 1976 (TCA Title 62, ch.6).

The City of Franklin, TN is an equal opportunity affirmative action employer, drug-free, with policies of nondiscrimination on the basis of race, sex religion, color, national or ethnic origin, age disability, or military service.

The City of Franklin does not discriminate on the basis of race, color national origin, age, sex or disability in its hiring and employment practices, or in admission to, access to, or operation of its programs, services, and activities with regard to all aspects of this Contract. By submitting a Bid, the Bidder certifies and warrants they will also comply.

Bids received more than seventy-two (72) hours, excluding Saturdays, Sundays, and legal holidays before the time set for opening of bids, as well as bids received after the time set for opening of bids, shall not be considered and will be returned unopened.

The Owner reserves the right to revise or amend the Bidding Documents prior to the date set for the opening of Bids and the right to waive any informality in or to reject any and all bids. Bids lacking required documents or not submitted in accordance with Tennessee State Bidding Laws will be rejected and may subject bidder to a one (1) year ban from submittal on future City of Franklin, TN projects. For additional information call **Shahad Abdulrahman, Project Manager, at (615) 791-3218 or by email at Shahad.Abdulrahman@FranklinTN.gov.**

END OF ADVERTISEMENT FOR BID

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.

2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.

2.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.

2.04 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders with the Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.

2.05 *Electronic Documents*

A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.

1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not

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guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

C. After the Contract is awarded, the Owner will provide or direct the Engineer to provide for the use of the Contractor documents that were developed by Engineer as part of the Project design process, as Electronic Documents in native file formats.

1. Release of such documents will be solely for the convenience of the Contractor. No such document is a Contract Document.

2. Unless the Contract Documents explicitly identify that such information will be available to the Successful Bidder (Contractor), nothing herein will create an obligation on the part of the Owner or Engineer to provide or create such information, and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the Work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital information provided in Electronic Documents is appropriate and adequate for the Contractor's specific purposes.

3. In no case will the Contractor be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within **5** days of Owner's request, Bidder must submit the following information:

A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.

B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.

C. Bidder's state or other contractor license number, if applicable.

D. Subcontractor and Supplier qualification information.

E. Other required information regarding qualifications.

3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

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3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

4.01 Bidder shall refer to the Advertisement for Bids to determine if a pre-bid conference will be conducted for this Project and determine the time and location for the pre-bid conference.

A. If the Advertisement or invitation to bid indicate there is a non-mandatory pre-bid conference, then representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.

B. If the Advertisement or invitation to bid indicate there is a mandatory pre-bid conference, then, Representatives of Owner and Engineer will be present to discuss the Project. Proposals will not be accepted from Bidders who do not attend the conference. It is each Bidder's responsibility to sign in at the pre-bid conference to verify its participation. Bidders must sign in using the name of the organization that will be submitting a Bid. A list of qualified Bidders that attended the pre-bid conference and are eligible to submit a Bid for this Project will be issued in an Addendum.

4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 *Site and Other Areas*

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:

a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.

b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.

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c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

d. Technical Data contained in such reports and drawings.

2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

4. *Geotechnical Baseline Report/Geotechnical Data Report:* The Bidding Documents contain a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR).

a. As set forth in the Supplementary Conditions, the GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.

b. The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.

c. Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.

d. As set forth in the Supplementary Conditions, the GDR is a Contract Document containing data prepared by or for the Owner in support of the GBR.

B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 *Other Site-related Documents*

A. No other Site-related documents are available.

5.04 *Site Visit and Testing by Bidders*

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A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.

B. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following Owner or Engineer contact for visiting the Site. Bidder must conduct the required Site visit during normal working hours.

C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

D. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

E. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 *Owner's Safety Program*

A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 *Other Work at the Site*

A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.

B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

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ARTICLE 7—INTERPRETATIONS AND ADDENDA

7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.

7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as indicated in the Advertisement for Bids.

7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than three days prior to the date for opening of Bids may not be answered.

7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **5** percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.

8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.

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9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.

10.02 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.

10.03 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Engineer a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening.

11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Engineer may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder's Bid price will be increased (or

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decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

12.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."

12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.

12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.

12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.

12.06 A Bid by an individual must show the Bidder's name and official address.

12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.

12.08 All names must be printed in ink below the signatures.

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12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.

12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.

12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located.

12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure.

ARTICLE 13—BASIS OF BID

13.01 *Unit Price*

A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.

B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

ARTICLE 14—SUBMITTAL OF BID

14.01 Each Bid must be submitted on the bid Form(s) provided in the Contract Documents along with the entire Project Manual and the other documents required, including but not limited to the Statement of License Certification, Drug Free Affidavit as required by T.C.A § 50-9-113, and either accompanied by a Bid Bond Form, properly executed on the form provided or a Certified Check or Cashier's Check drawn on a National or Tennessee Bank in the amount of 5% of the Total Bid Price.

14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid. The envelope containing the vendors bid must be sealed and contain on the face of the envelope the word "BID", the name of the Project, Bidder's Name, license number, expiration date thereof and license classification in accordance with State law (TCA § 62-6-119). Masonry, electrical, plumbing, heating, ventilation, and air conditioning as well as any additionally required Subcontractors' name, license number, expiration date thereof, and license classification in accordance with State Law (TCA § 62-6-119), and the Time and Date of the Bid Opening shall also appear on the envelope. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

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14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.

15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

16.02 Bids will be opened privately.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.

18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

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18.05 *Evaluation of Bids*

A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.

19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

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BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to the office of the **Building and Neighborhood Services (BNS) Department at Suite 110 of City Hall, 109 3rd Avenue South, Franklin, TN 37064**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:

A. The entire Project Manual;

B. Required Bid security;

C. Drug Free Affidavit;

D. Statement of License Certification;

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

3.01 *Unit Price Bids*

A. Bidder will perform the Work at the indicated unit prices on the Bid Form, as shown on **Exhibit A – Bid Form**.

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and

2. estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

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ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date
Addendum # 1	06/06/2023

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder's Representations*

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and

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performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

3. Bidder has not solicited or induced any individual or entity to refrain from bidding.

4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:

a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.

b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.

c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.

d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

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BIDDER hereby submits this Bid as set forth above:

Bidder: Sain Construction Company
(typed or printed name of organization)

By: _____
(individual's signature)

Name: James L. Sain
(typed or printed)

Title: Owner
(typed or printed)

Date: 06/15/2023
(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices:
713 Vincent Street
Manchester, TN 37355

Bidder's Contact:

Name: David Hite
(typed or printed)

Title: CFO / Controller
(typed or printed)

Phone: (931) 728-7644

Email: dhite@sainconstruction.com

Address:
713 Vincent Street
Manchester, TN 37355

Bidder's Contractor License No.: (if applicable) 6700

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EXHIBIT A - BID FORM for COF Contract No. 2022-0315

for **Bicentennial Park** (COF Project No. 2016-005)

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE ($)	EXT. AMOUNT ($)
105-01	CONSTRUCTION STAKES, LINES AND GRADES	LS	1	163,111.00	163,111.00
201-01.03	CLEARING AND GRUBBING	LS	1	185,074.00	185,074.00
02 41 00	DEMOLITION	LS	1	165,117.00	165,117.00
202-13.01	WELL ABANDONMENT	LS	1	4400.00	4,400.00
31 20 00.01	ROAD & DRAINAGE EXCAVATION (ONSITE & HAUL-OFF)	LS	1	453,207.00	453,207.00
31 20 00.02	ROAD & DRAINAGE EXCAVATION (HAUL-OFF TO LANDFILL)	TON	729	136/ton	99,144.00
31 20 00.03	FURNISHING & SPREADING TOPSOIL	LS	1	137,028.00	137,028.00
204-06.01	FLOWABLE FILL (GENERAL)	C.Y.	20	523.00	10,460.00
209-08.02	TEMPORARY SILT FENCE (WITH BACKING)	L.F.	470	7.00	3,290.00
209-08.08	ENHANCED ROCK CHECK DAM	EACH	1	794.00	794.00
209-09.04	SEDIMENT FILTER BAG(15' X 10')	EACH	1	227.00	227.00
209-09.40	CURB INLET PROTECTION (TYPE 1)	EACH	18	228.00	4,104.00
209-11.20	SEDIMENT BASIN BAFFLES	L.F.	200	12.00	2,400.00
209-40.33	CATCH BASIN PROTECTION (TYPE D)	EACH	13	325.00	4,225.00
CP-10	CONCRETE WASHOUT	EACH	1	17,047.00	17,048.00

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EXHIBIT A - BID FORM for COF Contract No. 2022-0315
for **Bicentennial Park** (COF Project No. 2016-005)

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE ($)	EXT. AMOUNT ($)
303-01	MINERAL AGGREGATE, TYPE A BASE, GRADING D	TON	2,700	49.00	132,300.00
303-10.01	MINERAL AGGREGATE (SIZE 57)	TON	2,200	48.00	105,600.00
303-10.02	MINERAL AGGREGATE (SIZE 2)	TON	15	75.00	1,125.00
306-01.03	PORTLAND CEMENT CONCRETE BASE (REINFORCED) 6"	S.Y.	900	87.00	78,300.00
306-05.01	PORTLAND CEMENT CONCRETE BASE (PLAIN) 10"	S.Y.	10	473.00	4,730.00
307-01.08	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING B-M2	TON	620	148.00	91,760.00
307-02.01	ASPHALT CONCRETE MIX (PG70-22) (BPMB-HM) GRADING A	TON	770	142.00	109,340.00
402-01	BITUMINOUS MATERIAL FOR PRIME COAT (PC)	TON	5.6	1,701.00	9,525.60
402-02	AGGREGATE FOR COVER MATERIAL (PC)	TON	20	74.00	1,480.00
403-02.01	TRACKLESS TACK COAT	TON	1.9	806.00	1,531.40
407-20.05	SAW CUTTING ASPHALT PAVEMENT	L.F.	500	7.00	3,500.00
411-01.10	ACS MIX(PG64-22) GRADING D	TON	390	173.00	67,470.00
415-01.02	COLD PLANING	S.Y.	353	28.00	9,884.00
501-01.01	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 8"	S.Y.	990	100.00	99,000.00
607-02.30	15" CONCRETE PIPE CULVERT (CLASS III)	L.F.	320	167.00	53,440.00

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EXHIBIT A - BID FORM for COF Contract No. 2022-0315 for **Bicentennial Park** (COF Project No. 2016-005)					
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**EST. QTY.**	**UNIT PRICE ($)**	**EXT. AMOUNT ($)**
607-03.02	18" CONCRETE PIPE CULVERT (CLASS III)	L.F.	1,128	204.00	230,112.00
607-05.02	24" CONCRETE PIPE CULVERT (CLASS III)	L.F.	248	192.00	47,616.00
607-06.02	30" CONCRETE PIPE CULVERT (CLASS III)	L.F.	80	243.00	19,440.00
607-07.02	36" CONCRETE PIPE CULVERT (CLASS III)	L.F.	656	308.00	202,048.00
22 14 13.3	6-INCH PVC STORM LINE	L.F.	420	366.00	153,720.00
22 14 13.4	12-INCH PVC STORM LINE	L.F.	780	164.00	13,820.00
611-01.02	MANHOLES, > 4' - 8' DEPTH (7'x8' MANHOLE, 5'2"x5'2" MANHOLE)	EACH	4	13,800.00	55,200.00
611-02.11	OUTLET STRUCTURES	EACH	2	9,707.00	19,414.00
611-07.54	18IN ENDWALL (CROSS DRAIN) 3:1	EACH	3	4,116.00	12,348.00
611-07.57	24IN ENDWALL (CROSS DRAIN) 3:1	EACH	4	2,665.00	10,660.00
611-07.63	36IN ENDWALL (CROSS DRAIN) 3:1	EACH	1	4,967.00	4,967.00
611-12.01	CATCH BASINS, TYPE 12, 0' - 4' DEPTH	EACH	5	8,618.00	43,090.00
611-12.02	CATCH BASINS, TYPE 12, > 4' - 8' DEPTH	EACH	14	9,072.00	127,008.00
611-14.02	CATCH BASINS, TYPE 14, > 4' - 8' DEPTH	EACH	2	13,143.00	26,286.00
611-43.01	CATCH BASINS, TYPE 43, 0' - 4' DEPTH	EACH	3	8,686.00	26,058.00

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EXHIBIT A - BID FORM for COF Contract No. 2022-0315
for **Bicentennial Park** (COF Project No. 2016-005)

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE ($)	EXT. AMOUNT ($)
611-43.02	CATCH BASINS, TYPE 43, > 4' - 8' DEPTH	EACH	3	10,569.00	31,707.00
33 42 03.3	30" NYLOPLAST DRAIN BASIN	EACH	6	6,520.00	39,120.00
GIP-01	LEVEL 2 BIORETENTION POND (INCLUDES PVC LINER, 6" PVC UNDERDRAINS)	LS	1	164,345.00	164,345.00
701-01.01	CONCRETE SIDEWALK (4 ")	S.F.	640	9.00	5,760.00
701-01.10	CONCRETE STEPS & AMPHITHEATER SEATING	LS	1	140,489.00	140,489.00
701-01.20	BRICK SIDEWALK	S.Y.	685	253.00	173,305.00
701-01.21	BRICK ACCENT BANDS	S.Y.	115	342.00	39,330.00
32 13 16	DECORATIVE CONCRETE - STAMPED INTEGRAL COLOR SIDEWALK (4 ")	S.F.	7,100	10.00	71,000.00
32 13 16.1	DECORATIVE CONCRETE - RAILROAD STAMPED SIDEWALK (4 ")	S.F.	3,500	13.00	45,500.00
701-02	CONCRETE DRIVEWAY	S.F.	900	13.00	11,700.00
702-01.02	CONCRETE CURB	C.Y.	65	694.00	45,110.00
709-05.06	MACHINED RIP-RAP (CLASS A-1)	TON	50	120.00	6,000.00
709-05.08	MACHINED RIP-RAP (CLASS B)	TON	200	136.00	27,200.00
712-06	SIGNS (CONSTRUCTION)	S.F.	116	71.00	8,236.00
712-07.03	TEMPORARY BARRICADES (TYPE III)	L.F.	100	40.00	4,000.00

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EXHIBIT A - BID FORM for COF Contract No. 2022-0315
for **Bicentennial Park** (COF Project No. 2016-005)

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE ($)	EXT. AMOUNT ($)
712-04.01	FLEXIBLE DRUMS (CHANNELIZING)	EACH	30	104.00	3,120.00
716-02	PLASTIC PAVEMENT MARKING (4" LINE)	L.F.	1,100	6.00	6,600.00
716-02.03	PLASTIC PAVEMENT MARKING (CROSS-WALK)	L.F.	110	43.00	4,730.00
716-02.05	PLASTIC PAVEMENT MARKING (STOP BAR)	L.F.	60	69.00	4,140.00
716.04-05	PLASTIC PAVEMENT MKG (STRAIGHT ARROW)	EACH	3	605.00	1,815.00
716-04.10	PLASTIC PAVEMENT MKG (HANDICAP SYMBOL)	EACH	2	1,295.00	2,590.00
725-23.11	FIBER OPTIC CABLE (60 F)	L.F.	650	29.00	18,850.00
790-74.05	FIBER OPTIC CABLE (24 F)	L.F.	275	41.00	11,275.00
730-03.24	INSTALL PULL BOX (FIBER OPTIC-TYPE B)	EACH	3	2,138.00	6,414.00
740-10.03	GEOTEXTILE (TYPE III) (EROSION CONTROL)	S.Y.	40	17.00	680.00
740-11.02	TEMPORARY SEDIMENT TUBE 12IN	L.F.	1,240	5.00	6,200.00
771-30.32	CONCRETE COMBINED CURB & GUTTER	C.Y.	120	591.00	70,920.00
795-51.01	BOLLARD	EACH	14	1,053.00	14,742.00
797-07.36	84IN MANHOLE 6FT-8FT DEPTH	EACH	1	13,316.00	13,316
797-07.38	84IN MANHOLE 10FT-12FT DEPTH	EACH	1	15,182.00	15,182

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EXHIBIT A - BID FORM for COF Contract No. 2022-0315 for **Bicentennial Park** (COF Project No. 2016-005)					
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**EST. QTY.**	**UNIT PRICE ($)**	**EXT. AMOUNT ($)**
802-05.01	TEMPORARY TREE PROTECTION	LS	1	5,830.00	5,830.00
805-12.02	EROSION CONTROL BLANKET (TYPE II) (S150BN)	S.Y.	3,000	3.00	9,000.00
805-12.03	EROSION CONTROL BLANKET (TYPE III) (SC250)	S.Y.	655	7.00	4,585.00
W1	6" CLASS 350 DIP WATER MAIN	L.F.	237	154.00	36,498.00
W1.1	8" CLASS 350 DIP WATER MAIN	L.F.	23	381.00	8,763.00
W1.2	4" DIP RESTRAINED JOINT WATER LINE	L.F.	8	700.00	5,600.00
W5	1" TYPE K COPPER WATER SERVICE LINE	L.F.	320	85.00	27,200.00
W5.1	1-1/2" TYPE K COPPER WATER SERVICE LINE	L.F.	265	102.00	27,030.00
W5.2	2" TYPE K COPPER WATER SERVICE LINE	L.F.	25	252.00	6,300.00
W10	2" GATE VALVE AND BOX	EACH	2	2,496.00	4,992.00
W10.1	6" GATE VALVE AND BOX	EACH	1	3,860.00	3,860.00
W10.2	6" POST INDICATOR VALVE	EACH	1	7,579.00	7,579.00
W10.3	6" FIRE DEPARTMENT CONNECTION	EACH	1	6,950.00	6,950.00
W10.4	8" GATE VALVE AND BOX	EACH	1	5,014.00	5,014.00
W12	10" X 8" TAPPING SLEEVE, VALVE AND VALVE BOX	EACH	1	29,431.00	29,431.00

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EXHIBIT A - BID FORM for COF Contract No. 2022-0315
for **Bicentennial Park** (COF Project No. 2016-005)

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE ($)	EXT. AMOUNT ($)
W16	6" REDUCED PRESSURE BACKFLOW PREVENTER W/ SAFE-T-COVER	EACH	1	33,990.00	33,990.00
W17	2" IRRIGATION REDUCED PRESSURE BACKFLOW PREVENTER WITHOUT SAFE-T-COVER	EACH	1	10,320.00	10,320.00
W19	2" WATER METER ASSEMBLY, VALVES AND VAULT	EACH	2	13,410.00	26,820.00
SS1	10" DIP CL 350 W/PROTECTO-401 LINED GRAVITY SEWER MAIN	L.F.	384	371.00	142,464.00
SS3	10" PVC SDR35 GRAVITY SEWER MAIN	L.F.	86	278.00	23,908.00
SS8	CONNECT 10" GRAVITY SANITARY SEWER TO EXISTING MANHOLES	EACH	2	12,955.00	25,910.00
SS10	CUT & CAP/PLUG EXISTING 10" SANITARY SEWER MAIN	EACH	2	6,763.00	13,526.00
SS11	4' DIAMETER SANITARY SEWER MANHOLE	EACH	2	12,955.00	25,910.00
SS16	ABANDON EXISTING MANHOLE IN PLACE	EACH	1	5,830.00	5,830.00
SS17	FLOWABLE FILL EXISTING SANITARY SEWER AND MH	C.Y.	10	1,341.00	13,410.00
SS19	SEWER TELEVISION INSPECTION	L.F.	470	15.00	7,050.00
FM9	SANITARY SEWER FLOW CONTROL	LS	1	24,219.00	24,219.00
05 12 00.01	ELECT./RISER ROOM BUILDING	LS	1	291,511.00	291,511.00
05 52 13	NEW HAND RAILING @ AMPH. & PERGOLA (GALVANIZED, PAINTED)	L.F.	80	210.00	16,800.00
05 52 13.1	NEW RAILING @ PAVILION (PAINTED)	L.F.	664	187.00	124,168.00

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EXHIBIT A - BID FORM for COF Contract No. 2022-0315
for **Bicentennial Park** (COF Project No. 2016-005)

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE ($)	EXT. AMOUNT ($)
05 52 13.2	NEW RAILING @ PAVILION RAMPS (GALVANIZED, PAINTED)	L.F.	290	211.00	61,190.00
13 34 19	NEW PEMB PAVILION (STRUCTURE, SSM ROOF, GUTTERS, DOWNSPOUTS)	LS	1	711,319.00	711,319.00
05 12 00.02	NEW RAIN CURTAIN SUPPORTS AT PAVILION	LS	1	12,000.00	12,000.00
02 41 19	PAVILION FLOOR CLEANING, PATCHING & SEACHLANT	LS	1	23,611.00	23,611.00
05 51 33.17	SHIP LADDER	EACH	1	7,862.00	7,862.00
03 30 00.01	CONCRETE RETAINING WALLS & FOOTINGS (INCLUDES RAMP SLAB)	LS	1	647,000.00	647,000.00
03 30 00.02	NEW CONCRETE PEDESTALS	LS	1	22,549.00	22,549.00
05 12 13	TRELLIS STRUCTURE AT SE CORNER OF PAVILION	LS	1	300,270.00	300,270.00
04 43 13	HARDSCAPE - STONE VENEER WALLS/ COLUMNS	LS	1	95,500.00	95,500.00
21 05 18	DRY PIPE SPRINKLERS IN PAVILION (TOTAL SYSTEM COSTS)	LS	1	134,100.00	134,100.00
22 14 13	REFURBISH UNDERGROUND STORM IN PAVILION	LS	1	17,491.00	17,491.00
23 34 39	CIRCULATING (HVLS) FANS IN PAVILION	EACH	6	17,491.00	104,946.00
26 27 26	ELECTRICAL GENERAL RECEPTACLES	LS	1	17,491.00	17,491.00
26 51 19	ELECTRICAL GENERAL LIGHTING	LS	1	29,151.00	29,151.00
26 51 19.1	PAVILION - COLUMN DOWN-LIGHT	LS	1	17,491.00	17,491.00

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EXHIBIT A - BID FORM for COF Contract No. 2022-0315
for **Bicentennial Park** (COF Project No. 2016-005)

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE ($)	EXT. AMOUNT ($)
26 24 16	ELECTRICAL 800-AMP DISTRIBUTION PANEL	EACH	1	99,114.00	99,114.00
26 24 16.1	ELECTRICAL LIGHTING PANELBOARD/CONTROL-CENTER	EACH	1	28,396.00	28,396.00
26 24 16.2	ELECTRICAL 225A RECEPTACLE PANELBOARD	EACH	1	17,038.00	17,038.00
26 56 13	SITE LIGHTING - COF STREET LIGHTS	EACH	5	30,780.00	153,900.00
26 56 13.1	SITE LIGHTING - PARKING LOT LIGHTS	EACH	5	19,421.00	97,105.00
26 56 19	SITE LIGHTING - DUST COLLECTOR	EACH	4	2840.00	11,360.00
26 56 19.1	SITE LIGHTING - STONE WALL IN-GROUND LIGHTS	EACH	15	3,408.00	51,120.00
26 56 19.2	SITE LIGHTING - BANNER/FLAG POLE LIGHTS	EACH	3	3,408.00	10,224.00
26 56 19.3	SITE LIGHTING - BOLLARD LIGHTS ON GREENWAY	EACH	15	5,680.00	85,200.00
09 91 13	NEW COAT OF EXTERIOR PAINT	LS	1	74,399.00	74,399.00
23 82 39.19	ELECTRIC UNIT BLOWER HEATER	EACH	3	5,679.00	17,037.00
23 34 23	WALL MOUNTED EXHAUST FAN	EACH	2	8,519.00	17,038.00
23 34 23.1	WALL LOUVER WITH MECHANICAL DAMPER	EACH	2	8,519.00	17,038.00
22 11 16	HOSE BIBBS & DOMESTIC WATER PIPING SYSTEM W/ HEAT TRACING	L.F.	550	78.00	42,900.00
22 14 13.1	INTERNAL GUTTER AND STORM DRAIN PIPING	LS	1	48,403.00	48,403.00

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EXHIBIT A - BID FORM for COF Contract No. 2022-0315
for **Bicentennial Park** (COF Project No. 2016-005)

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE ($)	EXT. AMOUNT ($)
32 92 00	TURF AND GRASSES	LS	1	138,819 00	138,819 00
32 93 00	PLANTS	LS	1	550,494 00	550,494 00
31 37 00	NATURAL BOULDERS	TON	130	471 00	61,230 00
32 84 00	IRRIGATION	LS	1	163,830 00	163,830 00
12 93 00	SITE FURNISHINGS	LS	1	215,813 00	215,813 00
26 05 19	ELECTRICAL SERVICE	LS	1	582,521 00	582,521 00
				BID TOTAL:	10,281,201 00

TOTAL BID PRICE (*WORDS*): Ten Million Two hundred Eighty one thousand Two hundred one Dollars & 00/100

TOTAL BID PRICE (*FIGURES*): 10,281,201 00

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STATEMENT OF LICENSE CERTIFICATE
(COF Contract No. 2022-0315)

EACH CONTRACTOR BIDDING SHALL FILL IN AND SIGN THE FOLLOWING:

This is to certify that Sain Construction Company has fully complied with all requirements of Chapter 6 of Title 62 of the Tennessee Code Annotated. The Contractor's name, license number, expiration date of registration, and license classification appears on the envelope containing the Bid, and I understand otherwise the Bid will not be considered. Masonry, electrical, plumbing, heating, ventilation, and air conditioning subcontractor's name, license number, expiration date of registration, and license classification likewise appears on the envelope containing the bid, and I understand otherwise the Bid will not be considered. I further understand that failure to follow Tennessee State Bidding Laws will result in my bid being rejected and may subject my future Bids to be banned for at least one (1) year from the date of submittal of this Bid.

Sain Construction Company

Were issued Certificate No. 6700 on May 8, 1959 by the Tennessee State Board for Licensing Contractors.

Contractor:

(Signature)

James L. Sain
(Print Name)

Owner
(Title)

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DRUG-FREE WORKPLACE AFFIDAVIT
(COF Contract No. 2023-0024)

STATE OF Tennessee

COUNTY OF Coffee

The Undersigned, principal officer of Sain Construction Company, an employer of five (5) or more employees contracting with the City of Franklin, TN to provide construction services, hereby states under oath as follows:

1) The undersigned is a principal officer of Sain Construction Company (hereinafter referred to as the "Contractor") and is duly authorized to execute this Affidavit on behalf of the Contractor.
2) The Contractor submits this Affidavit pursuant to T.C.A 50-9-113, which required each employer with no less than five (5) employees receiving pay who contracts with the state or any local government to provide construction services to submit an affidavit stating that such employer has a drug-free workplace program that complies with Title 50, Chapter 9, of the Tennessee Code Annotated.
3) The Contract is in compliance with T.C.A. 50-9-113

Further affiant saith not.

(Signature of Principal Officer)

James L. Sain
(Printed Name of Principal Officer)

Sain Construction Company
(Printed Contractor Name)

(Notary on following Page)

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STATE OF Tennessee

COUNTY OF Coffee

Personally appeared before me, the undersigned, a Notary Public of said State and County, the within named James L. Sain, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who, upon oath, acknowledge that he or she executed the within instrument for the purposes therein contained and who further acknowledged that he or she is the Owner of the maker or a constituent of the maker and is authorized by the maker or by its constituent, the constituent being authorized by the maker, to execute this instrument on behalf of the maker.

WITNESS my hand and seal this 15th day of June, 2023.

Kimberly L Sanders

Notary Public

My Commission Expires: 1-27-26

KIMBERLY L. SAUNDERS
STATE OF TENNESSEE NOTARY PUBLIC
COFFEE COUNTY

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IRAN DIVESTMENT ACT CERTIFICATION

By submission of a bid or proposal to the City of Franklin, the Bidder and each person signing on behalf of any Bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that neither they, nor any assignee of the resulting contract, is on the list created pursuant to T.C.A. § 12-12-106. The Bidder further certifies that it shall not utilize any subcontractor identified on the list created pursuant to T.C.A. § 12-12-106. This list is generated to identify entities ineligible to contract with the State of Tennessee or any political subdivision of the State pursuant to the Iran Divestment Act, T.C.A. §§ 12-12-101 – 113, and the current list may be found at the Tennessee Department of General Services, Central Procurement Office, website under the Public Information Library webpage at the following link:

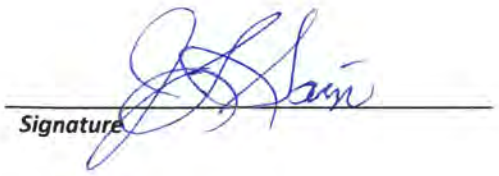
https://www.tn.gov/generalservices/procurement/central-procurement-office--cpo-/library-/public-information-library.html

This certification shall not be necessary and shall not apply to contracts valued at one thousand dollars ($1,000.00) or less.

CERTIFICATION

(COF Contract No. 2022-0315)

The Bidder certifies that, to the best of its knowledge and belief, it is not on the Iran Divestment Act list as described above.



Signature

06/15/2023
Date

James L. Sain
Printed Name

Owner
Title

Sain Construction Company
Name of Firm/Company

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NON-BOYCOTT OF ISRAEL REQUIREMENTS

Tennessee Code Annotated § 12-4-119 (as enacted by Chapter 775 of the Public Acts of 2022) prohibits a public entity from entering into a contract with a company to acquire or dispose of services, supplies, information technology, or construction unless the contract includes a written certification that the company is not currently engaged in, and will not for the duration of the contract engage in, a boycott of Israel. This requirement does not apply to a contract with a total potential value of less than two hundred fifty thousand dollars ($250,000) or to contractors with less than ten (10) employees.

CERTIFICATION

(COF Contract No. 2022-0315)

The Contractor certifies that it is not currently engaged in, and covenants that it will not, for the duration of the Contract, engage in a Boycott of Israel, as that term is defined in Tenn. Code Ann. § 12-4-119

Signature | 06/15/2023 *Date*

James L. Sain *Printed Name* | Owner *Title*

Sain Construction Company *Name of Firm/Company*

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BID BOND (PENAL SUM FORM)

Bidder	**Surety**
Name: Sain Construction Company Address *(principal place of business)*: 713 Vincent Street Manchester, TN 37355	Name: Euler Hermes North America Insurance Company Address *(principal place of business)*: 800 Red Brook Boulevard Owings Mills, MD 21117
Owner	**Bid**
Name: **City of Franklin, TN** Address *(principal place of business)*: **109 3rd Ave South** **Franklin, TN 37064**	Project *(name and location)*: Bicentennial Park Improvements - COF 2022-0315 Bid

Bond

Penal Sum: Five Percent (5%) of the Total Bid Amount

Date of Bond: June 15, 2023

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

Bidder	Surety
Sain Construction Company *(Full formal name of Bidder)*	Euler Hermes North America Insurance Company *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature) (Attach Power of Attorney)*
Name: James L. Sain *(Printed or typed)*	Name: Greg Young *(Printed or typed)*
Title: Owner	Title: Attorney-in-Fact
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: David Hite *(Printed or typed)*	Name: Laura Attillisch *(Printed or typed)*
Title: Controller	Title: CL Operations Manager

Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.

MODIFIED - EJCDC® C-430, Bid Bond (Penal Sum Form).
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1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
    3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
    3.2. All Bids are rejected by Owner, or
    3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be litigated in the Tennessee Judicial Circuit Court in and for Williamson, County, Tennessee, and the prevailing party in any such litigation shall be entitled to an award of all reasonable attorney's fees, expenses and court cost incurred by the prevailing party against the non-prevailing party, including reasonable attorney's fees, expenses and taxed costs in connection with any appeals.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

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Allianz

Allianz Trade

27338

EULER HERMES NORTH AMERICA INSURANCE COMPANY
800 Red Brook Boulevard * Owings Mills, Maryland 21117

The number of persons authorized by this Power of Attorney is not more than: 2

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That EULER HERMES NORTH AMERICA INSURANCE COMPANY (EULER HERMES), a corporation organized and existing under the laws of the state of Maryland, does hereby nominate, constitute, and appoint the person or persons named below, each individually if more than one is named, its true and lawful attorney-in-fact, for and in its name, place, and stead to execute on behalf of EULER HERMES, as surety, any and all bonds, undertakings, and contracts of suretyship, or other written obligations in the nature thereof; provided that the liability of EULER HERMES on any such bond, undertaking, or contract of suretyship executed under this authority shall not exceed the limit stated below.

NAME	ADDRESS	LIMIT OF POWER
Tammy L. Masterson Greg Young	2305 River Road Louisville, KY 40206	Unlimited

This Power of Attorney revokes all previous powers issued on behalf of the attorney(s)-in-fact named above.

IN WITNESS WHEREOF, EULER HERMES has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunder affixed this 1st day of November, 20 22.

James Daly, President and CEO-The Americas

Nicholas P. Verna II, Senior Vice President and Regional Head of Surety and Guarantee, Americas

State of Maryland, County of Baltimore

On this 1st day of November, 20 22, before me personally appeared Nicholas P. Verna II, to me known, being duly sworn, deposes and says that he resides in Southeastern, PA; that he is Senior Vice President and Regional Head of Surety and Guarantee, Americas of Euler Hermes North America Insurance Company, the Company described herein and which executed the above instrument; that he know the seal of EULER HERMES; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the Board of Directors of EULER HERMES; and that he signed his name thereto by like authority.

Notary Public

Notarial Seal

This Commission Expires February 2, 2026

This Power of Attorney is granted by authority of the following resolutions adopted by the Board of Directors of EULER HERMES NORTH AMERICA INSURANCE COMPANY (Company) by unanimous consent on October 1, 2015.

RESOLVED: That the President, Executive Vice President, Senior Vice President, Vice President, Secretary, and Assistant Vice Secretary, be and hereby are authorized from time to time to appoint one or more Attorneys-in-Fact to execute on behalf of the company, as surety, and any and all bonds, undertakings and contracts of suretyship, or other written obligation in the nature thereof; to proscribe their respective duties and all respective limits of their authority; and to revoke any such appointment at any time.

RESOLVED FURTHER: That the Company seal and signature of the aforesaid officers and may be affixed by facsimile to any Power of Attorney given for the execution of any bond, undertaking, contract of suretyship, or other written obligations in the nature thereof, such signature and seal when so used being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as thought manually affixed.

CERTIFICATION

I, Nicholas P. Verna II, Senior Vice President and Regional Head of Surety & Guarantee, Americas of EULER HERMES NORTH AMERICA INSURANCE COMPANY, do hereby certify that the foregoing Power of Attorney and the Resolutions of the Board of Directors of October 1, 2015, have not been revoked and are now in full force and effect.

Signed and sealed this 15th day of June, 2023.

Nicholas P. Verna II, Senior Vice President and Regional Head of Surety and Guarantee, Americas

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NOTICE OF AWARD

CITY OF FRANKLIN, TN
109 3rd Ave South
Franklin, TN 37064

Date:
Owner Contract No.:
Project Name:
Bidder:
Bidder Address:

PROJECT: _____**, located in Franklin Tennessee for the City of Franklin, Tennessee**

The Owner has considered your Bid dated _____ for the above-described Contract, and you are the successful Bidder and are awarded a Contract for the above-described Project.

The Contract Price of the Contract is: $ _____

In accordance with the Instructions to Bidders and General Conditions, the Owner is providing you with two unexecuted counterparts of the Agreement. Within 15 days thereafter, you must provide the following:

1. Bidder must execute and deliver two counterparts of the Agreement;
2. Payment and Performance Bonds;
3. Deliver the certificates, endorsements and other evidence of insurance required in accordance with Article 6 of the General Conditions.

If you fail to comply with these conditions, the Owner will be entitled to consider you in default, annul this Notice of Award, and declare your Bid security forfeited. Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in the General Conditions.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Owner: City of Franklin, TN

Signature _____
Name: _____
Title: _____

Copy: Engineer

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CONSTRUCTION AGREEMENT BETWEEN OWNER AND CONTRACTOR (STIPULATED PRICE)

COF CONTRACT NO. 2022-0315

This Agreement is by and between the City of Franklin, Tennessee ("Owner") and _____ ("Contractor").

Terms used in this Agreement have the meanings stated in the City of Franklin General Conditions of the Construction Contract ("General Conditions").

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified and indicated in the Contract Documents. The Work is generally described as follows: **grading, utilities, construction of pre-engineered metal building (PEMB), concrete flatwork, paving, landscaping, and hardscape installation as shown on the design plans.**

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **the construction of the City of Franklin's "Bicentennial Park" (COF Project No. 2016-005), which includes: earthwork, utilities, stormwater improvements, an open-air pavilion, sidewalks, a parking lot, landscaping, and decorative hardscape.**

ARTICLE 3—ENGINEER

3.01 The Owner has retained **City of Franklin, TN ("COF") Engineering Department Staff** ("Engineer") as Owner's design engineer for the Project. Engineer shall have only those duties, responsibilities, rights, and authority assigned to Engineer in the Contract Documents.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and Final Completion are of the essence of the Contract.

4.02 *Contract Times*

A. The Work shall be substantially complete within **Five Hundred Forty (540)** days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and finally complete within **Ninety (90)** days after Substantial Completion.

4.03 *Milestones*

A. If indicated below, parts of the Work shall be substantially completed on or before the following Milestone(s):

EJCDC® C-520, Agreement between Owner and Contractor for Construction Contract (Stipulated Price).
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1. Milestone 1: **N/A**
2. Milestone 2: **N/A**
3. Milestone 3: **N/A**

4.04 *Liquidated Damages and Bonus*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01, that Owner will suffer financial and other losses if the Work is not completed or any applicable Milestones are not achieved within the Contract Times, and that the extent of such losses is difficult to determine in advance. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay:

1. *Substantial Completion:* Contractor shall pay Owner **Two Thousand and 00/100 Dollars ($2,000.00)** for each day that expires after the time specified in Paragraph 4.02 for Substantial Completion until the Work is substantially complete.
2. *Completion of Remaining Work:* Contractor shall pay Owner **Two Thousand and 00/100 Dollars ($2,000.00)** for each day that expires after the time specified in Paragraph 4.02 for Final Completion until the Work is finally complete.
3. *Milestones:* Contractor shall pay Owner **$ N/A** for each day that expires after the time specified in Paragraph 4.03 for achievement of any applicable Milestones until the applicable Milestone is achieved or until the time specified for Substantial Completion is reached, at which time the rate indicated in Paragraph 4.04.A.1 shall apply, rather than the Milestone rate.
4. Liquidated damages for failing to timely achieve any applicable Milestones, Substantial Completion, and Final Completion are mutually exclusive, and shall not be imposed concurrently. If at any time Contractor has failed to achieve more than one applicable Milestones and/or Contract Times, liquidated damages shall be calculated using the highest applicable rate in Paragraph 4.04.A.1, 2, or 3.

B. The parties acknowledge and agree that the foregoing liquidated damages are a fair and reasonable estimate of the losses Owner will suffer in the event of delay by Contractor and are not a penalty. If Owner recovers liquidated damages for a delay by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages as set forth in Paragraph 4.05.

C. *Bonus:* Contractor and Owner further recognize the Owner will realize financial and other benefits if the Work is completed prior to the time specified for Substantial Completion. Accordingly, Owner and Contractor agree that, as a bonus for early completion, Owner shall pay Contractor **Two Thousand and 00/100 Dollars ($2,000.00)** for each day prior to the time specified in Paragraph 4.02 for Substantial Completion that the Work is substantially complete. The maximum value of the bonus shall be limited to **One Hundred Fifty and 00/100 Dollars ($150,000.00)**.

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4.05 *Special Damages*

A. Contractor shall reimburse Owner (1) for all fines and penalties imposed on Owner as a result of Contractor's failure to achieve Substantial Completion within the time specified in Paragraph 4.02 for Substantial Completion, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion, until the Work is substantially complete.

B. Contractor shall reimburse Owner for all actual costs reasonably incurred by Owner in mitigating or avoiding delays and disruptions to the Work caused by or within the control of any of the Contractor Parties.

C. After Contractor achieves Substantial Completion, if Contractor fails to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Final Completion, until the Work is finally complete.

D. The special damages imposed in this paragraph are in addition to any liquidated damages for delayed completion established in Paragraph 4.04.

ARTICLE 5—CONTRACT PRICE

5.01 Conditioned upon Contractor's performance and completion of the Work and other obligations in accordance with the Contract Documents, Owner shall pay Contractor as set forth in Article 6 for all Work at the price(s) stated in Contractor's Bid (attached as an exhibit to this Agreement), subject to adjustment under the Contract Documents.

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment shall be processed by Owner as provided in the General Conditions.

6.02 *Progress Payments*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the last day of each month during performance of the Work, as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made, and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract:

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a. Ninety-five percent (95%) of Work completed (with the balance being retainage); and

b. Ninety-five percent (95%) of cost of materials and equipment purchased, but not incorporated in the Work (with the balance being retainage).

B. Upon Substantial Completion, Owner shall pay the full amount due to Contractor for Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 200% percent of Owner's estimate of the value of Work to be completed and corrected as shown on the punch list of items to be completed and corrected prior to Final Completion.

6.03 *Final Payment*

A. Upon Final Completion and Owner's acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

A. Owner shall not make final payment unless Contractor submits written consent of the surety to such payment.

ARTICLE 7—CONTRACT DOCUMENTS AND TECHNICAL DATA

7.01 *Contents of Contract Documents*

A. The Contract Documents consist of all of the following:

1. This Agreement.
2. Bonds:
    a. Performance bond (together with power of attorney).
    b. Payment bond (together with power of attorney).
3. Supplementary Conditions, if any.
4. General Conditions.
5. Specifications as listed in the table of contents of the project manual (copy of list attached).
6. The most recent edition of the following specifications as of the Effective Date of the Contract, except to the extent such specifications (i) do not apply based on the nature of the Project (e.g., road, bridge, street, water, or sewer), or (ii) conflict with another Contract Document identified in this Paragraph 7.01.A, in which case the conflicting provision of other Contract Document shall take precedence and control:
    a. TDOT Standard Specifications for Road and Bridge Construction.
    b. City of Franklin Street Specifications.
    c. City of Franklin Water and Sanitary Sewer Specifications.
7. Drawings listed on the attached sheet index.
8. Addenda (numbers ___ to ___, inclusive).

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9. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's Bid
    b. **[list other applicable exhibits]**
10. The following, if issued or signed on or after the Effective Date of the Contract and not attached hereto:
    a. Notice to Proceed.
    b. Work Change Directives.
    c. Change Orders.
    d. Field Orders.
    e. Warranty Bond.

B. The Contract Documents listed in Paragraph 7.01.A are incorporated by reference and are part of the Contract whether attached to this Agreement or not.

C. There are no Contract Documents other than those listed above in this Article 7.

D. The Contract Documents may only be amended, modified, or supplemented in a writing signed by Owner and as otherwise provided in the Contract Documents, and all such amendments, modifications, and supplementations are limited to the matters specifically addressed in the applicable writing. No one is authorized by Owner to orally amend, modify, supplement, or waive any provision, or any of Owner's or Contractor's duties and obligations under, the Contract Documents.

E. Unless otherwise expressly stated, where reference is made in this Agreement or the General Conditions to a particular Paragraph or Article number, the reference refers to the corresponding Paragraph or Article in the document in which the reference appears.

7.02 *Technical Data Regarding Existing Surface and Subsurface Conditions*

A. The following table lists the reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may reasonably rely:

Report Title	Date of Report	Technical Data
Phase II Environmental Site Assessment (ESA) by ERM Southeast, Inc.	February 2001	Geophysical Survey, Waste Material Sampling, Soil Sampling, Ground Water Sampling, Asbestos Survey
Phase I ESA by TVG Environmental, Inc.	12/14/2005	Recognized Environmental Conditions
Preliminary Hydrological Assessment by Neel-Schaffer	February 2006	Hydrologic Assessment
Site Assessment Report by Kennon | Taylor Architects	02/14/2006	Hydrology/Flooding, Site History, Nearby Cemeteries, etc.
Limited Phase II ESA by TVG Environmental, Inc.	06/20/2006	Soil & Groundwater Information
***DRAFT* Phase 1 Archaeological Survey** by Zada Law	December 2007	Archaeological Survey

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Report Title	Date of Report	Technical Data
Report of Geotechnical Study by AMEC Earth & Environmental, Inc.	February 2008	Site & Subsurface Conditions, Geologic Hazards, Design Considerations
Additional Limited Phase II ESA by TVG Environmental, Inc.	05/19/2011	Soil borings of former landfill
Additional Groundwater Investigation by TVG Environmental, Inc.	03/13/2012	Groundwater investigation of form landfill
Report of Soil Investigation by Barge Waggoner Sumner & Cannon, Inc. (BWSC)	January 2016	Investigations to determine potential soil contamination
Hydraulic Study (No-Rise) by Barge Design Solutions, Inc.	June 2022	Hydrological & Hydraulic Study to document "no-rise" conditions

B. The following table lists the drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may reasonably rely:

Drawings Title	Date of Drawings	Technical Data
None	N/A	None

C. Contractor may examine during regular business hours copies of reports and drawings identified in Paragraphs 7.02.A and 7.02.B that were not included with the Bidding Documents at **109 3rd Avenue South, Franklin, TN 37064**, or may request copies from Owner.

7.03 *Technical Data Regarding Hazardous Environmental Conditions*

A. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may reasonably rely:

Report Title	Date of Report	Technical Data
Phase II Environmental Site Assessment (ESA) by ERM Southeast, Inc.	February 2001	Geophysical Survey, Waste Material Sampling, Soil Sampling, Ground Water Sampling, Asbestos Survey
Phase I ESA by TVG Environmental, Inc.	12/14/2005	Recognized Environmental Conditions
Limited Phase II ESA by TVG Environmental, Inc.	06/20/2006	Soil & Groundwater Information
Report of Geotechnical Study by AMEC Earth & Environmental, Inc.	February 2008	Site & Subsurface Conditions, Geologic Hazards, Design Considerations
Additional Limited Phase II ESA by TVG Environmental, Inc.	05/19/2011	Soil borings of former landfill
Additional Groundwater Investigation by TVG Environmental, Inc.	03/13/2012	Groundwater investigation of form landfill

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Report Title	Date of Report	Technical Data
Report of Soil Investigation by Barge Waggoner Sumner & Cannon, Inc. (BWSC)	January 2016	Investigations to determine potential soil contamination

B. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may reasonably rely:

Drawings Title	Date of Drawings	Technical Data
None	N/A	None

C. Contractor may examine during regular business hours copies of reports and drawings identified in Paragraphs 7.03.A and 7.03.B that were not included with the Bidding Documents at **109 3rd Avenue South, Franklin, TN 37064**, or may request copies from Owner.

ARTICLE 8—INSURANCE LIMITS

8.01 Contractor shall purchase and maintain the following types of insurance as more fully set forth in Article 6 of the General Conditions. Such insurance shall be written for not less than the limits set forth below.

A. *Commercial General Liability:*

Commercial General Liability	Policy limits of not less than:
General Aggregate	$2,000,000
Products—Completed Operations Aggregate	$2,000,000
Personal and Advertising Injury	$1,000,000
Bodily Injury and Property Damage—Each Occurrence	$1,000,000

B. *Automobile Liability:*

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	$1,000,000
Each Accident	$1,000,000
Property Damage	
Each Accident	$1,000,000

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C. *Worker's Compensation and Employer's Liability*

Worker's Compensation and Employer's Liability	Policy limits of not less than:
State and Federal (as applicable)	Statutory Limit
Employer's Liability (accident – per occurrence)	$1,000,000
Employer's Liability (disease – policy limit)	$1,000,000
Employer's Liability (disease – policy limit)	$1,000,000

D. Umbrella or Excess Liability:

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	$5,000,000
General Aggregate	$5,000,000

ARTICLE 9—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

9.01 *Contractor's Representations*

A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:

1. Contractor has examined and carefully studied the Contract Documents.
2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that might affect cost, progress, and performance of the Work.
3. Contractor is familiar with all Laws and Regulations that might affect cost, progress, and performance of the Work.
4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Contract Documents or otherwise made available to Contractor with respect to the Technical Data in such reports and drawings.
5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions at or adjacent to the Site that have been identified in the Contract Documents or otherwise made available to Contractor, with respect to Technical Data in such reports and drawings.
6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and Technical Data, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.

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7. Based on the information and observations referred to above, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other provisions of the Contract Documents.

8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

9. Contractor has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents and Technical Data, and the resolution thereof by Owner or Engineer is acceptable to Contractor.

10. The Contract Documents are generally sufficient to indicate and convey understanding of all requirements for performance of the Work.

11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performance of the Work as required by the Contract Documents.

12. Contractor is authorized to do business in Tennessee and is properly licensed and registered as necessary by or with all governmental and public and quasi-public authorities having jurisdiction over the Contractor, the Work, and the Project.

13. Contractor possesses a high level of experience, expertise, and competence in the business of administration, construction, construction management, and superintendence of projects of the size, complexity, and nature of the Project, and shall perform the Work with the care, skill, and diligence of such a contractor.

9.02 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for, bidding for, or entering into the Contract. For the purposes of this paragraph:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding or contracting process, (b) to establish Bid or Contract prices at artificial, non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding or contracting process.

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IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement shall be effective on _____, 20__ (which is the Effective Date of the Contract).

Owner:	Contractor:
City of Franklin, Tennessee	
(typed or printed name of organization)	*(typed or printed name of organization)*
By: _____	By: _____
(individual's signature)	*(individual's signature)*
Date: _____	Date: _____
(date signed)	*(date signed)*
Name: Dr. Ken Moore	Name: _____
(typed or printed)	*(typed or printed)*
Title: Mayor	Title: _____
(typed or printed)	*(typed or printed)*
Attest: _____	Attest: _____
(individual's signature)	*(individual's signature)*
Title: City Administrator	Title: _____
(typed or printed)	*(typed or printed)*
Address for giving notices:	Address for giving notices:
109 3rd Avenue South, Suite 133	
Franklin, TN 37064	
Designated Representative:	Designated Representative:
Name: Shahad Abdulrahman	Name: _____
(typed or printed)	*(typed or printed)*
Title: Staff Engineer (Project Manager)	Title: _____
(typed or printed)	*(typed or printed)*
Address:	Address:
109 3rd Avenue South, Suite 133	
Franklin, TN 37064	
Phone: (615) 791-3218	Phone: _____
Email: Shahad.Abdulrahman@FranklinTN.gov	Email: _____
	License No.: _____
	(where applicable)
	State: _____

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RETAINAGE AGREEMENT
(Required on all Contracts Greater than or equal to $500,000)
COF Contract No.

THIS AGREEMENT, made and entered into this _____ **day of** _____**, 20**_____, by and **among City of Franklin** ("Owner"); _____ ("Contractor"); and _____, a corporation organized and existing under the laws of the United States of America, with offices located in _____("Bank").

WITNESSETH:

WHEREAS, Owner and Contractor have heretofore entered COF Contract No. _____, (the "Contract"), whereby Contractor will make improvements to certain real property of Owner, pursuant to a certain project known as _____ ("Project") located in Franklin, Tennessee, with the contract providing that Owner is to retain a percent of all payment requests of Contractor, all as more specifically set forth in the Contract, to which specific reference is hereby made; and

WHEREAS, Owner and Contractor are desirous of creating an escrow account with Bank for the deposit of such retainage; and

WHEREAS, Bank has agreed to act as escrow agent to receive and hold the retainage paid to it until the receipt of a release or partial release by the Owner.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants and promises hereinafter set forth, the parties hereto agree as follows:

1. Owner hereby agrees to pay all retainage held pursuant to the Contract to Bank, to be held in escrow by Bank in a separate interest-bearing account (the "Escrow Account"). Funds held will not be commingled with any other funds owned by Bank or any third party, but will at all times remain segregated and subject to identification as the particular funds deposited and held for the purposes of retainage for the Project.

2. The Escrow Account shall be owned by Contractor, except to the extent ownership thereof is affected by the assignment to Owner pursuant to the terms hereof.

3. Contractor shall and hereby does conditionally assign all its ownership interest in the Escrow Account, including its power to make withdrawals therefrom, to Owner. This conditional assignment shall terminate upon Owner's execution of release, to the extent of such release.

4. So long as retainage remains on deposit and Contractor is not in default of Contract, all interest earned on deposited retainage shall go to the Contractor less any custodial care and servicing costs.

5. When Owner determines, upon the request of Contractor, in accordance with the provisions of the Contract, that Contractor is entitled to all or a portion of the retainage, Owner shall forward a written release to Bank, substantially in the forms attached hereto as Exhibit A or Exhibit B, whereupon all or a portion of the amounts held in the Escrow Account will be released and paid, together with any remaining interest thereon, to Contractor by Bank within 5 business days.

6. Should a dispute arise between Owner and Contractor whereby Owner fails to execute and deliver a release to Bank, Bank shall not be liable to either Owner or Contractor for failure to deliver the amounts on deposit in the Escrow Account, with interest thereon, to Contractor. Bank shall transfer the amounts on deposit in the Escrow Account to Owner upon Owner's written request and shall not be liable to Contractor for such action. In the event that litigation ensues between Owner and Contractor, Bank shall tender into the registry or custody of any court of competent jurisdiction all assets or property held by Bank pursuant to the terms of this Agreement, together with such pleadings as it deems appropriate, and thereupon be discharged from all further duties and liabilities under this Agreement.

7. Bank may resign as Escrow Agent by providing notice to Owner. Upon termination, all money deposited shall be promptly transferred back to Owner.

8. Contractor will execute a retainage bank vendor form with the City's Finance Department no later than 5 business days from execution of this Agreement.

9. On a monthly basis, within the first week following the end of the prior month, Bank shall provide to the owner a statement of the dedicated escrow account. The statements will be reconciled by Owner. Should any discrepancies be found, Owner will alert Bank and Bank will have 10 business days to respond to Owner with their findings or resolution.

10. Bank shall be liable to the Owner for any loss suffered by the Owner as a result of the Bank's breach of this Agreement.

11. This Agreement supersedes any existing contract between the parties hereto relative to the matters contained herein.

City of Franklin

Signature: _____

Dr. Ken Moore
Mayor

Contractor

Signature: _____
Print Name: _____
Title: _____

Bank

Signature: _____
Print Name: _____
Title: _____

Law Approved

EXHIBIT A

Release

The undersigned, as owner of certain real property located in Franklin, Tennessee, which has been improved pursuant to a construction contract with _____ ("Contractor"), hereby certifies that Contractor has completed all work required of it, pursuant to such contract, and the undersigned hereby authorizes _____ ("**Bank")** to release **$**_____ {also type figure} paid in escrow pursuant to that certain retainage agreement between and among the undersigned, and Contractor and Bank, dated the _____ day of, _____ which agreement is specifically incorporated herein as reference. This release is executed for the sole purpose of releasing the amounts held in escrow as aforesaid and specifically does not nor shall it be construed to release or otherwise affect any claims or rights which the undersigned has or may have against Contractor pursuant to said contract or the work performed thereunder.

City of Franklin

Signature: _____

Dr. Ken Moore
Mayor

ATTEST:

Signature: _____
Print Name: _____
Title: _____

STATE OF TENNESSEE)
COUNTY OF _____)

Sworn to me before this _____ day of _____, 20_____.

_____
Notary Public

My Commission Expires: _____

(Seal)

Law Approved

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EXHIBIT B
Partial Release

The undersigned, as owner of certain real property located in Franklin, Tennessee, which has been improved pursuant to a construction contract with _____ ("Contractor"), hereby certifies that Contractor has completed a portion of all work required of it, pursuant to such contract, and the undersigned hereby authorizes _____ ("Bank") to release $_____, paid in escrow pursuant to that certain Retainage agreement between and among the undersigned, and Contractor and Bank, dated the _____ day of, _____ which agreement is specifically incorporated herein as reference. This release is executed for the sole purpose of releasing the amounts held in escrow as aforesaid and specifically does not nor shall it be construed to release or otherwise affect any claims or rights which the understanding has or may have against Contractor pursuant to said contract or the work performed thereunder.

City of Franklin

Signature: _____

Dr. Ken Moore
Mayor

ATTEST:

Signature: _____
Print Name: _____
Title: _____

STATE OF TENNESSEE)
COUNTY OF_____)
Sworn to me before this _____day of _____, 20_____.

_____
Notary Public

My Commission Expires_____

(Seal)

Law Approved

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NOTICE TO PROCEED

City of Franklin, TN
Engineering Department
109 3rd Avenue South, Suite 133
Franklin, TN 37064

Date: _____
Project Name: **Bicentennial Park**
Owner's Contract No.: **COF Contract No. 2022-0315**
Contractor: _____
Contractor Address: _____

TO CONTRACTOR:

You are notified that the Contract Times under the above Contract will commence to run on _____ , the **NOTICE TO PROCEED DATE**. In accordance with Article 4 of the Agreement, the Work shall be substantially complete within **Five Hundred Forty (540)** days and finally complete within **Ninety (90)** days after Substantial Completion.

Before you may start any Work at Site, you shall address all items in Article 2 – Preliminary Matters of the General Conditions to include:

1) Delivery of Performance and Payment Bonds; Evidence of Insurance; and
2) Delivery of Preliminary Schedules; and
3) Conduct a Preconstruction Meeting to include City Staff, Engineer, impacted utility companies and other impacted stake holders as determined by the Engineer.

Authorized by Owner: City of Franklin, TN

By: **Shahad Abdulrahman**

Signature: _____
(Project Manager Signature)

Title: **Staff Engineer (Project Manager)**

Date Issued: _____

Copy: Engineer

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PERFORMANCE BOND

Contractor	**Surety**
Name:	Name:
Address *(principal place of business)*:	Address *(principal place of business)*:
Owner	**Contract**
Name: **City of Franklin, TN**	Description *(name and Contract Number)*:
Mailing address *(principal place of business)*:	**Bicentennial Park** **(COF Contract No. 2022-0315)**
109 3rd Ave South	
Franklin, TN 37065	Contract Price:
	Effective Date of Contract:

Bond

Bond Amount:

Date of Bond:

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☒ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
_____	_____
(Full formal name of Contractor)	*(Full formal name of Surety) (corporate seal)*
By: _____	By: _____
(Signature)	*(Signature)(Attach Power of Attorney)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____
Attest: _____	Attest: _____
(Signature)	*(Signature)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

MODIFIED - EJCDC® C-610, Performance Bond.
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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:

    3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;

    3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

    3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

    5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

    5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

    5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

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5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.

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12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

    14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

    14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

    14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

    14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

    14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

16. Modifications to this Bond are as follows: **NONE**

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PAYMENT BOND

Contractor	**Surety**
Name:	Name:
Address *(principal place of business)*:	Address *(principal place of business)*:
Owner	**Contract**
Name: **City of Franklin, TN** Mailing address *(principal place of business)*: **109 3rd Ave South** **Franklin, TN 37065**	Description *(name and location)*: **Bicentennial Park** **(COF Contract No. 2022-0315)** Contract Price: Effective Date of Contract:
Bond	
Bond Amount: Date of Bond: *(Date of Bond cannot be earlier than Effective Date of Contract)* Modifications to this Bond form: ☒ None ☐ See Paragraph 18	

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
_____ *(Full formal name of Contractor)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature)(Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

EJCDC® C-615, Payment Bond.
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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
    5.1. Claimants who do not have a direct contract with the Contractor
        5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
        5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
    5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
    7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
    7.2. Pay or arrange for payment of any undisputed amounts.
    7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety

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shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

    16.1. *Claim*—A written statement by the Claimant including at a minimum:

        16.1.1. The name of the Claimant;

        16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

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16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

16.1.4. A brief description of the labor, materials, or equipment furnished;

16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

16.1.7. The total amount of previous payments received by the Claimant; and

16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

18. Modifications to this Bond are as follows: **None**

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To:	City of Franklin	From:		Invoice #:	**Unique # from Contractor**
	Engineering Department			Estimate #:	**Pay App #1**
	109 Third Ave South, Suite 133			Date:	**July 10, 2023**
	Franklin, TN			From Est. Period:	**June 1, 2023**
Attn:	**Robyn Freeman**			To Est. Period:	**June 30, 2023**

Project Name: **Bicentennial Park**

Owner Contract Number: **COF Contract No. 2022-0315**

CONTRACTOR OR DULY AUTHORIZED REPRESENTATIVE APPLICATION FOR PAYMENT AND CERTIFICATION

To the best of my knowledge and belief, I certify that all items, unit quantities, and prices of work and materials shown on this Periodical Estimate are correct and all work has been performed and materials supplied in full accordance with the terms and conditions of the corresponding construction Contract documents between the undersigned as Contractor and the City of Franklin as Owner, and all authorized changes thereto; that the following is a true and correct statement of the contract amount up to and including the last day of the period covered by this estimate and that no part of the "Total Amount Due This Estimate" has been received.

Original Contract Amount:		$	1. Value of Work Completed to date	$	
Plus/Minus Approved Change Orders			2. Stored Materials	$	
			3. Total Completed and Stored to Date	$	
No.	Dated:	$	4. Retainage (5%)	$	
No.	Dated:	$	5. Total Earned Less Retainage	$	
No.	Dated:	$	6. Less Previous Certificates for Payment	$	
Contract Amount to Date:		$	**7. Total Amount Due This Estimate**	$	

I further certify that all claims outstanding as of the date against the undersigned as Contractor for Labor, Materials, and Expendable equipment employed in the performance of said contract up to this date have been paid in full in accordance with the requirements of said Contract.

Contractor: _____ Title: _____

Signed: _____ Date: _____

Engineer – Construction Management Section Approval

I certify that I have verified this Periodical Estimate and that to the best of my knowledge and belief it is a true and correct statement of work performed and material supplied under the Contract and that the Contractor's certified statement of his account and the amount due him is correct and just, and that all work and materials included in this Periodical Estimate have been performed in full accordance with the terms and conditions of the corresponding construction Contract Documents and authorized changes thereto.

Name (Print): **Jon Carman** Title: **Construction Manager**

Name (Signature): _____ Date: _____

City of Franklin, TN Recommendation for Payment

Name (Print): **Shahad Abdulrahman** Title: **Staff Engineer (Project Manager)**

Name (Signature): _____ Date: _____

Pay Item	Pay Item Description	Quantity	Unit	Unit Price	Work Completed		Materials Put into Storage This Period	Total Completed and Stored to Date	To-Date Quantity
					Current Quantity	Pervious Quantity			

00620 - Contractor's Application for Payment
Page 2 of 2

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	**City of Franklin, TN**
Engineer:	**City of Franklin, TN ("COF") serving as "Engineer"**
Contractor:	
Project Name:	**Bicentennial Park**
Owners Contract No.:	**2022-0315**

This ☐ Preliminary ☐ Final Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

Date of Substantial Completion:

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: ☐ None ☐ As follows:

Amendments to Contractor's Responsibilities: ☐ None ☐ As follows:

The following documents are attached to and made a part of this Certificate:

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Engineer

By *(signature)*: _____

Name *(printed)*: **Shahad Abdulrahman**

Title: **Staff Engineer (Project Manager)**

MODIFIED - EJCDC® C-625, Certificate of Substantial Completion.
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NOTICE OF ACCEPTABILITY OF WORK

Owner:	**City of Franklin, TN**
Engineer:	**City of Franklin, TN ("COF) serving as "Engineer"**
Contractor:	
Project Name:	**Bicentennial Park**
Owners Contract No.:	**2022-0315**
Effective Date of the Construction Contract:	
Notice Date:	

The Engineer hereby gives notice to the Owner and Contractor that Engineer recommends final payment to Contractor, and that the Work furnished and performed by Contractor under the Construction Contract is acceptable, expressly subject to the provisions of the Construction Contract's Contract Documents ("Contract Documents"). This Notice of Acceptability of Work (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

1. This Notice has been prepared with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
2. This Notice reflects and is an expression of the Engineer's professional opinion.
3. This Notice has been prepared to the best of Engineer's knowledge, information, and belief as of the Notice Date.
4. This Notice applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Owner-Engineer Agreement.
5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents, or to otherwise comply with the Contract Documents or the terms of any special guarantees specified therein.
6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner's reservations of rights with respect to completion and final payment.

Engineer

By *(signature)*: _____

Name *(printed)*: **Shahad Abdulrahman**

Title: **Project Manager**

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CITY OF FRANKLIN
GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT

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CITY OF FRANKLIN
STANDARD GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, shall have the meaning indicated in the definitions in this Paragraph 1.01. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments that clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, signed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Owner, to request progress or final payments, and that is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document that is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Owner concerning the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the Contract.

10. *Claim*

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract

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Price or Contract Times; contesting the acceptability of Work under the Contract Documents; or seeking other relief with respect to the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Owner's decision regarding a Change Proposal.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Owner has made a determination regarding Final Completion.

d. A demand for money or services by a third party is not a Claim.

11. *Constituents of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, or any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning (a) pollution, (b) protection of human health or the environment, or (c) any hazardous, toxic, or otherwise dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and that together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work, as such days or dates might be adjusted or modified under the Contract.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Contractor Parties*—Contractor, its Subcontractors, Suppliers, and anyone directly or indirectly employed, retained or contracted by any of them, and anyone for whose acts any of them is responsible or liable with respect to the Project.

18. *Cost of the Work*—See Paragraph 13.01 for definition.

19. *Critical Path*—The sequence and duration of activities of Work that control the duration of the Project.

20. *Drawings*—The part of the Contract Documents that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

21. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

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22. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

23. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

24. *Engineer*—The individual or entity named as such in the Agreement.

25. *Field Order*—A written order issued by Owner that requires minor changes in the Work but does not change the Contract Price or the Contract Times.

26. *Final Completion*—The stage at which all of Contractor's obligations under the Contract Documents, and specifically under Paragraph 15.06, have been satisfied and final payment is due from Owner to Contractor. The terms "finally complete" and "finally completed" as applied to the Work refer to Final Completion.

27. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that might present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the performance of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

    c. The presence of Constituents of Concern that are part of the routine and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

28. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

29. *Liens*—Charges, liens, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

30. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.

31. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

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32. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times shall commence to run and on which Contractor shall start to perform the Work.

33. *Owner*—The City of Franklin, Tennessee.

34. *Owner Parties*—Owner and its executives, officers, managers, board members, agents, and employees.

35. *Progress Schedule*—A schedule prepared and maintained by Contractor in accordance with the Contract, describing the sequence and duration of the activities comprising Contractor's obligation to accomplish the Work within the Contract Times.

36. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work shall be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor in accordance with the Contract, of required submittals and the time requirements for review of the submittals.

39. *Schedule of Values*—A schedule, prepared and maintained by Contractor in accordance with the Contract, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner designated for the use of Contractor.

42. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

44. *Submittal*—A written or graphic document, prepared by or for Contractor, that the Contract Documents require Contractor to submit to Owner, or that is indicated as a Submittal in the Schedule of Submittals. Submittals include but are not limited to Shop Drawings and Samples; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project

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photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

45. *Substantial Completion*—The stage at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Owner, the Work (or a specified part thereof) is sufficiently complete in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be fully utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work. In addition to the foregoing, the Work shall not be considered to have achieved Substantial Completion until all of the following conditions have been met:

    a. All traffic lanes included as part of the Work, including shoulders and ramps, are in their final alignment, and the final wearing surface and all sidewalks, curbs, drainage features, markings, permanent safety appurtenances, lighting, traffic signals, and signing as shown in the Contract Documents have been installed.

    b. All public utilities and private utility services included as part of the Work have been appropriately installed and successfully passed all required testing.

    c. All final grading included as part of the Work is complete, and the Site has been 100% stabilized with permanent and temporary erosion and sediment control features.

    d. The value of all remaining Work is less than 2.5% of the Contract Price, and the remaining Work will not affect the safety or operations of any infrastructure or roadway, and will not significantly impact the public.

46. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

47. *Supplementary Conditions*—Any part of the Specifications that purports to amend or supplement these General Conditions. These General Conditions shall take precedence and control over any such Supplementary Conditions, except with respect to any written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work.

48. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

49. *Technical Data*

    a. Those items expressly identified as Technical Data in the Agreement, with respect to (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site, including existing surface or subsurface structures (except Underground Facilities), and (2) Hazardous Environmental Conditions.

    b. Data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth

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in any geotechnical, environmental, or other Site or facilities conditions reports regarding the Site that are identified in the Contract Documents or otherwise made available to Contractor.

c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

50. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

51. *Unit Price Work*—Work to be paid for on the basis of unit prices.

52. *Work*—The entire construction, including the various separately identifiable parts thereof, required to be provided under the Contract Documents. Work includes and is the result of, without limitation, performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and might include, without limitation, related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

53. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of judgment by Owner. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Owner as to the Work. It is intended that such exercise of judgment, action, or determination shall be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Owner any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake

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responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

2. The Contract Documents frequently omit modifying words such as "all" and "any," and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement. When used in the Contract Documents, unless the context clearly dictates otherwise, (1) the singular shall include the plural, and vice versa, (2) the use of the masculine, feminine or neuter gender shall include all other genders, as appropriate, and (3) the disjunctive "or" shall include the conjunctive "and," and vice versa.

C. *Day*: Except as otherwise specifically stated, the word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. has been damaged prior to final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location approved by Owner) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, each as reasonably determined by Owner, even if the term "or both" is not expressed.

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G. *Set-Off:* As used in the Contract Documents, Owner's right to impose a "set-off" also includes, without limitation, Owner's right to payment and recovery of the pertinent amount from Contractor.

H. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the policies, certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor one fully signed counterpart of the Agreement, and one copy in electronic portable document format (PDF).

B. Owner shall maintain and safeguard at least one original printed version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed version of the Contract available to Contractor for review.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Owner for timely review a preliminary schedule including:

1. The Critical Path.

2. The planned start and completion dates for each activity, the duration of each activity, and the sequencing of all activities. If activities have durations of more than one updated period, break the activities into two or more activities distinguished by location or some other feature.

3. Dates related to the procurement of materials, equipment and articles of special manufacture; and dates related to the submission of working drawings, plans and other data specified for review or approval by Owner.

4. Dates related to key Owner inspections.

5. Dates related to specified activities by the Owner and third parties, and times for starting and completing the various stages of Work, including but not limited to all Milestones specified in the Contract.

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6. A preliminary Schedule of Submittals.

7. A preliminary Schedule of Values for all of the Work, which includes quantities and prices of items that, when added together, equal the Contract Price, and which subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices shall include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designated Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate shall be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. Owner's and Contractor's Designated Representatives are those individuals identified as such in the Agreement. Subject to Paragraph 9.01 with respect to Owner, each party's Designated Representative is authorized to act as its authorized representative with respect to the services and responsibilities under the Contract. Subject to Paragraph 9.01 with respect to Owner, such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment, a conference, attended by Owner, Contractor, Engineer, and others as appropriate, shall be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment shall be made to Contractor until acceptable schedules are submitted to Owner in accordance with the following:

1. The Progress Schedule shall provide for an orderly progression of the Work to completion within the Contract Times.

2. Contractor's Schedule of Submittals shall provide a workable arrangement for reviewing and processing the required Submittals.

3. Contractor's Schedule of Values shall provide for a reasonable allocation of the Contract Price to the component parts of the Work.

4. If a schedule is not acceptable to Owner, Contractor shall have an additional 10 days to revise and resubmit the schedule. Acceptance of a schedule by Owner shall not impose on Owner responsibility for sequencing, scheduling, or progress of the Work, and shall not relieve Contractor from Contractor's full responsibility therefor.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

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C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

D. Notwithstanding anything in this Paragraph 2.06, all notices shall be sent as set forth in Paragraph 18.01.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.

B. It is the intent of the Contract Documents to describe and require a functionally complete Project to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version shall govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Owner or Engineer shall issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

G. Nothing in the Contract Documents creates:

1. any rights or claims against Owner or any other Owner Parties in favor of Engineer, any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, or any other individual or entity not a party to the Contract; or

2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as otherwise required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard

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specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as otherwise specifically stated in the Contract Documents.

2. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility inconsistent with the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall examine and carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Owner any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation from Owner, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Owner in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation from Owner, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

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3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until Final Completion, Contractor shall submit to Owner in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Owner shall be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

B. Owner shall, with reasonable promptness, render or cause to be rendered a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Such written clarification, interpretation, or decision shall be final and binding on Contractor, unless it appeals by submitting a Change Proposal.

C. If a submitted matter in question concerns the Contract Documents and Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including but not limited to electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 shall survive Final Completion or earlier termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. Unless the Contract states otherwise, the Contract Times shall commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 60 days after the Effective Date of the Contract. In no event shall the Contract Times commence to run later than the actual commencement of the Work on the Project.

4.02 *Starting the Work*

A. Unless the Contract states otherwise, Contractor shall start to perform the Work on the date indicated in the Notice to Proceed. No Work may be done at the Site prior to such date.

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4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction if reasonably necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Owner whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it is adjusted from time to time as follows:

1. Contractor shall submit to Owner for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible unreasonably delays, disrupts, or interferes with Contractor's performance or progress of the Work associated with the Critical Path, as shown on the Contractor's then-current Progress Schedule, then Contractor shall be entitled to an adjustment in the Contract Price or Contract Times, but only to the extent the delay, disruption, or interference affects Contractor's cost of, or time required for, performance of the Work, as reasonably determined by Owner. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of any of the Contractor Parties. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled under the Contract, to the extent such concurrent delay is not caused by any of the Contractor Parties.

B. In any event, Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of any of the Contractor Parties.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an adjustment in Contract Times, but only to the extent the delay, disruption, or interference affects Contractor's cost

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of, or time required for, performance of the Work, as reasonably determined by Owner. Causes of delay, disruption, or interference that might give rise to an adjustment in Contract Times under this paragraph include the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
2. Abnormal weather conditions;
3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
4. Acts of war or terrorism.
5. *Weather-Related Delays*

    a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 are the basis for a request for an adjustment in the Contract Times, such request shall be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Critical Path.

    b. The existence of abnormal weather conditions shall be determined on a month-by-month basis in accordance with the following:

        1) Every week day (excluding legal holidays) in a given month that exceeds the number of Foreseeable Bad Weather Days set forth in the table in Paragraph 4.05.C.5.b.3, and on which the following conditions exist, shall be considered a "bad weather day":

            A) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day through 7:00 p.m. on the day in question equals or exceeds 0.10-inch of precipitation as rain equivalent.

            B) Dry-out or mud days, at a rate no greater than 1 make-up for each day or consecutive days of rain that total 1.0 inch or more, liquid measure.

        2) Determination of actual bad weather days during performance of the Work shall be based on the weather records measured and recorded by the National Oceanic and Atmospheric Administration's National Centers for Environmental Information weather monitoring station located at the Franklin Sewage Plant, Franklin, TN, or another method approved in advance by Owner if specifically stated elsewhere in the Contract Documents.

        3) The Contract Times include the number of Foreseeable Bad Weather Days per month indicated in the following table:

Foreseeable Bad Weather Days

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Month	Days
January	8
February	9
March	9
April	9
May	9
June	8
July	9
August	7
September	7
October	6
November	7
December	9

4) The existence of abnormal weather conditions shall not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities and that such activities thus delayed were on the Critical Path. Saturdays, Sundays, and legal holidays shall not constitute lost work days unless the Contract Documents specifically require it or Owner directs Contractor to work those days.

D. Contractor's entitlement to an adjustment of Contract Times or, if applicable, Contract Price, is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the Critical Path, as of the time of the delay, disruption, or interference.

2. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or, if applicable, Contract Price shall be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;

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2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

4. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner requires, including but not limited to where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the Critical Path.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or one not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

H. Except as specifically set forth in the Contract, an adjustment of the Contract Times shall be Contractor's sole and exclusive remedy for any delay, disruption, interference, hindrance or obstruction in Contractor's commencement, performance or completion of the Work, loss of productivity, or other similar claims (collectively "Delays"), whether or not such Delays are foreseeable. In no event shall Contractor be entitled to any compensation or recovery of any damages in connection with any Delays, including but not limited to actual damages, consequential damages, lost opportunity costs, impact damages, extended general conditions, or other similar costs or damages. Owner's exercise of any of its rights or remedies under the Contract, including but not limited to ordering changes in the Work, directing suspension of the Work, rescheduling, correction of the Work, or terminating the Contract for convenience, regardless of the extent or frequency of such exercise, shall not be construed as a delay, disruption, or interference with Contractor's performance or progress of the Work under Paragraph 4.05.A.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any known encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor shall comply in performing the Work.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein.

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C. If necessary for timely and proper performance of the Work, Contractor shall arrange for use of and access to all additional lands required for temporary construction facilities and storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use or access through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any areas used for Contractor's operations; (c) damage to any other land or areas, or to improvements, structures, utilities, or similar facilities; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of any of the Contractor Parties.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of any of the Contractor Parties, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the full extent permitted by Laws and Regulations, defend (at Owner's option in its sole discretion), indemnify and hold harmless the Owner Parties and Engineer, and the consultants and subcontractors of each and any of them, from and against all such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against any of the Owner Parties, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, performance of the Work, or because of other actions or conduct of any of the Contractor Parties.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. Upon completion of the Work at the Site, Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

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D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, its contents or any person, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them or any contents or persons.

5.03 *Subsurface and Physical Conditions*

A. *Underground Facilities*: Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

B. *Reliance by Contractor on Technical Data*: Contractor may reasonably rely upon the accuracy of Technical Data.

C. *Limitations of Other Data and Documents*: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against any of the Owner Parties or Engineer, or any of their consultants or contractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including but not limited to any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to reasonably rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection

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therewith (except with respect to an emergency) until the Owner has a reasonable opportunity to review the subsurface or physical condition in question.

B. *Owner's Review*: After receipt of written notice as required by the preceding paragraph, Owner shall promptly review the subsurface or physical condition in question; determine whether it is necessary to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; and obtain any pertinent cost or schedule information from Contractor.

C. *Owner's Statement to Contractor Regarding Site Condition*: Owner shall issue a written statement to Contractor regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, and indicating whether any change in the Drawings or Specifications will be made.

D. *Early Resumption of Work*: If at any time Owner determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Owner's review or issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then Owner may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an adjustment in Contract Times, and might be entitled to an adjustment in Contract Price (excluding any overhead or profit), each as reasonably determined by Owner, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

    a. Such condition falls within one or more of the categories described in Paragraph 5.04.A;

    b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price shall be subject to the provisions of Paragraph 13.03; and,

    c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

    a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid, or otherwise;

    b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor; or

    c. Contractor failed to give the written notice required by Paragraph 5.04.A.

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3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment shall be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times no later than 14 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Human Remains; Artifacts.* If, in the course of the Work, Contractor encounters or recognizes the existence of human remains, burial markers, archaeological sites, historic sites or artifacts, or wetlands not indicated in the Contract Documents, Contractor shall immediately suspend any operations that would affect them and notify Owner. Upon receipt of such notice, Owner shall promptly take action to obtain any governmental authorization required to resume the operations. Contractor shall continue to suspend such operations until otherwise instructed by Owner in writing, but shall continue with all other operations that do not affect those remains or features. Any requests for adjustments in the Contract Price or Contract Times arising from the existence of such remains or features shall be governed by the foregoing provisions of this Paragraph 5.04.

G. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: The cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or

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performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner in writing regarding such Underground Facility.

C. *Owner's Review*: After receipt of such notice, Owner shall:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; and, if necessary, issue any preliminary instructions to Contractor regarding the Contractor's resumption of Work in connection with the Underground Facility in question; and

3. obtain any pertinent schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: Owner shall issue a written statement to Contractor regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, and indicating whether any change in the Drawings or Specifications will be made.

E. *Early Resumption of Work*: If at any time Owner determines that Work in connection with the Underground Facility may resume prior to completion of Owner's review or issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Owner may at its discretion instruct Contractor to resume such Work.

F. *Possible Time Adjustments*

1. Contractor shall be entitled to an adjustment in the Contract Times, but no adjustment in Contract Price, as reasonably determined by Owner, to the extent any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's time required for performance of the Work; subject, however, to the following:

   a. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

   c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the extent of any adjustment in the Contract Times, then any such adjustment shall be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the extent of any adjustment in the Contract Times, no later than 14 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

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5.06 *Hazardous Environmental Conditions*

A. *Reliance by Contractor on Technical Data Authorized*: Contractor may reasonably rely upon the accuracy of the Technical Data. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against any of the Owner Parties or Engineer, or any of their consultants or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including but not limited to any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by any of the Contractor Parties, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if any of the Contractor Parties creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area that could reasonably be affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner (and promptly thereafter confirm such notice in writing). Owner shall consider the necessity to retain a qualified expert to evaluate such condition or take corrective action, if any. Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If any of the Contractor Parties created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained all required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to, or on the amount or extent of, any adjustment in Contract Price or Contract Times as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or

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expenses incurred in response to the Hazardous Environmental Condition, then within 14 days after Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal and Owner, without waiting 14 days, may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08. In any event, Contractor shall not be entitled to increased overhead or profit in connection with any adjustment of the Contract Price under this Paragraph 5.06.

H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the full extent permitted by Laws and Regulations, Contractor shall defend (at Owner's option in its sole discretion), indemnify and hold harmless the Owner Parties and Engineer, and consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove any Constituents of Concern brought to the Site by any of the Contractor Parties, to a Hazardous Environmental Condition created by any of the Contractor Parties, or failure by any of the Contractor Parties to fulfill a specific responsibility under the Contract with respect to a Hazardous Environmental Condition or any other environmental matters. Nothing in this Paragraph 5.06.I obligates Contractor to defend or indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds shall remain in effect until at least one year after Final Completion or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by other provisions of the Contract.

C. All bonds shall be in the form included in the Bidding Documents or otherwise specified by Owner prior to signing the Contract, except as provided otherwise by Laws or Regulations, and shall be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact shall be accompanied by a certified copy of that individual's authority to bind the

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surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements of this Paragraph 6.01, then Contractor shall promptly notify Owner in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements in this Paragraph 6.01.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have performed or furnished labor, services, materials, or equipment used in the performance of the Work, Owner may provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have performed or furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance required of each of them, respectively, in this article and elsewhere in the Contract.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from and maintained with insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. All companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing

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information and (2) any wording specific to a project or jurisdiction other than that applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than that relevant to this Contract.

F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds the Owner Parties and Engineer (and any other individuals or entities identified in the Contract as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change or lapse in the required coverage.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site shall end immediately, and Owner may impose a set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.

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L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required under this Contract shall not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract, or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract shall contain a provision or endorsement that the coverage afforded shall not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days after receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured, additional insured, and the other party to the Contract.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain commercial general liability, automobile liability, worker's compensation and employer's liability, umbrella or excess liability, and other insurance pursuant to the specific requirements of the Contract.

B. *General Provisions*: The policies of insurance required under this Contract shall:

1. include at least the specific coverages required;

2. be written for not less than the limits set forth in the Agreement, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until Final Completion, and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor is correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work by any of the Contractor Parties; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, shall:

1. include and list as additional insureds the Owner Parties and Engineer, and any individuals or entities identified as additional insureds in the Contract;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including, as applicable, those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and

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5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

D. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:

1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
2. damages insured by reasonably available personal injury liability coverage, and
3. damages because of injury to or destruction of tangible property wherever located, including but not limited to loss of use resulting therefrom.

E. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include at least the following coverages and endorsements:

1. Products and completed operations coverage.
    a. Such insurance shall be maintained for at least five years after Final Completion.
    b. Contractor shall furnish Owner and each other additional insured (as identified in the Contract) evidence of continuation of such insurance at Final Completion and every required year thereafter.
2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
4. Underground, explosion, and collapse coverage.
5. Personal injury coverage.
6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.

F. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, shall not include any of the following:

1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
2. Any exclusion for water intrusion or water damage.

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3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.

4. Any exclusion of coverage relating to earth subsidence or movement.

5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).

6. Any limitation or exclusion based on the nature of Contractor's work.

7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

G. *Commercial General Liability—Minimum Policy Limits:* Contractor's commercial general liability policy shall be written for not less than the limits set forth in the Agreement.

H. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis, and shall be written for not less than the limits set forth in the Agreement.

I. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in this Paragraph 6.03. The coverage afforded shall be at least as broad as that of each and every one of the underlying policies, and shall be written for not less than the limits set forth in the Agreement.

J. *Waiver of Subrogation:* Contractor shall obtain a waiver of subrogation endorsement to each insurance policy required by this Paragraph 6.03 that waives the insurer's right to subrogate a claim against any of the Owner Parties. Contractor also shall require each of its Subcontractors with such insurance policies applicable to the Project to obtain similar endorsements to those policies in favor of the Owner Parties.

K. *Professional Liability Coverage (if applicable):* If any provision of the Contract requires any of the Contractor Parties to provide professional services, including but not limited to any architectural, engineering, design, construction management, surveying or other professional service, Contractor shall obtain and require such Contractor Party to obtain Professional Liability (errors and omissions) coverage applicable to that party's portion of the Work, with limits reasonably acceptable to Owner.

6.04 *Builder's Risk and Other Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Contract, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as provided in the Contract or required by Laws and Regulations, whichever is less).

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach

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or be adjoined. Such property insurance shall be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and shall be maintained until the Work is complete, as set forth in Paragraph 15.06.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner shall obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06. Such property insurance shall be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) shall provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item shall be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Contract), shall contain provisions to the effect that in the event of payment of any loss or damage the insurer shall have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work, but only to the extent of insurance proceeds received for such losses and damages; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Contract as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused, but only to the extent of insurance proceeds received for such losses and damages.

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2. None of the waivers in this Paragraph 6.05 extends to the rights that any party making such waiver has to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion, or after Final Completion, shall contain provisions to the effect that in the event of payment of any loss or damage the insurer shall have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract signed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies, but only to the extent of insurance proceeds received for such losses and damages.

C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Contract as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 shall be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured shall state its position regarding a claim for insured loss in writing within 14 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and

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distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as necessary to perform the Work in accordance with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written approval of Owner, except under extraordinary circumstances.

7.03 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

B. Contractor shall be fully responsible to Owner for all acts and omissions of the Contractor Parties, just as Contractor is responsible for Contractor's own acts and omissions.

C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor shall not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which shall not be unreasonably withheld.

1. As used in the Contract, "regular working hours" shall mean 7:00 AM to 6:00 PM.

2. As used in Contract, "legal holiday" shall mean each of the following:

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Holiday	Date
New Year's Day	January 1
Martin Luther King's Birthday	3rd Monday in January
Good Friday	Friday before Easter
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	1st Monday in September
Thanksgiving Day	4th Thursday in November
Friday after Thanksgiving	4th Friday in November
Christmas Day	December 25
Bonus Christmas Day	The first week day after Christmas Day, unless otherwise determined by Owner

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work shall be new and of good quality, except as otherwise provided in the Contract Documents. All warranties and guarantees in or required by the Contract Documents shall expressly run to the benefit of Owner. If required by Owner, Contractor shall furnish satisfactory evidence (including but not limited to reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or

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description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Owner authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the following circumstances:

1. If Owner in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Owner may deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material shall be considered functionally equal to an item so named if:
    a. in the exercise of reasonable judgment Owner determines that the proposed item:
        1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
        2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
        3) has a proven record of performance and availability of responsive service; and
        4) is not objectionable to Owner.
    b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
        1) there will be no increase in cost to the Owner or increase in Contract Times; and
        2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Owner's Evaluation and Determination*: Owner shall be allowed a reasonable time to evaluate each "or-equal" request. Owner may require Contractor to furnish additional data about the proposed "or-equal" item. Owner shall be the sole judge of acceptability. No "or-equal" item shall be ordered, furnished, installed, or utilized until Owner's review is complete and Owner determines that the proposed item is an "or-equal," which shall be evidenced by an approved Shop Drawing or other written communication. Owner shall advise Contractor in writing of any negative determination.

D. *Effect of Owner's Determination*: Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Owner's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Owner determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Owner consider the item a proposed substitute pursuant to Paragraph 7.06.

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7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Owner authorize the use of other items of equipment or material under the following circumstances (to the extent possible such requests shall be made before commencement of related construction at the Site):

1. Contractor shall submit sufficient information as provided in this Paragraph 7.06.A to allow Owner to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Owner shall not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Owner shall be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Owner decides is appropriate under the circumstances.

3. Contractor shall make written application to Owner for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

   a. shall certify that the proposed substitute item will:

      1) perform adequately the functions and achieve the results called for by the general design;

      2) be similar in substance to the item specified; and

      3) be suited for the same use as the item specified.

   b. shall state:

      1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

      2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

      3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

   c. shall identify:

      1) all variations of the proposed substitute item from the item specified; and

      2) available engineering, sales, maintenance, repair, and replacement services.

   d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

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B. *Owner's Evaluation and Determination*: Owner shall be allowed a reasonable time to evaluate each substitute request. Owner may require Contractor to furnish additional data about the proposed substitute item. Owner shall be the sole judge of acceptability. No substitute shall be ordered, furnished, installed, or utilized until Owner's review is complete and Owner determines that the proposed item is an acceptable substitute. Owner's determination shall be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Owner shall advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Owner Cost*: Contractor shall bear Owner's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Owner approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of an engineer or other consultant for assistance in evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of an engineer or other consultant for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Owner Determination*: If Owner approves the substitution request, Contractor shall sign the proposed Change Order and proceed with the substitution. Owner's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work, subject to acceptance by Owner of such Subcontractors and Suppliers. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work shall not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner in writing the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 14 days after receipt of Contractor's written submission.

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E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days after Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis, Contractor shall submit to Owner a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

K. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate written contractual agreement that specifically binds the Subcontractor or Supplier to the applicable provisions of the Contract for the benefit of Owner. Contractor shall furnish to Owner copies of all agreements with Subcontractors as requested by Owner.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer and Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device that is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its

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use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed in the Contract Documents.

B. To the full extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the proper use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the full extent permitted by Laws and Regulations, Contractor shall defend (at Owner's option in its sole discretion), indemnify and hold harmless the Owner Parties and Engineer, and consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work that are applicable at the time of the submission of Contractor's Bid. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

B. If Owner acquires any permits from CSX, U.S. Army Corps of Engineers, Tennessee Department Environment and Conservation, Tennessee Department of Transportation, Williamson County, City of Franklin, or other utilities or agencies, the terms of the restrictions and conditions applicable to such permits shall be disclosed to Contractor, and Contractor shall perform the Work in accordance with all such restrictions and conditions.

7.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with Laws and Regulations.

7.11 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

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B. If any of the Contractor Parties performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall, to the full extent permitted by Laws and Regulations, defend (at Owner's option in its sole discretion), indemnify and hold harmless the Owner Parties and Engineer, and consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 14 days after such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim at any time.

7.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, shall be available to Owner for reference. Upon Final Completion of the Work, Contractor shall deliver these record documents to Owner.

7.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors or Suppliers of their responsibility for the safety of persons or property in the performance of their Work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. Contractor shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who might be affected by the Work;

2. all the Work, materials, and equipment to be incorporated therein, whether in storage on or off the Site; and

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3. other property at the Site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by any of the Contractor Parties shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them is liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of any of the Contractor Parties).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall promptly notify Owner of any damage, injury, or loss to the persons or property of the type referred to in Paragraph 7.13.C.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows the Work might affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any, but such responsibility shall not affect Contractor's other obligations under this Paragraph 7.13. Any of Owner's safety programs that are applicable to the Work are identified or included in the Contract Documents. Contractor shall immediately notify Owner if Contractor thinks any of Owner's safety programs might not be safe or might conflict with Contractor's other obligations.

H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives shall comply while at the Site.

I. Contractor's duties and responsibilities for safety and protection shall continue until all the Work is completed and Contractor has left the Site (except as otherwise expressly provided in the Contract Documents in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

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7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Owner prompt written notice if Contractor believes that any significant changes in the Work or variations or deviations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Owner determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order shall be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Owner specific written notice of any variations that the Submittal has from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Owner for review and approval in accordance with the accepted Schedule of Submittals.

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1. *Shop Drawings*

    a. Contractor shall submit the number of copies required in the Specifications.

    b. Data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Owner the services, materials, and equipment Contractor proposes to provide, and to enable Owner to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

    a. Contractor shall submit the number of Samples required in the Specifications.

    b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Owner requires to enable Owner to review the Submittal for the limited purposes required by Paragraph 7.16.C.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Owner's review and approval of the pertinent submittal shall be at the sole expense and responsibility of Contractor.

C. *Owner's Review of Shop Drawings and Samples*

1. Owner shall provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Owner's review and approval shall be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Owner's review and approval shall not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Owner's review and approval of a separate item as such shall not indicate approval of the assembly in which the item functions.

4. Owner's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Owner has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Owner shall document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Owner's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Owner's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

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7. Neither Owner's receipt, review, acceptance, or approval of a Shop Drawing or Sample shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Owner and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Owner on previous Submittals.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Contractor shall bear Owner' costs for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for an engineer's or other consultant's charges to Owner for assistance with such review. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for an engineer's or other consultant's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

a. Contractor shall submit all such Submittals to Owner in accordance with the Schedule of Submittals and pursuant to the applicable provisions of the Contract Documents.

b. Owner shall provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals shall be deemed accepted.

c. Owner's review shall be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

d. If any such Submittal is not accepted, Contractor shall confer with Owner regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

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7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be of good quality, new (unless the Contract Documents permit otherwise) and in accordance with the Contract Documents, and will not be defective. Owner is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days after Owner's discovery that such Work is defective; and

2. Such notice shall be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim shall be brought within 30 days after the notice.

C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, maintenance, or operation, by persons other than any of the Contractor Parties; or

2. normal wear and tear under normal usage.

D. Contractor's obligations to perform and complete the Work and other obligations in accordance with the Contract Documents is absolute. No approval, consent, acceptance, or other action or exercise of rights by Owner, including but not limited to those set forth below in this Paragraph 7.17.D, shall constitute an acceptance of Work or performance by Contractor that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under the Contract Documents:

1. Any of Owner's or Engineer's rights or obligations under Article 10, including but not limited to site visits or observations by Owner or Engineer;

2. Payment by Owner of any progress or final payment;

3. Use or occupancy of the Work or any part thereof by Owner;

4. Any review and approval of a Submittal, Shop Drawing, Sample submittal or schedule;

5. The issuance of a notice of acceptability;

6. The end of the correction period established in Paragraph 15.08;

7. Any inspection, test, or approval by others; or

8. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the

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assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the full extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall defend (at Owner's option in its sole discretion), indemnify and hold harmless the Owner Parties and Engineer, and consultants and subcontractors of each and any of them, from and against all claims, actions, liabilities, losses, damages, costs, expenses and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of, relating to or resulting from the performance, or failure in performance, of the Work, provided that such claim, action, liability, loss, cost, expense, judgment or damage is attributable, in whole or in part to any act or omission of any of the Contractor Parties.

B. In any and all claims against any of the Owner Parties or Engineer, or any of their consultants or subcontractors, by any employee (or the survivor or personal representative of such employee) of any of the Contractor Parties, the defense and indemnification obligations under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for any of the Contractor Parties under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation shall specify the performance and design criteria that such services shall satisfy, and the Submittals that Contractor shall furnish to Owner with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional shall issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, then such Shop Drawing or other Submittal shall bear the written approval of Contractor's design professional when submitted by Contractor.

D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Owner's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals

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furnished by Contractor pursuant to an Owner-delegated design shall be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;
2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations, and Contractor shall promptly notify Owner if Contractor relies on or invokes this provision.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the performance of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that is required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Owner and the others whose work will be affected.

E. If the proper performance or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Owner in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper performance and results of Contractor's Work. Contractor's failure to so report shall constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and latent deficiencies in such other work.

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F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following shall be provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Unless otherwise provided in the Contract Documents, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an adjustment in the Contract Price or the Contract Times, each as reasonably determined by Owner. Contractor shall submit any Change Proposal seeking an adjustment in the Contract Price or the Contract Times under this paragraph within 14 days after the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or

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utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, any of the Owner Parties, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) to the full extent permitted by Laws and Regulations, defend (at Owner's option in its sole discretion), indemnify and hold harmless the Owner Parties and Engineer, and consultants and subcontractors of each and any of them from and against all such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications directly to Contractor.

B. Owner's Designated Representative identified in the Agreement, and Owner's City Administrator, Assistant City Administrator, City Engineer, and Department Directors, are the only individuals authorized to give approvals, consents, and otherwise act on Owner's behalf under the Contract Documents, including with respect to, but not limited to, Change Orders, Work Change Directives, Change Proposals, Field Orders, amendments, and other modifications to the Contract. From time to time, Owner may also designate in writing other representatives who are authorized to act on Owner's behalf.

C. In any event, any modification to the Contract in the amount of $25,000 or greater shall be effective only if signed by Owner's City Administrator, and all modifications to the Contract are subject to final written approval by the City of Franklin Board of Mayor and Aldermen.

9.02 *Replacement and Role of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

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B. At Owner's sole discretion, Owner may utilize Engineer to assist with any of Owner's rights, duties, responsibilities, and obligations under the Contract during construction of the Work, and, with prior written notice to Contractor, may engage Engineer to carry out and administer such rights, duties and obligations on Owner's behalf.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner shall not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon the reasonable request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

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9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S AND OWNER'S STATUS DURING CONSTRUCTION

10.01 *Authority of Engineer*

A. The duties and responsibilities and the limitations of authority of Engineer during construction, if any, are set forth in the Contract.

10.02 *Visits to Site*

A. Owner and Engineer may make visits to the Site at intervals appropriate to the various stages of construction as Owner deems necessary in order to observe the progress that has been made and the quality of the various aspects of Contractor's Work. Based on information obtained during such visits and observations, Owner may determine, in general, if the Work is proceeding in accordance with the Contract Documents. Owner shall not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Owner's efforts shall be directed toward providing for Owner a degree of confidence that the completed Work will conform generally to the Contract Documents.

10.03 *Determinations for Unit Price Work*

A. Owner shall determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.04 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Owner shall render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work.

10.05 *Limitations on Owner's Authority and Responsibilities*

A. Neither Owner's authority or responsibility under this Article 10, nor any decision made by Owner in good faith either to exercise or not exercise such authority or responsibility, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Owner to any of the Contractor Parties.

B. Owner shall not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner shall not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Owner shall not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

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D. Owner's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, shall only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with, the Contract Documents.

10.06 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement shall be set forth in a Change Order.

11.02 *Change Orders*

A. Owner and Contractor shall sign appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off by submitting a Claim;

3. Changes in the Work: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Contractor refuses to sign a Change Order that is required to be signed under Paragraph 11.02.A, it shall be deemed to be of full force and effect, as if fully signed.

11.03 *Work Change Directives*

A. A Work Change Directive shall not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the

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Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 14 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Owner may authorize changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes shall be accomplished by a Field Order and shall be binding on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then, before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.

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B. An adjustment in the Contract Price shall be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which might include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:

1. A mutually acceptable fixed fee; or

2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent of the costs;

b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be 5 percent of the costs;

c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

d. No fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, or 13.01.C;

e. The amount of credit to be allowed by Contractor to Owner for any change that results in a net decrease in Cost of the Work shall be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee shall be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs,

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Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Owner to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Owner concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief or changes under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal shall address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Owner within 14 days after the start of the event giving rise thereto; otherwise any request by Contractor for an adjustment in the Contract Times or Contract Price associated with such Change Proposal shall be deemed waived.

2. *Supporting Data*: The Contractor shall submit supporting data, including but not limited to the proposed change in Contract Price or Contract Time (if any), to Owner within 14 days after the submittal of the Change Proposal.

   a. Change Proposals based on or related to delay, interruption, or interference shall comply with the provisions of Paragraphs 4.05.D and 4.05.E.

   b. Change proposals related to a change of Contract Price shall include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

   The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Owner's Initial Review*: If in its discretion Owner concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Owner may request that Contractor submit such additional supporting data by a date specified by Owner, prior to Owner beginning its full review of the Change Proposal.

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4. *Owner's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Owner), Owner shall conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions shall be in writing, with a copy provided to Contractor. If Owner does not take action on the Change Proposal within 30 days, then the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Owner's decision is final and binding upon Contractor, unless Contractor timely appeals the decision by filing a Claim under Article 12.

C. *Post-Completion*: Contractor shall not submit any Change Proposals after Final Completion.

11.10 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including but not limited to Contract Price or Contract Times), the giving of any such notice shall be Contractor's responsibility. The amount of each applicable bond shall be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: Claims between Owner and Contractor, including but not limited to the following, are subject to the process set forth in this article:

1. Appeals by Contractor of Owner's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Final Completion.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 14 days after the decision under appeal. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor's Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled. Claims by Contractor seeking an increase in the Contract Times or Contract Price that are not made within the time limits set forth in this Paragraph 12.01.B shall be deemed waived.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for

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resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs, unless otherwise agreed.

E. *Partial Approval*: If Owner approves a Claim by Contractor in part and denies it in part, such action shall be final and binding unless within 30 days after such action Contractor invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days after the written notice of denial, then the Claim is deemed denied. A denial of the Claim shall be final and binding unless within 30 days after the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: As used in the Contract Documents, the term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined in this Paragraph 13.01. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those

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additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those commonly incurred in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs include salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the costs included in this Paragraph 13.01.B.1 to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including but not limited to costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments to which the discounts apply, in which case the cash discounts shall accrue to Owner. Contractor may not keep any cash discounts unless it has provided Owner seven days' prior written notice thereof and the opportunity to deposit funds with Contractor with which to make payments to which the discounts apply. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they can be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which shall then determine which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.

5. Other costs consisting of the following:

   a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

   b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, that are consumed

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in the performance of the Work, and cost, less market value, of such items used but not consumed that remain the property of Contractor.

1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration shall be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor shall not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity shall be paid at a rate shown for such equipment in the equipment rental rate book specified in the Contract Documents or, in the absence of such a book, at rates no higher than standard rates paid in Williamson County, Tennessee. An hourly rate shall be computed by dividing the monthly rates by 176. These computed rates shall include all operating costs.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs shall be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is responsible, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of any of the Contractor Parties, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of any of the Contractor Parties. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and

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expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office in connection with the Work, who are not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

5. Costs due to the negligence or breach of contract of any of the Contractor Parties, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

6. Expenses incurred in preparing and advancing or defending Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract shall be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee shall be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee shall automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions shall be determined in accordance with Paragraph 11.07.C.2.

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2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work shall be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors shall establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner shall be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of five years after Final Completion. Pertinent Subcontractors shall afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for no more than such sums and by persons or entities acceptable to Owner.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing shall be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to Final Completion, an appropriate Change Order shall be issued to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

E. Contractor shall not exceed any allowance amount set forth in the Contract Documents, and shall not be entitled to payment for any such excess amounts, without Owner's prior written approval.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price shall be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work shall be based on actual quantities.

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C. Each unit price shall be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner shall determine the actual quantities and classifications of Unit Price Work performed by Contractor. Owner shall review with Contractor the Owner's preliminary determinations on such matters before rendering a written decision thereon. Owner's written decision thereon shall be final and binding upon Contractor, and the final adjustment of Contract Price shall be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price shall account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices shall apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they can comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Owner timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work specifically to be inspected, tested, or approved by an employee or other representative of such public

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body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Owner the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
2. to attain Owner's acceptance of materials or equipment to be incorporated in the Work;
3. by manufacturers of equipment furnished under the Contract Documents;
4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner.

E. If the Contract Documents require the Work to be approved by Owner or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Owner, Contractor shall, if requested by Owner, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Owner timely notice of Contractor's intention to cover the same and Owner had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Owner's Authority*: Owner has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Reasonably timely written notice of all defective Work of which Owner has actual knowledge shall be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Owner has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines

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levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to Final Completion, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work, and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to Final Completion, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a set-off against payments due under Article 15. If the acceptance of defective Work occurs after Final Completion, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Owner has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Owner, then Contractor shall, if requested by Owner, uncover such Work for Owner's observation, and then replace the covering, all at Contractor's expense.

C. If Owner considers it necessary or advisable that covered Work be observed by Owner or inspected or tested by others, then Contractor, at Owner's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Owner requires, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 14 days after the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work

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shall conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of any of the Contractor Parties.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Owner to correct defective Work, or to remove and replace defective Work as required by Owner, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 shall be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages shall include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 shall serve as the basis for progress payments and shall be incorporated into a form of Application for Payment acceptable to Owner. Progress payments for Unit Price Work shall be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work shall be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*

1. Not more often than once a month, Contractor shall submit to Owner for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by: (a) a bill of sale,

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invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which shall be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor, acceptable to Owner, stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

C. *Review of Applications*

1. Owner may, after receipt of each Application for Payment, including each resubmittal, return the Application to Contractor indicating in writing any reasons for refusing the Application in whole or in part. In such case, Contractor shall make the necessary corrections and resubmit the Application.

2. Contractor's Application for Payment shall constitute a representation by Contractor to Owner that to the best of Contractor's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents; and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled.

3. By approving any Application for Payment Owner shall not be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work; or

   b. there are not other matters or issues between the parties that might entitle Owner to withhold payment to Contractor.

4. Owner may reject, in whole or in part, an Application for Payment if necessary in Owner's opinion to protect Owner from loss because:

   a. the Work is defective, requiring correction or replacement;

   b. the Contract Price has been reduced by Change Orders;

   c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

   d. Owner has been required to remove, remediate, or otherwise address a Hazardous Environmental Condition for which Contractor is responsible; or

   e. Owner has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor.

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D. *Payment Becomes Due*

1. Thirty days after Owner's approval of the Application for Payment, the amount approved by Owner (subject to any Owner set-offs and Owner's rights to withhold payment under this Paragraph 15.01) shall become due, and when due shall be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment by Owner under Paragraph 15.01.C, Owner is entitled to impose a set-off against payment, and withhold payment in whole or in part, based on any of the following:

   a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, or patent infringement;

   b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

   c. Contractor has failed to provide and maintain required bonds or insurance;

   d. Owner has been required to remove, remediate, or otherwise address a Hazardous Environmental Condition for which Contractor is responsible;

   e. Owner has incurred extra charges or engineering costs related to Submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

   f. The Work is defective, requiring correction or replacement;

   g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

   h. The Contract Price has been reduced by Change Orders;

   i. An event has occurred that would constitute a default by Contractor and therefore justify a termination of the Contract for cause;

   j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or Final Completion of the Work;

   k. Liens have been asserted or filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or

   l. Other items entitle Owner to impose a set-off against the amount requested.

2. If Owner withholds or imposes any set-off against payment, Owner shall give Contractor prompt written notice stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or

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any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.D.1.

F. If Owner reasonably believes it is necessary, Owner may, at its sole option, issue joint checks to Contractor and any Subcontractor or Supplier, or issue direct payments to any Subcontractor or Supplier, to whom Contractor has failed to make payment for Work properly performed or material or equipment suitably delivered.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment performed and furnished under the Contract shall pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, upon payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use, Contractor shall notify Owner in writing that the entire Work is substantially complete and submit to Owner an initial draft of punch list items to be completed or corrected before Final Completion.

B. Promptly after Contractor's notification, Owner and Contractor shall make an inspection of the Work to determine the status of completion. If Owner does not consider the Work substantially complete, Owner shall notify Contractor in writing, giving the reasons therefor.

C. If Owner considers the Work substantially complete, Owner shall deliver to Contractor a revised punch list of items to be completed or corrected, reflecting Owner's changes, if any, to the initial draft punch list.

D. At the time of Owner's receipt of Contractor's initial notification that Contractor believes the Work is substantially complete, Owner and Contractor also shall confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion, the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to Final Completion. In appropriate cases, Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth in Paragraph 15.01.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion, subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

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15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work that has specifically been identified in the Contract Documents, or that Owner and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor and Owner shall follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner in writing that Contractor considers any such part of the Work substantially complete and request Owner to follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

3. Within a reasonable time after either such request, Owner and Contractor shall make an inspection of that part of the Work to determine its status of completion. If Owner does not consider that part of the Work to be substantially complete, Owner shall notify Contractor in writing giving the reasons therefor. If Owner considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 shall apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that it considers the entire Work or an agreed portion thereof to be finally complete, Owner shall promptly make a final inspection with Contractor and shall notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work and remedy such deficiencies.

15.06 *Final Completion and Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Owner, satisfactorily completed all corrections and other Work identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

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2. The final Application for Payment shall be accompanied (except as previously delivered) by:

    a. all documentation called for in, and in the format required by, the Contract Documents, including but not limited to as-built drawings and specifications reflecting all changes to, and the final condition of, the Work as constructed;

    b. consent of all sureties to final payment;

    c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

    d. a list of all duly pending Change Proposals and Claims; and

    e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2, if approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or that might in any way result in Liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers. In any event, to the full extent permitted by Laws and Regulations, Contractor shall defend (at Owner's option in its sole discretion), indemnify and hold harmless the Owner Parties from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any Liens and claims asserted or filed because of the Work.

B. *Owner's Review of Final Application for Payment*: If, on the basis of Owner's observation of the Work during construction and final inspection, and Owner's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Owner is satisfied that the Work has been finally completed and Contractor's other obligations under the Contract have been fulfilled, final payment shall become due under Paragraph 15.06.D Such determination shall account for any set-offs against payment that are necessary in Owner's opinion to protect Owner from loss for the reasons stated in Paragraphs 15.01.C and 15.01.E with respect to progress payments. Otherwise, Owner shall return the Application for Payment to Contractor, indicating in writing the reasons for refusing to make final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work*: The Work is finally complete (subject to surviving obligations) when final payment is due from Owner to Contractor as established under this Paragraph 15.06.

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D. *Final Payment Becomes Due*: Upon Final Completion, Owner shall set off against the amount for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under Paragraphs 15.01.C and 15.01.E with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days after Owner's receipt and approval of the final Application for Payment from Contractor.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor shall constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If, within one year after the date of Substantial Completion (or such longer period of time prescribed by the Contract Documents or the terms of any applicable warranty or guarantee required by or contained in the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;

2. correct such defective Work;

3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give Contractor reasonably timely notice of any such defect after Owner discovers it. If such notice is given after the end of the correction period, the notice shall be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect, Contractor does not promptly comply with the Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days after invoice from Owner shall be deemed the start

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of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim shall be brought within 30 days after the failure to pay.

D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work shall be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable warranty or statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor. Such notice shall fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an extension of the Contract Times directly attributable to any such suspension, to the extent not caused by any of the Contractor Parties. Any Change Proposal seeking such adjustment shall be submitted no later than 14 days after the date fixed for resumption of Work.

16.02 *Contractor Default; Owner May Terminate the Contract for Cause*

A. The occurrence of any one or more of the following events shall constitute a default by Contractor and entitle Owner to all rights and remedies available to it under the Contract and Laws and Regulations, including but not limited to Owner's termination of the Contract for cause:

1. Contractor's failure to perform the Work in accordance with the Contract Documents (including but not limited to failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard or violation of Laws or Regulations; or

4. Contractor's disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated;

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2. enforce the rights available to Owner under any applicable performance bond; and/or

3. exercise or pursue any other rights and remedies available to Owner under the Contract and Laws and Regulations.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but that are stored elsewhere, and complete the Work as Owner deems expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor, within 7 days after receipt of notice of intent to terminate, begins to correct its failure to perform and diligently cures such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including but not limited to all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess shall be paid to Contractor. If the cost to complete the Work, including but not limited to such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where the Contract has been so terminated by Owner, the termination shall not affect any rights or remedies of Owner against Contractor then existing or that thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner shall not release Contractor from liability.

16.03 *Owner May Terminate the Contract for Convenience*

A. Upon 7 days' written notice to Contractor, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work performed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

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16.04 *Contractor May Stop Work or Terminate the Contract*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Owner fails to act on any Application for Payment within 60 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner, and provided Owner does not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Owner has failed to act on an Application for Payment within 60 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner, stop the Work until payment is made of all such amounts due Contractor. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in the Contract directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after Final Completion.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. Before bringing any action in court pertaining to any Claim, dispute or other matter in question arising out of or related to the Contract Documents or the breach thereof, the claimant shall first provide notice of the Claim, dispute or other matter in question to the other party to this Contract in writing and make a specific demand for settlement of said Claim, dispute or matter. If the other party fails to agree to an acceptable resolution to said Claim, dispute or matter, or offer a specific counter-proposal thereto within five days after the receipt of such notice, or the claimant fails to accept any counter-proposal from the other party within five days after receipt thereof, either party shall be free to submit the Claim, dispute or other matter to litigation in accordance with Paragraph 17.01.B.2.

2. Any Claim, dispute, or other matter in question arising out of or related to the Contract or the Project shall be litigated in the Tennessee Judicial Circuit Court in and for Williamson, County, Tennessee, and the prevailing party to any such litigation shall be entitled to an award of all reasonable attorneys' and experts' fees, expenses and court costs incurred by such prevailing party against the non-prevailing party, including in connection with any appeals.

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ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner or Contractor, it shall be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, if also sent by one of the methods in Paragraph 18.01.A.1 or .2.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it shall be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or legal holiday, such day shall be omitted from the computation.

18.03 *Cumulative Remedies*

A. Except as otherwise specifically provided in the Contract Documents, the duties and obligations imposed by the Contract Documents, and the rights and remedies available thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them that are otherwise imposed or available by Laws or Regulations, by warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph shall be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither the Owner Parties nor Engineer, nor any of their consultants or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all other obligations in the Contract that logically should survive Final Completion or earlier termination of the Contract, shall survive Final Completion or earlier termination of the Contract.

18.07 *Controlling Law*

A. This Contract is to be governed by the laws of the State of Tennessee.

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18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract shall be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that becomes due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction is limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment shall release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors and assigns to the other party hereto and its successors and assigns in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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WORK CHANGE DIRECTIVE NO.:

Owner:	**City of Franklin, TN**
Engineer:	**City of Franklin, TN ("COF") serving as "Engineer"**
Contractor:	
Project Name:	**Bicentennial Park**
Owner's Contract No.:	**2022-0315**
Date Issued:	
Effective Date of Field Order:	

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments:

Purpose for the Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

☐ Non-agreement on pricing of proposed change. ☐ Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: **$** _____

Contract Time: _____ **days**

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price ☐ Cost of the Work ☐ Other

	Recommended by Engineer:	Authorized by Owner:
By:	**Shahad Abdulrahman**	
Title:	**Staff Engineer (Project Manager)**	
Signature:		
Date:		

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CHANGE ORDER NO.:

Owner:	**City of Franklin, TN**
Engineer:	**City of Franklin, TN ("COF") serving as "Engineer"**
Contractor:	
Project Name:	**Bicentennial Park**
Owner's Contract No.:	**2022-0315**
Date Issued:	
Effective Date of Change Order:	

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments:

Change in Contract Price	**Change in Contract Times [State Contract Times as number of days]**
Original Contract Price: $	Original Contract Times: Substantial Completion: Ready for final payment:
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. **[Number of previous Change Order]**: $	**[Increase] [Decrease]** from previously approved Change Orders No.1 to No. **[Number of previous Change Order]**: Substantial Completion: Ready for final payment:
Contract Price prior to this Change Order: $	Contract Times prior to this Change Order: Substantial Completion: Ready for final payment:
[Increase] [Decrease] this Change Order: $	**[Increase] [Decrease]** this Change Order: Substantial Completion: Ready for final payment:
Contract Price incorporating this Change Order: $	Contract Times with all approved Change Orders: Substantial Completion: Ready for final payment:

Recommended by Engineer:		**Recommended by Department Director:**	
By:	**Shahad Abdulrahman**	By:	**Paul Holzen**
Signature:		Signature:	
Title:	**Project Manager (Staff Engineer)**	Title:	**Engineering Director**
Date:		Date:	

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	Contractor Approval		Authorized by Owner
By:		By:	**Dr. Ken Moore**
Signature:		Signature:	
Title:		Title:	**Mayor**
Date:		Date:	

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FIELD ORDER NO.:

Owner:	**City of Franklin, TN**
Engineer:	**City of Franklin, TN ("COF") serving as "Engineer"**
Contractor:	
Project Name:	**Bicentennial Park**
Owner's Contract No.:	**2022-0315**
Date Issued:	
Effective Date of Field Order:	

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s):

Drawing(s) / Details (s):

Description:

Attachments:

Issued by Engineer

By: **Shahad Abdulrahman**

Title: **Project Manager (Staff Engineer)**

Signature: _____

Date: _____

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APPENDIX A – SUPPLEMENTAL SPECIFICATIONS

ARTICLE 1 – SUPPLEMENTAL SPECIFICATION INCLUDED WITH PROJECT MANUAL

The following Supplemental Specifications are included, in their entirety, in Appendix A and are made a part of the Bidding Documents for the **Bicentennial Park (COF Contract No. 2022-0315)**

A. None.

ARTICLE 2 – SUPPLEMENTAL SPECIFICATIONS INCORPORATED BY REFERENCE

The following Supplemental Specifications are herein incorporated by reference and made a part of the Bidding Documents for the Project, except to the extent such Supplemental Specifications (i) do not apply based on the nature of the Project (e.g., road, bridge, street, water, or sewer), or (ii) conflict with another Contract Document identified in Paragraph 7.01.A, in which case the conflicting provision of other Contract Document shall take precedence and control:

A. Bicentennial Park (COF Project No. 2016-005) Technical Specifications (COF Contract No. 2022-0315) – **NOTE:** These project-specific Technical Specifications are contained on the CD that accompanies each official set of Bidding Documents.

B. Supplemental Specifications of the TDOT *Standard Specifications for Road and Bridge Construction*, latest edition (TDOT item numbers included in Bid Form).

C. *Franklin Transportation & Street Technical Standards*, latest edition.

D. *General Requirements and Technical Specifications, Water Management Department, City of Franklin, Tennessee* (*i.e.* Water, Sanitary Sewer, and Reclaimed Water Specifications).

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APPENDIX B – SPECIAL PROVISIONS

SPECIAL PROVISIONS

The following Special Provisions are included, in their entirety, in Appendix B and are made a part of the Bidding Documents for the **Bicentennial Park (COF Contract No. 2022-0315).**

A. City of Franklin ("COF") Special Provision (FSP100RD) Regarding Utility Record Drawings.

B. COF Special Provision (FSP7957U) Regarding Utility Measurement and Payment.

C. Tennessee Department of Transportation ("TDOT") Special Provision (SP102B) Regarding Unbalanced Bids.

D. TDOT Special Provision (SP109B) Regarding Payment Adjustment for Bituminous Material.

- Bituminous Index, May 2023

E. TDOT Special Provision (SP1275) Certification Regarding Debarment, Suspension, and Other Responsibility Matters Primary and Lower Tier Covered Transactions.

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SPECIAL PROVISION

REGARDING

UTILITY RECORD DRAWINGS

PART 1 – GENERAL

1.1 SCOPE

1.1.1 General

The following specifications define the requirements for the preparation and submittal of the Utility Record Drawings for all utilities included in the Contract Documents.

1.1.2 Work Included

The Contractor shall, unless specified otherwise, provide all materials, equipment, tools, and labor necessary for surveying as-built utility installations, and preparation and submittal of Utility Record Drawings. All surveying and Utility Record Drawings must be done by a Professional Surveyor licensed in the State of Tennessee.

1.1.3 Location of the Work

The location of this work is as shown in the Contract Documents.

1.1.4 Coordination of the Work

The Contractor shall be responsible for the satisfactory coordination of the surveying activities with other construction and activities in the area. Delays in work resulting from lack of such harmony shall not in any way be a cause for extra compensation by any of the parties.

1.1.5 Working Hours

The work shall be carried out in accordance with local ordinance and not to cause any unreasonable nuisance to affected residents. Under emergency conditions, this limitation may be waived by the consent of the City of Franklin, TN.

1.2 METHOD OF MEASUREMENT & PAYMENT

All surveying and record preparation must be done by a Professional Surveyor licensed in the State of Tennessee. The work shall be measured, and the compensation determined in the following manner:

1.2.2 Record Drawings

The preparation and submittal of the record drawings shall be paid for on a lump sum basis including preparing and submitting the Professional Surveyor signed and sealed set of Record Drawings in accordance with the requirements listed in this special provision.

1.3 SUBMITTALS

1.3.1 The contractor shall submit the Record Drawings, which are signed and sealed by a State of Tennessee Registered Survey), in the following formats: two (2) full-size (paper size shall be 22” x 34” or 24” x 36” with a maximum scale of 1”= 50’), one (1) digital PDF to the same scale as the full-size paper drawings, and Computer-Aided Design and Drafting (CADD) digital files in AutoCAD (DWG) or MicroStation (DGN) format, prepared utilizing the same coordinate system as shown in the Contract Documents.

PART 2 – PRODUCTS

2.1 MATERIALS

The contractor shall furnish all materials of adequate quality for the purpose intended, including all stakes, pipes, paint, and all other materials necessary to properly perform the required work. Stakes and pipes shall be suitable for general field construction staking and shall be durable enough to last from installation of the utility to the surveying for the preparation of the Record Drawings. Any stakes and pipes damaged during the duration of the contract shall be replaced and re-set at their proper location with no additional compensation being made therefore.

PART 3 – EXECUTION

3.1 GENERAL

3.1.1 The Engineer of Record will provide the CADD Drawings to the project's contractor for use by the Professional Surveyor for the production of the Record Drawings.

3.2 SURVEYING REQUIREMENTS

All surveying for the project shall be done by or under the supervision of a Tennessee licensed Professional Surveyor. The Professional Surveyor shall review the work, resolve problems, and make decisions in a timely manner.

3.3 SURVEYING FOR RECORD DRAWINGS

The contractor shall only be required to provide Record Drawings for the various systems listed below in sections 3.3.1 thru 3.3.10 that have been or will be modified, altered, installed, constructed, or otherwise disturbed as a part of the construction contract to which this Special Provision has been attached or included.

3.3.1 Property Lines and Easements

The surveyor shall show all property lines and easements included in the Contract Documents.

3.3.2 Stormwater Record Drawings

The following stormwater items shall be included: stormwater culverts and pipes (including: material, slope and length), structures (manholes, catch basins, junction boxes, end walls, outlet structures, etc. [including rim elevations and inverts]) and permanent stormwater Best Management Practices (BMPs) with depicting 1' contours and 25' around the permanent stormwater BMPs (including: detention ponds, retention ponds, bioretention ponds, infiltration trenches, etc.).

3.3.3 City of Franklin, TN Traffic Signals and Fiber Optics Record Drawings:

The following traffic signal and fiber optics shall be included: signal poles, pedestrian poles, CCTV poles, school zone flashers, signal cabinets, conduit (including: conduit size, number of conduit, material, length, description of utility located in conduit, etc.), electrical service pedestals, pull boxes and vehicle detectors.

3.3.4 Street and/or Site Lighting System:

The following street and pedestrian lighting systems shall be included: light poles, pull boxes, conduit (including: conduit size, number of conduit, material, length, description of utility located in conduit, etc.), controller cabinets and service pedestal.

3.3.5 Water Record Drawings:

The following potable water items shall be included: public and private water mains (including: size and material), private laterals (including: size and material), valves (including type: gate valve, blow off valve, air release valve, etc.), meters and enclosures (including: type, size and material), backflow preventers and enclosures (including: type, size and material) and fire suppression items (including: hydrants, meters, fire department connections, etc.). Reference specific utility provider technical specifications and guidelines for additional requirements.

3.3.6 Sanitary Sewer Record Drawings:

The following sanitary sewer items shall be included: public and private gravity sanitary sewer mains (including: material, slope and length), structures (including: rim elevations and all inverts), cleanouts, private laterals (including: size and material), low pressure pumps (including size), force mains (including: material, slope, depth and length), pump stations (including: buildings, driveways, fences, enclosures, etc.), and valves (including valve type).

3.3.7 Reclaimed Water Record Drawings:

The following reclaimed water items shall be included: public and private reclaimed water mains (including: size and material), private laterals (including size and material), valves (including type [*e.g.* gate valve, blow off valve, air release valve, etc.]), meters / meter boxes (including size), backflow preventers and enclosure (including: type, size and material) and fire hydrants.

3.3.8 Natural Gas Record Drawings:

The following natural gas items shall be included: public and private gas mains (including: size and material), valves (including: size and type), regulating stations, services, and meters.

3.3.9 Electrical and Communications Record Drawings:

The following electrical and communications (*i.e.* phone, cable, fiber optic, etc.) items shall be included: pole locations, riser poles, conduit (including: conduit size, number of conduit, material, length, description of utility located in conduit, etc.), pull boxes, transformers/switches, equipment pads, vaults/manholes (including rim elevations), services runs, service pedestals and meters.

3.3.10 Irrigation:

The following irrigation items shall be included: irrigation tap locations, meter locations, pump stations, backflows, controllers, sensors, all pipe sizes/materials, sleeves, valve locations, sprinkler heads, etc. Plans shall include dimensional data from building walls, curbs, sidewalks, etc.

END OF SPECIAL PROVISION

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SPECIAL PROVISION

REGARDING

UTILITY MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for measurement and payment for City of Franklin ("COF")-funded projects.

B. Measurement for payment on a unit price basis shall be as described herein. Payment for each item installed shall be made according to the unit price bid, as listed on the Bid Form. Only those items appearing on the Bid Form will be considered for payment on a unit price basis. In the event there are discrepancies between the BID form and the Schedule of Pay Items the Bid form will govern. The items listed on the Bid Form include Tennessee Department of Transportation ("TDOT") item numbers for reference to the latest TDOT *Standard Specifications for Road and Bridge Construction*. Payment of items listed on the Bid Form shall be accordance with the method of measurement and basis of payment listed in the TDOT *Standard Specifications for Road and Bridge Construction.*

C. Pay items for the Work for which contract lump sum payment will be made are listed on the Bid Form and briefly described herein. All costs for items of Work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be considered incidental to the pay items and the cost of such shall be included in the listed lump sum item most closely associated with the Work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all labor, materials, machinery, equipment, tools, apparatus, service, and other necessary supplies and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests, and reports, and for performing all Work required for which separate payment is not otherwise provided.

D. When actual field conditions differ from assumed design conditions and result in a reduction in materials, equipment, and appurtenances to be installed, a negative adjustment will be made to the Contract. If items are provided on the bid form these items will be used for adjustment, otherwise, the Contractor shall provide costs for a Change Order.

E. The Contractor shall furnish all necessary labor, materials, machinery, equipment, tools, apparatus, service, and other necessary supplies and perform all Work shown on the Drawings and/or described in the Specifications at the price listed on the Bid Form. The Work shall be complete-in-place and ready for operation.

F. The Contractor has become thoroughly familiar with the terms and conditions of the Bidding Documents and with local conditions affecting the performance and costs of the Work at the place where the Work is to be completed and has fully inspected the site in all particulars, informing himself fully regarding all conditions pertaining to the Work site.

1.3 SCHEDULE OF PAY ITEMS

A. Section 31 0000 – Earthwork

1. **Earthwork:** Earthwork associated with utilities is not a pay item. All earthwork and excavation related to utilities lines and appurtenances shall be unclassified and included in the cost of other items.

2. **Overdepth Excavation and Backfill with Crushed Stone (Within the Utility Trench - As Directed by the Engineer):** The quantities for which payment shall be considered shall be expressed per **Cubic Yard (C.Y.)** as indicated on the Bid Form. Such payment shall include full compensation for the removal of material and placement of crushed stone as directed by the Engineer.

B. **Section 31 2319 – Dewatering:** Dewatering is not a pay item and cost shall be included in other items.

C. **Section 31 5000 – Excavation Support and Protection:** Excavation support and protection is not a pay item and cost shall be included in other items.

D. **Section 33 0131 – Rehabilitation of Sewer Utilities:** Rehabilitation of sewer utilities is a pay item. Payment for this work shall be as specified on the Bid Form and be considered as full compensation for this item, including all labor, materials, and equipment required to complete the item in accordance with the Bidding Documents.

E. **Section 33 0133 – Rehabilitation of Manholes:** Rehabilitation of manholes is a pay item. Payment for this work shall be as specified on the Bid Form and be considered as full compensation for this item, including all labor, materials, and equipment required to complete the item in accordance with the Bidding Documents.

F. **Section 33 0523 – Trenchless Installation of Utilities:** Trenchless installation of utilities is a pay item. Payment for this work shall be as specified on the Bid Form and be considered as full compensation for this item, including all labor, materials, and equipment required to complete the item in accordance with the Bidding Documents.

1. **Bore/Jack (With X" Steel Casing and X" Restrained Joint [Pipe Material]):** The quantities for which payment shall be considered shall be expressed per **Linear Feet (L.F.)** as specified on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the steel casing and restrained joint pipe, casing spacers, end seals, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, testing, flushing, disinfection, bacteriological sampling, clean-up, and all other items necessary to complete the work.

2. **Tunnel (With X" Steel Casing and X" Restrained Joint [Pipe Material]):** The quantities for which payment shall be considered shall be expressed per **Linear Feet (L.F.)** as specified on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the steel casing, restrained joint pipe, grouting, backfilling of the tunnel casing spaces, end seals, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, testing, flushing, disinfection, bacteriological sampling, clean-up, and all other items necessary to complete the work.

G. **Section 33 1100 – Water Utility Distribution Piping:** Water utility distribution piping is a pay item. Payment for this work shall be as specified on the Bid Form and be considered as full compensation for this item, including all labor, materials, and equipment required to complete the item in accordance with the Bidding Documents.

1. **Water Main:** The quantities for which payment shall be considered shall be expressed per **Linear Feet (L.F.)** for the size and material type of pipe, in terms of horizontal lengths of pipe installed in place measured along the centerline with no deduction for valves or fittings, as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of pipe, jointing materials, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, testing, flushing, disinfection, bacteriological sampling, clean-up, and all other work necessary to complete the work.

2. **Water Main Installed in Steel Casing:** The quantities for which payment shall be made will be expressed in **Linear Feet (L.F.)** for each size and material type of pipe in terms of horizontal lengths of pipe installed in place measured along the centerline. Such payment shall include full compensation for furnishing and installation of the steel casing, restrained joint pipe, casing spacers, end seals, jointing materials, survey, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, testing, flushing, disinfection, bacteriological sampling, clean-up, and all other items necessary to complete the work.

3. **Fittings:** Unless otherwise specified on the Bid form, quantities of fittings shall not be a pay item and included in the cost of Water Main Installation.

4. **Water Service Lines:** The quantities for which payment shall be considered shall be expressed per **Linear Feet (L.F.)**, in terms of horizontal lengths of pipe installed in place measured along the centerline with no deduction for valves or fittings, for the size and material type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of water service lines, survey & layout, clearing, grubbing,

unclassified excavation, bedding backfill, testing flushing disinfection, bacteriological sampling, clean-up, and all other work necessary to complete the work.

5. **Connection to Existing Water Main:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** for the various sizes and material type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the restraint devices necessary to complete the connection, survey & Layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, testing, flushing, disinfection, bacteriological sampling, clean-up, and all other items necessary to complete the work.

6. **Cut & Cap / Plug Existing Water Main:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** for the various sizes and material types as indicated on the Bid Form. Such payment shall include compensation for furnishing and installing all fittings required, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, testing, flushing, disinfection, bacteriological sampling, clean-up, and all other items necessary to complete the work.

7. **Disconnect/Reconnect Existing Water Service Assembly:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** for the size and material type as indicated on the Bid Form. Such payment shall include full compensation for the disconnection of existing water service assembly and reconnection of the existing water service assembly, clearing, grubbing, unclassified excavation, bedding backfill, testing, clean-up, and all other items necessary to complete the work.

H. **Section 33 1216 – Valves:** Valves are a pay item. Payment for this work shall be as specified on the Bid Form and be considered as full compensation for this item, including all labor, materials, and equipment required to complete the item in accordance with the Bidding Documents.

1. **Gate Valve and Box:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and material type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the valve, valve box (including adjustments), gearing, coatings, nut operator extensions, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, disinfection, clean-up, and all other items necessary to complete the work.

2. **Butterfly Valve and Box:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and material type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the valve, valve box (including adjustments), gearing, coatings, nut operator extensions, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, disinfection, clean-up, and all other items necessary to complete the work.

3. **Air Release Assembly & Box:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and material type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the valve, valve

box (including adjustments), gearing, coatings, nut operator extensions, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, disinfection, clean-up, and all other items necessary to complete the work.

4. **Tapping Sleeve, Valve & Valve Box:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and material type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the tapping sleeve, valve, valve box (including adjustments), gearing, coatings, nut operator extensions, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, disinfection, clean-up, and all other items necessary to complete the work.

5. **Combination Air Valve Assembly:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and material type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the vault/manhole (including adjustments), valve, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, disinfection, clean-up, and all other items necessary to complete the work.

I. **Section 33 1219 – Hydrants:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the hydrant lead (from, and including the water main tee), reducers (as required), hydrant assembly, hydrant lead gate valve, valve box (including adjustments), hydrant extension, rodding or other restraining devices, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, disinfection, clean-up, and all other items necessary to complete the work.

J. **Section 33 1233 – Water Service Assemblies:** Water service assemblies are a pay item. Payment for this work shall be as specified on the Bid Form and be considered as full compensation for furnishing and installing material needed for complete installation.

1. **Backflow Preventer W/ Safe-T-Cover:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and type of assembly as indicated on the Bid Form. Such payment shall be full compensation for the furnishing and installing the backflow preventer, Safe-T-Cover enclosure with recommended heater, adjustable pipe supports, concrete pad, base stone, survey & layout, clearing, grubbing, unclassified excavation, testing, clean-up, and all other items necessary to complete the work. Electrical connection, wire and conduit shall not be included in this pay item and shall be measured and paid for separately.

2. **Reduced Pressure Backflow Preventer W/ Safe-T-Cover:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and type of assembly as indicated on the Bid Form. Such payment shall be full compensation for the furnishing and installing the reduced pressure backflow preventer, Safe-T-Cover enclosure with recommended heater, adjustable pipe supports, concrete pad, base stone, survey & layout, clearing, grubbing, unclassified excavation, testing, clean-up, and all other items necessary to

complete the work. Electrical connection, wire and conduit shall not be included in this pay item and shall be measured and paid for separately.

3. **Irrigation Reduced Pressure Backflow Preventer without Safe-T-Cover:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and type of assembly as indicated on the Bid Form. Such payment shall be full compensation for the furnishing and installing the reduced pressure backflow preventer, survey & layout, clearing, grubbing, unclassified excavation, testing, clean-up, and all other items necessary to complete the work.

4. **Water Meter Service Assemblies:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and type of assembly as indicated on the Bid Form. Such payment shall be full compensation for the furnishing and installing the water meter, meter box (including adjustments), meter setting, concrete footing blocks, survey & layout, clearing, grubbing, unclassified excavation, testing, clean-up, and all other items necessary to complete the work. City Fees associated with the purchase of taps shall not be part of this pay item.

5. **Water Meter Assembly, Valves and Vault:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and type of assembly as indicated on the Bid Form. Such payment shall be full compensation for the furnishing and installing the water meter, valves, precast concrete vault (including adjustments), adjustable pipe supports, sump pump/GFCI Outlet or 2" PVC Drain Line, survey & layout, clearing, grubbing, unclassified excavation, testing, clean-up, and all other items necessary to complete the work. City Fees associated with the purchase of taps shall not be part of this pay item. City Fees associated with the purchase of taps shall not be part of this pay item.

6. **Fire Meter Assembly, Valves and Vault:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and type of assembly as indicated on the Bid Form. Such payment shall be full compensation for the furnishing and installing the fire meter, valves, precast concrete vault (including adjustments), adjustable pipe supports, sump pump/GFCI Outlet or 2" PVC Drain Line, survey & layout, clearing, grubbing, unclassified excavation, testing, clean-up, and all other items necessary to complete the work. City Fees associated with the purchase of taps shall not be part of this pay item. City Fees associated with the purchase of taps shall not be part of this pay item.

K. **Section 33 1234 – Reclaimed Water Service Assemblies**

1. **Reclaimed Water Meter Service Assemblies:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and type of assembly as indicated on the Bid Form. Such payment shall be full compensation for the furnishing and installing the water meter, meter box (including adjustments), meter setting, concrete footing blocks, survey & layout, clearing, grubbing, unclassified excavation, testing, clean-up, and all other items necessary to complete the work. City Fees associated with the purchase of taps shall not be part of this pay item.

2. **Reclaimed Water Meter Assembly, Valves and Vault:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** size and type of assembly as indicated on the Bid Form. Such payment shall be full compensation for the furnishing and installing the water meter, valves, precast concrete vault (including adjustments), adjustable pipe supports, survey & layout, clearing, grubbing, unclassified excavation, testing, clean-up, and all other items necessary to complete the work. City Fees associated with the purchase of taps shall not be part of this pay item. City Fees associated with the purchase of taps shall not be part of this pay item.

L. **Section 33 3113 – Sanitary Sewer (Gravity):** Sanitary sewers (gravity) are a pay item. Payment for this work shall be as specified on the Bid Form and be considered as full compensation for this item, including all labor, materials, and equipment required to complete the item in accordance with the Bidding Documents.

1. **Gravity Sewer Main:** The quantities for which payment shall be made will be expressed in **Linear Feet (L.F.)** for each size and material type of pipe in terms of horizontal lengths of pipe installed in place measured along the centerline with no deduction for manholes. Such payment shall include full compensation for furnishing and installation of pipe, survey, clearing, grubbing, unclassified excavation, bedding, backfill, testing, clean-up, and all other items necessary to complete the work.

2. **Restrained Joint Gravity Sewer Main Installed in Steel Casing (Open Cut):** The quantities for which payment shall be made will be expressed in **Linear Feet (L.F.)** for each size and material type of pipe in terms of horizontal lengths of pipe installed in place measured along the centerline. Such payment shall include full compensation for furnishing and installation of the steel casing and restrained joint pipe, casing spacers, end seals, survey, clearing, grubbing, unclassified excavation, bedding, backfill, testing, clean-up, and all other items necessary to complete the work.

3. **Lateral Service:** The quantities for which payment shall be made will be expressed in **Linear Feet (L.F.)** for each size and material type of pipe in terms of horizontal lengths of pipe installed in place measured along the centerline with no deduction for cleanouts. Such payment shall include full compensation for furnishing and installation of pipe, disconnecting and capping the existing service and the connection to existing service, survey, clearing, grubbing, unclassified excavation, bedding, backfill, testing, clean-up, and all other items necessary to complete the work.

4. **Clean Out Assembly:** The quantities for which payment shall be made will be expressed per **Each (EACH)** size and material type installed. Such payment shall include full compensation for furnishing and installation of the cleanout Assembly, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, testing, clean-up, and all other items necessary to complete the work.

5. **Clean Out Assembly in precast valve box (Installed in pavement):** The quantities for which payment shall be made will be expressed per **Each (EACH)** size and material type installed. Such payment shall include full compensation for furnishing and installation of the cleanout

assembly, traffic rated valve box (including adjustments), survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, testing, clean-up, and all other items necessary to complete the work.

6. **Connect Gravity Sanitary Sewer to Existing Manholes:** The quantities for which payment shall be made will be expressed per **Each (EACH)** connection made. Such payment shall include full compensation for furnishing and installation required for coring of the existing manhole wall, installation of pipe/manhole seal, re-forming the bench and invert, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, testing, and clean-up.

7. **Connect Manhole to Existing Sanitary Sewer:** The quantities for which payment shall be made will be expressed per **Each (EACH)** connection made. Such payment shall include full compensation for furnishing and installation required for installation of pipe/manhole seal, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, testing, and clean-up.

8. **Concrete Check Dam:** The quantities for which payment shall be made will be expressed per **Each (EACH)** check dam installed. Such payment shall include full compensation for flowable fill, sandbagging/forming as needed, concrete blocking, stainless steel hold down straps as required, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, testing, and clean-up.

9. **Restrained Joint Gravity Sewer Main Installed in Concrete Encasement w/ Check Dam (Stream Crossing):** The quantities for which payment shall be made will be expressed per **Linear Feet (L.F.)** installed. Such payment shall include full compensation for furnishing and installation of pipe, flowable fill, sandbagging/forming as needed, concrete blocking, stainless steel hold down straps as required, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, testing, and clean-up.

10. **Removal of Sanitary Sewer Main (Size and Location):** Removal and proper disposal of existing gravity sewer pipe is not a pay item unless otherwise indicated on the Bid Form. When indicated on the Bid Form, the quantities for which payment shall be made will be expressed in **Linear Feet (L.F.)** for each size and material type of pipe in terms of horizontal lengths of pipe removed and measured along the centerline with no deduction for manholes. Such payment shall include full compensation for proper disposal of materials, survey & layout, clearing, grubbing, unclassified excavation, backfill, clean-up, and all other items necessary to complete the work.

11. **Cut & Cap/Plug Existing Sanitary Sewer Main:** The quantities for which payment shall be made will be expressed per **Each (EACH)** of the various sizes and types. Such payment shall include full compensation for furnishing and installing all caps and plugs, cutting existing line, survey & layout, clearing, grubbing, unclassified excavation, backfill, clean-up and all other items necessary to complete the work.

12. **Disconnect/Reconnect Existing Sanitary Sewer Lateral Service:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** for the size and material

type as indicated on the Bid Form. Such payment shall include full compensation for the disconnection and capping of existing sanitary sewer lateral service and reconnection of the existing lateral service, clearing, grubbing, unclassified excavation, bedding backfill, testing, clean-up, and all other items necessary to complete the work.

M. **Section 33 3115 – Sewer Flow Control:** When indicated on the Bid Form, sewer flow control shall be a pay item. If Sewer flow control is not indicated on the Bid Form the cost shall be included in other items. Payment for this work shall be made as a Lump Sum payment based on percentage of work complete. Payment shall include preparation of wastewater flow control bypass plan, bypass pumps, backup pumps, piping to ensure reliable sanitary sewer service in all sanitary sewer lines. Under no circumstances will the flow be interrupted or stopped such that damage is done to either private or public property or sewage flows or overflows into a storm sewer or natural waterway.

N. **Section 33 3130 – Sewer Television Inspection:** Sewer television inspection is a pay item. Payment for this work shall be made as **Linear Feet (L.F.)** and be considered as full compensation for this item.

O. **Section 33 3300 – Reclaimed Water Distribution Piping**

1. **Reclaimed Water Main:** The quantities for which payment shall be considered shall be expressed per **Linear Feet (L.F.)** for the size and material type of pipe, in terms of horizontal lengths of pipe installed in place measured along the centerline with no deduction for valves or fittings, as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of pipe, jointing materials, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, testing, flushing, disinfection, bacteriological sampling, clean-up, and all other work necessary to complete the work.

2. **Reclaimed Water Main Installed in Steel Casing:** The quantities for which payment shall be made will be expressed in **Linear Feet (L.F.)** for each size and material type of pipe in terms of horizontal lengths of pipe installed in place measured along the centerline. Such payment shall include full compensation for furnishing and installation of the steel casing, restrained joint pipe, casing spacers, end seals, jointing materials, survey, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, testing, flushing, disinfection, bacteriological sampling, clean-up, and all other items necessary to complete the work.

3. **Fittings:** Unless otherwise specified on the Bid form, quantities of fittings shall not be a pay item and included in the cost of Water Main Installation.

4. **Reclaimed Water Service Lines:** The quantities for which payment shall be considered shall be expressed per **Linear Feet (L.F.)**, in terms of horizontal lengths of pipe installed in place measured along the centerline with no deduction for valves or fittings, for the size and material type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of water service lines, survey & layout, clearing, grubbing, unclassified excavation, bedding backfill, testing flushing disinfection, bacteriological sampling, clean-up, and all other work necessary to complete the work.

5. **Connection to Existing Reclaimed Water Main:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** for the various sizes and material type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the restraint devices necessary to complete the connection, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, testing, flushing, disinfection, bacteriological sampling, clean-up, and all other items necessary to complete the work.

6. **Cut & Cap / Plug Existing Reclaimed Water Main:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** for the various sizes and material types as indicated on the Bid Form. Such payment shall include compensation for furnishing and installing all fittings required, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, reaction blocking, testing, flushing, disinfection, bacteriological sampling, clean-up, and all other items necessary to complete the work.

7. **Disconnect/Reconnect Existing Reclaimed Water Service Assembly:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** for the size and material type as indicated on the Bid Form. Such payment shall include full compensation for the disconnection of existing water service assembly and reconnection of the existing water service assembly, clearing, grubbing, unclassified excavation, bedding backfill, testing, clean-up, and all other items necessary to complete the work.

P. **Section 33 3400 – Sewage Force Main:** Sewage force main is a pay item. Payment for this work shall be as specified on the Bid Form and be considered as full compensation for this item, including all labor, materials, and equipment required to complete the item in accordance with the Bidding Documents. The quantities of pipe for which payment will be allowed shall be expressed in **Linear Feet (L.F.)** for each size and type of pipe in terms of the horizontal lengths of pipe installed in place as measured along the center line with no deductions for fittings. Payment also includes the furnishing and installing of pipe at design grade, jointing materials (including excavation and backfill) tracer wire, and all other work necessary for and incidental to completion of the Work. No additional payment will be considered for force main fittings.

Q. **Section 33 3913 – Manholes:** Manholes are a pay item. Payment for this work shall be as specified on the Bid Form and be considered as full compensation for this item, including all labor, materials, and equipment required to complete the item in accordance with the Bidding Documents.

1. **Sanitary Sewer Manholes (0'-6' Depth):** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** for the size and type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of type and size of manhole up to 6 feet in depth including a traffic type casting, concrete admixture, manhole steps, stainless steel plates and bolts on each manhole base, riser, and cone to anchor structure together from base to cover, survey & layout, clearing grubbing, unclassified excavation, bedding, backfill, testing, clean-up, and all other items necessary to

complete the work. Additional payment shall be made for vertical sidewall beyond 6 feet in depth and watertight frame and cover.

2. **Doghouse Manholes (0'-6' Depth):** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** for the size and type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of type and size of manhole up to 6 feet in depth including a traffic type casting, concrete admixture, manhole steps, stainless steel plates and bolts on each manhole base, riser, and cone to anchor structure together from base to cover, survey & layout, clearing grubbing, unclassified excavation, bedding, backfill, testing, clean-up, and all other items necessary to complete the work. Additional payment shall be made for vertical sidewall beyond 6 feet in depth and watertight frame and cover.

3. **Additional Depth for Sanitary Sewer Manholes:** The quantities for which payment shall be considered shall be expressed per Vertical Face, measured from the finished casting elevation to the invert minus 6 feet, for the size and type as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of type and size of manhole greater than 6' in depth including a traffic type casting, concrete admixture, manhole steps, plates, survey & layout, clearing grubbing, unclassified excavation, bedding, backfill, testing, clean-up, and all other items necessary to complete the work.

4. **Additional Payment for Watertight Frame and Cover:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of a watertight frame and cover, stainless steel anchor bolts, washers and nuts, and all other items necessary to complete the work.

5. **Manhole Vent Assembly:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the manhole vent assembly, Resilient Boot Manhole Connection, Concrete, cap/plug, flanged fittings, survey & layout, clearing, grubbing, unclassified excavation, bedding, backfill, testing, clean-up and all other items necessary to complete the work.

6. **External Drop Manhole Assembly (Size, Material):** The quantities for which payment shall be considered shall expressed per **Each (EACH)** as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the sanitary sewer, resilient boots, reworking invert as needed, concrete encasement, survey & layout, clearing, grubbing, unclassified excavation, bedding backfill, testing, clean-up, and all other items necessary to complete the work.

7. **Internal Drop Manhole Assembly (Size, Material):** The quantities for which payment shall be considered shall expressed per **Each (EACH)** as indicated on the Bid Form. Such payment shall include full compensation for the furnishing and installation of the Sanitary Sewer, resilient boots, reworking invert as needed, stainless steel straps, fittings, survey & layout,

clearing, grubbing, unclassified excavation, bedding backfill, testing, clean-up, and all other items necessary to complete the work.

8. **Removal of Existing Sanitary Sewer Manhole:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** as indicated on the Bid Form. Such payment shall include full compensation for the removal and proper disposal of the existing sanitary sewer manhole base, riser, cone, survey & layout, clearing, grubbing, unclassified excavation, backfill, clean-up, and all other items necessary to complete the work.

9. **Abandon Existing Manhole in Place:** The quantities for which payment shall be considered shall be expressed per **Each (EACH)** as indicated on the Bid Form. Such payment shall include full compensation for the removal and proper disposal of the existing sanitary sewer cone and riser 4' below proposed grade, drilling holes in the manhole base, filling manhole with crushed stone, survey & layout, clearing, grubbing, unclassified excavation, backfill, clean-up, and all other items necessary to complete the work.

10. **Flowable Fill Existing Sanitary Sewer and Manhole:** The quantities for which payment shall be made will be expressed per **Cubic Yard (C.Y.)** of flowable fill installed. Such payment shall include full compensation for the removal and proper disposal of the existing sanitary sewer cone and riser 4' below proposed grade, flowable fill material with sufficient pressure and in numerous locations to completely fill the existing sanitary sewer line and manholes, survey & layout, clearing, grubbing, unclassified excavation, backfill, clean-up, and all other items necessary to complete the work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SPECIAL PROVISION

S T A T E **O F** **T E N N E S S E E**

(Rev. 2-17-15) January 1, 2021

SPECIAL PROVISION

REGARDING

UNBALANCED BIDS

The Department will review all unit prices submitted by the apparently lowest responsible bidder and will decide whether any of the unit prices are excessively above or below a reasonable cost analysis value determined by the Engineer.

In the event any unit prices are determined to be unbalanced and contrary to the interest of the Department, the right is reserved to reject such bid at the discretion of the Department or to award the Contract and limit progress payments on units of work performed on any excessively priced items to costs that are satisfactorily documented by the Contractor plus 20 percent, until 85 percent of the Contract has been completed. Upon completion of 85 percent of the Contract, the Contractor will be reimbursed in accordance with **Subsection 109.08** of the Standard Specifications for the accepted quantities of work performed on the excessively priced items.

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S T A T E **O F** **T E N N E S S E E**

(Rev. 05-16-16)
(Rev. 04-01-19)
(Rev. 11-08-19)
(Rev. 3-2-23)

January 1, 2021

SPECIAL PROVISION

REGARDING

PAYMENT ADJUSTMENT FOR BITUMINOUS MATERIAL

This Special Provision covers the method of payment adjustment for bituminous materials.

100% Virgin Bituminous Material

A payment adjustment will be made to compensate for increases and decreases of 5% or more in the contractor's bituminous material cost. The normal bid items in the contract covering the bituminous material shall not be changed. Payment adjustments (+/-) shall be paid under "Payment Adjustment for Bituminous Material" and calculated as described herein:

A "Basic Bituminous Material Index" will be established by the Tennessee Department of Transportation prior to the time the bids are opened. This "Basic Bituminous Material Index" is the average of the current quotations on P.G. 64-22 from suppliers furnishing asphalt cement to contractors in the State of Tennessee. These quotations are the cost per ton f.o.b. supplier's terminal.

The "Basic Bituminous Material Index" for this project is **$ 651.82** per ton.
(May 2023)

The "Monthly Bituminous Material Index" is also established on the first day of each month by the same method. A payment adjustment shall be made provided the "Monthly Bituminous Material Index" varies 5% or more (+/-) from the "Basic Bituminous Material Index".

Where the price index varies 5% or more (+/-), the payment adjustment will be made as follows:

PA = [Ic - Ib] x T

Where:

PA =	Price Adjustment for Adjustment Month
Ib =	Basic Bituminous Material Index
Ic =	Monthly Bituminous Material Index
T =	Tons bituminous material for Adjustment Month

Payment adjustment will be applied to all asphalt cement, asphalt emulsion, or bituminous material used for paving on this project.
Upon the expiration of the allocated working time, as set forth in the original contract or as extended by Change Order, payment adjustments for bituminous material will continue to be made when the "Monthly Bituminous Material Index" varies 5% or more (+/-) from the "Basic Bituminous Material Index".

The calculation of the bituminous payment adjustment shall be made using the "Monthly Bituminous Material Index" or the "Bituminous Material Index for Contract Completion Date" in accordance with the following formulas:

The "Bituminous Material Index for Contract Completion Date" is the Monthly Bituminous Material Index in effect on the allocated Contract Completion Date or on the completion date as extended by Change Order.

The "Monthly Bituminous Material Index" is **less** than the "Bituminous Material Index for Contract Completion Date".

PA = [Ic - Ib] x T

The "Monthly Bituminous Material Index" is **greater** than the "Bituminous Material Index for Contract Completion Date".

PA = [Icd - Ib] x T

Where:

PA =	Price Adjustment for Adjustment Month
Ib =	Basic Bituminous Material Index
Ic =	Monthly Bituminous Material Index
Icd =	Bituminous Material Index for Contract Completion Date (or as extended by Change Order)
T =	Tons

FOR REFERENCE ONLY

SiteManager or spreadsheet calculates the price adjustment based on the actual amount of asphalt cement (residue) in the emulsion using the following percentages:

-tack coats and shoulder sealants (e.g., SS-1, SS-1h, CSS-1, Css-1h)	63% residue
-prime coats (e.g., AE-P)	54% residue
-scrub seals and microsurfacing (e.g., CQS-1HP)	65% residue
-chip seals (e.g., CRS-2, CRS-2P)	69% residue
-hot in-place recycle (ARA-3P)	63% residue

Mixes Containing Recycled Bituminous Material

The quantity of virgin asphalt cement in tons subject to payment adjustment in recycled mixes shall be the product of the total tons of each mix multiplied by the difference between (1) the percent of asphalt cement specified for bidding purposes and (2) the percent of asphalt cement obtained from the recycled asphaltic material (RAP) used in each mix. No payment adjustment under this special provision for increases and decreases in the contractor's cost for virgin asphalt cement in recycled mixes will be allowed for asphalt cement content in excess of the percent specified for bidding purposes, as all payment adjustments for asphalt cement in the mix design of recycled mixes in excess of the percent of asphalt cement specified for bidding purposes will be made in accordance with the Standard Specifications.

No payment adjustment for bituminous material containing RAP shall be made unless the "Monthly Bituminous Material Index" varies 5% or more (+/-) from the "Basic Bituminous Material Index" indicated in this Special Provision.

Where the price index varies 5% or more (+/-), the payment adjustment will be made as follows:

$$PA = [Ic - Ib] \times \frac{[BA - RA]}{100} \times Tm$$

PA = Price Adjustment for Adjustment Month
Ib = Basic Bituminous Material Index
Ic = Monthly Bituminous Material Index
BA = Percent asphalt specified for bidding purposes
RA = Percent asphalt obtained from recycled asphaltic material used in each mix
Tm = Tons asphalt mix for adjustment month

Upon the expiration of the allocated working time, as set forth in the original contract or as extended by Change Order, payment adjustments for bituminous material containing RAP will continue to be made when the "Monthly Bituminous Material Index" varies 5% or more (+/-) from the "Basic Bituminous Material Index".

The calculation of the bituminous payment adjustment shall be made using the "Monthly Bituminous Material Index" or the "Bituminous Material Index for Contract Completion Date" in accordance with the following formulas:

The "Bituminous Material Index for Contract Completion Date" is the Monthly Bituminous Material Index in effect on the allocated Contract Completion Date or on the completion date as extended by Change Order.

The "Monthly Bituminous Material Index" is **less** than the "Bituminous Material Index for Contract Completion Date".

$$PA = [Ic - Ib] \times \frac{[BA - RA]}{100} \times Tm$$

The "Monthly Bituminous Material Index" is **greater** than the "Bituminous Material Index for Contract Completion Date".

$$PA = [Icd - Ib] \times \frac{[BA - RA]}{100} \times Tm$$

Where:

PA =	Price Adjustment for Adjustment Month
Ib =	Basic Bituminous Material Index
Ic =	Monthly Bituminous Material Index
Icd =	Bituminous Material Index for Contract Completion Date (or as extended by Change Order)
BA =	Percent asphalt specified for bidding purposes
RA =	Percent asphalt obtained from recycled asphaltic material used in each mix
Tm =	Tons asphalt mix for adjustment month

Bituminous Index ($, ton)

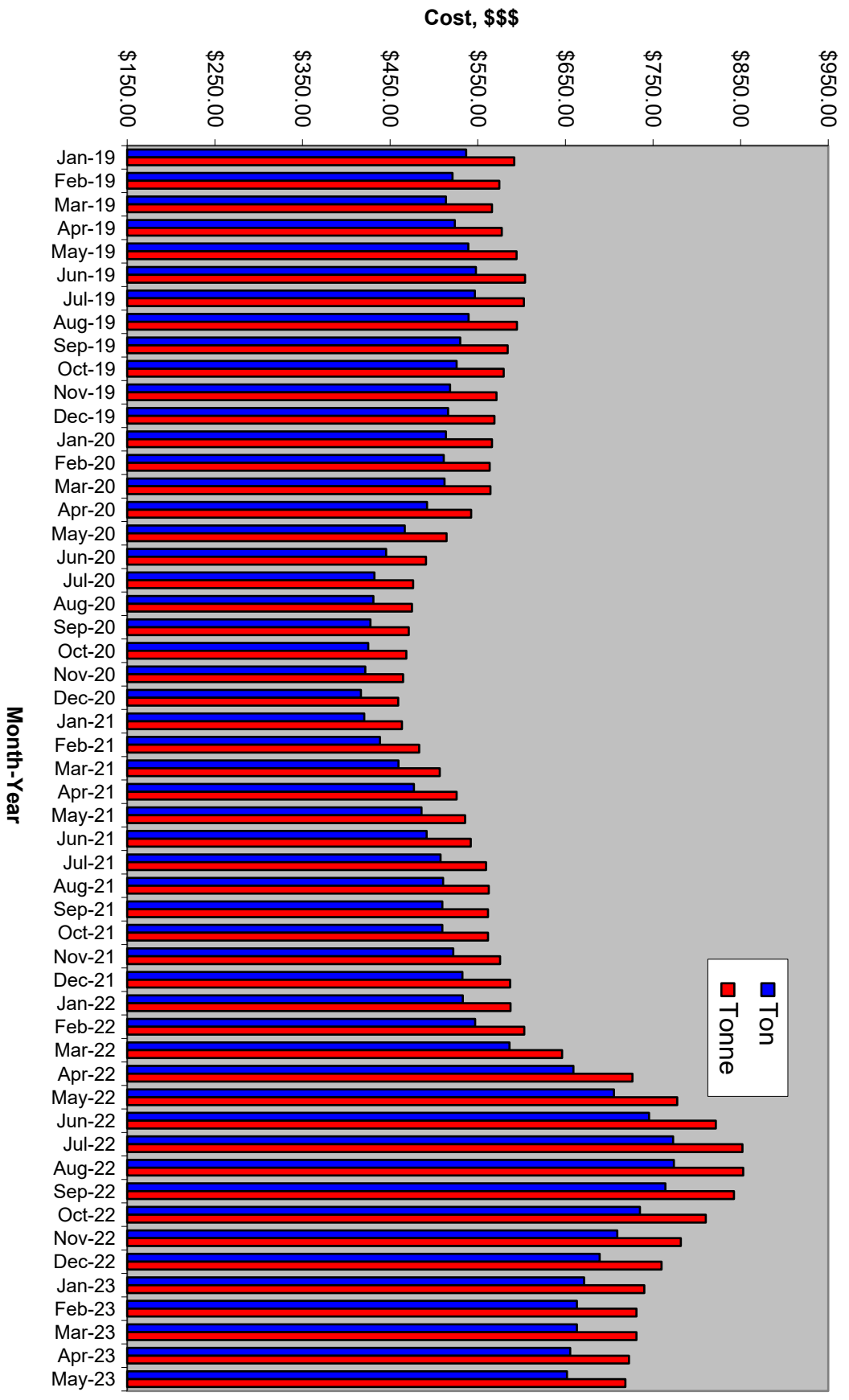
(This Index to be used with Special Provision 109B)

YEAR	MONTH											
	January	February	March	April	May	June	July	August	September	October	November	December
2009	455.83	440.00	392.31	383.85	362.27	354.09	391.82	399.09	397.27	379.55	384.09	425.00
2010	445.45	490.91	499.55	500.45	501.36	489.55	474.09	450.00	447.27	442.73	441.36	453.18
2011	460.45	472.27	490.45	514.09	565.45	596.36	586.82	572.73	556.82	555.45	554.55	567.27
2012	571.36	596.82	610.91	615.45	623.18	625.91	605.91	587.27	570.91	570.50	569.50	568.50
2013	565.50	561.50	561.50	561.50	562.50	560.00	560.00	566.00	560.00	559.50	556.50	552.00
2014	552.00	552.00	556.00	556.00	566.00	574.50	588.00	608.00	613.00	609.00	602.00	585.50
2015	566.00	535.50	507.00	479.50	461.36	456.82	454.55	451.82	442.27	425.45	414.55	404.55
2016	388.64	366.82	349.09	335.00	328.64	333.64	344.55	340.91	334.09	331.82	329.55	329.55
2017	335.91	351.82	364.55	371.36	373.18	372.73	367.73	365.91	365.91	364.58	366.25	368.75
2018	380.42	390.42	400.00	418.33	435.42	462.92	494.58	533.75	543.75	545.83	544.58	541.67
2019	536.67	521.25	513.75	523.75	539.17	547.92	546.67	539.58	530.00	525.83	518.33	516.25
2020	513.75	511.25	512.08	492.08	466.67	445.42	432.08	430.83	427.50	425.00	421.67	416.67
2021	420.42	438.33	459.58	477.08	485.83	491.67	507.50	510.42	509.58	509.58	522.08	532.50
2022	532.92	547.08	586.25	659.17	705.42	745.42	772.92	773.75	764.17	735.00	709.17	689.17
2023	671.36	663.18	663.18	655.45	651.82							

Bituminous Index ($, tonne)

(This Index to be used with Special Provision 109BM (METRIC))

YEAR	MONTH											
	January	February	March	April	May	June	July	August	September	October	November	December
2009	502.47	485.02	432.45	423.12	399.34	390.32	431.91	439.92	437.92	418.38	423.39	468.48
2010	491.03	541.13	550.65	551.66	552.66	539.63	522.60	496.04	493.03	488.02	486.52	499.55
2011	507.56	520.59	540.63	566.69	623.31	657.38	646.86	631.32	613.79	612.28	611.28	625.31
2012	629.82	657.88	673.41	678.42	686.94	689.95	667.9	647.36	629.32	628.87	627.77	626.66
2013	623.36	618.95	618.95	618.95	620.05	617.29	617.29	623.91	617.29	616.74	613.44	608.48
2014	608.48	608.48	612.89	612.89	623.91	633.28	648.16	670.21	675.72	671.31	663.59	645.40
2015	623.91	590.29	558.87	528.56	508.57	503.56	501.05	498.04	487.52	468.98	456.96	445.94
2016	428.40	404.35	384.81	369.27	362.26	367.77	379.80	375.79	368.27	365.77	363.26	363.26
2017	370.28	387.81	401.84	409.36	411.36	410.86	405.35	403.35	403.35	401.88	403.72	406.48
2018	419.34	430.36	440.92	461.13	479.96	510.28	545.18	588.36	599.38	601.68	600.30	597.09
2019	591.57	574.58	566.31	577.34	594.33	603.97	602.60	594.79	584.22	579.63	571.36	569.07
2020	566.31	563.56	564.48	542.43	514.41	490.99	476.29	474.91	471.24	468.48	464.81	459.30
2021	463.43	483.18	506.60	525.89	535.54	541.97	559.42	562.64	561.72	561.72	575.50	586.98
2022	587.44	603.06	646.23	726.61	777.59	821.68	851.99	852.91	842.35	810.20	781.72	759.68
2023	740.05	731.03	731.03	722.51	718.51							


Bituminous Materials Index
Cost, $$$
$150.00
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$950.00
Month-Year
Jan-19
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S T A T E **O F** **T E N N E S S E E**

(Rev. 9-7-22) January 1, 2021

CERTIFICATION REGARDING

DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

PRIMARY AND LOWER TIER COVERED TRANSACTIONS

The prospective Primary and/or Lower Tier participant certifies, by signing and submitting this proposal, to the best of its knowledge and belief, that it and its principals:

Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State or local department or agency.

Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in the preceding paragraph of this certification; and

Have not within a three- year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal; and

Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

Where the prospective Primary and/or Lower Tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

(Exceptions to the above are to be submitted on a separate sheet with the bid proposal)

For any exception noted, indicate to whom it applies, initiating agency, and dates of action. Providing false information may result in criminal prosecution or administrative sanctions.

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APPENDIX C – PERMITS

PERMITS

The following Permits are included, in their entirety, in Appendix C and are made a part of the Bidding Documents for the **Bicentennial Park (COF Contract No. 2022-0315)**

A. Tennessee Department of Environment & Conservation ("TDEC") Notice of Coverage ("NOC") under the General National Pollutant Discharge Elimination System ("NPDES") Permit (TNR246439) for Stormwater Discharges Associated with Construction Activities ("CGP")

   - Project-specific Stormwater Pollution Prevention Plan ("SWPPP")

B. TDEC Division of Water Resources ("DWR") Permit (TN0028827) for Gravity Sewer – Submitted to TDEC on March 17, 2023. Following receipt from TDEC DWR, a copy of the final permit will be provided to Contractor following award of the Project.

C. City of Franklin ("COF") Floodplain Permit – To be completed by city staff following award of the Project to a Contractor.

D. COF Stormwater Grading ("SWG") Permit – To be completed by city staff following award of the Project to Contractor.

E. COF Building/Electrical Permit(s) – To Be Obtained by the Contractor. Contractor will be reimbursed *exact* fees associated with any permit applications.

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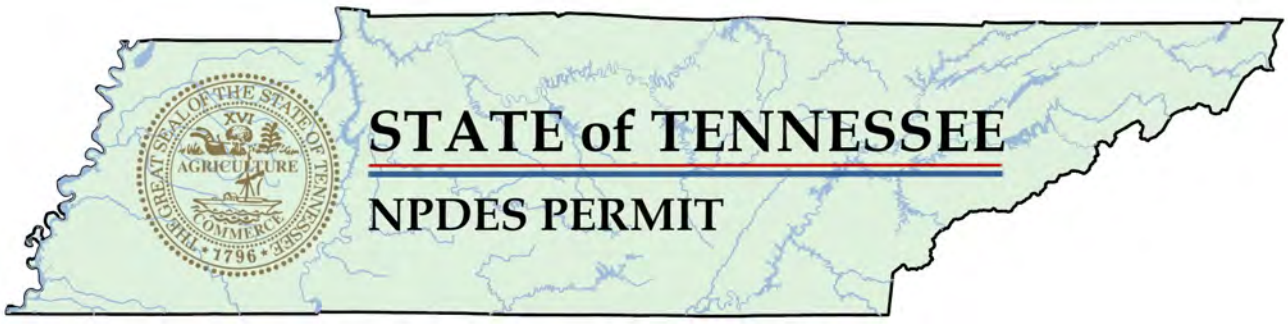

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102

Tracking No. TNR246439

Notice of Coverage (NOC) under the General NPDES Permit for
STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES (CGP)

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.) and the delegation of authority from the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, et seq.) in accordance with effluent limitations, monitoring requirements and other conditions set forth herein. CGP requirements and permit overview are located here. Your coverage under the CGP shall be terminated upon receipt of Notice of Termination (NOT).

Construction Project:	**Bicentennial Park**
Area of Disturbance:	**9.74 acres**
Master Tracking Number:	**TNR246439**
Permittee Name:	**City of Franklin**
Project Name:	**Bicentennial Park Improvements**
is authorized to discharge:	stormwater associated with construction activities
from facility location:	**214 N Margin St, Franklin, TN 37064, Williamson County**
to receiving waters named:	**Harpeth River**
Effective date:	**12/08/2022**
Expiration date:	**06/30/2025**
Contractors:	**no contractor identified**

Additional CGP requirements (Part 6.4) apply for discharges into waters identified as unavailabe condition for siltation.
No Exceptional Tennessee Waters were identified by TDEC.
TDEC identified likely presence of threatened or endangered species in one mile radius as well as downstream from the site. See CGP Section 1.3.

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STORMWATER POLLUTION PREVENTION PLAN
BICENTENNIAL PARK IMPROVEMENTS
HARPETH RIVER
WILLIAMSON COUNTY, TN

Prepared For:

City of Franklin
Franklin, TN

File No: 35968-01
Date: November 2023

615 3rd Avenue South, Suite 700
Nashville, Tennessee 37210
(615) 254-15

BARGE DESIGN SOLUTIONS

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

Notice of Intent (NOI) for General NPDES Permit for Stormwater Discharges from Construction Activities (TNR100000)

Site or Project Name: Bicentennial Park Improvements			***NPDES Tracking Number: TNR***
Street Address or Location: 200 & 214 N Margin Street			Construction Start Date: August 1,2023
			Estimated End Date: August 1, 2024
Site Description: existing park with existing pavilion and open park space			Latitude (dd.dddd): 35.92881
			Longitude (-dd.dddd): -86.87015
County(ies): Williamson	MS4 (if applicable): Franklin		Acres Disturbed: 12.85
Check box if a SWPPP is attached : ☑	Check box if a site location map is attached: ☑		Total Acres: 12.85
Check the appropriate box(s) if there are streams and/or wetlands on or adjacent to the construction site:			Streams ☑ Wetlands ☐
Has a jurisdictional determination been made by the USACE or EPA identifying waters of the United States?: Yes ☐ No ☑ Note: if yes, attach the jurisdictional determination			
If an Aquatic Resource Alteration Permit (ARAP) has been obtained for this site, what is the permit number? NR(S)			
Receiving waters: Harpeth River			

Site Owner/Developer (Primary Permittee): (Provide person, company, or entity that has operational or design control over construction plans and specifications): City of Franklin

For corporate entities only, provide correct Tennessee Secretary of State (SOS) Control Number:
(an incorrect SOS control number may delay NOI processing)

Site Owner or Developer Contact Name: (signs the certification below) Shahad Abdulrahman		Title or Position: City Engineer	
Mailing Address: 109 Third Ave South		City: Franklin	State: TN Zip: 37064
Phone: (615) 550-6708	Fax: ( )	E-mail: shahad.abdulrahman@franklintn.gov	

Optional Contact: Lisa Clayton		Title or Position: Parks Director	
Mailing Address: 109 Third Ave South		City: Franklin	State: TN Zip: 37064
Phone: (615) 794-2103	Fax: ( )	E-mail: Lisac@franklintn.gov	

***Owner/Developer(s) Certification*:** (must be signed by president, vice-president or equivalent, or ranking elected official) (Primary Permittee)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Owner/Developer Name (print/type):	Signature:	Date:
Owner/Developer Name (print/type):	Signature:	Date:

***Contractor Certification*:** (must be signed by president, vice-president or equivalent, or ranking elected official) (Secondary Permittee)

I certify under penalty of law that I have reviewed this document, any attachments, and the SWPPP referenced above. Based on my inquiry of the construction site owner/developer identified above and/or my inquiry of the person directly responsible for assembling this NOI and SWPPP, I believe the information submitted is accurate. I am aware that this NOI, if approved, makes the above-described construction activity subject to NPDES permit number TNR100000, and that certain of my activities on-site are thereby regulated. I am aware that there are significant penalties, including the possibility of fine and imprisonment for knowing violations, and for failure to comply with these permit requirements. As specified in Tennessee Code Annotated Section 39-16- 702(a)(4), this declaration is made under penalty of perjury.

Contractor name, address, and SOS control number (if applicable):	Signature:	Date:

OFFICIAL STATE USE ONLY

Received Date:	Reviewer:	Field Office:	Permit Tracking Number: TNR	Exceptional TN Water:
Fee(s):	T & E Aquatic Flora/Fauna:	SOS Corporate Status:	Waters with Unavailable Parameters:	Notice of Coverage Date:

CONSTRUCTION GENERAL PERMIT - NOTICE OF INTENT (NOI) - INSTRUCTIONS

A completed NOI must be submitted to obtain coverage under the CGP. **Requesting coverage under this permit means that an applicant has obtained and examined a copy of this permit, and thereby acknowledges applicant's claim of ability to be in compliance with permit terms and conditions.** CGP coverage is required for stormwater (SW) discharge(s) from construction activities including clearing, grading, filling and excavating (including borrow pits) of one or more acres of land. This form should be submitted at least 30 days prior to the commencement of land disturbing activities, or no later than 48 hours prior to when a new operator assumes operational control over site specifications or commences work at the site.

The application fee must accompany the NOI and is based on total acreage to be disturbed by an entire project, including any associated construction support activities (e.g., equipment staging yards, material storage areas, excavated material disposal areas, borrow or waste sites, etc.). A separate annual maintenance fee is also required for activities that exceed 1 year under CGP coverage. See TN Rules, Chapter 0400-40-11-.02(b)(12).

Acres Disturbed	= or > 150 acres	= or > 50 < 150 acres	= or > 20 < 50 acres	= or > 5 < 20 acres	= or > 1 < 5 acres	Subsequent coverage
Fee	$10,000	$6,000	$3,000	$1,000	$250	$100

Who must submit the NOI form? All site operators must submit an NOI form. "Operator" for the purpose of this permit and in the context of SW associated with construction activity means any person associated with a construction project who meets either or both of the following two criteria: (1) The person has operational or design control over construction plans and specifications, including the ability to make modifications to those plans and specifications. This person is typically the owner or developer of the project or a portion of the project (e.g., subsequent builder), or the person that is the current land owner of the construction site, and is considered the primary permittee; or (2) The person has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions. This person is typically a contractor or a commercial builder who is hired by the primary permittee, and is considered a secondary permittee.

Owners, developers and all contractors that meet the definition of the operator in subsection 2.2 of the permit shall apply for permit coverage on the same NOI, insofar as possible. After permit coverage has been granted to the initial site-wide primary permittee, any subsequent NOI submittals must include the site's previously assigned permit tracking number and the project name. The comprehensive site-specific SWPPP shall be prepared in accordance with the requirements of part 3 of the permit and must be submitted with the NOI unless the NOI being submitted is to add a subsequent permittee to an existing coverage. **Artificial entities (e.g., corporations or partnerships) must submit the correct Tennessee Secretary of State, Division of Business Services, control number. General partnerships. For general partnerships, the NOI must be signed by each general partner in the general partnership.**

The NOI will be considered incomplete without a correct control number, and the division reserves the right to deny coverage to artificial entities that are not properly registered and in good standing with the Tennessee Secretary of State (i.e., listed with an entity status of "active"). The division further reserves the right to issue permit coverage in the correct legal name of the individual or entity seeking coverage and to name each general partner of a general partnership in addition to the general partnership.

Complete the form: Type or print clearly. Answer each item or enter "NA," for not applicable. If you need additional space, attach a separate piece of paper to the NOI form. **The NOI will be considered incomplete without a permit fee and comprehensive site-specific SWPPP (if applicable).**

Describe and locate the project: Use the legal or official name of the construction site. If a construction site lacks street name or route number, give the most accurate information available to describe the location (reference to adjacent highways, roads and structures; eg., intersection of state highways 70 and 100). Latitude and longitude (in decimal degrees) can be found at numerous other web sites. Attach a copy of a map, showing location of site, with boundaries at least one mile outside the site boundaries. Provide estimated starting date of clearing activities and completion date of the project, and an estimate of the number of acres of the site on which soil will be disturbed, including borrow areas, fill areas, stockpiles and the total acres. For linear projects, give location at each end of the construction area.

Name of the receiving waters: Trace the route of stormwater runoff from the site and determine the name of the water course(s) into which the runoff drains. Note that the water course may or may not be located on the construction site. If the first water body receiving construction site runoff is unnamed ("unnamed tributary"), determine the name of the waterbody that the unnamed tributary enters.

An ARAP may be required: **If your work will disturb or cause alterations of a stream or wetland, you must obtain an appropriate Aquatic Resource Alteration Permit (ARAP).** If wetlands are located on-site and may be impacted, attach the wetland delineation report. If you have a question about the ARAP program, contact your local Field Office (EFO).

Submitting the form and obtaining more information: Note that this form must be signed by the company President, Vice-President, or a ranking elected official in the case of a municipality, for details see subpart 2.5. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed NOI form (keep a copy for your records) to the appropriate EFO for the county(ies) where the construction activity is located, addressed to **Attention: Stormwater NOI Processing**.

Notice of Coverage: The division will review NOIs for completeness and accuracy and issue an NOC to site-wide primary operators, authorizing SW discharge from the construction site as of the effective date of the NOC. New subsequent operators will not receive an NOC, but are considered covered under the permit when their permit record is published on TDEC's dataviewer as "active" and with an effective date. TDEC Permit Dataviewer can be found at: http://environment-online.tn.gov:8080/pls/enf_reports/f?p=9034:34001:0

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305-4316	Chattanooga	1301 Riverfront Pkwy, Suite 206	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601

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Appendix 6: Drainage Area and Curve Number Exhibits
Appendix 7: Report of Soil Investigation for Bicentennial Park

CITATIONS IN PARENTHESIS INDICATE SECTIONS OF THE CURRENT CGP.

1. SWPPP REQUIREMENTS (3.0)

1.1. HAS THE SWPPP TEMPLATE BEEN PREPARED BY AN INDIVIDUAL THAT HAS THE FOLLOWING CERTIFICATIONS (3.1.1) YES ☒ NO ☐ (CHECK ALL THAT APPLY BELOW)

1.1.1. ☐ CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC); OR

1.1.2. ☐ TDEC LEVEL II; OR

1.1.3. ☒ LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT

1.2. DOES THE EPSC PLANS INVOLVE STRUCTURAL DESIGN, HYDRAULIC, HYDROLOGIC OR OTHER ENGINEERING CALCULATIONS FOR EPSC STRUCTURAL MEASURES (SEDIMENT BASINS, ETC.)? YES ☒ NO ☐(3.1.1)

IF YES, HAVE THE EPSC PLANS BEEN PREPARED, STAMPED AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT?

☒YES ☐ NO

1.3. DO THE PROJECT STORMWATER OUTFALLS DISCHARGE INTO THE FOLLOWING? (5.4.1) YES ☒ NO ☐ (CHECK ALL THAT APPLY BELOW)

1.3.1. ☒ IMPAIRED WATERS (303d FOR SILTATION OR HABITAT ALTERATION)

1.3.2. ☐ TENNESSEE KNOWN EXCEPTIONAL WATERS

IF YES, HAVE THE EPSC PLANS BEEN PREPARED BY AN INDIVIDUAL THAT HAS THE FOLLOWING CERTIFICATIONS (5.4.1.a) YES ☒ NO ☐ (CHECK ALL THAT APPLY BELOW)

1.3.3. ☐ CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC); OR

1.3.4. ☐ TDEC LEVEL II; OR

1.3.5. ☒ LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT

IF YES, HAS THE SWPPP TEMPLATE BEEN PREPARED BY AN INDIVIDUAL THAT HAS THE FOLLOWING CERTIFICATIONS (5.4.1.b) YES ☒ NO ☐ (CHECK ALL THAT APPLY BELOW)

1.3.6. ☐ CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC); OR

1.3.7. ☐ TDEC LEVEL II; OR

1.3.8. ☒ LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT

2. SITE DESCRIPTION (3.5.1)

2.1. PROJECT LIMITS REFER TO EROSION CONTROL PLAN SHEETS

2.2. PROJECT DESCRIPTION: (3.5.1.a)

TITLE: BICENTENNIAL PARK IMPROVEMENTS

COUNTY: WILLIAMSON COUNTY

LOCATION: 200 & 214 MARGIN STREET, FRANKLIN, TN

2.3. SITE MAP(S): REFER TO APPENDIX 1 – USGS QUADRANGLE MAP (3.5.1.g)

2.4. DESCRIPTION OF EXISTING SITE TOPOGRAPHY (3.5.1.d): THE SITE IS BROKEN UP INTO TWO DRAINAGE AREAS. ONE HALF OF THE SITE DRAINS TO AN EXISTING 24" RCP PIPE, AND THE OTHER HALF DRAINS TO AN EXISTING 36" RCP PIPE. BOTH PIPES EVENTUALLY DRAIN TO THE HARPETH RIVER. REFER TO APPENDIX 1 – USGS QUADRANGLE MAP.

2.5. MAJOR SOIL DISTURBING ACTIVITIES (3.5.1.b) (CHECK ALL THAT APPLY)

2.5.1. ☒ CLEARING AND GRUBBING

2.5.2. ☒ EXCAVATION

2.5.3. ☒ CUTTING AND FILLING

2.5.4. ☒ FINAL GRADING AND SHAPING

2.5.5. ☒ UTILITIES

2.5.6. ☐ OTHER (DESCRIBE): ____

2.6. TOTAL PROJECT AREA (3.5.1.c): 12.85 ACRES

2.7. TOTAL AREA TO BE DISTURBED (3.5.1.c): 12.85 ACRES

IF GREATER THAN 50 ACRES, HAS CONSTRUCTION PROJECT PHASING BEEN SPECIFIED IN SECTION 3 BELOW AND IN THE PLANS (3.5.3.1.k)?

☐ YES ☐ NO ☒ N/A

2.8. ARE THERE ANY SEASONAL LIMITATIONS ON WORK? YES ☐ NO ☒

IF YES, DESCRIBE AND LIST THE CORRESPONDING PLAN SHEET: ____

2.9. SOIL PROPERTIES (3.5.1.e) (4.1.1)

SOIL PROPERTIES FOR THE PRIMARY SOILS ARE LISTED IN THE TABLE BELOW.

SOIL PROPERTIES			
PRIMARY SOIL NAME	HSG	% OF SITE	ERODIBILITY (k value)
Ln – Lindell silt loam, 0 to 2 percent slopes, occasionally flooded	B/D	100	0.55

2.10. PROJECT RUNOFF COEFFICIENTS AND AREA PERCENTAGES (3.5.1.f)

CURVE NUMBERS FOR EXISTING CONDITIONS			
AREA TYPE	AREA(AC)	PERCENTAGE OF WATERSHED (%)	CURVE NUMBER
OPEN SPACE	10.70	83%	0.33
WOODED	1.28	10%	0.25
IMPERVIOUS	0.88	7%	0.90
WEIGHTED CURVE NUMBER OR C-FACTOR =			0.36

CURVE NUMBERS FOR POST-CONSTRUCTION CONDITIONS			
AREA TYPE	AREA(AC)	PERCENTAGE OF WATERSHED (%)	CURVE NUMBER
OPEN SPACE	8.44	66%	0.33
WOODED	0	0%	0.25
IMPERVIOUS	4.41	34%	0.90
WEIGHTED CURVE NUMBER OR C-FACTOR =			0.53

3. ORDER OF CONSTRUCTION ACTIVITIES (3.5.1.b, 3.5.2.a)

STAGE	DESCRIPTION
1	INSTALL STABILIZED CONSTRUCTION EXIT. THIS WILL BE THE FIRST CONSTRUCTION WORK ON THE PROJECT.
	INSTALL RIP-RAP SCOUR HOLE AND DETENTION BASIN #2 AND STABILIZE. NO WATER SHALL BE DIRECTED THROUGH BMPS UNTIL THEY ARE STABILIZED.
	DIVERSION PIPE AND SEDIMENT TRAP TO BE INSTALLED IMMEDIATELY FOLLOWING PRE-CONSTRUCTION MEETING, AND SHALL BE COMPLETED BEFORE ANY MAJOR CLEARING OR GRADING TAKES PLACE.
	INSTALL PROJECT SIGN PER DETAIL 6, SHEET 3.5B
	INSTALL SILT FENCE WITH BACKING AS SHOWN ON PLANS.
	INSTALL SEDIMENT TUBE AS SHOWN.
	INSTALL INLET PROTECTION AS SHOWN.
2	CONTRACTOR TO MAINTAIN ALL EPSC MEASURES INSTALLED IN PHASE I.
	INSTALL INLET PROTECTION AS SHOWN ON PLANS.
	INSTALL SILT FENCE AROUND STORMWATER MANAGEMENT AREA AS SHOWN ON PLANS.
	INSTALL CHECK DAMS AS SHOWN
	ONCE THE SITE HAS EEN STABILIZED, THE BOTTOM OF THE BIORETENTION AREA WILL BE EXCAVATED TO ALLOW FOR THE PLACEMENT OF THE CRUSHED STONE AND FILTER MEDIA.
3	CONTRACTOR TO MAINTAIN ALL EPSC MEASURES INSTALLED DURING PHASE I AND II UNTIL NO LONGER REQUIRED
	CONTRACTOR TO COMPLETE FINAL GRADING.
	CONTRACTOR TO REMOVE FILTER RINGS FROM SEDIMENT TRAPS ONCE SITE HAS BEEN STABILIZED.
	APPLY SOD, SEED AND STRAW/MATTING TO ALL DISTURBED AREAS.
	CONTRACTOR TO SUBMIT NOTICE OF TERMINATION (NOT) WITH TDEC ONCE SITE IS STABILIZED.

3.1. PERFORM CLEARING AND GRUBBING (NOT MORE THAN 15 DAYS PRIOR TO GRADING OR EARTH-MOVING. REFER TO THE STABILIZATION PRACTICES BELOW).

3.2. STABILIZE DISTURBED AREAS WITHIN 7 DAYS OF COMPLETING ANY PHASE OF ACTIVITY.

4. STREAM, OUTFALL, WETLAND, TMDL AND ECOLOGY INFORMATION

4.1. STREAM INFORMATION

WILL CONSTRUCTION AND/OR EROSION PREVENTION AND SEDIMENT CONTROLS IMPACT ANY STREAMS? YES ☐ NO ☒

4.1.1. STREAM INFORMATION

4.1.1.1. THE STRUCTURAL EPSC MEASURES HAVE BEEN INCLUDED IN THE TOTAL PROJECT IMPACTS AND HAVE BEEN INCLUDED IN THE AQUATIC RESOURCE ALTERATION (ARAP) PERMIT OR SECTION 401 CERTIFICATION (3.5.1.i). REFER TO THE LIST OF APPLICABLE ENVIRONMENTAL PERMITS. ALL PERMITS WILL BE MAINTAINED ON SITE IN THE "DOCUMENTATION AND PERMITS" BINDER.

4.1.1.2. RECEIVING STREAMS (3.5.1.j)

RECEIVING STREAM INFORMATION			
NATURAL RESOURCE LABEL	NAME OF RECEIVING NATURAL RESOURCE	IMPAIRED FOR SILTATION OR HABITAT ALTERATION (YES OR NO)	KNOWN EXCEPTIONAL QUALITY WATERS (YES OR NO)
STR-1	HARPETH RIVER	YES	NO

BARGE DESIGN SOLUTIONS

BICENTENNIAL PARK IMPROVEMENTS
FRANKLIN, TN 37064
WILLIAMSON COUNTY, TENNESSEE

STORM WATER POLLUTION PREVENTION PLAN

DRAWN BY: AL	CHECKED BY: DH	PROJECT NO.: 35968-01	SHEET NO.: 1
DATE: 08/11/2020	DATE: 08/31/2020		

4.1.2. ARE BUFFER ZONES REQUIRED? YES ☒ NO ☐ (4.1.2, 5.4.2)

IF YES, THEY HAVE BEEN INCLUDED ON PLAN SHEET(S)

IF YES, CHECK THE APPROPRIATE BOX BELOW FOR SIZE OF BUFFER

☒ 60-FEET FOR IMPAIRED AND EXCEPTIONAL WATERS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 30-FEET)

☐ 30-FEET FOR ALL OTHER STREAMS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 15-FEET)

4.1.3. ARE THERE BUFFER ZONE EXEMPTIONS? YES ☐ NO ☐ N/A ☒ (4.1.2.1)

4.2. OUTFALL INFORMATION:

A SEDIMENT BASIN OR EQUIVALENT MEASURE(S) WILL BE PROVIDED FOR ANY OUTFALL IN A DRAINAGE AREA:

4.2.1. OF TEN ACRES OR MORE FOR AN OUTFALL(S) THAT DOES NOT DISCHARGE TO AN IMPAIRED STREAM OR KNOWN EXCEPTIONAL QUALITY WATER (3.5.3.3)

4.2.2. OF FIVE ACRES OR MORE FOR AN OUTFALL(S) THAT DISCHARGES TO AN IMPAIRED STREAM OR KNOWN EXCEPTIONAL QUALITY WATER (5.4.1.f).

4.2.3. OUTFALL TABLE (3.5.1.d, 5.4.1.f)

OUTFALL INFORMATION					
OUTFALL LABEL	SLOPE (%)	DRAINAGE AREA (AC)	SEDIMENT BASIN OR EQUIVALENT MEASURE(S) (YES, NO OR N/A)	SUB-OUTFALL (e.g. A, B, C) †	RECEIVING NATURAL RESOURCE NAME OR LABEL
OUT-1	0-5	4.51	Y	-	HARPETH RIVER
OUT-2	0-5	35.34 **	Y	-	HARPETH RIVER

** 30.53 ACRES DRAINS TO OUT-2 IS BEING BYPASSED THROUGH THE SITE WITH A PIPE AND WILL NOT BE CONVEYED THROUGH DISTURBED AREAS.

†NOTE: SUB-OUTFALLS ARE DEFINED AS OUTFALLS THAT DISCHARGE WITHIN THE PROJECT AND DO NOT DIRECTLY DISCHARGE INTO WATERS OF THE STATE.

4.2.4. WHERE POSSIBLE, HAS NON-PROJECT RUN-ON BEEN DIVERTED THROUGH THE PROJECT SO THAT THE OFF-SITE RUN-ON WILL NOT FLOW OVER DISTURBED AREAS WITHIN THE ROW, THUS SEPARATING NON-PROJECT RUN-OFF FROM PROJECT RUN-OFF THEREBY REDUCING THE DRAINAGE AREA TO ANY ONE OUTFALL? YES ☒ NO ☐

4.2.5. ARE EQUIVALENT MEASURES BEING SUBSTITUTED FOR A SEDIMENT BASIN(S)? YES ☐ NO ☒

4.2.6. HAVE ALL OUTFALLS BEEN LABELED ON THE EPSC PLAN SHEETS (3.5.1.g, 5.4.1.f)? YES ☒ NO ☐

4.2.7. HAVE ALL OUTFALLS BEEN LABELED ON A USGS TOPOGRAPHIC MAP INCLUDED IN THE "DOCUMENTATION AND PERMITS" BINDER (2.6.2)?

YES ☒ NO ☐

4.3. WETLAND INFORMATION

WILL CONSTRUCTION AND/OR EROSION AND SEDIMENT CONTROLS IMPACT ANY WETLANDS? YES ☐ NO ☒

4.4. TOTAL MAXIMUM DAILY LOADS (TMDL) INFORMATION (3.5.10)

4.4.1. IS THIS PROJECT LOCATED IN A WATERSHED THAT MAINTAINS AN EPA APPROVED TMDL FOR SILTATION? YES ☐ NO ☒

4.4.2. IF YES, IS THIS PROJECT LOCATED WITHIN A SUBWATERSHED WITH A WASTE LOAD ALLOCATION (WLA)? YES ☐ NO ☐ N/A ☒

4.4.3. IF YES, DOES THE PROJECT HAVE A DIRECT DISCHARGE TO A 303(d) LISTED STREAM FOR SILTATION OR HABITAT ALTERATION?

YES ☐ NO ☐ N/A ☒

4.4.4. IF YES, HAS A SUMMARY OF THE CONSULTATION (LETTER) BEEN INCLUDED WITH THE SWPPP DOCUMENTATION? YES ☐ NO ☐ N/A ☒

4.5. ECOLOGY INFORMATION (3.5.5.e)

ARE THERE STATE OR FEDERALLY LISTED SPECIES LOCATED WITHIN THE PROJECT AREA? SPECIAL NOTES ARE REQUIRED TO DESCRIBE MEASURES NECESSARY TO PREVENT "TAKING" OF LEGALLY PROTECTED STATE OR FEDERALLY LISTED THREATENED OR ENDANGERED AQUATIC FAUNA AND/OR CRITICAL HABITAT.

YES ☐ NO ☒ NO NOTES REQUIRED ☐

IF YES, LIST ALL PLAN SHEETS WHERE SPECIAL NOTES HAVE BEEN ADDED.

5. EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURES (3.5.3)

5.1. EPSC MEASURES MUST BE DESIGNED, INSTALLED AND MAINTAINED TO CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE EROSION. (4.1.1)

5.2. EPSC MEASURES MUST CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOWS AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS, STREAM CHANNELS AND STREAM BANKS. (4.1.1)

5.3. HAVE THE CONTROL MEASURES BEEN DESIGNED ACCORDING TO THE SIZE AND SLOPE OF THE DISTURBED DRAINAGE AREA (3.5.3.3)? YES ☒ NO ☐

5.4. THE CONTROL MEASURES HAVE, AT A MINIMUM, BEEN DESIGNED FOR THE 5-YEAR, 24 HOUR STORM EVENT (3.5.3.3, 5.4.1.a).

5.5. ARE THE LIMITS OF DISTURBANCE CLEARLY MARKED ON THE EPSC PLANS? (3.5.1.n) YES ☒ NO ☐

5.6. HAVE PHASED EPSC PLANS BEEN PREPARED FOR THE PROJECT? (3.5.2)

YES ☒ NO ☐ (IF YES, CHECK ONE BELOW)

5.6.1. ☐ PROJECT DISTURBED AREA IS THAN LESS THAN 5 ACRES (MINIMUM OF TWO PHASES OF EPSC PLANS)

5.6.2. ☒ PROJECT DISTURBED AREA IS GREATER THAN 5 ACRES (MINIMUM OF THREE PHASES OF EPSC PLANS)

5.7. IS ADDITIONAL PHYSICAL OR CHEMICAL TREATMENT OF STORMWATER RUNOFF NECESSARY (5.4.1.a)? YES ☐ NO ☒

5.8. HAVE STEEP SLOPES (GREATER THAN 35%) BEEN MINIMALLY DISTURBED AND/OR PROTECTED BY CONVEYING RUNOFF NON-EROSIVELY AROUND OR OVER THE SLOPE? (3.5.3.2) (10 "STEEP SLOPE")

YES ☒ NO ☐

5.9. ALL PHYSICAL AND/OR CHEMICAL TREATMENT WILL BE RESEARCHED, APPLIED IN ACCORDANCE WITH MANUFACTURE'S GUIDELINES AMD FULLY DESCRIBED ON THE EPSC PLANS (3.5.3.1.b).

5.10. ALL EPSC CONTROL MEASURES WILL BE INSTALLED ACCORDING TO REFERENCED STANDARDS.

5.11. EPSC MEASURES WILL NOT BE INSTALLED IN A STREAM WITHOUT FIRST OBTAINING US COE SECTION 404, TDEC ARAP, AND TVA PERMITS.

5.12. DISCHARGES FROM DEWATERING ACTIVITIES ARE PROHIBITED UNLESS MANAGED BY CONTROLS PROVIDING EQUIVALENT LEVEL OF TREATMENT (FILTRATION) (4.14)

5.13. DISCHARGES FROM SEDIMENT BASINS AND IMPOUNDMENTS MUST USE OUTLET STRUCTURES THAT ONLY WITHDRAW WATER FROM NEAR THE SURFACE OF THE BASIN OR IMPOUNDMENT, UNLESS INFEASIBLE. (4.1.7)

5.14. STABILIZATION PRACTICES

PRE-CONSTRUCTION VEGETATIVE COVER WILL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN 15 DAYS PRIOR TO GRADING OR EARTH MOVING UNLESS THE AREA WILL BE SEEDED AND/OR MULCHED OR OTHER TEMPORARY COVER IS INSTALLED. (3.5.3.1.h)

5.15. STABILIZATION MEASURES WILL BE INITIATED AS SOON AS POSSIBLE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY OR PERMANENT STABILIZATION WILL BE COMPLETED WITHIN 14 DAYS AFTER ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IN THAT AREA. PERMANENT STABILIZATION WILL REPLACE TEMPORARY MEASURES AS SOON AS PRACTICABLE. (3.5.3.2)

5.16. STEEP SLOPES (3.5.3.2)

STEEP SLOPES ARE DEFINED AS A NATURAL OR CREATED SLOPE OF 35% GRADE OR STEEPER REGARDLESS OF HEIGHT. STEEP SLOPES SHALL BE TEMPORARILY STABILIZED NOT LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED.

6. CONSTRUCTION SUPPORT ACTIVITIES – BORROW AND WASTE AREAS (1.2.2) (3.5.3.1.g)

WASTE MATERIAL (EARTH, ROCK, ASPHALT, CONCRETE, ETC) NOT REQUIRED FOR THE CONSTRUCTION OF THE PROJECT WILL BE DISPOSED OF BY THE CONTRACTOR. THE CONTRACTOR WILL OBTAIN ANY AND ALL NECESSARY PERMITS INCLUDING, BUT NOT LIMITED TO NPDES, AQUATIC RESOURCES ALTERATION PERMIT(S) CORPS OF ENGINEERS SECTION 404 PERMITS, AND TVA SECTION 26A PERMITS TO DISPOSE OF WASTE MATERIALS.

7. MAINTENANCE AND INSPECTION

7.1. INSPECTION PRACTICES (3.5.8)

7.1.1. INSPECTORS MUST HAVE SUCCESSFULLY COMPLETED THE TDEC FUNDAMENTALS OF EROSION AND SEDIMENT CONTROL COURSE (TDEC LEVEL I) AND MAINTAIN THE CERTIFICATION. A COPY OF THE INSPECTOR'S CERTIFICATION SHOULD BE KEPT ON SITE. (3.5.8.1)

7.1.2. INSPECTIONS WILL BE CONDUCTED AT LEAST TWICE EVERY CALENDAR WEEK AND AT LEAST 72 HOURS APART. (3.5.8.2.a)

7.1.3. THE FREQUENCY OF EPSC INSPECTIONS MAY BE REDUCED TO ONCE A MONTH (I.E. EXTREME DROUGHT CONDITIONS, FROZEN GROUND, ETC.) WITH WRITTEN NOTIFICATION TO THE LOCAL ENVIRONMENTAL FIELD OFFICE AND SUBSEQUENT TDEC APPROVAL. WRITTEN NOTIFICATION MUST INCLUDE THE INTENT TO CHANGE FREQUENCY AND JUSTIFICATION. (3.5.8.2.a)

7.1.4. ALL DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED, AREAS USED FOR MATERIAL STORAGE THAT ARE EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE, AND EACH OUTFALL WILL BE INSPECTED. (3.5.8.2.b)

7.1.5. THE INSPECTOR WILL OVERSEE THE REQUIREMENTS OF OTHER CONSTRUCTION-RELATED WATER QUALITY PERMITS (I.E. TDEC ARAP, US COE AND TVA SECTION 26a PERMITS) FOR CONSTRUCTION ACTIVITIES AROUND WATERS OF THE STATE. (10)

7.1.6. THE SWPPP WILL BE REVISED AS NECESSARY BASED ON THE RESULTS OF THE INSPECTION. REVISION(S) WILL BE RECORDED WITHIN 7 DAYS OF THE INSPECTION. REVISION(S) WILL BE IMPLEMENTED WITHIN 14 DAYS OF THE INSPECTION. (3.8.5.2.e AND 3.8.5.2.f)

7.1.7. THE INSPECTOR SHALL CONDUCT PRE-CONSTRUCTION INSPECTIONS TO VERIFY AREAS THAT ARE NOT TO BE DISTURBED HAVE BEEN MARKED IN THE SWPPP AND IN THE FIELD BEFORE LAND DISTURBANCE ACTIVITIES BEGIN AND INITIAL MEASURES HAVE BEEN INSTALLED. (10 "INSPECTOR") (3.5.1.n)

7.1.8. INSPECTIONS WILL BE DOCUMENTED ON THE CONSTRUCTION STORMWATER INSPECTION CERTIFICATION FORM PROVIDED IN APPENDIX C OF THE CGP AND INCLUDE THE SCOPE OF THE INSPECTION, NAME(S), TITLE AND TN EPSC CERTIFICATION NUMBER OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, CURRENT APPROXIMATE DISTURBED ACREAGE AT TIME OF INSPECTION, CHECKLIST (NOC, SWPPP, RAIN GAUGE, SITE CONTACT INFORMATION, ETC.) AND MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE SWPPP. (3.5.8.2.g)

7.1.9. DOCUMENTATION OF INSPECTIONS WILL BE MAINTAINED ON SITE IN THE "DOCUMENTATION AND PERMITS" BINDER.

7.1.10. THESE INSPECTION REQUIREMENTS DO NOT APPLY TO DEFINABLE AREAS OF THE SITE THAT HAVE MET FINAL STABILIZATION REQUIREMENTS AND HAVE BEEN NOTED IN THE SWPPP.

7.1.11. TRAINED CERTIFIED INSPECTORS SHALL COMPLETE INSPECTION DOCUMENTATION TO THE BEST OF THEIR ABILITY. FALSIFYING INSPECTION RECORDS OR OTHER DOCUMENTATION OR FAILURE TO COMPLETE INSPECTION DOCUMENTATION SHALL RESULT IN A VIOLATION OF THIS PERMIT AND ANY OTHER APPLICABLE ACTS OR RULES. (3.8.5.2.h)

7.2. DULY AUTHORIZED REPRESENTATIVE (7.7.3)

THE PROJECT SUPERVISOR/CONTRACTOR MAY DELEGATE AN INDIVIDUAL AND/OR CONSULTANT TO SIGN EPSC INSPECTIONS REPORTS. FOR SATISFYING SIGNATORY REQUIREMENTS FOR EPSC INSPECTION REPORTS, THE PROJECT SUPERVISOR/CONTRACTOR AND NEWLY AUTHORIZED INDIVIDUAL ACCEPTING RESPONSIBILITY MUST SUBMIT WRITTEN AUTHORIZATION TO THE LOCAL TDEC EFO.

7.3. MAINTENANCE PRACTICES (3.5.3.1 AND 3.5.7)

7.3.1. ALL CONTROLS WILL BE MAINTAINED IN GOOD AND EFFECTIVE OPERATING ORDER. NECESSARY REPAIRS OR MAINTENANCE WILL BE ACCOMPLISHED BEFORE THE NEXT STORM EVENT AND IN NO CASE MORE THAN 7 DAYS AFTER THE NEED IS IDENTIFIED. IN A CASE WHERE THE ACTIVITY IS DEEMED IMPRACTICABLE, ANY SUCH CONDITIONS WILL BE DOCUMENTED (3.5.8.2.e).

7.3.2. ALL CONTROLS WILL BE MAINTAINED IN ACCORDANCE WITH STANDARD DRAWINGS AND GOOD ENGINEERING PRACTICES. (3.5.3.1.b)

7.3.3. SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS, SILT FENCE, SEDIMENT BASINS, AND OTHER CONTROLS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%. (3.5.3.1.e)

7.3.4. CHECK DAMS WILL BE INSPECTED FOR STABILITY. SEDIMENT WILL BE REMOVED WHEN DEPTH REACHES ONE-HALF (½) THE HEIGHT OF THE DAM.

7.3.5. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER WILL BE PICKED UP AND REMOVED FROM STORMWATER EXPOSURE PRIOR TO ANTICIPATED STORM EVENTS OR BEFORE BEING CARRIED OFF OF THE SITE BY WIND, OR OTHERWISE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES. AFTER USE, MATERIALS USED FOR EROSION CONTROL WILL BE REMOVED. (3.5.3.1.f)

7.3.6. ALL SEEDED AREAS WILL BE CHECKED FOR BARE SPOTS, EROSION WASHOUTS, AND VIGOROUS GROWTH FREE OF SIGNIFICANT WEED INFESTATIONS.

7.3.7. THE PROJECT SUPERVISOR OR THEIR DESIGNEE AND THE CONTRACTOR'S SITE SUPERINTENDENT ARE RESPONSIBLE FOR INSPECTIONS. MAINTENANCE AND REPAIR ACTIVITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE PROJECT SUPERVISOR OR THEIR DESIGNEE WILL COMPLETE THE INSPECTION REPORTS AND DISTRIBUTE COPIES PER THE CONTRACT.

8. SITE ASSESSMENTS (3.1.2)

QUALITY ASSURANCE SITE ASSESSMENTS OF EROSION PREVENTION AND SEDIMENT CONTROLS REQUIRED:

YES ☒ NO ☐

9. STORMWATER MANAGEMENT (3.5.4)

9.1. STORMWATER MANAGEMENT WILL BE HANDLED BY TEMPORARY CONTROLS OUTLINED IN THIS SWPPP AND ANY PERMANENT CONTROLS NEEDED TO MEET PERMANENT STORMWATER MANAGEMENT NEEDS IN THE POST CONSTRUCTION PERIOD. PERMANENT CONTROLS WILL BE SHOWN ON THE PLANS AND NOTED AS PERMANENT. DESCRIBE ANY SPECIFIC POST-CONSTRUCTION MEASURES THAT WILL CONTROL VELOCITY, POLLUTANTS, AND/OR EROSION (3.5.1.f, 3.5.4): PERMANENT EROSION CONTROL BLANKETS, REESTABLISHING PERMANENT VEGETATION WITH SODDING AND GRASS SEEDING.

9.2. OTHER ITEMS NEEDING CONTROL (3.5.5)

9.3.1. CONSTRUCTION MATERIALS

THE FOLLOWING MATERIALS OR SUBSTANCES ARE EXPECTED TO BE PRESENT ON THE SITE DURING THE CONSTRUCTION PERIOD. (CHECK ALL THAT APPLY).

9.3.1.1. ☒ LUMBER, GUARDRAIL, TRAFFIC CONTROL DEVICES
9.3.1.2. ☒ CONCRETE WASHOUT
9.3.1.3. ☒ PVC PIPES
9.3.1.4. ☒ MINERAL AGGREGATES, ASPHALT
9.3.1.5. ☒ EARTH
9.3.1.6. ☒ LIQUID TRAFFIC STRIPING MATERIALS, PAINT
9.3.1.7. ☒ ROCK
9.3.1.8. ☐ CURING COMPOUND
9.3.1.9. ☐ EXPLOSIVES
9.3.1.10. ☐ OTHER

THESE MATERIALS WILL BE HANDLED AS NOTED IN THIS SWPPP.

9.3.2. WASTE MATERIALS (3.5.5.b)

WASTE MATERIAL (EARTH, ROCK, ASPHALT, CONCRETE, DEBRIS, ETC.) NOT REQUIRED FOR THE CONSTRUCTION OF THE PROJECT WILL BE DISPOSED OF BY THE CONTRACTOR. THE CONTRACTOR WILL OBTAIN ANY AND ALL NECESSARY PERMITS INCLUDING, BUT NOT LIMITED TO NPDES, AQUATIC RESOURCES ALTERATION PERMIT(S) CORPS OF ENGINEERS SECTION 404 PERMITS, AND TVA SECTION 26A PERMITS TO DISPOSE OF WASTE MATERIALS.

9.3.3. HAZARDOUS WASTE (3.5.5.c) (7.9)

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN A MANNER WHICH IS COMPLIANT WITH LOCAL OR STATE REGULATIONS AND THE ATTACHED SOIL MANAGEMENT PLAN. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES, AND THE INDIVIDUAL DESIGNATED AS THE CONTRACTOR'S ON-SITE REPRESENTATIVE WILL BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED. THE CONTRACTOR WILL OBTAIN ANY AND ALL NECESSARY PERMITS TO DISPOSE OF HAZARDOUS MATERIAL.

9.3.4. SANITARY WASTE (3.5.5.b)

PORTABLE SANITARY FACILITIES WILL BE PROVIDED ON ALL CONSTRUCTION SITES. SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS IN A TIMELY MANNER BY A LICENSED WASTE MANAGEMENT CONTRACTOR OR AS REQUIRED BY ANY LOCAL REGULATIONS. THE CONTRACTOR WILL OBTAIN ANY AND ALL NECESSARY PERMITS TO DISPOSE OF SANITARY WASTE.

9.3.5. OTHER MATERIALS

THE FOLLOWING MATERIALS OR SUBSTANCES ARE EXPECTED TO BE PRESENT ON THE SITE DURING THE CONSTRUCTION PERIOD. (CHECK ALL THAT APPLY).

9.3.5.1. ☒ FERTILIZERS AND LIME
9.3.5.2. ☐ PESTICIDES AND/OR HERBICIDES
9.3.5.3. ☒ DIESEL AND GASOLINE
9.3.5.4. ☒ MACHINERY LUBRICANTS (OIL AND GREASE)

THESE MATERIALS WILL BE HANDLED AS NOTED THIS SWPPP.

10. NON-STORMWATER DISCHARGES (3.5.9)

10.1. THE FOLLOWING NON-STORMWATER DISCHARGES ARE ANTICIPATED DURING THE COURSE OF THIS PROJECT (CHECK ALL THAT APPLY):

10.1.1. ☒ DEWATERING OF WORK AREAS OF COLLECTED STORMWATER AND GROUND WATER
10.1.2. ☒ WATERS USED TO WASH VEHICLES (OF DUST AND SOIL) WHERE DETERGENTS ARE NOT USED AND DETENTION AND/OR FILTERING IS PROVIDED BEFORE THE WATER LEAVES SITE
10.1.3. ☒ WATER USED TO CONTROL DUST (3.5.3.1.n)
10.1.4. ☒ POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS FROM WHICH CHLORINE HAS BEEN REMOVED TO THE MAXIMUM EXTENT PRACTICABLE
10.1.5. ☐ UNCONTAMINATED GROUNDWATER OR SPRING WATER
10.1.6. ☐ FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH POLLUTANTS
10.1.7. ☒ OTHER: GROUNDWATER FROM EXCAVATION WILL BE TREATED ON-SITE PRIOR TO DISCHARGE

10.2. ALL ALLOWABLE NON-STORMWATER DISCHARGES WILL BE DIRECTED TO STABLE DISCHARGE STRUCTURES PRIOR TO LEAVING THE SITE. FILTERING OR CHEMICAL TREATMENT MAY BE NECESSARY PRIOR TO DISCHARGE.

10.3. THE DESIGN OF ALL IMPACTED EPSC MEASURES RECEIVING FLOW FROM ALLOWABLE NON-STORMWATER DISCHARGES MUST BE DESIGNED TO HANDLE THE VOLUME OF THE NON-STORMWATER COMPONENT.

10.4. WASH DOWN OR WASTE DISCHARGE OF CONCRETE TRUCKS WILL NOT BE PERMITTED ON-SITE UNLESS PROPER SETTLEMENT AREAS HAVE BEEN PROVIDED IN ACCORDANCE WITH BOTH STATE AND FEDERAL REGULATIONS.

10.5. ARE ANY DISCHARGES ASSOCIATED WITH INDUSTRIAL (NON-CONSTRUCTION STORMWATER) ACTIVITY EXPECTED (3.5.1.h)?

YES ☐ NO ☒

IF YES, SPECIFY THE LOCATION OF THE ACTIVITY AND ITS PERMIT NUMBER.

11. SPILL PREVENTION, MANAGEMENT AND NOTIFICATION (3.5.5.c, 5.1)

11.1. SPILL PREVENTION (3.5.5.c)

11.1.1. MATERIAL MANAGEMENT

11.1.1.1. HOUSEKEEPING

ONLY PRODUCTS NEEDED WILL BE STORED ON-SITE BY THE CONTRACTOR. EXCEPT FOR BULK MATERIALS THE CONTRACTOR WILL STORE ALL MATERIALS UNDER COVER AND IN APPROPRIATE CONTAINERS. PRODUCTS MUST BE STORED IN ORIGINAL CONTAINERS AND LABELED. MATERIAL MIXING WILL BE CONDUCTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHEN POSSIBLE, ALL PRODUCTS WILL BE USED COMPLETELY BEFORE PROPERLY DISPOSING OF THE CONTAINER OFF SITE. THE MANUFACTURER'S DIRECTIONS FOR DISPOSAL OF MATERIALS AND CONTAINERS WILL BE FOLLOWED. THE CONTRACTOR'S SITE SUPERINTENDENT WILL INSPECT MATERIALS STORAGE AREAS REGULARLY TO ENSURE PROPER USE AND DISPOSAL. DUST GENERATED WILL BE CONTROLLED IN AN ENVIRONMENTALLY SAFE MANNER. VEGETATION AREAS NOT ESSENTIAL TO THE CONSTRUCTION PROJECT WILL BE PRESERVED AND MAINTAINED AS NOTED ON THE PLANS.

11.1.1.2. HAZARDOUS MATERIALS

PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THE CONTAINER IS NOT RESEALABLE. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHEETS WILL BE RETAINED IN A SAFE PLACE TO RELAY IMPORTANT PRODUCT INFORMATION. IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S LABEL DIRECTIONS FOR DISPOSAL WILL BE FOLLOWED. MAINTENANCE AND REPAIR OF ALL EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM DRAIN DOWN, DE-GREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES WHICH MAY RESULT IN THE ACCIDENTAL RELEASE OF CONTAMINANTS WILL BE CONDUCTED ON AN IMPERVIOUS SURFACE AND UNDER COVER DURING WET WEATHER TO PREVENT THE RELEASE OF CONTAMINANTS ONTO THE GROUND. WHEEL WASH WATER WILL BE COLLECTED AND ALLOWED TO SETTLE OUT SUSPENDED SOLIDS PRIOR TO DISCHARGE. WHEEL WASH WATER WILL NOT BE DISCHARGED DIRECTLY INTO ANY STORMWATER SYSTEM OR STORMWATER TREATMENT SYSTEM. POTENTIAL PH-MODIFYING MATERIALS SUCH AS: BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHINGS AND CURING WATERS, CONCRETE PUMPING, AND MIXER WASHOUT WATERS WILL BE COLLECTED ON SITE AND MANAGED TO PREVENT CONTAMINATION OF STORMWATER RUNOFF.

BARGE DESIGN SOLUTIONS		BICENTENNIAL PARK IMPROVEMENTS FRANKLIN, TN 37064 WILLIAMSON COUNTY, TENNESSEE	
		STORM WATER POLLUTION PREVENTION PLAN	
DRAWN BY: AL	CHECKED BY: DH	PROJECT NO.: 35968-01	SHEET NO.: 3
DATE: 08/11/2020	DATE: 08/31/2020		

11.1.1.3. PRODUCT SPECIFIC PRACTICES

11.1.1.3.1. PETROLEUM PRODUCTS: ALL ON-SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED.

11.1.1.3.2. FERTILIZERS: FERTILIZERS WILL BE APPLIED ONLY IN THE AMOUNTS SPECIFIED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZERS WILL BE WORKED INTO THE SOIL TO LIMIT THE EXPOSURE TO STORMWATER. FERTILIZERS WILL BE STORED IN AN ENCLOSED AREA UNDER COVER. THE CONTENTS OF PARTIALLY USED FERTILIZER BAGS WILL BE TRANSFERRED TO SEALABLE CONTAINERS TO AVOID SPILLS.

11.1.1.3.3. PAINTS: ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. THE EXCESS WILL BE DISPOSED OF ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND APPLICABLE STATE AND LOCAL REGULATIONS.

11.1.1.3.4. CONCRETE TRUCKS: CONTRACTORS WILL PROVIDE DESIGNATED TRUCK WASHOUT AREAS ON THE SITE. THESE AREAS MUST BE SELF CONTAINED AND NOT CONNECTED TO ANY STORMWATER OUTLET OF THE SITE. UPON COMPLETION OF CONSTRUCTION WASHOUT AREAS WILL BE PROPERLY STABILIZED.

11.2. SPILL MANAGEMENT

11.2.1. IN ADDITION TO THE PREVIOUS HOUSEKEEPING AND MANAGEMENT PRACTICES, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP IF NECESSARY.

11.2.2. FOR ALL HAZARDOUS MATERIALS STORED ON SITE, THE MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEAN UP WILL BE CLEARLY POSTED. SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATIONS OF THE INFORMATION AND CLEANUP SUPPLIES.

11.2.3. APPROPRIATE CLEANUP MATERIALS AND EQUIPMENT WILL BE MAINTAINED BY THE CONTRACTOR IN THE MATERIALS STORAGE AREA ON-SITE AND UNDER COVER. AS APPROPRIATE, EQUIPMENT AND MATERIALS MAY INCLUDE ITEMS SUCH AS BOOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR CLEAN UP PURPOSES.

11.2.4. ALL SPILLS WILL BE CLEANED IMMEDIATELY AFTER DISCOVERY AND THE MATERIALS DISPOSED OF PROPERLY. THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.

11.2.5. THE CONTRACTOR'S SITE SUPERINTENDENT WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE SITE SUPERINTENDENT HAS HAD APPROPRIATE TRAINING FOR HAZARDOUS MATERIALS HANDLING, SPILL MANAGEMENT, AND CLEANUP.

11.2.6. IF SPILLS REPRESENT AN IMMINENT THREAT OF ESCAPING THE SITE AND ENTERING RECEIVING WATERS, PERSONNEL WILL RESPOND IMMEDIATELY TO CONTAIN THE RELEASE AND NOTIFY THE SUPERINTENDENT AFTER THE SITUATION HAS BEEN STABILIZED.

11.2.7. IF OIL SHEEN IS OBSERVED ON SURFACE WATER (E.G. SETTLING PONDS, DETENTION PONDS, SWALES), ACTION WILL BE TAKEN IMMEDIATELY TO REMOVE THE MATERIAL CAUSING THE SHEEN. THE CONTRACTOR WILL USE APPROPRIATE MATERIALS TO CONTAIN AND ABSORB THE SPILL. THE SOURCE OF THE OIL SHEEN WILL ALSO BE IDENTIFIED AND REMOVED OR REPAIRED AS NECESSARY TO PREVENT FURTHER RELEASES.

11.2.8. IF A SPILL OCCURS THE CONTRACTOR WILL BE RESPONSIBLE FOR COMPLETING THE SPILL REPORTING FORM.

11.2.9. SPILL RESPONSE EQUIPMENT WILL BE INSPECTED AND MAINTAINED BY THE CONTRACTOR AS NECESSARY TO REPLACE ANY MATERIALS USED IN SPILL RESPONSE ACTIVITIES.

11.3. SPILL NOTIFICATION (5.1) WHERE A RELEASE CONTAINING A HAZARDOUS SUBSTANCE IN AN AMOUNT EQUAL TO OR IN EXCESS OF A REPORTABLE QUANTITY ESTABLISHED UNDER EITHER 40 CFR 117 OR 40 CFR 302 OCCURS DURING A 24 HOUR PERIOD:

11.3.1. A WRITTEN DESCRIPTION OF THE RELEASE, DATE OF RELEASE AND

11.3.2. CIRCUMSTANCES LEADING TO THE RELEASE, WHAT ACTIONS WERE TAKEN TO MITIGATE EFFECTS OF THE RELEASE, AND STEPS TAKEN TO MINIMIZE THE CHANCE OF FUTURE OCCURRENCES WILL BE SUBMITTED TO THE APPROPRIATE TDEC ENVIRONMENTAL FIELD OFFICE WITHIN 14 DAYS OF KNOWLEDGE OF THE RELEASE.

11.3.3. THE SWPPP MUST BE MODIFIED WITHIN 14 DAYS OF KNOWLEDGE OF THE RELEASE PROVIDING A DESCRIPTION OF THE RELEASE, CIRCUMSTANCES LEADING TO THE RELEASE, AND THE DATE OF RELEASE. THE SWPPP WILL BE REVIEWED AND MODIFIED AS NECESSARY TO IDENTIFY MEASURES TO PREVENT THE REOCCURRENCE OF SUCH RELEASES AND TO RESPOND TO SUCH RELEASES.

12. RECORD-KEEPING

12.1. REQUIRED RECORDS

CONTRACTOR OR THEIR DESIGNEE WILL MAINTAIN AT THE SITE THE FOLLOWING RECORDS OF CONSTRUCTION ACTIVITIES (3.5.3.1.m) (6.2.1):

12.1.1. THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR

12.1.2. THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE

12.1.3. THE DATES WHEN STABILIZATION MEASURES ARE INITIATED

12.1.4. RECORDS OF TWICE WEEKLY EPSC INSPECTION REPORTS AND CORRECTIVE MEASURES

12.1.5. RECORDS OF QUALITY ASSURANCE SITE ASSESSMENTS

12.1.6. COPY OF SITE EPSC INSPECTOR'S TDEC LEVEL 1 CERTIFICATION

12.1.7. RAINFALL MONITORING PLAN (3.5.3.1.o)

12.1.7.1. EQUIPMENT

AT A MINIMUM, THE CONTRACTOR WILL INSTALL A FENCE POST TYPE RAIN GAUGE TO MEASURE RAINFALL. THE STANDARD FENCE POST RAIN GAUGE WILL BE A WEDGE-SHAPED GAUGE THAT MEASURES UP TO 6 INCHES OF RAINFALL. AN ENGLISH SCALE WILL BE PROVIDED ON ONE FACE, WITH A METRIC SCALE ON THE OTHER FACE. GRADUATION WILL BE PERMANENTLY MOLDED IN DURABLE WEATHER-RESISTANT PLASTIC. THE MINIMUM GRADUATION WILL BE 0.01 INCH (OR 0.1MM). AN ALUMINUM BRACKET WITH SCREWS MAY BE USED TO MOUNT THE GAUGE ON A WOODEN SUPPORT.

12.1.7.2. LOCATION

THE RAIN GAUGE WILL BE LOCATED AT THE PROJECT SITE, IN AN OPEN AREA SUCH THAT THE MEASUREMENT WILL NOT BE INFLUENCED BY OUTSIDE FACTORS (I.E. OVERHANGS, GUTTER, TREES, ETC). ALTERNATIVELY, A REFERENCE SITE MAY BE USED. A REFERENCE SITE IS THE DOCUMENTATION FROM THE CLOSEST GAUGE WITHIN PROXIMITY OF THE PROJECT FROM A RECOGNIZED SOURCE SUCH AS THE NOAA NATIONAL WEATHER SERVICE.

12.1.7.3. METHODS

12.1.7.3.1. RAINFALL MONITORING WILL BE INITIATED PRIOR TO CLEARING, GRUBBING, EXCAVATION, GRADING, CUTTING, OR FILLING, EXCEPT AS SUCH MINIMAL CLEARING MAY BE NECESSARY TO INSTALL A RAIN GAUGE IN AN OPEN AREA. THE RAIN GAUGE WILL BE CHECKED FOR OPERATIONAL SOUNDNESS DAILY (DURING NORMAL BUSINESS HOURS) IN WET TIMES AND WEEKLY IN DRY TIMES. GAUGES WILL BE REPAIRED OR REPLACED ON THE SAME DAY IF FOUND TO BE NON-OPERATIONAL OR MISSING.

12.1.7.3.2. EACH RAIN GAUGE WILL BE READ (FOR DETAILED RECORDS OF RAINFALL) AND EMPTIED AFTER EVERY RAINFALL EVENT OCCURRING ON THE PROJECT SITE AT APPROXIMATELY THE SAME TIME OF THE DAY (DURING NORMAL BUSINESS HOURS). DURING PERIODS OF DRY CONDITIONS, IT WILL NOT BE NECESSARY TO READ THE RAIN GAUGE EVERY DAY. IN LIEU OF THIS REQUIREMENT ON WEEKENDS AND ON STATE HOLIDAYS, THE RAIN GAUGES CAN BE EMPTIED THE NEXT BUSINESS DAY AND A REFERENCE SITE USED FOR A RECORD OF DAILY AMOUNT OF PRECIPITATION FOR THOSE DAYS. A REFERENCE SITE IS THE DOCUMENTATION FROM THE CLOSEST GAUGE WITHIN PROXIMITY OF THE PROJECT FROM A RECOGNIZED SOURCE SUCH AS THE NOAA NATIONAL WEATHER SERVICE.

12.1.7.3.3. DETAILED RECORDS WILL BE RECORDED OF RAINFALL EVENTS INCLUDING DATES, AMOUNTS OF RAINFALL, AND THE APPROXIMATE DURATION (OR THE STARTING AND ENDING TIMES).

12.1.7.3.4. IF, IN THE EVENT THAT THE RAINFALL EVENT IS STILL IN PROGRESS AT THE DAILY RECORDING TIME, THE GAUGE WILL BE EMPTIED AND THE RECORD WILL INDICATE THAT THE STORM EVENT WAS STILL IN PROGRESS.

12.1.7.3.5. RAIN GAUGE INFORMATION (DETAILED RECORDS), INCLUDING THE LOCATION OF THE NEAREST OUTFALL, WILL BE RECORDED ON THE EPSC INSPECTION REPORT FORMS AT THE TIME OF MEASUREMENT.

12.2. KEEPING PLANS CURRENT (3.4)

CONTRACTOR OR THEIR DESIGNEE WILL MODIFY AND UPDATE THE SWPPP WHEN ANY OF THE FOLLOWING CONDITIONS APPLY:

12.2.1. WHENEVER THERE IS A CHANGE IN THE SCOPE OF THE PROJECT THAT WOULD BE EXPECTED TO HAVE A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO THE WATERS OF THE STATE AND WHICH HAS NOT OTHERWISE BEEN ADDRESSED IN THE SWPPP;

12.2.2. WHENEVER INSPECTIONS OR INVESTIGATIONS BY SITE OPERATORS, LOCAL, STATE, OR FEDERAL OFFICIALS INDICATE THE SWPPP IS PROVING INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS FROM CONSTRUCTION ACTIVITY SOURCES, OR IS OTHERWISE NOT ACHIEVING THE GENERAL OBJECTIVES OF CONTROLLING POLLUTANTS IN STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY; WHERE LOCAL, STATE, OR FEDERAL OFFICIALS DETERMINE THAT THE SWPPP IS INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANT SOURCES, A COPY OF ANY CORRESPONDENCE TO THAT EFFECT MUST BE RETAINED IN THE SWPPP;

12.2.3. WHEN ANY NEW OPERATOR AND/OR SUB-OPERATOR IS ASSIGNED OR RELIEVED OF THEIR RESPONSIBILITY TO IMPLEMENT A PORTION OF THE SWPPP;

12.2.4. TO PREVENT A NEGATIVE IMPACT TO LEGALLY PROTECTED STATE OR FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED AQUATIC FAUNA;

12.2.5. WHEN THERE IS A CHANGE IN CHEMICAL TREATMENT METHODS INCLUDING: USE OF DIFFERENT TREATMENT CHEMICALS, DIFFERENT DOSAGE OR APPLICATION RATES OR A DIFFERENT AREA OF APPLICATION NOT SPECIFIED ON THE EPSC PLANS; OR

12.2.6. WHEN A TMDL IS DEVELOPED FOR THE RECEIVING WATERS FOR A POLLUTANT OF CONCERN (SILTATION AND/OR HABITAT ALTERATION)

12.3. MAKING PLANS ACCESSIBLE

12.3.1. CONTRACTOR WILL RETAIN A COPY OF THIS SWPPP (INCLUDING A COPY OF THE "DOCUMENTATION AND PERMITS" BINDER AT THE CONSTRUCTION SITE (OR OTHER LOCATION ACCESSIBLE TO TDEC AND THE PUBLIC) FROM THE DATE CONSTRUCTION COMMENCES TO THE DATE OF FINAL STABILIZATION. CONTRACTOR WILL HAVE A COPY OF THE SWPPP AVAILABLE AT THE LOCATION WHERE WORK IS OCCURRING ON-SITE FOR THE USE OF OPERATORS AND THOSE IDENTIFIED AS HAVING RESPONSIBILITIES UNDER THE SWPPP WHENEVER THEY ARE ON THE CONSTRUCTION SITE. (6.2)

12.3.2. PRIOR TO THE INITIATION OF LAND DISTURBING ACTIVITIES AND UNTIL THE SITE HAS MET THE FINAL STABILIZATION CRITERIA, CONTRACTOR OR THEIR DESIGNEE WILL POST A NOTICE NEAR THE MAIN ENTRANCE OF THE CONSTRUCTION SITE WITH THE FOLLOWING INFORMATION (3.3.3) (6.2.1):

12.3.2.1. A COPY OF THE NOTICE OF COVERAGE (NOC) WITH THE NPDES PERMIT NUMBER FOR THE PROJECT;

12.3.2.2. THE INDIVIDUAL NAME, COMPANY NAME, E-MAIL ADDRESS (IF APPLICABLE) AND TELEPHONE NUMBER OF THE LOCAL PROJECT SITE OWNER AND OPERATOR CONTACT;

12.3.2.3. A BRIEF DESCRIPTION OF THE PROJECT; AND

12.3.2.4. THE LOCATION OF THE SWPPP.

12.3.3. ALL INFORMATION DESCRIBED IN SECTION 10.3.2 MUST BE MAINTAINED IN LEGIBLE CONDITION. IF POSTING THIS INFORMATION NEAR A MAIN ENTRANCE IS INFEASIBLE DUE TO SAFETY CONCERNS, THE NOTICE SHALL BE POSTED IN A LOCAL BUILDING. THE NOTICE MUST BE PLACED IN A PUBLICLY ACCESSIBLE LOCATION WHERE CONSTRUCTION IS ACTIVELY UNDERWAY AND MOVED AS NECESSARY.

12.4. NOTICE OF TERMINATION (8.0)

12.4.1. WHEN ALL STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES THAT ARE AUTHORIZED BY THE PERMIT ARE ELIMINATED BY FINAL STABILIZATION, CONTRACTOR WILL SUBMIT A NOTICE OF TERMINATION (NOT) THAT IS SIGNED IN ACCORDANCE WITH THE PERMIT TO THE LOCAL ENVIRONMENTAL FIELD OFFICE.

12.4.2. FOR THE PURPOSES OF THE CERTIFICATION REQUIRED BY THE NOT, THE ELIMINATION OF STORMWATER DISCHARGES ASSOCIATED WITH THE CONSTRUCTION ACTIVITY MEANS THE FOLLOWING:

12.4.2.1. ALL EARTH-DISTURBING ACTIVITIES ON THE SITE ARE COMPLETED AND ALL DISTURBED SOILS AT THE PORTION OF THE CONSTRUCTION SITE WHERE THE OPERATOR HAD CONTROL HAVE BEEN FINALLY STABILIZED; AND

12.4.2.2. ALL CONSTRUCTION MATERIALS, WASTE AND WASTE HANDLING DEVICES, AND ALL EQUIPMENT, AND VEHICLES THAT WERE USED DURING CONSTRUCTION HAVE BEEN REMOVED AND PROPERLY DISPOSED; AND

12.4.2.3. ALL STORMWATER CONTROLS THAT WERE INSTALLED AND MAINTAINED DURING CONSTRUCTION, EXCEPT THOSE THAT ARE INTENDED FOR LONG-TERM USE FOLLOWING TERMINATION OF PERMIT COVERAGE, HAVE BEEN REMOVED; ANDALL POTENTIAL POLLUTANTS AND POLLUTANT GENERATING ACTIVITIES ASSOCIATED WITH CONSTRUCTION HAVE BEEN REMOVED; AND

12.4.2.4. THE PERMITTEE HAS IDENTIFIED WHO IS RESPONSIBLE FOR ONGOING MAINTENANCE OF ANY STORMWATER CONTROLS LEFT ON THE SITE FOR LONG-TERM USE FOLLOWING TERMINATION OF PERMIT COVERAGE; AND TEMPORARY EPSC MEASURES HAVE BEEN OR WILL BE REMOVED AT AN APPROPRIATE TIME TO ENSURE FINAL STABILIZATION IS MAINTAINED; AND

12.4.2.5. ALL STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES FROM THE IDENTIFIED SITE THAT ARE AUTHORIZED BY A NPDES GENERAL PERMIT HAVE OTHERWISE BEEN ELIMINATED FROM THE PORTION OF THE CONSTRUCTION SITE WHERE THE OPERATOR HAD CONTROL.

12.5. RETENTION OF RECORDS (6.2)

THE PERMITTEE WILL RETAIN COPIES OF THE SWPPP, ALL REPORTS REQUIRED BY THE PERMIT, AND RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT FOR THE PROJECT FOR A PERIOD OF AT LEAST THREE (3) YEARS FROM THE DATE THE NOT WAS FILED.

13. SITE WIDE/PRIMARY PERMITTEE CERTIFICATION (7.7.5)

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

_____

AUTHORIZED PERSONNEL SIGNATURE (3.3.1)

_____

PRINTED NAME

_____

TITLE

_____

DATE

14. SECONDARY PERMITTEE (OPERATOR) CERTIFICATION (7.7.6)

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE REVIEWED THIS DOCUMENT, ANY ATTACHMENTS, AND THE SWPPP REFERENCED ABOVE. BASED ON MY INQUIRY OF THE CONSTRUCTION SITE OWNER/DEVELOPER IDENTIFIED ABOVE AND/OR MY INQUIRY OF THE PERSON DIRECTLY RESPONSIBLE FOR ASSEMBLING THIS NOI AND SWPPP, I BELIEVE THE INFORMATION SUBMITTED IS ACCURATE. I AM AWARE THAT THIS NOI, IF APPROVED, MAKES THE ABOVE-DESCRIBED CONSTRUCTION ACTIVITY SUBJECT TO NPDES PERMIT NUMBER TNR100000, AND THAT CERTAIN OF MY ACTIVITIES ON-SITE ARE THEREBY REGULATED. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS, AND FOR FAILURE TO COMPLY WITH THESE PERMIT REQUIREMENTS.

_____

AUTHORIZED OPERATOR (CONTRACTOR) SIGNATURE (3.3.1)

_____

PRINTED NAME

_____

TITLE

_____

DATE

15. ENVIRONMENTAL PERMITS (9.0)

LIST ALL ENVIRONMENTAL PERMITS AND EXPIRATION DATES FOR PROJECT

ENVIRONMENTAL PERMITS			
PERMIT	YES OR NO	PERMIT OR TRACKING NO.	EXPIRATION DATE*
TDEC ARAP	NO		
CORPS OF ENGINEERS (COE)	NO		
TVA 26A	NO		
TDEC CGP	YES	TBD	
OTHER:	N/A		

BARGE DESIGN SOLUTIONS

BICENTENNIAL PARK IMPROVEMENTS
FRANKLIN, TN 37064
WILLIAMSON COUNTY, TENNESSEE

STORM WATER POLLUTION PREVENTION PLAN

DRAWN BY: AL	CHECKED BY: DH	PROJECT NO.: 35968-01	SHEET NO.: 5
DATE: 08/11/2020	DATE: 08/31/2020		

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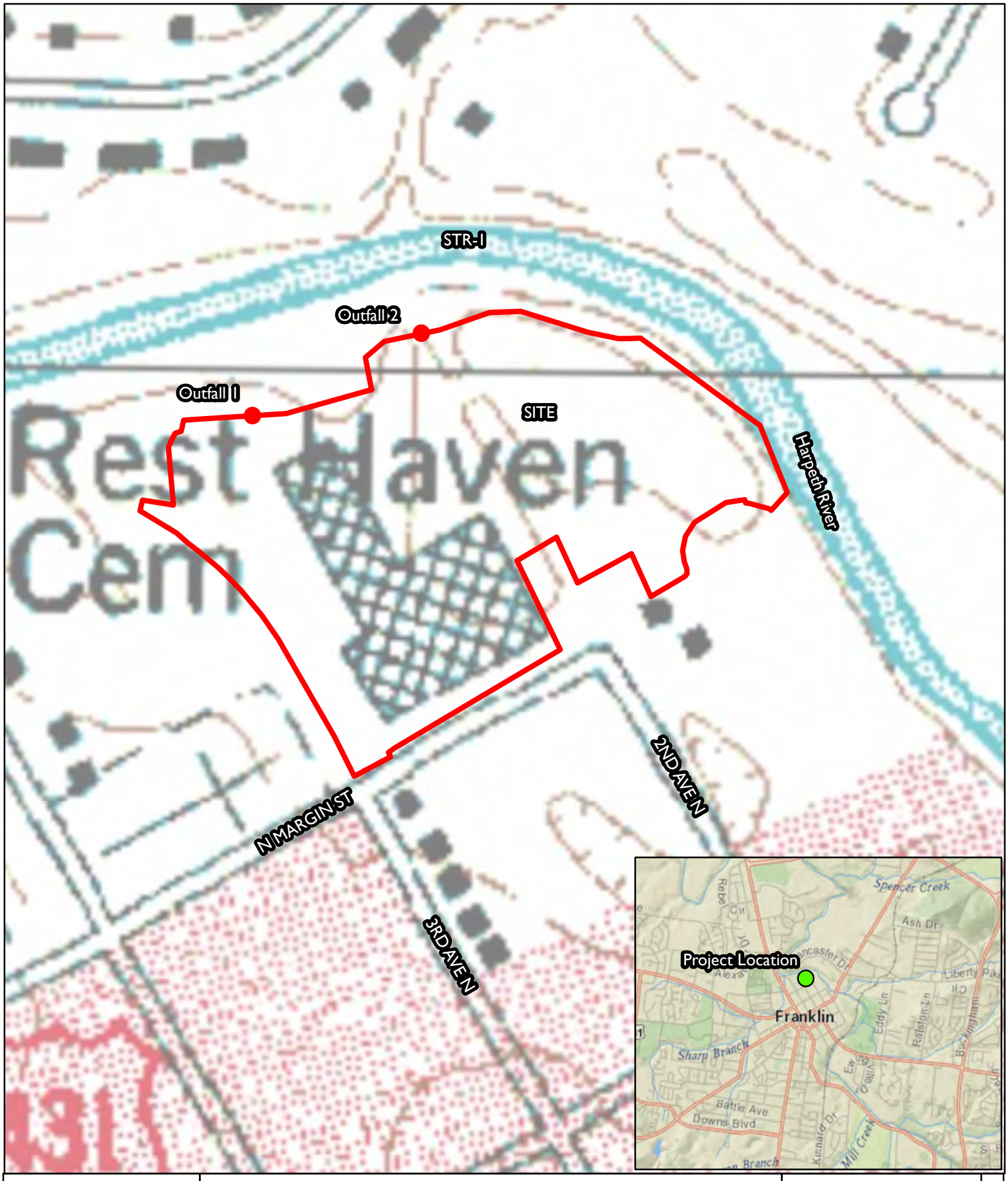
Appendix 1
USGS Topographic Map



200
Feet
1 inch = 200 feet
Tennessee State Plane (feet) 4100fips
North American Datum 1983

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BARGE DESIGN SOLUTIONS

USGS Topographic Map

Bicentennial Park Improvements
Harpeth River

Williamson County, TN

Outfall

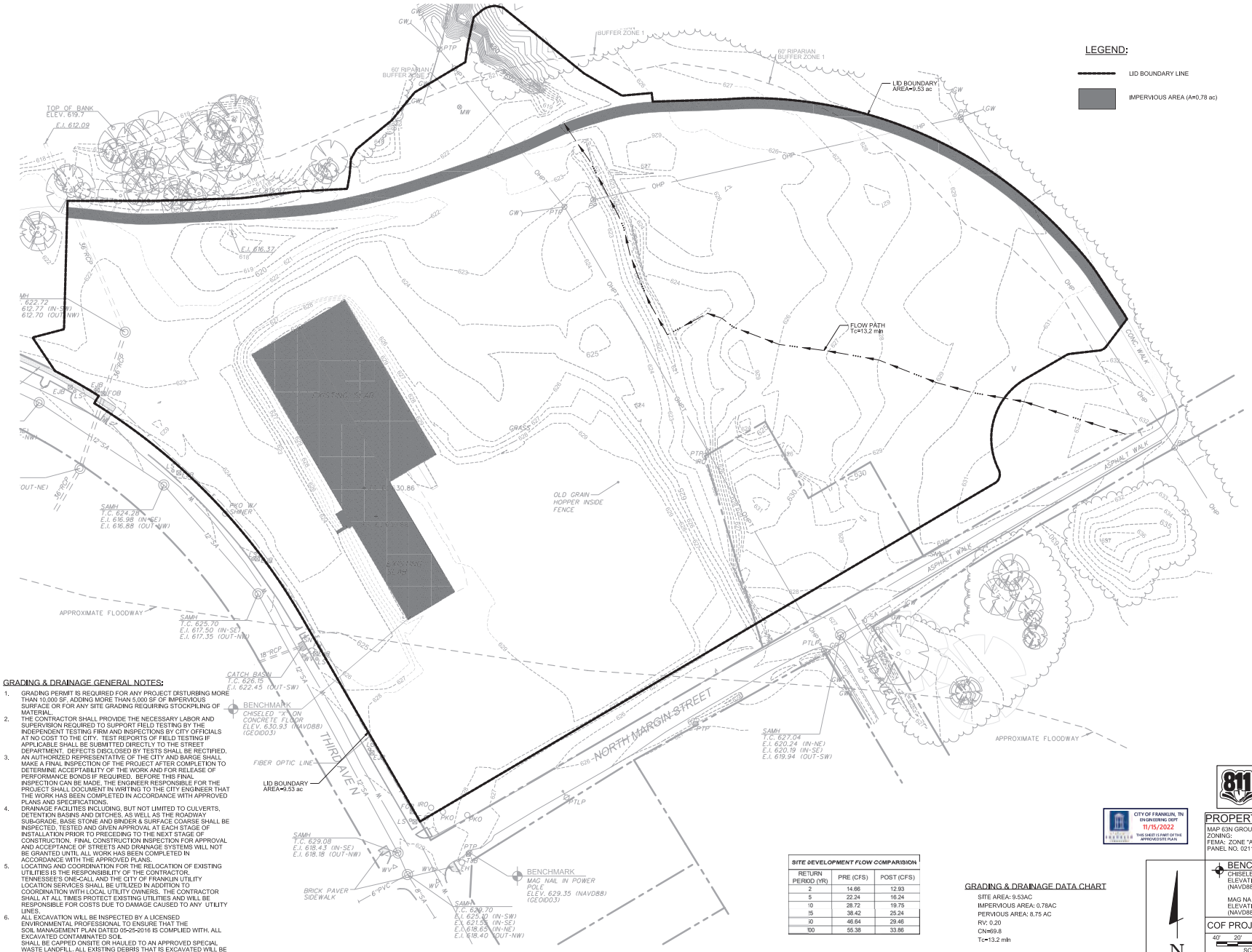
Project Area

Appendix 1

File Path: F:\35\35968\3596801\03_PROJECT_EXECUTION\06_PERMITS\SWPPP\Appendix 1 - Map\Appendix 1 - Map.mxd

Date: 31 August 2020

Appendix 2
EPSC Plans



GRADING & DRAINAGE GENERAL NOTES:

1. GRADING PERMIT IS REQUIRED FOR ANY PROJECT DISTURBING MORE THAN 10,000 SF, ADDING MORE THAN 5,000 SF OF IMPERVIOUS SURFACE OR FOR ANY SITE GRADING REQUIRING STOCKPILING OF MATERIAL.
2. THE CONTRACTOR SHALL PROVIDE THE NECESSARY LABOR AND SUPERVISION REQUIRED TO SUPPORT FIELD TESTING BY THE INDEPENDENT TESTING FIRM AND INSPECTIONS BY CITY OFFICIALS AT NO COST TO THE CITY. TEST REPORTS OF FIELD TESTING IF APPLICABLE SHALL BE SUBMITTED DIRECTLY TO THE STREET DEPARTMENT. DEFECTS DISCLOSED BY TESTS SHALL BE RECTIFIED.
3. AN AUTHORIZED REPRESENTATIVE OF THE CITY AND BARGE SHALL MAKE A FINAL INSPECTION OF THE PROJECT AFTER COMPLETION TO DETERMINE ACCEPTABILITY OF THE WORK AND FOR RELEASE OF PERFORMANCE BONDS IF REQUIRED. BEFORE THIS FINAL INSPECTION CAN BE MADE, THE ENGINEER RESPONSIBLE FOR THE PROJECT SHALL DOCUMENT IN WRITING TO THE CITY ENGINEER THAT THE WORK HAS BEEN COMPLETED IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.
4. DRAINAGE FACILITIES INCLUDING, BUT NOT LIMITED TO CULVERTS, DETENTION BASINS AND DITCHES, AS WELL AS THE ROADWAY SUB-GRADE, BASE STONE AND BINDER & SURFACE COARSE SHALL BE INSPECTED, TESTED AND GIVEN APPROVAL AT EACH STAGE OF INSTALLATION PRIOR TO PRECEDING TO THE NEXT STAGE OF CONSTRUCTION. FINAL CONSTRUCTION INSPECTION FOR APPROVAL AND ACCEPTANCE OF STREETS AND DRAINAGE SYSTEMS WILL NOT BE GRANTED UNTIL ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS.
5. LOCATING AND COORDINATION FOR THE RELOCATION OF EXISTING UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR. TENNESSEE'S ONE-CALL AND THE CITY OF FRANKLIN UTILITY LOCATION SERVICES SHALL BE UTILIZED IN ADDITION TO COORDINATION WITH LOCAL UTILITY OWNERS. THE CONTRACTOR SHALL AT ALL TIMES PROTECT EXISTING UTILITIES AND WILL BE RESPONSIBLE FOR COSTS DUE TO DAMAGE CAUSED TO ANY UTILITY LINES.
6. ALL EXCAVATION WILL BE INSPECTED BY A LICENSED ENVIRONMENTAL PROFESSIONAL TO ENSURE THAT THE SOIL MANAGEMENT PLAN DATED 05-25-2016 IS COMPLIED WITH. ALL EXCAVATED CONTAMINATED SOIL SHALL BE CAPPED ONSITE OR HAULED TO AN APPROVED SPECIAL WASTE LANDFILL. ALL EXISTING DEBRIS THAT IS EXCAVATED WILL BE PLACED IN A CLASS 1 LANDFILL.

SITE DEVELOPMENT FLOW COMPARISION

RETURN PERIOD (YR)	PRE (CFS)	POST (CFS)
2	14.66	12.93
5	22.24	16.24
10	28.72	19.75
25	38.42	25.24
50	46.64	29.46
100	55.38	33.86

GRADING & DRAINAGE DATA CHART

SITE AREA: 9.53AC
IMPERVIOUS AREA: 0.78AC
PERVIOUS AREA: 8.75 AC
RV: 0.20
CN=99.8
Tc=13.2 min

CITY OF FRANKLIN, TN ENGINEERING DEPT 11/15/2022 THIS SHEET IS PART OF THE APPROVED SITE PLAN

811 Know what's **below** **Call** before you dig. 811 www.call811.com

PROPERTY INFO

MAP 63N GROUP "D" PARCELS 1 & 3
ZONING:
FEMA: ZONE "AE", COMMUNITY NO. 470206
PANEL NO. 0211 G, 12/22/16

BENCHMARK
CHISELED "X" ON CONCRETE FLOOR
ELEVATION = 630.93'
(NAVD88) (GEOID03)

MAG NAIL IN POWER POLE
ELEVATION = 629.35
(NAVD88) (GEOID03)

COF PROJECT #: 7961

40' 20' 0' 40' 80'
SCALE: 1 INCH = 40 FEET

N

REVISION INFORMATION

REV.	DR.	CHK.	DATE	DESCRIPTION
	MY	ABH	09-05-2020	SITE DEVELOPMENT SUBMITTAL
	MY	ABH	09-25-2020	RESPONSE TO COMMENTS
	MY	ABH	10-26-2020	100% CD SUBMITTAL WITH MINOR 1 & 2
0	MY	ABH	11-12-2020	100% CD SUBMITTAL AS-BUILT
	MY	ABH	09-12-2022	SAT COMMENTS RESUBMITTAL
1	MY	ABH	10-26-2022	100% CD DBT COMMENTS RESPONSE

PRE-CONSTRUCTION DRAINAGE MAP

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

C3.0F

FILE NO. 35968-01

BARGE DESIGN SOLUTIONS
615 3rd Avenue South / Suite 700 / Nashville, TN 37210 / PHONE (615) 244-8591

ANDREW BLAKE HANNON — 120181 — STATE OF TENNESSEE — Andrew B Hannon 10-26-2022

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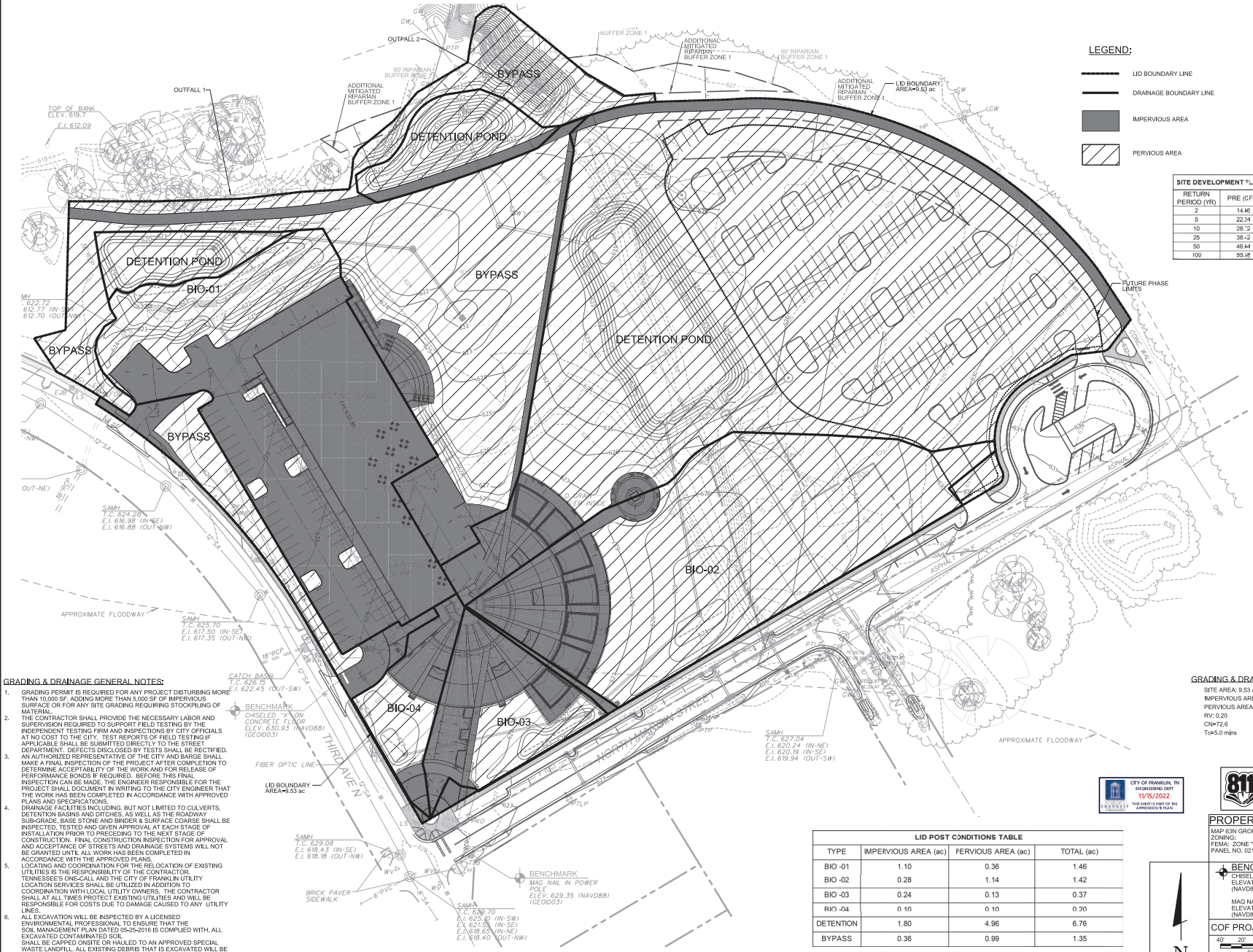

SITE DEVELOPMENT FLOW COMPARISION		
RETURN PERIOD (YR)	PRE (CFS)	POST (CFS)
2	14.96	12.93
5	22.04	16.24
10	28.72	19.75
25	38.42	25.24
50	46.64	29.46
100	55.38	33.86

GRADING & DRAINAGE GENERAL NOTES:

1. GRADING PERMIT IS REQUIRED FOR ANY PROJECT DISTURBING MORE THAN 10,000 SF, ADDING MORE THAN 5,000 SF OF IMPERVIOUS SURFACE OR FOR ANY SITE GRADING REQUIRING STOCKPILING OF MATERIAL.
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GRADING & DRAINAGE DATA CHART

SITE AREA: 9.53 AC
IMPERVIOUS AREA: 4.41AC
PERVIOUS AREA: 4.92 AC
RV: 0.20
CN=72.6
Tc=5.0 mins

LID POST CONDITIONS TABLE			
TYPE	IMPERVIOUS AREA (ac)	PERVIOUS AREA (ac)	TOTAL (ac)
BIO -01	1.10	0.36	1.46
BIO -02	0.28	1.14	1.42
BIO -03	0.24	0.13	0.37
BIO -04	0.10	0.10	0.20
DETENTION	1.80	4.96	6.76
BYPASS	0.36	0.99	1.35

CITY OF FRANKLIN, TN ENGINEERING DEPT 11/15/2022 THIS SHEET IS PART OF THE APPROVED R PLAN

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PROPERTY INFO

MAP 63N GROUP "D" PARCELS 1 & 3
ZONING:
FEMA: ZONE "AE", COMMUNITY NO. 470206
PANEL NO. 0211 G, 12/22/16

BENCHMARK
CHISELED "X" ON CONCRETE FLOOR
ELEVATION = 630.93'
(NAVD88) (GEOID03)

MAG NAIL IN POWER POLE
ELEVATION = 629.35
(NAVD88) (GEOID03)

COF PROJECT #: 7961

N

40' 20' 0' 40' 80'
SCALE: 1 INCH = 40 FEET

BARGE DESIGN SOLUTIONS
615 3rd Avenue South | Suite 700 | Nashville, TN 37210 | PHONE (615) 354-1000 | FAX (615) 254-0573

AMOS BLAKE HARDISON 2022 LICENSED PROFESSIONAL ENGINEER STATE OF TENNESSEE

POST-CONSTRUCTION DRAINAGE MAP

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

REVISION INFORMATION			
REV'S	DR. CHK.	DATE	DESCRIPTION
	MY ABH	09-15-2020	1ST DEVELOPMENT SUBMITTAL
	MY ABH	09-25-2020	2ND DEVELOPMENT RESUBMITTAL
	MY ABH	10-26-2020	100% CD SUBMITTAL WITH MINOR 1 & 2
0	MY ABH	11-20-2020	100% CD SUBMITTAL WITH MINOR 1 & 2
	MY ABH	09-15-2020	1ST COMMENTS RESUBMITTAL
	MY ABH	10-26-2020	100% SD DOT COMMENTS RESPONSE
	MY ABH	11-15-2022	100% CD DOT COMMENTS RESPONSE

C3.0H

FILE NO. 35968-01

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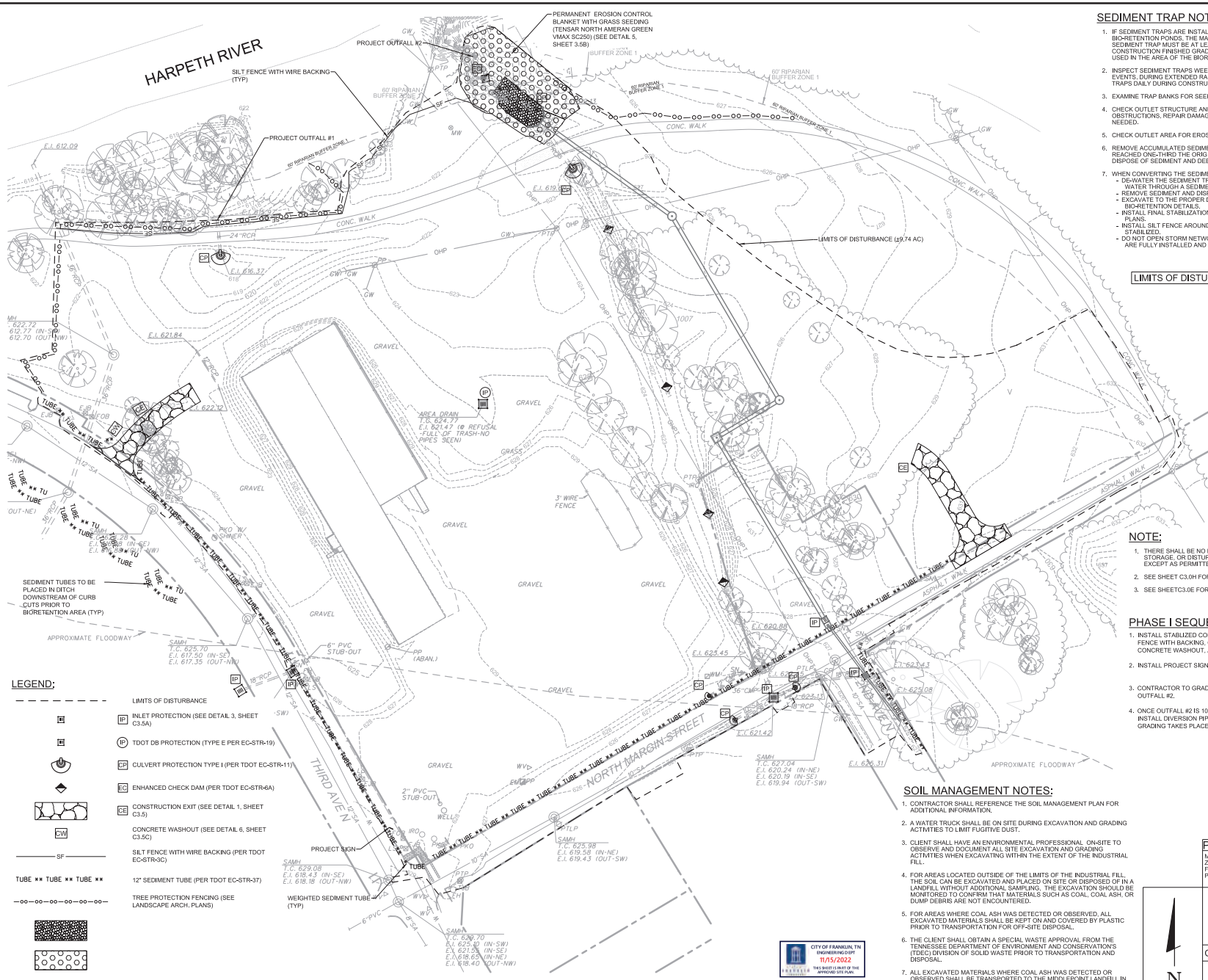

LEGEND:

- LIMITS OF DISTURBANCE
- IP — INLET PROTECTION (SEE DETAIL 3, SHEET C3.5A)
- IP — TDOT DB PROTECTION (TYPE E PER EC-STR-19)
- CP — CULVERT PROTECTION TYPE I (PER TDOT EC-STR-11)
- EC — ENHANCED CHECK DAM (PER TDOT EC-STR-6A)
- CE — CONSTRUCTION EXIT (SEE DETAIL 1, SHEET C3.5)
- CW — CONCRETE WASHOUT (SEE DETAIL 6, SHEET C3.5C)
- SF — SILT FENCE WITH WIRE BACKING (PER TDOT EC-STR-3C)
- TUBE ** TUBE ** TUBE ** — 12" SEDIMENT TUBE (PER TDOT EC-STR-37)
- TREE PROTECTION FENCING (SEE LANDSCAPE ARCH. PLANS)

SEDIMENT TRAP NOTES:

1. IF SEDIMENT TRAPS ARE INSTALLED IN THE SAME LOCATION AS BIO-RETENTION PONDS, THE MAXIMUM EXCAVATION DEPTH OF THE SEDIMENT TRAP MUST BE AT LEAST 1 FOOT ABOVE THE POST CONSTRUCTION FINISHED GRADE. NO HEAVY EQUIPMENT MAY BE USED IN THE AREA OF THE BIORETENTION PONDS.
2. INSPECT SEDIMENT TRAPS WEEKLY, BEFORE AND AFTER RAINFALL EVENTS. DURING EXTENDED RAINFALL EVENTS, INSPECT SEDIMENT TRAPS DAILY DURING CONSTRUCTION.
3. EXAMINE TRAP BANKS FOR SEEPAGE AND STRUCTURAL SOUNDNESS.
4. CHECK OUTLET STRUCTURE AND SPILLWAY FOR ANY DAMAGE OR OBSTRUCTIONS. REPAIR DAMAGE AND REMOVE OBSTRUCTIONS AS NEEDED.
5. CHECK OUTLET AREA FOR EROSION AND STABILIZE, IF REQUIRED.
6. REMOVE ACCUMULATED SEDIMENT WHEN THE VOLUME HAS REACHED ONE-THIRD THE ORIGINAL TRAP VOLUME. PROPERLY DISPOSE OF SEDIMENT AND DEBRIS REMOVED FROM THE TRAP.
7. WHEN CONVERTING THE SEDIMENT TRAP TO BIO-RETENTION:
   - DE-WATER THE SEDIMENT TRAP BY PUMPING THE REMAINING WATER THROUGH A SEDIMENT FILTER BAG.
   - REMOVE SEDIMENT AND DISPOSE IN AN APPROVED LOCATION.
   - EXCAVATE TO THE PROPER DEPTH PER GRADING PLANS AND BIO-RETENTION DETAILS.
   - INSTALL FINAL STABILIZATION AND VEGETATION PER LANDSCAPE PLANS.
   - INSTALL SILT FENCE AROUND BIORETENTION AREAS UNTIL SITE IS STABILIZED.
   - DO NOT OPEN STORM NETWORK UNTIL BIORETENTION AREAS ARE FULLY INSTALLED AND STABILIZED.

LIMITS OF DISTURBANCE = ±9.74 AC

NOTE:

1. THERE SHALL BE NO MOWING, CLEARING, GRADING, CONSTRUCTION STORAGE, OR DISTURBANCE OF VEGETATION IN RIPARIAN BUFFERS EXCEPT AS PERMITTED BY THE CITY ENGINEER, OR HIS DESIGNEE.
2. SEE SHEET C3.0H FOR SITE DRAINAGE BASINS.
3. SEE SHEETC3.0E FOR PIPE AND STRUCTURE INFORMATION.

PHASE I SEQUENCING NOTES:

1. INSTALL STABLIZED CONSTRUCTION EXIT, PERIMETER SILT FENCE WITH BACKING, CULVERT PROTECTION, CHECK DAMS, CONCRETE WASHOUT, AND SEDIMENT TUBES AS SHOWN.
2. INSTALL PROJECT SIGN PER DETAIL 3, SHEET 3.5A.
3. CONTRACTOR TO GRADE AND IMMEDIATELY STABLIZE OUTFALL #2.
4. ONCE OUTFALL #2 IS 100% STABLIZED, CONTRACTOR TO INSTALL DIVERSION PIPE BEFORE ANY MAJOR CLEARING OR GRADING TAKES PLACE.

SOIL MANAGEMENT NOTES:

1. CONTRACTOR SHALL REFERENCE THE SOIL MANAGEMENT PLAN FOR ADDITIONAL INFORMATION.
2. A WATER TRUCK SHALL BE ON SITE DURING EXCAVATION AND GRADING ACTIVITIES TO LIMIT FUGITIVE DUST.
3. CLIENT SHALL HAVE AN ENVIRONMENTAL PROFESSIONAL ON-SITE TO OBSERVE AND DOCUMENT ALL SITE EXCAVATION AND GRADING ACTIVITIES WHEN EXCAVATING WITHIN THE EXTENT OF THE INDUSTRIAL FILL.
4. FOR AREAS LOCATED OUTSIDE OF THE LIMITS OF THE INDUSTRIAL FILL, THE SOIL CAN BE EXCAVATED AND PLACED ON SITE OR DISPOSED OF IN A LANDFILL WITHOUT ADDITIONAL SAMPLING. THE EXCAVATION SHOULD BE MONITORED TO CONFIRM THAT MATERIALS SUCH AS COAL, COAL ASH, OR DUMP DEBRIS ARE NOT ENCOUNTERED.
5. FOR AREAS WHERE COAL ASH WAS DETECTED OR OBSERVED, ALL EXCAVATED MATERIALS SHALL BE KEPT ON AND COVERED BY PLASTIC PRIOR TO TRANSPORTATION FOR OFF-SITE DISPOSAL.
6. THE CLIENT SHALL OBTAIN A SPECIAL WASTE APPROVAL FROM THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION'S (TDEC) DIVISION OF SOLID WASTE PRIOR TO TRANSPORTATION AND DISPOSAL.
7. ALL EXCAVATED MATERIALS WHERE COAL ASH WAS DETECTED OR OBSERVED SHALL BE TRANSPORTED TO THE MIDDLEPOINT LANDFILL IN MURFREESBORO, TN FOR DISPOSAL.

CITY OF FRANKLIN, TN ENGINEERING DEPT 11/15/2022 THIS SHEET IS PART OF THE APPROVED SITE PLAN

811 Know what's below Call before you dig. 811 www.call811.com

PROPERTY INFO

MAP 63N GROUP "D" PARCELS 1 & 3
ZONING:
FEMA: ZONE "AE", COMMUNITY NO. 470206
PANEL NO. 0211 G, 12/22/16

BENCHMARK

CHISELED "X" ON CONCRETE FLOOR
ELEVATION = 630.93'
(NAVD88) (GEOID03)

MAG NAIL IN POWER POLE
ELEVATION = 629.35
(NAVD88) (GEOID03)

COF PROJECT #: 7961

N

40' 20' 0' 40' 80'
SCALE: 1 INCH = 40 FEET

REV'S	DR.	CHK.	DATE	REVISION INFORMATION DESCRIPTION
1	MY	ABH	09-15-2022	1ST DEVELOPMENT RESUBMITTAL
0	MY	ABH	10-26-2022	100% CD SUBMITTAL WITH MEMO 1 & 2
1	MY	ABH	11-04-2022	1ST COMMENTS RESUBMITTAL
1	MY	ABH	12-12-2022	2ND COMMENTS RESUBMITTAL
1	MY	ABH	12-26-2022	100% CD DBT COMMENTS RESPONSE

BARGE DESIGN SOLUTIONS
615 3rd Avenue South / Suite 700 / Nashville, TN 37210 / PHONE (615) 244-8591

ANDREW BLAKE HANNAH — 10-26-2022 — STATE OF TENNESSEE

INITIAL EROSION PREVENTION AND SEDIMENT CONTROL PLAN

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

C3.1

FILE NO. 35968-01

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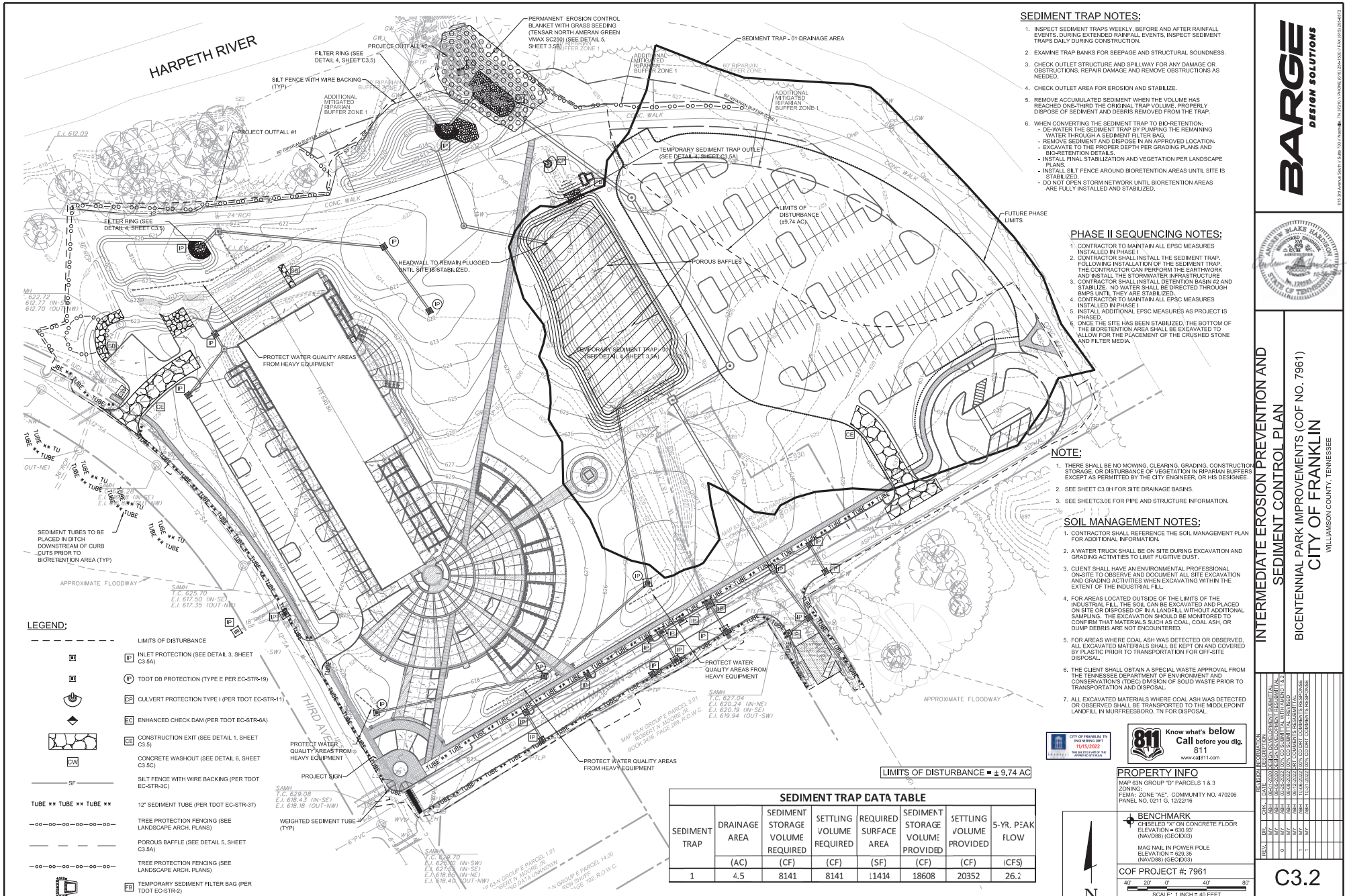

SEDIMENT TRAP NOTES:

1. INSPECT SEDIMENT TRAPS WEEKLY, BEFORE AND AFTER RAINFALL EVENTS. DURING EXTENDED RAINFALL EVENTS, INSPECT SEDIMENT TRAPS DAILY DURING CONSTRUCTION.
2. EXAMINE TRAP BANKS FOR SEEPAGE AND STRUCTURAL SOUNDNESS.
3. CHECK OUTLET STRUCTURE AND SPILLWAY FOR ANY DAMAGE OR OBSTRUCTIONS. REPAIR DAMAGE AND REMOVE OBSTRUCTIONS AS NEEDED.
4. CHECK OUTLET AREA FOR EROSION AND STABILIZE.
5. REMOVE ACCUMULATED SEDIMENT WHEN THE VOLUME HAS REACHED ONE-THIRD THE ORIGINAL TRAP VOLUME. PROPERLY DISPOSE OF SEDIMENT AND DEBRIS REMOVED FROM THE TRAP.
6. WHEN CONVERTING THE SEDIMENT TRAP TO BIO-RETENTION:
   - DE-WATER THE SEDIMENT TRAP BY PUMPING THE REMAINING WATER THROUGH A SEDIMENT FILTER BAG.
   - REMOVE SEDIMENT AND DISPOSE IN AN APPROVED LOCATION.
   - EXCAVATE TO THE PROPER DEPTH PER GRADING PLANS AND BIO-RETENTION DETAILS.
   - INSTALL FINAL STABILIZATION AND VEGETATION PER LANDSCAPE PLANS.
   - INSTALL SILT FENCE AROUND BIORETENTION AREAS UNTIL SITE IS STABILIZED.
   - DO NOT OPEN STORM NETWORK UNTIL BIORETENTION AREAS ARE FULLY INSTALLED AND STABILIZED.

PHASE II SEQUENCING NOTES:

1. CONTRACTOR TO MAINTAIN ALL EPSC MEASURES INSTALLED IN PHASE I
2. CONTRACTOR SHALL INSTALL THE SEDIMENT TRAP. FOLLOWING INSTALLATION OF THE SEDIMENT TRAP, THE CONTRACTOR CAN PERFORM THE EARTHWORK AND INSTALL THE STORMWATER INFRASTRUCTURE
3. CONTRACTOR SHALL INSTALL DETENTION BASIN #2 AND STABILIZE. NO WATER SHALL BE DIRECTED THROUGH BMPS UNTIL THEY ARE STABILIZED.
4. CONTRACTOR TO MAINTAIN ALL EPSC MEASURES INSTALLED IN PHASE I
5. INSTALL ADDITIONAL EPSC MEASURES AS PROJECT IS PHASED.
6. ONCE THE SITE HAS BEEN STABILIZED, THE BOTTOM OF THE BIORETENTION AREA SHALL BE EXCAVATED TO ALLOW FOR THE PLACEMENT OF THE CRUSHED STONE AND FILTER MEDIA.

NOTE:

1. THERE SHALL BE NO MOWING, CLEARING, GRADING, CONSTRUCTION STORAGE, OR DISTURBANCE OF VEGETATION IN RIPARIAN BUFFERS EXCEPT AS PERMITTED BY THE CITY ENGINEER, OR HIS DESIGNEE.
2. SEE SHEET C3.0H FOR SITE DRAINAGE BASINS.
3. SEE SHEETC3.0E FOR PIPE AND STRUCTURE INFORMATION.

SOIL MANAGEMENT NOTES:

1. CONTRACTOR SHALL REFERENCE THE SOIL MANAGEMENT PLAN FOR ADDITIONAL INFORMATION.
2. A WATER TRUCK SHALL BE ON SITE DURING EXCAVATION AND GRADING ACTIVITIES TO LIMIT FUGITIVE DUST.
3. CLIENT SHALL HAVE AN ENVIRONMENTAL PROFESSIONAL ON-SITE TO OBSERVE AND DOCUMENT ALL SITE EXCAVATION AND GRADING ACTIVITIES WHEN EXCAVATING WITHIN THE EXTENT OF THE INDUSTRIAL FILL.
4. FOR AREAS LOCATED OUTSIDE OF THE LIMITS OF THE INDUSTRIAL FILL, THE SOIL CAN BE EXCAVATED AND PLACED ON SITE OR DISPOSED OF IN A LANDFILL WITHOUT ADDITIONAL SAMPLING. THE EXCAVATION SHOULD BE MONITORED TO CONFIRM THAT MATERIALS SUCH AS COAL, COAL ASH, OR DUMP DEBRIS ARE NOT ENCOUNTERED.
5. FOR AREAS WHERE COAL ASH WAS DETECTED OR OBSERVED, ALL EXCAVATED MATERIALS SHALL BE KEPT ON AND COVERED BY PLASTIC PRIOR TO TRANSPORTATION FOR OFF-SITE DISPOSAL.
6. THE CLIENT SHALL OBTAIN A SPECIAL WASTE APPROVAL FROM THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION'S (TDEC) DIVISION OF SOLID WASTE PRIOR TO TRANSPORTATION AND DISPOSAL.
7. ALL EXCAVATED MATERIALS WHERE COAL ASH WAS DETECTED OR OBSERVED SHALL BE TRANSPORTED TO THE MIDDLEPOINT LANDFILL IN MURFREESBORO, TN FOR DISPOSAL.

LEGEND:

- LIMITS OF DISTURBANCE
- IP — INLET PROTECTION (SEE DETAIL 3, SHEET C3.5A)
- IP — TDOT DB PROTECTION (TYPE E PER EC-STR-19)
- CP — CULVERT PROTECTION TYPE I (PER TDOT EC-STR-11)
- EC — ENHANCED CHECK DAM (PER TDOT EC-STR-6A)
- CE — CONSTRUCTION EXIT (SEE DETAIL 1, SHEET C3.5)
- CW — CONCRETE WASHOUT (SEE DETAIL 6, SHEET C3.5C)
- SF — SILT FENCE WITH WIRE BACKING (PER TDOT EC-STR-3C)
- TUBE ** TUBE ** TUBE ** — 12" SEDIMENT TUBE (PER TDOT EC-STR-37)
- TREE PROTECTION FENCING (SEE LANDSCAPE ARCH. PLANS)
- POROUS BAFFLE (SEE DETAIL 5, SHEET C3.5A)
- TREE PROTECTION FENCING (SEE LANDSCAPE ARCH. PLANS)
- FB — TEMPORARY SEDIMENT FILTER BAG (PER TDOT EC-STR-2)

LIMITS OF DISTURBANCE = ± 9.74 AC

SEDIMENT TRAP DATA TABLE

SEDIMENT TRAP	DRAINAGE AREA	SEDIMENT STORAGE VOLUME REQUIRED	SETTLING VOLUME REQUIRED	REQUIRED SURFACE AREA	SEDIMENT STORAGE VOLUME PROVIDED	SETTLING VOLUME PROVIDED	5-YR. PEAK FLOW
	(AC)	(CF)	(CF)	(SF)	(CF)	(CF)	(CFS)
1	4.5	8141	8141	11414	18608	20352	26.2

PROPERTY INFO

MAP 63N GROUP "D" PARCELS 1 & 3
ZONING:
FEMA: ZONE "AE", COMMUNITY NO. 470206
PANEL NO. 0211 G, 12/22/16

BENCHMARK

CHISELED "X" ON CONCRETE FLOOR
ELEVATION = 630.93'
(NAVD88) (GEOID03)

MAG NAIL IN POWER POLE
ELEVATION = 629.35
(NAVD88) (GEOID03)

COF PROJECT #: 7961

SCALE: 1 INCH = 40 FEET

CITY OF FRANKLIN, TN BUILDING DEPT. 11/15/2022 THIS SHEET IS PART OF THE APPROVED SITEPLAN

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ANDREW BLAKE HARDISON — 103.001 — REGISTERED ENGINEER — STATE OF TENNESSEE

INTERMEDIATE EROSION PREVENTION AND SEDIMENT CONTROL PLAN

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)

CITY OF FRANKLIN

WILLIAMSON COUNTY, TENNESSEE

REV	DR.	CHK.	DATE	DESCRIPTION
1	MY	ABH	09-15-2022	1ST DEVELOPMENT RESUBMITTAL
2	MY	ABH	10-24-2022	100% CD SUBMITTAL WITH MINOR 1 & 2
3	MY	ABH	11-10-2022	1ST COMMENTS RESUBMITTAL
4	MY	ABH	09-12-2022	2ST COMMENTS RESUBMITTAL
5	MY	ABH	10-26-2022	100% CD DBT COMMENTS RESPONSE
6	MY	ABH	11-15-2022	100% CD DBT COMMENTS RESPONSE

C3.2

FILE NO. 35968-01

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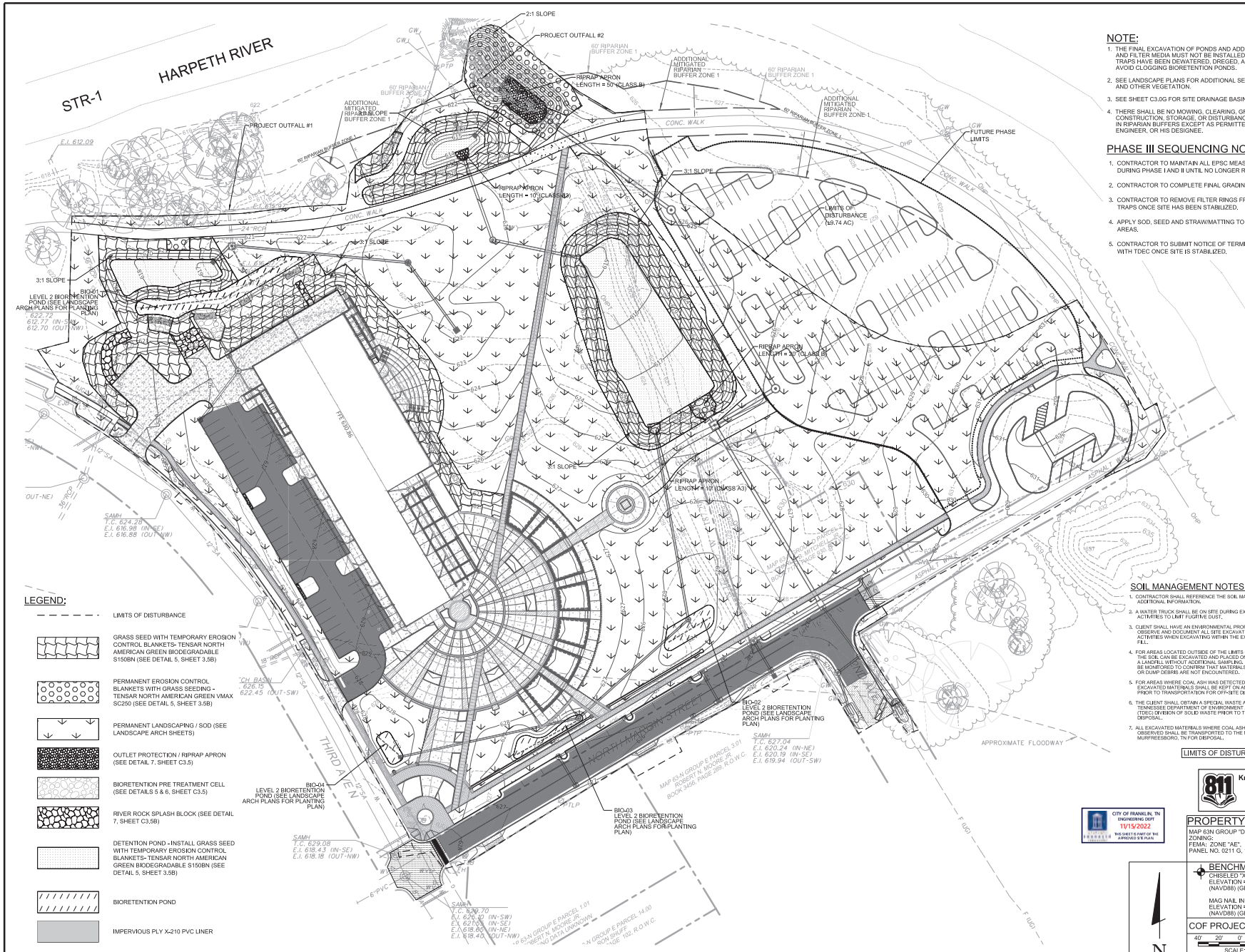

NOTE:

1. THE FINAL EXCAVATION OF PONDS AND ADDITION OF STONE AND FILTER MEDIA MUST NOT BE INSTALLED UNTIL SEDIMENT TRAPS HAVE BEEN DEWATERED, DREGGED, AND STABILIZED TO AVOID CLOGGING BIORETENTION PONDS.
2. SEE LANDSCAPE PLANS FOR ADDITIONAL SEEDING, SODDING, AND OTHER VEGETATION.
3. SEE SHEET C3.0G FOR SITE DRAINAGE BASINS.
4. THERE SHALL BE NO MOWING, CLEARING, GRADING, CONSTRUCTION, STORAGE, OR DISTURBANCE OF VEGETATION IN RIPARIAN BUFFERS EXCEPT AS PERMITTED BY THE CITY ENGINEER, OR HIS DESIGNEE.

PHASE III SEQUENCING NOTES:

1. CONTRACTOR TO MAINTAIN ALL EPSC MEASURES INSTALLED DURING PHASE I AND II UNTIL NO LONGER REQUIRED.
2. CONTRACTOR TO COMPLETE FINAL GRADING.
3. CONTRACTOR TO REMOVE FILTER RINGS FROM SEDIMENT TRAPS ONCE SITE HAS BEEN STABILIZED.
4. APPLY SOD, SEED AND STRAW/MATTING TO ALL DISTURBED AREAS.
5. CONTRACTOR TO SUBMIT NOTICE OF TERMINATION (NOT) WITH TDEC ONCE SITE IS STABILIZED.

SOIL MANAGEMENT NOTES:

1. CONTRACTOR SHALL REFERENCE THE SOIL MANAGEMENT PLAN FOR ADDITIONAL INFORMATION.
2. A WATER TRUCK SHALL BE ON SITE DURING EXCAVATION AND GRADING ACTIVITIES TO LIMIT FUGITIVE DUST.
3. CLIENT SHALL HAVE AN ENVIRONMENTAL PROFESSIONAL ON-SITE TO OBSERVE AND DOCUMENT ALL SITE EXCAVATION AND GRADING ACTIVITIES WHEN EXCAVATING WITHIN THE EXTENT OF THE INDUSTRIAL FILL.
4. FOR AREAS LOCATED OUTSIDE OF THE LIMITS OF THE INDUSTRIAL FILL, THE SOIL CAN BE EXCAVATED AND PLACED ON SITE OR DISPOSED OF IN A LANDFILL WITHOUT ADDITIONAL SAMPLING. THE EXCAVATION SHOULD BE MONITORED TO CONFIRM THAT MATERIALS SUCH AS COAL, COAL ASH, OR DUMP DEBRIS ARE NOT ENCOUNTERED.
5. FOR AREAS WHERE COAL ASH WAS DETECTED OR OBSERVED, ALL EXCAVATED MATERIALS SHALL BE KEPT ON AND COVERED BY PLASTIC PRIOR TO TRANSPORTATION FOR OFF-SITE DISPOSAL.
6. THE CLIENT SHALL OBTAIN A SPECIAL WASTE APPROVAL FROM THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION'S (TDEC) DIVISION OF SOLID WASTE PRIOR TO TRANSPORTATION AND DISPOSAL.
7. ALL EXCAVATED MATERIALS WHERE COAL ASH WAS DETECTED OR OBSERVED SHALL BE TRANSPORTED TO THE MIDDLEPOINT LANDFILL IN MURFREESBORO, TN FOR DISPOSAL.

LEGEND:

- LIMITS OF DISTURBANCE
- GRASS SEED WITH TEMPORARY EROSION CONTROL BLANKETS- TENSAR NORTH AMERICAN GREEN BIODEGRADABLE S150BN (SEE DETAIL 5, SHEET 3.5B)
- PERMANENT EROSION CONTROL BLANKETS WITH GRASS SEEDING - TENSAR NORTH AMERICAN GREEN VMAX SC250 (SEE DETAIL 5, SHEET 3.5B)
- PERMANENT LANDSCAPING / SOD (SEE LANDSCAPE ARCH SHEETS)
- OUTLET PROTECTION / RIPRAP APRON (SEE DETAIL 7. SHEET C3.5)
- BIORETENTION PRE TREATMENT CELL (SEE DETAILS 5 & 6, SHEET C3.5)
- RIVER ROCK SPLASH BLOCK (SEE DETAIL 7, SHEET C3.5B)
- DETENTION POND - INSTALL GRASS SEED WITH TEMPORARY EROSION CONTROL BLANKETS- TENSAR NORTH AMERICAN GREEN BIODEGRADABLE S150BN (SEE DETAIL 5, SHEET 3.5B)
- BIORETENTION POND
- IMPERVIOUS PLY X-210 PVC LINER

CITY OF FRANKLIN, TN ENGINEERING DEPT 11/15/2022 THIS SHEET IS PART OF THE APPROVED SITE PLAN

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PROPERTY INFO

MAP 63N GROUP "D" PARCELS 1 & 3
ZONING:
FEMA: ZONE "AE", COMMUNITY NO. 470206
PANEL NO. 0211 G, 12/22/16

BENCHMARK

CHISELED "X" ON CONCRETE FLOOR
ELEVATION = 630.93'
(NAVD88) (GEOID03)

MAG NAIL IN POWER POLE
ELEVATION = 629.35
(NAVD88) (GEOID03)

COF PROJECT #: 7961

40' 20' 0' 40' 80'
SCALE: 1 INCH = 40 FEET

N

REV	DR.	CHK.	DATE	REVISION INFORMATION DESCRIPTION
1	MY	ABH	08-15-2022	DEVELOPMENT SUBMITTAL
2	MY	ABH	09-15-2022	DESIGN REVIEW DEVELOPMENT RESUBMITTAL
3	MY	ABH	10-24-2022	100% CD SUBMITTAL WITH AMEND 1 & 2
4	MY	ABH	11-07-2022	100% CD SUBMITTAL WITH AMEND 3
5	MY	ABH	09-12-2022	3rd COMMENTS RESUBMITTAL
6	MY	ABH	10-26-2022	100% CD DBT COMMENTS RESPONSE
7	MY	ABH	11-23-2022	100% CD DBT COMMENTS RESPONSE

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FINAL EROSION PREVENTION AND SEDIMENT CONTROL PLAN

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

C3.3

FILE NO. 35968-01

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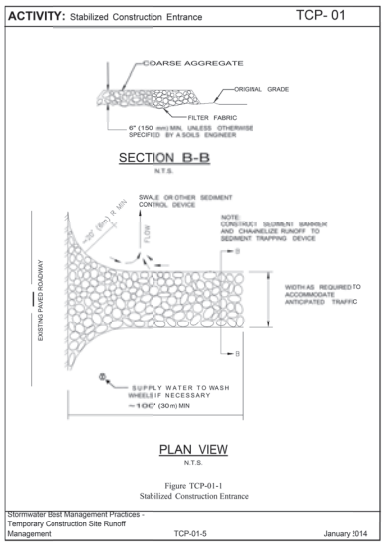
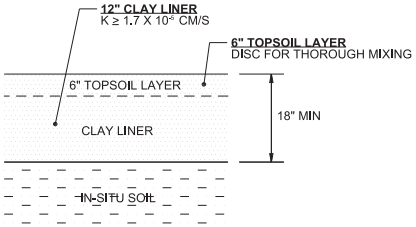


1 C3.5 TCP-01-1 CONSTRUCTION ENTRANCE
N.T.S

NOTES:

1. THE SELECT CLAY SHALL CONSIST OF A 12"-THICK LAYER OF COMPACTED CLAY. THE LAYER OF LOW PERMEABILITY SOIL WILL BE PLACED IN SIX-INCH COMPACTED LIFTS AT A MINIMUM OF 95% OF ITS MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698, OR AS DETERMINED BY LABORATORY DATA OBTAINED FROM REMODELED SAMPLES. CLAY SOILS SHALL BE MONITORED TO EXCLUDE ROCKS LARGER THAN 2 INCHES, ROOTS, AND OTHER UNACCEPTABLE MARTERIAL.



2 C3.5 EAST DETENTION POND LINER
N.T.S

3 C3.5 NOT USED
N.T.S

CITY OF FRANKLIN, TN
ENGINEERING DEPT
11/15/2022
THIS SHEET IS PART OF THE APPROVED SITE PLAN.

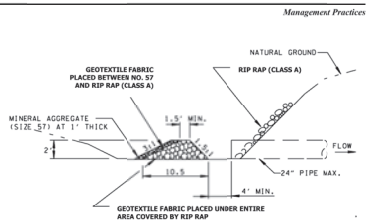
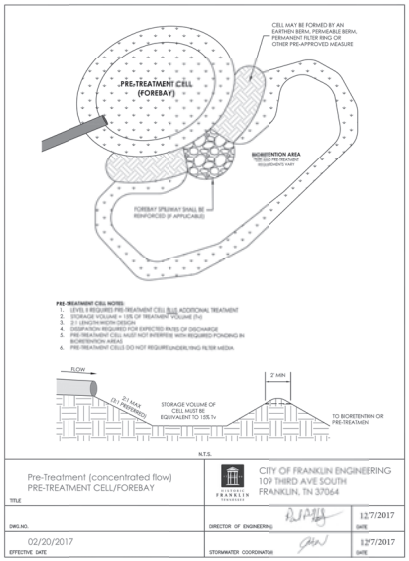


Figure 7.30-1 Filter Ring Detail (Source: TDOT Standard Drawing)

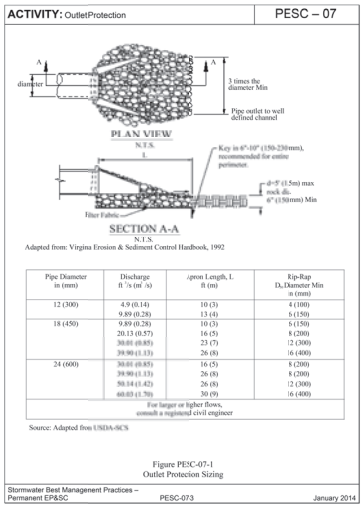
4 C3.5 FILTER RING DETAIL
N.T.S



5 C3.5 GIP-01 BIORETENTION LEVEL 2
N.T.S



6 C3.5 PRE TREATMENT CELL
N.T.S



7 C3.5 PESC-07-3 OUTLET PROTECTION
N.T.S

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ANDREW BLAKE HANDLEY
REGISTERED PROFESSIONAL ENGINEER
No. 129581
STATE OF TENNESSEE
10-26-2022

GRADING, DRAINAGE AND EPSC DETAILS

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

REV.	DR.	CHK.	DATE	DESCRIPTION
1	MY	ABH	09-12-2022	1ST COMMENTS RESUBMITTAL
0	MY	ABH	08-24-2022	100% CD SUBMITTAL WITH AMEND 1 & 2
	MY	ABH	08-05-2022	RESPONSE TO CITY COMMENTS
	MY	ABH	03-25-2022	100% CD SUBMITTAL
	MY	ABH	09-15-2020	DESIGN DEVELOPMENT RESUBMITTAL
	MY	ABH	03-25-2020	DESIGN DEVELOPMENT SUBMITTAL

C3.5
FILE NO. 35968-01

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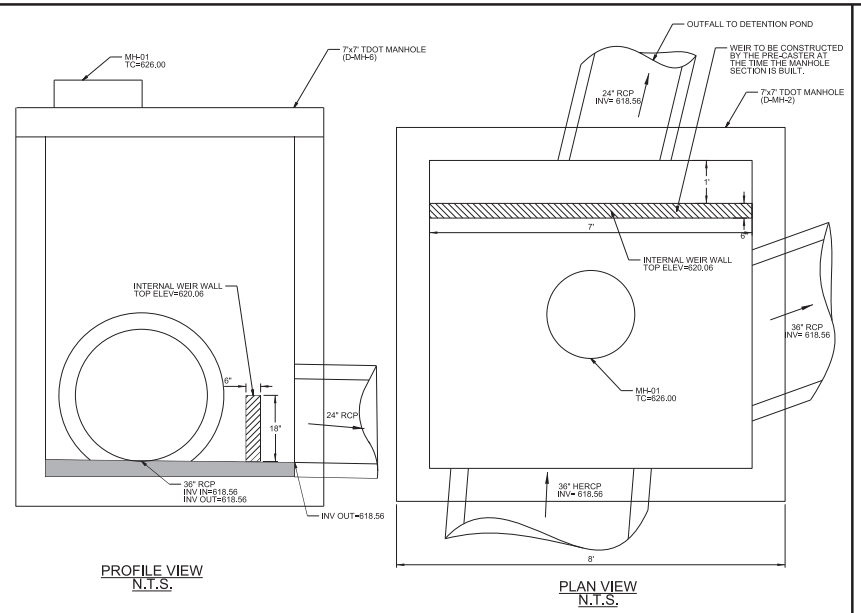
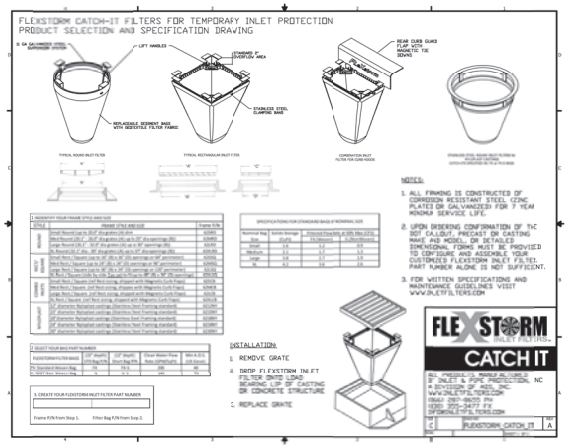


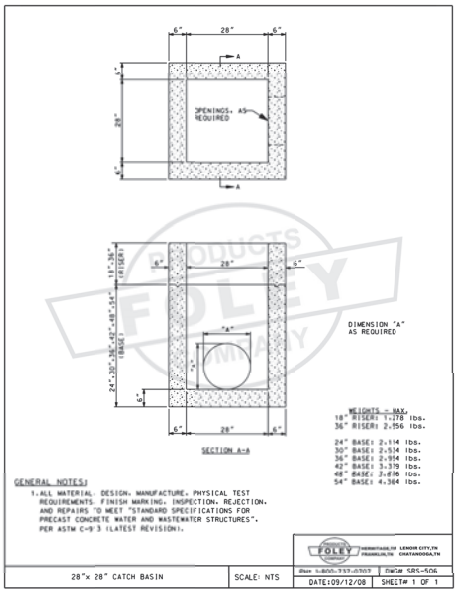
PROFILE VIEW
N.T.S.

PLAN VIEW
N.T.S.

1 C3.5A N.T.S **WEIR WALL DETAIL FOR MH-01**



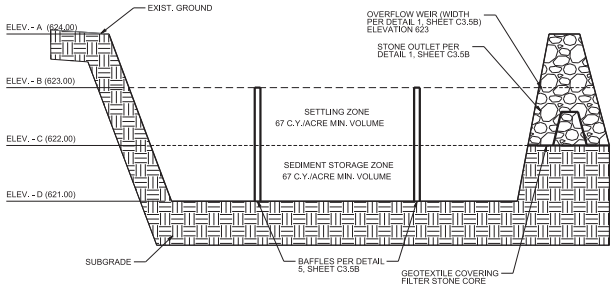
3 C3.5A N.T.S **INLET PROTECTION**



2 C3.5A N.T.S **28"X28" CATCH BASIN**

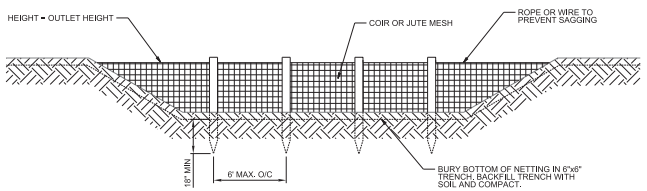
SEDIMENT TRAP DATA TABLE

SEDIMENT TRAP	DRAINAGE AREA	SEDIMENT STORAGE VOLUME REQUIRED	SETTLING VOLUME REQUIRED	REQUIRED SURFACE AREA	SEDIMENT STORAGE VOLUME PROVIDED	SETTLING VOLUME PROVIDED	5-YR. PEAK FLOW
	(AC)	(CF)	(CF)	(SF)	(CF)	(CF)	(CFS)
1	4.5	8141	8141	11414	18608	20352	26.2

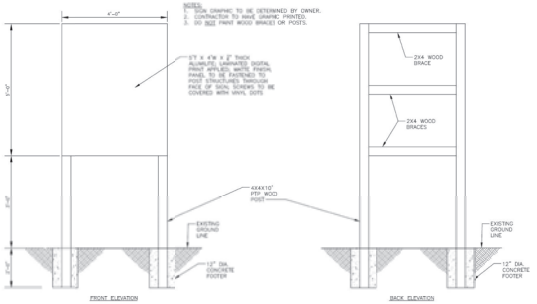


SECTION THROUGH OUTLET

4 C3.5A N.T.S **SEDIMENT TRAP**



5 C3.5A N.T.S **POROUS BAFFLES**



6 C3.5A N.T.S **PROJECT SIGN**

BARGE DESIGN SOLUTIONS
615 3rd Avenue South / Suite 700 / Nashville, TN 37210 / PHONE (615) 244-8591

GRADING, DRAINAGE AND EPSC DETAILS

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

REV'S	DR.	CHK.	DATE	DESCRIPTION
	MY	ABH	09-15-2022	RESPONSE TO CITY COMMENTS FOR SUBMITTAL
	MY	ABH	09-15-2022	RESPONSE TO CITY COMMENTS RESUBMITTAL
	MY	ABH	10-24-2022	100% CD SUBMITTAL WITH ADDENDUM 1 & 2
0	MY	ABH	10-24-2022	100% CD SUBMITTAL
	MY	ABH	09-12-2022	90% COMMENTS RESUBMITTAL
	MY	ABH	10-24-2022	100% CD DEP COMMENTS RESPONSE
	MY	ABH	11-14-2022	100% CD DEP COMMENTS RESPONSE

C3.5A

FILE NO. 35968-01

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LandRes.pen Workspace: LandRes

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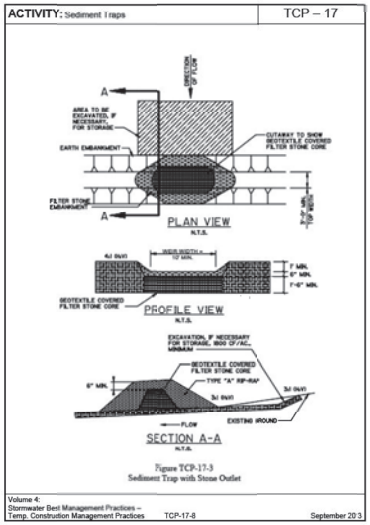
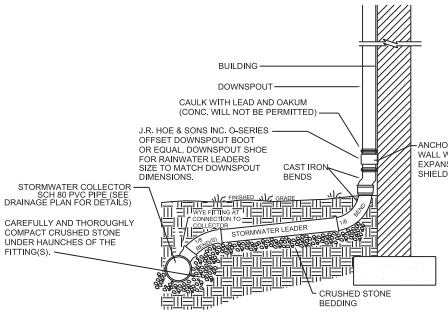


1 C3.5B TCP-17-8 STONE SEDIMENT TRAP OUTLET N.T.S

2 C3.5B NOT USED N.T.S

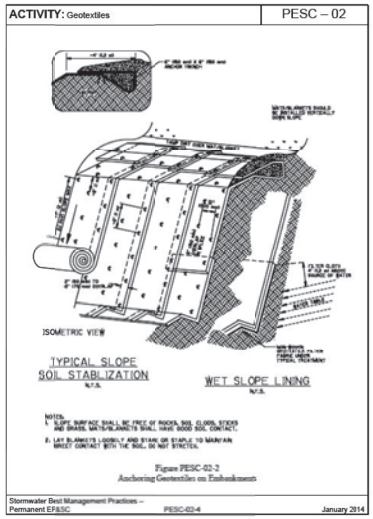
3 C3.5B NOT USED N.T.S

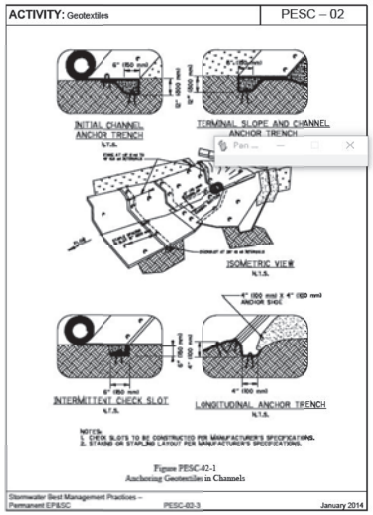


NOTE:

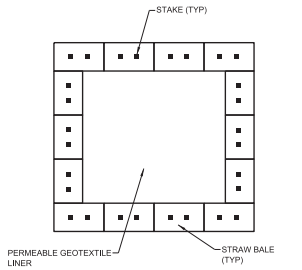
1. COORDINATE WITH ARCHITECT FOR LOCATIONS.
2. USE STAINLESS STEEL SHIELDED COUPLINGS ON ALL FLEXIBLE CONNECTIONS FROM CAST IRON DOWNSPOUT TO PVC.

4 C3.5B DOWNSPOUT CONNECTION N.T.S





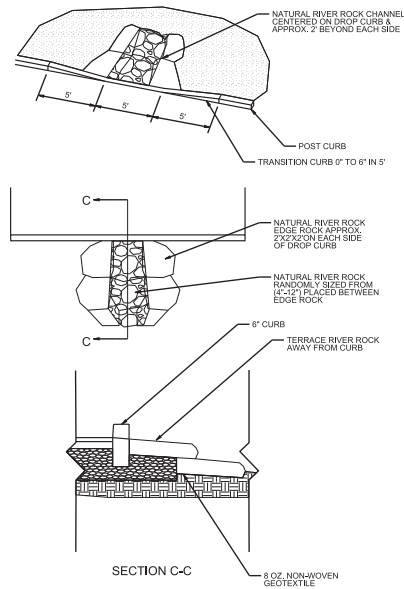
5 C3.5B PESC-02-3 & 4 ANCHORNG GEOTEXTILES N.T.S



NOTES:

1. LOCATE CONCRETE WASHOUT A MINIMUM OF 50 FT AWAY FROM STORM DRAINS, OPEN DITCHES, AND WATERBODIES.
2. CONCRETE WASHOUT STRUCTURE SHALL BE SIZED TO HANDLE SOLIDS, WASH SLURRY, AND RAINFALL AND INCLUDE A MINIMUM OF 4" FREEBOARD.
3. THE STORAGE AREA SHALL BE LINED WITH A PERMEABLE GEOTEXTILE LINER TO ALLOW WATER TO INFILTRATE.

6 C3.5B CONCRETE WASHOUT N.T.S



7 C3.5B RIVER ROCK SPLASH BLOCK N.T.S

BARGE DESIGN SOLUTIONS
615 3rd Avenue South | Suite 700 | Nashville, TN 37210 | PHONE (615) 254-1000 | FAX (615) 254-4013

ANDREW BLAKE HANDLEY — REGISTERED LANDSCAPE ARCHITECT — No. 2299 — STATE OF TENNESSEE — 10-14-2022

GRADING, DRAINAGE AND EPSC DETAILS

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

REV.	DR.	CHK.	DATE	REVISION INFORMATION DESCRIPTION
1	MY	ABH	08-12-2022	50% DEVELOPMENT SUBMITTAL
2	MY	ABH	09-15-2022	80% DEVELOPMENT RESUBMITTAL
3	MY	ABH	10-04-2022	100% CD SUBMITTAL WITH AMEND 1 & 2
0	MY	ABH	10-06-2022	100% CD SUBMITTAL WITH AMEND 1 & 2
4	MY	ABH	09-12-2022	SAT COMMENTS RESUBMITTAL
1	MY	ABH	10-06-2022	100% CD DBT COMMENTS RESPONSE

C3.5B

FILE NO. 35968-01

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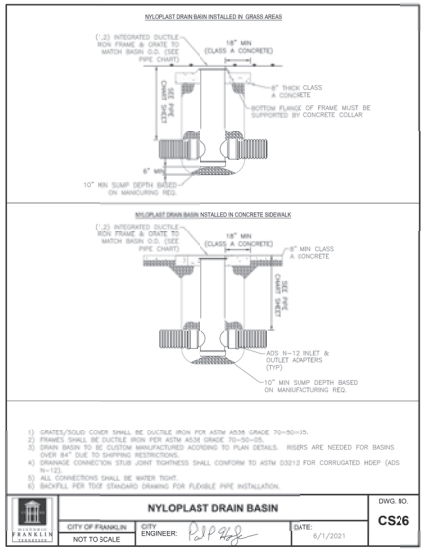


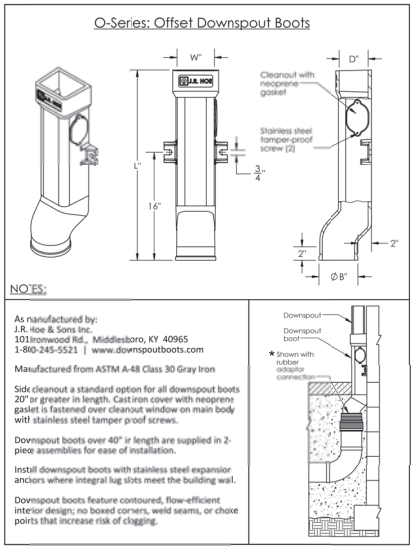
1 C3.5C N.T.S NYLOPLAST DRAIN BASIN

2 C3.5C N.T.S NOT USED

3 C3.5C N.T.S NOT USED

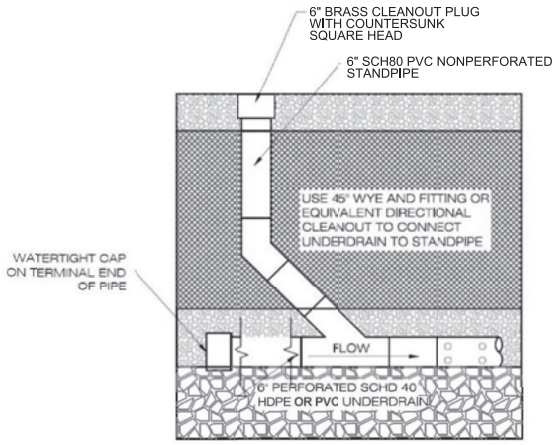
CITY OF FRANKLIN, TN ENGINEERING DEPT 11/15/2022 THIS SHEET IS PART OF THE APPROVED SITE PLAN

4 C3.5C N.T.S NOT USED



* NOTE:
USE STAINLESS STEEL SHIELDED COUPLING ON FLEXIBLE CONNECTION.

5 C3.5C N.T.S DOWNSPOUT BOOT



6 C3.5C N.T.S STANDARD CLEANOUT

BARGE DESIGN SOLUTIONS
615 3rd Avenue South / Suite 700 / Nashville, TN 37210 / PHONE (615) 255-2288

ANDREW BLAKE HAUGHT 120591 STATE OF TENNESSEE 10-14-2022

GRADING, DRAINAGE AND EPSC DETAILS

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

REV.	DR.	CHK.	DATE	DESCRIPTION
1	MY	ABH	09-12-2022	1ST COMMENTS RESUBMITTAL
0	MY	ABH	08-26-2022	100% CD SUBMITTAL WITH ARMD-1 & 2
	MY	ABH	08-05-2022	90% DEVELOPMENT RESUBMITTAL
	MY	ABH	06-15-2022	90% DEVELOPMENT SUBMITTAL

C3.5C

FILE NO. 35968-01

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LandRes.pen Workspace: LandRes

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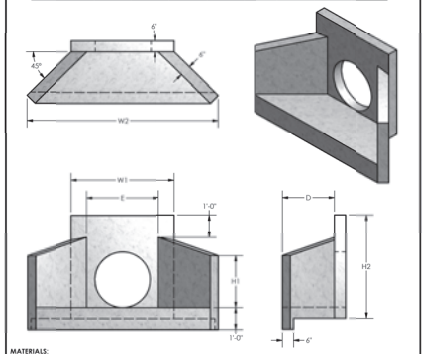
HEADWALL SIZE	W1	W2	H1	H2	D	E	TONS	SLOCKS
12"	2'-6"	3'-9"	0'-7"	2'-6"	1'-6"	1'-0"	0.55	N/A
12", 18"	3'-2"	4'-9"	1'-3"	3'-2"	1'-2"	1'-9"	0.92	1
24"	4'-2"	6'-2"	2'-0"	4'-2"	1'-8"	2'-9"	1.73	3
30", 36"	4'-8"	8'-8"	2'-4"	4'-8"	2'-4"	3'-3"	1.92	3
42", 48"	5'-8"	10'-11"	3'-6"	5'-9"	2'-0"	4'-3"	3.33	4
54", 60"	6'-5"	12'-6"	4'-0"	6'-5"	2'-5"	5'-0"	3.77	7
66", 72"	8'-5"	13'-5"	5'-7"	8'-0"	2'-0"	7'-0"	5.30	9
78", 84", 90", 96"	10'-2"	15'-10"	4'-0"	9'-0"	2'-4"	8'-4"	7.31	11



MATERIALS:
CONCRETE: 4000 PSI, TYPE I/II CEMENT

NOTES:
SEE PAGE 3.6 FOR HEADWALL SIZING

PARTS SHOWN:
30" HEADWALL FOR Ø18" RCP

PRODUCTS FOLEY COMPANY

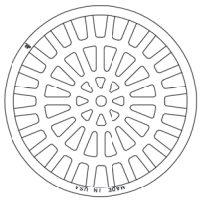
REINFORCED CONCRETE PIPE

HEADWALLS

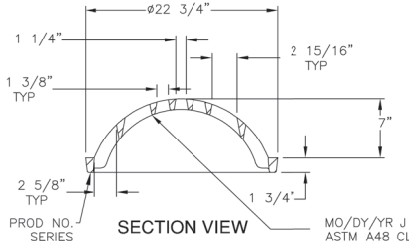
3.5

1 C3.5D CONCRETE WINGED HEADWALL

1020 02 Grate



PLAN VIEW



ej

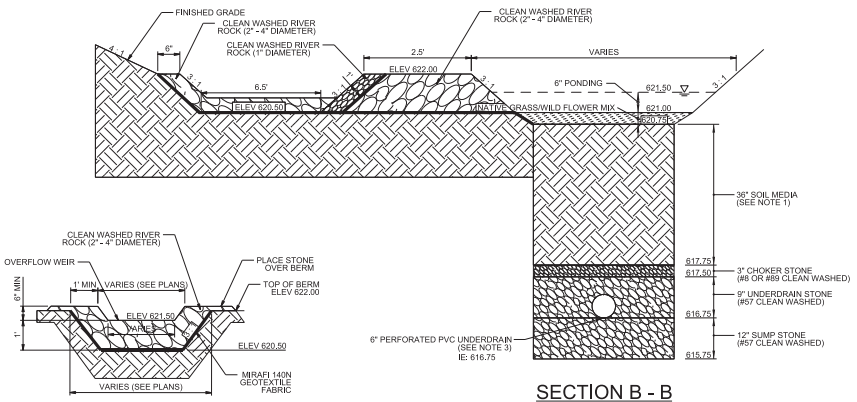
Product Number
00102045
Design Features
-Materials
Gray Iron (CL35B)
-Load Rating
Heavy Duty
-Open Area
147 sq in
-Coating
Dipped
•✓ Designates Machined Surface

Certification
- ASTM A48
-
-Country of Origin: USA

Drawing Revision
3/27/2003 Designer: TCL
3/10/2022 Revised By: EAE

Disclaimer
Weights (lbs./kg) dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.
CONFIDENTIAL: This drawing is the property of EJ GROUP, Inc., and embodies confidential information, registered marks, patents, trade secret information, and/or know how that is the property of EJ GROUP, Inc. Copyright © 2012 EJ GROUP, Inc. All rights reserved.
Contact
800 626 4653
ejco.com

2 C3.5D DOMED GRATE DETAIL N.T.S



SECTION B - B

PRE TREATMENT CELL SPILLWAY SECTION

POND AREA REQUIRED

POND SURFACE AREA = 2,171 SF
PRETREATMENT VOLUME = 805 CF

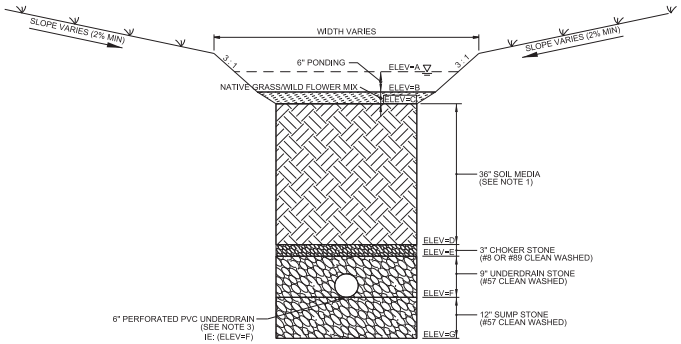
POND AREA PROVIDED

POND SURFACE AREA = 2,467 SF
PRETREATMENT VOLUME = 3,072 CF

NOTES:

1. PLANTING SOILS (FILTER MEDIA) MUST CONTAIN: 85% TO 88% SAND; 8% TO 12% SOIL FINES; 3% - 5% ORGANIC MATTER.
2. SEE LANDSAPE ARCHITECT PLANS FOR NATIVE GRASS/WILDFLOWER MIX.
3. UNDERDRAIN PIPE MUST HAVE 3/8-INCH PERFORATIONS, SPACED ON 6-INCH CENTERS WITH A MINIMUM OF 4 HOLES PER ROW, AND A MINIMUM GRADE OF 0.5 PERCENT WHICH MUST BE MAINTAINED.
4. CONTRACTOR, ENGINEER, OR OWNERS REPRESENTATIVE SHALL NOTIFY THE CITY OF FRANKLIN AT LEAST 24 HOURS PRIOR TO THE INSTALLATION OF THE PLANTING SOIL FILTER BED. AT THE COMPLETION OF INSTALLATION, THE ABOVE REFERENCED PERSON WILL COLLECT ONE SAMPLE PER BIORETENTION BED FOR ANALYSIS AND CONFIRMATION OF THE SOIL CHARACTERISTICS AS DEFINED BY GIP-01, FILTER MEDIA AND SURFACE COVER, SECTION 6.6, PAGE 18.
5. SEE LANDSCAPE PLAN FOR PLANTING PLAN.

3 C3.5D BIOPOND #1 SCALE: NTS



SECTION VIEW

NOTES:

1. PLANTING SOILS (FILTER MEDIA) MUST CONTAIN: 85% TO 88% SAND; 8% TO 12% SOIL FINES; 3% - 5% ORGANIC MATTER.
2. SEE LANDSAPE ARCHITECT PLANS FOR NATIVE GRASS/WILDFLOWER MIX.
3. UNDERDRAIN PIPE MUST HAVE 3/8-INCH PERFORATIONS, SPACED ON 6-INCH CENTERS WITH A MINIMUM OF 4 HOLES PER ROW, AND A MINIMUM GRADE OF 0.5 PERCENT WHICH MUST BE MAINTAINED.
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5. SEE LANDSCAPE PLAN FOR PLANTING PLAN.

BIORETENTION POND ELEVATION TABLE

BIO POND #	ELEV A	ELEV B	ELEV C	ELEV D	ELEV E	ELEV F	ELEV G
BIO-02	624.50	624.0	623.75	620.75	620.50	619.75	619.75
BIO-03	625.50	625.0	624.75	621.75	621.50	620.75	619.75
BIO-04	627.00	626.5	626.25	623.25	623.00	622.25	621.25

CITY OF FRANKLIN, TN
ENGINEERING DEPT
11/15/2022
THIS SHEETS PART OF THE APPROVED SITE PLAN.

4 C3.5D BIOPOND (#2 - #4) SCALE: NTS

BARGE DESIGN SOLUTIONS
615 3rd Avenue South / Suite 700 / Nashville, TN 37210 / PHONE (615) 254-5900 / FAX (615) 254-5913

ANDREW BLAKE HARDIN
REGISTERED PROFESSIONAL ENGINEER
10-26-2022
STATE OF TENNESSEE

GRADING, DRAINAGE AND EPSC DETAILS

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

REV'S	DR.	CHK.	DATE	REVISION INFORMATION DESCRIPTION
	MY	ABH	09-15-2020	1ST DEVELOPMENT SUBMITTAL
	MY	ABH	09-25-2020	2ND DEVELOPMENT RESUBMITTAL
	MY	ABH	10-26-2020	100% CD SUBMITTAL WITH AMEND 1 & 2
0	MY	ABH	12-22-2020	1ST COMMENTS RESUBMITTAL
	MY	ABH	09-12-2022	2ND COMMENTS RESUBMITTAL
1	MY	ABH	10-26-2022	100% CD DET COMMENTS RESPONSE

C3.5D

FILE NO. 35968-01

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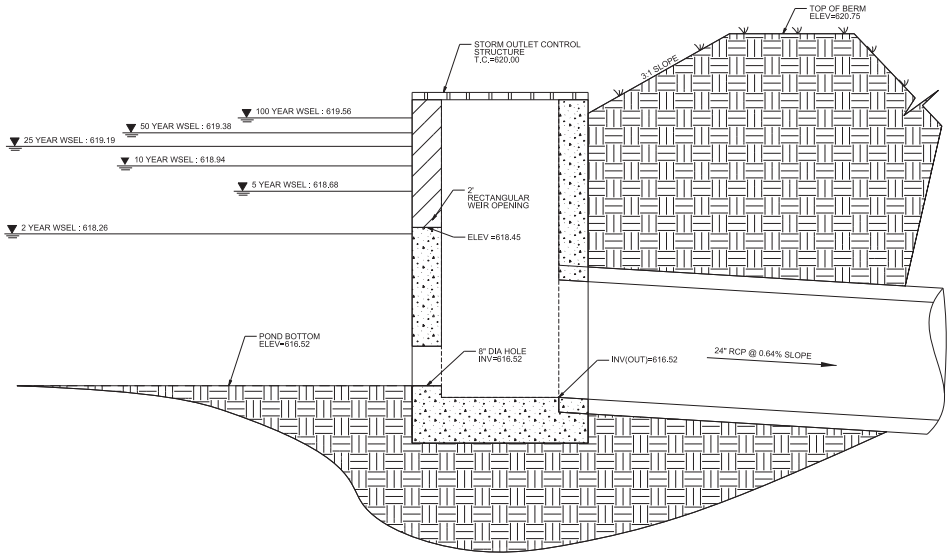
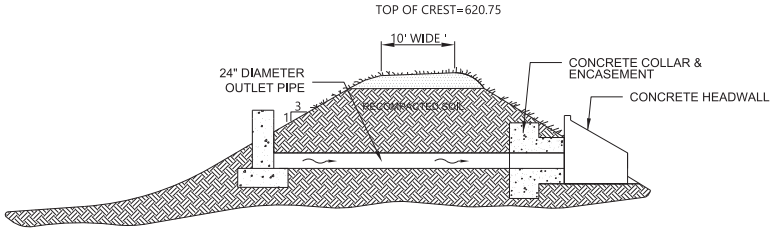
Landfies.pen Workspace: Landfies



DETENTION POND DETAIL
N.T.S.

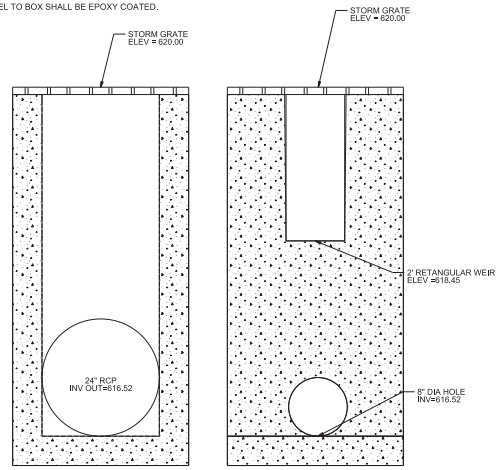


POND EMBANKMENT NOTES:

1. AREAS UNDER THE EMBANKMENT OR ANY STRUCTURAL WORKS RELATED TO THE BASIN SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS, OR OTHER OBJECTIONABLE MATERIAL. IN ORDER TO FACILITATE CLEANOUT AND RESTORATION, THE AREA OF MOST FREQUENT INUNDATION (MEASURED FROM THE TOP OF THE PRINCIPAL SPILLWAY) WILL BE CLEARED OF ALL BRUSH AND TREES.
2. THE PLACING AND SPREADING OF EMBANKMENT MATERIALS IS TO BE STARTED AT THE LOWEST POINT AND BROUGHT UP IN HORIZONTAL LAYERS OF 8" THICKNESS. SAID MATERIAL IS TO BE FREE OF SOD, ROOTS, FROZEN SOIL OR ANY OTHER DECOMPOSABLE MATERIAL. THE RELATIVE COMPACTION OF EACH LAYER SHALL NOT BE LESS THAN 95% OF STANDARD PROCTOR TEST AT OPTIMUM MOISTURE CONTENT +/- 3% IN ALL AREAS.
3. FOR EARTH-FILL EMBANKMENTS, A CUTOFF TRENCH SHALL BE INSTALLED ALONG THE CENTERLINE OF THE EMBANKMENT. THE TRENCH MUST EXTEND AT LEAST 2 FEET INTO STABLE IMPERVIOUS SOIL WITH A MINIMUM BOTTOM WIDTH OF 4 FEET AND SIDE SLOPES OF 2:1. COMPACTION REQUIREMENTS SHALL BE THE SAME AS THOSE FOR THE EMBANKMENT. THE TRENCH SHALL BE DRAINED DURING THE BACKFILLING/COMPACTING OPERATIONS.
4. THE EMBANKMENT SHALL BE CONSTRUCTED TO AN ELEVATION 10 PERCENT HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLEMENT IF COMPACTION IS OBTAINED WITH HAULING EQUIPMENT. IF COMPACTORS ARE USED FOR COMPACTION, THE OVERBUILD MAY BE REDUCED TO NOT LESS THAN 5 PERCENT.
5. THE EMBANKMENT OF THE POND SHALL BE STABILIZED WITH PERMANENT VEGETATION IMMEDIATELY AFTER INSTALLATION OF THE BASIN.
6. PROPERLY STABILIZED PIPE THROUGH EMBANKMENT WITH PROPER COMPACTION OF NO LESS THAN 95% OF STANDARD PROCTOR TEST IN ALL AREAS. HAND COMPACT AROUND PIPE TO ENSURE ADEQUATE COMPACTION. DO NOT OVER COMPACT SO MUCH THAT UPLIFT IS CREATED ON THE PIPE. USE A MINIMUM OF 2 FEET OF FILL OVER BARREL BEFORE DRIVING OVER.

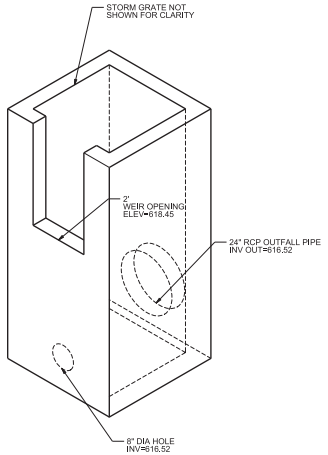
EMBANKMENT DETAIL
N.T.S.

NOTES:
1) MODIFIED TDOT CONCRETE NO. 42 CB (32"X32"). PRECAST SUPPLIER TO MODIFY RENFORCING STEEL AS REQUIRED.
2) ALL PIPE CONNECTIONS SHALL BE WATER TIGHT.
3) ALL BOLTS THAT ARE NECESSARY FOR FASTENING STEEL TO BOX SHALL BE EPOXY COATED.

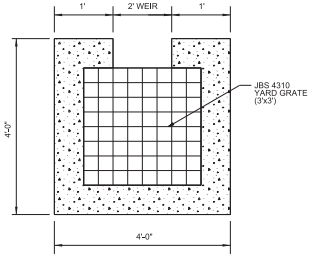


BACK VIEW
N.T.S.

FRONT VIEW
N.T.S.



ISOMETRIC VIEW
N.T.S.



TOP VIEW
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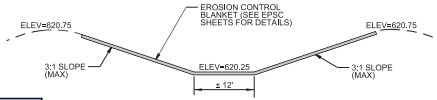

EMERGENCY SPILLWAY DETAIL
N.T.S.

CITY OF FRANKLIN, TN
ENGINEERING DEPT
11/15/2022
THIS SHEET IS PART OF THE APPROVED SITE PLAN.

1 C3.5E WEST DETENTION POND DETAILS
N.T.S

BARGE DESIGN SOLUTIONS
615 3rd Avenue South / Suite 700 / Nashville, TN 37210 / PHONE (615) 254-5806

ANDREW BLAKE HAUSER
LICENSED PROFESSIONAL ENGINEER
10-26-2022
STATE OF TENNESSEE

GRADING, DRAINAGE AND EPSC DETAILS

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

REVISION INFORMATION			
REV.	DR.	CHK.	DATE	DESCRIPTION
1	MY	ABH	10-26-2022	100% CD SUBMITTAL
0	MY	ABH	09-15-2022	90% DEVELOPMENT RESUBMITTAL
	MY	ABH	08-24-2022	100% CD SUBMITTAL WITH AMEND 1 & 2
	MY	ABH	08-04-2022	90% DEVELOPMENT RESUBMITTAL
	MY	ABH	06-17-2022	50% COMMENTS RESUBMITTAL
	MY	ABH	10-06-2021	30% CD DRT COMMENTS RESPONSE

C3.5E

FILE NO. 35968-01

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LandRes.pen Workspace: LandRes

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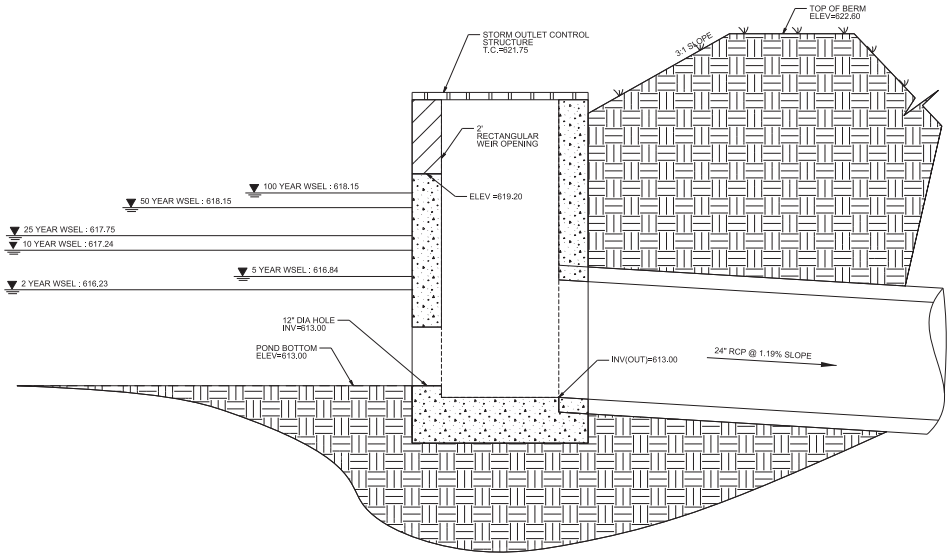
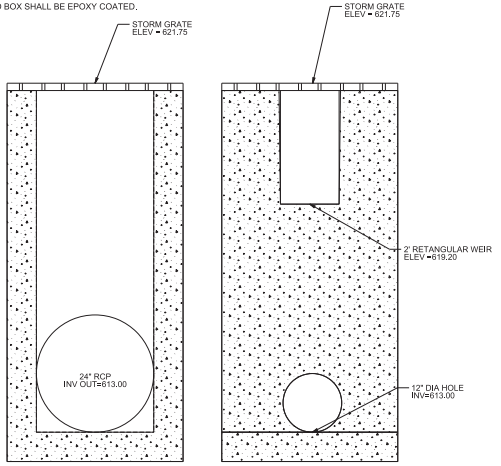


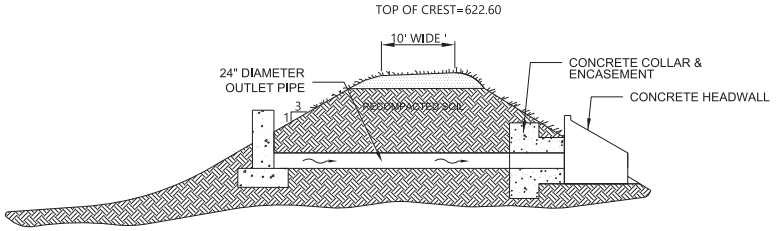
DETENTION POND DETAIL
N.T.S.

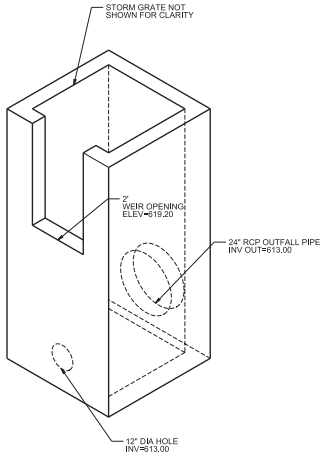
NOTES:
1) MODIFIED TDOT CONCRETE NO. 42 CB (32"X32"). PRECAST SUPPLIER TO MODIFY RENFORCING STEEL AS REQUIRED.
2) ALL PIPE CONNECTIONS SHALL BE WATER TIGHT.
3) ALL BOLTS THAT ARE NECESSARY FOR FASTENING STEEL TO BOX SHALL BE EPOXY COATED.



BACK VIEW
N.T.S.

FRONT VIEW
N.T.S.





ISOMETRIC VIEW
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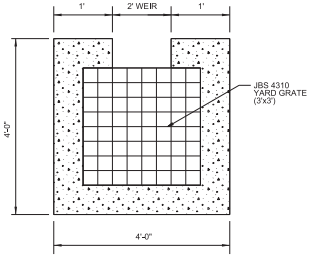

TOP VIEW
N.T.S.

POND EMBANKMENT NOTES:

1. AREAS UNDER THE EMBANKMENT OR ANY STRUCTURAL WORKS RELATED TO THE BASIN SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS, OR OTHER OBJECTIONABLE MATERIAL. IN ORDER TO FACILITATE CLEANOUT AND RESTORATION, THE AREA OF MOST FREQUENT INUNDATION (MEASURED FROM THE TOP OF THE PRINCIPAL SPILLWAY) WILL BE CLEARED OF ALL BRUSH AND TREES.
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3. FOR EARTH-FILL EMBANKMENTS, A CUTOFF TRENCH SHALL BE INSTALLED ALONG THE CENTERLINE OF THE EMBANKMENT. THE TRENCH MUST EXTEND AT LEAST 2 FEET INTO STABLE IMPERVIOUS SOIL WITH A MINIMUM BOTTOM WIDTH OF 4 FEET AND SIDE SLOPES OF 2:1. COMPACTION REQUIREMENTS SHALL BE THE SAME AS THOSE FOR THE EMBANKMENT. THE TRENCH SHALL BE DRAINED DURING THE BACKFILLING/COMPACTING OPERATIONS.
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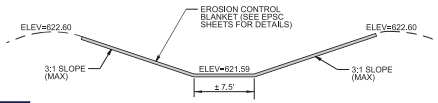
EMBANKMENT DETAIL
N.T.S.



EMERGENCY SPILLWAY DETAIL
N.T.S.

CITY OF FRANKLIN, TN ENGINEERING DEPT 11/15/2022 THIS SHEET IS PART OF THE APPROVED SITE PLAN.

1 C3.5F N.T.S EAST DETENTION POND DETAILS

BARGE DESIGN SOLUTIONS
615 3rd Avenue South / Suite 700 / Nashville, TN 37210 / PHONE (615) 255-1000 / FAX (615) 255-4513

ANDREW BLAKE HAUGHT NUMBER 120991 STATE OF TENNESSEE 10-26-2022

GRADING, DRAINAGE AND EPSC DETAILS

BICENTENNIAL PARK IMPROVEMENTS (COF NO. 7961)
CITY OF FRANKLIN
WILLIAMSON COUNTY, TENNESSEE

REVISION INFORMATION			
REV.	DR.	CHK.	DATE	DESCRIPTION
1	MY	ABH	09-15-2022	2ND DEVELOPMENT SUBMITTAL
0	MY	ABH	09-15-2022	2ND DEVELOPMENT RESUBMITTAL
0	MY	ABH	10-26-2022	100% CD SUBMITTAL WITH ADDEND 1 & 2
0	MY	ABH	09-12-2022	100% CD SUBMITTAL + ASBUILT
0	MY	ABH	09-12-2022	1ST COMMENTS RESUBMITTAL
0	MY	ABH	10-06-2022	100% CD DRT COMMENTS RESPONSE
1				

C3.5F

FILE NO. 35968-01

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10/5/2022 15:21:53 PM Landfes.pen Workspace: Landfes

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Appendix 3
Inspection Certification Form

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)
General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name:			**NPDES Tracking Number: TNR**	
Primary Permittee Name:			Date of Inspection:	
Current approximate disturbed acreage:		Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector:	
Current weather conditions:			Inspector's TNEPSC Certification Number:	

Please check the box if the following items are on-site:

☐ Notice of Coverage (NOC) ☐ Stormwater Pollution Prevention Plan (SWPPP) ☐ Twice-weekly inspection documentation

☐ Site contact information ☐ Rain Gage ☐ Off-site Reference Rain Gage Location: _____

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section			
1.	Are all applicable EPSCs installed and maintained per the SWPPP?	☐Yes	☐No
2.	Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☐Yes	☐No
3.	Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☐Yes	☐No
4.	Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☐Yes	☐No
5.	If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☐Yes	☐No
6.	If construction activity at any location on-site has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s).	☐Yes	☐No
7.	Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☐Yes	☐No
8.	If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies. ☐ N/A	☐Yes	☐No
9.	Have all previous deficiencies been addressed? If "No," describe the remaining deficiencies in the Comments section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☐Yes	☐No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title:	Signature:	Date:
Primary Permittee Name and Title:	Signature:	Date:

Construction Stormwater Inspection Certification Form (Twice-Weekly Inspections)

Purpose of this form/ Instructions

An inspection, as described in section 3.5.8.2. of the General Permit for Stormwater Discharges from Construction Activities ("Permit"), shall be performed at least twice every calendar week and documented on this form. Inspections shall be performed at least 72 hours apart. Where sites or portion(s) of construction sites have been temporarily stabilized, or runoff is unlikely due to winter conditions (e.g., site covered with snow or ice), such inspection only has to be conducted once per month until thawing results in runoff or construction activity resumes.

Inspectors performing the required twice weekly inspections must have an active certification by completing the "Fundamentals of Erosion Prevention and Sediment Control Level I" course. (http://www.tnepsc.org/). A copy of the certification or training record for inspector certification should be kept on site.

Qualified personnel, as defined in section 3.5.8.1 of the Permit (provided by the permittee or cooperatively by multiple permittees) shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, locations where vehicles enter or exit the site, and each outfall.

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the site's drainage system. Erosion prevention and sediment control measures shall be observed to ensure that they are operating correctly.

Outfall points (where discharges leave the site and/or enter waters of the state) shall be inspected to determine whether erosion prevention and sediment control measures are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations shall be inspected. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

Based on the results of the inspection, any inadequate control measures or control measures in disrepair shall be replaced or modified, or repaired as necessary, before the next rain event if possible, but in no case more than 7 days after the need is identified.

Based on the results of the inspection, the site description identified in the SWPPP in accordance with section 3.5.1 of the Permit and pollution prevention measures identified in the SWPPP in accordance with section 3.5.2 of the Permit, shall be revised as appropriate, but in no case later than 7 days following the inspection. Such modifications shall provide for timely implementation of any changes to the SWPPP, but in no case later than 14 days following the inspection.

All inspections shall be documented on this Construction Stormwater Inspection Certification form. Alternative inspection forms may be used as long as the form contents and the inspection certification language are, at a minimum, equivalent to the division's form and the permittee has obtained a written approval from the division to use the alternative form. Inspection documentation will be maintained on site and made available to the division upon request. Inspection reports must be submitted to the division within 10 days of the request.

Trained certified inspectors shall complete inspection documentation to the best of their ability. Falsifying inspection records or other documentation or failure to complete inspection documentation shall result in a violation of this permit and any other applicable acts or rules.

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Appendix 4
Notice of Termination Form

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-TDEC (8332)

Notice of Termination (NOT) for General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

This form is required to be submitted when requesting termination of coverage from the CGP. The purpose of this form is to notify the TDEC that either all stormwater discharges associated with construction activity from the portion of the identified facility where you, as an operator, have ceased or have been eliminated; or you are no longer an operator at the construction site. Submission of this form shall in no way relieve the permittee of permit obligations required prior to submission of this form. Please submit this form to the local DWR Environmental Field Office (EFO) address (see table below). For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC).

Type or print clearly, using ink.

Site or Project Name:	**NPDES Tracking Number: TNR**
Street Address or Location:	County(ies):

Name of Permittee Requesting Termination of Coverage:			
Permittee Contact Name:	Title or Position:		
Mailing Address:	City:	State:	Zip:
Phone:	E-mail:		

Check the reason(s) for termination of permit coverage:

☐	Stormwater discharge associated with construction activity is no longer occurring and the permitted area has a uniform 70% permanent vegetative cover OR has equivalent measures such as rip rap or geotextiles, in areas not covered with impervious surfaces.
☐	You are no longer the operator at the construction site (i.e., termination of site-wide, primary or secondary permittee coverage).

Certification and Signature: (must be signed by president, vice-president or equivalent ranking elected official)

I certify under penalty of law that either: (a) all stormwater discharges associated with construction activity from the portion of the identified facility where I was an operator have ceased or have been eliminated or (b) I am no longer an operator at the construction site. I understand that by submitting this notice of termination, I am no longer authorized to discharge stormwater associated with construction activity under this general permit, and that discharging pollutants in stormwater associated with construction activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this notice of termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

For the purposes of this certification, elimination of stormwater discharges associated with construction activity means that all stormwater discharges associated with construction activities from the identified site that are authorized by a NPDES general permit have been eliminated from the portion of the construction site where the operator had control. Specifically, this means that all disturbed soils at the portion of the construction site where the operator had control have been finally stabilized, the temporary erosion and sediment control measures have been removed, and/or subsequent operators have obtained permit coverage for the site or portions of the site where the operator had control.

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Permittee name (print or type):	Signature:	Date:

EFO	**Street Address**	**Zip Code**	**EFO**	**Street Address**	**Zip Code**
Memphis	8383 Wolf Lake Drive, Bartlett, TN	38133	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305	Chattanooga	1301 Riverfront Parkway, Ste. 206	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601

Appendix 5
Soils Maps

K Factor, Rock Free—Williamson County, Tennessee
(Bicentennial Park Improvements)



Map Scale: 1:1,950 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Lines
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Points
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Williamson County, Tennessee
Survey Area Data: Version 14, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 16, 2019—Dec 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

K Factor, Rock Free

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Lp	Lindell silt loam, 0 to 2 percent slopes, occasionally flooded	.32	9.3	100.0%
W	Water		0.0	0.0%
Totals for Area of Interest			**9.3**	**100.0%**

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kf (rock free)" indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

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Hydrologic Soil Group—Williamson County, Tennessee
(Bicentennial Park Improvements)



Map Scale: 1:1,950 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Williamson County, Tennessee
Survey Area Data: Version 14, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 16, 2019—Dec 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Lp	Lindell silt loam, 0 to 2 percent slopes, occasionally flooded	B/D	9.3	100.0%
W	Water		0.0	0.0%
Totals for Area of Interest			**9.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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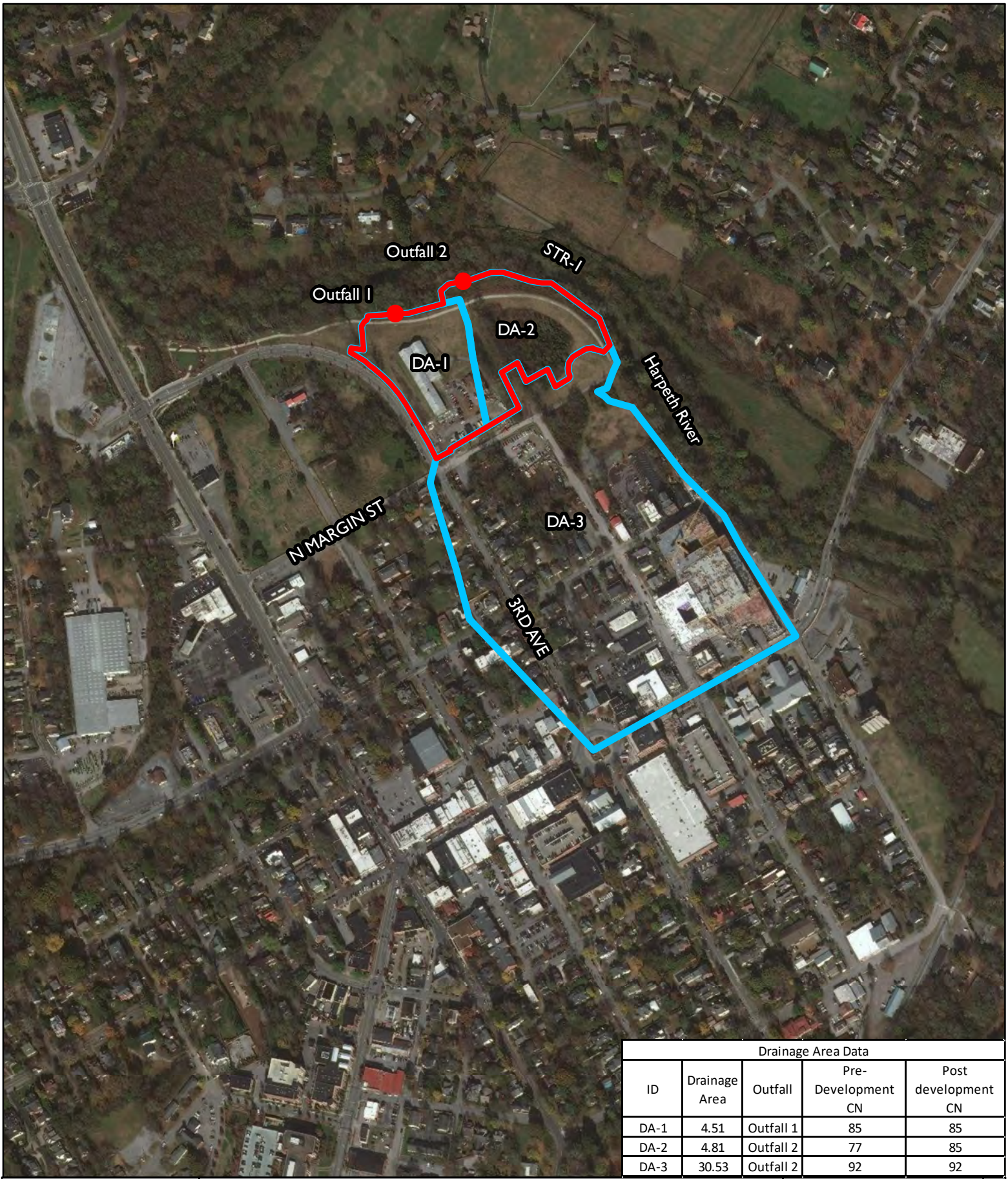
Appendix 6
Drainage Area and Curve Number Exhibits



Drainage Area Data				
ID	Drainage Area	Outfall	Pre-Development CN	Post development CN
DA-1	4.51	Outfall 1	85	85
DA-2	4.81	Outfall 2	77	85
DA-3	30.53	Outfall 2	92	92

500
Feet
1 inch = 500 feet
Tennessee State Plane (feet) 4100fips
North American Datum 1983

N

BARGE DESIGN SOLUTIONS

Drainage Area Map

Bicentennial Park Improvements
Harpeth River

Williamson County, TN

Outfall
Project Area
Drainage Area

Appendix 6

File Path: \\corp.bwsc.net\data\Projects\35\35968\3596801\03_PROJECT_EXECUTION\06_PERMITS\SWPPP\Appendix 6 -Drainage Area and Curve Number\Appendix 6 Drainage Map.mxd Updated: 3 June 2020

Appendix 7
Report of Soil Investigation for Bicentennial Park

BWSC Barge Waggoner Sumner & Cannon, Inc.®

May 25, 2016
BWSC Project #: 3308130

Ken Johnson
Tennessee Department of Environment & Conservation
Division of Remediation
711 R.S. Gass Blvd.
Nashville, Tennessee 37216

RE: Soil Management Plan
Bicentennial Park
North Margin Street and Third Avenue
Franklin, Tennessee

Dear Mr. Johnson:

Barge Waggoner Sumner & Cannon, Inc. (BWSC) has prepared this Soil Management Plan on behalf of the City of Franklin, Tennessee in accordance with the Brownfield Agreement for the subject property located at North Margin Street and Third Avenue in Franklin, Tennessee. Based on the historic site activities, the site contains two tracts:

- Tract 1 – 214 North Margin Street - Boot Factory Property (7.66 acres)
- Tract 2 – 200 North Margin Street - Former Dump (5.19 acres)

Tract 1 – 214 North Margin Street - Boot Factory Property (7.66 acres)

Investigation Results:

Environmental Site Assessments (ESAs) were performed in 2001, 2015, and 2016. The 2016 assessment revealed the following information about the soil at the site.

Concentrations of the following constituents were identified exceeding Environmental Protection Agency (EPA) Residential Soil Regional Screening Levels (RSLs) in Tract 1:

- Arsenic
- Benzo(a)anthracene
- Benzo(b)fluoranthene
- Benzo(a)pyrene

Arsenic is naturally-occurring in Tennessee soils, and the concentrations detected in Tract 1 were within the expected range of background concentrations. The remaining semi-volatile organic constituents were detected in borings where fill material containing coal (industrial fill) was observed (Figure 1). No semi-volatile organic constituents were detected outside of the industrial fill material; this shows a correlation between industrial fill consisting of soil and coal ash, and exceedances of the EPA RSLs. Samples collected which consisted of native soil did not contain contaminant levels above the EPA RSLs (other than arsenic). The handling of the excavated materials is described below.

Soil Management Plan:

Based on BWSC's understanding, the property is to be used for a city park. In order to limit potential human exposure to the soil during the construction process, BWSC recommends the following actions during on-site construction activities:

- In order to limit fugitive dust, a water truck will be on-site during excavation and grading activities.
- The client will have an environmental professional on-site to observe and document all site excavation and grading activities when excavating within the extent of the industrial fill.

<u>Areas Outside Extent of Known Industrial Fill Material</u>

- As shown on Figure 1, for the areas outside of the limits of an industrial fill, the soil can be excavated and placed on site or disposed of in a landfill without additional sampling. The excavation should be monitored to confirm that materials such as coal, coal ash, or dump debris are not encountered.

<u>Areas Where Coal Ash was Detected and Observed:</u>

- All excavated materials shall be kept on and covered by plastic prior to transportation for off-site disposal.
- The client will obtain Special Waste Approval from the Tennessee Department of Environment and Conservation's (TDEC) Division of Solid Waste prior to transportation and disposal.
- All excavated materials will be transported to Middlepoint Landfill in Murfreesboro, TN for disposal.

Tract 2 – 200 North Margin Street - Former Dump (5.19 acres)

Investigation Results:

Environmental Site Assessments (ESAs) were performed in 2005, 2006, 2011, 2012, 2015, and 2016. The 2016 assessment revealed the following information about the soil at the site:

Waste materials (glass, bricks, rubber, and plastic) were encountered in a soil boring in the upper 12 feet.

The following constituents were detected at concentrations exceeding EPA RSLs in Tract 2:

- Arsenic
- Benzo(a)pyrene

The arsenic concentrations were within the expected range of background concentrations for Tennessee. Benzo(a)pyrene was detected at 2.0 feet below ground surface, and was not detected in samples collected at 4.0 and 8.0 feet below ground surface.

Soil Management Plan:

Based on the presence of landfilled materials on the site, BWSC understands that TDEC requires steps to be taken to limit potential human exposure to the landfilled materials during the construction process. Based on BWSC's understanding of the proposed property use, the property is to be used for a city park. Therefore, BWSC recommends the following actions during on-site construction activities:

- All excavated materials shall be kept on, and covered by, plastic prior to transportation for off-site disposal.
- The client will obtain Special Waste Approval from the Tennessee Department of Environment and Conservation's (TDEC) Division of Solid Waste prior to transportation and disposal.
- All excavated soils will be transported to Middlepoint Landfill in Murfreesboro, TN for disposal.
- The client will have an environmental professional on-site to observe and document all site excavation and grading activities when excavating in Tract 2, the former landfill.

Unexpected Odors

High concentrations of Volatile Organic Compounds (VOCs) are not expected to be encountered at the site; however, in the event that site workers do come across areas of unexpected odors, the following procedure should be followed:

- Soils from the area of concern will be screened using a flame ionization detector (FID) by the on-site environmental professional. If elevated FID readings are detected exceeding 10 times the background readings during excavation work, the work in that local area will be temporarily stopped, TDEC will be notified, and soil samples will be taken to a laboratory and evaluated for VOCs on a rushed basis to determine concentration levels.
- The results of the laboratory testing will be submitted to TDEC.
- TDEC will decide if any special precautions should be taken while working in this area.

If you have any questions, please contact me at 615-252-4349.

Sincerely,
Barge Waggoner Sumner Cannon, Inc.



Thomas McComb, PG, PMP
Senior Project Manager

CC: Paul Holzen – Director of Engineering, City of Franklin, Tennessee



200
Feet
N

Scale 1" = 200 feet
Tennessee State Plane (feet) 4100fips
North American Datum 1983

BWSC Barge Waggoner Sumner & Cannon, Inc.

Soil Management Plan

City of Franklin, Tennessee
Parks Department
Bicentennial Park

Figure 1 - Site Map

Approx. Limits of Subject Property

ADDENDUM NO. 1

City of Franklin	Contract No.	2022-0315
Engineering Office	Project	Bicentennial Park
109 Third Avenue South		
Franklin, TN 37064		

Date of Issuance 06/06/2023

You are directed to make the following changes in the Contract Document:

Description:

I) Questions and Clarifications:

1. Who is the specified manufacturer for the standard Franklin brick? (ref. Standard Franklin Brick per City of Franklin standards – 2/C4.32)

   Answer: *The standard brick manufacturer Pine Hall Brick (www.pinehallbrick.com). Submit color samples for approval during construction.*

2. Is the specified manufacturer for Stone Veneer at the stone entry column, conc retaining wall, and planter retaining wall found in spec section Anchored Stone Masonry 044313.13? (ref. 1,2/C4.33; 4/A2.01)

   Answer: *The stone veneer is described in Section 044313 - Anchored Stone Masonry Veneer of the "Technical Specifications." A particular supplier was NOT specified. Part 2.1B only lists the following:*

   B. Varieties and Sources: Subject to compliance with requirements, available stone varieties that may be incorporated into the Work include, but are not limited to, the following:

   1. Crab orchard (TN quartzite) stone to match the color and finish of the existing Bicentennial Park entry sign located 3rd Avenue and Hillsboro Road in Franklin, TN.

3. Note 3 is not shown in Detail 1? (ref. Stone Veneer See Note 3 Detail 1/C4.33 – 2/C4.33)

   Answer: *Notes 3 and 4 referenced in details 1 & 2/ C4.33 were inadvertently omitted from the details and should read as follows:*

   Note 3 – Stone Veneer to be Crab orchard (TN quartzite) stone to match the color and finish of the existing Bicentennial Park entry sign located 3rd Avenue and Hillsboro Road in Franklin, TN and as specified in Section 044313 - Anchored Stone Masonry Veneer of the "Technical Specifications."

   Note 4 – Architectural precast cap to match color and finish of existing Bicentennial Park sign located at 3rd Avenue and Hillsboro Road. Submit shop drawings for approval.

4. Who is the specified manufacturer for black detectable warning brick? (ref. Black Detectable Warning Brick Match Existing Streetscape TYP and Pavers Shall Match Existing 3rd Ave North Streetscape – 4,5/C4.3)

Answer : *All detectable warnings and crosswalks are to be changed to the new City standards included as attachments to this addendum.*

5. Where may I access the City of Franklin streetscape plans mentioned in General Notes? (ref. 6,7/C4.3)

   Answer: *Brick patterns are to match existing patterns on 3rd Avenue sidewalks and crosswalks.*

6. Is the design intent for the McNichols metal mesh type to differ between location above riser/electrical room (ref. A2.01, 5/A3.02) and location at pergola (ref. L7.04)?

   Answer: *Yes, the mesh types are intended to be different as specified.*

7. Is there a specified manufacturer and model for the 2 water fountains shown on C2.1? I can't find in the specifications or on the A, C, L, or P drawings.

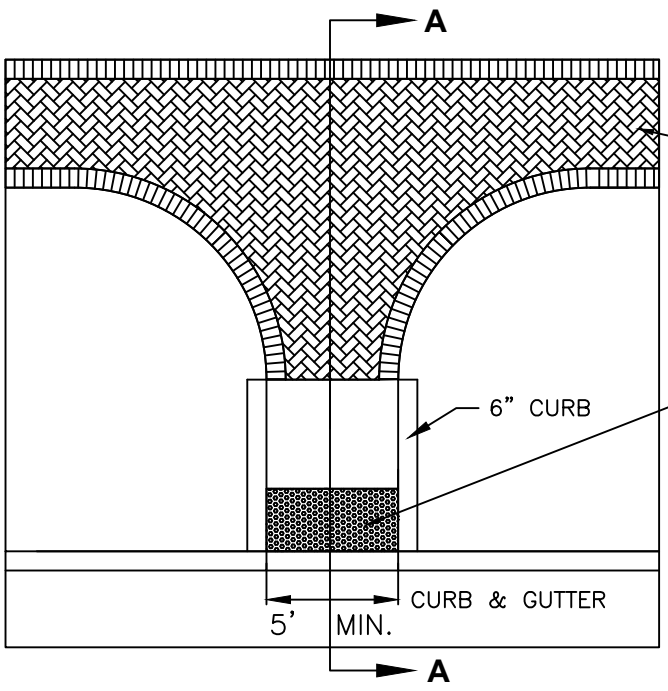
   Answer: *Water Fountains are to be MDF Model 10155 SMSS with bottle filler and pet bowl, color – chrome or approved equal installed according to manufacturer's instructions. www.mostdependable.com/product/10155-sm-pet-fountain-included/*

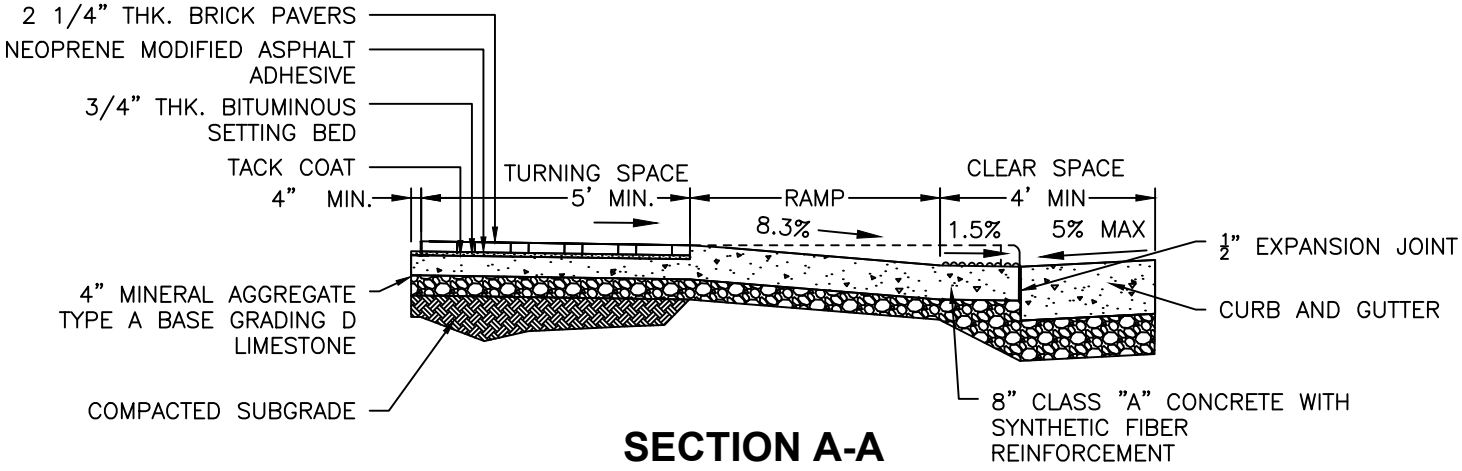
II) Attachments:

a. COF Standard Drawings: **SS-9, SS-10, SS-11**, and **SS-12**

END of Addendum

NOTE: CONTRACTOR TO ENSURE NO STANDING WATER AT RAMP





SECTION A-A

GENERAL NOTES

1. THIS DETAIL TO BE USED IN DOWNTOWN FRANKLIN GATEWAY CORRIDORS AND CONNECTOR STREETS.
2. A VARIATION OF THE RAMP MAY BE USED IN CERTAIN CIRCUMSTANCES BUT MUST COMPLY WITH PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY
3. DESIRABLE SLOPE TO BE USED UNLESS OTHERWISE DIRECTED BY THE CITY OF FRANKLIN.
4. MINIMUM TURNING SPACE IS 5'X5'.
5. RAMPS SHALL BE PROVIDED AT ALL STREET INTERSECTIONS, WALK LOCATIONS AND MID-BLOCK LOCATIONS.
6. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMP RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACES. SURFACE SLOPE THAT MEET AT GRADE BREAKS SHALL BE FLUSH.
7. 4" MIN BASE STONE (303-01 MINERAL AGGREGATE, TYPE "A" BASE, GRADING "D" REQUIRED UNDER ALL SIDEWALKS.
8. DETECTABLE WARNING SURFACES SHALL BE CAST-IN-PLACE SURFACES BY ADA SOLUTIONS, INC. OR APPROVED EQUAL. SURFACE COLOR SHALL BE YELLOW. SURFACES SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP (EXCLUSIVE OF FLARED SIDES), AND SHALL EXTEND ONLY 2 FEET IN THE DIRECTION OF TRAVEL.

N.T.S

HISTORIC FRANKLIN TENNESSEE

BRICK CURB RAMP AND DETECTABLE WARNING

DWG. NO. **SS-9**

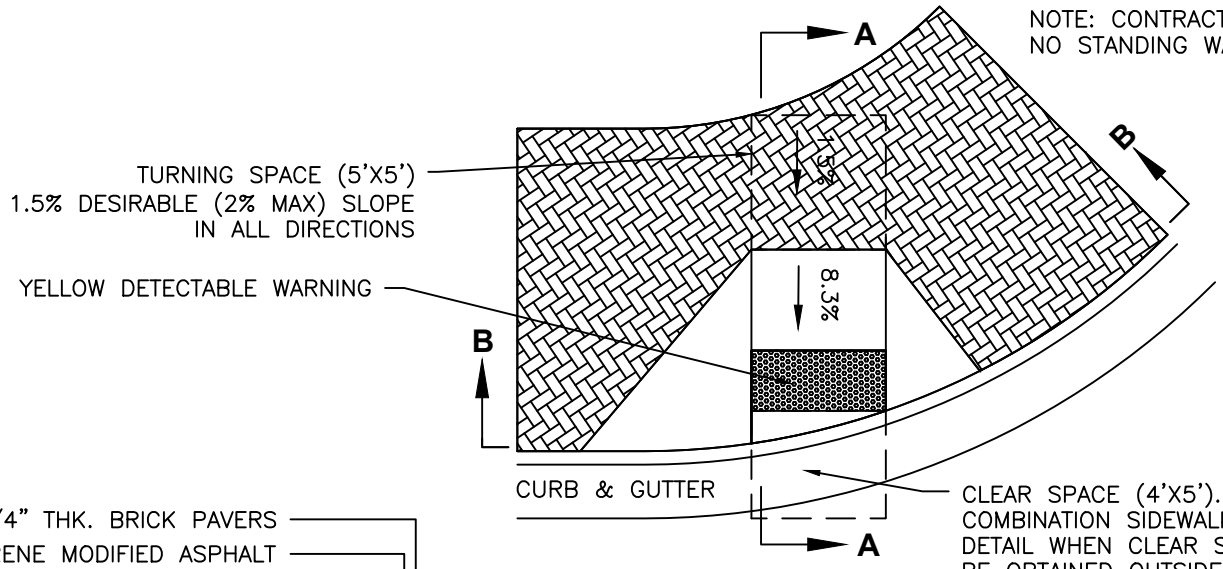
CITY OF FRANKLIN

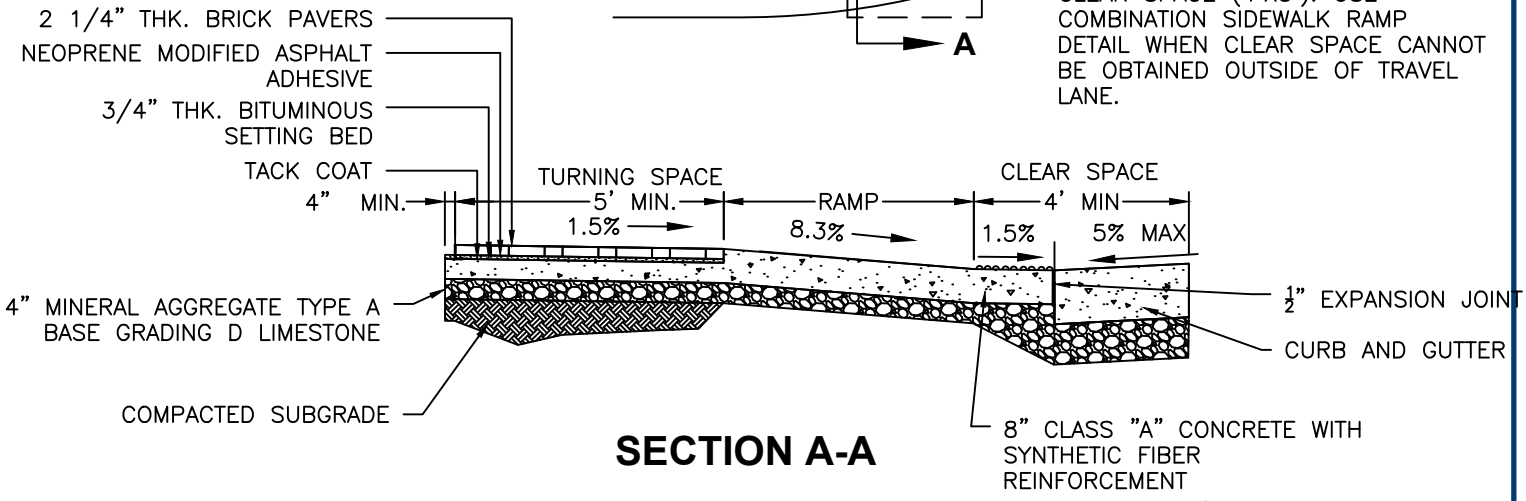
NOT TO SCALE

CITY ENGINEER: Paul P Holzen

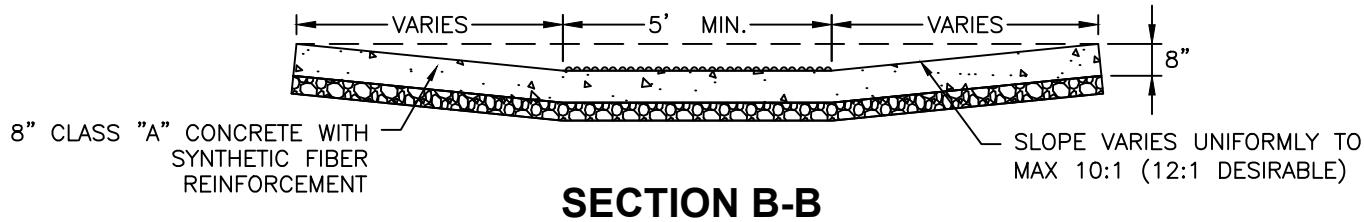
DATE: 06/02/2023

NOTE: CONTRACTOR TO ENSURE NO STANDING WATER AT RAMP





SECTION A-A



SECTION B-B

GENERAL NOTES

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N.T.S

HISTORIC FRANKLIN TENNESSEE

BRICK PERPENDICULAR CURB RAMP

DWG. NO. **SS-10**

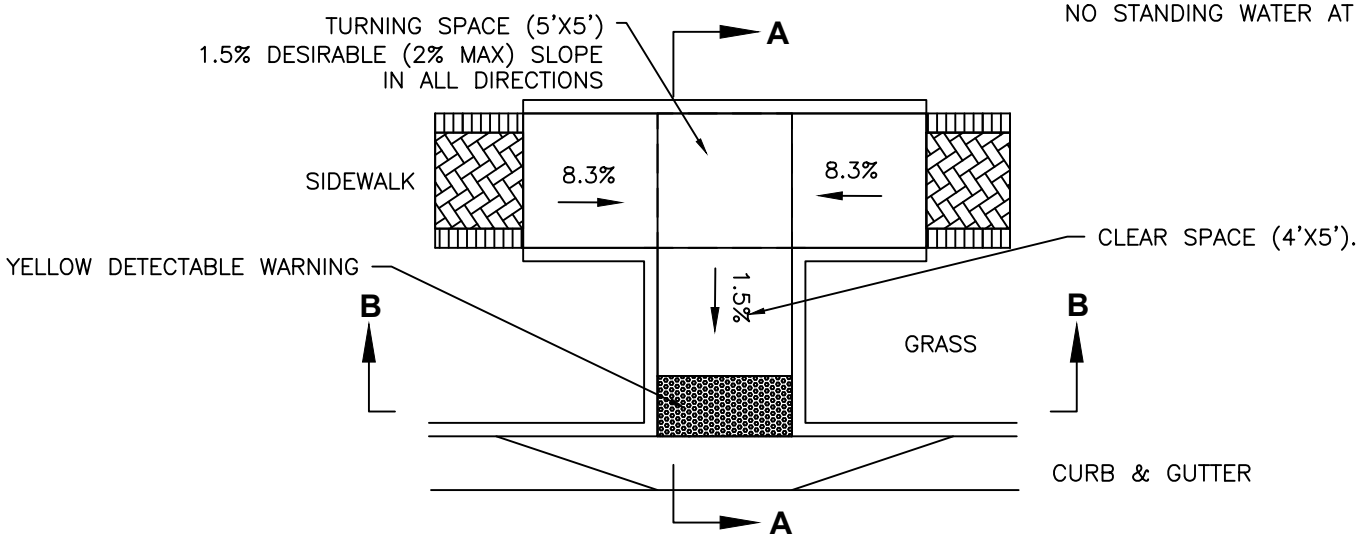
CITY OF FRANKLIN

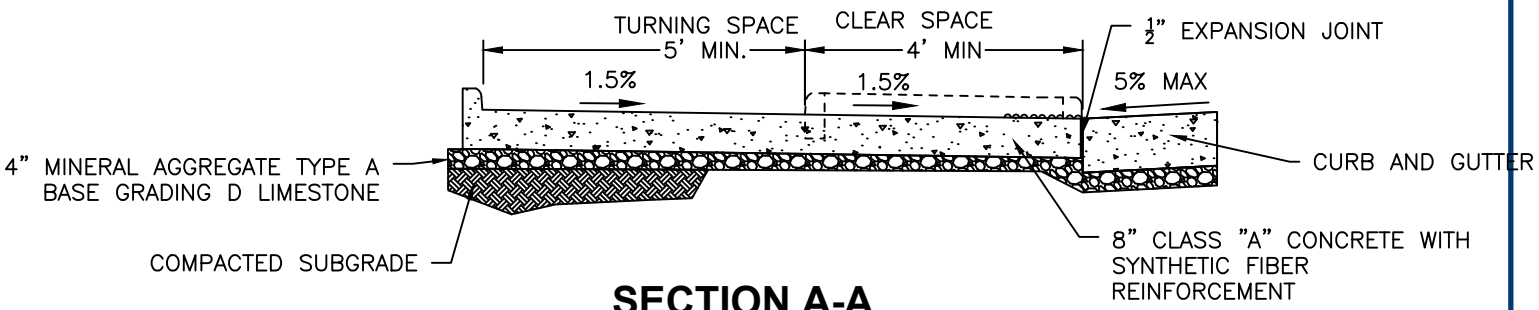
NOT TO SCALE

CITY ENGINEER: Paul P Holzen

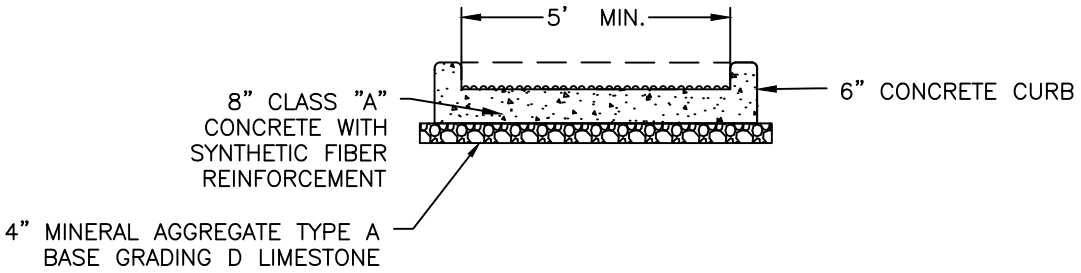
DATE: 06/02/2023

NOTE: CONTRACTOR TO ENSURE NO STANDING WATER AT RAMP





SECTION A-A



SECTION B-B

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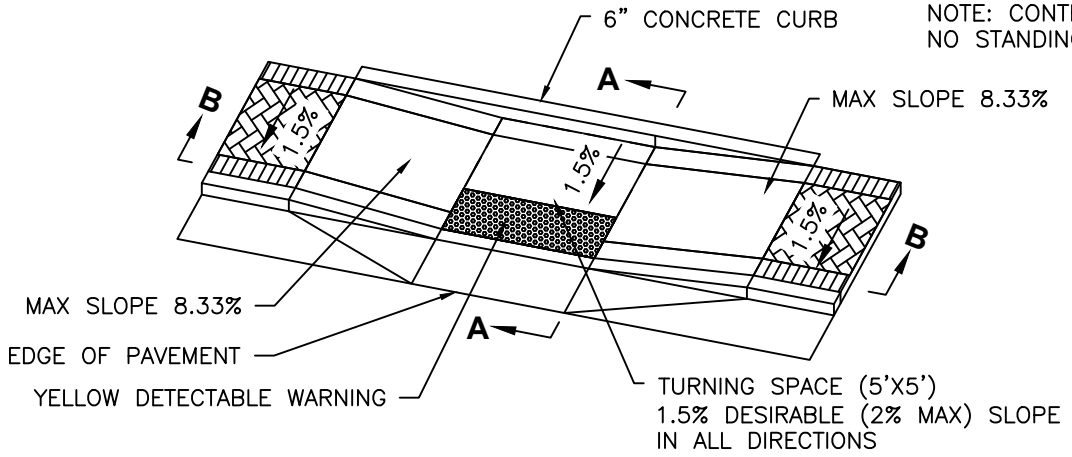
N.T.S

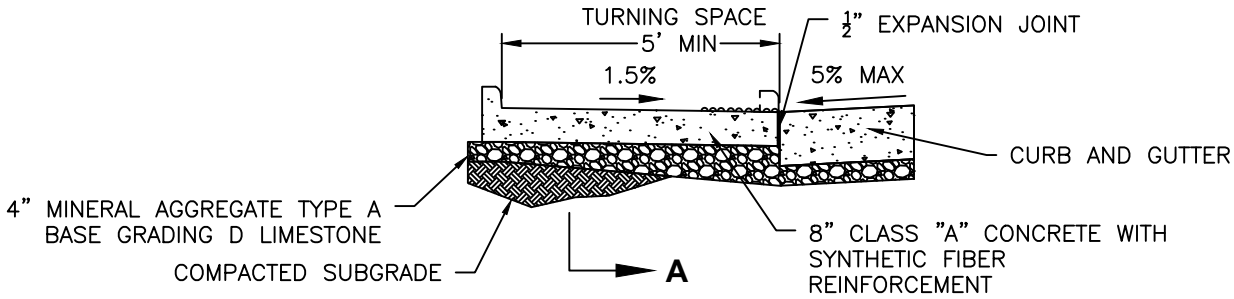
HISTORIC FRANKLIN TENNESSEE

BRICK COMBINATION CURB RAMP

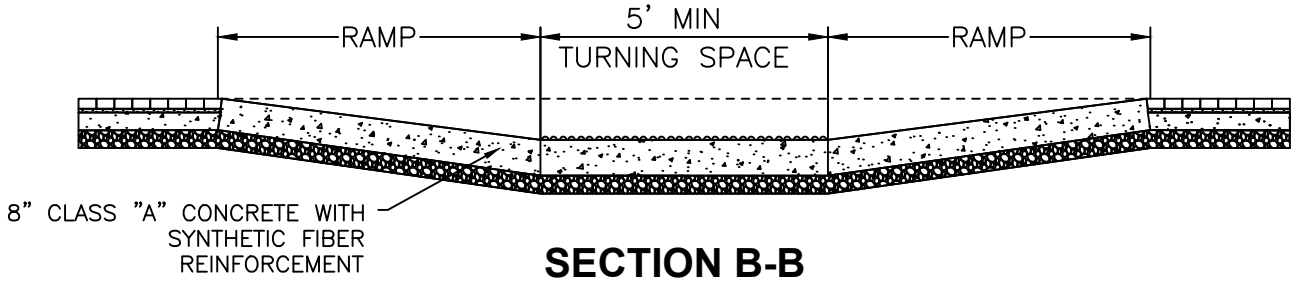
DWG. NO. **SS-11**

CITY OF FRANKLIN	CITY ENGINEER: Paul P Holzen	DATE: 06/02/2023
NOT TO SCALE		





SECTION A-A



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N.T.S

HISTORIC FRANKLIN TENNESSEE

BRICK PARALLEL CURB RAMP

DWG. NO.

SS-12

CITY OF FRANKLIN	CITY ENGINEER: Paul P Holzen	DATE: 06/02/2023
NOT TO SCALE		

HISTORIC FRANKLIN TENNESSEE

Bicentennial Park

COF Contract No. 2022-0315

BID OPENING - Apparent Bid Results (UNOFFICIAL)

Thursday, June 15, 2023 @ 2:00 PM (CST)

NAME	BASE BID
Hannah Constructors, LLC	$15,674,114.94
Relyant Global, LLC	No Bid
Ryzek Building Group, LLC	No Bid
Sain Construction Company	**$10,281,201.00**
Solomon Builders, Inc.	$10,732,555.00

BID TABULATION for COF Contract No. 2022-0315
Bicentennial Park

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	CONTRACTOR BIDS					
				Hannah Constructors, LLC		Sain Construction Company		Solomon Builders, Inc.	
				UNIT PRICE ($)	EXT. AMOUNT ($)	UNIT PRICE ($)	EXT. AMOUNT ($)	UNIT PRICE ($)	EXT. AMOUNT ($)
105-01	CONSTRUCTION STAKES, LINES AND GRADES	LS	1	$ 104,218.00	$ 104,218.00	$ 163,111.00	$ 163,111.00	$ 54,709.55	$ 54,709.55
201-01.03	CLEARING AND GRUBBING	LS	1	$ 198,708.18	$ 198,708.18	$ 185,074.00	$ 185,074.00	$ 101,999.17	$ 101,999.17
02 41 00	DEMOLITION	LS	1	$ 390,537.48	$ 390,537.48	$ 165,117.00	$ 165,117.00	$ 256,764.32	$ 256,764.32
202-13.01	WELL ABANDONMENT	LS	1	$ 4,723.90	$ 4,723.90	$ 4,400.00	$ 4,400.00	$ 22,830.57	$ 22,830.57
31 20 00.01	ROAD & DRAINAGE EXCAVATION (ONSITE & HAUL-OFF)	LS	1	$ 1,023,430.50	$ 1,023,430.50	$ 953,207.00	$ 953,207.00	$ 731,747.29	$ 731,747.29
31 20 00.02	ROAD & DRAINAGE EXCAVATION (HAUL-OFF TO LANDFILL)	TON	729	$ 146.10	$ 106,506.90	$ 136.00	$ 99,144.00	$ 147.61	$ 107,607.69
31 20 00.03	FURNISHING & SPREADING TOPSOIL	LS	1	$ 147,122.70	$ 147,122.70	$ 137,028.00	$ 137,028.00	$ 76,963.66	$ 76,963.66
204-06.01	FLOWABLE FILL (GENERAL)	C.Y.	20	$ 561.27	$ 11,225.40	$ 523.00	$ 10,460.00	$ 295.56	$ 5,911.20
209-08.02	TEMPORARY SILT FENCE (WITH BACKING)	L.F.	470	$ 7.33	$ 3,445.10	$ 7.00	$ 3,290.00	$ 6.15	$ 2,890.50
209-08.08	ENHANCED ROCK CHECK DAM	EACH	1	$ 837.62	$ 837.62	$ 794.00	$ 794.00	$ 6,649.68	$ 6,649.68
209-09.04	SEDIMENT FILTER BAG(15' X 10')	EACH	1	$ 242.28	$ 242.28	$ 227.00	$ 227.00	$ 2,955.07	$ 2,955.07
209-09.40	CURB INLET PROTECTION (TYPE 1)	EACH	18	$ 244.30	$ 4,397.40	$ 228.00	$ 4,104.00	$ 679.74	$ 12,235.32
209-11.20	SEDIMENT BASIN BAFFLES	L.F.	200	$ 12.56	$ 2,512.00	$ 12.00	$ 2,400.00	$ 11.82	$ 2,364.00
209-40.33	CATCH BASIN PROTECTION (TYPE D)	EACH	13	$ 349.01	$ 4,537.13	$ 325.00	$ 4,225.00	$ 827.49	$ 10,757.37
CP-10	CONCRETE WASHOUT	EACH	1	$ 4,553.45	$ 4,553.45	$ 17,048.00	$ 17,048.00	$ 1,478.05	$ 1,478.05
303-01	MINERAL AGGREGATE, TYPE A BASE, GRADING D	TON	2,700	$ 52.35	$ 141,345.00	$ 49.00	$ 132,300.00	$ 46.55	$ 125,685.00
303-10.01	MINERAL AGGREGATE (SIZE 57)	TON	2,200	$ 51.14	$ 112,508.00	$ 48.00	$ 105,600.00	$ 65.02	$ 143,044.00
303-10.02	MINERAL AGGREGATE (SIZE 2)	TON	15	$ 79.75	$ 1,196.25	$ 75.00	$ 1,125.00	$ 65.03	$ 975.45
306-01.03	PORTLAND CEMENT CONCRETE BASE (REINFORCED) 6"	S.Y.	900	$ 109.58	$ 98,622.00	$ 87.00	$ 78,300.00	$ 121.05	$ 108,945.00
306-05.01	PORTLAND CEMENT CONCRETE BASE (PLAIN) 10"	S.Y.	10	$ 219.15	$ 2,191.50	$ 473.00	$ 4,730.00	$ 1,182.13	$ 11,821.30

BID TABULATION for COF Contract No. 2022-0315
Bicentennial Park

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	CONTRACTOR BIDS					
				Hannah Constructors, LLC		Sain Construction Company		Solomon Builders, Inc.	
307-01.08	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING B-M2	TON	620	$ 158.28	$ 98,133.60	$ 148.00	$ 91,760.00	$ 145.53	$ 90,228.60
307-02.01	ASPHALT CONCRETE MIX (PG70-22) (BPMB-HM) GRADING A	TON	770	$ 152.19	$ 117,186.30	$ 142.00	$ 109,340.00	$ 137.13	$ 105,590.10
402-01	BITUMINOUS MATERIAL FOR PRIME COAT (PC)	TON	5.6	$ 1,826.25	$ 10,227.00	$ 1,701.00	$ 9,525.60	$ 1,064.03	$ 5,958.57
402-02	AGGREGATE FOR COVER MATERIAL (PC)	TON	20	$ 182.63	$ 3,652.60	$ 74.00	$ 1,480.00	$ 177.31	$ 3,546.20
403-02.01	TRACKLESS TACK COAT	TON	1.9	$ 1,643.63	$ 3,122.90	$ 806.00	$ 1,531.40	$ 1,064.15	$ 2,021.89
407-20.05	SAW CUTTING ASPHALT PAVEMENT	L.F.	500	$ 7.67	$ 3,835.00	$ 7.00	$ 3,500.00	$ 9.46	$ 4,730.00
411-01.10	ACS MIX(PG64-22) GRADING D	TON	390	$ 185.06	$ 72,173.40	$ 173.00	$ 67,470.00	$ 179.57	$ 70,032.30
415-01.02	COLD PLANING	S.Y.	353	$ 29.46	$ 10,399.38	$ 28.00	$ 9,884.00	$ 52.61	$ 18,571.33
501-01.01	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 8"	S.Y.	990	$ 197.24	$ 195,267.60	$ 100.00	$ 99,000.00	$ 126.52	$ 125,254.80
607-02.30	15" CONCRETE PIPE CULVERT (CLASS III)	L.F.	320	$ 178.97	$ 57,270.40	$ 167.00	$ 53,440.00	$ 153.68	$ 49,177.60
607-03.02	18" CONCRETE PIPE CULVERT (CLASS III)	L.F.	1,128	$ 219.15	$ 247,201.20	$ 204.00	$ 230,112.00	$ 165.50	$ 186,684.00
607-05.02	24" CONCRETE PIPE CULVERT (CLASS III)	L.F.	248	$ 205.76	$ 51,028.48	$ 192.00	$ 47,616.00	$ 189.15	$ 46,909.20
607-06.02	30" CONCRETE PIPE CULVERT (CLASS III)	L.F.	80	$ 260.55	$ 20,844.00	$ 243.00	$ 19,440.00	$ 224.62	$ 17,969.60
607-07.02	36" CONCRETE PIPE CULVERT (CLASS III)	L.F.	656	$ 329.94	$ 216,440.64	$ 308.00	$ 202,048.00	$ 254.17	$ 166,735.52
22 14 13.3	6-INCH PVC STORM LINE	L.F.	420	$ 392.04	$ 164,656.80	$ 366.00	$ 153,720.00	$ 147.77	$ 62,063.40
22 14 13.4	12-INCH PVC STORM LINE	L.F.	780	$ 181.41	$ 141,499.80	$ 169.00	$ 131,820.00	$ 224.61	$ 175,195.80
611-01.02	MANHOLES, > 4' - 8' DEPTH (7'x8' MANHOLE, 5'2"x5'2" MANHOLE)	EACH	4	$ 14,816.98	$ 59,267.92	$ 13,800.00	$ 55,200.00	$ 17,732.74	$ 70,930.96
611-02.11	OUTLET STRUCTURES	EACH	2	$ 10,421.80	$ 20,843.60	$ 9,707.00	$ 19,414.00	$ 11,821.83	$ 23,643.66
611-07.54	18IN ENDWALL (CROSS DRAIN) 3:1	EACH	3	$ 4,419.53	$ 13,258.59	$ 4,116.00	$ 12,348.00	$ 2,955.41	$ 8,866.23
611-07.57	24IN ENDWALL (CROSS DRAIN) 3:1	EACH	4	$ 2,861.13	$ 11,444.52	$ 2,665.00	$ 10,660.00	$ 2,955.33	$ 11,821.32
611-07.63	36IN ENDWALL (CROSS DRAIN) 3:1	EACH	1	$ 5,332.65	$ 5,332.65	$ 4,967.00	$ 4,967.00	$ 4,137.51	$ 4,137.51

BID TABULATION for COF Contract No. 2022-0315
Bicentennial Park

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	CONTRACTOR BIDS					
				Hannah Constructors, LLC		Sain Construction Company		Solomon Builders, Inc.	
611-12.01	CATCH BASINS, TYPE 12, 0' - 4' DEPTH	EACH	5	$ 9,253.00	$ 46,265.00	$ 8,618.00	$ 43,090.00	$ 10,048.47	$ 50,242.35
611-12.02	CATCH BASINS, TYPE 12, > 4' - 8' DEPTH	EACH	14	$ 9,740.00	$ 136,360.00	$ 9,072.00	$ 127,008.00	$ 11,230.68	$ 157,229.52
611-14.02	CATCH BASINS, TYPE 14, > 4' - 8' DEPTH	EACH	2	$ 14,110.83	$ 28,221.66	$ 13,143.00	$ 26,286.00	$ 11,230.61	$ 22,461.22
611-43.01	CATCH BASINS, TYPE 43, 0' - 4' DEPTH	EACH	3	$ 9,326.05	$ 27,978.15	$ 8,686.00	$ 26,058.00	$ 10,048.34	$ 30,145.02
611-43.02	CATCH BASINS, TYPE 43, > 4' - 8' DEPTH	EACH	3	$ 11,237.53	$ 33,712.59	$ 10,569.00	$ 31,707.00	$ 11,248.63	$ 33,745.89
33 42 03.3	30" NYLOPLAST DRAIN BASIN	EACH	6	$ 7,000.63	$ 42,003.78	$ 6,520.00	$ 39,120.00	$ 13,616.60	$ 81,699.60
GIP-01	LEVEL 2 BIORETENTION POND (INCLUDES PVC LINER, 6" PVC UNDERDRAINS)	LS	1	$ 176,452.28	$ 176,452.28	$ 164,345.00	$ 164,345.00	$ 236,811.42	$ 236,811.42
701-01.01	CONCRETE SIDEWALK (4 ")	S.F.	640	$ 10.96	$ 7,014.40	$ 9.00	$ 5,760.00	$ 650.38	$ 416,243.20
701-01.10	CONCRETE STEPS & AMPHITHEATER SEATING	LS	1	$ 115,662.50	$ 115,662.50	$ 140,489.00	$ 140,489.00	$ 63,200.80	$ 63,200.80
701-01.20	BRICK SIDEWALK	S.Y.	685	$ 669.63	$ 458,696.55	$ 253.00	$ 173,305.00	$ 210.81	$ 144,404.85
701-01.21	BRICK ACCENT BANDS	S.Y.	115	$ 791.38	$ 91,008.70	$ 342.00	$ 39,330.00	$ 267.69	$ 30,784.35
32 13 16	DECORATIVE CONCRETE - STAMPED INTEGRAL COLOR SIDEWALK (4 ")	S.F.	7,100	$ 48.70	$ 345,770.00	$ 10.00	$ 71,000.00	$ 41.58	$ 295,218.00
32 13 16.1	DECORATIVE CONCRETE - RAILROAD STAMPED SIDEWALK (4 ")	S.F.	3,500	$ 54.79	$ 191,765.00	$ 13.00	$ 45,500.00	$ 13.20	$ 46,200.00
701-02	CONCRETE DRIVEWAY	S.F.	900	$ 36.53	$ 32,877.00	$ 13.00	$ 11,700.00	$ 42.15	$ 37,935.00
702-01.02	CONCRETE CURB	C.Y.	65	$ 870.51	$ 56,583.15	$ 694.00	$ 45,110.00	$ 615.92	$ 40,034.80
709-05.06	MACHINED RIP-RAP (CLASS A-1)	TON	50	$ 129.06	$ 6,453.00	$ 120.00	$ 6,000.00	$ 82.92	$ 4,146.00
709-05.08	MACHINED RIP-RAP (CLASS B)	TON	200	$ 146.10	$ 29,220.00	$ 136.00	$ 27,200.00	$ 82.92	$ 16,584.00
712-06	SIGNS (CONSTRUCTION)	S.F.	116	$ 27.69	$ 3,212.04	$ 71.00	$ 8,236.00	$ 59.23	$ 6,870.68
712-07.03	TEMPORARY BARRICADES (TYPE III)	L.F.	100	$ 42.44	$ 4,244.00	$ 40.00	$ 4,000.00	$ 88.84	$ 8,884.00
712-04.01	FLEXIBLE DRUMS (CHANNELIZING)	EACH	30	$ 111.22	$ 3,336.60	$ 104.00	$ 3,120.00	$ 112.51	$ 3,375.30
716-02	PLASTIC PAVEMENT MARKING (4" LINE)	L.F.	1,100	$ 5.41	$ 5,951.00	$ 6.00	$ 6,600.00	$ 3.55	$ 3,905.00

BID TABULATION for COF Contract No. 2022-0315
Bicentennial Park

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	CONTRACTOR BIDS					
				Hannah Constructors, LLC		Sain Construction Company		Solomon Builders, Inc.	
716-02.03	PLASTIC PAVEMENT MARKING (CROSS-WALK)	L.F.	110	$ 45.06	$ 4,956.60	$ 43.00	$ 4,730.00	$ 35.54	$ 3,909.40
716-02.05	PLASTIC PAVEMENT MARKING (STOP BAR)	L.F.	60	$ 72.09	$ 4,325.40	$ 69.00	$ 4,140.00	$ 35.54	$ 2,132.40
716.04-05	PLASTIC PAVEMENT MKG (STRAIGHT ARROW)	EACH	3	$ 630.75	$ 1,892.25	$ 605.00	$ 1,815.00	$ 473.80	$ 1,421.40
716-04.10	PLASTIC PAVEMENT MKG (HANDICAP SYMBOL)	EACH	2	$ 1,351.61	$ 2,703.22	$ 1,295.00	$ 2,590.00	$ 473.80	$ 947.60
725-23.11	FIBER OPTIC CABLE (60 F)	L.F.	650	$ 73.05	$ 47,482.50	$ 29.00	$ 18,850.00	$ 10.53	$ 6,844.50
790-74.05	FIBER OPTIC CABLE (24 F)	L.F.	275	$ 54.79	$ 15,067.25	$ 41.00	$ 11,275.00	$ 9.86	$ 2,711.50
730-03.24	INSTALL PULL BOX (FIBER OPTIC-TYPE B)	EACH	3	$ 4,675.20	$ 14,025.60	$ 2,138.00	$ 6,414.00	$ 515.00	$ 1,545.00
740-10.03	GEOTEXTILE (TYPE III) (EROSION CONTROL)	S.Y.	40	$ 17.90	$ 716.00	$ 17.00	$ 680.00	$ 23.69	$ 947.60
740-11.02	TEMPORARY SEDIMENT TUBE 12IN	L.F.	1,240	$ 4.88	$ 6,051.20	$ 5.00	$ 6,200.00	$ 11.25	$ 13,950.00
771-30.32	CONCRETE COMBINED CURB & GUTTER	C.Y.	120	$ 616.85	$ 74,022.00	$ 591.00	$ 70,920.00	$ 686.75	$ 82,410.00
795-51.01	BOLLARD	EACH	14	$ 1,840.86	$ 25,772.04	$ 1,053.00	$ 14,742.00	$ 1,873.50	$ 26,229.00
797-07.36	84IN MANHOLE 6FT-8FT DEPTH	EACH	1	$ 13,903.85	$ 13,903.85	$ 13,316.00	$ 13,316.00	$ 17,761.32	$ 17,761.32
797-07.38	84IN MANHOLE 10FT-12FT DEPTH	EACH	1	$ 15,851.85	$ 15,851.85	$ 15,182.00	$ 15,182.00	$ 23,680.73	$ 23,680.73
802-05.01	TEMPORARY TREE PROTECTION	LS	1	$ 6,079.71	$ 6,079.71	$ 5,830.00	$ 5,830.00	$ 7,696.16	$ 7,696.16
805-12.02	EROSION CONTROL BLANKET (TYPE II) (S150BN)	S.Y.	3,000	$ 3.14	$ 9,420.00	$ 3.00	$ 9,000.00	$ 4.74	$ 14,220.00
805-12.03	EROSION CONTROL BLANKET (TYPE III) (SC250)	S.Y.	655	$ 6.98	$ 4,571.90	$ 7.00	$ 4,585.00	$ 11.84	$ 7,755.20
W1	6" CLASS 350 DIP WATER MAIN	L.F.	237	$ 160.71	$ 38,088.27	$ 154.00	$ 36,498.00	$ 207.21	$ 49,108.77
W1.1	8" CLASS 350 DIP WATER MAIN	L.F.	23	$ 396.91	$ 9,128.93	$ 381.00	$ 8,763.00	$ 414.42	$ 9,531.66
W1.2	4" DIP RESTRAINED JOINT WATER LINE	L.F.	8	$ 730.50	$ 5,844.00	$ 700.00	$ 5,600.00	$ 355.22	$ 2,841.76
W5	1" TYPE K COPPER WATER SERVICE LINE	L.F.	320	$ 88.27	$ 28,246.40	$ 85.00	$ 27,200.00	$ 177.61	$ 56,835.20
W5.1	1-1/2" TYPE K COPPER WATER SERVICE LINE	L.F.	265	$ 106.53	$ 28,230.45	$ 102.00	$ 27,030.00	$ 189.45	$ 50,204.25

BID TABULATION for COF Contract No. 2022-0315
Bicentennial Park

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	CONTRACTOR BIDS					
				Hannah Constructors, LLC		Sain Construction Company		Solomon Builders, Inc.	
W5.2	2" TYPE K COPPER WATER SERVICE LINE	L.F.	25	$ 262.98	$ 6,574.50	$ 252.00	$ 6,300.00	$ 272.33	$ 6,808.25
W10	2" GATE VALVE AND BOX	EACH	2	$ 2,605.45	$ 5,210.90	$ 2,496.00	$ 4,992.00	$ 1,776.24	$ 3,552.48
W10.1	6" GATE VALVE AND BOX	EACH	1	$ 4,029.93	$ 4,029.93	$ 3,860.00	$ 3,860.00	$ 2,367.97	$ 2,367.97
W10.2	6" POST INDICATOR VALVE	EACH	1	$ 7,865.05	$ 7,865.05	$ 7,575.00	$ 7,575.00	$ 6,512.69	$ 6,512.69
W10.3	6" FIRE DEPARTMENT CONNECTION	EACH	1	$ 7,256.30	$ 7,256.30	$ 6,950.00	$ 6,950.00	$ 4,143.69	$ 4,143.69
W10.4	8" GATE VALVE AND BOX	EACH	1	$ 5,235.25	$ 5,235.25	$ 5,014.00	$ 5,014.00	$ 4,972.84	$ 4,972.84
W12	10" X 8" TAPPING SLEEVE, VALVE AND VALVE BOX	EACH	1	$ 30,729.70	$ 30,729.70	$ 29,431.00	$ 29,431.00	$ 23,680.73	$ 23,680.73
W16	6" REDUCED PRESSURE BACKFLOW PREVENTER W/ SAFE-T-COVER	EACH	1	$ 35,477.95	$ 35,477.95	$ 33,990.00	$ 33,990.00	$ 29,601.17	$ 29,601.17
W17	2" IRRIGATION REDUCED PRESSURE BACKFLOW PREVENTER WITHOUT SAFE-T-COVER	EACH	1	$ 10,762.70	$ 10,762.70	$ 10,320.00	$ 10,320.00	$ 17,761.32	$ 17,761.32
W19	2" WATER METER ASSEMBLY, VALVES AND VAULT	EACH	2	$ 14,001.25	$ 28,002.50	$ 13,410.00	$ 26,820.00	$ 4,144.21	$ 8,288.42
SS1	10" DIP CL 350 W/PROTECTO-401 LINED GRAVITY SEWER MAIN	L.F.	384	$ 387.17	$ 148,673.28	$ 371.00	$ 142,464.00	$ 621.63	$ 238,705.92
SS3	10" PVC SDR35 GRAVITY SEWER MAIN	L.F.	86	$ 289.77	$ 24,920.22	$ 278.00	$ 23,908.00	$ 532.82	$ 45,822.52
SS8	CONNECT 10" GRAVITY SANITARY SEWER TO EXISTING MANHOLES	EACH	2	$ 13,526.43	$ 27,052.86	$ 12,955.00	$ 25,910.00	$ 8,288.41	$ 16,576.82
SS10	CUT & CAP/PLUG EXISTING 10" SANITARY SEWER MAIN	EACH	2	$ 7,061.50	$ 14,123.00	$ 6,763.00	$ 13,526.00	$ 8,288.41	$ 16,576.82
SS11	4' DIAMETER SANITARY SEWER MANHOLE	EACH	2	$ 13,526.43	$ 27,052.86	$ 12,955.00	$ 25,910.00	$ 17,760.81	$ 35,521.62
SS16	ABANDON EXISTING MANHOLE IN PLACE	EACH	1	$ 6,038.80	$ 6,038.80	$ 5,830.00	$ 5,830.00	$ 7,696.16	$ 7,696.16
SS17	FLOWABLE FILL EXISTING SANITARY SEWER AND MH	C.Y.	10	$ 1,400.13	$ 14,001.30	$ 1,341.00	$ 13,410.00	$ 296.02	$ 2,960.20
SS19	SEWER TELEVISION INSPECTION	L.F.	470	$ 15.46	$ 7,266.20	$ 15.00	$ 7,050.00	$ 7.93	$ 3,727.10
FM9	SANITARY SEWER FLOW CONTROL	LS	1	$ 25,287.48	$ 25,287.48	$ 24,219.00	$ 24,219.00	$ 106,750.23	$ 106,750.23
05 12 00.01	ELECT./RISER ROOM BUILDING	LS	1	$ 44,804.00	$ 44,804.00	$ 291,511.00	$ 291,511.00	$ 233,816.18	$ 233,816.18
05 52 13	NEW HAND RAILING @ AMPH. & PERGOLA (GALVANIZED, PAINTED)	L.F.	80	$ 219.15	$ 17,532.00	$ 210.00	$ 16,800.00	$ 165.77	$ 13,261.60

BID TABULATION for COF Contract No. 2022-0315
Bicentennial Park

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	CONTRACTOR BIDS					
				Hannah Constructors, LLC		Sain Construction Company		Solomon Builders, Inc.	
05 52 13.1	NEW RAILING @ PAVILION (PAINTED)	L.F.	664	$ 219.15	$ 145,515.60	$ 187.00	$ 124,168.00	$ 124.29	$ 82,528.56
05 52 13.2	NEW RAILING @ PAVILION RAMPS (GALVANIZED, PAINTED)	L.F.	290	$ 219.15	$ 63,553.50	$ 211.00	$ 61,190.00	$ 114.32	$ 33,152.80
13 34 19	NEW PEMB PAVILION (STRUCTURE, SSM ROOF, GUTTERS, DOWNSPOUTS)	LS	1	$ 2,288,900.00	$ 2,288,900.00	$ 711,319.00	$ 711,319.00	$ 495,696.77	$ 495,696.77
05 12 00.02	NEW RAIN CURTAIN SUPPORTS AT PAVILION	LS	1	$ 15,973.60	$ 15,973.60	$ 12,000.00	$ 12,000.00	$ 15,000.00	$ 15,000.00
02 41 19	PAVILION FLOOR CLEANING, PATCHING & SEACHLANT	LS	1	$ 175,320.00	$ 175,320.00	$ 23,611.00	$ 23,611.00	$ 144,735.60	$ 144,735.60
05 51 33.17	SHIP LADDER	EACH	1	$ 7,046.78	$ 7,046.78	$ 7,862.00	$ 7,862.00	$ 6,512.69	$ 6,512.69
03 30 00.01	CONCRETE RETAINING WALLS & FOOTINGS (INCLUDES RAMP SLAB)	LS	1	$ 1,149,320.00	$ 1,149,320.00	$ 647,000.00	$ 647,000.00	$ 449,406.51	$ 449,406.51
03 30 00.02	NEW CONCRETE PEDESTALS	LS	1	$ 72,319.50	$ 72,319.50	$ 22,549.00	$ 22,549.00	$ 69,642.42	$ 69,642.42
05 12 13	TRELLIS STRUCTURE AT SE CORNER OF PAVILION	LS	1	$ 767,025.00	$ 767,025.00	$ 300,275.00	$ 300,275.00	$ 206,618.00	$ 206,618.00
04 43 13	HARDSCAPE - STONE VENEER WALLS/ COLUMNS	LS	1	$ 700,183.03	$ 700,183.03	$ 95,500.00	$ 95,500.00	$ 244,152.23	$ 244,152.23
21 05 18	DRY PIPE SPRINKLERS IN PAVILION (TOTAL SYSTEM COSTS)	LS	1	$ 115,023.31	$ 115,023.31	$ 134,100.00	$ 134,100.00	$ 111,864.18	$ 111,864.18
22 14 13	REFURBISH UNDERGROUND STORM IN PAVILION	LS	1	$ -	$ -	$ 17,491.00	$ 17,491.00	$ 10,300.00	$ 10,300.00
23 34 39	CIRCULATING (HVLS) FANS IN PAVILION	EACH	6	$ 9,009.50	$ 54,057.00	$ 17,491.00	$ 104,946.00	$ 15,126.41	$ 90,758.46
26 27 26	ELECTRICAL GENERAL RECEPTACLES	LS	1	$ 80,355.00	$ 80,355.00	$ 17,491.00	$ 17,491.00		Included in 26 24 16
26 51 19	ELECTRICAL GENERAL LIGHTING	LS	1	$ 130,272.50	$ 130,272.50	$ 29,151.00	$ 29,151.00		Included in 26 24 16
26 51 19.1	PAVILION - COLUMN DOWN-LIGHT	LS	1	$ 41,395.00	$ 41,395.00	$ 17,491.00	$ 17,491.00		Included in 26 24 16
26 24 16	ELECTRICAL 800-AMP DISTRIBUTION PANEL	EACH	1	$ 163,145.00	$ 163,145.00	$ 99,114.00	$ 99,114.00	$ 1,187,425.20	$ 1,187,425.20
26 24 16.1	ELECTRICAL LIGHTING PANELBOARD/CONTROL-CENTER	EACH	1	$ 129,109.79	$ 129,109.79	$ 28,396.00	$ 28,396.00		Included in 26 24 16
26 24 16.2	ELECTRICAL 225A RECEPTACLE PANELBOARD	EACH	1	$ 112,618.75	$ 112,618.75	$ 17,038.00	$ 17,038.00		Included in 26 24 16
26 56 13	SITE LIGHTING - COF STREET LIGHTS	EACH	5	$ 19,480.00	$ 97,400.00	$ 30,780.00	$ 153,900.00		Included in 26 24 16
26 56 13.1	SITE LIGHTING - PARKING LOT LIGHTS	EACH	5	$ 12,175.00	$ 60,875.00	$ 19,421.00	$ 97,105.00		Included in 26 24 16

BID TABULATION for COF Contract No. 2022-0315
Bicentennial Park

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	CONTRACTOR BIDS					
				Hannah Constructors, LLC		Sain Construction Company		Solomon Builders, Inc.	
26 56 19	SITE LIGHTING - DUST COLLECTOR	EACH	4	$ 3,409.00	$ 13,636.00	$ 2,840.00	$ 11,360.00		Included in 26 24 16
26 56 19.1	SITE LIGHTING - STONE WALL IN-GROUND LIGHTS	EACH	15	$ 9,131.25	$ 136,968.75	$ 3,408.00	$ 51,120.00		Included in 26 24 16
26 56 19.2	SITE LIGHTING - BANNER/FLAG POLE LIGHTS	EACH	3	$ 4,626.50	$ 13,879.50	$ 3,408.00	$ 10,224.00		Included in 26 24 16
26 56 19.3	SITE LIGHTING - BOLLARD LIGHTS ON GREENWAY	EACH	15	$ 11,931.50	$ 178,972.50	$ 5,680.00	$ 85,200.00		Included in 26 24 16
09 91 13	NEW COAT OF EXTERIOR PAINT	LS	1	$ 182,625.00	$ 182,625.00	$ 74,399.00	$ 74,399.00	$ 51,506.18	$ 51,506.18
23 82 39.19	ELECTRIC UNIT BLOWER HEATER	EACH	3	$ 18,262.50	$ 54,787.50	$ 5,679.00	$ 17,037.00	$ 6,588.22	$ 19,764.66
23 34 23	WALL MOUNTED EXHAUST FAN	EACH	2	$ 14,610.00	$ 29,220.00	$ 8,519.00	$ 17,038.00	$ 3,935.63	$ 7,871.26
23 34 23.1	WALL LOUVER WITH MECHANICAL DAMPER	EACH	2	$ 12,175.00	$ 24,350.00	$ 8,519.00	$ 17,038.00	$ 3,447.41	$ 6,894.82
22 11 16	HOSE BIBBS & DOMESTIC WATER PIPING SYSTEM W/ HEAT TRACING	L.F.	550	$ 88.55	$ 48,702.50	$ 78.00	$ 42,900.00	$ 68.91	$ 37,900.50
22 14 13.1	INTERNAL GUTTER AND STORM DRAIN PIPING	LS	1	$ 42,612.50	$ 42,612.50	$ 48,403.00	$ 48,403.00	$ 3,552.47	$ 3,552.47
32 92 00	TURF AND GRASSES	LS	1	$ 255,716.46	$ 255,716.46	$ 138,819.00	$ 138,819.00	$ 125,405.59	$ 125,405.59
32 93 00	PLANTS	LS	1	$ 808,362.21	$ 808,362.21	$ 550,494.00	$ 550,494.00	$ 786,156.77	$ 786,156.77
31 37 00	NATURAL BOULDERS	TON	130	$ 1,116.45	$ 145,138.50	$ 471.00	$ 61,230.00	$ 491.38	$ 63,879.40
32 84 00	IRRIGATION	LS	1	$ 272,870.06	$ 272,870.06	$ 163,830.00	$ 163,830.00	$ 170,782.24	$ 170,782.24
12 93 00	SITE FURNISHINGS	LS	1	$ 351,970.73	$ 351,970.73	$ 215,813.00	$ 215,813.00	$ 330,699.01	$ 330,699.01
26 05 19	ELECTRICAL SERVICE	LS	1	$ 161,927.50	$ 161,927.50	$ 582,521.00	$ 582,521.00		Included in 26 24 16
			TOTALS:	Hannah Constructors, LLC	$ 15,674,158.84	**Sain Construction Company**	**$ 10,281,197.00**	Solomon Builders, Inc.	$ 10,732,518.28

I hereby certify to the best of my knowledge that this a true and correct record with all errors and extension(s) of unit price(s) corrected.

Shahad Abdulrahman
(Printed Name)

Shahad Abdulrahman
(Signature)

BID TABULATION for COF Contract No. 2022-0315
Bicentennial Park

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	CONTRACTOR BIDS		
				Hannah Constructors, LLC	Sain Construction Company	Solomon Builders, Inc.

Project Manager
(Title)

6/21/2023
(Date)

HISTORIC FRANKLIN TENNESSEE

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04842

DATE: June 22, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Paul Holzen, Director of Engineering

SUBJECT:

Discussion Concerning The City Of Franklin Capital Investment Program

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) concerning the Capital Investment Program

BACKGROUND/STAFF COMMENTS:

Historically, the Board of Mayor and Alderman have revisited the Capital Investment Program (CIP) every 2-3 years to evaluate both short and long term priority projects. The City of Franklin defines a Capital Improvement Plan as a document issued separately but in coordination with the budget document, the CIP is the plan or schedule of project expenditures for public faculties and infrastructure (buildings, roads, parks, etc.), with estimated project costs, sources of funding, and timing of work over a ten-year period. Generally, projects over $500,000 are included in the CIP. The goal of this presentation is to provide an update on current projects, provide an overview of the prioritization schedule, and obtain feedback from the Board of Mayor and Alderman.

FINANCIAL IMPACT:

No financial impact at this time.

RECOMMENDATION:

Staff is seeking feedback from the Board of Mayor and Aldermen regarding this process for an updated ten-year Capital Investment Plan.

Capital Investment Plan

Scorecard as of July 2023

BOMA Top 10	Project	Category	Revised Budget	Spent to Date	Completion Date	Project Phase
						Design / Right-Of-Way / Bidding / Construction / Complete
★★★★★	100 Block Battle Avenue Drainage Improvements	Stormwater	$ 1,516,643	$ 1,516,643	2020	
	Eastern Flank Road Circle	Parks & Recreation	$ 191,503	$ 191,503	2020	
	Sanitation Facility	General Services	$ 3,422,366	$ 3,422,366	2020	
★★★★★	5th Ave Parking Lot	General Services	$ 211,946	$ 211,946	2020	
	Fire Station 7	General Services	$ 8,160,909	$ 8,160,909	2021	
	Maplewood Stormwater Project	Stormwater	$ 469,114	$ 469,114	2020	
★★★★★	McEwen Drive Interchange Modifications	Transportation	$ 807,792	$ 807,792	2022	
	Franklin Road	Transportation	$ 15,000,000	$ 14,499,509	2023	
	96 West Trail	Transportation	$ 5,890,103	$ 5,890,103	2023	
	FSSD (Freedom Middle/Poplar Grove)	Parks & Recreation	$ 6,605,349	$ 6,605,349	2022	
	Major Road Resurfacing	Transportation	$ 8,425,000	$ 8,425,000	2022	
	USACE - Home Raising Project	Stormwater	$ 11,610,367	$ 1,110,368	TBD	
	Bundled Bridge Projects	Transportation	$ 3,863,035	$ 395,639	2024	
	Greenway & Bridge (Harlinsdale to Chestnut Bend)	Parks & Recreation	$ 4,481,388	$ 2,030,315	2024	
★★★★★	Bicentennial Park	Parks & Recreation	$ 1,171,511	$ 715,112	2024	
★★★★★	Thompson Alley Neighborhood Park	Parks & Recreation	$ 504,995	$ 5,000	2024	
	Hayes Home Restoration (Harlinsdale)	Parks & Recreation	$ 1,672,350	$ 222,271	2024	
	Lockwood Glen Dam & Park	Parks & Recreation	$ 14,287,873	$ 1,187,873	2025	
	Jordan Road (Aspen Grove Dr-Mallory Ln)	Transportation	$ 3,541,764	$ 429,764	2025	
	McEwen Phase 4	Transportation	$ 47,000,706	$ 4,750,741	2027	
	Lewisburg Ave Sidewalk Improvements (Collins Farm - West of Stewart St)	Transportation	$ 4,156,145	$ 89,479	2026	
★★★★★	Liberty Park Improvements - Phase I	Parks & Recreation	$ 11,672,355	$ 322,355	2026	
★★★★★	SE Park - Phase I	Parks & Recreation	$ 48,198,382	$ 12,048,382	2026	
	New City Hall & Public Parking Structure	General Services	$ 99,690,597	$ 740,597	2027	
★★★★★	Church St. (Columbia to 2nd Ave S)	Transportation	$ 16,532,450	$ 390,784	2028	
	Main Barn, Harlinsdale	Parks & Recreation	$ 4,000,004	$ 400,004	2025	
	Mallory/N Royal Oaks & Liberty Intersection Imp.	Transportation	$ 21,723,895	$ 723,895	2028	
★★★★★	Long Ln and Old Peytonsville Rd Connector	Transportation	$ 45,735,967	$ 5,202,633	2029	
★★★★★	E McEwen Dr. Ext. (Wilson Pike to City Limits)	Transportation	$ 19,800,687	$ 1,120,687	2028	
	Lewisburg Pike Trail (Carriage Park - Collins Farm)	Transportation	$ 4,189,479	$ 89,479	TBD	
	Lewisburg Pike Trail (SR397-Carriage Park Dr.)	Transportation	$ 5,389,479	$ 89,479	TBD	
	Main St Sidewalk Repair Project	Transportation	$ 3,013,164	$ 13,164	2028	
	Greenway (Aspen Grove to Mack Hatcher Pkwy)	Transportation	$ 5,283,353	$ 83,353	2026	
	Peytonsville Rd & Pratt Ln Int. Improvements	Transportation	$ 14,100,000	$ -	2028	
	Mack Hatcher Multiuse Trail (Franklin-Hillsboro)	Transportation	$ 4,800,000	$ -	TBD	
	Greenway (Pinkerton Park to Franklin Road Bridge)	Parks & Recreation	$ 5,250,000	$ -	2028	
	Carlisle Ln (SR96W-Future Mack Hatcher Pkwy)	Transportation	$ 20,000,000	$ -	2028	
Total			**$ 472,370,671**	**$ 82,361,608**		

Capital Investment Program Update

BOMA Work Session

July 11, 2023

Overview:

- City of Franklin's Definition of a Capital Improvement Plan
- CIP Progress and Score Card Review
- Discussion on Potential Reexamination of Projects
- Proposed CIP Prioritization Schedule

Capital Improvement Plan Definition

The City of Franklin defines a Capital Improvement Plan as a document issued separately but in coordination with the budget document, the CIP is the plan or schedule of project expenditures for public facilities and infrastructure (buildings, roads, parks, etc.), with estimated project costs, sources of funding, and timing of work over a ten-year period. Generally, projects over $500,000 are included in the CIP.

Projects will be broken up into 5 Categories:

1) **Emergency Services (Ex. Fire Stations)**
2) **General Services (Ex. City Hall and Facilities)**
3) **Parks and Recreation (Ex. Parks and Trails)**
4) **Stormwater (Ex. Stormwater Quality and Quantity Project)**
5) **Transportation (Ex. Roadway and Sidewalk Improvements)**

The CIP summary below includes 37 capital project approved by the Board of Mayor and Alderman.

Project Phase		Revised Budget		Spent to Date
Completed	$	50,700,725	$	50,200,234
Under Construction	$	23,303,646	$	4,478,705
ROW and/or Bidding	$	68,986,488	$	6,457,857
Design	$	329,379,812	$	21,224,812
Total	**$**	**472,370,671**	**$**	**82,361,608**

HISTORIC FRANKLIN TENNESSEE

City of Franklin, Tennessee
Capital Investment Program

"CIP Scorecard"

Capital Investment Plan

Scorecard as of July 2023

BOMA Top 10	Project	Category	Revised Budget	Spent to Date	Completion Date	Project Phase: Design / Right-Of-Way / Bidding / Construction / Complete
★★★★★	100 Block Battle Avenue Drainage Improvements	Stormwater	$ 1,516,643	$ 1,516,643	2020	
	Eastern Flank Road Circle	Parks & Recreation	$ 191,503	$ 191,503	2020	
	Sanitation Facility	General Services	$ 3,422,366	$ 3,422,366	2020	
★★★★★	5th Ave Parking Lot	General Services	$ 211,946	$ 211,946	2020	
	Fire Station 7	General Services	$ 8,160,909	$ 8,160,909	2021	
	Maplewood Stormwater Project	Stormwater	$ 469,114	$ 469,114	2020	
★★★★★	McEwen Drive Interchange Modifications	Transportation	$ 807,792	$ 807,792	2022	
	Franklin Road	Transportation	$ 15,000,000	$ 14,499,509	2023	
	96 West Trail	Transportation	$ 5,890,103	$ 5,890,103	2023	
	FSSD (Freedom Middle/Poplar Grove)	Parks & Recreation	$ 6,605,349	$ 6,605,349	2022	
	Major Road Resurfacing	Transportation	$ 8,425,000	$ 8,425,000	2022	
	USACE - Home Raising Project	Stormwater	$ 11,610,367	$ 1,110,368	TBD	
	Bundled Bridge Projects	Transportation	$ 3,863,035	$ 395,639	2024	
	Greenway & Bridge (Harlinsdale to Chestnut Bend)	Parks & Recreation	$ 4,481,388	$ 2,030,315	2024	
★★★★★	Bicentennial Park	Parks & Recreation	$ 1,171,511	$ 715,112	2024	
★★★★★	Thompson Alley Neighborhood Park	Parks & Recreation	$ 504,995	$ 5,000	2024	
	Hayes Home Restoration (Harlinsdale)	Parks & Recreation	$ 1,672,350	$ 222,271	2024	
	Lockwood Glen Dam & Park	Parks & Recreation	$ 14,287,873	$ 1,187,873	2025	
	Jordan Road (Aspen Grove Dr-Mallory Ln)	Transportation	$ 3,541,764	$ 429,764	2025	
	McEwen Phase 4	Transportation	$ 47,000,706	$ 4,750,741	2027	
	Lewisburg Ave Sidewalk Improvements (Collins Farm - West of Stewart St)	Transportation	$ 4,156,145	$ 89,479	2026	
★★★★★	Liberty Park Improvements - Phase I	Parks & Recreation	$ 11,672,355	$ 322,355	2026	
★★★★★	SE Park - Phase I	Parks & Recreation	$ 48,198,382	$ 12,048,382	2026	
	New City Hall & Public Parking Structure	General Services	$ 99,690,597	$ 740,597	2027	
★★★★★	Church St. (Columbia to 2nd Ave S)	Transportation	$ 16,532,450	$ 390,784	2028	
	Main Barn, Harlinsdale	Parks & Recreation	$ 4,000,004	$ 400,004	2025	
	Mallory/N Royal Oaks & Liberty Intersection Imp.	Transportation	$ 21,723,895	$ 723,895	2028	
★★★★★	Long Ln and Old Peytonsville Rd Connector	Transportation	$ 45,735,967	$ 5,202,633	2029	
★★★★★	E McEwen Dr. Ext. (Wilson Pike to City Limits)	Transportation	$ 19,800,687	$ 1,120,687	2028	
	Lewisburg Pike Trail (Carriage Park - Collins Farm)	Transportation	$ 4,189,479	$ 89,479	TBD	
	Lewisburg Pike Trail (SR397-Carriage Park Dr.)	Transportation	$ 5,389,479	$ 89,479	TBD	
	Main St Sidewalk Repair Project	Transportation	$ 3,013,164	$ 13,164	2028	
	Greenway (Aspen Grove to Mack Hatcher Pkwy)	Transportation	$ 5,283,353	$ 83,353	2026	
	Peytonsville Rd & Pratt Ln Int. Improvements	Transportation	$ 14,100,000	$ -	2028	
	Mack Hatcher Multiuse Trail (Franklin-Hillsboro)	Transportation	$ 4,800,000	$ -	TBD	
	Greenway (Pinkerton Park to Franklin Road Bridge)	Parks & Recreation	$ 5,250,000	$ -	2028	
	Carlisle Ln (SR96W-Future Mack Hatcher Pkwy)	Transportation	$ 20,000,000	$ -	2028	
Total			**$ 472,370,671**	**$ 82,361,608**		

Capital Projects Completed

Boma Approved Projects	Category	Revised Budget	Spent to Date
100 Block Battle Avenue Drainage Improvements	Stormwater	$ 1,516,643	$ 1,516,643
Eastern Flank Road Circle	Parks & Recreation	$ 191,503	$ 191,503
Sanitation Facility	General Services	$ 3,422,366	$ 3,422,366
5th Ave Parking Lot	General Services	$ 211,946	$ 211,946
Fire Station 7	General Services	$ 8,160,909	$ 8,160,909
Maplewood Stormwater Project	Stormwater	$ 469,114	$ 469,114
McEwen Drive Interchange Modifications	Transportation	$ 807,792	$ 807,792
Franklin Road	Transportation	$ 15,000,000	$ 14,499,509
96 West Trail	Transportation	$ 5,890,103	$ 5,890,103
FSSD (Freedom Middle/Poplar Grove)	Parks & Recreation	$ 6,605,349	$ 6,605,349
Major Road Resurfacing	Transportation	$ 8,425,000	$ 8,425,000
Total		**$ 50,700,725**	**$ 50,200,234**

Capital Projects – Under Construction

BOMA Approved Projects		Revised Budget	Spent to Date
USACE - Home Raising Project	Stormwater	$ 11,610,367	$ 1,110,368
Bundled Bridge Projects [Note 1]	Transportation	$ 3,863,035	$ 395,639
Greenway & Bridge (Harlinsdale to Chestnut Bend)	Parks & Recreation	$ 4,481,388	$ 2,030,315
Bicentennial Park	Parks & Recreation	$ 1,171,511	$ 715,112
Thompson Alley Neighborhood Park	Parks & Recreation	$ 504,995	$ 5,000
Hayes Home Restoration (Harlinsdale) [Note 2]	Parks & Recreation	$ 1,672,350	$ 222,271
Total		**$ 23,303,646**	**$ 4,478,705**

Replacement, and Street Department Bridge Maintenance

Note 2: Project is 100% funded by Friends of Franklin Park

Capital Projects – Right-Of-Way Acquisition

BOMA Approved Projects		Revised Budget	Spent to Date
Lockwood Glen Dam & Park	Parks & Recreation	$ 14,287,873	$ 1,187,873
Jordan Road (Aspen Grove Dr-Mallory Ln)	Transportation	$ 3,541,764	$ 429,764
McEwen Phase 4	Transportation	$ 47,000,706	$ 4,750,741
Lewisburg Ave Sidewalk Improvements (Collins Farm - West of Stewart S	Transportation	$ 4,156,145	$ 89,479
Total		**$ 68,986,488**	**$ 6,457,857**

Capital Projects - Design

Boma Approved Projects		Revised Budget	Spent to Date
Liberty Park Improvements - Phase I	Parks & Recreation	$ 11,672,355	$ 322,355
SE Park - Phase I	Parks & Recreation	$ 48,198,382	$ 12,048,382
New City Hall & Public Parking Structure	General Services	$ 99,690,597	$ 740,597
Church St. (Columbia to 2nd Ave S)	Transportation	$ 16,532,450	$ 390,784
Main Barn, Harlinsdale	Parks & Recreation	$ 4,000,004	$ 400,004
Mallory/N Royal Oaks & Liberty Intersection Imp.	Transportation	$ 21,723,895	$ 723,895
Long Ln and Old Peytonsville Rd Connector	Transportation	$ 45,735,967	$ 5,202,633
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Main St Sidewalk Repair Project	Transportation	$ 3,013,164	$ 13,164
Greenway (Aspen Grove to Mack Hatcher Pkwy)	Transportation	$ 5,283,353	$ 83,353
Peytonsville Rd & Pratt Ln Int. Improvements	Transportation	$ 14,100,000	$ -
Mack Hatcher Multiuse Trail (Franklin-Hillsboro)	Transportation	$ 4,800,000	$ -
Greenway (Pinkerton Park to Franklin Road Bridge)	Parks & Recreation	$ 5,250,000	$ -
Carlisle Ln (SR96W-Future Mack Hatcher Pkwy)	Transportation	$ 20,000,000	$ -
Total		**$ 329,379,812**	**$ 21,224,812**

Summary

Of $472,370,671 in estimated total cost, $410,345,196 are either complete, under construction, in the right of way phase or heavily in design or contractually obligated. The balance can be reexamined and prioritized should the BOMA desire.

Project Phase		Revised Budget		Spent to Date
Completed	$	50,700,725	$	50,200,234
Under Construction	$	23,303,646	$	4,478,705
ROW and/or Bidding	$	68,986,488	$	6,457,857
Design	$	329,379,812	$	21,224,812
Total	**$**	**472,370,671**	**$**	**82,361,608**

Summary

The list below are potential projects that could be reexamined and prioritized should the BOMA desire.

Boma Approved Projects		Revised Budget	Spent to Date
Lewisburg Pike Trail (Carriage Park - Collins Farm)	Transportation	$ 4,189,479	$ 89,479
Lewisburg Pike Trail (SR397-Carriage Park Dr.)	Transportation	$ 5,389,479	$ 89,479
Main St Sidewalk Repair Project	Transportation	$ 3,013,164	$ 13,164
Greenway (Aspen Grove to Mack Hatcher Pkwy)	Transportation	$ 5,283,353	$ 83,353
Peytonsville Rd & Pratt Ln Int. Improvements	Transportation	$ 14,100,000	$ -
Mack Hatcher Multiuse Trail (Franklin-Hillsboro)	Transportation	$ 4,800,000	$ -
Greenway (Pinkerton Park to Franklin Road Bridge)	Parks & Recreation	$ 5,250,000	$ -
Carlisle Ln (SR96W-Future Mack Hatcher Pkwy)	Transportation	$ 20,000,000	$ -
Total		**$ 62,025,475**	**$ 275,475**

Proposed CIP Prioritization Schedule

August – October 2023	**Special Work Session to review potential BOMA priority projects.**
November – December 2023	**Presentation on funding capacity and staff to provide the final list of potential projects for prioritization.**
January – March 2024	**BOMA finalizes FY 2024-2033 CIP**

Questions

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04778

DATE: June 5, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Vernon Gerth, Asst. City Administrator Community Development
Paul Holzen, Director of Engineering
David Diaz, Contracts Administrator

SUBJECT:

Presentation On Road Impact Fee Study Update

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) concerning the 2023 Road Impact Fee Study and the recommendations for updates to the City's Road Impact Fees.

BACKGROUND/STAFF COMMENTS:

As is routine and customary, City Staff periodically evaluate City policies with regard to road impact fees. As part of such evaluation, the City Staff consult the services of outside expert(s) and other interested parties to determine fees that are reasonable and prudent. The primary goal of such endeavor is to ensure the City's infrastructure adequately supports the growing needs of our community and to make recommendations that align with the best interests of our City and its residents.

Accordingly, in June 2023, City Staff completed a new Road Impact Fee Study under the consult of not one, but two, outside expert firms. The results of the study contain the following: (i) a recent history overview of the City's road impact fee, (ii) an overview of the City's current road impact fees, and (iii) a recommendation to update the City of Franklin road impact fee schedule and pertinent City ordinances.

Background and Historical Overview:

a. Road impact fees were first introduced in our City in 1988 as a means to fund the necessary road improvements resulting from new development projects.

b. 2014 Study. The last comprehensive study was conducted in 2014 to assess the impact of new developments on our major road system. The fees were established based on the findings of this study, which considered factors such as the differentiation between collector roads and arterial roads, traffic generation, projected growth, and infrastructure requirements. Only the arterial road impact fee was updated at this time.

c. 2017 Update. An update was conducted of the 2014 study to assess and explicitly identify the collector road portion of the city-wide fee. The fees however were established based on the 2014 findings. Based on the findings, minor adjustments were made to the fee schedule to better reflect the evolving requirements for both arterial and collector roads.
d. 2023 Study. A study was commissioned to reassess the impact of new development projects and to determine whether the existing fee structure remained appropriate. The study concluded that the fees had fallen behind the actual costs of road improvements, resulting in an inadequate funding stream for necessary infrastructure projects and upgrades. To validate the data and methodology used in updating the road impact fees, staff enlisted two reputable consultants, Duncan & Associates and Alfred Benesch & Company.

Current Scenario and Rationale for 2023 Update:
a. Ongoing Development. The City continues to experience significant growth and increased demand for infrastructure improvements. As such, the existing road impact fee structure update is needed.

FINANCIAL IMPACT:

The 2023 Study indicates that the current fee structure falls short of the required funds to keep pace with pressing infrastructure needs. An update of the Road Impact Fees is crucial to bridge this funding gap and to assist in maintaining a funding source for essential road projects. The proposed increase in Road Impact Fees is needed to ensure the burden of infrastructure costs is proportionally distributed among developers and their projects.

RECOMMENDATION:

Based on a thorough evaluation of the 2023 study findings, City Staff recommends advancing to the next phase which is to initiate public stakeholder engagement and inform the community about the results of the 2023 Road Impact Fee Study.



ROAD IMPACT FEE STUDY

CITY OF FRANKLIN, TENNESSEE

Prepared by
Duncan Associates

June 2023

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Duncan Associates
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EXECUTIVE SUMMARY

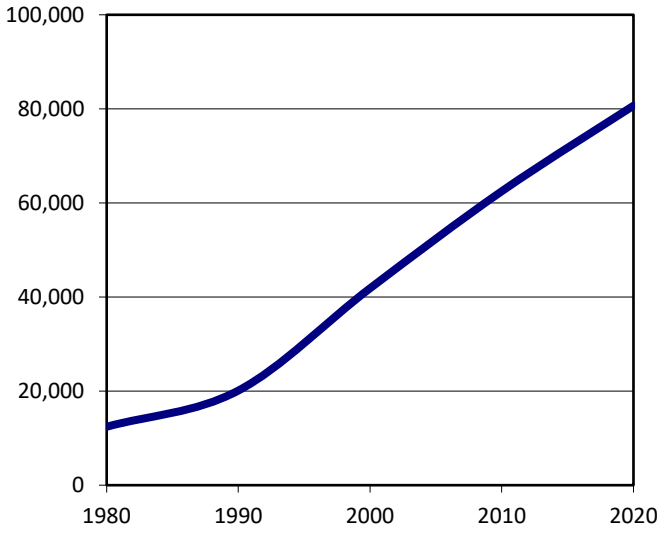
The City's current road impact fee assesses new developments for the proportionate fair-share of the costs to mitigate their impacts on the major road system. The City of Franklin has assessed road impact fees since 1988. The road impact fee ordinance requires the City to "revise the road impact fee study and the schedule of impact fees at least once every five years."

The current arterial road impact fees are based on data from the last comprehensive update in 2014, when the major road system was redefined to include collectors as well as arterial roads. A subsequent revision to that study in 2016 retained the 2014 calculations and explicitly identified the collector portion of the city-wide fee. The City Council adopted the updated arterial fees and the collector fees in 2017. This update uses the same methodology as the previous 2014 study.

Growth Context

Franklin is the county seat of Williamson County and is located about 20 miles south of Nashville. It is the seventh-largest city in Tennessee. The city added over 18,000 new residents in each of the last three decades, as illustrated in Figure 1. This strong growth has and will continue to necessitate numerous capacity-expanding improvements to the major roadway system.

Figure 1. City Population Growth, 1990-2020



Source: U.S. Census Bureau.

Evaluation of Current System

The City's current impact fee ordinance designates the entire area within the corporate boundaries as a single benefit district for the expenditure of arterial impact fees, and four benefit districts for the collector road impact fees (see Figure 2 in Service Area chapter). While the four benefit districts for the collector road portion of the road impact fee are reasonable, they are not required. It would also be reasonable and defensible to have a city-wide benefit district, as well as a single fee schedule that includes all major roads, and does not designate arterial and collector portions of the fee.

The City's current system of separate arterial and collector fees, with the collector fee being further restricted in where it is spent, is more complex than most. Most cities have a single road impact fee schedule that applies city-wide and does not break out fees by functional classification. Multiple benefit districts are also not the norm, and are seen most often in very large cities or in counties.

The City could consider adopting the updated fees for the total system, rather than continuing to have separate arterial and collector fees. This would also entail going back to a single city-wide benefit district, since there would no longer be separate collector fees to be earmarked for those districts (although the collector fees that have already been earmarked for expenditure in the benefit districts should continue to be spent in those districts). This approach would provide much more flexibility in how fees could be spent.

In summary, the City has a number of options regarding the structure of the road impact fee system. It could:

(a) stop assessing for collector roads;
(b) continue to include the costs of collector roads, but cease earmarking a portion of the total cost to be spent on collector improvements, or
(c) retain the current structure of separate arterial and collector fees and four collector road fee benefit districts.

Updated Fees

In Table 1 and Table 2 on the following page, the current road impact fees are compared to the updated fees. The fees are going up substantially. The total single-family fee, for example, would increase by $5,788, or 70%, if adopted at 100% of the maximum amounts. Why the potential fees are increasing so dramatically and potential implementation options are discussed in the following sections.

Table 1. Comparison of Current and Updated Fees

Land Use Type	Dev't Unit	Current Fees			Updated Fees		
		Arterial	Coll.	Total	Arterial	Coll.	Total
Single-Family Detached	Dwelling	$4,911	$3,340	$8,251	$11,274	$2,765	$14,039
Multi-Family	Dwelling	$3,112	$2,121	$5,233	$8,066	$1,978	$10,044
Mobile Home Park	Site	$2,338	$1,592	$3,930	$8,522	$2,087	$10,609
Congregate Care Facility	Dwelling	$1,093	$743	$1,836	$2,864	$704	$3,568
Hotel/Motel	Room	$2,567	$1,750	$4,317	$5,223	$1,282	$6,505
Retail/Commercial							
Shopping Ctr/Gen. Retail	1,000 sq. ft.	$6,484	$4,394	$10,878	$15,416	$3,796	$19,212
Restaurant, Quality	1,000 sq. ft.	$12,069	$8,186	$20,255	$39,466	$9,729	$49,195
Restaurant, Fast Food	1,000 sq. ft.	$17,442	$11,862	$29,304	$45,286	$11,162	$56,448
Office/Institutional							
Office, General	1,000 sq. ft.	$4,632	$3,170	$7,802	$10,474	$2,589	$13,063
Hospital	1,000 sq. ft.	$5,359	$3,653	$9,012	$10,509	$2,573	$13,082
Nursing Home	1,000 sq. ft.	$3,082	$2,099	$5,181	$6,585	$1,609	$8,194
Church	1,000 sq. ft.	$3,258	$2,218	$5,476	$4,984	$1,215	$6,199
Elementary/Sec. School	1,000 sq. ft.	$1,606	$1,091	$2,697	$4,170	$1,022	$5,192
Industrial							
Manufacturing	1,000 sq. ft.	$2,030	$1,389	$3,419	$5,799	$1,433	$7,232
Industrial Park	1,000 sq. ft.	$3,636	$2,484	$6,120	$4,114	$1,014	$5,128
Business Park	1,000 sq. ft.	$6,613	$4,519	$11,132	$15,226	$3,763	$18,989
Warehouse	1,000 sq. ft.	$1,893	$1,294	$3,187	$2,078	$511	$2,589
Mini-Warehouse	1,000 sq. ft.	$885	$602	$1,487	$1,762	$436	$2,198

Source: Current fees from City of Franklin Code of Ordinances, Appendix A: Comprehensive Fees and Penalties; updated fees from Table 19.

Table 2. Summary of Fee Changes by Land Use

Land Use Type	Dev't Unit	Change in Fees			% Change in Fees		
		Arterial	Coll.	Total	Arterial	Coll.	Total
Single-Family Detached	Dwelling	$6,363	-$575	$5,788	130%	-17%	70%
Multi-Family	Dwelling	$4,954	-$143	$4,811	159%	-7%	92%
Mobile Home Park	Site	$6,184	$495	$6,679	264%	31%	170%
Congregate Care Facility	Dwelling	$1,771	-$39	$1,732	162%	-5%	94%
Hotel/Motel	Room	$2,656	-$468	$2,188	103%	-27%	51%
Retail/Commercial							
Shopping Ctr/Gen. Retail	1,000 sq. ft.	$8,932	-$598	$8,334	138%	-14%	77%
Restaurant, Quality	1,000 sq. ft.	$27,397	$1,543	$28,940	227%	19%	143%
Restaurant, Fast Food	1,000 sq. ft.	$27,844	-$700	$27,144	160%	-6%	93%
Office/Institutional							
Office, General	1,000 sq. ft.	$5,842	-$581	$5,261	126%	-18%	67%
Hospital	1,000 sq. ft.	$5,150	-$1,080	$4,070	96%	-30%	45%
Nursing Home	1,000 sq. ft.	$3,503	-$490	$3,013	114%	-23%	58%
Church	1,000 sq. ft.	$1,726	-$1,003	$723	53%	-45%	13%
Elementary/Sec. School	1,000 sq. ft.	$2,564	-$69	$2,495	160%	-6%	93%
Industrial							
Manufacturing	1,000 sq. ft.	$3,769	$44	$3,813	186%	3%	112%
Industrial Park	1,000 sq. ft.	$478	-$1,470	-$992	13%	-59%	-16%
Business Park	1,000 sq. ft.	$8,613	-$756	$7,857	130%	-17%	71%
Warehouse	1,000 sq. ft.	$185	-$783	-$598	10%	-61%	-19%
Mini-Warehouse	1,000 sq. ft.	$877	-$166	$711	99%	-28%	48%

Source: Table 1

Reasons for Fee Increases

The fees are determined by two factors: the net cost per vehicle-mile of travel (VMT) and the daily VMT generated by a unit of development. The first factor applies equally to all land uses, while the second is specific to each land use.

The net cost per VMT has two components: the cost per VMT less the revenue credit for State/Federal funding per VMT. This is shown in Table 3, which compares the components that affect all land uses. The cost per VMT has increased by 52% from the 2014 study. At the same time, the credit has fallen due to declining State and Federal transportation funding. While the decline in credits seems relatively small, it still has a significant effect on the net cost per VMT, which is increasing 97%.

Table 3. Net Cost per Service Unit, All Major Roads

	2014	2023	% Change
Cost per Vehicle-Mile of Travel (VMT)	$550	$838	52%
– State/Fed. Funding Credit per VMT	-$182	-$113	-38%
Net Cost per VMT	$368	$725	97%

Source: 2014 data from Duncan Associates, *City of Franklin Road Impact Fee Study*, March 2014; 2023 data from. Table 18

Table 4 below shows the changes in travel demand factors and fees for the four major land use types: single-family detached, multi-family, shopping center/general retail, and office. For all four, total travel demand (vehicle-miles of travel, or VMT) for all major roads has declined somewhat, resulting in somewhat smaller fee increases than the increase in the net cost per VMT. This is also the case for most of the other land use categories, but not for mobile home park, quality restaurant and manufacturing, whose trip generation rates increased significantly from the 9th to 11th editions of the *Trip Generation Manual*.

Table 4. Components of Fee Change, Selected Land Uses

Land Use Type (Unit)	2014	2023	% Change
Single-Family Detached (Dwelling Unit)			
Daily Trips	4.76	4.71	-1%
x Average Trip Length	4.71	4.11	-13%
Daily VMT per Unit	22.42	19.36	-14%
x Net Cost per VMT	$368	$725	97%
Net Cost per Unit	$8,251	$14,033	70%
Multi-Family (Dwelling Unit)			
Daily Trips	3.33	3.37	1%
x Average Trip Length	4.27	4.11	-4%
Daily VMT per Unit	14.22	13.85	-3%
x Net Cost per VMT	$368	$725	97%
Net Cost per Unit	$5,233	$10,039	92%

continued on next page

Table 4. Components of Fee Change, Selected Land Uses (continued)

Land Use Type (Unit)	2014	2023	% Change
Shopping Ctr/Gen. Retail (1,000 sf)			
Daily Trips	21.35	18.50	-13%
x Percent Primary Trips	43%	43%	0%
Daily Primary Trips	9.18	7.96	-13%
x Average Trip Length	3.22	3.33	3%
Daily VMT per Unit	29.56	26.49	-10%
x Net Cost per VMT	$368	$725	97%
Net Cost per Unit	$10,878	$19,204	77%
Office, General (1,000 sf)			
Daily Trips	5.52	5.42	-2%
x Percent Primary Trips	75%	75%	0%
Daily Primary Trips	4.14	4.07	-2%
x Average Trip Length	5.12	4.43	-13%
Daily VMT per Unit	21.20	18.01	-15%
x Net Cost per VMT	$368	$725	97%
Net Cost per Unit	$7,802	$13,058	67%

Source: 2014 data from Duncan Associates, *City of Franklin Road Impact Fee Study*, March 2014; 2023 data from Table 12 for trip rate, % primary trips, and average trip length (sum of arterial and collector) and Table 18 for net cost per VMT.

Finally, while the arterial fees are at least doubling for most land uses, the collector fees are mostly going down. As summarized in Table 5, travel on arterial roads increased by 18%, while travel on collector roads declined by 28%. This likely reflects much better estimates of traffic volumes on individual roadway segments in this update (although improvements to arterials could also have diverted some traffic from collector roads). For the 2014 study, City staff was able to provide estimates of traffic volumes for virtually all arterial roads, but only slightly more than one-third of collector road mileage. For this update, staff was able to provide volume counts or estimates for virtually every arterial and collector road segment. The result is that the collector share of total vehicle-miles of travel) VMT has fallen from 25% to 17%. The collector share of the total impact road fee is higher than its share of VMT because no State/Federal funding is anticipated for collector improvements, but it is now much closer to its share of VMT.

Table 5. Change in Travel Demand by Functional Classification

	2014	2023	% Change
Arterial Vehicle-Miles of Travel (VMT)	874,929	1,029,084	18%
Collector Vehicle-Miles of Travel (VMT)	295,731	212,310	-28%
Total Vehicle-Miles of Travel (VMT)	1,170,660	1,241,394	6%
Collector Percent of Total VMT	25%	17%	-32%
Collector Percent of Total Fee	40%	20%	-51%

Source: 2014 VMT data from Duncan Associates, *City of Franklin Road Impact Fee Study*, March 2014; 2023 VMT data from Table 20 in Appendix A; collector share of total fee derived from Table 1.

Implementation Options

Capping and/or Phasing. The City could adopt the maximum fees at less than 100%, as long as the percentage applies equally to all land uses. The City could also phase in the increases by increasing the assessment percentage over time.

Total Fee or Separate Arterial and Collector Fees. The City could adopt the total fee for all major roads, or continue to designate a portion of the total fee for collector roads. Even if collector fees are segregated, they do not need to continue to be restricted to being spent within one of the four benefit districts.

Annual Inflation Adjustment. The fees could be adjusted annually for construction cost inflation based on the change in an appropriate cost index. An appropriate and widely-used index for this purpose is the *Engineering News-Record's* Construction Cost Index. The index increased by 36% since the last study (June 2014 to June 2023).

LEGAL FRAMEWORK

Impact fees are charges that are assessed on new development to help pay for the capital facility costs they impose on the community. Unlike other types of developer exactions, impact fees are based on a standard formula and a pre-determined fee schedule. Essentially, impact fees require that each new residential or commercial project pay its pro-rata share of the cost of new infrastructure facilities required to serve that development.

Franklin received special authorization to impose a road impact fee from House Bill 1311, which was passed during the 1987 session of the Tennessee legislature. While Franklin's authorizing act provides a broad grant of authority, impact fees must also comply with constitutional standards that have been developed by the courts to ensure that local governments do not abuse their power to regulate the development of land. The courts have gradually developed guidelines for constitutionally valid impact fees, based on a "rational nexus" that must exist between the regulatory fee or exaction and the activity that is being regulated. The standards set by court cases generally require that an impact fee meet the "dual rational nexus" test:

1) The fees must be proportional to the need for new facilities created by the new development; and

2) The expenditure of impact fee revenues must provide benefit to the fee-paying development.

Impact fees for various types of developments should be proportional to the impact of each development on the need to construct additional or expanded facilities. The fees do not have to recover the full cost, but if the fees are reduced by a percentage from the full cost, the percentage reduction should apply evenly to all types of developments.

Impact fees were pioneered by local governments long before state legislatures passed explicit enabling acts. The authority to adopt such fees was found in local government's "police power" to regulate development so as to protect the health, safety and welfare of its citizens. Developers challenged early impact fees, and state court decisions gradually developed a body of case law setting out the standards that should govern impact fees. This section spells out our understanding of the general principles of impact fees and some implications for calculating Franklin's impact fees.

A fundamental principle of impact fees, rooted in both case law and norms of equity, is that impact fees should not charge new development for a higher level of service than is provided to existing development. While the impact fees could be based on a higher level of service than the one existing at the time of the adoption of the fees, two things are required if this is done. First, another source of funding other than impact fees must be identified and committed to fund the capacity deficiency created by the higher level of service. Second, the impact fees must generally be reduced to ensure that new development does not pay twice for the same level of service, once through impact fees and again through general taxes that are used to remedy the capacity deficiency for existing development. In order to avoid these complications, the general practice is to base the impact fees on the existing level of service.

A corollary principle is that new development should not have to pay twice for the same level of service. As noted previously, if impact fees are based on a higher-than-existing level of service, the fees should be reduced by a credit that accounts for the contribution of new development toward remedying the existing deficiencies. A similar situation arises when the existing level of service has not been fully paid for. Outstanding debt on existing facilities that is counted in the existing level of service will be retired, in part, by revenues generated from new development. To avoid requiring new development to pay more than its proportional share, impact fees should be reduced to account for future tax payments that will retire outstanding debt on existing facilities.

In general, credit against impact fees is not required for non-impact fee revenue that is used to fund capacity-expanding improvements. While new development may contribute toward such funding, so does existing development, and both existing and new development benefit from the higher level of service that the additional funding makes possible. However, there are specific circumstances where a strong case can be made that a credit should be provided. An example is state/federal transportation funding. Of all the types of impact fee facilities, transportation systems tend to be highly integrated between jurisdictions, particularly in the form of the state and federal highway system. Neither the federal government nor any state government assesses a transportation impact fee, and local governments often contribute to the cost to improve such roads, because matching local funding will make the improvement more attractive to the state transportation department. Many communities, including Franklin, include state and federal highways in their transportation impact fee studies because they form an integral part of the local transportation system and the local government often contributes to State/Federal road capacity improvements. In this instance, a credit would seem to be warranted.

The City's road impact fee ordinance allows developers to receive offsets against their impact fees for right-of-way (ROW) dedication or construction of a thoroughfare shown on the Major Thoroughfare Plan map. This is to ensure that new development is not required to pay twice to mitigate its impacts, through payment of impact fees and through required developer exactions.

SERVICE AREA/BENEFIT DISTRICTS

There are two types of geographic areas utilized in impact fee analysis – service areas and benefit districts. These are the subject of this chapter.

Service Area

A service area is a geographic area where a defined set of facilities provide service to both existing and new development, and is the level at which impact fees are calculated. The current and updated fees are calculated city-wide, and the service area includes all land within the city's corporate limits.

Benefit Districts

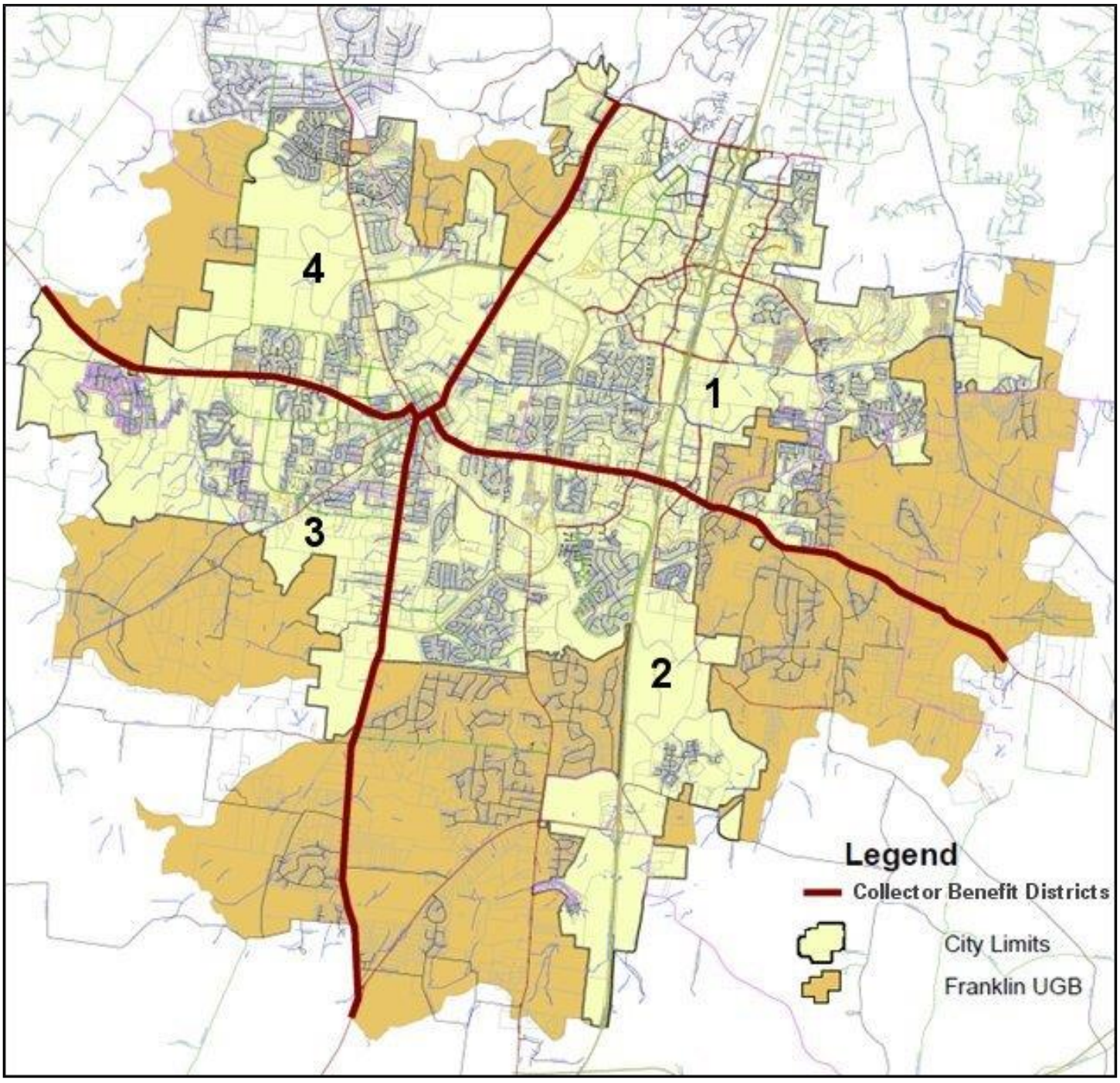
A benefit district is an area where the fees are earmarked to be spent in the same area in which they were collected. A service area typically functions as a benefit district as well. Impact fee case law states that impact fees must be spent so as to provide a reasonable benefit to the fee-paying development. One way of strengthening the relationship to benefit is to create multiple benefit districts within a service area to ensure that the impact fees paid by a development are spent closer to the development than would be the case under a single jurisdiction-wide benefit district. On the other hand, the larger the number of benefit districts, the more difficult it is to accumulate sufficient funds in any one district to make any significant improvements. Deciding on the appropriate number and location of benefit districts requires balancing the need to show reasonable benefit to fee payers with the need to maintain sufficient flexibility in impact fee expenditures to address priority improvement needs.

The City's current impact fee ordinance designates the entire area within the corporate boundaries as a single benefit district for the expenditure of arterial impact fees, while there are four benefit districts for the collector road impact fees. This is reasonable, given that collectors serve a more limited area than arterials, thus ensuring a stronger nexus between fee payment and benefit received. While the collector road benefit districts are called service areas in the ordinance, they really function as benefit districts because the fees are calculated city-wide. The current collector road benefit districts divide the city into quadrants defined by US 31 and SR 96, as shown in Figure 2 on the following page.

While having multiple districts for the collector road portion of the fee is reasonable, it is not required. It would also be reasonable and defensible to have a city-wide benefit district and a single fee schedule that includes all major roads, without designating arterial and collector portions of the fee.

The City's current system of separate arterial and collector fees, with the collector fee being further restricted in where it is spent, is more complex than most. Most cities have a single road impact fee schedule that applies city-wide and does not break out fees by functional classification. Multiple benefit districts are also not the norm, and are seen most often in very large cities or in counties.

Figure 2. Collector Road Benefit Districts



Road impact fee revenues collected during the last four years are summarized by benefit district in Table 6. Note that the northwest collector benefit district has been collecting an average of only about $80,000 annually.

Table 6. Road Impact Fee Revenue by Benefit District, FY 2019-2022

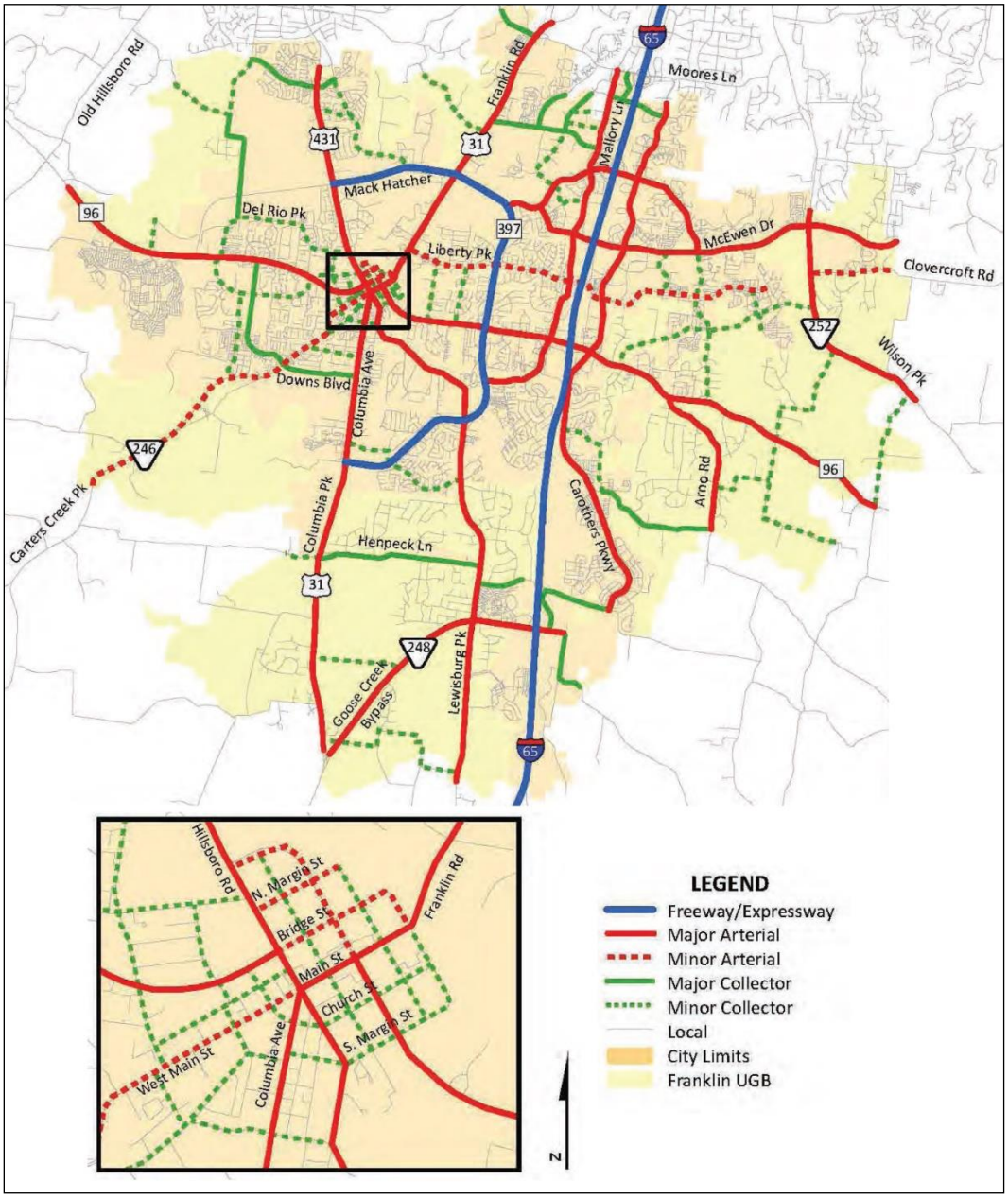
Benefit District	FY 2019	FY 2020	FY 2021	FY 2022	Total
Collector Area 1 (NE)	$1,057,313	$1,200,036	$8,484	$1,957,665	$4,223,498
Collector Area 2 (SE)	$1,286,317	$3,118,014	$1,326,079	$1,374,601	$7,105,011
Collector Area 3 (SW)	$400,237	$472,760	$573,304	$891,008	$2,337,309
Collector Area 4 (NW)	$115,817	$101,249	$57,615	$46,608	$321,289
Collector Subtotal	$2,859,684	$4,892,059	$1,965,482	$4,269,882	$13,987,107
Arterials	$4,800,171	$7,359,093	$4,061,173	$6,371,314	$22,591,751
Total	$7,659,855	$12,251,152	$6,026,655	$10,641,196	$36,578,858
Collector Share	37%	40%	33%	40%	38%

Source: City of Franklin, September 21, 2022.

MAJOR ROADWAY SYSTEM

A road impact fee system should include a clear definition of the major roadway system that is to be funded with the impact fees. In the City's current ordinance, the use of impact fee proceeds is restricted to arterial and collector road improvements within the city limits. Interstate 65, which primarily serves through traffic rather than local traffic, is excluded. The major roadway system is shown in Figure 3.

Figure 3. Major Thoroughfare Plan Map



Source: City of Franklin, *Connect Franklin: A Comprehensive Transportation Network Plan*, amended July 25, 2019.

METHODOLOGY

Key components of the road impact fee methodology described in this chapter include service units, roadway capacity and the overall formula for calculating the fees. Subsequent chapters address the travel demand schedule, cost per service unit and net cost per service unit (revenue credits). The final chapter calculates the updated road impact fee schedule.

A variety of methodologies have been developed to calculate impact fees, consistent with legal requirements. Despite variations, there are two basic types of methodologies – which can be referred to as "standards-based" and "plan-based." Standards-based methodologies use a system-wide level of service standard, such as the system-wide ratio of road capacity to demand. Plan-based methodologies are generally based on modeling and geographically-specific level of service (LOS) standards (e.g., "all road segments and intersections shall function at LOS D or better") and rely on a facility master plan to create the nexus between the cost of planned improvements and the projected growth over a defined time period. The two approaches are described in more detail below.

Methodology Types

To describe how impact fees are calculated, it is necessary to define some terms. Demand is measured in terms of "service units." A service unit is a common unit of demand applicable to all types of development. To determine the number of service units generated by a proposed land use requires an "assessment unit." An assessment unit is typically a dwelling unit for residential uses, while nonresidential fees are often assessed on the basis of building floor area (typically per 1,000 square feet).

The basic impact fee formula is simple (see Figure 4). The cost per service unit is reduced by the revenue credit per service unit to determine the net cost per service unit, which is then multiplied by the number of service units generated by a land use per assessment unit to determine the proportionate fair-share fee per development unit.

Figure 4. Impact Fee Formula

Fee = Service Units Generated x Net Cost per Service Unit

where:
Service Units Generated = Assessment Units x
Service Units per Assessment Unit

Net cost per Service Unit = Cost per Service Unit –
Revenue Credit per Service Unit

The two alternative methodologies – standards-based and plan-based – differ in how the cost per service unit is calculated. They are described below.

Standards-Based

The "standards-based" methodology uses a generalized level-of-service standard to determine the costs to accommodate new development. This approach does not require that there be a master plan, or even a list of specific planned projects that will be funded with the impact fees. Most often, the standards-based approach uses the actual level of service (LOS) that exists at the time the study is prepared.

For road facilities, the most common standards-based approach is often referred to as the "consumption-based" methodology. This methodology charges a new development the cost required to replace the capacity the new development will consume in the major roadway system. In other words, if a development will generate 100 vehicle-miles of travel (VMT) per day, it is charged impact fees based on the average cost to create 100 vehicle-miles of capacity (VMC). A roadway system with just enough capacity to accommodate system-wide demand means that every road segment with excess capacity must be balanced by a segment that is over-capacity. Most well-functioning roadway systems have considerably more than one VMC for each VMT. A portion of this surplus system-wide capacity represents needed "slack" in the system. However, the standard consumption-based methodology uses a VMC/VMT ratio equal to 1.00.

Plan-Based

In contrast to standards-based methodologies, which rely on a generalized, system-wide LOS standard and the average cost to add capacity, plan-based methodologies rely on segment or intersection-specific levels of service and the total cost of a list of planned improvements. A plan-based methodology basically divides the cost of planned improvements over a fixed time period by the anticipated growth in service units over the same time period. The portion of the cost of planned improvements attributable to existing LOS deficiencies must be removed from the cost used in the fee calculation.

In the plan-based methodology, the required rational nexus between the demand created by new development and the need for the planned improvements is established by the master plan. This requires accurately forecasting the increase in traffic that would result from the anticipated new development, and rational planning to identify the most cost-effective and politically-feasible improvements that would accommodate that growth. The least-defensible plan-based approach is to simply rely on a short-term capital improvements plan, because there is not a strong correlation between short-term planned improvement costs and long-term costs to accommodate new development. Much more defensible are those based on a long-range plan or build-out master plan. Ideally, the master plan would be prepared with the goal of establishing the rational nexus between demand and benefit required of impact fees.

Recommended Formula

This study's recommendation is to continue to use the standards-based methodology. It is a conservative, legally-defensible methodology. It avoids the need to rely on a separate master plan for its legal defensibility. A master plan can function as a spending guide, but the plan can change without undermining the legal defensibility of the impact fees.

The standards-based methodology used in Franklin's current road impact fee system is often referred to as the "consumption-based" approach. The consumption-based model simply charges a new development the cost of replacing the capacity that it consumes on the major roadway system. That is, for every vehicle-mile of travel (VMT) generated by the development, the road impact fee charges the net cost to construct an additional vehicle-mile of capacity (VMC). The consumption-based methodology is maintained in this update, and credits continue to be provided for State/Federal funding.

Since travel is never evenly distributed throughout a roadway system, actual roadway systems require more than one unit of capacity for every unit of demand in order for the system to function at an acceptable level of service. Suppose for example, that the City completes a major arterial widening project. The completed arterial is likely to have a significant amount of excess capacity for some period of time. If the entire system has just enough capacity to accommodate all of the vehicle-miles of travel, then the excess capacity on this segment must be balanced by another segment being over-capacity. Clearly, roadway systems in the real world need more total aggregate capacity than the total aggregate demand, because the traffic does not always precisely match the available capacity. Consequently, the standard consumption-based model generally underestimates the full cost of accommodating new development at the existing level of service. Nevertheless, it is a conservative, legally-defensible methodology that is simpler to update and provides more flexibility in the expenditure of funds than the alternative improvements-driven approach. The recommended impact fee formula is presented in Figure 5.

Figure 5. Recommended Road Impact Fee Formula

Impact Fee	**=**	**VMT x NET COST/VMT**
VMT	=	TRIPS x %NEW x LENGTH/2
NET COST/VMT	=	COST/VMC x VMC/VMT - CREDIT/VMT
Where:		
TRIPS	=	Trip ends during an average weekday (each trip has two ends)
2	=	Dividing by two avoids double-counting trips for origin and destination
% NEW	=	Percent of trips that are primary trips, as opposed to pass-by or diverted-linked trips
LENGTH	=	Average length of a trip on the major road system
COST/VMC	=	Average cost to add a new daily vehicle-mile of capacity
VMC/VMT	=	System-wide ratio of VMC to VMT on major road system (assumed 1:1)
CREDIT/VMT	=	Revenue credit per VMT

Level of Service Analysis

Nationally-accepted transportation levels of service (LOS) categories have been developed by the transportation engineering profession. Six categories, ranging from LOS A to LOS F, generally describe driving conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. LOS A represents free flow, while LOS F represents the breakdown of traffic flow, characterized by stop-and-go conditions.

In contrast to LOS, service volume capacity is a quantitative measure, expressed in terms of the rate of flow (vehicles passing a point during a period of time). Service volume capacity represents the maximum rate of flow that can be accommodated by a particular type of roadway while still maintaining a specified LOS. The service volume capacity at LOS E represents the maximum volume that can be accommodated before the flow breaks down into stop-and-go conditions that characterize LOS F, and thus represents the ultimate capacity of the roadway.

The City's road impact fees are based on LOS C. Maximum daily service volumes at LOS C that are appropriate for planning purposes for a wide variety of roadway facilities are summarized in Table 7.

Table 7. Road Capacity by Classification and Lanes

Functional Classification	No. of Lanes	Capacity (LOS C)
Collector	2	7,300
Collector	3	9,100
Collector	4	14,500
Collector	5	18,100
Arterial	2	16,800
Arterial	3	21,000
Arterial	4	37,900
Arterial	5	47,400
Mack Hatcher	2	24,100
Mack Hatcher	4	50,300
Mack Hatcher	6	70,650

Source: Florida Department of Transportation, *Quality/Level of Service Handbook*, 2020 (see Appendix B), using capacities at LOS C for Class II (35 mph+ speed limit) or lower) for collectors and Class I (40+ mph) for arterials; Mack Hatcher capacity is average of arterial and urbanized freeway (with 2-lane freeway capacity estimated as one-half of 4-lane); capacities for odd number of lanes estimated at 1.25 times the even-numbered lane based on the median and turn lane adjustment factors.

The consumption-based approach used in this study does not calculate the cost to have all roadways functioning at LOS C, only the cost to replace capacity consumed so that a one-to-one ratio of capacity to demand is maintained system-wide. Dividing the road capacity (vehicle-miles of capacity or VMC) by demand (vehicle-miles of travel or VMT) yields the actual system-wide VMC/VMT ratios for the arterial system, the collector road system, and the major road system as a whole (arterials plus collectors). As shown in Table 8, the major roadway system provides 1.68 units of capacity for every unit of demand on the arterial system, and 1.65 for all major roads.

Table 8. Existing Roadway Levels of Service

Functional Class	Total VMC	Total VMT	VMC/VMT
Arterials/Expressways	1,732,199	1,029,084	1.68
Collectors	315,692	212,310	1.49
Total Major Roads	2,047,891	1,241,394	1.65

Source: Table 20 in Appendix A.

SERVICE UNITS

In an attempt to make the fee calculations easier to follow, in this and subsequent chapters numbers in a table that are inputs into another table are highlighted in red.

Service units create the link between supply (roadway capacity) and demand (traffic generated by new development). An appropriate service unit basis for road impact fees is vehicle-miles of travel (VMT). Vehicle-miles is a combination of the number of vehicles traveling during a given time period and the distance (in miles) that these vehicles travel.

The two time periods most often used in traffic analysis are the 24-hour day (average daily trips or ADT) and the single hour of the day with the highest traffic volume (peak hour trips or PHT). As in the prior impact fee study, this update utilizes the ADT for calculating the road cost component of the impact fee and ADT for calculating the credit component of the impact fee. While peak hour trip (PHT) generation rates are appropriate for assessing the impact of a new development on the need for road improvements during the evening peak hour, they tend to be more variable than average daily trips depending on size and demographic make-up of a community. The Tennessee Department of Transportation measures traffic counts on major roads using average daily trips, and utilizing ADT in the study eliminates the need to convert available traffic counts into PHT. For these reasons, this study continues to use average daily VMT as the service unit for the road impact fee update.

The travel demand generated by specific land use types is a product of three factors: 1) trip generation, 2) primary trip factor, and 3) trip length. The first two factors are well documented in the professional literature, and the average trip generation characteristics identified in studies of communities around the nation should be reasonably representative of trip generation characteristics in Franklin. In contrast, trip lengths are much more likely to vary between communities, depending on the geographic size and shape of the community and its major roadway system.

Trip Generation

Trip generation rates were based on information published in the most recent edition of the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*. This study uses the 2021 11th edition of the manual, while the previous study used the 2012 9th edition.

Trip generation rates represent trip ends, or driveway crossings from the site of a land use. Thus, a one-way trip from home to work counts as one trip end for the residence and one trip end for the workplace. To avoid over-counting, all trip rates have been divided by two. This places the burden of travel equally between the origin and destination of the trip and eliminates double-charging for any particular trip.

Primary Trip Factor

Trip rates also need to be adjusted by a "primary trip factor" to exclude pass-by and diverted trips. This adjustment is intended to reduce the possibility of over-counting additional travel induced by the new development. Pass-by trips are those trips that are already on a particular route for a different purpose and simply stop at a development on that route. For example, a stop at a convenience store on the way home from the office is a pass-by trip for the convenience store. A pass-by trip does not create an additional burden on the street system and therefore should not be counted in the assessment of impact fees. A diverted-linked trip is similar to a pass-by trip, but a diversion is made from the regular route to make an interim stop. The reduction for pass-by and diverted trips utilized in this study was drawn from the ITE *Trip Generation Handbook* and other published information.

Average Trip Length

The average trip length is the most difficult travel demand factor to determine. In the context of a road impact fee using a consumption-based methodology, the relevant input is the average length of a trip on the major roadway system within the city limits. The starting point is national data for average trip length by purpose. However, these national trip lengths are likely to be unrepresentative of travel on the City's major roadway system. An adjustment factor can be derived by dividing the VMT actually observed on the major roadway system by the VMT that would be expected using national average trip lengths and trip generation rates.

The first step in developing the adjustment factor for the local trip length is to estimate the total VMT that would be expected on Franklin's major roadway system based on national travel demand characteristics. Data on existing land uses in the city was provided by the Franklin Planning Department.

Existing land uses are multiplied by trip generation rates, percent primary trips and average trip lengths and summed to estimate total city-wide VMT. As shown in Table 9, existing land uses within the city limits, using national trip length data, would be expected to generate approximately 2.65 million VMT during the average weekday.

Table 9. Expected Vehicle-Miles of Travel

Land Use Type	Development Unit	Existing Units	Trip Rate	Primary Trips	Daily Trips	Length (miles)	Daily VMT
Single-Family Detached	Dwelling	20,741	4.71	100%	97,690	8.79	858,695
Multi-Family	Dwelling	14,080	3.37	100%	47,450	8.79	417,086
Mobile Home	Dwelling	407	3.56	100%	1,449	8.79	12,737
Gen. Retail/Commercial	1,000 sq. ft.	13,477	18.50	43%	107,210	7.11	761,980
Office/Institutional	1,000 sq. ft.	13,463	5.42	75%	54,727	9.46	517,717
Industrial/Warehouse	1,000 sq. ft.	5,615	1.68	95%	8,962	9.46	84,781
Total					317,488		2,652,996

Source: Existing residential and nonresidential units from City of Franklin, *2021 Development Report* and Information Technology Department, July 28, 2022; daily trip rates and primary trip factors from Table 12; daily trips is product of trip rate and % primary trips; national average trip lengths from Table 11; daily VMT is product of trips and trip length.

The next step in developing the local trip length adjustment factor is to compare expected VMT using existing land use data and national travel demand characteristics to actual daily VMT on the City's major roadway system. An inventory of the existing major roadway system was prepared as part of this study (see Table 20 in Appendix A). Roadway segment lengths and recent traffic volumes were used to determine actual daily VMT. Expected VMT significantly over-estimates VMT actually observed on the major roadway system. This result is not surprising, since the major road system does not include travel on local roads, interstate highways, or any roadways outside the city limits.

Consequently, it is necessary to develop an adjustment factor to account for this variation. The local travel demand adjustment factor is the ratio of actual to expected VMT. As shown in Table 10, the national average trip lengths should be multiplied by a local adjustment factor of 0.388 for arterials, and by 0.080 for collectors.

Table 10. Local Trip Length Adjustment Factor

	Arterials	Collectors	All Major Roads
Actual Daily Vehicle-Miles of Travel (VMT)	1,029,084	212,310	1,241,394
÷ Expected Daily Vehicle-Miles of Travel (VMT)	2,652,996	2,652,996	2,652,996
Local Adjustment Factor	0.388	0.080	0.468

Source: Actual VMT from Table 20 in Appendix A; expected VMT from Table 9.

The national average trip lengths for this update are from the U.S. Department of Transportation's 2017 *National Household Travel Survey* (the previous study relied on the 2009 version). Table 11 shows the national average trip lengths for a variety of trip purposes. These have been adjusted by the local trip length adjustment factors from the preceding table to calculate the localized average trip lengths.

Table 11. Average Trip Length by Trip Purpose

		Arterials		Collectors		All Major Rpads	
Trip Purpose	National Trip Length (miles)	Local Adjust. Factor	Local Trip Length (miles)	Local Adjust. Factor	Local Trip Length (miles)	Local Adjust. Factor	Local Trip Length (miles)
To or from work	11.45	0.388	4.44	0.080	0.92	0.468	5.36
Office/Industrial	9.46	0.388	3.67	0.080	0.76	0.468	4.43
Medical/Dental	9.56	0.388	3.71	0.080	0.76	0.468	4.47
Average (Residential)	8.79	0.388	3.41	0.080	0.70	0.468	4.11
School/Church	6.41	0.388	2.49	0.080	0.51	0.468	3.00
Family/Personal Business	6.78	0.388	2.63	0.080	0.54	0.468	3.17
Shopping	7.11	0.388	2.76	0.080	0.57	0.468	3.33

Source: National trip lengths from U.S. Department of Transportation, *National Household Travel Survey*, 2017 (office/industrial is 25% work trip length and 75% average trip length) – see Appendix C for additional details; local adjustment factors from Table 10.

Travel Demand Schedule

The result of combining trip generation rates, primary trip factors and average trip lengths is a travel demand table that establishes the vehicle-miles of travel (VMT) during the average weekday generated by various land use types per unit of development. The recommended travel demand schedule is presented in Table 12.

Table 12. Travel Demand by Land Use

Land Use Type	ITE Code	Develop-ment Unit	Daily Trips/ Unit	% Primary Trips	Arterials		Collectors	
					Trip Length	Daily VMT	Trip Length	Daily VMT
Single-Family Detached	210	Dwelling	4.71	100%	3.41	16.06	0.70	3.30
Multi-Family	220	Dwelling	3.37	100%	3.41	11.49	0.70	2.36
Mobile Home Park	240	Site	3.56	100%	3.41	12.14	0.70	2.49
Congregate Care Facility	253	Dwelling	1.10	100%	3.71	4.08	0.76	0.84
Hotel/Motel	310/320	Room	2.83	100%	2.63	7.44	0.54	1.53
Retail/Commercial								
Shopping Center/Gen. Retail	820	1,000 sq. ft.	18.50	43%	2.76	21.96	0.57	4.53
Restaurant, Sit-Down	930	1,000 sq. ft.	53.60	38%	2.76	56.22	0.57	11.61
Restaurant, Fast Food	934	1,000 sq. ft.	233.74	30%	0.92	64.51	0.19	13.32
Office/Institutional								
Office, General	710	1,000 sq. ft.	5.42	75%	3.67	14.92	0.76	3.09
Hospital	610	1,000 sq. ft.	5.38	75%	3.71	14.97	0.76	3.07
Nursing Home	620	1,000 sq. ft.	3.37	75%	3.71	9.38	0.76	1.92
Church	560	1,000 sq. ft.	3.80	75%	2.49	7.10	0.51	1.45
Elementary/Sec. School	520/22/25	1,000 sq. ft.	9.94	24%	2.49	5.94	0.51	1.22
Industrial								
Manufacturing	140	1,000 sq. ft.	2.37	95%	3.67	8.26	0.76	1.71
Industrial Park	130	1,000 sq. ft.	1.68	95%	3.67	5.86	0.76	1.21
Business Park	770	1,000 sq. ft.	6.22	95%	3.67	21.69	0.76	4.49
Warehouse	150	1,000 sq. ft.	0.85	95%	3.67	2.96	0.76	0.61
Mini-Warehouse	151	1,000 sq. ft.	0.72	95%	3.67	2.51	0.76	0.52

Source: Trips are ½ of average daily trip ends on a weekday from ITE, *Trip Generation*, 11th ed., 2021 (hotel/motel based on average of two; elementary/secondary based on average of elementary, middle and high school); percent of all trips that are primary trips from ITE, *Trip Generation Handbook*, 3rd edition, 2017 (primary trip percentage for schools based on Preston Hitchens, "Trip Generation for Day Care Centers," ITE, *Compendium of Technical Papers*, 1990); average trip length from Table 11 (fast food restaurant assumes one-third shopping trip length).

COST PER SERVICE UNIT

According to the City's ordinance, eligible arterial and collector road improvements include "any capital improvement, including but not limited to new roads, additional lanes, widened lanes, intersection improvements, turn lanes, bridges, traffic signals, intelligent transportation system (ITS) improvements, and associated drainage facilities, that expands the capacity of the city's … road system." "The cost of water, wastewater, electricity except as required for the street lighting or natural gas utilities located within the road right-of-way, or the cost of relocating such utilities as necessitated by a road improvement, shall not be included in the definition of … road improvement cost. Providing greater access to a particular development or promoting safety is not necessarily considered expanding … roadway capacity."

The cost per vehicle-mile in this update is based on a set of recent and planned major road construction projects that add capacity to the roadway system. While other capacity-expanding improvements, such as intersection improvements and right-of-way acquisition, are eligible for impact fee funding, these projects added through lanes and capacity that can be more easily quantified. Utility relocation costs are excluded.

The total eligible cost of this representative set of recent and planned improvements is divided by the total vehicle-miles of capacity (VMC) added to determine the average cost to construct a new VMC. The average cost to add capacity derived from this set of improvements is $838 per VMC, as shown in Table 13.

Table 13. Cost per Vehicle-Mile of Capacity

Project Name	Miles	Project/ Road Class	Capacity Exist	Capacity Imprvd	New VMC	Total Eligible Cost	Cost/ VMC
Carothers Pkwy, Long Ln-S Carothers Rd	2.73	New 2 Ln/Art	0	16,800	45,864	$17,627,425	$384
Mack Hatcher Pky, Townsend-E of Hillsboro	2.63	New 2 Ln/Expy	0	24,100	63,383	$61,068,723	$963
Columbia Ave, Mack Hatcher-Downs Blvd	1.22	Widen 3-5/Art	21,000	47,400	32,208	$26,177,688	$813
E McEwen Dr, Cool Spgs Bvd-Wilson Pike	1.36	Widen 2-4/Art	16,800	37,900	28,696	$33,068,462	$1,152
E McEwen Dr ext., Wilson Pike-city limits	1.01	New 2 Ln/Art	0	16,800	16,968	$18,935,930	$1,116
Total	8.95				187,119	$156,878,228	$838

Source: Miles, improvement type and total cost from City of Franklin, December 30, 2022; average daily capacity from Table 7; new VMC (vehicle-miles of capacity) is added capacity times miles; cost per VMC is total eligible cost divided by new VMC.

NET COST PER SERVICE UNIT

As discussed in the Legal Framework chapter, credit is due against impact fees under three situations: (1) there are existing deficiencies, (2) there is outstanding debt on facilities serving existing development, or (3) State/Federal funding is expected to be available to offset some of the cost of improvements to the major road system. These are each addressed below. The resulting revenue credits are deducted from the cost per service unit calculated in the previous chapter in the final section of this chapter to calculate the net cost per service unit.

Existing Deficiencies

From an impact fee perspective, there are no existing deficiencies. The fees are based on a system-wide level of service, defined as a 1-to-1 ratio of system-wide capacity (VMC) to system-wide demand (VMT). There are no existing deficiencies on a system-wide basis as long as the VMC/VMT ratio is greater than 1.00. The actual existing major roadway level of service is a 1.68 VMC/VMT ratio for arterials, and a ratio of 1.49 for collector roads (see Table 8). Because the fees are based on a LOS that is lower than the actual existing LOS, no deficiency credit is warranted.

Outstanding Debt

The City of Franklin currently has six outstanding debt issues that have been partially used to fund capacity-related improvements on the major road system. As shown in Table 14, the outstanding debt principal related to past roadway improvements is about $41 million.

Table 14. Outstanding Road Debt Issues

Purpose	Outstanding on 7/1/2022
Bonds 2012 - $22.5 million (Various - Refunding)	$4,335,000
Bonds 2017	$10,539,175
Bonds 2019A - Refunding	$7,299,040
Bonds 2019B - Refunding 2009 $44 million	$5,880,270
Bonds 2019C - Refunding Bonds $29.2 milion	$12,104,400
Bonds 2019D - Taxable Refunding Bonds	$834,200
Total	$40,992,085

Source: City of Franklin, September 21, 2022 and November 21, 2022.

In cases where outstanding debt is for improvements that are serving existing development, a credit is due for future taxes that new development will generate that will be used to retire that debt. In the case of Franklin's road impact fees, however, no such credit is warranted. As noted above, the road fees are based on a lower level of service than what is currently provided. The cost of the excess capacity is also significantly greater than the amount of the outstanding road-related debt. As shown in Table 15, the replacement value of existing excess capacity is about $676 million, which is over ten times the $41 million in outstanding debt.

Table 15. Replacement Value of Excess Arterial Capacity

Existing Vehicle-Miles of Capacity (VMC)	2,047,891
– Existing Vehicle-Miles of Travel (VMT)	-1,241,394
Existing Excess Capacity (VMC)	806,497
x Average Cost per VMC	$838
Replacement Cost of Excess Capacity	$675,844,116

Source: VMC and VMT from Table 20; cost per VMC from Table 13.

From the facts presented, it is clear that the outstanding road debt is for improvements that have built excess capacity into the system to accommodate growth, not improvements that are serving existing development at the level of service on which the impact fees are based. For these reasons, no debt credit against the road impact fees is warranted.

State/Federal Funding

The amount of intergovernmental revenue that is applied toward funding capacity-expanding capital improvements in Franklin is based on actual State and Federal funding received by the City over the last eight years, as well as anticipated funding over the next five years based on the regional Transportation Improvement Program and historical experience. Only improvements that are both capacity-expanding and on the major road network are eligible for credit. All of the recent and anticipated funding is for arterial street improvements. The historical and anticipated funding is summarized in Table 16 below. The Federal/State funding over the 13-year period totals about $126 million.

Table 16. State/Federal Road Improvement Funding, FY 2016-2028

Project Name	Last 8 Years FY 2016-2023	Next 5 years FY 2024-2028	13-Year Total
Adaptive Signal	$1,133,160	$0	$1,133,160
Columbia Ave (Mack Hatcher - Downs)	$1,618,218	$28,333,332	$29,951,550
Franklin ITS	$54,011	$770,000	$824,011
Hillsboro Road (Indep. Square - Hillsboro Rd.)	$1,690,000	$0	$1,690,000
Mack Hatcher Pkwy (NW)	$56,068,723	$0	$56,068,723
McEwen Drive Phase IV	$4,840	$22,400,000	$22,404,840
U.S. 31 (S.R. 6) (South of S.R. 441 - S.R. 441)	$3,500,000	$0	$3,500,000
SR96 Signal Upgrade	$211,847	$1,550,000	$1,761,847
McEwen Drive Phase V *	$248,814	$6,218,640	$6,467,454
Lewisburg Pike / South Margin Intersection	$0	$1,000,000	$1,000,000
Misc. Federal Funding	$0	$1,000,000	$1,000,000
Total	$64,529,613	$61,271,972	$125,801,585

* reflects Franklin's 40.58% share from City of Franklin/Brentwood contract 2011-0300
Source: City of Franklin Public Works, June 23, 2023.

The State and Federal funding credit is calculated in Table 17. At the current cost of borrowing, the present value of State and Federal funding that can be anticipated over the next 20 years, which is the typical long-term debt repayment period, is $136 per daily vehicle-mile of travel (VMT) on the arterial road system.

Table 17. State/Federal Funding Credit

	Arterials	Collectors	All Major Roads
Total State/Federal Capacity Funding, 2016-2028	$125,801,585	$0	$125,801,585
÷ Years	13	13	13
Annual State/Federal Capacity Funding	$9,677,045	$0	$9,677,045
÷ Daily Vehicle-Miles of Travel (VMT)	1,029,084	212,310	1,241,394
Average Annual Funding per VMT	$9.40	$0.00	$7.80
x Net Present Value Factor (20 Years	14.47	14.47	14.47
State/Federal Funding Credit per VMT	$136	$0	$113

Source: Total Federal/State capacity funding from Table 16; daily VMT from Table 20 in Appendix A; present value factor based on 20 years at a discount rate of 3.30%, which was the average national yield on 20-year AAA municipal bonds on June 22, 2023 from fmsbonds.com.

Net Cost Summary

As shown in Table 18, reducing the cost per service unit by the State and Federal funding credit leaves a net cost of $702 per VMT for arterials and $838 for collectors.

Table 18. Net Cost per Vehicle-Mile of Travel

	Arterials	Collectors	All Major Roads
Average Cost per VMT	$838	$838	$838
– State/Federal Funding Credit per VMT	-$136	$0	-$113
Net Cost per Daily VMT	$702	$838	$725

Source: Average cost per VMT is cost per VMC from Table 13; State/Federal funding credit from Table 17.

NET COST PER DEVELOPMENT UNIT

The net cost per unit of development is the product of daily vehicle-miles of travel (VMT) generated by a unit of development and the net cost per VMT, as calculated in Table 19. The net costs per unit represent the maximum fees that can be adopted based on the data and analysis presented in this study. A comparison with current fees and a summary of implementation options can be found in the Executive Summary.

Table 19. Updated Net Cost Schedule

	Dev't	VMT/Unit		Net Cost/VMT		Net Cost/Unit		
Land Use Type	Unit	Arterial	Collect.	Arterial	Collect.	Arterial	Collect.	Total
Single-Family Detached	Dwelling	16.06	3.30	$702	$838	$11,274	$2,765	$14,039
Multi-Family	Dwelling	11.49	2.36	$702	$838	$8,066	$1,978	$10,044
Mobile Home Park	Site	12.14	2.49	$702	$838	$8,522	$2,087	$10,609
Congregate Care Facility	Dwelling	4.08	0.84	$702	$838	$2,864	$704	$3,568
Hotel/Motel	Room	7.44	1.53	$702	$838	$5,223	$1,282	$6,505
Retail/Commercial								
Shopping Ctr/Gen. Retail	1,000 sq. ft.	21.96	4.53	$702	$838	$15,416	$3,796	$19,212
Restaurant, Quality	1,000 sq. ft.	56.22	11.61	$702	$838	$39,466	$9,729	$49,195
Restaurant, Fast Food	1,000 sq. ft.	64.51	13.32	$702	$838	$45,286	$11,162	$56,448
Office/Institutional								
Office, General	1,000 sq. ft.	14.92	3.09	$702	$838	$10,474	$2,589	$13,063
Hospital	1,000 sq. ft.	14.97	3.07	$702	$838	$10,509	$2,573	$13,082
Nursing Home	1,000 sq. ft.	9.38	1.92	$702	$838	$6,585	$1,609	$8,194
Church	1,000 sq. ft.	7.10	1.45	$702	$838	$4,984	$1,215	$6,199
Elementary/Sec. School	1,000 sq. ft.	5.94	1.22	$702	$838	$4,170	$1,022	$5,192
Industrial								
Manufacturing	1,000 sq. ft.	8.26	1.71	$702	$838	$5,799	$1,433	$7,232
Industrial Park	1,000 sq. ft.	5.86	1.21	$702	$838	$4,114	$1,014	$5,128
Business Park	1,000 sq. ft.	21.69	4.49	$702	$838	$15,226	$3,763	$18,989
Warehouse	1,000 sq. ft.	2.96	0.61	$702	$838	$2,078	$511	$2,589
Mini-Warehouse	1,000 sq. ft.	2.51	0.52	$702	$838	$1,762	$436	$2,198

Source: Daily VMT per unit from Table 12; net cost per VMT from Table 18; net cost per unit for arterials and collectors is product of VMT per unit times net cost per VMT, total is sum of arterial and collector fees.

APPENDIX A: ROADWAY INVENTORY

Table 20. Existing Major Roadway Inventory

Roadway	From	To	Lns	Mi.	Trips	Cap.	VMC	VMT
Mack Hatcher Pkwy	Hillsboro Rd	Del Rio Pike	2	1.38	15,523	24,100	33,258	21,422
Mack Hatcher Pkwy	Del Rio Pike	Townsend Blvd	2	1.25	16,751	24,100	30,125	20,939
Mack Hatcher Pkwy	Franklin Rd	Hillsboro Rd	4	1.66	31,522	50,300	83,708	52,458
Mack Hatcher Pkwy	Liberty Pike	Franklin Rd	4	1.63	29,448	50,300	81,926	47,963
Mack Hatcher Pkwy	Murfreesboro Rd	Liberty Pike	4	0.86	16,508	50,300	43,135	14,156
Mack Hatcher Pkwy	Lewisburg Pike	Murfreesboro Rd	2	1.38	22,787	24,100	33,228	31,418
Mack Hatcher Pkwy	Columbia Ave	Lewisburg Pike	2	1.81	14,493	24,100	43,649	26,249
1st Ave N	Main St	Bridge St	2	0.12	5,269	16,800	1,995	626
3rd Ave N	Main St	N Margin St	2	0.24	6,583	16,800	4,092	1,603
3rd Ave S	Harpeth River	Main St	2	0.37	8,662	16,800	6,216	3,205
5th Ave N	Main St	3rd Ave N	4	0.40	13,035	37,900	15,145	5,209
5th Ave S	S Margin St	Main St	2	0.24	7,230	16,800	4,076	1,754
Bridge St	1st Ave N	5th Ave N	2	0.34	6,972	16,800	5,747	2,385
Carothers Pkwy	Long Ln	S Carothers Rd	2	2.74	3,981	16,800	46,053	10,913
Carothers Pkwy	Cool Springs Blvd	N City Limits	4	1.09	20,028	37,900	41,483	21,921
Carothers Pkwy	E McEwen Dr	Cool Springs Blvd	4	0.96	11,770	37,900	36,313	11,277
Carothers Pkwy	S Carothers Rd	Murfeesboro Rd	3	1.14	13,955	21,000	23,969	15,928
Carothers Pkwy	Murfreesboro Rd	Liberty Pike	4	0.76	18,244	37,900	28,620	13,777
Carothers Pkwy	Liberty Pike	E McEwen Dr	4	0.76	12,694	37,900	28,931	9,690
Carters Creek Pike	Downs Blvd	S City Limits	2	0.87	7,326	16,800	14,560	6,349
Columbia Ave	Fowlkes St	Five Points	3	0.41	10,902	21,000	8,513	4,420
Columbia Ave	Mack Hatcher Pkwy	Downs Blvd	3	1.14	17,591	21,000	23,968	20,077
Columbia Ave	Downs Blvd	Fowlkes St	2	0.72	12,030	16,800	12,162	8,709
Columbia Pike	S City Limits	Mack Hatcher Pkwy	2	1.11	17,262	16,800	18,720	19,235
Cool Springs Blvd	Mallory Ln	Mack Hatcher Pkwy	4	1.33	33,531	37,900	50,498	44,677
Cool Springs Blvd	Carothers Pkwy	Mallory Ln	5	0.65	35,943	47,400	30,640	23,234
Cool Springs Blvd	E McEwen Dr	Carothers Pkwy	4	1.39	16,847	37,900	52,536	23,353
Franklin Rd	Liberty Pike	Mack Hatcher Pkwy	2	1.16	16,030	16,800	19,545	18,649
Franklin Rd	Mack Hatcher Pkwy	Mallory Station Rd	2	0.85	19,862	16,800	14,320	16,930
Franklin Rd	1st Ave	Liberty Pike	3	0.47	19,830	21,000	9,848	9,299
Franklin Rd	Mallory Station Rd	Cumberland Park Dr	2	0.98	11,109	16,800	16,387	10,836
Franklin Rd	Cumberland Park Dr	Moores Ln	5	0.27	12,432	47,400	12,724	3,337
Goose Creek Bypass	Lewisburg Pike	I-65	4	0.85	20,658	37,900	32,178	17,539
Hillsboro Rd	3rd Ave N	Mack Hatcher Pkwy	3	1.14	21,233	21,000	24,006	24,272
Hillsboro Rd	Mack Hatcher Pkwy	Blackhorse Pkwy	5	0.99	25,523	47,400	46,927	25,268
Hillsboro Rd	Blackhorse Pkwy	N City Limits	5	0.45	15,206	47,400	21,517	6,903
Lewisburg Ave	Mack Hatcher Pkwy	S Margin St	2	2.14	8,541	16,800	35,929	18,266
Lewisburg PIke	S City Limits	Mack Hatcher Pkwy	2	1.07	12,892	16,800	18,038	13,842
Lewisburg Pike	Goose Creek Bypass	Old Peytonsville Rd	4	0.50	14,395	37,900	18,924	7,188
Liberty Pike	Oxford Glen Dr	Turning Wheel Ln	2	0.48	5,643	16,800	8,086	2,716
Liberty Pike	City Limits	Carothers Pkwy	2	0.69	8,401	16,800	11,519	5,760
Liberty Pike	Carothers Pkwy	Mallory Ln	4	0.54	13,047	37,900	20,587	7,087
Liberty Pike	Mallory Ln	Mack Hatcher Pkwy	3	1.01	16,362	21,000	21,189	16,509
Liberty Pike	Mack Hatcher Pkwy	Franklin Rd	3	1.21	6,919	21,000	25,474	8,393
Liberty Pike	Waverly Pl	Oxford Glen Dr	2	1.02	5,121	16,800	17,119	5,218
Main St	1st Ave S	5 Points	2	0.35	8,815	16,800	5,849	3,069
Main St W	5 Points	11th Ave N	2	0.44	6,962	16,800	7,391	3,063
Main St W	11th Ave N	Downs Blvd	2	1.13	8,299	16,800	18,912	9,342

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Table 20. Existing Major Roadway Inventory, continued

Roadway	From	To	Lns	Mi.	Trips	Cap.	VMC	VMT
Mallory Ln	Cool Springs Blvd	N City Limits	4	1.35	26,741	37,900	51,009	35,990
Mallory Ln	Cool Springs Blvd	Liberty Pike	4	1.53	22,258	37,900	58,027	34,078
McEwen Dr E & W	Mallory Ln	Carothers Pkwy	4	0.71	17,069	37,900	26,750	12,047
McEwen Dr E	Carothers Pkwy	Cool Springs Blvd	4	0.99	11,879	37,900	37,425	11,730
McEwen Dr E	Cool Springs Blvd	.19 mi e/of Cool Spgs Bvd	4	0.19	13,488	37,900	7,364	2,621
McEwen Dr E	E of Cool Springs Blvd	Wilson Pike	2	1.36	12,464	16,800	22,865	16,964
Murfreesboro Rd	Cross Creek	E City Limits	5	1.09	23,207	47,400	51,436	25,183
Murfreesboro Rd	Mack Hatcher Pkwy	Harpeth River	2	1.21	22,150	16,800	20,328	26,802
Murfreesboro Rd	I-65	Mack Hatcher Pkwy	5	1.16	34,615	47,400	55,071	40,217
Murfreesboro Rd	I-65	E City Limits	5	0.53	37,901	47,400	24,903	19,912
Margin St N	2nd Ave N	Hillsboro Rd	2	0.26	740	16,800	4,297	189
Royal Oaks Blvd S	Mack Hatcher Pkwy	Murfreesboro Rd	4	1.20	25,113	37,900	45,487	30,140
Royal Oaks Blvd N	Murfreesboro Rd	Liberty Pike	3	0.83	18,196	21,000	17,445	15,116
Peytonsville Rd	John Fitzgerald	I-65	4	0.38	4,547	37,900	14,402	1,728
SR 96 W	Downs Blvd	W City Limits	2	1.58	16,118	16,800	26,569	25,490
SR 96 W	11th Ave N	Downs Blvd	2	1.15	13,694	16,800	19,255	15,695
SR 96 W	5th Ave N	11th Ave N	3	0.41	15,442	21,000	8,667	6,373
McEwen Dr W	I-65	Cool Springs Blvd	4	0.64	14,242	37,900	24,192	9,091
Wilson Pike	S City Limits	N City Limits	2	0.42	7,911	16,800	6,973	3,283
Subtotal, Arterials and Expressways (Mack Hatcher)							1,732,199	1,029,084
11th Ave N	SR 96 W	Mount Hope St	2	0.19	4,112	7,300	1,366	770
11th Ave N	W Main St	SR 96 W	2	0.23	4,355	7,300	1,673	998
11th Ave S	Natchez St	West Main St	2	0.16	1,842	7,300	1,178	297
1st Ave S	S Margin St	E Main St	2	0.24	1,712	7,300	1,730	406
2nd Ave N	E Main St	N Margin St	2	0.24	1,921	7,300	1,737	457
2nd Ave S	S Margin St	E Main St	2	0.24	1,921	7,300	1,781	469
3rd Ave N	Main St	N Margin St	2	0.24	6,583	7,300	1,752	1,580
4th Ave N	Main St	3rd Ave N	2	0.38	604	7,300	2,796	231
4th Ave S	S Margin St	Main St	2	0.24	2,821	7,300	1,779	687
7th Ave N	West Main St	SR 96 W	2	0.12	2,471	7,300	872	295
7th Ave S	Columbia Ave	West Main Street	2	0.08	6,036	7,300	559	462
9th Ave S	Columbia Ave	W Main St	2	0.18	1,731	7,300	1,295	307
9th Ave N	W Main St	Fair St	2	0.05	1,036	7,300	395	56
9th Ave N	Fair St	SR 96 W	2	0.06	891	7,300	448	55
9th Ave N	SR 96 W	Mount Hope St	2	0.23	583	7,300	1,653	132
Aspen Grove Dr	Jordan Rd	Cool Springs Blvd	3	0.30	1,794	9,100	2,701	532
Aspen Grove Dr	Cool Springs Blvd	Seaboard Ln	2	0.28	9,521	7,300	2,079	2,711
Bakers Bridge Ave	Carothers Pkwy	Mallory Ln	5	0.77	11,478	18,100	13,978	8,864
Battle Ave	Columbia Ave	W Main St	2	0.70	3,673	7,300	5,078	2,555
Blackhorse Pkwy	Spencer Creek Rd	Hillsboro Rd	4	0.43	1,568	14,500	6,289	680
Boyd Mill Ave	SR 96 W	Downs Blvd	2	0.92	5,724	7,300	6,711	5,262
Boyd Mill Ave	Downs Blvd	SR 96 W	2	0.84	4,875	7,300	6,164	4,117
Carlisle Ln	SR 96 W	Del Rio Pike	2	0.61	4,756	7,300	4,474	2,915
Carothers Rd S	Eastern City Limits	Longpoint Way	2	0.15	2,625	7,300	1,092	393
Carothers Rd S	Longpoint Way	Carothers Pkwy	2	1.17	492	7,300	8,550	576
Church St	1st Ave S	3rd Ave S	2	0.17	1,987	7,300	1,255	342
Church St	3rd Ave S	Columbia Ave	2	0.25	6,426	7,300	1,824	1,606
Clovercroft Rd	W City Limits	W of Oxford Glen	2	0.56	4,392	7,300	4,080	2,455
Clovercroft Rd	W of Market St	E City Limits	2	0.47	3,734	7,300	3,426	1,753
Clovercroft Rd	W City Limits	E City Limits	2	0.68	8,282	7,300	4,990	5,661

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Table 20. Existing Major Roadway Inventory, continued

Roadway	From	To	Lns	Mi.	Trips	Cap.	VMC	VMT
Cotton Ln	Del Rio Pike	N City Limits	2	0.20	2,827	7,300	1,463	567
Crossroads Blvd	City Limits	Seaboard Ln	3	0.25	1,486	9,100	2,318	379
Del Rio Pike	Carlisle Ln	5th Ave N	2	1.68	11,363	7,300	12,273	19,103
Del Rio Pike	Carlisle Ln	Cotton Ln	2	1.55	3,055	7,300	11,312	4,734
Donelson Creek Pkwy	Lewisburg Pike	Mack Hatcher Pkwy	2	1.08	7,134	7,300	7,919	7,739
Downs Blvd	Columbia Ave	W Main St	2	1.00	15,658	7,300	7,318	15,697
Downs Blvd	W Main St	Boyd Mill Ave	2	1.23	10,087	7,300	9,008	12,447
Downs Blvd	Boyd Mill Ave	SR 96 W	2	0.46	6,871	7,300	3,345	3,149
Eddy Ln	Murfreesboro Rd	Liberty Pike	2	0.78	3,248	7,300	5,718	2,544
Fair St	5th Ave N	11th Ave N	2	0.43	1,250	7,300	3,111	533
Fieldstone Pkwy	Hillsboro Rd	Lexington Pkwy	4	0.53	4,461	14,500	7,686	2,365
Fieldstone Pkwy	Hillsboro Rd	Spencer Creek Rd	3	0.27	3,028	9,100	2,457	818
Fieldstone Pkwy	Lexington Pkwy	Cotton Ln	2	0.43	3,238	7,300	3,139	1,392
Fowlkes St E	Lewisburg Ave	Columbia Ave	2	0.16	3,024	7,300	1,204	499
Fowlkes St W	Columbia Ave	Natchez St	2	0.22	4,069	7,300	1,590	886
Galleria Blvd	Bakers Bridge Ave	Moores Ln	4	0.40	13,149	14,500	5,802	5,261
Gen. George Patton Dr	Mallory Station Rd	N City Limits	3	0.61	5,145	9,100	5,517	3,119
Glass Lane	SR 96 W	Mount Hope St	2	0.27	2,424	7,300	1,941	644
Horton Ln	W Main St	Boyd Mill Ave	2	1.16	3,184	7,300	8,465	3,692
Jordan Rd	Mallory Ln	Aspen Grove Dr	2	0.32	1,777	7,300	2,349	572
Long Ln	W City Limts	Carothers Pkwy	2	0.19	4,520	7,300	1,407	871
Long Ln	Peytonsville Rd	Franklin S Ct	3	0.25	9,064	9,100	2,276	2,267
Long Ln	Franklin S Ct	E City Limits	2	0.93	6,123	7,300	6,808	5,710
Longpoint Way	S Carothers Rd	Carothers Pkwy	3	0.12	2,514	9,100	1,063	294
Lynnwood Way	Franklin Rd	NW City Limits	2	0.61	10,001	7,300	4,436	6,077
Magnolia Dr	Mount Hope St	Del Rio Pike	2	0.31	5,681	7,300	2,286	1,779
Mallory Station Rd	Mallory Ln	Seaboard Ln	3	0.51	10,183	9,100	4,656	5,210
Mallory Station Rd	Seaboard Ln	Franklin Rd	3	0.99	12,558	9,100	8,970	12,378
Margin St S	1st Ave S	3rd Ave S	2	0.17	1,953	7,300	1,223	327
Margin St S	3rd Ave S	5th Ave S	2	0.17	10,344	7,300	1,264	1,791
Margin St S	5th Ave S	Columbia Ave	2	0.15	2,936	7,300	1,116	449
Market Street	.25 mi. s/of Clovercroft	Clovercroft Rd	2	0.25	1,492	7,300	1,825	373
Market Street	Clovercroft Rd	Liberty Pike	2	0.31	1,396	7,300	2,261	432
Martin Luther King Jr. Av	N Margin St	5th Ave N	2	0.28	2,740	7,300	2,048	769
Mount Hope St	5th Ave N	11th Ave N	2	0.34	1,365	7,300	2,507	469
Natchez St	W Main St	9th Ave S	2	0.57	1,875	7,300	4,192	1,077
Nichol Mill Ln	Mallory Ln	Seaboard Ln	2	0.47	1,616	7,300	3,434	760
Noah Dr	Mack Hatcher Pkwy	Southeast Pkwy	2	0.16	4,473	7,300	1,177	721
Old Peytonsville Rd	Warrior Dr	Lewisburg Pike	2	0.72	921	7,300	5,278	666
Oxford Glen Dr	Clovercroft Rd	Liberty PIke	2	0.51	6,471	7,300	3,698	3,278
Oxford Glen Dr	Liberty Pike	E McEwen Dr	2	0.60	8,519	7,300	4,374	5,104
Peytonsville Rd	S City Limits	John Fitzgerald	2	0.83	4,502	7,300	6,035	3,722
Pratt Ln	future Pratt Ln Connect	Old Peytonsville Rd	2	0.34	189	7,300	2,471	64
Ralston Ln	Murfreesboro Rd	Liberty Pike	3	0.77	2,180	9,100	7,020	1,682
Reams Fleming Blvd	Pratt Ln	future Pratt Ln Connect	2	0.41	2,207	7,300	2,976	900
Seaboard Ln	Aspen Grove Dr	Mallory Station Rd	3	0.69	7,733	9,100	6,317	5,368
Seaboard Ln	Mallory Station Rd	N City Limits	3	0.64	9,202	9,100	5,799	5,864
Southeast Pkwy	Columbia Ave	Noah Dr	2	0.55	3,784	7,300	4,018	2,083

continued on next page

Table 20. Existing Major Roadway Inventory, continued

Roadway	From	To	Lns	Mi.	Trips	Cap.	VMC	VMT
Spencer Creek Rd	Mack Hatcher Pkwy	Blackhorse Pkwy	2	1.26	4,459	7,300	9,207	5,624
Spencer Creek Rd	Blackhorse Pkwy	N City Limits	2	0.49	3,550	7,300	3,553	1,728
Turning Wheel Ln	Liberty Pike	E McEwen Dr	2	0.60	1,192	7,300	4,357	711
Subtotal, Major and Minor Collectors							315,692	212,310
Total Major Roadway System							2,047,891	1,241,394

Source: Segment descriptions, lanes, miles, and average daily trips from City of Franklin Engineering Department, July 13, 2022; "Cap." is daily capacity from Table 7; "VMC" is vehicle-miles of capacity, which is product of miles and capacity; "VMT" is vehicle-miles of travel, which is product of miles and trips.

APPENDIX B: ROADWAY CAPACITY

Table 21. Generalized Average Daily Capacities

TABLE 1 Generalized **Annual Average Daily** Volumes for Florida's Urbanized Areas

January 2020

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
2	Undivided	*	16,800	17,700	**
4	Divided	*	37,900	39,800	**
6	Divided	*	58,400	59,900	**
8	Divided	*	78,800	80,100	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
2	Undivided	*	7,300	14,800	15,600
4	Divided	*	14,500	32,400	33,800
6	Divided	*	23,300	50,000	50,900
8	Divided	*	32,000	67,300	68,100

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding two-directional volumes in this table by 0.6

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Core Urbanized

Lanes	B	C	D	E
4	47,600	66,400	83,200	87,300
6	70,100	97,800	123,600	131,200
8	92,200	128,900	164,200	174,700
10	115,300	158,900	203,600	218,600
12	136,500	192,400	246,200	272,900

Urbanized

Lanes	B	C	D	E
4	45,900	62,700	75,600	85,400
6	68,900	93,900	113,600	128,100
8	91,900	125,200	151,300	170,900
10	115,000	156,800	189,300	213,600

Freeway Adjustments

Auxiliary Lanes Present in Both Directions	Ramp Metering
+ 20,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	11,700	18,000	24,200	32,600
4	Divided	36,300	52,600	66,200	75,300
6	Divided	54,600	78,800	99,400	113,100

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

Source: Florida Department of Transportation, *Quality/Level of Service Handbook*, 2020

APPENDIX C: AVERAGE TRIP LENGTHS

National data on average trip lengths is derived from the National Household Travel Survey (NHTS). This information is available in the form of summary tables and microdata files. The microdata files contain the individual records for all survey respondents. The two sets of data provide somewhat different results for average trip lengths by trip purpose, perhaps because of different definitions of trip purposes used to generate the summary tables.

This study uses the NHTS microdata, which provides additional trip purposes and allows excluding certain types of trips with very long trip lengths that are unlikely to be representative of local travel within an individual jurisdiction. The results are summarized in Table 22.

Table 22. National Average Trip Lengths by Trip Purpose

Trip Purpose	Trip Travel Miles	Number of Trips	Miles/ Trip
To/From Work	739,776,182,787	64,581,627,732	11.45
Shopping	487,204,095,888	68,549,233,170	7.11
Other Family/Personal Business	441,720,300,602	65,166,920,971	6.78
School/Church	258,535,440,019	40,302,622,154	6.41
Medical/Dentral	86,403,777,559	9,037,724,188	9.56
Visit Friends/Relatives	384,167,208,698	24,253,265,278	15.84
Other Social/Recreational	624,779,275,784	72,034,924,148	8.67
Refused / Don't Know	1,871,506,390	171,018,183	10.94
Total*	3,024,457,787,725	344,097,335,824	8.79
* excluding purposes listed below:			
Work-Related Business	156,668,851,581	6,047,510,560	25.91
Other	786,930,133,666	21,007,125,140	37.46
Overall Average	3,968,056,772,972	371,151,971,524	10.69

Source: 2017 NHTS data shown in Table 23.

Analyzing the NHTS microdata, which contains over 920,000 records, requires use of data management software. For this project, IBM's SPSS Statistics package was used to extract data on number of trips and number of travel miles by trip purpose. The SPSS output files are reproduced in Table 23 on the following page.

Table 23. Source Data on Average Trip Lengths

Weighted Trips

Output Created		9/9/2021
Comments		
Input	Data: C:\1fees\impact_fee\roads\2017 NHTS\trippub.sav	
	Filter	<none>
	Weight	Final trip weight
	Split File	<none>
	N of Rows in Working Data File	923,572
Syntax		CTABLES
Resources	Elapsed Time	0.0000468866
Travel day trip purpose consistent with 1990 NPTS design.		Count
	To/From Work	64,581,627,732
	Work-Related Business	6,047,510,560
	Shopping	68,549,233,170
	Other Family/Personal Business	65,166,920,971
	School/Church	40,302,622,154
	Medical/Dentral	9,037,724,188
	Visit Friends/Relatives	24,253,265,278
	Other Social/Recreational	72,034,924,148
	Other	21,007,125,140
	Refused / Don't Know	171,018,183

Weighted Travel Miles

Output Created		9/9/2021
Comments		
Input	Data: C:\1fees\impact_fee\roads\2017 NHTS\trippub.sav	
	Filter	<none>
	Weight	Final trip weight
	Split File	<none>
	N of Rows in Working Data File	923,572
Syntax		CTABLES
Resources	Elapsed Time	0.0000476042
Trip distance in miles, derived from route geometry returned by Google Maps API, or from reported loop-trip distance		
Travel day trip purpose consistent with 1990 NPTS design.		Sum
	To/From Work	739,776,182,787
	Work-Related Business	156,668,851,581
	Shopping	487,204,095,888
	Other Family/Personal Business	441,720,300,602
	School/Church	258,535,440,019
	Medical/Dentral	86,403,777,559
	Visit Friends/Relatives	384,167,208,698
	Other Social/Recreational	624,779,275,784
	Other	786,930,133,666
	Refused / Don't Know	1,871,506,390

Source: SPSS output from U.S. Department of Transportation, 2017 National Household Travel Survey microdata file.

Comparison of Current and Updated Fees
Potential Fee Schedules

Land Use Type	Unit	Current Fees			Updated Fees		
		Arterial	Collector	Total	Arterial	Collector	Total
Single-Family Detached	Dwelling	$ 4,911	$ 3,340	$ 8,251	N/A	N/A	N/A
Single-Family Detached 1,999 SF or Less	Dwelling	N/A	N/A	N/A	$ 12,813	$ 2,762	$ 15,575
Single-Family Detached 2,000 SF - 3,999 SF	Dwelling	N/A	N/A	N/A	$ 15,064	$ 3,247	$ 18,311
Single-Family Detached 4,000 SF or More	Dwelling	N/A	N/A	N/A	$ 16,054	$ 3,460	$ 19,514
Single-Family Att. Townhouse 999 SF or Less	Dwelling	N/A	N/A	N/A	$ 9,993	$ 2,154	$ 12,147
Single-Family Att. Townhouse 1,000 SF - 1,999 SF	Dwelling	N/A	N/A	N/A	$ 10,803	$ 2,328	$ 13,131
Single-Family Att. Townhouse 2,000 SF or More	Dwelling	N/A	N/A	N/A	$ 12,693	$ 2,736	$ 15,429
Multi-Family	Dwelling	$ 3,112	$ 2,121	$ 5,233	$ 10,111	$ 2,181	$ 12,292
Mobil Home Park	Site	$ 2,338	$ 1,592	$ 3,930	$ 10,683	$ 2,301	$ 12,984
Congregate Care Facility	Dwelling	$ 1,093	$ 743	$ 1,836	$ 3,590	$ 776	$ 4,366
Hotel/Motel	Room	$ 2,567	$ 1,750	$ 4,317	$ 6,547	$ 1,414	$ 7,961
Retail/Commercial							
Shopping Center/Gen. Retail	1,000 ft^2	$ 6,484	$ 4,394	$ 10,878	$ 19,325	$ 4,186	$ 23,511
Restaurant, Quality	1,000 ft^2	$ 12,069	$ 8,186	$ 20,255	$ 49,474	$ 10,728	$ 60,202
Restaurant, Fast Food	1,000 ft^2	$ 17,442	$ 11,862	$ 29,304	$ 56,769	$ 12,308	$ 69,077
Office/Institutional							
Office, General	1,000 ft^2	$ 4,632	$ 3,170	$ 7,802	$ 13,130	$ 2,855	$ 15,985
Hospital	1,000 ft^2	$ 5,359	$ 3,653	$ 9,012	$ 13,174	$ 2,837	$ 16,011
Nursing Home	1,000 ft^2	$ 3,082	$ 2,099	$ 5,181	$ 8,254	$ 1,774	$ 10,028
Church Elementary Sec. School	1,000 ft^2	$ 3,258	$ 2,218	$ 5,476	$ 6,248	$ 1,340	$ 7,588
Elementary/Sec. School	1,000 ft^2	$ 1,606	$ 1,091	$ 2,697	$ 5,227	$ 1,127	$ 6,354
Industrial							
Manufacturing	1,000 ft^2	$ 2,030	$ 1,389	$ 3,419	$ 7,269	$ 1,580	$ 8,849
Industrial Park	1,000 ft^2	$ 3,636	$ 2,484	$ 6,120	$ 5,157	$ 1,118	$ 6,275
Business Park	1,000 ft^2	$ 6,613	$ 4,519	$ 11,132	$ 19,087	$ 4,149	$ 23,236
Warehouse	1,000 ft^2	$ 1,893	$ 1,294	$ 3,187	$ 2,605	$ 564	$ 3,169
Mini-Warehouse	1,000 ft^2	$ 885	$ 602	$ 1,487	$ 2,209	$ 480	$ 2,689

HISTORIC FRANKLIN TENNESSEE

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04661

DATE: May 19, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development
Chelsea Randolph, Principal Planner

SUBJECT:

Consideration Of Ordinance 2023-22, An Ordinance To Rezone 2.906 Acres From Regional Commerce 6 (RC-6) District To Planned (PD 61.3/3,362) District For The Property Located East Of Mack Hatcher Memorial Parkway And North Of Cool Springs Boulevard (101 Cool Springs Boulevard PUD Subdivision). Establishing A Public Hearing On September 12, 2023
FMPC 5/25/23, 6-0 deferral to 6/22/23; 6/22/23, 6-1 to disapprove

PURPOSE:

PROJECT INFORMATION
COF Project Number: 8158
Applicant: Greg Gamble, Gamble Design Collaborative
Owner: Mitchell Rechler, CSLP GP

BACKGROUND/STAFF COMMENTS:
The applicant is requesting to rezone the property from Regional Commerce 6 (RC-6) District to Planned District (PD 61.3/3,362) to accommodate the proposed development plan for 101 Cool Springs Boulevard. The development plan has been submitted concurrently. Envision Franklin places this property in the Regional Commerce Design Concept.

The proposed development meets the minimum recommendations of Envision Franklin by providing a mix of uses that include commercial and multi-family residential, although the amount of activated ground-floor commercial use is very minimal, like approved developments nearby. The site layout provides an urban feel with building-lined streets creating a walkable development and provides architecture that fits in with the style of the corridor. The Regional Commerce Design Concept supports a mix of uses and the uses proposed are supported within the design concept.

With that said, a better mixture of uses, as allowed within the existing RC6 zoning district, could help facilitate an improvement in projected traffic flow by dispersing traffic onto Cool Springs Boulevard at different peak times of day. While the proportion of multi-family to commercial space is consistent with approved projects adjacent to this property, the transportation infrastructure does not support the proposed mixture of uses, which is predominantly multifamily residential with peak traffic volumes

projected at similar times of day. Envision Franklin directs growth in areas where existing or planned infrastructure can support the proposed uses, and the uses proposed with this development plan place so much strain on the existing transportation infrastructure that minimum traffic requirements cannot be met. (See below for more detailed information.)

The 101 Cool Springs Development has submitted their final version of the Traffic Impact Analysis (TIA), in accordance with City of Franklin TIA guidelines. There were study intersections that did not meet our overall Level of Service D and individual movements that had delay worse than Level of Service E, thus, there are intersections and movements that did not meet City standards. Mitigation was not recommended for the Cool Springs at McEwen intersection, which is showing the greatest amount of excessive delay in this study. This intersection fails to an overall Level of Service F with this development. The added vehicular trips of this and adjacent developments in this area further increase traffic along Cool Springs Boulevard, and this area in general.

The intersection of Cool Springs Boulevard @ Mallory Lane and Mallory Lane @ McEwen were outside the study area. Any development in this area increases traffic at these intersections, as discussed during the Optima development, adding to existing excessive vehicle delays. It should be noted that the current TIA guidelines are being discussed with the Board, and the TIA requirements are anticipated to be adjusted as a result of these discussions. It is unknown at this time if those adjustments would bring the affected intersections of this development into meeting the future TIA standards.

PROCEDURAL REQUIREMENTS:

1. The City's project identification number shall be included on all correspondence with any City department relative to this project.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Franklin Municipal Planning Commission recommends disapproval of Ordinance 2023-22 by a vote of 6-1.
Staff recommends that the Board of Mayor and Aldermen disapprove Ordinance 2023-22.

ORDINANCE 2023-22

AN ORDINANCE TO REZONE 2.906 ACRES FROM REGIONAL COMMERCE 6 (RC-6) DISTRICT TO PLANNED (PD 61.3, 3,362) DISTRICT FOR THE PROPERTY LOCATED EAST OF MACK HATCHER MEMORIAL PARKWAY AND NORTH OF COOL SPRINGS BOULEVARD. (101 COOL SPRINGS BOULEVARD PUD SUBDIVISION).

WHEREAS, the City of Franklin, Tennessee, encourages responsible growth and the sensible transition of land uses and densities; and

WHEREAS, the Planned (PD 61.3/3,362) District provides zoning for land uses compatible with both the Franklin Land Use Plan and surrounding development; and

WHEREAS, the Board of Mayor and Aldermen (BOMA) of the City of Franklin, Tennessee, adopted Resolution 2023-42, approving a Planned Unit Development (PUD) Development Plan as required by the Franklin Zoning Ordinance; and

WHEREAS, the zoning has been reviewed and approved by BOMA after a public hearing and a recommendation by the Franklin Municipal Planning Commission.

NOW THEREFORE BE IT ORDAINED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF FRANKLIN, TENNESSEE, AS FOLLOWS:

SECTION I. That the following described property shall be, and is hereby, rezoned from its present zoning classification of **Regional Commerce 6 (RC-6)** District to **Planned (61.3/3,362)** District:

PREMISES CONSIDERED

Map-Parcel	Acres
062--04510	2.906
Total	2.906

SECTION II. That the attached Location Map and Survey shall serve the purpose of further delimiting the geographical boundaries as described by this Ordinance.

SECTION III. BE IT FINALLY ORDAINED by the Board of Mayor and Aldermen of the City of Franklin, Tennessee, that this Ordinance shall take effect from and after its passage on third and final reading, the health, safety, and welfare of the citizens requiring it.

IT IS SO RESOLVED AND DONE on this _____ day of _____, 2023.

ATTEST:

By: _____
Eric Stuckey
City Administrator

CITY OF FRANKLIN, TENNESSEE:

By: _____
Dr. Ken Moore
Mayor

Law Dept. Approved 05.17.23

Approved as to Form By:

_____

Shauna R. Billingsley
City Attorney

PLANNING COMMISSION RECOMMENDED: _____

PASSED FIRST READING: _____

PUBLIC HEARING HELD: _____

PASSED SECOND READING: _____

PASSED THIRD READING: _____

101 COOL SPRINGS BOULEVARD

PUD SUBDIVISION, REZONING

PLANNED DISTRICT
FRANKLIN, WILLIAMSON, TENNESSEE

OWNER:
CSLP GP
85 SOUTH SERVICE RD
PLAINVIEW, NY 10803
MITCHELL RECHLER
631-414-8484
mr@mrechler.com

APPLICANT:
GAMBLE DESIGN COLLABORATIVE
3020 STANSBERRY LANE, SUITE 201
FRANKLIN, TN 37064
GREG GAMBLE
615-975-5765
greg.gamble@gdc-tn.com

ENGINEER:
KIMLEY-HORN
10 LEA AVE, SUITE 400
NASHVILLE, TN 37204
RYAN MCMASTER, PE
615-564-2876
ryan.mcmaster@kimley-horn.com

ARCHITECT:
906 STUIDO ARCHITECTS
143 FIFTH AVE SOUTH
FRANKLIN, TN 37064
MEREDITH BUCHER, AIA
615-721-6024
meredith.bucher@906studio.com



VICINITY MAP
NTS

VESTING DEVELOPMENT STANDARDS:

DEVELOPMENT STANDARD	VERSION/DATE
ZONING ORDINANCE	1.1.2023
SUBDIVISION REGULATIONS	1.1.2022
HISTORIC DISTRICT DESIGN GUIDELINES	5.30.2022
TRANSPORTATION & STREET TECH. STANDARDS	7.1.2022
STORMWATER BMP MANUAL	2021
TECHNICAL SPECIFICATIONS FOR UTILITY	10.13.2020
MUNICIPAL CODE	9.27.2022

SITE DATA TABLE

PROJECT NAME:	101 COOL SPRINGS BOULEVARD PUD SUBDIVISION, REZONING
COF PROJECT #:	8158
MAP:	MAP #94062G
PARCEL #:	062---04510
ADDRESS:	101 COOL SPRINGS BLVD
CITY:	FRANKLIN
COUNTY:	WILLIAMSON
STATE:	TENNESSEE
CIVIL DISTRICT:	10TH CIVIL DISTRICT
EXISTING ZONING:	RC-6 REGIONAL COMMERCE 6
PROPOSED ZONING:	PD-PLANNED DISTRICT (61.3 DUA/3,362 SF COMMERCIAL)
OTHER APPLICABLE OVERLAYS:	500' BUFFER OF HILLSIDE OVERLAY
DESIGN CONCEPT:	REGIONAL COMMERCE
ACREAGE OF LOT 123:	2.906 ACRES
ACREAGE OF ACCESS ESMT:	0.77 ACRES
TOTAL ACREAGE OF SITE:	2.906 ACRES
TOTAL SQUARE FOOTAGE OF SITE:	126,583 SF
OWNERS:	CSLP GP
ADDRESS:	85 SOUTH SERVICE RD PLAINVIEW, NY 10803
PHONE:	631-414-8484
EMAIL:	mr@mrechler.com
CONTACT NAME:	MITCHELL RECHLER
APPLICANT:	GAMBLE DESIGN COLLABORATIVE (GDC)
ADDRESS:	3020 STANSBERRY LANE, SUITE 201 FRANKLIN, TN 37069
PHONE:	615-975-5765
EMAIL:	GREG.GAMBLE@GDC-TN.COM
CONTACT NAME:	GREG GAMBLE, RLA
BUILDING SETBACKS:	15' FRONT, 15' SIDE AND REAR
BUILDING SQUARE FOOTAGE:	504,490 SF
STORIES:	6
DENSITY:	178 UNITS: 61.3 DUA
BUILDING CONSTRUCTION TYPE:	TYPE VA OVER PODIUM TYPE 1A
MAXIMUM BUILDING HEIGHT:	70' - 0" PER 2018 IBC
PROPOSED MAX. BUILDING HEIGHT:	68' - 6" (SEE ARCH PLANS)
MINIMUM LANDSCAPE SURFACE RATIO:	20%
PROVIDED LANDSCAPE SURFACE RATIO:	34.5%; 43,746 SF
APARTMENT PARKING REQUIRED:	311 SPACES 1.5 SPACES PER 1 BEDROOM (134 UNITS) 2.5 SPACES PER 2 BEDROOM (44 UNITS)
COMMERCIAL PARKING REQUIRED	11 SPACES 3.33 SPACES PER 1000 SF (3,362 SF)
TOTAL PARKING REQUIRED:	322 SPACES
TOTAL SHARED PARKING REQUIRED:	297 SPACES (25 SPACE REDUCTION) (SEE SHARED PARKING STUDY)
EXISTING PARKING:	0 SPACES
TOTAL PARKING PROVIDED:	315 TOTAL SPACES (300 IN GARAGE; 15 EXTERIOR)
PARKLAND DEDICATION:	178 UNITS = $766,112; FEES TO BE PAID WITH FINAL PLAT; QUAD 1

NOTES:
1. WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO, THE NEW DEVELOPMENT, ALL UTILITIES, SUCH AS CABLE TELEVISION, ELECTRICAL (EXCLUDING TRANSFORMERS), GAS, SEWER, TELEPHONE, AND WATER LINES SHALL BE PLACED UNDERGROUND.
2. THIS SITE PLAN HAS BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE CITY OF FRANKLIN STANDARDS AND THE APPROVAL OF PLANNING COMMISSION. CHANGES SHALL NOT BE MADE TO THE APPROVED SITE PLAN UNLESS APPROVED BY EITHER RELEVANT DEPARTMENT SUPERINTENDENT OR THE PLANNING COMMISSION.
3. THE INFORMATION SHOWN ON THIS PLAN IS BASED UPON THE TENNESSEE STATE PLANE COORDINATE SYSTEM, ZONE 5301, FLIPZONE 4100 AND NAD 83 DATUM.
4. BASE INFORMATION HAS BEEN TAKEN FROM TWO ALTA SURVEYS PROVIDED BY CEC INC, PERFORMED BY MICHAEL K. STORY DATED 02-23-22 AND 9-14-22. THE INFORMATION PROVIDED SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. KIMLEY-HORN AND ASSOCIATES SHALL NOT BE HELD RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF THE BASE INFORMATION SHOWN.
5. THE CONSULTANT HAS FOUND NO EVIDENCE OF THE MINERAL RIGHTS OF THIS PROPERTY BEING TRANSFERRED TO ANY PARTY OTHER THAN THE OWNER.
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SHEET INDEX

C0.0 COVER SHEET
C1.0 OVERALL EXISTING CONDITIONS

GREGORY C. GAMBLE — REGISTERED — 3423 — LANDSCAPE ARCHITECT

INITIAL SUBMITTAL: APRIL 10, 2023
RESUBMITTAL: MAY 4, 2023

GAMBLE DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

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SITE DATA TABLE

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COF PROJECT #:	8158
MAP:	MAP #94062G
PARCEL #:	062--04510
ADDRESS:	101 COOL SPRINGS BLVD
CITY:	FRANKLIN
COUNTY:	WILLIAMSON
STATE:	TENNESSEE
CIVIL DISTRICT:	10TH CIVIL DISTRICT
EXISTING ZONING:	RC-6 REGIONAL COMMERCE 6
PROPOSED ZONING:	PD-PLANNED DISTRICT (61.3 DUA/3,362 SF COMMERCIAL)
OTHER APPLICABLE OVERLAYS:	500' BUFFER OF HILLSIDE OVERLAY
DESIGN STANDARD:	REGIONAL COMMERCE
ACREAGE OF LOT 123:	2.906 ACRES
ACREAGE OF ACCESS ESMT:	0.77 ACRES
TOTAL ACREAGE OF SITE:	2.906 ACRES
TOTAL SQUARE FOOTAGE OF SITE:	126,583 SF
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PHONE:	631-414-8484
EMAIL:	mr@mrechler.com
CONTACT NAME:	MITCHELL RECHLER
APPLICANT:	GAMBLE DESIGN COLLABORATIVE (GDC)
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EMAIL:	GREG.GAMBLE@GDC-TN.COM
CONTACT NAME:	GREG GAMBLE, RLA
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BUILDING SQUARE FOOTAGE:	504,490 SF
STORIES:	6
DENSITY:	178 UNITS; 61.3 DUA
BUILDING CONSTRUCTION TYPE:	TYPE VA OVER PODIUM TYPE 1A
MAXIMUM BUILDING HEIGHT:	70' - 0" PER 2018 IBC
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SITE SLOPE TABLE

	14% - 19.99%
	20% and above

EXISTING DETENTION POND NOTE

PER ASPEN GROVE MEDICAL OFFICE BUILDING PLANS, THE EXISTING DETENTION POND HAS BEEN DESIGNED AND CONSTRUCTED TO SERVE THE 101 COOL SPRINGS DEVELOPMENT.
DESIGNED STORAGE CAPACITY:=/- 31,000 CF
EXISTING POND PER SURVEY COMPLETED BY CEC DATED 9/14/2022:
AS-BUILT STAGE STORAGE CAPACITY: +/- 31,441 CF

GRAPHIC SCALE IN FEET
0 25 50 100

NORTH

Kimley»Horn
4031 Aspen Grove Dr Suite 200, TN 37067
Main: 615.564.2701 | www.kimley-horn.com
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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER 109882 REGISTERED PROFESSIONAL ENGINEER STATE OF TENNESSEE
2023-05-04

No	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

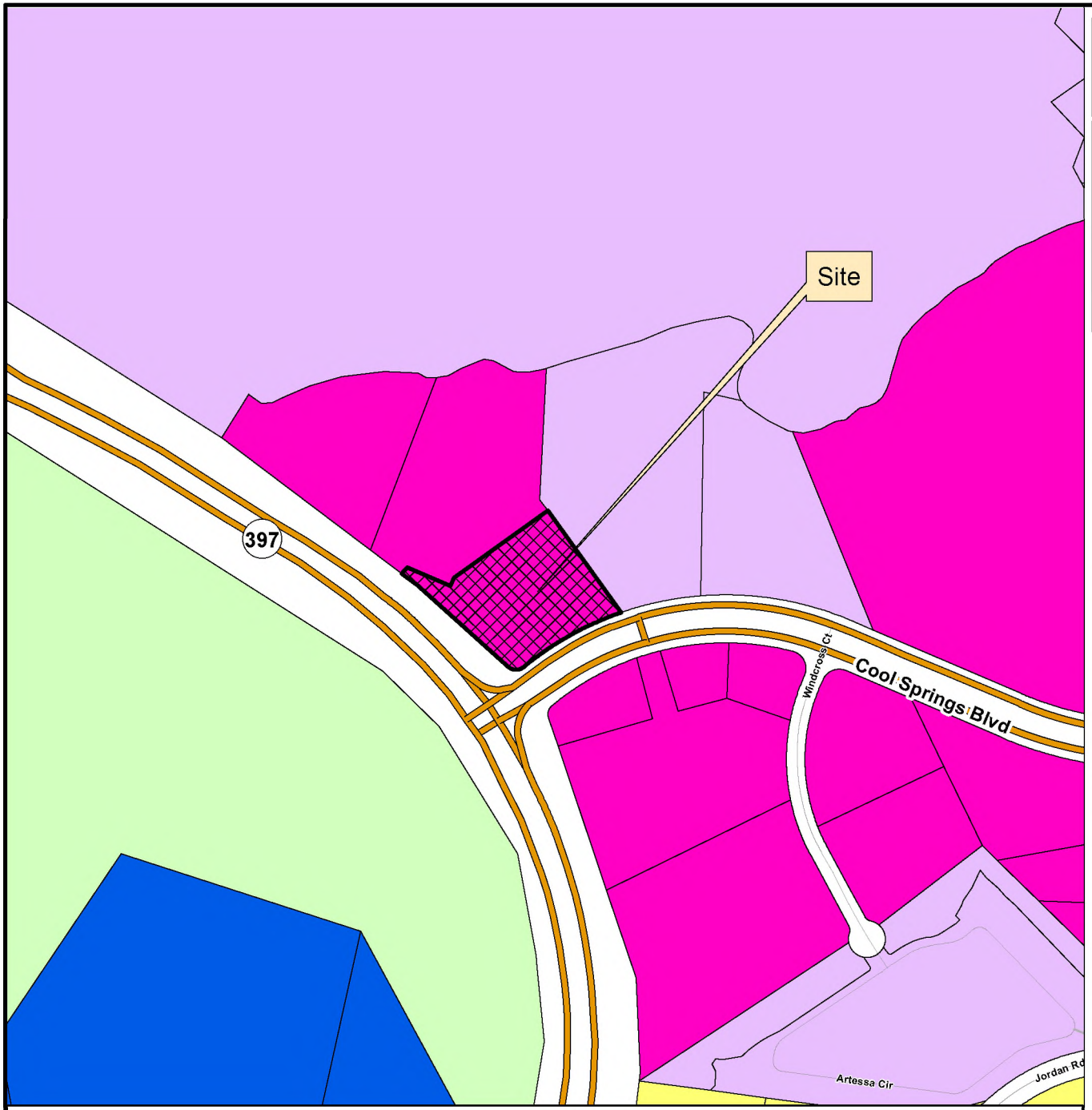
DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023
KIMLEY-HORN PROJECT NO.	118479000

OVERALL EXISTING CONDITIONS

SHEET NUMBER
C1.0

101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
ORDINANCE 2023-22
RESOLUTION 2023-42

Project Information
Existing Zoning: R-6 Residential 6 District
Proposed Zoning: PD Planned District
Overlay Districts: 500 ft Buffer of Hillside Overlay
Site Acreage: 2.906 acres
Proposed Number of Dwelling Units: 178
Proposed Nonresidential Square Footage: 3,400 SF



Legend

- 101 Cool Springs Boulevard
- AG Agricultural District
- ER Estate Residential District
- R1 Residential 1 District
- R2 Residential 2 District
- R3 Residential 3 District
- R4 Residential 4 District
- R6 Residential 6 District
- MR Mixed Residential District
- PD Planned District
- OR Office Residential District
- CI Civic Institutional District
- NC Neighborhood Commercial
- CC Central Commercial District
- DD Downtown District
- 1ST Avenue District
- 5TH Avenue District
- RC6 Regional Commerce 6 District
- RC12 Regional Commerce 12 District
- GO General Office District
- LI Light Industrial District
- HI Heavy Industrial District

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It was compiled from the most authentic information available.
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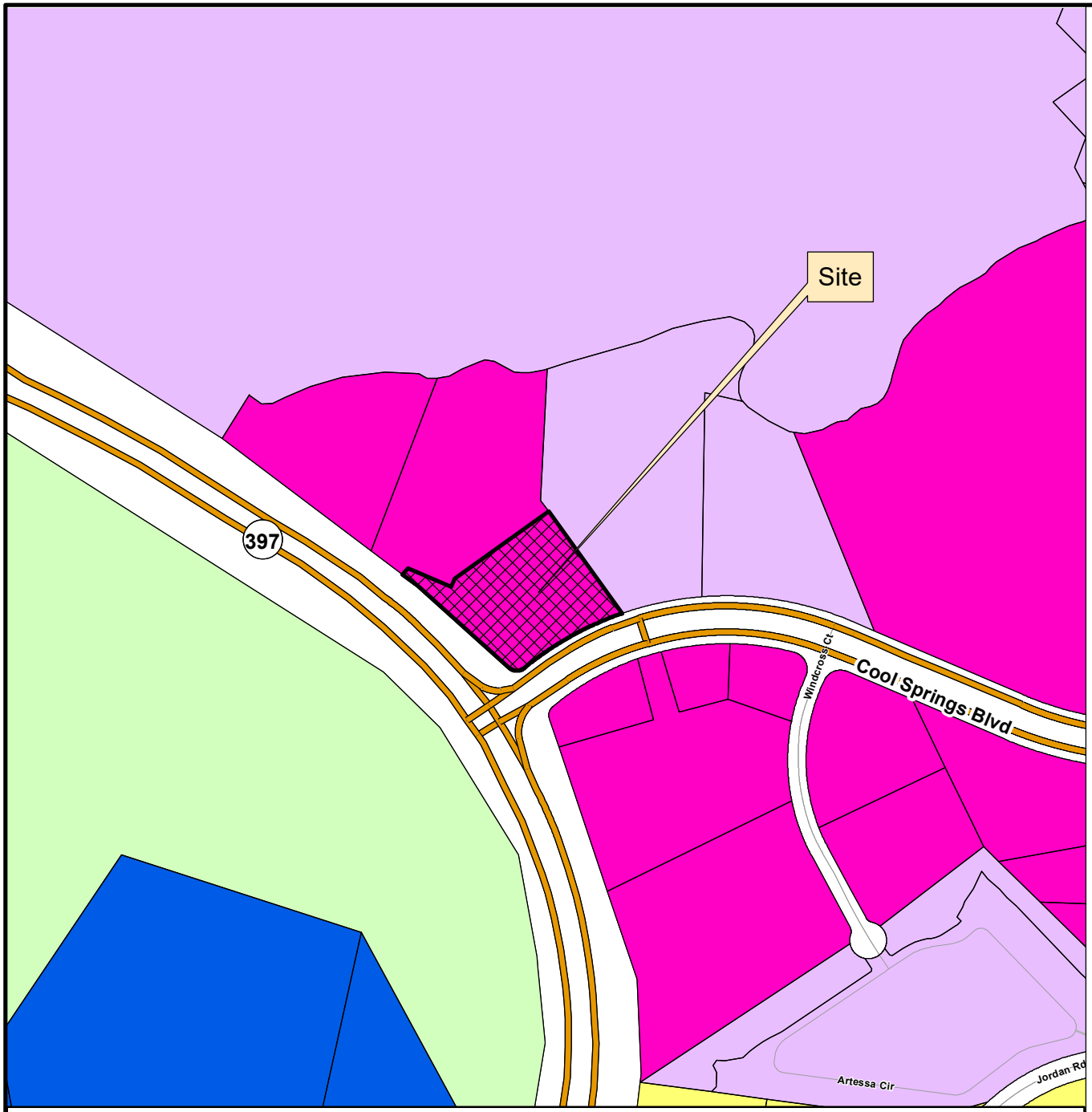
N

0 250 500 1,000
Feet

HISTORIC FRANKLIN TENNESSEE



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0 250 500 1,000
Feet

HISTORIC FRANKLIN TENNESSEE

101 COOL SPRINGS BOULEVARD

PUD SUBDIVISION, REZONING

PLANNED DISTRICT
FRANKLIN, WILLIAMSON, TENNESSEE



VICINITY MAP
NTS

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SHEET INDEX

C0.0	COVER SHEET
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OWNER:
CSLP GP
85 SOUTH SERVICE RD
PLAINVIEW, NY 10803
MITCHELL RECHLER
631-414-8484
mr@mrechler.com

APPLICANT:
GAMBLE DESIGN COLLABORATIVE
3020 STANSBERRY LANE, SUITE 201
FRANKLIN, TN 37064
GREG GAMBLE
615-975-5765
greg.gamble@gdc-tn.com

ENGINEER:
KIMLEY-HORN
10 LEA AVE, SUITE 400
NASHVILLE, TN 37204
RYAN MCMASTER, PE
615-564-2876
ryan.mcmaster@kimley-horn.com

ARCHITECT:
906 STUIDO ARCHITECTS
143 FIFTH AVE SOUTH
FRANKLIN, TN 37064
MEREDITH BUCHER, AIA
615-721-6024
meredith.bucher@906studio.com

VESTING DEVELOPMENT STANDARDS:

DEVELOPMENT STANDARD	VERSION/DATE
ZONING ORDINANCE	1.1.2023
SUBDIVISION REGULATIONS	1.1.2022
HISTORIC DISTRICT DESIGN GUIDELINES	5.30.2022
TRANSPORTATION & STREET TECH. STANDARDS	7.1.2022
STORMWATER BMP MANUAL	2021
TECHNICAL SPECIFICATIONS FOR UTILITY	10.13.2020
MUNICIPAL CODE	9.27.2022

GREGORY C. GAMBLE — TENNESSEE REGISTERED LANDSCAPE ARCHITECT — 5423

INITIAL SUBMITTAL: APRIL 10, 2023
RESUBMITTAL: MAY 4, 2023

GAMBLE DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE



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SITE SLOPE TABLE

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	20% and above

EXISTING DETENTION POND NOTE

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DESIGNED STORAGE CAPACITY:=/- 31,000 CF
EXISTING POND PER SURVEY COMPLETED BY CEC DATED 9/14/2022:
AS-BUILT STAGE STORAGE CAPACITY: +/- 31,441 CF

GRAPHIC SCALE IN FEET
0 25 50 100

NORTH

Kimley»Horn
4031 Aspen Grove Dr Suite 200, TN 37067
Main: 615.564.2701 | www.kimley-horn.com
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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER REGISTERED ENGINEER 120881 COMMERCE STATE OF TENNESSEE
2023-05-04

No.	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023

KIMLEY-HORN PROJECT NO. 118479000

OVERALL EXISTING CONDITIONS

SHEET NUMBER
C1.0

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Traffic Impact Study

101 Cool Springs Boulevard

May 2023

FOR SUBMITTAL TO:

City of Franklin, Tennessee

PREPARED FOR:

Rechler Equity Development LLC

Kimley»Horn

Traffic Impact Study

101 Cool Springs Boulevard

FOR SUBMITTAL TO:

City of Franklin, Tennessee

PREPARED FOR:

Rechler Equity Development LLC

PREPARED BY:

Kimley»Horn

4031 Aspen Grove Drive

Franklin, Tennessee 37067

615.564.2701

May 2023

Project Number 118479000



Kimley»Horn

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1.0 EXECUTIVE SUMMARY

This traffic study re-evaluated the anticipated traffic impacts associated with the *101 Cool Springs Boulevard* development, which is expected to be completed in 2025 (referred to herein as build-out year). As currently envisioned, the development will consist of multifamily housing with approximately 178 dwelling units and 3,500 SF of retail space. The approximate 2.91-acre site is located north of Cool Springs Boulevard and east of Mack Hatcher Parkway within the City of Franklin, Tennessee. The development of the 101 Cool Springs Boulevard site was previously evaluated as a 60,000 sf office complex and included in the Join TIA prepared for the 101, 151 and 201 Cool Springs Boulevard sites. Due to the change in land uses proposed for the 101 Cool Springs Boulevard Site and a slight increase in the expected trip generation, a re-evaluation was requested by the City of Franklin.

The following scenarios were considered in this analysis:

- Existing 2023 Conditions
- Projected 2025 No-Build Conditions
- Projected 2025 Build Conditions
- Projected 2030 No-Build Horizon Conditions
- Projected 2030 Build Horizon Conditions

The study network for this analysis includes the following intersections:

1. Mack Hatcher Parkway and Cool Springs Boulevard
2. Cool Springs Boulevard at Site Driveway/Commercial Driveway
3. Cool Springs Boulevard at Windcross Court
4. Cool Springs Boulevard at McEwen Drive

The proposed development will be served by two driveways:

- Right-in/right-out (RIRO) driveway along Cool Springs Boulevard approximately 475’ east of Mack Hatcher Parkway – currently full access driveway which will be converted to RIRO with other developments and is assumed to be in place by the Projected 2025 No-Build conditions.
- Extension of Windcross Court to become the north leg of the existing signalized intersection also to be completed by others and assumed in place by the Projected 2025 No-Build conditions.

1.1 NO-BUILD IMPROVEMENT RECOMMENDATIONS

The following development improvements are recommended to serve the Projected 2025 No-Build traffic conditions (Note: this would be the improvements needed to serve the background traffic and is unrelated to the *101 Cool Springs Boulevard* development).

- All Intersections
    - It is recommended for the City to continue to monitor actual traffic patterns and volumes and develop updated signal timing plans in order to optimize intersection operations and minimize delays and queue as approved developments continue to develop in the area

1.2 DEVELOPMENT IMPROVEMENT RECOMMENDATIONS

The following development improvements are recommended to serve the Projected 2025 Build traffic conditions (Note: this would be the improvements needed to serve the traffic associated with the *101 Cool Springs Boulevard* development).

- Intersection 1 – Mack Hatcher Parkway at Cool Springs Boulevard
    - Replace all existing traffic signal backplates with new retroreflective yellow backplates
    - Extend the existing concrete channelized island for the westbound right-turn movement to the north to provide barrier separation for the free-flow slip lane traveling west along Cool Springs Boulevard to north along Mack Hatcher Parkway
    - Extend the westbound left-turn lane to provide 735’ of storage
- Intersection 2 – Cool Springs Boulevard at Site Driveway
    - With the extension of the westbound left-turn lane at the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1), provide an additional turn lane pocket to provide 100’ of storage for the westbound left-turn movement at Cool Springs Boulevard at Site Driveway (Intersection 2).
- Intersection 3 – Cool Springs Boulevard at Windcross Court
    - Extend the eastbound left-turn lane to provide 340’ of storage
- Note: A concept graphic illustrating the recommended improvements is provided in **Appendix A**.

2.0 INTRODUCTION

This report presents the re-evaluation of the anticipated traffic impacts associated with the *101 Cool Springs Boulevard* development, which is expected to be completed in 2025 (referred to herein as build-out year). As currently envisioned, the development will consist of multifamily housing with approximately 178 dwelling units and 3,500 SF of retail space. The approximate 2.91-acre site is located north of Cool Springs Boulevard and east of Mack Hatcher Parkway within the City of Franklin, Tennessee. The development of the 101 Cool Springs Boulevard site was previously evaluated as a 60,000 sf office complex and included in the Join TIA prepared for the 101, 151 and 201 Cool Springs Boulevard sites. Due to the change in land uses proposed for the 101 Cool Springs Boulevard Site and a slight increase in the expected trip generation, a re-evaluation was requested by the City of Franklin.

This report will summarize the analyses of the following scenarios:

- Existing 2023 Conditions
- Projected 2025 No-Build Conditions
- Projected 2025 Build Conditions
- Projected 2030 No-Build Horizon Conditions
- Projected 2030 Build Horizon Conditions

The study network for this analysis includes the following intersections:

1. Mack Hatcher Parkway and Cool Springs Boulevard
2. Cool Springs Boulevard at Site Driveway/Commercial Driveway
3. Cool Springs Boulevard at Windcross Court
4. Cool Springs Boulevard at McEwen Drive

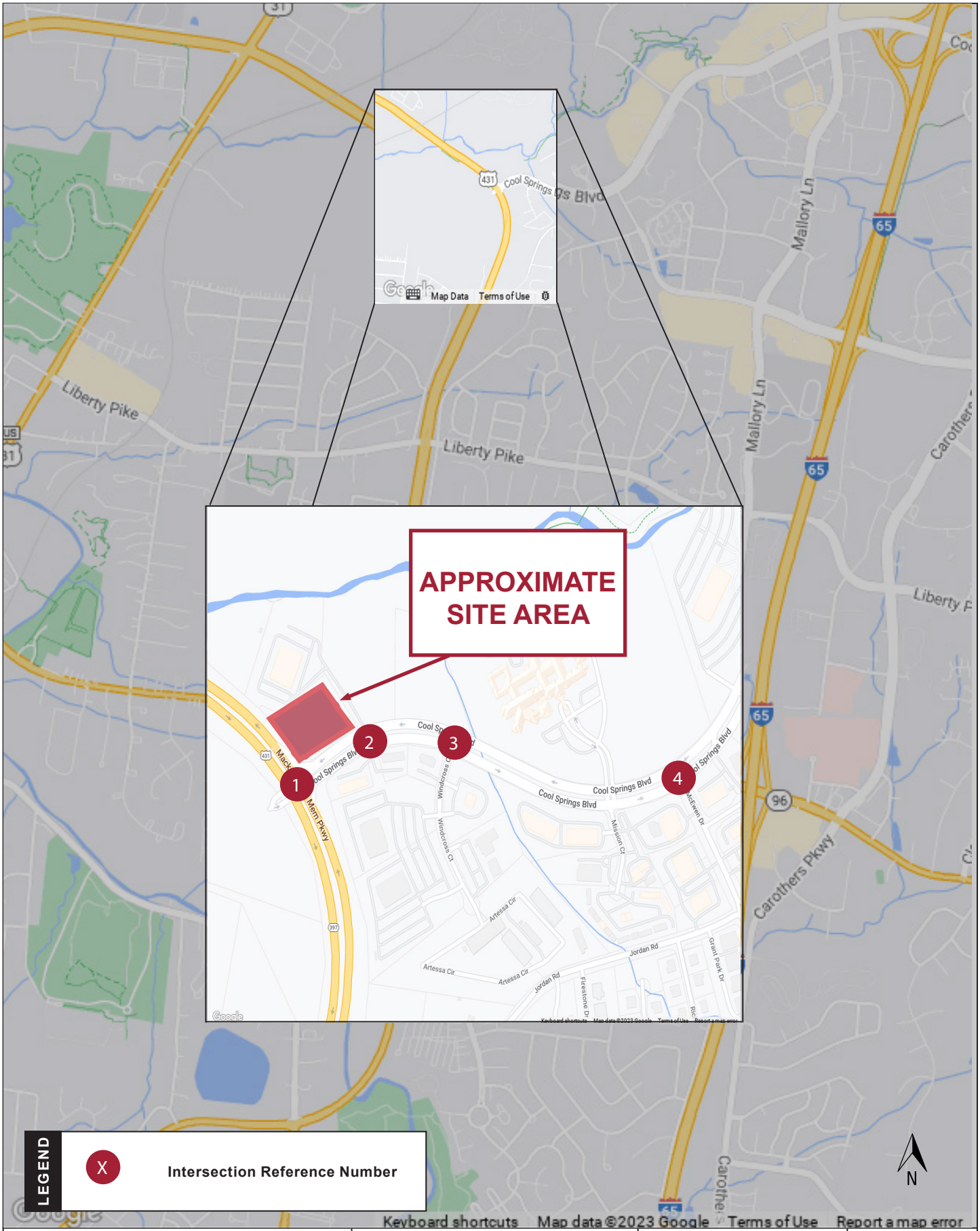
The proposed development will be served by two driveways:

- Right-in/right-out (RIRO) driveway along Cool Springs Boulevard approximately 475’ east of Mack Hatcher Parkway – currently full access driveway which will be converted to RIRO with other developments and is assumed to be in place by the Projected 2025 No-Build conditions.
- Extension of Windcross Court to become the north leg of the existing signalized intersection also to be completed by others and assumed in place by the Projected 2025 No-Build conditions.

For the purposes of this traffic impact study, Cool Springs Boulevard is considered to have an east-west orientation. Mack Hatcher Parkway, Windcross Court, McEwen Drive, Commercial Driveway, and the existing site driveway are considered to have a north-south orientation.

Figure 1 provides a location map of the project site. **Figure 2** provides an aerial image of the project site.

A site plan is also included in **Appendix A**.



Kimley»Horn	101 Cool Springs Boulevard TIS	Site Location Map	Figure 1

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Kimley»Horn	101 Cool Springs Boulevard TIS	Site Aerial	Figure 2

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3.0 EXISTING CONDITIONS

3.1 VEHICULAR NETWORK

Characteristics for the roadways within the study are summarized in **Table 1**. The existing road geometry is illustrated in **Figure 3.**

Table 1: Roadway Network				
Roadway	**Number of Lanes**	**Posted Speed Limit (MPH)**	**Functional Classification**	**2022 TDOT AADT**
Cool Springs Boulevard	4	40	Major Arterial	25,793
Mack Hatcher Parkway	4	45	Freeway/Expressway	29,532
Windcross Court	2	N/A	Local	N/A
McEwen Drive	4	30	Major Arterial	12,411

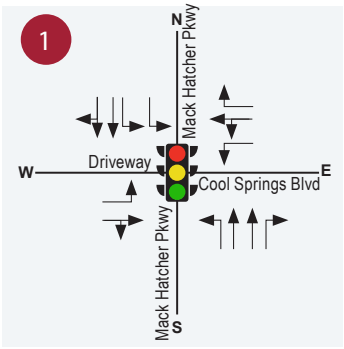
3.2 VEHICULAR VOLUMES

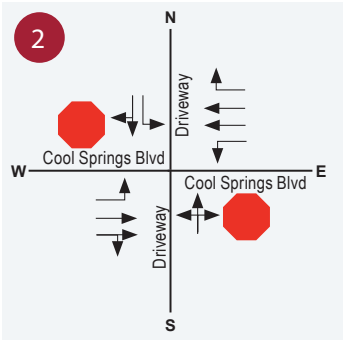
Vehicle peak hour turning movement counts (TMCs) were determined from multiple sources. New traffic counts were collected for the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1) on September 13, 2022. 2020 turning movement counts provided in the Cool Springs Transportation Study (CSTS) model were used as the base for existing counts at the intersections of Cool Springs Boulevard at Windcross Court (Intersection 3) and Cool Springs Boulevard at McEwen Drive (Intersection 4). Based on conversations with City of Franklin traffic engineering staff, the 2020 counts were considered as 2023 counts without any growth adjustment due to traffic patterns changing and/or decreasing within the study network. However, the counts were balanced with the most recent count from Mack Hatcher Parkway with magnetometer data used to determine the existing distribution between turning movements to balance accordingly. The counts for the minor street movements at the intersection of Cool Springs Boulevard at Site Driveway (Intersection 2) were taken directly from the 201 Cool Springs Boulevard (CSB) Joint TIS completed by Neel-Schaffer in 2016. The through volumes were balanced with Intersection 1. The count dates, timeframes, and observed peak hours for each study intersection are shown in **Table 2**.

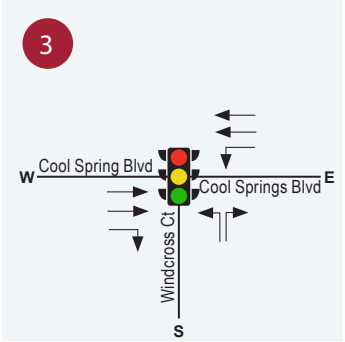
Table 2: Existing Turning Movement Count Sources		
Intersection	**Count Year**	**Count Source**
1. Mack Hatcher Parkway at Cool Springs Boulevard	2022	Collected
2. Cool Springs Boulevard at Site Driveway	2022/2016	Balanced/ 201 CSB Joint TIS
3. Cool Springs Boulevard at Windcross Court	2020	Balanced/ 201 CSB Joint TIS
4. Cool Springs Boulevard at McEwen Drive	2020	CSTS Model

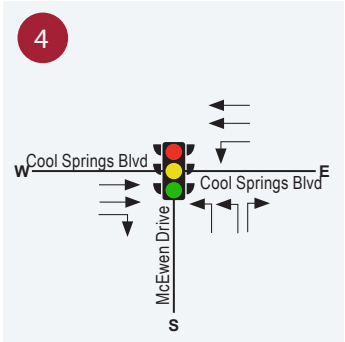
The Existing 2023 peak hour traffic volumes are shown in **Figure 4**. The 2022 collected traffic count data is provided in **Appendix B**.











LEGEND

- Existing Lanage
- Existing Traffic Signal
- Existing Stop Sign

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Kimley»Horn	101 Cool Springs Boulevard TIS	Existing 2023 Intersection Geometry	Figure 3

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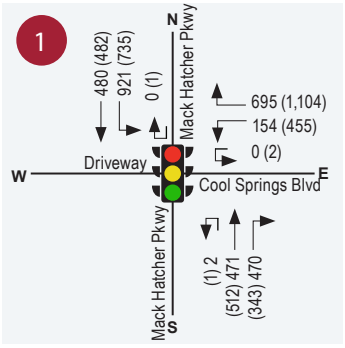

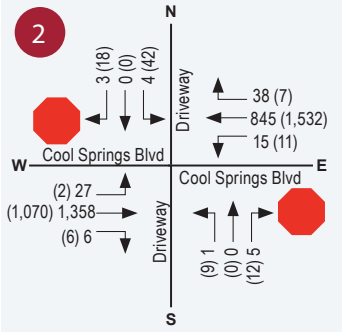

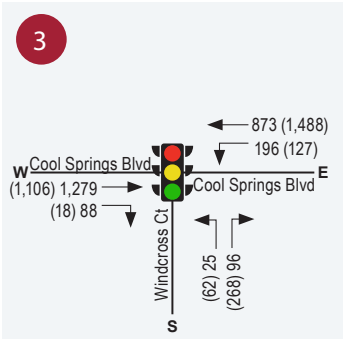

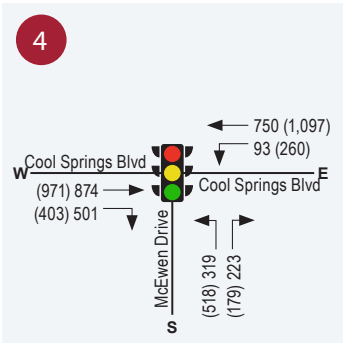

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

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Kimley»Horn	101 Cool Springs Boulevard TIS	Existing 2023 Traffic Volumes	Figure 4

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3.3 HISTORICAL CRASH DATA

Using the *AASHTOWare Safety* tool, historical crash data from 2020-2022 was collected for the intersections and corridors in this study. Crash type, manner of collision and crash rates were collected at each location. The crash summaries are provided in **Table 3**. The 2019-2020 TDOT crash rates were collected for each intersection and segment in the study network and are provided in the table.

Table 3: Crash Summary

Location	Crash Type					Manner of Collision				Rates	
	Fatal	Serious Injury	Possible Injury	Minor Injury	PDO	Angle	No Vehicle Collision	Rear End	Sideswipe	Crash Rate	TDOT Crash Rate
Intersections											
1.Mack Hatcher Pkwy at Cool Springs Blvd	0	0	1	3	36	4	2	24	6	1.293	0.714
2.Cool Springs Blvd at Site Driveway	0	0	1	0	1	1	1	0	0	0.000	0.551
3.Cool Springs Blvd at Windcross Ct	0	0	0	0	7	1	0	4	1	0.301	0.714
4.Cool Springs Blvd at McEwen Dr	0	0	0	1	9	2	1	7	0	0.339	0.714
Segments											
Cool Springs Blvd between Mack Hatcher Parkway & Windcross Ct	0	0	1	0	2	0	1	1	1	0.595	2.027
Cool Springs Blvd between Windcross Ct & McEwen Dr	0	0	1	1	21	4	1	13	4	0.947	2.027

With the exception of the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1), all intersections and segments report below their respective TDOT crash rates averages.

The intersection of Mack Hatcher Parkway at Cool Springs Boulevard shows a crash rate of 1.29 over the 0.714 TDOT average. However, although the rate is higher, data shows that only 4 of the 36 collected collisions registered 1 possible injury and 3 minor injuries. The data shows no fatal or serious injuries registered. Approximately 90% of the collisions were registered as property damage only, with over 60% being rear end collisions.

To minimize rear end collisions, it is recommended for the city to continue to monitor traffic volumes and update signal timings to minimize queuing. In addition, it is recommended that the existing traffic signal backplates be changes to yellow retro reflective backplates.

Additionally, the following improvements were discussed with the City:

- Intersection 1 – Mack Hatcher Parkway at Cool Springs Boulevard
    - Extend the existing concrete channelized island for the westbound right-turn movement to the north to provide barrier separation for the free-flow slip lane traveling west along Cool Springs Boulevard to north along Mack Hatcher Parkway
    - Extend the westbound left-turn lane to provide 735’ of storage
- Intersection 2 – Cool Springs Boulevard at Site Driveway
    - With the extension of the westbound left-turn lane at the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1), provide an additional turn lane pocket to provide 100’ of storage for the westbound left-turn movement at Cool Springs Boulevard at Site Driveway (Intersection 2).
- Intersection 3 – Cool Springs Boulevard at Windcross Court
    - Extend the eastbound left-turn lane to provide 340’ of storage
- Note: A concept graphic illustrating the recommended improvements is provided in **Appendix A**.

4.0 NO-BUILD CONDITIONS

Background traffic is defined as expected traffic on the roadway in future year(s) absent the construction and opening of the proposed project. Background traffic can include a base growth rate based on historical count data as well as population growth data and estimates.

To account for background traffic, the existing traffic volumes were increased by a growth of 2% per year for two years to account for the expected background growth through year 2025. Additionally, the existing traffic volumes were increased by a growth of 2% per year for seven years to account for the expected background growth through year 2030 for the Horizon Year analysis. Movements associated with the site driveway, commercial driveway, and Windcross Court were not grown since these were derived from existing counts or project specific trip generations.

Project trips from approved developments considered in the Cool Springs Transportation Study (CSTS) model were also added to the existing traffic in addition to the background growth rate. Additionally, project trips from The Optima Franklin development, which were not included in the CSTS model, were included in the calculations. The developments in the CSTS model have varying build-out years from now through 2030. However, for the purpose of this study, conservatively all developments were included in the 2025 background traffic projects regardless of the actual build out year of the individual development. In addition, since the CSTS model was completed in 2020, three years ago, some developments, or portions of them have been completed. These projects were excluded from the No-Build models, since traffic from these developments would have been captured in the existing counts. The assumptions for the current build-out state and peak trips included in the model are provided by approved development below in **Table 4**. **Figure 5 and 6** illustrates the Projected 2025 and 2030 No-Build traffic volumes, respectively. Volume development worksheets are provided in **Appendix C** which show the calculations for the No-Build traffic volumes.

Table 4: CSTS Model Approved Developments					
Development Name	**Build-Out Year**	**Current % Occ.**	**Daily Trips**	**AM Peak Trips**	**PM Peak Trips**
1. Liberty Station	2019	100%	0	0	0
2. Franklin Summit	N/A	0%	6,354	475	628
3. Aureum	2026	0%	20,715	1,279	1,738
4. Ovation	2030	15%	27,249	1,852	2,413
5. Huffines Ridge	2023	0%	5,365	383	441
6. Carothers Crossing West	2023	95%	203	14	14
7. Carothers Crossing East	2022	100%	0	0	0
8. Apex Village	N/A	0%	12,796	790	663
9. Franklin Park	2028	40%	23,765	1,538	1,707
10. East Works	2032	0%	30,309	2,331	2,316
11. 7086 Bakers Bridge Avenue	2022	100%	0	0	0
12. The Franklin at Legends	Removed – Added Joint TIS Trips*				
13. Mallory Green	2020	100%	0	0	0
14. McEwen Town Center	2032	20%	22,717	680	1,256
15. Avalon Square	N/A	0%	27,502	1,824	2,322
16. Vintage Franklin	2024	0%	4,695	398	420

**Trip generation for the 201/151 CSB Joint TIS was modified to remove the previous assumptions for the 101 Cool Springs Boulevard development and added to each intersection based on the distribution provided in the TIS*

4.1 FUTURE TRANSPORTATION INFRASTRUCTURE IMPROVEMENTS

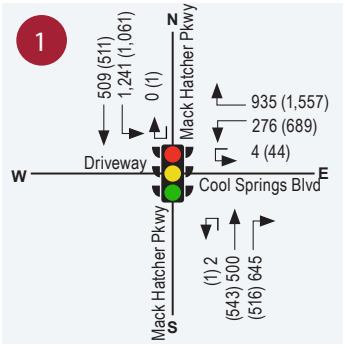
With the development of the projects listed in Table 4, the following improvements were assumed to be completed prior to the Year 2025 Build scenario, since these improvements are condition of approval for some of these development projects:

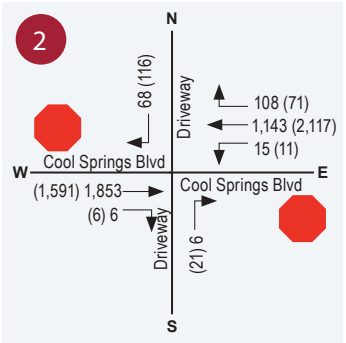
- Intersection 2: Cool Springs Boulevard at Site Driveway/Commercial Driveway
  - Convert the existing full-movement intersection to a right-in/right/out (RIRO) for the southbound approach (north leg)
  - Restripe the existing southbound left-turn lane as an additional southbound right-turn lane (north leg)
  - Prohibit northbound left-turns from exiting the existing commercial driveway (south leg)
  - Maintain allowing the westbound left-turn into the existing commercial driveway (south leg)
- Intersection 3: Cool Springs Boulevard at Windcross Court
  - Construct the north leg of the intersection with one southbound left-turn and one southbound shared through/right-turn lane
  - Restripe the northbound approach to include one northbound left-turn and one northbound shared through/right-turn lane
  - Provide protected-permissive left-turn phasing for all approaches

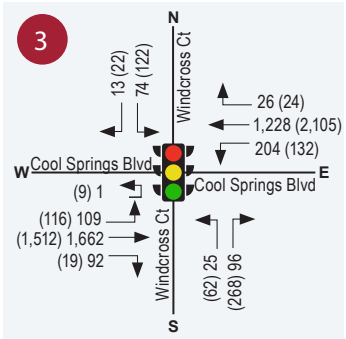
- Intersection 4: Cool Springs Boulevard at McEwen Drive
    - Construct the north leg of the intersection with one southbound left-turn lane, one southbound through lane, and one southbound right-turn lane
    - Provide a westbound right-turn lane
    - Provide an eastbound left-turn lane
    - Provide a northbound through lane
    - Provide protected-permissive left-turn phasing for the southbound, eastbound, and westbound approaches
    - Provide protected only left-turn phasing for the northbound approach

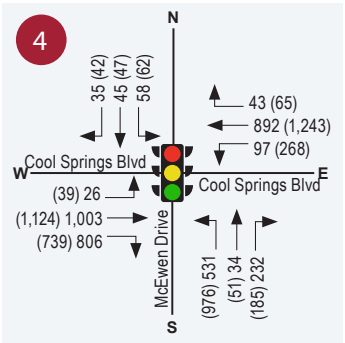
Figure 7 illustrates the intersection geometry assumed for the 2025 and 2030 No-Build conditions.











LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

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Kimley»Horn	101 Cool Springs Boulevard TIS	No-Build 2025 Traffic Volumes	Figure 5

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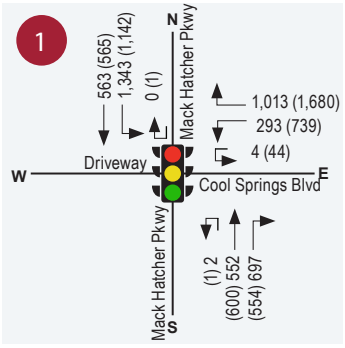

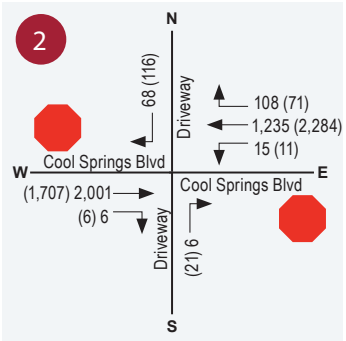

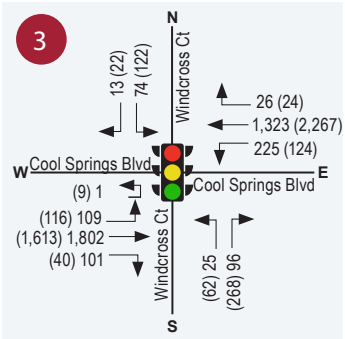

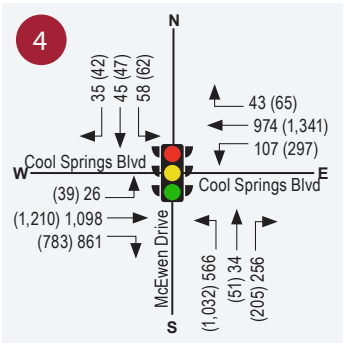

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

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Kimley»Horn	101 Cool Springs Boulevard TIS	No-Build 2030 Horizon Traffic Volumes	Figure 6

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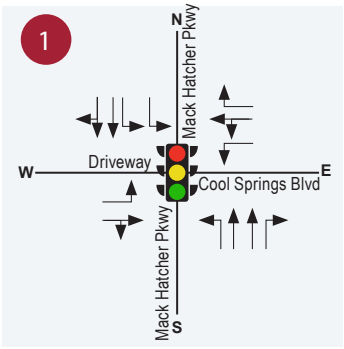

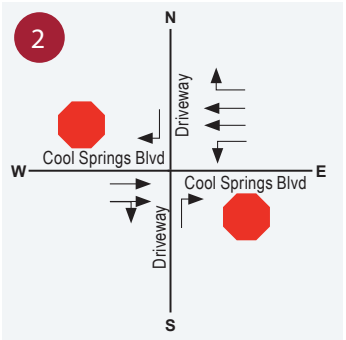

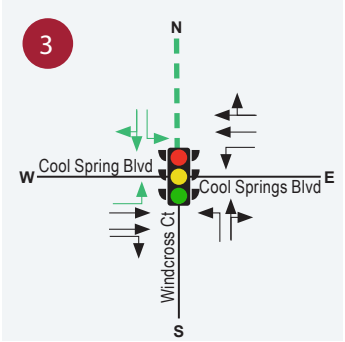

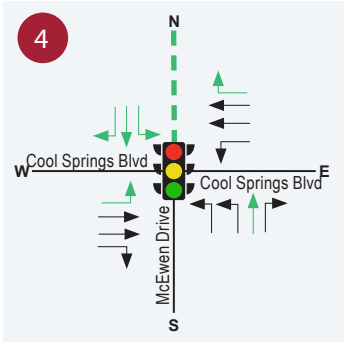



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Kimley»Horn	101 Cool Springs Boulevard TIS	No-Build Intersection Geometry	Figure 7

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5.0 BUILD CONDITIONS

5.1 SITE ACCESS AND CIRCULATION

The proposed project will have access from Intersection 2 (Cool Springs Boulevard at Commercial Driveway) and Intersection 3 (Cool Springs Boulevard and Windcross Court). Both of these intersections will be modified by others prior to this development as described in *Section 4.1*.

5.2 TRIP GENERATION

Traffic for the proposed development was calculated using rates and equations contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, *11th Edition*, using equations where available.

Internal capture (or mixed-use) reductions represent the concept that trips generated by individual land uses within a site may remain internal to the site. Mixed-use vehicle trip reductions are calculated using guidance from the *ITE Trip Generation Handbook, 3rd Edition*.

Alternative modes of transportation include pedestrians, bicyclists, and transit users. Alternate mode reductions account for the notion that some site-generated trips will occur by a means other than an automobile.

A pass-by trip occurs when a proposed development diverts traffic that is already traveling on a street adjacent to the site. Pass-by reductions are calculated using guidance from the *ITE Trip Generation Handbook, 3rd Edition*.

Although the site is likely to generate some alternative mode and/or pass-by trips, the trip generation for the site was determined with only internal capture reductions to the gross trips in order to present a more conservative analysis. However, the internal capture reductions were conservatively limited to 10% for the retail use.

Table 5 summarizes the project trip generation. **Appendix C** provides a detailed trip generation worksheet for the proposed development.

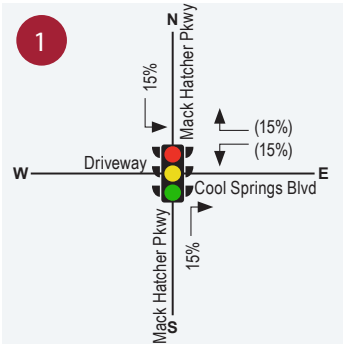
Table 5: Trip Generation								
ITE Code	Land Use	Density	Daily		AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit	Enter	Exit
220	Multifamily Housing (Low-Rise)	178 units	608	608	19	59	61	36
822	Strip Retail Plaza (<40ksf) (Proposed)	3,500 SF	189	189	8	6	19	18
Gross Trips			**797**	**797**	**27**	**65**	**80**	**54**
Reduction – Internal Capture			*-19*	*-19*	*0*	*0*	*-2*	*-2*
New Trips			**778**	**778**	**27**	**65**	**78**	**52**

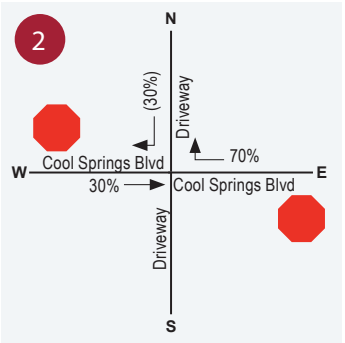
5.3 TRIP DISTRIBUTION AND ASSIGNMENT

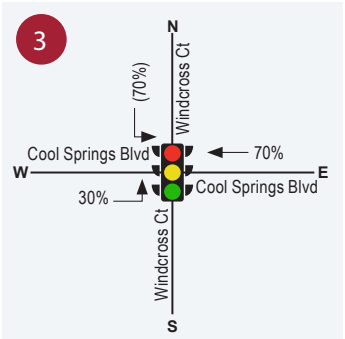
The directional distribution and assignment of new project trips was based on a review of land uses and population densities in the area and the existing peak hour turning movement counts. **Figure 8** illustrates the directional distribution and assignment of new project trips. **Figure 9** illustrates the assignment of project trips to the study network. The Projected 2025 and 2030 Build peak hour volumes are shown in **Figure 10 and 11,** respectively.

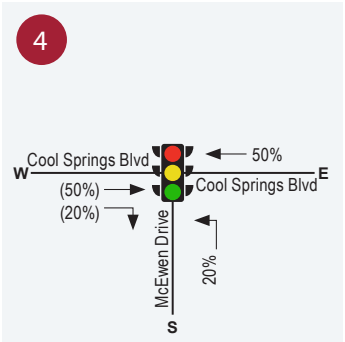
Appendix C provides intersection volume worksheets for all intersections and driveways within the study network.

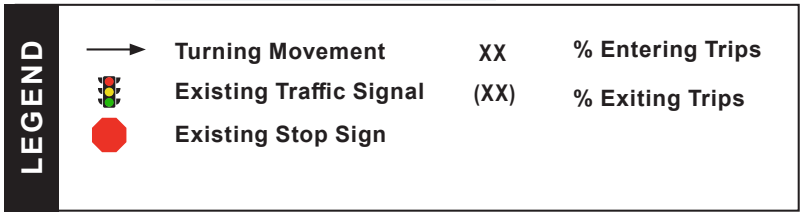














Kimley»Horn	101 Cool Springs Boulevard TIS	Trip Distribution & Assignment	Figure 8

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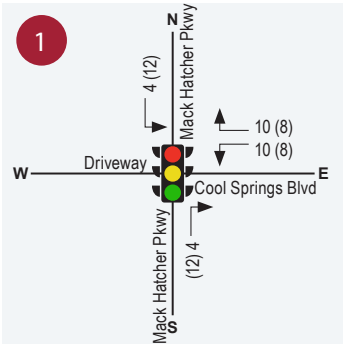

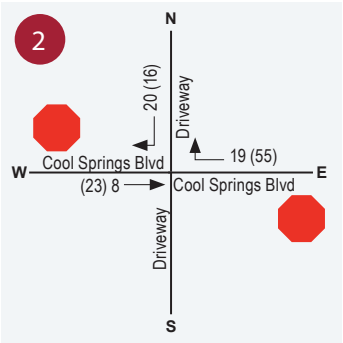

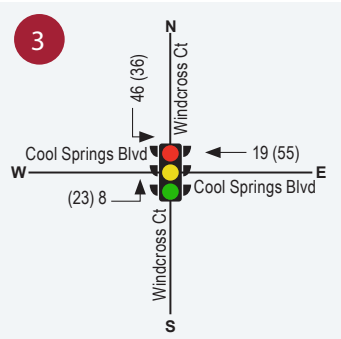

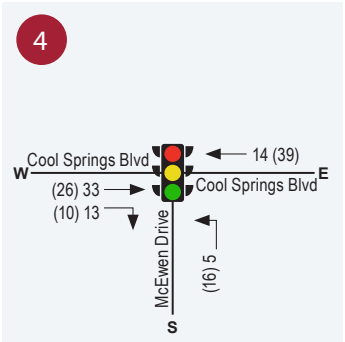

LEGEND

→	Turning Movement	XX	AM Peak Hour Project Trips
	Existing Traffic Signal	(XX)	PM Peak Hour Project Trips
	Existing Stop Sign		

N

Kimley»Horn	101 Cool Springs Boulevard TIS	Project Trips	Figure 9

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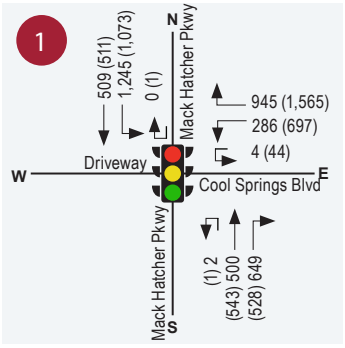

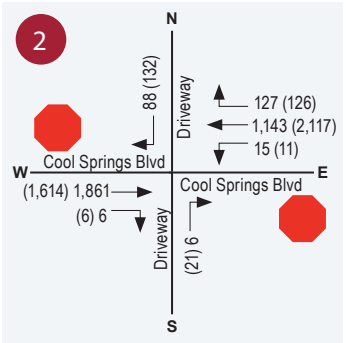

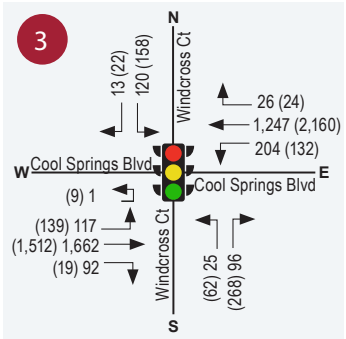

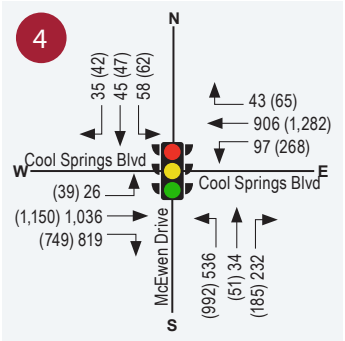

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

N

Kimley»Horn	101 Cool Springs Boulevard TIS	2025 Build Traffic Volumes	Figure 10

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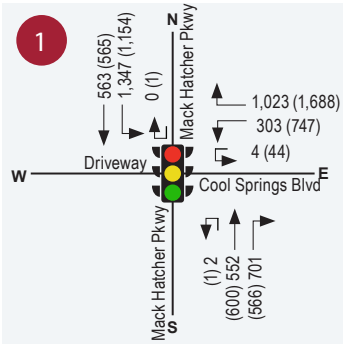

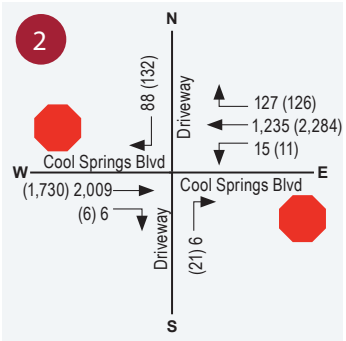

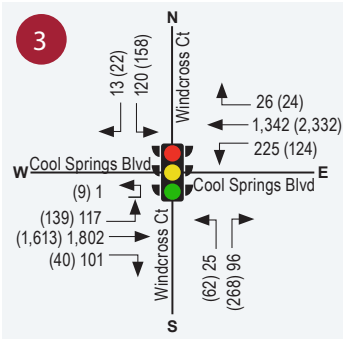

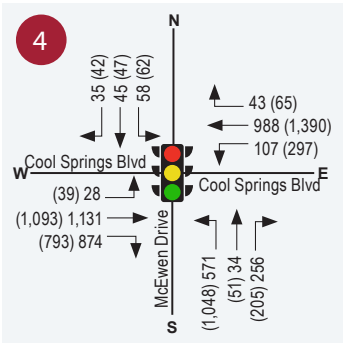

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

N

Kimley»Horn	101 Cool Springs Boulevard TIS	2030 Build Traffic Volumes	Figure 11

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6.0 CAPACITY ANALYSES

6.1 INTERSECTION CAPACITY ANALYSIS

Level-of-service (LOS) determinations were made for the weekday AM and PM peak hours for the study network intersections using *Synchro, Version 11.0. Synchro* software uses methodologies contained in the *Highway Capacity Manual, 6th Edition* to determine the operating characteristics of an intersection. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a specified period under prevailing roadway, traffic, and control conditions.

LOS is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions of a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F the worst.

Levels-of-service for unsignalized intersections, with stop control on the minor street only, are reported for the side-street approaches and major street left-turns. Low levels-of-service for side street approaches are not uncommon, as vehicles may experience significant delay turning onto a major roadway.

Levels-of-service for signalized intersections are reported for the intersection as a whole. One or more movements at an intersection may experience a low level-of-service, while the intersection as a whole may operate acceptably.

Note: Due to software limitations, U-turn movements were added to the adjacent left-turn or through movements (depending on intersection configuration) to include those volumes in the analyses.

The results of the capacity analyses are summarized in **Table 8**. The *Synchro* analyses reports are included in **Appendix D**.

Table 6: Level-of-Service Summary *(Delay in Seconds)*												
Intersection	**Control**	**Approach/ Movement**	**Existing 2023**		**No-Build 2025**		**Build 2025**		**No-Build 2030 Horizon Year**		**Build 2030 Horizon Year**	
			AM Peak	**PM Peak**	**AM Peak**	**PM Peak**	**AM Peak**	**PM Peak**	**AM Peak**	**PM Peak**	**AM Peak**	**PM Peak**
1. Mack Hatcher Pkwy at Cool Springs Blvd	**Signal**	**NBT**	**B (19.6)**	**C (31.2)**	**D (36.3)**	**E (56.2)**	**D (36.3)**	**E (56.9)**	**D (37.6)**	**E (63.7)**	**D (37.6)**	**E (64.5)**
		NBR	**C (21.2)**	**B (18.3)**	**D (51.2)**	**C (33.9)**	**D (52.3)**	**C (34.4)**	**E (69.6)**	**D (35.9)**	**E (71.2)**	**D (36.5)**
		SBL	**D (43.0)**	**E (58.3)**	**D (48.5)**	**D (54.7)**	**D (48.9)**	**D (54.9)**	**E (63.2)**	**E (57.5)**	**E (64.0)**	**E (58.2)**
		SBT	**A (2.7)**	**A (5.6)**	**A (4.7)**	**B (10.6)**	**A (4.7)**	**B (10.7)**	**A (4.8)**	**B (11.5)**	**A (4.8)**	**B (11.6)**
		WBL	**D (46.1)**	**E (76.9)**	**D (50.0)**	**E (68.9)**	**D (50.4)**	**E (69.1)**	**D (50.8)**	**E (70.7)**	**D (51.4)**	**E (71.1)**
		WBR	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**
		NB	**C (20.4)**	**C (26.0)**	**D (44.7)**	**D (45.3)**	**D (45.3)**	**D (45.8)**	**E (55.4)**	**D (50.3)**	**E (56.4)**	**D (50.9)**
		SB	**C (29.2)**	**D (37.4)**	**D (35.8)**	**D (40.3)**	**D (36.1)**	**D (40.7)**	**D (46.0)**	**D (42.3)**	**D (46.6)**	**D (42.9)**
		WB	**D (46.1)**	**E (76.9)**	**D (50.0)**	**E (68.9)**	**D (50.4)**	**E (69.1)**	**D (50.8)**	**E (70.7)**	**D (51.4)**	**E (71.1)**
		Overall	**C (26.9)**	**D (40.7)**	**D (40.3)**	**D (48.1)**	**D (40.7)**	**D (48.5)**	**D (49.8)**	**D (50.9)**	**D (50.5)**	**D (51.5)**
2. Cool Springs Blvd at Commercial Dwy/Site Dwy	**TWSC**	**NB**	**C (19.4)**	**C (23.1)**	**C (19.8)**	**C (17.6)**	**C (19.9)**	**C (17.9)**	**C (21.7)**	**C (18.9)**	**C (21.8)**	**C (19.2)**
		SB	**C (20.8)**	**F (67.8)**	**B (14.7)**	**E (46.4)**	**C (15.3)**	**F (54.2)**	**C (15.6)**	**F (61.3)**	**C (16.3)**	**F (74.6)**
		EBL	**B (10.1)**	**B (14.1)**								
		WBL	**B (12.9)**	**B (11.0)**	**C (17.9)**	**B (14.9)**	**C (18.0)**	**C (15.1)**	**C (20.0)**	**C (16.0)**	**C (20.1)**	**C (16.3)**

Table 6: Level-of-Service Summary *(Delay in Seconds)*												
Intersection	Control	Approach/ Movement	Existing 2023		No-Build 2025		Build 2025		No-Build 2030 Horizon Year		Build 2030 Horizon Year	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
3. Cool Springs Blvd at Windcross Ct	Signal	NBL	D (39.6)	F (86.1)	D (47.4)	E (61.8)	D (47.4)	E (60.9)	D (47.4)	E (60.8)	D (47.4)	E (60.0)
		NBT			A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		NBR	D (54.2)	F (113.1)	F (82.2)	F (94.5)	F (82.2)	F (95.5)	F (82.2)	F (95.6)	F (82.2)	F (96.6)
		SBL			D (49.2)	E (77.6)	D (54.4)	F (114.9)	D (49.2)	E (71.3)	D (54.4)	F (99.0)
		SBT			A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBR			D (48.9)	E (64.2)	D (47.9)	E (63.3)	D (48.9)	E (62.3)	D (47.9)	E (61.4)
		EBL			B (13.5)	E (72.1)	B (14.7)	E (78.5)	B (15.0)	F (84.0)	B (16.6)	F (92.0)
		EBT	B (10.4)	A (5.8)	C (27.1)	B (19.6)	C (28.9)	C (20.4)	D (35.6)	C (22.6)	D (39.1)	C (23.6)
		EBR	A (6.4)	A (3.8)	B (11.6)	A (7.5)	B (12.1)	A (7.8)	B (11.7)	A (8.1)	B (12.2)	A (8.5)
		WBL	B (12.9)	A (4.4)	E (60.4)	C (22.4)	E (64.1)	C (23.2)	F (113.7)	C (28.8)	F (120.3)	C (29.0)
		WBT	A (0.3)	A (0.5)	B (16.2)	C (31.3)	B (17.2)	E (68.9)	B (17.1)	F (81.2)	B (18.2)	F (109.8)
		WBR			B (16.1)	C (32.0)	B (17.1)	E (70.3)	B (17.1)	F (82.9)	B (18.1)	F (111.5)
		NB	D (51.2)	F (101.5)	E (75.0)	F (83.4)	E (75.0)	F (84.2)	E (75.0)	F (84.3)	E (75.0)	F (85.3)
		SB			D (49.2)	E (75.5)	D (53.7)	F (108.6)	D (49.2)	E (69.9)	D (53.7)	F (94.4)
		EB	B (10.1)	A (5.8)	C (25.6)	C (23.4)	C (27.2)	C (25.4)	C (33.3)	C (26.6)	D (36.5)	C (28.9)
		WB	A (2.6)	A (0.8)	C (22.4)	C (31.1)	C (23.6)	E (67.0)	C (30.9)	E (79.3)	C (32.6)	F (106.6)
		Overall	A (8.9)	A (7.8)	C (26.5)	C (31.8)	C (28.3)	D (53.4)	C (34.0)	E (58.6)	D (36.7)	E (75.1)

Table 6: Level-of-Service Summary *(Delay in Seconds)*												
Intersection	Control	Approach/ Movement	Existing 2023		No-Build 2025		Build 2025		No-Build 2030 Horizon Year		Build 2030 Horizon Year	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
4. Cool Springs Blvd at McEwen Dr	Signal	NBL	D (49.4)	F (94.5)	D (52.3)	E (75.1)	D (52.3)	E (78.9)	D (52.4)	F (133.4)	D (52.4)	F (140.3)
		NBT			D (36.6)	D (37.1)	D (36.5)	D (37.1)	D (35.7)	D (40.7)	D (35.5)	D (40.7)
		NBR	D (53.5)	D (53.5)	D (36.8)	C (24.5)	D (36.6)	C (24.5)	D (35.9)	C (28.1)	D (35.7)	C (28.1)
		SBL			E (66.6)	F (103.0)	E (66.6)	F (103.0)	E (66.6)	F (103.2)	E (66.6)	F (103.2)
		SBT			D (54.2)	E (77.7)	D (54.2)	E (77.7)	D (54.2)	E (77.7)	D (54.2)	E (77.7)
		SBR			D (54.2)	E (70.1)	D (54.2)	E (70.1)	D (54.2)	E (70.1)	D (54.2)	E (70.1)
		EBL			E (61.3)	F (90.3)	E (60.9)	F (89.2)	E (59.2)	F (88.0)	E (59.2)	F (86.8)
		EBT	B (12.1)	B (16.9)	C (28.5)	F (108.2)	C (29.1)	F (117.8)	C (31.3)	F (94.3)	C (32.1)	F (102.7)
		EBR	A (7.5)	A (5.5)	C (21.4)	C (26.2)	C (21.7)	C (26.5)	C (23.5)	C (28.2)	C (24.7)	C (28.4)
		WBL	A (8.1)	B (16.5)	E (78.0)	F (133.8)	E (78.0)	F (133.8)	F (80.5)	F (172.0)	F (80.5)	F (172.0)
		WBT	A (5.3)	A (8.9)	C (23.8)	D (47.8)	C (24.2)	D (50.2)	C (26.0)	D (45.2)	C (26.4)	D (47.5)
		WBR			B (17.0)	C (22.5)	B (17.1)	C (22.5)	B (17.6)	B (19.8)	B (17.7)	B (19.8)
		NB	D (51.1)	F (84.0)	D (47.1)	E (65.8)	D (47.1)	E (69.0)	D (46.8)	F (113.0)	D (46.8)	F (118.8)
		SB			E (59.4)	F (85.9)	E (59.4)	F (85.9)	E (59.4)	F (86.0)	E (59.4)	F (86.0)
		EB	B (10.4)	B (13.6)	C (25.8)	E (76.0)	C (26.3)	F (81.9)	C (28.3)	E (68.7)	C (29.2)	E (73.9)
		WB	A (5.6)	B (10.3)	C (28.6)	E (61.4)	C (28.8)	E (63.0)	C (30.9)	E (66.3)	C (31.1)	E (67.7)
		Overall	B (16.9)	C (26.6)	C (32.3)	E (69.0)	C (32.5)	E (72.6)	C (33.9)	E (79.4)	C (34.4)	F (83.3)

Substandard MOVEMENT LOS per City of Franklin guidelines

Substandard OVERALL LOS per City of Franklin guidelines

The City of Franklin Traffic Impact Study (TIS) Guidelines define the substandard LOS for intersection turning movements as LOS F and the overall intersection as LOS E and LOS F.

Under existing PM conditions, the southbound approach at the intersection of Cool Springs Boulevard and Site Driveway (Intersection 2) operates at LOS F. Low levels-of-service for side street approaches are not uncommon, as vehicles may experience significant delay turning onto a major roadway. However, this is projected to be mitigated or reduced with the No-Build improvements prohibiting minor street left-turns. Delay and queues associated with this approach are only impacting the site and do not impact the through movements along Cool Springs Boulevard. The northbound left and northbound right movements at the intersection of Cool Springs Boulevard at Windcross Court (Intersection 3) operates at LOS F during the PM peak hour. Additionally, the northbound left movement at the intersection of Cool Springs Boulevard at McEwen Drive (Intersection 4) operates at LOS F during the PM peak hour.

Under No-Build AM conditions, the northbound right movement at the intersection of Cool Springs Boulevard and Windcross Court (Intersection 3) is projected to operate at LOS F. Under No-Build PM conditions, the northbound right movement at the intersection of Cool Springs Boulevard and Windcross Court (Intersection 3) and the southbound left, eastbound left, eastbound through, and westbound left movements at Cool Springs Boulevard and McEwen Drive (Intersection 4) are projected to operate at LOS F. Windcross Court and McEwen Drive (Intersection 4) is projected to operate at overall LOS E during the No-Build PM peak. The No-Build conditions represent the projected traffic conditions without the *101 Cool Springs Boulevard* development.

Under the Build conditions, the substandard LOS from the No-Build conditions are projected to continue for the same movements with the addition of the southbound right movement at the intersection of Cool Springs Boulevard at Site Driveway (Intersection 2) and the southbound left movement at the intersection of Cool Springs Boulevard and Windcross Court (Intersection 3). Windcross Court and McEwen Drive (Intersection 4) is projected to operate at overall LOS E during the PM peak with an increase in delay of 3.2 seconds.

Under 2030 Horizon Year No-Build and Build conditions, delays will continue to increase with substandard movement and overall LOS indicated by the highlighted cells in the tables above.

6.2 QUEUEING ANALYSIS

The *Highway Capacity Manual 6th Edition* provides insight and guidance regarding the back of queue for signalized intersections.

"The back-of-queue position is the position of the vehicle stopped farthest from the stop line during the cycle as a consequence of the display of a red signal indication. The back-of-queue size depends on the arrival pattern of vehicles and on the number of vehicles that do not clear the intersection during the previous cycle." (Source: *Highway Capacity Manual 6th Edition*, Chapter 19)

A queueing analysis was performed using *Synchro* software to evaluate and determine the forecasted 95th percentile queue lengths for all signalized intersections within the study area. The queue lengths are summarized in **Table 9**. The 95th percentile queueing reports are included in the *Synchro* Reports, in **Appendix D**.

95th percentile queue lengths that are projected to exceed the available storage are indicated by the highlighted cells in the table below. As noted previously in *Section 3.3*, recommendations have been made to improve some storage lengths within the study network. For the purposes of the comparison table below, the existing storage lengths have been provided and compared to the projected queue lengths. The storage improvements are not incorporated into the table below.

Table 7: 95th Percentile Queue Results
(Length in Feet)

Intersection	Control	Approach/ Movement	Storage Length (ft)	Existing 2023		No-Build 2025		Build 2025		No-Build 2030 Horizon Year		Build 2030 Horizon Year	
				AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. Mack Hatcher Pkwy at Cool Springs Blvd	Signal	NBT	-	164	301	238	376	238	376	264	#448	264	#448
		NBR	1000	267	251	#520	526	#527	545	#618	591	#624	614
		SBL	1000	#393	418	#638	642	#641	653	#727	#1415	#730	#1430
		SBT	-	61	104	80	149	80	149	90	166	90	166
		WBL	-	70	323	148	m313	150	m302	143	m369	m146	m363
		WBR	230	29	1025	535	m946	531	m887	566	m#1052	564	m#989
2. Cool Springs Blvd at Commercial Dwy/Site Dwy	TWSC	NB	-	3	7.5	2.5	5	2.5	5	2.5	7.5	2.5	7.5
		SB	-	3	57.5	15	85	20	107.5	15	105	22.5	130
		EBL	270	3	0								
		WBL	335	3	2.5	5	2.5	5	2.5	5	2.5	5	2.5
3. Cool Springs Blvd at Windcross Ct	Signal	NBL	-	41	125	43	107	43	107	43	110	43	110
		NBT				0	#335	0	#347	0	#443	1	#460
		NBR	150	47	#300	0	0	0	0	0	0	0	0
		SBL				97	#207	147	#307	97	198	147	#285
		SBT				0	0	0	0	0	0	0	0
		SBR				0	0	0	0	0	0	0	0
		EBL	260			m31	m126	m34	m160	m29	m36	m31	m42
		EBT	-	m431	516	m785	940	m781	941	m788	m313	m785	m314
		EBR	300	m16	m4	m10	m0	m10	m0	m11	m0	m11	m0
		WBL	235	m98	m16	#289	m82	#287	m80	#337	m68	#330	m65
		WBT	-	60	m107	432	m#1593	440	m#1644	478	m#1477	487	m#1527
		WBR				0	0	0	0	0	0	0	0
4. Cool Springs Blvd at McEwen Dr	Signal	NBL	-	#172	#428	265	#717	269	#736	285	#821	288	#840
		NBT				49	80	49	80	49	81	49	81
		NBR	300	127	140	153	111	153	111	174	152	174	152
		SBL				96	123	96	123	96	124	96	124
		SBT				77	100	77	100	77	100	77	100
		SBR				0	0	0	0	0	0	0	0
		EBL				m29	m59	m27	m58	m27	m57	m25	m56
		EBT	-	103	m121	m386	m#889	m405	m#895	m380	m#891	m419	m#918
		EBR	260	0	m17	m31	m779	m10	m754	m13	m817	m8	m812
		WBL	260	32	129	139	#516	139	#516	#167	#604	#167	#604
		WBT	-	106	275	404	803	412	#884	454	#919	462	#967
		WBR				0	15	0	15	0	14	0	14

Definitions

m = Volume for 95th percentile queue is metered by upstream signal

= 95th percentile volume exceeds capacity, queue may be longer

7.0 CONCLUSION

This traffic study re-evaluated the traffic impacts associated with the *101 Cool Springs Boulevard* development located north of Cool Springs Boulevard and east of Mack Hatcher Parkway within the City of Franklin, Tennessee. The development, which is approximately 2.91-acres in size, will include multifamily housing with approximately 178 dwelling units and 3,500 SF of retail space. The development of the 101 Cool Springs Boulevard site was previously evaluated as a 60,000 sf office complex and included in the Join TIA prepared for the 101, 151 and 201 Cool Springs Boulevard sites. Due to the change in land uses proposed for the 101 Cool Springs Boulevard Site and a slight increase in the expected trip generation, a re-evaluation was requested by the City of Franklin.

7.1 NO-BUILD IMPROVEMENT RECOMMENDATIONS

The following development improvements are recommended to serve the Projected 2025 No-Build traffic conditions (Note: this would be the improvements needed to serve the background traffic and is unrelated to the *101 Cool Springs Boulevard* development).

- All Intersections
    - It is recommended for the City to continue to monitor actual traffic patterns and volumes and develop updated signal timing plans in order to optimize intersection operations and minimize delays and queue as approved developments continue to develop in the area

7.2 DEVELOPMENT IMPROVEMENT RECOMMENDATIONS

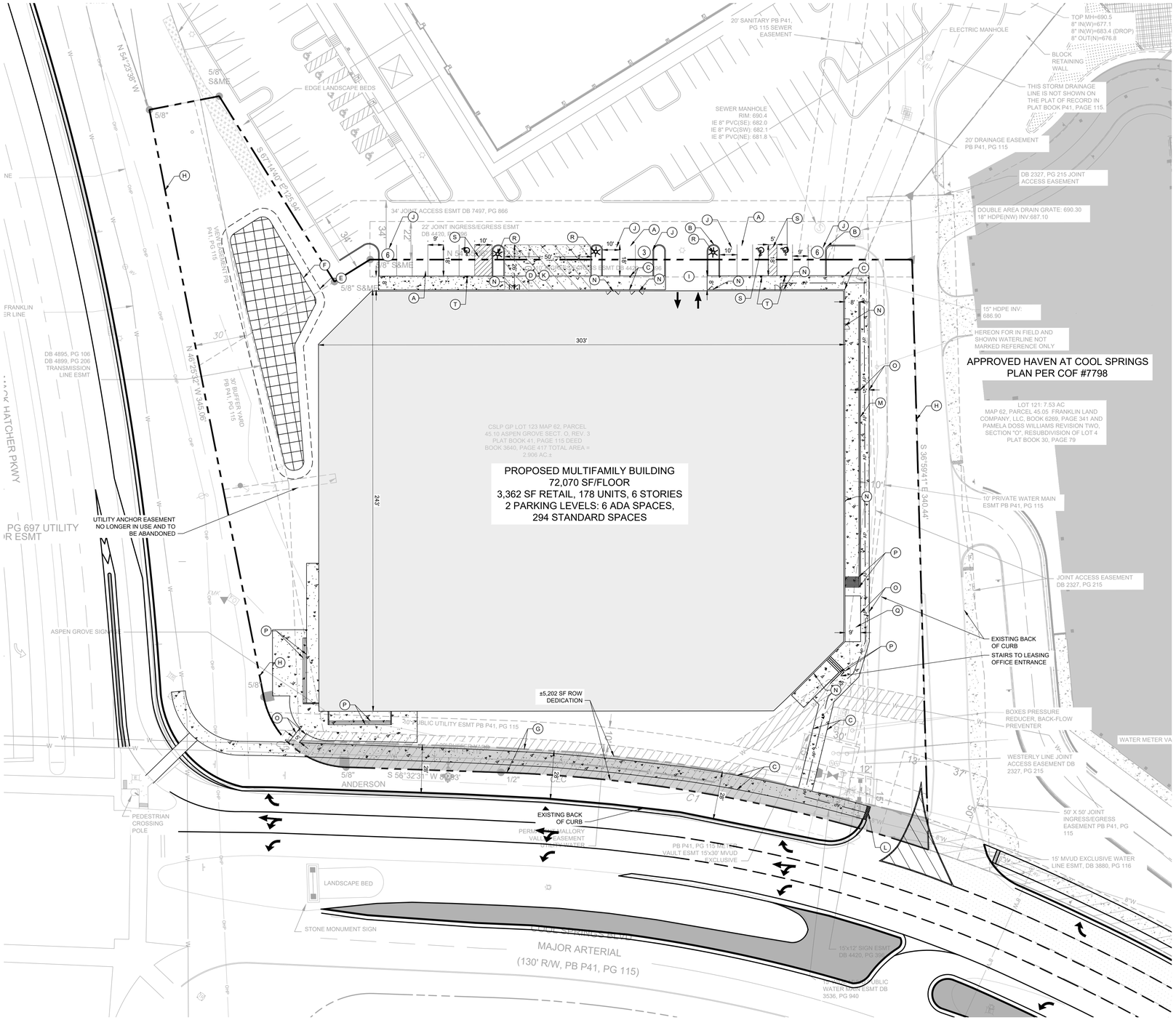
Based on the results of this traffic impact study, Kimley-Horn and Associates, Inc. recommends the following development improvements to serve the Projected 2025 Build traffic conditions (Note: this would be the improvements needed to serve the traffic associated with the *101 Cool Springs Boulevard* development).

- Intersection 1 – Mack Hatcher Parkway at Cool Springs Boulevard
    - Replace all existing traffic signal backplates with new retroreflective yellow backplates
    - Extend the existing concrete channelized island for the westbound right-turn movement to the north to provide barrier separation for the free-flow slip lane traveling west along Cool Springs Boulevard to north along Mack Hatcher Parkway
    - Extend the westbound left-turn lane to provide 735’ of storage
- Intersection 2 – Cool Springs Boulevard at Site Driveway
    - With the extension of the westbound left-turn lane at the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1), provide an additional turn lane pocket to provide 100’ of storage for the westbound left-turn movement at Cool Springs Boulevard at Site Driveway (Intersection 2).
- Intersection 3 – Cool Springs Boulevard at Windcross Court
    - Extend the eastbound left-turn lane to provide 340’ of storage
    - Note: A concept graphic illustrating the recommended improvements is provided in **Appendix A**.

APPENDIX A

Site Plan

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



SITE DATA TABLE

PROJECT NAME:	101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
COF PROJECT #:	8157
MAP:	MAP #94062G
PARCEL #:	062---04510
ADDRESS:	101 COOL SPRINGS BLVD
CITY:	FRANKLIN
COUNTY:	WILLIAMSON
STATE:	TENNESSEE
CIVIL DISTRICT:	10TH CIVIL DISTRICT
EXISTING ZONING:	RC-6 REGIONAL COMMERCE 6
PROPOSED ZONING:	PD-PLANNED DISTRICT (61.3 DUA/3,362 SF COMMERCIAL)
OTHER APPLICABLE OVERLAYS:	500' BUFFER OF HILLSIDE OVERLAY
DEVELOPMENT STANDARD:	TRADITIONAL
ACREAGE OF LOT 123:	2.906 ACRES
ACREAGE OF ACCESS ESMT:	0.77 ACRES
TOTAL ACREAGE OF SITE:	2.906 ACRES
TOTAL SQUARE FOOTAGE OF SITE:	126,583 SF
OWNERS:	CSLP GP
ADDRESS:	85 SOUTH SERVICE RD PLAINVIEW, NY 10803
PHONE:	631-414-8484
EMAIL:	mr@mrechler.com
CONTACT NAME:	MITCHELL RECHLER
APPLICANT:	GAMBLE DESIGN COLLABORATIVE (GDC)
ADDRESS:	3020 STANSBERRY LANE, SUITE 201 FRANKLIN, TN 37069
PHONE:	615-975-5765
EMAIL:	GREG.GAMBLE@GDC-TN.COM
CONTACT NAME:	GREG GAMBLE, RLA
BUILDING SETBACKS:	15' FRONT, 15' SIDE AND REAR
BUILDING SQUARE FOOTAGE:	504,490 SF
STORIES:	6
DENSITY:	178 UNITS: 61.3 DUA
BUILDING CONSTRUCTION TYPE:	TYPE 3
MAXIMUM BUILDING HEIGHT:	85' - 0" PER 2018 IBC
PROPOSED BUILDING HEIGHT:	84' - 0"
MINIMUM LANDSCAPE SURFACE RATIO:	20%
PROVIDED LANDSCAPE SURFACE RATIO:	34.5%; 43,746 SF
MINIMUM PARKING REQUIREMENT:	311 SPACES 1.5 SPACES PER 1 BEDROOM (134 UNITS) 2.5 SPACES PER 2 BEDROOM (44 UNITS)
EXISTING PARKING:	0 SPACES
TOTAL PARKING PROVIDED:	315 TOTAL SPACES (300 IN GARAGE; 15 EXTERIOR)
PARKLAND DEDICATION:	178 UNITS = $766,112; FEES TO BE PAID WITH FINAL PLAT; QUAD 1

NOTES:
1. WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO, THE NEW DEVELOPMENT, ALL UTILITIES, SUCH AS CABLE TELEVISION, ELECTRICAL (EXCLUDING TRANSFORMERS), GAS, SEWER, TELEPHONE, AND WATER LINES SHALL BE PLACED UNDERGROUND.
2. THIS SITE PLAN HAS BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE CITY OF FRANKLIN STANDARDS AND THE APPROVAL OF PLANNING COMMISSION. CHANGES SHALL NOT BE MADE TO THE APPROVED SITE PLAN UNLESS APPROVED BY EITHER RELEVANT DEPARTMENT SUPERINTENDENT OR THE PLANNING COMMISSION.
3. THE INFORMATION SHOWN ON THIS PLAN IS BASED UPON THE TENNESSEE STATE PLANE COORDINATE SYSTEM, ZONE 5301, FLIPZONE 4100 AND NAD 83 DATUM.
4. BASE INFORMATION HAS BEEN TAKEN FROM TWO ALTA SURVEYS PROVIDED BY CEC INC, PERFORMED BY MICHAEL K. STORY DATED 02-23-22 AND 9-14-22. THE INFORMATION PROVIDED SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. KIMLEY-HORN AND ASSOCIATES SHALL NOT BE HELD RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF THE BASE INFORMATION SHOWN.
5. THE CONSULTANT HAS FOUND NO EVIDENCE OF THE MINERAL RIGHTS OF THIS PROPERTY BEING TRANSFERRED TO ANY PARTY OTHER THAN THE OWNER.
6. NO PROPOSED BUILDINGS IN THIS PROJECT FALL WITHIN THE 100 YEAR FLOODPLAIN, PER THE FEMA FIRM MAP NUMBER 47187C0204F, DATED SEPTEMBER 29, 2006

SITE PLAN KEYNOTE LEGEND

- (A) 9' X 18' PROPOSED PARKING SPACE (TYP.)
- (B) 6" PROPOSED POST CURB (TYP.)
- (C) 8' SIDEWALK (TYP.)
- (D) REFUSE COLLECTION AREA
- (E) GREEN INFRASTRUCTURE EASEMENT (GIE)
- (F) BIORETENTION POND
- (G) DEDICATED ROW PER CONNECT FRANKLIN PLANS
- (H) EXISTING PROPERTY LINE
- (I) PARKING GARAGE ENTRANCE
- (J) 10'X18' PROPOSED END PARKING SPACE (TYP.)
- (K) DESIGNATED LOADING AREA
- (L) ADA CURB RAMP
- (M) MAX 8' RETAINING WALL
- (N) ENTRANCE/EXIT
- (O) 5' SIDEWALK (TYP.)
- (P) EXTERIOR STAIRS
- (Q) LANDSCAPE BED
- (R) RELOCATED LIGHT POLE
- (S) ADA PARKING STRIPING
- (T) ADA PARKING SIGNAGE

COMPREHENSIVE REVIEW AT SITE PLAN

COMPREHENSIVE REVIEW OF ROADWAY, STORMWATER, AND UTILITY ELEMENTS BY CITY OF FRANKLIN STAFF WILL OCCUR AT SITE PLAN. PROJECT ENTITLEMENTS APPROVED WITH THIS DEVELOPMENT PLAN DO NOT CONSTITUTE APPROVAL OF THE ROADWAY, STORMWATER, AND UTILITY ELEMENTS SHOWN ON THE DEVELOPMENT PLAN. IF, UPON APPLICATION OF CITY OF FRANKLIN STREET, STORMWATER, AND UTILITY STANDARDS AT SITE PLAN, THE APPLICANT CANNOT ACHIEVE THE MAXIMUM APPROVED ENTITLEMENTS, THE APPLICANT SHALL BE CONFINED TO THE ENTITLEMENTS ACHIEVABLE FROM THE APPLICATION OF SAID STANDARDS.

CROSS ACCESS NOTE

IN THE EVENT THAT 151 OR 201 COOL SPRINGS BOULEVARD DOES NOT MOVE FORWARD WITH CONSTRUCTION, THIS DEVELOPMENT SHALL INSTALL THE ACCESS ROAD AND ASSOCIATED STORMWATER TREATMENT AS PART OF THE SITE PLAN SUBMITTAL, TO PROVIDE A FULL ACCESS AT COOL SPRINGS BOULEVARD AND WINDCROSS COURT.

THE CONNECTION TO WINDCROSS MUST BE UNDER CONSTRUCTION PRIOR TO A BUILDING PERMIT FOR THIS SITE AND MUST BE COMPLETED AND ACCEPTED PRIOR TO THE FIRST CERTIFICATE OF OCCUPANCY.

OFFSITE IMPROVEMENTS NOTE

SEE OFFISTE ROADWAY IMPROVEMENTS EXHIBIT FOR DETAILS AND CALLOUTS PERTAINING TO OFFSITE IMPROVEMENTS.

GRAPHIC SCALE IN FEET
0 15 30 60

NORTH

Kimley»Horn
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Main: 615.564.2701 | www.kimley-horn.com
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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER REGISTERED ENGINEER AGENCY NO. 10028 STATE OF TENNESSEE 2023-05-04

No.	DATE	REVISIONS	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023

KIMLEY-HORN PROJECT NO. 118479000

OVERALL SITE PLAN

SHEET NUMBER
C2.0

SIGNAL IMPROVEMENTS NOTE

ADD RETROELECTIVE BACKPLATES TO ALL SIGNAL HEADS AT MACK HATCHER MEMORIAL PKWY AND COOL SPRINGS BLVD INTERSECTION.

HATCH LEGEND

TYPE	HATCH
PROPOSED RAISED MEDIAN	
EXISTING RAISED MEDIAN	
CONCRETE SIDEWALK	

CAT 6 BASIN (DBL)
T.C. EL=689.30
INV. EL=686.13

MANHOLE
INV. EL=683.12

5.98

ROCK

MACK HATCHER MEMORIAL PARKWAY

COOL SPRINGS BLVD

EXISTING SHOULDER TO REMAIN

EXISTING CURB & GUTTER TO REMAIN

PROPOSED STRIPING

PROPOSED RAISED MEDIAN

2.5' CURB & GUTTER

PROPOSED SIDEWALK CONNECTION

12' THRU/LEFT TURN LANE

12' LEFT TURN LANE

12' RIGHT TURN LANE

EXISTING BACK OF CURB TO REMAIN AS POSSIBLE

EXISTING PROPERTY LINE

2.5' CURB & GUTTER

EXISTING BACK OF CURB

ALL STRIPING AND TURN SYMBOLS TO BE REVISED

EXISTING BACK OF CURB TO REMAIN AS POSSIBLE

PROPOSED STOP BAR AND STOP SIGN

DEMO EXISTING ISLAND

PROPOSED RIGHT IN RIGHT OUT ACCESS WITH CURB

TIE INTO EXISTING CURB

TIE INTO EXISTING CURB

12' RIGHT TURN LANE

24" GUTTER WITH 6" CURB

+3,036 SF ROW DEDICATION

PROPOSED 12' LEFT TURN LANE

LEFT TURN SIGN

DEMO EXISTING MEDIAN CURB

PROPOSED MEDIAN CURB AND GUTTER

PROPOSED RAISED MEDIAN

DEMO EXISTING MEDIAN CURB

PROPOSED MEDIAN CURB AND GUTTER

12'W

Kimley»Horn

101 COOL SPRINGS BLVD

OFFSITE IMPROVEMENTS

May 3, 2023

0 15 30 60 90

NORTH

APPENDIX B

Traffic Count Data

Peak Hour Turning Movement Count

Click here for Map

Franklin, TN

Marr Traffic DATA COLLECTION

www.marrtraffic.com

Tuesday, August 30, 2022	
Period	0700 - 0900
Peak Hour	0730 - 0830

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0730 - 0745	0	122	117	1	240	207	128	0	0	335	0	0	0	0	0	33	0	195	0	228	803
0745 - 0800	0	120	120	0	240	238	135	0	0	373	0	0	0	0	0	47	0	169	0	216	829
0800 - 0815	0	133	104	0	237	243	105	0	0	348	0	0	0	0	0	45	0	174	0	219	804
0815 - 0830	0	96	129	1	226	233	112	0	0	345	0	0	0	0	0	29	0	157	0	186	757
Total	0	471	470	2	943	921	480	0	0	1401	0	0	0	0	0	154	0	695	0	849	3193
Approach %	0.00	49.95	49.84	0.21	-	65.74	34.26	0.00	0.00	-	0.00	0.00	0.00	0.00	-	18.14	0.00	81.86	0.00	-	
PHF	0.00	0.89	0.91	0.50	**0.98**	0.95	0.89	0.00	0.00	**0.94**	0.00	0.00	0.00	0.00	**0.00**	0.82	0.00	0.89	0.00	**0.93**	**0.96**

Bikes

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0815 - 0830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Passenger Vehicles (1-3)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0730 - 0745	0	111	117	1	229	202	127	0	0	329	0	0	0	0	0	30	0	194	0	224	782
0745 - 0800	0	116	120	0	236	236	131	0	0	367	0	0	0	0	0	43	0	162	0	205	808
0800 - 0815	0	128	102	0	230	240	105	0	0	345	0	0	0	0	0	44	0	167	0	211	786
0815 - 0830	0	91	126	1	218	228	108	0	0	336	0	0	0	0	0	26	0	150	0	176	730
Total	0	446	465	2	913	906	471	0	0	1377	0	0	0	0	0	143	0	673	0	816	3106
Approach %	0.00	48.85	50.93	0.22	-	65.80	34.20	0.00	0.00	-	0.00	0.00	0.00	0.00	-	17.52	0.00	82.48	0.00	-	
PHF	0.00	0.87	0.92	0.50	**0.97**	0.94	0.90	0.00	0.00	**0.94**	0.00	0.00	0.00	0.00	**0.00**	0.81	0.00	0.87	0.00	**0.91**	**0.96**

Single Unit Trucks (4-7)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0730 - 0745	0	6	0	0	6	5	1	0	0	6	0	0	0	0	0	3	0	1	0	4	16
0745 - 0800	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	4	0	6	0	10	15
0800 - 0815	0	4	1	0	5	3	0	0	0	3	0	0	0	0	0	1	0	4	0	5	13
0815 - 0830	0	4	3	0	7	4	4	0	0	8	0	0	0	0	0	2	0	6	0	8	23
Total	0	16	4	0	20	12	8	0	0	20	0	0	0	0	0	10	0	17	0	27	67
Approach %	0.00	80.00	20.00	0.00	-	60.00	40.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	37.04	0.00	62.96	0.00	-	
PHF	0.00	0.67	0.33	0.00	**0.71**	0.60	0.50	0.00	0.00	**0.63**	0.00	0.00	0.00	0.00	**0.00**	0.63	0.00	0.71	0.00	**0.68**	**0.73**

Combination Trucks (8-13)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0730 - 0745	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
0745 - 0800	0	2	0	0	2	2	1	0	0	3	0	0	0	0	0	0	0	1	0	1	6
0800 - 0815	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	5
0815 - 0830	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	1	0	1	0	2	4
Total	0	9	1	0	10	3	1	0	0	4	0	0	0	0	0	1	0	5	0	6	20
Approach %	0.00	90.00	10.00	0.00	-	75.00	25.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	16.67	0.00	83.33	0.00	-	
PHF	0.00	0.45	0.25	0.00	**0.50**	0.38	0.25	0.00	0.00	**0.33**	0.00	0.00	0.00	0.00	**0.00**	0.25	0.00	0.42	0.00	**0.50**	**0.83**

Peak Hour Turning Movement Count

Click here for Map

Franklin, TN

Marr Traffic DATA COLLECTION

www.marrtraffic.com



All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1645 - 1700	0	130	80	0	210	177	118	0	0	295	0	0	0	0	0	104	0	280	0	384	889
1700 - 1715	0	127	90	0	217	173	110	0	1	284	0	0	0	0	0	123	0	267	1	391	892
1715 - 1730	0	123	85	1	209	191	111	0	0	302	0	0	0	0	0	139	0	316	0	455	966
1730 - 1745	0	132	88	0	220	194	143	0	0	337	0	0	0	0	0	89	0	241	1	331	888
Total	0	512	343	1	856	735	482	0	1	1218	0	0	0	0	0	455	0	1104	2	1561	3635
Approach %	0.00	59.81	40.07	0.12	-	60.34	39.57	0.00	0.08	-	0.00	0.00	0.00	0.00	-	29.15	0.00	70.72	0.13	-	
PHF	0.00	0.97	0.95	0.25	**0.97**	0.95	0.84	0.00	0.25	**0.90**	0.00	0.00	0.00	0.00	**0.00**	0.82	0.00	0.87	0.50	**0.86**	**0.94**

Bikes

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1715 - 1730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1730 - 1745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Passenger Vehicles (1-3)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1645 - 1700	0	127	77	0	204	173	113	0	0	286	0	0	0	0	0	101	0	279	0	380	870
1700 - 1715	0	125	90	0	215	171	109	0	1	281	0	0	0	0	0	121	0	266	1	388	884
1715 - 1730	0	122	83	1	206	189	110	0	0	299	0	0	0	0	0	135	0	313	0	448	953
1730 - 1745	0	132	87	0	219	192	138	0	0	330	0	0	0	0	0	89	0	240	1	330	879
Total	0	506	337	1	844	725	470	0	1	1196	0	0	0	0	0	446	0	1098	2	1546	3586
Approach %	0.00	59.95	39.93	0.12	-	60.62	39.30	0.00	0.08	-	0.00	0.00	0.00	0.00	-	28.85	0.00	71.02	0.13	-	
PHF	0.00	0.96	0.94	0.25	**0.96**	0.94	0.85	0.00	0.25	**0.91**	0.00	0.00	0.00	0.00	**0.00**	0.83	0.00	0.88	0.50	**0.86**	**0.94**

Single Unit Trucks (4-7)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1645 - 1700	0	2	3	0	5	4	5	0	0	9	0	0	0	0	0	3	0	1	0	4	18
1700 - 1715	0	1	0	0	1	2	1	0	0	3	0	0	0	0	0	1	0	1	0	2	6
1715 - 1730	0	1	2	0	3	2	1	0	0	3	0	0	0	0	0	3	0	3	0	6	12
1730 - 1745	0	0	1	0	1	2	2	0	0	4	0	0	0	0	0	0	0	1	0	1	6
Total	0	4	6	0	10	10	9	0	0	19	0	0	0	0	0	7	0	6	0	13	42
Approach %	0.00	40.00	60.00	0.00	-	52.63	47.37	0.00	0.00	-	0.00	0.00	0.00	0.00	-	53.85	0.00	46.15	0.00	-	
PHF	0.00	0.50	0.50	0.00	**0.50**	0.63	0.45	0.00	0.00	**0.53**	0.00	0.00	0.00	0.00	**0.00**	0.58	0.00	0.50	0.00	**0.54**	**0.58**

Combination Trucks (8-13)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1645 - 1700	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1700 - 1715	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
1715 - 1730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
1730 - 1745	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	2	0	0	0	2	7
Approach %	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	100.00	0.00	0.00	0.00	-	
PHF	0.00	0.50	0.00	0.00	**0.50**	0.00	0.25	0.00	0.00	**0.25**	0.00	0.00	0.00	0.00	**0.00**	0.50	0.00	0.00	0.00	**0.50**	**0.58**

APPENDIX C

Volume Development

Trip Generation - 101 Cool Springs Boulevard

ITE Code	Land Use	Setting/Location	Density		Daily	AM Peak Hour			PM Peak Hour		
						Total	Enter	Exit	Total	Enter	Exit
220	Multifamily Housing (Low-Rise)	General Urban/Suburban	178	d.u.	1,216	78	19	59	97	61	36
822	Strip Retail Plaza (<40ksf) (Proposed)	General Urban/Suburban	3,500	s.f.	378	14	8	6	37	19	18
GROSS TRIPS					**1,594**	**92**	**27**	**65**	**134**	**80**	**54**
Gross Trips - Before Reductions					1,594	92	27	65	134	80	54
Residential					1,216	78	19	59	97	61	36
Retail					378	14	8	6	37	19	18
Reduction - Internal Capture					-38	0	0	0	-4	-2	-2
Retail					-38				-4	-2	-2
NEW TRIPS					**1,556**	**92**	**27**	**65**	**130**	**78**	**52**

INTERSECTION VOLUME WORKSHEET

INTERSECTION 1

Mack Hatcher Memorial Parkway at Cool Springs Boulevard

AM PEAK HOUR

	Driveway Eastbound				Cool Springs Boulevard Westbound				Mack Hatcher Memorial Parkway Northbound				Mack Hatcher Memorial Parkway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: KH Collected Count 8/30/2022)																	
Existing 2022 AM Volumes		**0**	**0**	**0**		**154**	**0**	**695**	**2**	**0**	**471**	**470**		**921**	**480**	**0**	**3193**
Existing Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Conflicting Pedestrians		1		0		0		1		0		1		1		0	
Heavy Vehicles						11		22				5		15	9		
Heavy Vehicle %	2	2	2	2	2	7	2	3	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	
Growth Trips	0	0	0	0	0	9	0	42	0	0	29	29	0	56	29	0	194
RIRO Driveway Adjustment					4												
CSTS Model Trip Distribution IN (EB)												*30%*		*70%*			
CSTS Model Trip Distribution OUT (WB)						*30%*		*70%*									
CSTS Model Trips (w/o Zone 12)						65		151				92		214			522
151/201 CSB Trip Distribution IN												*25%*		*20%*			0.45
151/201 CSB Trip Distribution OUT						*25%*		*20%*									0.45
151/201 CSB Trips	0	0	0	0	0	34	0	27	0	0	0	44	0	35	0	0	140
Optima Trips						14		20				10		15			
No-Build 2025 AM Volumes	**0**	**0**	**0**	**0**	**4**	**276**	**0**	**935**	**2**	**0**	**500**	**645**	**0**	**1241**	**509**	**0**	**4112**
Project Traffic																	
Trip Distribution IN												15%		15%			
Trip Distribution OUT						15%		15%									
Project Trips	0	0	0	0	0	10	0	10	0	0	0	4	0	4	0	0	28
Build 2025 AM Volumes	**0**	**0**	**0**	**0**	**4**	**286**	**0**	**945**	**2**	**0**	**500**	**649**	**0**	**1245**	**509**	**0**	**4140**
% from Existing	0.0%	0.0%	0.0%	0.0%	0.0%	53.8%	0.0%	73.5%	100.0%	0.0%	94.2%	72.4%	0.0%	74.0%	94.3%	0.0%	77.1%
% from Background Growth	0.0%	0.0%	0.0%	0.0%	100.0%	42.7%	0.0%	25.4%	0.0%	0.0%	5.8%	27.0%	0.0%	25.7%	5.7%	0.0%	22.2%
% from Project Trips	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	0.0%	1.1%	0.0%	0.0%	0.0%	0.6%	0.0%	0.3%	0.0%	0.0%	0.7%

PM PEAK HOUR

	Driveway Eastbound				Cool Springs Boulevard Westbound				Mack Hatcher Memorial Parkway Northbound				Mack Hatcher Memorial Parkway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes		**0**	**0**	**0**	**2**	**455**	**0**	**1104**	**1**	**0**	**512**	**343**	**1**	**735**	**482**	**0**	**3635**
Existing Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Conflicting Pedestrians																	
Heavy Vehicles						9		6			6	6		10	12		
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	
Growth Trips	0	0	0	0	0	28	0	67	0	0	31	21	0	45	29	0	221
New Road Adjustment					42												
CSTS Model Trip Distribution IN (EB)												*30%*		*70%*			
CSTS Model Trip Distribution OUT (WB)						*30%*		*70%*									
CSTS Model Trips (w/o Zone 12)						138		323				97		226			784
151/201 CSB Trip Distribution IN												*25%*		*20%*			0.45
151/201 CSB Trip Distribution OUT						*25%*		*20%*									0.45
151/201 CSB Trips	0	0	0	0	0	55	0	44	0	0	0	40	0	32	0	0	171
Optima Trips						13		19				15		23			
No-Build 2025 PM Volumes	**0**	**0**	**0**	**0**	**44**	**689**	**0**	**1557**	**1**	**0**	**543**	**516**	**1**	**1061**	**511**	**0**	**4923**
Project Traffic																	
Trip Distribution IN												15%		15%			
Trip Distribution OUT						15%		15%									
Project Trips	0	0	0	0	0	8	0	8	0	0	0	12	0	12	0	0	40
Build 2025 PM Volumes	**0**	**0**	**0**	**0**	**44**	**697**	**0**	**1565**	**1**	**0**	**543**	**528**	**1**	**1073**	**511**	**0**	**4963**
% from Existing	0.0%	0.0%	0.0%	0.0%	4.5%	65.3%	0.0%	70.5%	100.0%	0.0%	94.3%	65.0%	100.0%	68.5%	94.3%	0.0%	73.2%
% from Background Growth	0.0%	0.0%	0.0%	0.0%	95.5%	33.6%	0.0%	28.9%	0.0%	0.0%	5.7%	32.8%	0.0%	30.4%	5.7%	0.0%	26.0%
% from Project Trips	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.5%	0.0%	0.0%	0.0%	2.3%	0.0%	1.1%	0.0%	0.0%	0.8%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 2

Cool Spring Boulevard at Coldwell Bankers Driveway/Aspen Grove Medical Driveway

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Coldwell Bankers Driveway Northbound				Aspen Grove Medical Driveway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Commercial Driveway Volumes In/Out from 201 CSB Joint TIS, CSB through volumes balanced with Int 1)																	
Existing 2023 AM Volumes		**27**	**1358**	**6**		**15**	**845**	**38**		**1**	**0**	**5**		**4**	**0**	**3**	**2302**
Existing Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1	1.04	1	1.04	1	1.04	1	1	1	1	1	1	1	1	1	
Growth Trips	0	0	54	0	0	0	34	0	0	0	0	0	0	0	0	0	88
RIRO Driveway Adjustment		-27	31				1			-1		1		-4		4	
CSTS Model Trips (w/o Zone 12)			306				216										522
151/201 CSB Trip Distribution IN			*45%*					*40%*								*35%*	1.2
151/201 CSB Trip Distribution OUT							*10%*										0.1
151/201 CSB Trips	0	0	78	0	0	0	13	70	0	0	0	0	0	0	0	61	222
Optima Trips			26				34										
No-Build 2025 AM Volumes	**0**	**0**	**1853**	**6**	**0**	**15**	**1143**	**108**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**68**	**3199**
Project Traffic																	
Trip Distribution IN			30%					70%									
Trip Distribution OUT																30%	
Project Trips	0	0	8	0	0	0	0	19	0	0	0	0	0	0	0	20	47
Build 2025 AM Volumes	**0**	**0**	**1861**	**6**	**0**	**15**	**1143**	**127**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**88**	**3246**
% from Existing	0.0%	0.0%	73.0%	100.0%	0.0%	100.0%	73.9%	29.9%	0.0%	0.0%	0.0%	83.3%	0.0%	0.0%	0.0%	3.4%	70.9%
% from Background Growth	0.0%	0.0%	26.6%	0.0%	0.0%	0.0%	26.1%	55.1%	0.0%	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	73.9%	27.6%
% from Project Trips	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.7%	1.4%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Coldwell Bankers Driveway Northbound				Aspen Grove Medical Driveway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes		**2**	**1070**	**6**		**11**	**1532**	**7**		**9**	**0**	**12**		**42**	**0**	**18**	**2709**
Existing Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1	1.04	1	1.04	1	1.04	1	1	1	1	1	1	1	1	1	
Growth Trips	0	0	43	0	0	0	61	0	0	0	0	0	0	0	0	0	104
New Road Adjustment		-2	44				9			-9		9		-42		42	
CSTS Model Trips (w/o Zone 12)			323				461										784
151/201 CSB Trip Distribution IN			*45%*					*40%*								*35%*	1.2
151/201 CSB Trip Distribution OUT							*10%*										0.1
151/201 CSB Trips	0	0	72	0	0	0	22	64	0	0	0	0	0	0	0	56	214
Optima Trips			39				32										
No-Build 2025 PM Volumes	**0**	**0**	**1591**	**6**	**0**	**11**	**2117**	**71**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**116**	**3933**
Project Traffic																	
Trip Distribution IN			30%					70%									
Trip Distribution OUT																30%	
Project Trips	0	0	23	0	0	0	0	55	0	0	0	0	0	0	0	16	94
Build 2025 PM Volumes	**0**	**0**	**1614**	**6**	**0**	**11**	**2117**	**126**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**132**	**4027**
% from Existing	0.0%	0.0%	66.3%	100.0%	0.0%	100.0%	72.4%	5.6%	0.0%	0.0%	0.0%	57.1%	0.0%	0.0%	0.0%	13.6%	67.3%
% from Background Growth	0.0%	0.0%	32.3%	0.0%	0.0%	0.0%	27.6%	50.8%	0.0%	0.0%	0.0%	42.9%	0.0%	0.0%	0.0%	74.2%	30.4%
% from Project Trips	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	43.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.1%	2.3%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 3

Cool Springs Boulevard at Windcross Court

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Windcross Court Northbound				Windcross Court Extension Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Existing 2020 Vistro Counts, Balanced through volumes with Int 2)																	
Existing 2023 AM Volumes			**1279**	**88**		**196**	**873**	**0**		**25**	**0**	**96**					**2557**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1	1	1	1	1	1	1	1	
Growth Trips	0	0	51	4	0	8	35	0	0	0	0	0	0	0	0	0	98
RIRO Driveway Adjustment	1	31															
CSTS Model Trips (w/o Zone 12)			306				216										522
151/201 CSB Trip Distribution IN		*45%*					*40%*	*15%*									1
151/201 CSB Trip Distribution OUT														*55%*		*10%*	0.65
151/201 CSB Trips	0	78	0	0	0	0	70	26	0	0	0	0	0	74	0	13	261
Optima Trips			26				34										
No-Build 2025 AM Volumes	**1**	**109**	**1662**	**92**	**0**	**204**	**1228**	**26**	**0**	**25**	**0**	**96**	**0**	**74**	**0**	**13**	**3530**
Project Traffic																	
Trip Distribution IN		30%					70%										
Trip Distribution OUT														70%			
Project Trips	0	8	0	0	0	0	19	0	0	0	0	0	0	46	0	0	73
Build 2025 AM Volumes	**1**	**117**	**1662**	**92**	**0**	**204**	**1247**	**26**	**0**	**25**	**0**	**96**	**0**	**120**	**0**	**13**	**3603**
% from Existing	0.0%	0.0%	77.0%	95.7%	0.0%	96.1%	70.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	71.0%
% from Background Growth	100.0%	93.2%	23.0%	4.3%	0.0%	3.9%	28.5%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	61.7%	0.0%	100.0%	27.0%
% from Project Trips	0.0%	6.8%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	38.3%	0.0%	0.0%	2.0%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Windcross Court Northbound				Windcross Court Extension Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes			**1106**	**18**		**127**	**1488**			**62**		**268**					**3069**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1	1	1	1	1	1	1	1	
Growth Trips	0	0	44	1	0	5	60	0	0	0	0	0	0	0	0	0	110
New Road Adjustment	9	44															
CSTS Model Trips (w/o Zone 12)			323				461										784
151/201 CSB Trip Distribution IN		*45%*					*40%*	*15%*									1
151/201 CSB Trip Distribution OUT														*55%*		*10%*	0.65
151/201 CSB Trips	0	72	0	0	0	0	64	24	0	0	0	0	0	122	0	22	304
Optima Trips			39				32										
No-Build 2025 PM Volumes	**9**	**116**	**1512**	**19**	**0**	**132**	**2105**	**24**	**0**	**62**	**0**	**268**	**0**	**122**	**0**	**22**	**4391**
Project Traffic																	
Trip Distribution IN		30%					70%										
Trip Distribution OUT														70%			
Project Trips	0	23	0	0	0	0	55	0	0	0	0	0	0	36	0	0	114
Build 2025 PM Volumes	**9**	**139**	**1512**	**19**	**0**	**132**	**2160**	**24**	**0**	**62**	**0**	**268**	**0**	**158**	**0**	**22**	**4505**
% from Existing	0.0%	0.0%	73.1%	94.7%	0.0%	96.2%	68.9%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	68.1%
% from Background Growth	100.0%	83.5%	26.9%	5.3%	0.0%	3.8%	28.6%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	77.2%	0.0%	100.0%	29.3%
% from Project Trips	0.0%	16.5%	0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.8%	0.0%	0.0%	2.5%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 4

Cool Springs Boulevard at McEwen Drive

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				McEwen Drive Northbound				- Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Existing 2020 Vistro Counts, Balanced volumes with Int 3 with through/turn split %s from Magnetometer Data*)																	
Existing 2023 AM Volumes			**874**	**501**		**93**	**750**			**319**		**223**					**2760**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1	1	1	1	
Growth Trips	0	0	35	20	0	4	30	0	0	13	0	9	0	0	0	0	111
RIRO Driveway Adjustment																	
CSTS Model Trips (w/o Zone 12)			55	251		0	61			155		0					522
151/201 CSB Trip Distribution IN							*30%*			*25%*							0.55
151/201 CSB Trip Distribution OUT			*30%*	*25%*													0.55
151/201 CSB Trips	0	0	40	34	0	0	52	0	0	44	0	0	0	0	0	0	170
Optima Trips		26	-1	0		0	-1	43		0	34	0		58	45	35	
No-Build 2025 AM Volumes	**0**	**26**	**1003**	**806**	**0**	**97**	**892**	**43**	**0**	**531**	**34**	**232**	**0**	**58**	**45**	**35**	**3802**
Project Traffic																	
Trip Distribution IN							50%			20%							
Trip Distribution OUT			50%	20%													
Project Trips	0	0	33	13	0	0	14	0	0	5	0	0	0	0	0	0	65
Build 2025 AM Volumes	**0**	**26**	**1036**	**819**	**0**	**97**	**906**	**43**	**0**	**536**	**34**	**232**	**0**	**58**	**45**	**35**	**3867**
% from Existing	0.0%	0.0%	84.4%	61.2%	0.0%	95.9%	82.8%	0.0%	0.0%	59.5%	0.0%	96.1%	0.0%	0.0%	0.0%	0.0%	71.4%
% from Background Growth	0.0%	100.0%	12.5%	37.2%	0.0%	4.1%	15.7%	100.0%	0.0%	39.6%	100.0%	3.9%	0.0%	100.0%	100.0%	100.0%	26.9%
% from Project Trips	0.0%	0.0%	3.2%	1.6%	0.0%	0.0%	1.5%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				McEwen Drive Northbound				- Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes			**971**	**403**		**260**	**1097**			**518**		**179**					**3428**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1	1	1	1	
Growth Trips	0	0	39	16	0	10	44	0	0	21	0	7	0	0	0	0	137
New Road Adjustment																	
CSTS Model Trips (w/o Zone 12)			55	268		0	61			400		0					784
151/201 CSB Trip Distribution IN							*30%*			*25%*							0.55
151/201 CSB Trip Distribution OUT			*30%*	*25%*													0.55
151/201 CSB Trips	0	0	66	55	0	0	48	0	0	40	0	0	0	0	0	0	209
Optima Trips		39	-7	-3		-2	-7	65		-3	51	-1		62	47	42	
No-Build 2025 PM Volumes	**0**	**39**	**1124**	**739**	**0**	**268**	**1243**	**65**	**0**	**976**	**51**	**185**	**0**	**62**	**47**	**42**	**4841**
Project Traffic																	
Trip Distribution IN							50%			20%							
Trip Distribution OUT			50%	20%													
Project Trips	0	0	26	10	0	0	39	0	0	16	0	0	0	0	0	0	91
Build 2025 PM Volumes	**0**	**39**	**1150**	**749**	**0**	**268**	**1282**	**65**	**0**	**992**	**51**	**185**	**0**	**62**	**47**	**42**	**4932**
% from Existing	0.0%	0.0%	84.4%	53.8%	0.0%	97.0%	85.6%	0.0%	0.0%	52.2%	0.0%	96.8%	0.0%	0.0%	0.0%	0.0%	69.5%
% from Background Growth	0.0%	100.0%	13.3%	44.9%	0.0%	3.0%	11.4%	100.0%	0.0%	46.2%	100.0%	3.2%	0.0%	100.0%	100.0%	100.0%	28.6%
% from Project Trips	0.0%	0.0%	2.3%	1.3%	0.0%	0.0%	3.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%

**Note: Existing EB traffic balanced from Int 3 was split 65%-EBT/35%-EBR. Existing WB traffic balanced from Int 3 was split 65%-WBT/35%-NBL*

INTERSECTION VOLUME WORKSHEET

INTERSECTION 1

Mack Hatcher Memorial Parkway at Cool Springs Boulevard

AM PEAK HOUR

	Driveway Eastbound				Cool Springs Boulevard Westbound				Mack Hatcher Memorial Parkway Northbound				Mack Hatcher Memorial Parkway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: KH Collected Count 8/30/2022)																	
Existing 2022 AM Volumes		**0**	**0**	**0**		**154**	**0**	**695**	**2**	**0**	**471**	**470**		**921**	**480**	**0**	**3193**
Existing Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Conflicting Pedestrians		1		0		0		1		0		1		1		0	
Heavy Vehicles						11		22				5		15	9		
Heavy Vehicle %	2	2	2	2	2	7	2	3	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Growth Factor	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	
Growth Trips	0	0	0	0	0	26	0	120	0	0	81	81	0	158	83	0	549
RIRO Driveway Adjustment					4												
CSTS Model Trip Distribution IN (EB)												*30%*		*70%*			
CSTS Model Trip Distribution OUT (WB)						*30%*		*70%*									
CSTS Model Trips (w/o Zone 12)						65		151				92		214			522
151/201 CSB Trip Distribution IN												*25%*		*20%*			0.45
151/201 CSB Trip Distribution OUT						*25%*		*20%*									0.45
151/201 CSB Trips	0	0	0	0	0	34	0	27	0	0	0	44	0	35	0	0	140
Optima Trips						14		20				10		15			
No-Build 2030 AM Volumes	**0**	**0**	**0**	**0**	**4**	**293**	**0**	**1013**	**2**	**0**	**552**	**697**	**0**	**1343**	**563**	**0**	**4467**
Project Traffic																	
Trip Distribution IN												15%		15%			
Trip Distribution OUT						15%		15%									
Project Trips	0	0	0	0	0	10	0	10	0	0	0	4	0	4	0	0	28
Build 2030 AM Volumes	**0**	**0**	**0**	**0**	**4**	**303**	**0**	**1023**	**2**	**0**	**552**	**701**	**0**	**1347**	**563**	**0**	**4495**
% from Existing	0.0%	0.0%	0.0%	0.0%	0.0%	50.8%	0.0%	67.9%	100.0%	0.0%	85.3%	67.0%	0.0%	68.4%	85.3%	0.0%	71.0%
% from Background Growth	0.0%	0.0%	0.0%	0.0%	100.0%	45.9%	0.0%	31.1%	0.0%	0.0%	14.7%	32.4%	0.0%	31.3%	14.7%	0.0%	28.3%
% from Project Trips	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%	0.0%	1.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.3%	0.0%	0.0%	0.6%

PM PEAK HOUR

	Driveway Eastbound				Cool Springs Boulevard Westbound				Mack Hatcher Memorial Parkway Northbound				Mack Hatcher Memorial Parkway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes		**0**	**0**	**0**	**2**	**455**	**0**	**1104**	**1**	**0**	**512**	**343**	**1**	**735**	**482**	**0**	**3635**
Existing Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Conflicting Pedestrians																	
Heavy Vehicles						9		6			6	6		10	12		
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Growth Factor	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	
Growth Trips	0	0	0	0	0	78	0	190	0	0	88	59	0	126	83	0	624
New Road Adjustment					42												
CSTS Model Trip Distribution IN (EB)												*30%*		*70%*			
CSTS Model Trip Distribution OUT (WB)						*30%*		*70%*									
CSTS Model Trips (w/o Zone 12)						138		323				97		226			784
151/201 CSB Trip Distribution IN												*25%*		*20%*			0.45
151/201 CSB Trip Distribution OUT						*25%*		*20%*									0.45
151/201 CSB Trips	0	0	0	0	0	55	0	44	0	0	0	40	0	32	0	0	171
Optima Trips						13		19				15		23			
No-Build 2030 PM Volumes	**0**	**0**	**0**	**0**	**44**	**739**	**0**	**1680**	**1**	**0**	**600**	**554**	**1**	**1142**	**565**	**0**	**5326**
Project Traffic																	
Trip Distribution IN												15%		15%			
Trip Distribution OUT						15%		15%									
Project Trips	0	0	0	0	0	8	0	8	0	0	0	12	0	12	0	0	40
Build 2030 PM Volumes	**0**	**0**	**0**	**0**	**44**	**747**	**0**	**1688**	**1**	**0**	**600**	**566**	**1**	**1154**	**565**	**0**	**5366**
% from Existing	0.0%	0.0%	0.0%	0.0%	4.5%	60.9%	0.0%	65.4%	100.0%	0.0%	85.3%	60.6%	100.0%	63.7%	85.3%	0.0%	67.7%
% from Background Growth	0.0%	0.0%	0.0%	0.0%	95.5%	38.0%	0.0%	34.1%	0.0%	0.0%	14.7%	37.3%	0.0%	35.3%	14.7%	0.0%	31.5%
% from Project Trips	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.5%	0.0%	0.0%	0.0%	2.1%	0.0%	1.0%	0.0%	0.0%	0.7%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 2

Cool Spring Boulevard at Coldwell Bankers Driveway/Aspen Grove Medical Driveway

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Coldwell Bankers Driveway Northbound				Aspen Grove Medical Driveway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Commercial Driveway Volumes In/Out from 201 CSB Joint TIS, CSB through volumes balanced with Int 1)																	
Existing 2023 AM Volumes		**27**	**1358**	**6**		**15**	**845**	**38**		**1**	**0**	**5**		**4**	**0**	**3**	**2302**
Existing Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1	1.149	1	1.149	1	1.149	1	1	1	1	1	1	1	1	1	
Growth Trips	0	0	202	0	0	0	126	0	0	0	0	0	0	0	0	0	328
RIRO Driveway Adjustment		-27	31				1			-1		1		-4		4	
CSTS Model Trips (w/o Zone 12)			306				216										522
151/201 CSB Trip Distribution IN			*45%*					*40%*								*35%*	1.2
151/201 CSB Trip Distribution OUT							*10%*										0.1
151/201 CSB Trips	0	0	78	0	0	0	13	70	0	0	0	0	0	0	0	61	222
Optima Trips			26				34										
No-Build 2030 AM Volumes	**0**	**0**	**2001**	**6**	**0**	**15**	**1235**	**108**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**68**	**3439**
Project Traffic																	
Trip Distribution IN			30%					70%									
Trip Distribution OUT																30%	
Project Trips	0	0	8	0	0	0	0	19	0	0	0	0	0	0	0	20	47
Build 2030 AM Volumes	**0**	**0**	**2009**	**6**	**0**	**15**	**1235**	**127**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**88**	**3486**
% from Existing	0.0%	0.0%	67.6%	100.0%	0.0%	100.0%	68.4%	29.9%	0.0%	0.0%	0.0%	83.3%	0.0%	0.0%	0.0%	3.4%	66.0%
% from Background Growth	0.0%	0.0%	32.0%	0.0%	0.0%	0.0%	31.6%	55.1%	0.0%	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	73.9%	32.6%
% from Project Trips	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.7%	1.3%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Coldwell Bankers Driveway Northbound				Aspen Grove Medical Driveway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes		**2**	**1070**	**6**		**11**	**1532**	**7**		**9**	**0**	**12**		**42**	**0**	**18**	**2709**
Existing Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1	1.149	1	1.149	1	1.149	1	1	1	1	1	1	1	1	1	
Growth Trips	0	0	159	0	0	0	228	0	0	0	0	0	0	0	0	0	387
New Road Adjustment		-2	44				9			-9		9		-42		42	
CSTS Model Trips (w/o Zone 12)			323				461										784
151/201 CSB Trip Distribution IN			*45%*					*40%*								*35%*	1.2
151/201 CSB Trip Distribution OUT							*10%*										0.1
151/201 CSB Trips	0	0	72	0	0	0	22	64	0	0	0	0	0	0	0	56	214
Optima Trips			39				32										
No-Build 2030 PM Volumes	**0**	**0**	**1707**	**6**	**0**	**11**	**2284**	**71**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**116**	**4216**
Project Traffic																	
Trip Distribution IN			30%					70%									
Trip Distribution OUT																30%	
Project Trips	0	0	23	0	0	0	0	55	0	0	0	0	0	0	0	16	94
Build 2030 PM Volumes	**0**	**0**	**1730**	**6**	**0**	**11**	**2284**	**126**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**132**	**4310**
% from Existing	0.0%	0.0%	61.8%	100.0%	0.0%	100.0%	67.1%	5.6%	0.0%	0.0%	0.0%	57.1%	0.0%	0.0%	0.0%	13.6%	62.9%
% from Background Growth	0.0%	0.0%	36.8%	0.0%	0.0%	0.0%	32.9%	50.8%	0.0%	0.0%	0.0%	42.9%	0.0%	0.0%	0.0%	74.2%	35.0%
% from Project Trips	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	43.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.1%	2.2%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 3

Cool Springs Boulevard at Windcross Court

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Windcross Court Northbound				Windcross Court Extension Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Existing 2020 Vistro Counts, Balanced through volumes with Int 2)																	
Existing 2023 AM Volumes			**1279**	**88**		**196**	**873**	**0**		**25**	**0**	**96**					**2557**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1	1	1	1	1	1	1	1	
Growth Trips	0	0	191	13	0	29	130	0	0	0	0	0	0	0	0	0	363
RIRO Driveway Adjustment	1	31															
CSTS Model Trips (w/o Zone 12)			306				216										522
151/201 CSB Trip Distribution IN		*45%*					*40%*	*15%*									1
151/201 CSB Trip Distribution OUT														*55%*		*10%*	0.65
151/201 CSB Trips	0	78	0	0	0	0	70	26	0	0	0	0	0	74	0	13	261
Optima Trips			26				34										
No-Build 2030 AM Volumes	**1**	**109**	**1802**	**101**	**0**	**225**	**1323**	**26**	**0**	**25**	**0**	**96**	**0**	**74**	**0**	**13**	**3795**
Project Traffic																	
Trip Distribution IN		30%					70%										
Trip Distribution OUT														70%			
Project Trips	0	8	0	0	0	0	19	0	0	0	0	0	0	46	0	0	73
Build 2030 AM Volumes	**1**	**117**	**1802**	**101**	**0**	**225**	**1342**	**26**	**0**	**25**	**0**	**96**	**0**	**120**	**0**	**13**	**3868**
% from Existing	0.0%	0.0%	71.0%	87.1%	0.0%	87.1%	65.1%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	66.1%
% from Background Growth	100.0%	93.2%	29.0%	12.9%	0.0%	12.9%	33.5%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	61.7%	0.0%	100.0%	32.0%
% from Project Trips	0.0%	6.8%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	38.3%	0.0%	0.0%	1.9%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Windcross Court Northbound				Windcross Court Extension Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes			**1089**	**35**		**108**	**1488**			**62**		**268**					**3050**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1	1	1	1	1	1	1	1	
Growth Trips	0	0	162	5	0	16	222	0	0	0	0	0	0	0	0	0	405
New Road Adjustment	9	44															
CSTS Model Trips (w/o Zone 12)			323				461										784
151/201 CSB Trip Distribution IN		*45%*					*40%*	*15%*									1
151/201 CSB Trip Distribution OUT														*55%*		*10%*	0.65
151/201 CSB Trips	0	72	0	0	0	0	64	24	0	0	0	0	0	122	0	22	304
Optima Trips			39				32										
No-Build 2030 PM Volumes	**9**	**116**	**1613**	**40**	**0**	**124**	**2267**	**24**	**0**	**62**	**0**	**268**	**0**	**122**	**0**	**22**	**4667**
Project Traffic																	
Trip Distribution IN		30%					70%										
Trip Distribution OUT														70%			
Project Trips	0	23	0	0	0	0	55	0	0	0	0	0	0	36	0	0	114
Build 2030 PM Volumes	**9**	**139**	**1613**	**40**	**0**	**124**	**2322**	**24**	**0**	**62**	**0**	**268**	**0**	**158**	**0**	**22**	**4781**
% from Existing	0.0%	0.0%	67.5%	87.5%	0.0%	87.1%	64.1%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	63.8%
% from Background Growth	100.0%	83.5%	32.5%	12.5%	0.0%	12.9%	33.5%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	77.2%	0.0%	100.0%	33.8%
% from Project Trips	0.0%	16.5%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.8%	0.0%	0.0%	2.4%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 4

Cool Springs Boulevard at McEwen Drive

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				McEwen Drive Northbound				- Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Existing 2020 Vistro Counts, Balanced volumes with Int 3 with through/turn split %s from Magnetometer Data*)																	
Existing 2023 AM Volumes			**874**	**501**		**93**	**750**			**319**		**223**					**2760**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1	1	1	1	
Growth Trips	0	0	130	75	0	14	112	0	0	48	0	33	0	0	0	0	412
RIRO Driveway Adjustment																	
CSTS Model Trips (w/o Zone 12)			55	251		0	61			155		0					522
151/201 CSB Trip Distribution IN							*30%*			*25%*							0.55
151/201 CSB Trip Distribution OUT			*30%*	*25%*													0.55
151/201 CSB Trips	0	0	40	34	0	0	52	0	0	44	0	0	0	0	0	0	170
Optima Trips		26	-1	0		0	-1	43		0	34	0		58	45	35	
No-Build 2030 AM Volumes	**0**	**26**	**1098**	**861**	**0**	**107**	**974**	**43**	**0**	**566**	**34**	**256**	**0**	**58**	**45**	**35**	**4103**
Project Traffic																	
Trip Distribution IN							50%			20%							
Trip Distribution OUT			50%	20%													
Project Trips	0	0	33	13	0	0	14	0	0	5	0	0	0	0	0	0	65
Build 2030 AM Volumes	**0**	**26**	**1131**	**874**	**0**	**107**	**988**	**43**	**0**	**571**	**34**	**256**	**0**	**58**	**45**	**35**	**4168**
% from Existing	0.0%	0.0%	77.3%	57.3%	0.0%	86.9%	75.9%	0.0%	0.0%	55.9%	0.0%	87.1%	0.0%	0.0%	0.0%	0.0%	66.2%
% from Background Growth	0.0%	100.0%	19.8%	41.2%	0.0%	13.1%	22.7%	100.0%	0.0%	43.3%	100.0%	12.9%	0.0%	100.0%	100.0%	100.0%	32.2%
% from Project Trips	0.0%	0.0%	2.9%	1.5%	0.0%	0.0%	1.4%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				McEwen Drive Northbound				- Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes			**954**	**403**		**260**	**1078**			**518**		**179**					**3392**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1	1	1	1	
Growth Trips	0	0	142	60	0	39	161	0	0	77	0	27	0	0	0	0	506
New Road Adjustment																	
CSTS Model Trips (w/o Zone 12)			55	268		0	61			400		0					784
151/201 CSB Trip Distribution IN							*30%*			*25%*							0.55
151/201 CSB Trip Distribution OUT			*30%*	*25%*													0.55
151/201 CSB Trips	0	0	66	55	0	0	48	0	0	40	0	0	0	0	0	0	209
Optima Trips		39	-7	-3		-2	-7	65		-3	51	-1		62	47	42	
No-Build 2030 PM Volumes	**0**	**39**	**1210**	**783**	**0**	**297**	**1341**	**65**	**0**	**1032**	**51**	**205**	**0**	**62**	**47**	**42**	**5174**
Project Traffic																	
Trip Distribution IN							50%			20%							
Trip Distribution OUT			50%	20%													
Project Trips	0	0	26	10	0	0	39	0	0	16	0	0	0	0	0	0	91
Build 2030 PM Volumes	**0**	**39**	**1236**	**793**	**0**	**297**	**1380**	**65**	**0**	**1048**	**51**	**205**	**0**	**62**	**47**	**42**	**5265**
% from Existing	0.0%	0.0%	77.2%	50.8%	0.0%	87.5%	78.1%	0.0%	0.0%	49.4%	0.0%	87.3%	0.0%	0.0%	0.0%	0.0%	64.4%
% from Background Growth	0.0%	100.0%	20.7%	47.9%	0.0%	12.5%	19.1%	100.0%	0.0%	49.0%	100.0%	12.7%	0.0%	100.0%	100.0%	100.0%	33.8%
% from Project Trips	0.0%	0.0%	2.1%	1.3%	0.0%	0.0%	2.8%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%

**Note: Existing EB traffic balanced from Int 3 was split 65%-EBT/35%-EBR. Existing WB traffic balanced from Int 3 was split 65%-WBT/35%-NBL*

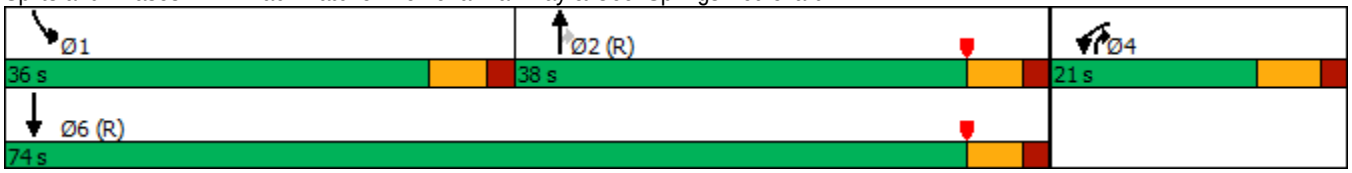
APPENDIX D

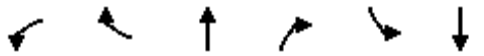
Synchro Reports

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	154	695	473	470	921	480
Future Volume (vph)	154	695	473	470	921	480
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	8.0		18.0	8.0	8.0	10.0
Minimum Split (s)	14.5		24.0	14.5	14.0	16.0
Total Split (s)	21.0		38.0	21.0	36.0	74.0
Total Split (%)	22.1%		40.0%	22.1%	37.9%	77.9%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	12.7	95.0	33.8	46.0	30.0	69.8
Actuated g/C Ratio	0.13	1.00	0.36	0.48	0.32	0.73
v/c Ratio	0.37	0.47	0.39	0.64	0.88	0.19
Control Delay	30.4	2.4	24.5	18.1	42.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	2.4	24.5	18.1	42.2	4.3
LOS	C	A	C	B	D	A
Approach Delay	7.5		21.3			29.2
Approach LOS	A		C			C

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 68 (72%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 65.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	160	724	493	490	959	500
v/c Ratio	0.37	0.47	0.39	0.64	0.88	0.19
Control Delay	30.4	2.4	24.5	18.1	42.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	2.4	24.5	18.1	42.2	4.3
Queue Length 50th (ft)	41	19	117	173	280	43
Queue Length 95th (ft)	70	29	164	267	#393	61
Internal Link Dist (ft)	425		1396			1960
Turn Bay Length (ft)		230		1000	1000	
Base Capacity (vph)	499	1549	1258	797	1084	2599
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.47	0.39	0.61	0.88	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	154	695	473	470	921	480
Future Volume (veh/h)	154	695	473	470	921	480
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	160	0	493	490	959	500
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	3	2	2	2	2
Cap, veh/h	275		1467	785	1070	2791
Arrive On Green	0.08	0.00	0.41	0.41	0.31	0.79
Sat Flow, veh/h	3319	1572	3647	1583	3456	3647
Grp Volume(v), veh/h	160	0	493	490	959	500
Grp Sat Flow(s),veh/h/ln	1659	1572	1777	1583	1728	1777
Q Serve(g_s), s	4.4	0.0	9.0	21.5	25.2	3.3
Cycle Q Clear(g_c), s	4.4	0.0	9.0	21.5	25.2	3.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	275		1467	785	1070	2791
V/C Ratio(X)	0.58		0.34	0.62	0.90	0.18
Avail Cap(c_a), veh/h	507		1467	785	1091	2791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	0.0	19.0	17.5	31.3	2.5
Incr Delay (d2), s/veh	4.1	0.0	0.6	3.7	11.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.5	9.3	11.4	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.1	0.0	19.6	21.2	43.0	2.7
LnGrp LOS	D		B	C	D	A
Approach Vol, veh/h	160		983			1459
Approach Delay, s/veh	46.1		20.4			29.2
Approach LOS	D		C			C

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	35.4	45.2		14.4		80.6
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	30.0	32.0		14.5		68.0
Max Q Clear Time (g_c+I1), s	27.2	23.5		6.4		5.3
Green Ext Time (p_c), s	2.2	6.5		0.6		7.0

Intersection Summary	
HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	1358	6	15	845	38	1	0	5	4	0	3
Future Vol, veh/h	27	1358	6	15	845	38	1	0	5	4	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	270	-	-	335	-	130	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	1429	6	16	889	40	1	0	5	4	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	929	0	0	1435	0	0	1965	2449	718	1692	2412	445
Stage 1	-	-	-	-	-	-	1488	1488	-	921	921	-
Stage 2	-	-	-	-	-	-	477	961	-	771	1491	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	732	-	-	469	-	-	38	31	371	60	32	561
Stage 1	-	-	-	-	-	-	130	186	-	291	347	-
Stage 2	-	-	-	-	-	-	538	333	-	359	185	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	732	-	-	469	-	-	36	29	371	56	30	561
Mov Cap-2 Maneuver	-	-	-	-	-	-	101	114	-	162	111	-
Stage 1	-	-	-	-	-	-	125	179	-	280	335	-
Stage 2	-	-	-	-	-	-	517	322	-	340	178	-

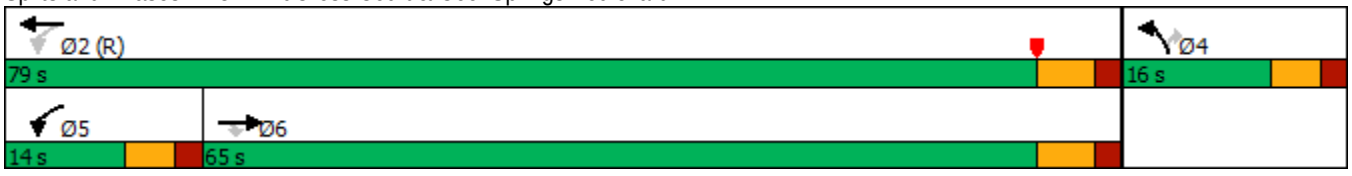
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	19.4	20.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	257	732	-	-	469	-	-	162	561
HCM Lane V/C Ratio	0.025	0.039	-	-	0.034	-	-	0.026	0.006
HCM Control Delay (s)	19.4	10.1	-	-	12.9	-	-	27.8	11.5
HCM Lane LOS	C	B	-	-	B	-	-	D	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-	-	0.1	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1279	88	196	873	25	96
Future Volume (vph)	1279	88	196	873	25	96
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	6.0	20.0	8.0	8.0
Minimum Split (s)	26.0	26.0	11.5	26.0	13.5	13.5
Total Split (s)	65.0	65.0	14.0	79.0	16.0	16.0
Total Split (%)	68.4%	68.4%	14.7%	83.2%	16.8%	16.8%
Yellow Time (s)	4.0	4.0	3.5	4.0	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.5	6.0	5.5	5.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	59.1	59.1	73.5	73.0	10.5	10.5
Actuated g/C Ratio	0.62	0.62	0.77	0.77	0.11	0.11
v/c Ratio	0.63	0.09	0.68	0.35	0.14	0.39
Control Delay	16.7	3.0	28.1	2.5	40.1	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	3.0	28.1	2.5	40.1	12.8
LOS	B	A	C	A	D	B
Approach Delay	15.8			7.2	18.4	
Approach LOS	B			A	B	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 12.3	Intersection LOS: B
Intersection Capacity Utilization 67.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1390	96	213	949	27	104
v/c Ratio	0.63	0.09	0.68	0.35	0.14	0.39
Control Delay	16.7	3.0	28.1	2.5	40.1	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	3.0	28.1	2.5	40.1	12.8
Queue Length 50th (ft)	367	13	28	48	15	0
Queue Length 95th (ft)	m431	m16	m98	60	41	47
Internal Link Dist (ft)	434			1340	817	
Turn Bay Length (ft)		300	360			150
Base Capacity (vph)	2202	1021	313	2719	195	267
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.09	0.68	0.35	0.14	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1279	88	196	873	25	96
Future Volume (veh/h)	1279	88	196	873	25	96
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1390	96	213	949	27	104
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2301	1026	337	2731	197	175
Arrive On Green	0.65	0.65	0.13	1.00	0.11	0.11
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	1390	96	213	949	27	104
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	21.5	2.2	3.7	0.0	1.3	5.9
Cycle Q Clear(g_c), s	21.5	2.2	3.7	0.0	1.3	5.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2301	1026	337	2731	197	175
V/C Ratio(X)	0.60	0.09	0.63	0.35	0.14	0.59
Avail Cap(c_a), veh/h	2301	1026	385	2731	197	175
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	9.7	6.3	9.8	0.0	38.2	40.2
Incr Delay (d2), s/veh	0.7	0.1	3.0	0.3	1.4	13.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.6	1.7	0.1	0.6	5.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.4	6.4	12.9	0.3	39.6	54.2
LnGrp LOS	B	A	B	A	D	D
Approach Vol, veh/h	1486			1162	131	
Approach Delay, s/veh	10.1			2.6	51.2	
Approach LOS	B			A	D	

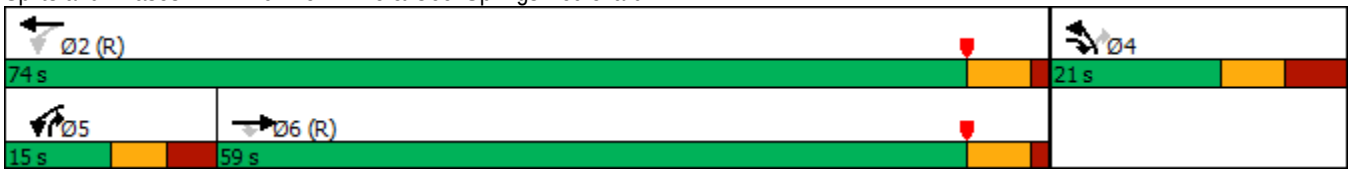
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		79.0		16.0	11.5	67.5
Change Period (Y+Rc), s		6.0		5.5	5.5	6.0
Max Green Setting (Gmax), s		73.0		10.5	8.5	59.0
Max Q Clear Time (g_c+I1), s		2.0		7.9	5.7	23.5
Green Ext Time (p_c), s		17.8		0.2	0.2	23.8

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	874	501	93	750	319	223
Future Volume (vph)	874	501	93	750	319	223
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	6	4	5	2	4	5
Permitted Phases		6	2			4
Detector Phase	6	4	5	2	4	5
Switch Phase						
Minimum Initial (s)	15.0	7.0	6.0	15.0	7.0	6.0
Minimum Split (s)	21.0	16.0	13.5	21.0	16.0	13.5
Total Split (s)	59.0	21.0	15.0	74.0	21.0	15.0
Total Split (%)	62.1%	22.1%	15.8%	77.9%	22.1%	15.8%
Yellow Time (s)	4.5	4.5	4.0	4.5	4.5	4.0
All-Red Time (s)	1.5	4.5	3.5	1.5	4.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	9.0	7.5	6.0	9.0	7.5
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Act Effct Green (s)	54.3	72.0	66.8	68.3	11.7	27.2
Actuated g/C Ratio	0.57	0.76	0.70	0.72	0.12	0.29
v/c Ratio	0.47	0.41	0.27	0.32	0.82	0.45
Control Delay	5.7	0.7	6.3	5.3	57.9	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	0.7	6.3	5.3	57.9	17.0
LOS	A	A	A	A	E	B
Approach Delay	3.9			5.4	41.1	
Approach LOS	A			A	D	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 11.7	Intersection LOS: B
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	950	545	101	815	347	242
v/c Ratio	0.47	0.41	0.27	0.32	0.82	0.45
Control Delay	5.7	0.7	6.3	5.3	57.9	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	0.7	6.3	5.3	57.9	17.0
Queue Length 50th (ft)	39	1	17	81	106	59
Queue Length 95th (ft)	103	0	32	106	#172	127
Internal Link Dist (ft)	1340			514	620	
Turn Bay Length (ft)		260	260			300
Base Capacity (vph)	2024	1335	393	2546	433	550
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.41	0.26	0.32	0.80	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	874	501	93	750	319	223
Future Volume (veh/h)	874	501	93	750	319	223
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	950	545	101	815	347	242
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2054	1117	330	2544	437	293
Arrive On Green	0.58	0.58	0.06	0.72	0.13	0.13
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	950	545	101	815	347	242
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	14.6	14.7	2.0	8.0	9.3	12.0
Cycle Q Clear(g_c), s	14.6	14.7	2.0	8.0	9.3	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2054	1117	330	2544	437	293
V/C Ratio(X)	0.46	0.49	0.31	0.32	0.79	0.82
Avail Cap(c_a), veh/h	2054	1117	366	2544	437	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	6.3	7.9	5.0	40.3	37.2
Incr Delay (d2), s/veh	0.6	1.1	0.2	0.3	9.1	16.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	6.8	0.6	2.3	4.4	12.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.1	7.5	8.1	5.3	49.4	53.5
LnGrp LOS	B	A	A	A	D	D
Approach Vol, veh/h	1495			916	589	
Approach Delay, s/veh	10.4			5.6	51.1	
Approach LOS	B			A	D	

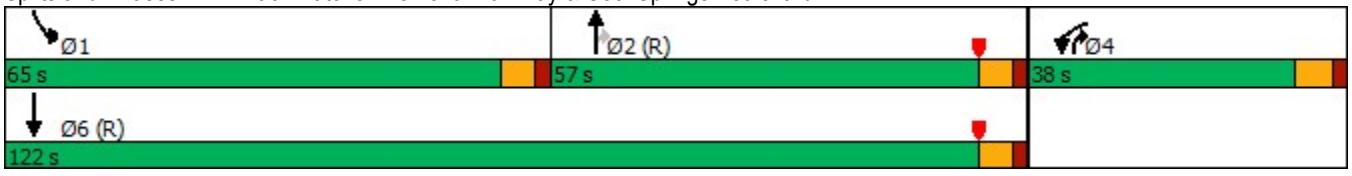
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		74.0		21.0	13.1	60.9
Change Period (Y+Rc), s		6.0		9.0	7.5	6.0
Max Green Setting (Gmax), s		68.0		12.0	7.5	53.0
Max Q Clear Time (g_c+I1), s		10.0		14.0	4.0	16.7
Green Ext Time (p_c), s		20.5		0.0	0.0	27.8

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	457	1104	513	343	736	482
Future Volume (vph)	457	1104	513	343	736	482
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	8.0		18.0	8.0	8.0	10.0
Minimum Split (s)	14.5		24.0	14.5	14.0	16.0
Total Split (s)	38.0		57.0	38.0	65.0	122.0
Total Split (%)	23.8%		35.6%	23.8%	40.6%	76.3%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	29.5	160.0	62.4	97.9	49.6	118.0
Actuated g/C Ratio	0.18	1.00	0.39	0.61	0.31	0.74
v/c Ratio	0.77	0.74	0.40	0.37	0.74	0.20
Control Delay	64.6	8.1	37.9	14.7	53.4	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	8.1	37.9	14.7	53.4	6.8
LOS	E	A	D	B	D	A
Approach Delay	24.7		28.6			34.9
Approach LOS	C		C			C

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 116 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 29.0	Intersection LOS: C
Intersection Capacity Utilization 64.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	486	1174	546	365	783	513
v/c Ratio	0.77	0.74	0.40	0.37	0.74	0.20
Control Delay	64.6	8.1	37.9	14.7	53.4	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	8.1	37.9	14.7	53.4	6.8
Queue Length 50th (ft)	259	828	221	150	378	83
Queue Length 95th (ft)	323	1025	301	251	418	104
Internal Link Dist (ft)	425		1396			1960
Turn Bay Length (ft)		230		1000	1000	
Base Capacity (vph)	675	1583	1379	1012	1265	2609
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.74	0.40	0.36	0.62	0.20

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	457	1104	513	343	736	482
Future Volume (veh/h)	457	1104	513	343	736	482
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	486	0	546	365	783	513
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	563		1535	943	1001	2697
Arrive On Green	0.16	0.00	0.43	0.43	0.29	0.76
Sat Flow, veh/h	3456	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	486	0	546	365	783	513
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1728	1777
Q Serve(g_s), s	21.9	0.0	16.5	19.4	33.3	6.5
Cycle Q Clear(g_c), s	21.9	0.0	16.5	19.4	33.3	6.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	563		1535	943	1001	2697
V/C Ratio(X)	0.86		0.36	0.39	0.78	0.19
Avail Cap(c_a), veh/h	680		1535	943	1274	2697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.2	0.0	30.5	17.1	52.2	5.4
Incr Delay (d2), s/veh	11.7	0.0	0.6	1.2	6.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	0.0	7.1	10.6	15.0	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	76.9	0.0	31.2	18.3	58.3	5.6
LnGrp LOS	E		C	B	E	A
Approach Vol, veh/h	486		911			1296
Approach Delay, s/veh	76.9		26.0			37.4
Approach LOS	E		C			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	52.3	75.1		32.6		127.4
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	59.0	51.0		31.5		116.0
Max Q Clear Time (g_c+I1), s	35.3	21.4		23.9		8.5
Green Ext Time (p_c), s	11.0	16.1		2.2		7.3

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1070	6	11	1532	7	9	0	12	42	0	18
Future Vol, veh/h	2	1070	6	11	1532	7	9	0	12	42	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	270	-	-	335	-	130	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1126	6	12	1613	7	9	0	13	44	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1620	0	0	1132	0	0	1964	2777	566	2204	2773	807
Stage 1	-	-	-	-	-	-	1133	1133	-	1637	1637	-
Stage 2	-	-	-	-	-	-	831	1644	-	567	1136	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	398	-	-	613	-	-	38	19	467	~ 25	19	324
Stage 1	-	-	-	-	-	-	216	276	-	105	157	-
Stage 2	-	-	-	-	-	-	330	156	-	476	275	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	398	-	-	613	-	-	35	19	467	~ 24	19	324
Mov Cap-2 Maneuver	-	-	-	-	-	-	130	97	-	83	97	-
Stage 1	-	-	-	-	-	-	215	275	-	104	154	-
Stage 2	-	-	-	-	-	-	305	153	-	461	274	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	23.1	67.8
HCM LOS			C	F

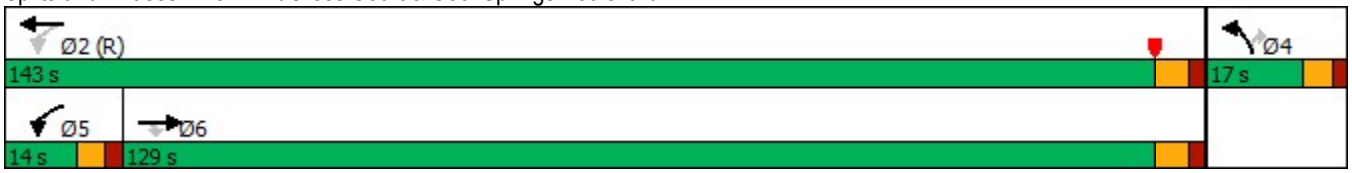
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	221	398	-	-	613	-	-	83	324
HCM Lane V/C Ratio	0.1	0.005	-	-	0.019	-	-	0.533	0.058
HCM Control Delay (s)	23.1	14.1	-	-	11	-	-	89.7	16.8
HCM Lane LOS	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	2.3	0.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1106	18	127	1488	62	268
Future Volume (vph)	1106	18	127	1488	62	268
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	6.0	20.0	8.0	8.0
Minimum Split (s)	26.0	26.0	11.5	26.0	13.5	13.5
Total Split (s)	129.0	129.0	14.0	143.0	17.0	17.0
Total Split (%)	80.6%	80.6%	8.8%	89.4%	10.6%	10.6%
Yellow Time (s)	4.0	4.0	3.5	4.0	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.5	6.0	5.5	5.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	123.4	123.4	137.5	137.0	11.5	11.5
Actuated g/C Ratio	0.77	0.77	0.86	0.86	0.07	0.07
v/c Ratio	0.44	0.02	0.35	0.53	0.53	0.97
Control Delay	12.5	1.2	3.2	2.2	87.2	68.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	1.2	3.2	2.2	87.2	68.2
LOS	B	A	A	A	F	E
Approach Delay	12.4			2.3	71.7	
Approach LOS	B			A	E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 13.4	Intersection LOS: B
Intersection Capacity Utilization 58.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1202	20	138	1617	67	291
v/c Ratio	0.44	0.02	0.35	0.53	0.53	0.97
Control Delay	12.5	1.2	3.2	2.2	87.2	68.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	1.2	3.2	2.2	87.2	68.2
Queue Length 50th (ft)	485	2	11	98	69	100
Queue Length 95th (ft)	516	m4	m16	m107	125	#300
Internal Link Dist (ft)	434			1340	817	
Turn Bay Length (ft)		300	360			150
Base Capacity (vph)	2728	1225	393	3030	127	299
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.02	0.35	0.53	0.53	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1106	18	127	1488	62	268
Future Volume (veh/h)	1106	18	127	1488	62	268
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1202	20	138	1617	67	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2788	1243	425	3043	128	114
Arrive On Green	0.78	0.78	0.07	1.00	0.07	0.07
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	1202	20	138	1617	67	89
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	17.6	0.4	2.3	0.0	5.8	8.8
Cycle Q Clear(g_c), s	17.6	0.4	2.3	0.0	5.8	8.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2788	1243	425	3043	128	114
V/C Ratio(X)	0.43	0.02	0.32	0.53	0.52	0.78
Avail Cap(c_a), veh/h	2788	1243	453	3043	128	114
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.74	0.74	1.00	1.00
Uniform Delay (d), s/veh	5.6	3.8	3.9	0.0	71.6	73.0
Incr Delay (d2), s/veh	0.2	0.0	0.5	0.5	14.5	40.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.1	0.7	0.2	3.2	8.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.8	3.8	4.4	0.5	86.1	113.1
LnGrp LOS	A	A	A	A	F	F
Approach Vol, veh/h	1222			1755	156	
Approach Delay, s/veh	5.8			0.8	101.5	
Approach LOS	A			A	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		143.0		17.0	11.5	131.5
Change Period (Y+Rc), s		6.0		5.5	5.5	6.0
Max Green Setting (Gmax), s		137.0		11.5	8.5	123.0
Max Q Clear Time (g_c+I1), s		2.0		10.8	4.3	19.6
Green Ext Time (p_c), s		62.8		0.1	0.2	31.7

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

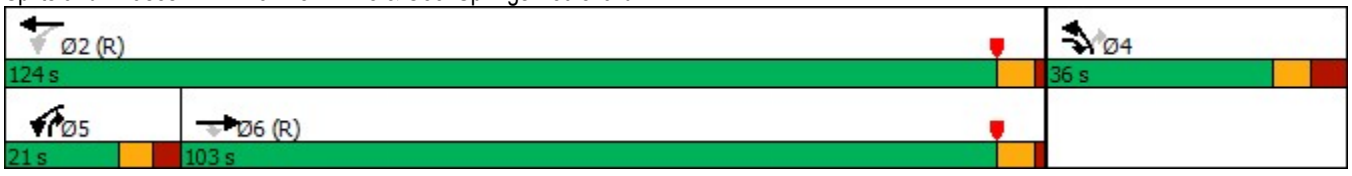
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	971	403	260	1097	518	179
Future Volume (vph)	971	403	260	1097	518	179
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	6	4	5	2	4	5
Permitted Phases		6	2			4
Detector Phase	6	4	5	2	4	5
Switch Phase						
Minimum Initial (s)	15.0	7.0	6.0	15.0	7.0	6.0
Minimum Split (s)	21.0	16.0	13.5	21.0	16.0	13.5
Total Split (s)	103.0	36.0	21.0	124.0	36.0	21.0
Total Split (%)	64.4%	22.5%	13.1%	77.5%	22.5%	13.1%
Yellow Time (s)	4.5	4.5	4.0	4.5	4.5	4.0
All-Red Time (s)	1.5	4.5	3.5	1.5	4.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	9.0	7.5	6.0	9.0	7.5
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Act Effct Green (s)	98.4	131.4	116.5	118.0	27.0	48.1
Actuated g/C Ratio	0.62	0.82	0.73	0.74	0.17	0.30
v/c Ratio	0.49	0.33	0.76	0.46	0.97	0.35
Control Delay	7.0	1.1	21.5	9.0	96.3	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	1.1	21.5	9.0	96.3	20.3
LOS	A	A	C	A	F	C
Approach Delay	5.2			11.4	76.8	
Approach LOS	A			B	E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 22.2	Intersection LOS: C
Intersection Capacity Utilization 74.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1055	438	283	1192	563	195
v/c Ratio	0.49	0.33	0.76	0.46	0.97	0.35
Control Delay	7.0	1.1	21.5	9.0	96.3	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	1.1	21.5	9.0	96.3	20.3
Queue Length 50th (ft)	108	10	88	236	306	67
Queue Length 95th (ft)	m121	m17	129	275	#428	140
Internal Link Dist (ft)	1340			514	620	
Turn Bay Length (ft)		260	260			300
Base Capacity (vph)	2175	1335	385	2610	579	565
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.33	0.74	0.46	0.97	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	971	403	260	1097	518	179
Future Volume (veh/h)	971	403	260	1097	518	179
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1055	438	283	1192	563	195
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2208	1252	415	2621	583	377
Arrive On Green	0.62	0.62	0.07	0.74	0.17	0.17
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1055	438	283	1192	563	195
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	25.6	12.8	9.0	21.2	25.9	17.1
Cycle Q Clear(g_c), s	25.6	12.8	9.0	21.2	25.9	17.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2208	1252	415	2621	583	377
V/C Ratio(X)	0.48	0.35	0.68	0.45	0.97	0.52
Avail Cap(c_a), veh/h	2208	1252	442	2621	583	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	4.9	13.4	8.3	66.0	53.0
Incr Delay (d2), s/veh	0.6	0.6	3.1	0.6	28.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	8.7	3.8	8.1	13.8	15.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.9	5.5	16.5	8.9	94.5	53.5
LnGrp LOS	B	A	B	A	F	D
Approach Vol, veh/h	1493			1475	758	
Approach Delay, s/veh	13.6			10.3	84.0	
Approach LOS	B			B	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		124.0		36.0	18.6	105.4
Change Period (Y+Rc), s		6.0		9.0	7.5	6.0
Max Green Setting (Gmax), s		118.0		27.0	13.5	97.0
Max Q Clear Time (g_c+I1), s		23.2		27.9	11.0	27.6
Green Ext Time (p_c), s		46.5		0.0	0.1	46.2

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

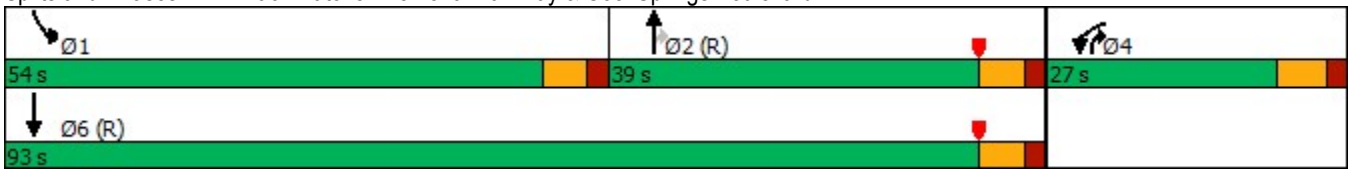
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	280	935	502	645	1241	509
Future Volume (vph)	280	935	502	645	1241	509
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	20.5	120.0	33.0	53.0	48.0	87.0
Actuated g/C Ratio	0.17	1.00	0.28	0.44	0.40	0.72
v/c Ratio	0.52	0.63	0.54	0.96	0.94	0.21
Control Delay	34.0	10.8	39.5	54.1	48.9	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	10.8	39.5	54.1	48.9	5.6
LOS	C	B	D	D	D	A
Approach Delay	16.2		47.7			36.3
Approach LOS	B		D			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 33.5	Intersection LOS: C
Intersection Capacity Utilization 85.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Maximum Green (s)	20.5		33.0	20.5	48.0	87.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
10th %ile Term Code	Max		Coord	Max	Max	Coord

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	280	935	502	645	1241	509
Future Volume (veh/h)	280	935	502	645	1241	509
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	292	0	523	672	1293	530
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	3	2	2	2	2
Cap, veh/h	498		1060	710	1374	2650
Arrive On Green	0.15	0.00	0.30	0.30	0.40	0.75
Sat Flow, veh/h	3319	1572	3647	1582	3456	3647
Grp Volume(v), veh/h	292	0	523	672	1293	530
Grp Sat Flow(s),veh/h/ln	1659	1572	1777	1582	1728	1777
Q Serve(g_s), s	9.8	0.0	14.5	35.8	43.2	5.3
Cycle Q Clear(g_c), s	9.8	0.0	14.5	35.8	43.2	5.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	498		1060	710	1374	2650
V/C Ratio(X)	0.59		0.49	0.95	0.94	0.20
Avail Cap(c_a), veh/h	567		1060	710	1382	2650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	34.7	28.1	34.8	4.6
Incr Delay (d2), s/veh	2.4	0.0	1.6	23.1	13.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	6.3	24.5	19.7	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.0	0.0	36.3	51.2	48.5	4.7
LnGrp LOS	D		D	D	D	A
Approach Vol, veh/h	292		1195			1823
Approach Delay, s/veh	50.0		44.7			35.8
Approach LOS	D		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	53.7	41.8		24.5		95.5
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	48.0	33.0		20.5		87.0
Max Q Clear Time (g_c+I1), s	45.2	37.8		11.8		7.3
Green Ext Time (p_c), s	2.5	0.0		1.3		7.6

Intersection Summary						
HCM 6th Ctrl Delay			40.3			
HCM 6th LOS			D			

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1853	6	15	1143	108	0	0	6	0	0	68
Future Vol, veh/h	0	1853	6	15	1143	108	0	0	6	0	0	68
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1951	6	16	1203	114	0	0	6	0	0	72

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1957	0	0	-	-	979	-	-	602
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	294	-	-	0	0	249	0	0	443
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	294	-	-	-	-	249	-	-	443
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

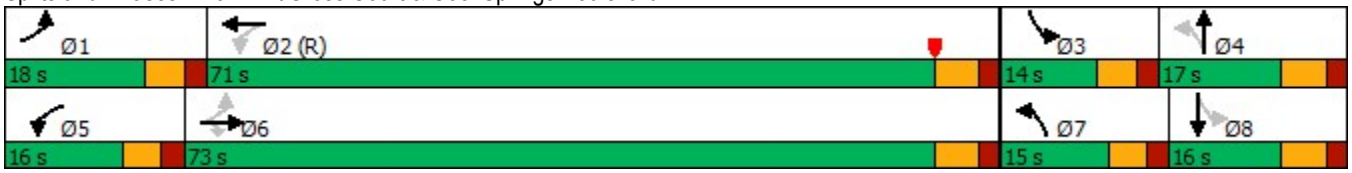
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	19.8	14.7
HCM LOS			C	B

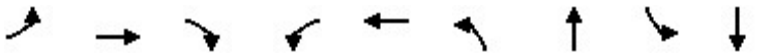
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	249	-	-	294	-	-	443
HCM Lane V/C Ratio	0.025	-	-	0.054	-	-	0.162
HCM Control Delay (s)	19.8	-	-	17.9	-	-	14.7
HCM Lane LOS	C	-	-	C	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.6

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	110	1662	92	204	1228	25	0	74	0
Future Volume (vph)	110	1662	92	204	1228	25	0	74	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	6	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	78.4	68.7	68.7	83.5	71.7	19.1	10.4	16.3	12.8
Actuated g/C Ratio	0.65	0.57	0.57	0.70	0.60	0.16	0.09	0.14	0.11
v/c Ratio	0.45	0.89	0.10	0.91	0.65	0.11	0.33	0.38	0.04
Control Delay	8.9	32.3	3.4	70.1	18.7	39.4	2.7	48.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	32.3	3.4	70.1	18.7	39.4	2.7	48.6	0.2
LOS	A	C	A	E	B	D	A	D	A
Approach Delay		29.5			25.9		10.3		41.4
Approach LOS		C			C		B		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 27.6	Intersection LOS: C
Intersection Capacity Utilization 82.6%	ICU Level of Service E
Analysis Period (min) 15	

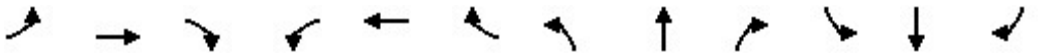
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Maximum Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	12.0	67.0	67.0	10.5	65.5	9.5	11.0	8.5	10.0
90th %ile Term Code	Gap	Coord	Coord	Max	Coord	Max	Hold	Max	Max
70th %ile Green (s)	9.9	67.0	67.0	10.5	67.6	9.5	11.0	8.5	10.0
70th %ile Term Code	Gap	Coord	Coord	Max	Coord	Max	Hold	Max	Max
50th %ile Green (s)	9.0	67.0	67.0	11.5	69.5	24.5	10.0	8.5	0.0
50th %ile Term Code	Gap	Coord	Coord	Max	Coord	Hold	Min	Max	Skip
30th %ile Green (s)	8.3	67.0	67.0	11.5	70.2	0.0	10.0	8.5	24.0
30th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold
10th %ile Green (s)	7.0	75.4	75.4	17.1	85.5	0.0	10.0	0.0	10.0
10th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Skip	Min	Skip	Hold

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1662	92	204	1228	26	25	0	96	74	0	13
Future Volume (veh/h)	110	1662	92	204	1228	26	25	0	96	74	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	1807	100	222	1335	28	27	0	104	80	0	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	300	2048	914	248	2187	46	246	0	131	194	0	167
Arrive On Green	0.05	0.58	0.58	0.09	0.61	0.61	0.04	0.00	0.08	0.06	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3559	75	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	120	1807	100	222	666	697	27	0	104	80	0	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1857	1781	0	1585	1781	0	1585
Q Serve(g_s), s	3.2	52.6	3.4	8.5	27.7	27.8	1.6	0.0	7.7	4.8	0.0	1.0
Cycle Q Clear(g_c), s	3.2	52.6	3.4	8.5	27.7	27.8	1.6	0.0	7.7	4.8	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	300	2048	914	248	1092	1141	246	0	131	194	0	167
V/C Ratio(X)	0.40	0.88	0.11	0.90	0.61	0.61	0.11	0.00	0.79	0.41	0.00	0.08
Avail Cap(c_a), veh/h	398	2048	914	248	1092	1141	317	0	145	210	0	167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.76	0.76	0.76	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.2	21.9	11.5	34.5	14.3	14.3	46.9	0.0	54.0	46.2	0.0	48.5
Incr Delay (d2), s/veh	1.2	5.2	0.1	25.9	1.9	1.9	0.4	0.0	28.2	3.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	21.3	1.2	8.2	10.7	11.2	0.8	0.0	4.1	2.3	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.5	27.1	11.6	60.4	16.2	16.1	47.4	0.0	82.2	49.2	0.0	48.9
LnGrp LOS	B	C	B	E	B	B	D	A	F	D	A	D
Approach Vol, veh/h		2027			1585			131			94	
Approach Delay, s/veh		25.6			22.4			75.0			49.2	
Approach LOS		C			C			E			D	

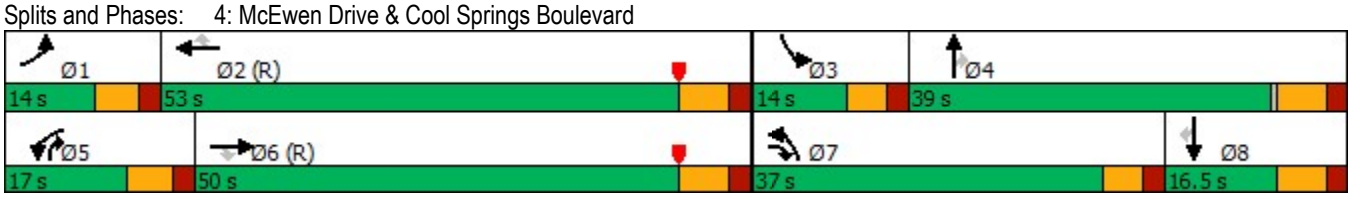
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	79.7	12.9	15.9	16.0	75.2	10.2	18.6
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.2	29.8	6.8	9.7	10.5	54.6	3.6	3.0
Green Ext Time (p_c), s	0.2	21.7	0.0	0.1	0.0	11.5	0.0	0.0

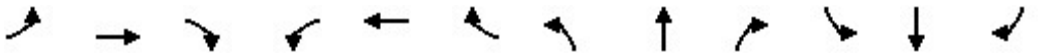
Intersection Summary	
HCM 6th Ctrl Delay	26.5
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1003	806	97	892	43	531	34	232	58	45	35
Future Volume (vph)	26	1003	806	97	892	43	531	34	232	58	45	35
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	2	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	6.5	5.5	6.5	6.0	5.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	7.6	48.2	85.2	10.6	56.4	56.4	30.5	26.9	40.7	16.3	10.0	10.0
Actuated g/C Ratio	0.06	0.40	0.71	0.09	0.47	0.47	0.25	0.22	0.34	0.14	0.08	0.08
v/c Ratio	0.25	0.77	0.71	0.68	0.59	0.06	0.66	0.09	0.43	0.26	0.32	0.13
Control Delay	59.4	37.5	9.6	75.1	28.1	0.1	44.5	35.2	21.8	53.5	58.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	37.5	9.6	75.1	28.1	0.1	44.5	35.2	21.8	53.5	58.0	0.9
LOS	E	D	A	E	C	A	D	D	C	D	E	A
Approach Delay		25.5			31.3			37.5			41.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120.5	
Actuated Cycle Length: 120.5	
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 30.2	Intersection LOS: C
Intersection Capacity Utilization 78.6%	ICU Level of Service D
Analysis Period (min) 15	

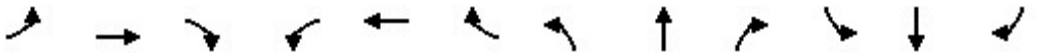
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Maximum Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	32.5	11.0	8.5	10.0	10.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
30th %ile Green (s)	0.0	43.5	31.5	11.0	60.5	60.5	31.5	0.0	11.0	48.0	10.0	10.0
30th %ile Term Code	Skip	Coord	Max	Max	Coord	Coord	Max	Skip	Max	Hold	Max	Max
10th %ile Green (s)	0.0	67.0	26.6	8.9	81.9	81.9	26.6	25.6	8.9	0.0	0.0	0.0
10th %ile Term Code	Skip	Coord	Gap	Gap	Coord	Coord	Gap	Hold	Gap	Skip	Skip	Skip

Intersection Summary
Cycle Length: 120.5
Actuated Cycle Length: 120.5
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1003	806	97	892	43	531	34	232	58	45	35
Future Volume (veh/h)	26	1003	806	97	892	43	531	34	232	58	45	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	1090	876	105	970	47	577	37	252	63	49	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1549	1014	130	1701	759	703	427	478	104	156	132
Arrive On Green	0.03	0.44	0.44	0.07	0.48	0.48	0.20	0.23	0.23	0.06	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	28	1090	876	105	970	47	577	37	252	63	49	38
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.9	29.9	52.3	7.0	23.5	1.9	19.2	1.9	15.8	4.1	3.0	2.7
Cycle Q Clear(g_c), s	1.9	29.9	52.3	7.0	23.5	1.9	19.2	1.9	15.8	4.1	3.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	54	1549	1014	130	1701	759	703	427	478	104	156	132
V/C Ratio(X)	0.52	0.70	0.86	0.81	0.57	0.06	0.82	0.09	0.53	0.60	0.31	0.29
Avail Cap(c_a), veh/h	119	1549	1014	163	1701	759	907	507	545	126	156	132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.37	0.37	0.37	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	27.5	17.4	54.8	22.4	16.8	45.7	36.4	34.8	55.1	51.8	51.7
Incr Delay (d2), s/veh	4.0	1.0	3.9	23.2	1.4	0.2	6.6	0.2	1.9	11.5	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	12.4	19.0	3.9	9.7	0.7	8.8	0.9	6.4	2.2	1.5	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.3	28.5	21.4	78.0	23.8	17.0	52.3	36.6	36.8	66.6	54.2	54.2
LnGrp LOS	E	C	C	E	C	B	D	D	D	E	D	D
Approach Vol, veh/h		1994			1122			866			150	
Approach Delay, s/veh		25.8			28.6			47.1			59.4	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	63.9	12.5	33.9	14.8	58.8	29.9	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	25.5	6.1	17.8	9.0	54.3	21.2	5.0
Green Ext Time (p_c), s	0.0	11.5	0.0	1.9	0.1	0.0	3.3	0.2

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

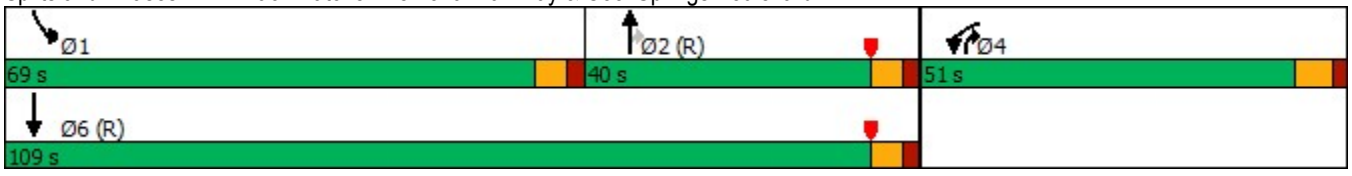
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	733	1557	544	516	1062	511
Future Volume (vph)	733	1557	544	516	1062	511
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	43.5	160.0	36.1	85.6	61.9	104.0
Actuated g/C Ratio	0.27	1.00	0.23	0.54	0.39	0.65
v/c Ratio	0.84	1.05	0.72	0.64	0.85	0.24
Control Delay	57.4	54.8	64.0	29.7	52.1	12.0
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	57.4	54.8	64.0	30.3	52.1	12.0
LOS	E	D	E	C	D	B
Approach Delay	55.6		47.6			39.1
Approach LOS	E		D			D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 48.6	Intersection LOS: D
Intersection Capacity Utilization 81.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Maximum Green (s)	44.5		34.0	44.5	63.0	103.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	39.4		44.6	39.4	57.5	108.1
10th %ile Term Code	Gap		Coord	Gap	Gap	Coord

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	733	1557	544	516	1062	511
Future Volume (veh/h)	733	1557	544	516	1062	511
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	780	0	579	549	1130	544
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	873		912	807	1296	2379
Arrive On Green	0.25	0.00	0.26	0.26	0.38	0.67
Sat Flow, veh/h	3456	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	780	0	579	549	1130	544
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1728	1777
Q Serve(g_s), s	34.9	0.0	23.1	41.1	48.6	9.6
Cycle Q Clear(g_c), s	34.9	0.0	23.1	41.1	48.6	9.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	873		912	807	1296	2379
V/C Ratio(X)	0.89		0.63	0.68	0.87	0.23
Avail Cap(c_a), veh/h	961		912	807	1361	2379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.7	0.0	52.8	29.3	46.4	10.3
Incr Delay (d2), s/veh	11.2	0.0	3.4	4.6	8.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.4	0.0	10.6	23.4	21.8	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	68.9	0.0	56.2	33.9	54.7	10.6
LnGrp LOS	E		E	C	D	B
Approach Vol, veh/h	780		1128			1674
Approach Delay, s/veh	68.9		45.3			40.3
Approach LOS	E		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	66.0	47.1		46.9		113.1
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	63.0	34.0		44.5		103.0
Max Q Clear Time (g_c+I1), s	50.6	43.1		36.9		11.6
Green Ext Time (p_c), s	9.4	0.0		3.5		7.9

Intersection Summary			
HCM 6th Ctrl Delay		48.1	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1591	6	11	2117	71	0	0	21	0	0	116
Future Vol, veh/h	0	1591	6	11	2117	71	0	0	21	0	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1675	6	12	2228	75	0	0	22	0	0	122

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1681	0	0	-	-	841	-	-	1114
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	377	-	-	0	0	308	0	0	203
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	377	-	-	-	-	308	-	-	203
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

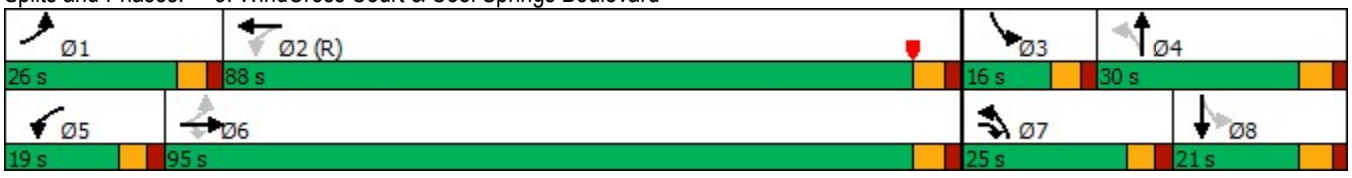
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	17.6	46.4
HCM LOS			C	E

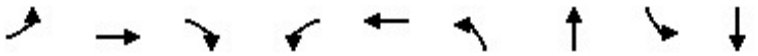
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	-	-	377	-	-	203
HCM Lane V/C Ratio	0.072	-	-	0.031	-	-	0.602
HCM Control Delay (s)	17.6	-	-	14.9	-	-	46.4
HCM Lane LOS	C	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	-	3.4

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	125	1512	19	132	2105	62	0	122	0
Future Volume (vph)	125	1512	19	132	2105	62	0	122	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	26.0	95.0	25.0	19.0	88.0	25.0	30.0	16.0	21.0
Total Split (%)	16.3%	59.4%	15.6%	11.9%	55.0%	15.6%	18.8%	10.0%	13.1%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	5.5	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	109.5	95.2	121.5	105.7	93.1	34.5	19.2	22.6	15.8
Actuated g/C Ratio	0.68	0.60	0.76	0.66	0.58	0.22	0.12	0.14	0.10
v/c Ratio	0.67	0.78	0.02	0.71	1.13	0.22	0.86	0.81	0.06
Control Delay	38.5	49.6	1.4	34.8	92.3	50.3	50.6	91.8	0.3
Queue Delay	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	50.5	1.4	34.8	92.3	50.3	50.6	91.8	0.3
LOS	D	D	A	C	F	D	D	F	A
Approach Delay		49.0			89.0		50.5		77.8
Approach LOS		D			F		D		E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 70.6	Intersection LOS: E
Intersection Capacity Utilization 108.4%	ICU Level of Service G
Analysis Period (min) 15	

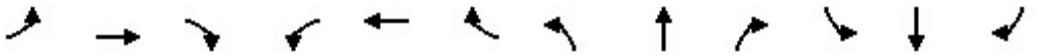
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	26.0	95.0	25.0	19.0	88.0	25.0	30.0	16.0	21.0
Total Split (%)	16.3%	59.4%	15.6%	11.9%	55.0%	15.6%	18.8%	10.0%	13.1%
Maximum Green (s)	20.5	89.0	19.5	13.5	82.0	19.5	24.0	10.5	15.0
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	20.4	89.0	15.9	13.5	82.1	15.9	24.0	10.5	18.6
90th %ile Term Code	Gap	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
70th %ile Green (s)	16.7	89.0	13.6	13.5	85.8	13.6	24.0	10.5	20.9
70th %ile Term Code	Gap	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
50th %ile Green (s)	14.1	91.0	12.3	14.1	91.0	12.3	21.4	10.5	19.6
50th %ile Term Code	Gap	Coord	Gap	Gap	Coord	Gap	Gap	Max	Hold
30th %ile Green (s)	11.6	98.6	33.3	11.1	98.1	33.3	16.8	10.5	0.0
30th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip
10th %ile Green (s)	7.9	108.2	26.5	8.3	108.6	26.5	10.0	10.5	0.0
10th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Min	Max	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1512	19	132	2105	24	62	0	268	122	0	22
Future Volume (veh/h)	125	1512	19	132	2105	24	62	0	268	122	0	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	136	1643	21	143	2288	26	67	0	130	133	0	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	2309	1105	226	2262	26	265	0	155	183	0	184
Arrive On Green	0.06	0.65	0.65	0.06	0.84	0.84	0.05	0.00	0.10	0.07	0.00	0.12
Sat Flow, veh/h	1781	3554	1585	1781	3599	41	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	136	1643	21	143	1127	1187	67	0	130	133	0	24
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1863	1781	0	1585	1781	0	1585
Q Serve(g_s), s	8.0	48.2	0.7	4.7	100.5	100.5	5.3	0.0	12.9	10.5	0.0	2.2
Cycle Q Clear(g_c), s	8.0	48.2	0.7	4.7	100.5	100.5	5.3	0.0	12.9	10.5	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	2309	1105	226	1117	1171	265	0	155	183	0	184
V/C Ratio(X)	0.85	0.71	0.02	0.63	1.01	1.01	0.25	0.00	0.84	0.73	0.00	0.13
Avail Cap(c_a), veh/h	273	2309	1105	299	1117	1171	398	0	238	183	0	184
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.34	0.34	0.34	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.2	18.3	7.4	20.9	13.1	13.1	60.7	0.0	71.0	61.4	0.0	63.5
Incr Delay (d2), s/veh	15.9	1.3	0.0	1.4	18.1	18.8	1.1	0.0	23.5	16.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	19.1	0.2	2.5	25.1	26.6	2.5	0.0	6.3	5.7	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.1	19.6	7.5	22.4	31.3	32.0	61.8	0.0	94.5	77.6	0.0	64.2
LnGrp LOS	E	B	A	C	F	F	E	A	F	E	A	E
Approach Vol, veh/h		1800			2457			197			157	
Approach Delay, s/veh		23.4			31.1			83.4			75.5	
Approach LOS		C			C			F			E	

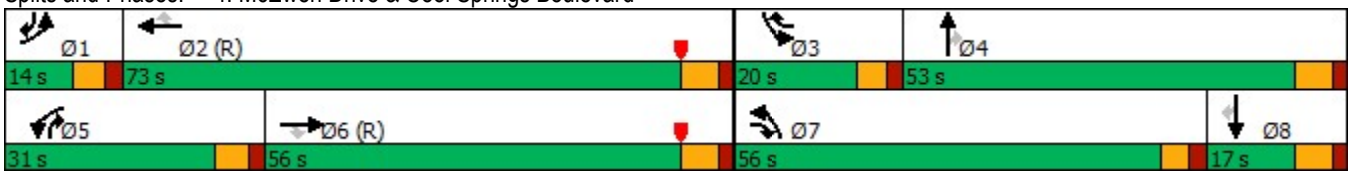
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	106.5	16.0	21.6	12.4	109.9	13.1	24.5
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	20.5	82.0	10.5	24.0	13.5	89.0	19.5	15.0
Max Q Clear Time (g_c+I1), s	10.0	102.5	12.5	14.9	6.7	50.2	7.3	4.2
Green Ext Time (p_c), s	0.4	0.0	0.0	0.7	0.3	29.1	0.2	0.1

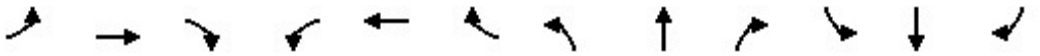
Intersection Summary	
HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1124	739	268	1243	65	976	51	185	62	47	42
Future Volume (vph)	39	1124	739	268	1243	65	976	51	185	62	47	42
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	56.0	56.0	31.0	73.0	20.0	56.0	53.0	31.0	20.0	17.0	14.0
Total Split (%)	8.8%	35.0%	35.0%	19.4%	45.6%	12.5%	35.0%	33.1%	19.4%	12.5%	10.6%	8.8%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	5.5	5.5	6.5	6.0	5.5	6.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	7.8	50.4	107.4	27.6	72.7	101.2	50.5	40.0	70.7	20.9	10.3	21.3
Actuated g/C Ratio	0.05	0.32	0.67	0.17	0.45	0.63	0.32	0.25	0.44	0.13	0.06	0.13
v/c Ratio	0.49	1.10	0.71	0.96	0.84	0.07	0.98	0.12	0.27	0.29	0.42	0.14
Control Delay	107.6	90.5	13.8	105.8	46.2	1.1	76.5	43.1	12.9	71.8	83.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.6	90.5	13.8	105.8	46.2	1.1	76.5	43.1	12.9	71.8	83.2	0.9
LOS	F	F	B	F	D	A	E	D	B	E	F	A
Approach Delay		61.1			54.4			65.4			55.4	
Approach LOS		E			D			E			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 59.8	Intersection LOS: E
Intersection Capacity Utilization 96.3%	ICU Level of Service F
Analysis Period (min) 15	

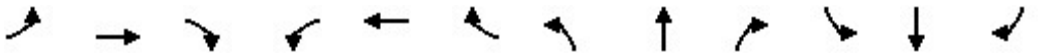
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	56.0	56.0	31.0	73.0	20.0	56.0	53.0	31.0	20.0	17.0	14.0
Total Split (%)	8.8%	35.0%	35.0%	19.4%	45.6%	12.5%	35.0%	33.1%	19.4%	12.5%	10.6%	8.8%
Maximum Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	13.3	50.5	47.7	25.0	13.3	10.5	8.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Max	Max
30th %ile Green (s)	8.3	49.5	50.5	25.3	66.5	11.6	50.5	49.1	25.3	11.6	10.2	8.3
30th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Gap	Max
10th %ile Green (s)	0.0	53.9	50.5	37.6	97.5	50.5	50.5	0.0	37.6	50.5	0.0	0.0
10th %ile Term Code	Skip	Coord	Max	Gap	Coord	Hold	Max	Skip	Gap	Hold	Skip	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	1124	739	268	1243	65	976	51	185	62	47	42
Future Volume (veh/h)	39	1124	739	268	1243	65	976	51	185	62	47	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1222	803	291	1351	71	1061	55	201	67	51	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1111	996	278	1553	769	1091	618	771	85	117	149
Arrive On Green	0.03	0.31	0.31	0.16	0.44	0.44	0.32	0.33	0.33	0.05	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	42	1222	803	291	1351	71	1061	55	201	67	51	46
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.7	50.0	50.0	25.0	55.2	3.9	48.5	3.2	11.9	6.0	4.2	4.3
Cycle Q Clear(g_c), s	3.7	50.0	50.0	25.0	55.2	3.9	48.5	3.2	11.9	6.0	4.2	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	1111	996	278	1553	769	1091	618	771	85	117	149
V/C Ratio(X)	0.74	1.10	0.81	1.05	0.87	0.09	0.97	0.09	0.26	0.78	0.44	0.31
Avail Cap(c_a), veh/h	89	1111	996	278	1553	769	1091	618	771	161	123	154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.53	0.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.8	55.0	22.4	67.5	40.9	22.2	54.1	37.0	24.2	75.3	72.3	67.6
Incr Delay (d2), s/veh	13.5	53.2	3.8	66.3	6.9	0.2	21.1	0.1	0.4	27.6	5.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	30.2	23.3	16.4	25.1	1.5	24.3	1.5	4.7	3.4	2.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.3	108.2	26.2	133.8	47.8	22.5	75.1	37.1	24.5	103.0	77.7	70.1
LnGrp LOS	F	F	C	F	D	C	E	D	C	F	E	E
Approach Vol, veh/h		2067			1713			1317			164	
Approach Delay, s/veh		76.0			61.4			65.8			85.9	
Approach LOS		E			E			E			F	

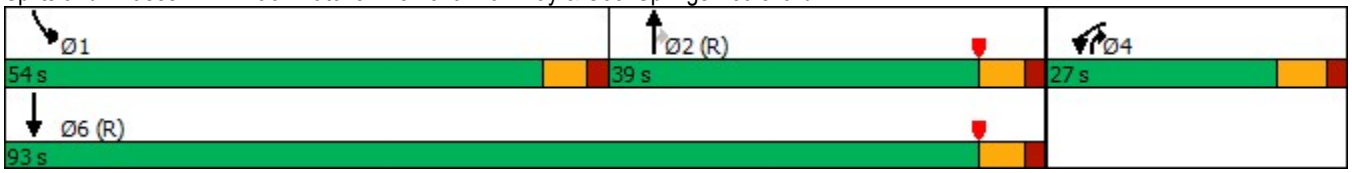
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	76.4	13.2	59.3	31.0	56.5	56.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	66.5	14.5	46.5	25.0	49.5	50.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	57.2	8.0	13.9	27.0	52.0	50.5	6.3
Green Ext Time (p_c), s	0.0	7.7	0.1	2.3	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	69.0
HCM 6th LOS	E

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	290	945	502	649	1245	509
Future Volume (vph)	290	945	502	649	1245	509
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	20.5	120.0	33.0	53.0	48.0	87.0
Actuated g/C Ratio	0.17	1.00	0.28	0.44	0.40	0.72
v/c Ratio	0.54	0.64	0.54	0.96	0.94	0.21
Control Delay	34.0	11.0	39.5	55.3	49.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	11.0	39.5	55.3	49.4	5.6
LOS	C	B	D	E	D	A
Approach Delay	16.4		48.4			36.7
Approach LOS	B		D			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 33.9	Intersection LOS: C
Intersection Capacity Utilization 86.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Maximum Green (s)	20.5		33.0	20.5	48.0	87.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
10th %ile Term Code	Max		Coord	Max	Max	Coord

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	290	945	502	649	1245	509
Future Volume (veh/h)	290	945	502	649	1245	509
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	302	0	523	676	1297	530
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	3	2	2	2	2
Cap, veh/h	498		1059	709	1375	2650
Arrive On Green	0.15	0.00	0.30	0.30	0.40	0.75
Sat Flow, veh/h	3319	1572	3647	1582	3456	3647
Grp Volume(v), veh/h	302	0	523	676	1297	530
Grp Sat Flow(s),veh/h/ln	1659	1572	1777	1582	1728	1777
Q Serve(g_s), s	10.2	0.0	14.5	35.8	43.4	5.3
Cycle Q Clear(g_c), s	10.2	0.0	14.5	35.8	43.4	5.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	498		1059	709	1375	2650
V/C Ratio(X)	0.61		0.49	0.95	0.94	0.20
Avail Cap(c_a), veh/h	567		1059	709	1382	2650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	0.0	34.7	28.2	34.8	4.6
Incr Delay (d2), s/veh	2.7	0.0	1.6	24.1	14.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	6.3	24.9	19.8	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.4	0.0	36.3	52.3	48.9	4.7
LnGrp LOS	D		D	D	D	A
Approach Vol, veh/h	302		1199			1827
Approach Delay, s/veh	50.4		45.3			36.1
Approach LOS	D		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	53.7	41.8		24.5		95.5
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	48.0	33.0		20.5		87.0
Max Q Clear Time (g_c+I1), s	45.4	37.8		12.2		7.3
Green Ext Time (p_c), s	2.3	0.0		1.3		7.6

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1861	6	15	1143	127	0	0	6	0	0	88
Future Vol, veh/h	0	1861	6	15	1143	127	0	0	6	0	0	88
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1959	6	16	1203	134	0	0	6	0	0	93

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1965	0	0	-	-	983	-	-	602
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	292	-	-	0	0	248	0	0	443
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	292	-	-	-	-	248	-	-	443
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

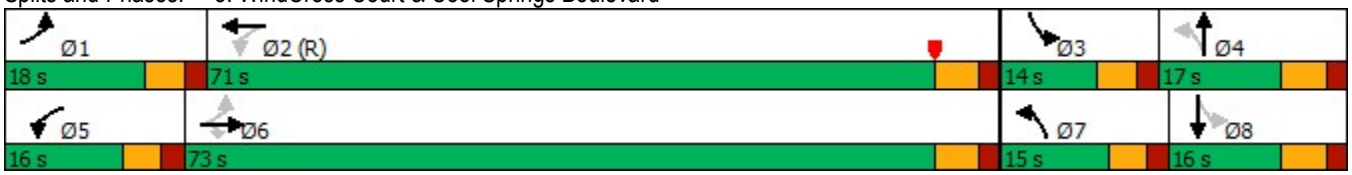
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	19.9	15.3
HCM LOS			C	C

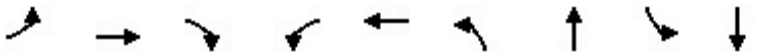
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	248	-	-	292	-	-	443
HCM Lane V/C Ratio	0.025	-	-	0.054	-	-	0.209
HCM Control Delay (s)	19.9	-	-	18	-	-	15.3
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.8

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	118	1662	92	204	1247	25	0	120	0
Future Volume (vph)	118	1662	92	204	1247	25	0	120	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	6	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	77.1	67.0	67.0	80.1	68.5	20.7	10.4	19.1	15.6
Actuated g/C Ratio	0.64	0.56	0.56	0.67	0.57	0.17	0.09	0.16	0.13
v/c Ratio	0.51	0.91	0.11	0.97	0.69	0.10	0.35	0.55	0.03
Control Delay	10.6	34.2	3.3	84.7	20.7	39.2	3.2	54.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	34.2	3.3	84.7	20.7	39.2	3.2	54.1	0.2
LOS	B	C	A	F	C	D	A	D	A
Approach Delay		31.2			29.5		10.6		48.9
Approach LOS		C			C		B		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 30.5	Intersection LOS: C
Intersection Capacity Utilization 85.1%	ICU Level of Service E
Analysis Period (min) 15	

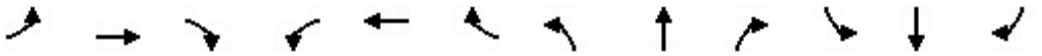
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Maximum Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Max	Hold	Max	Max
70th %ile Green (s)	10.1	67.0	67.0	10.5	67.4	9.5	11.0	8.5	10.0
70th %ile Term Code	Gap	Coord	Coord	Max	Coord	Max	Hold	Max	Max
50th %ile Green (s)	9.2	67.0	67.0	11.5	69.3	24.5	10.0	8.5	0.0
50th %ile Term Code	Gap	Coord	Coord	Max	Coord	Hold	Min	Max	Skip
30th %ile Green (s)	8.5	67.0	67.0	11.5	70.0	0.0	10.0	8.5	24.0
30th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold
10th %ile Green (s)	7.5	67.0	67.0	11.5	71.0	0.0	10.0	8.5	24.0
10th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	1662	92	204	1247	26	25	0	96	120	0	13
Future Volume (veh/h)	118	1662	92	204	1247	26	25	0	96	120	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	128	1807	100	222	1355	28	27	0	104	130	0	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	2016	899	244	2156	45	246	0	131	210	0	181
Arrive On Green	0.05	0.57	0.57	0.09	0.61	0.61	0.04	0.00	0.08	0.07	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3560	74	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	128	1807	100	222	676	707	27	0	104	130	0	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1857	1781	0	1585	1781	0	1585
Q Serve(g_s), s	3.6	53.7	3.5	8.8	29.1	29.1	1.6	0.0	7.7	8.0	0.0	0.9
Cycle Q Clear(g_c), s	3.6	53.7	3.5	8.8	29.1	29.1	1.6	0.0	7.7	8.0	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	2016	899	244	1076	1125	246	0	131	210	0	181
V/C Ratio(X)	0.44	0.90	0.11	0.91	0.63	0.63	0.11	0.00	0.79	0.62	0.00	0.08
Avail Cap(c_a), veh/h	388	2016	899	244	1076	1125	317	0	145	210	0	181
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.76	0.76	0.76	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	22.9	12.0	35.3	15.1	15.1	46.9	0.0	54.0	46.4	0.0	47.5
Incr Delay (d2), s/veh	1.5	6.1	0.1	28.8	2.1	2.0	0.4	0.0	28.2	7.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	22.1	1.3	8.4	11.4	11.8	0.8	0.0	4.1	4.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	28.9	12.1	64.1	17.2	17.1	47.4	0.0	82.2	54.4	0.0	47.9
LnGrp LOS	B	C	B	E	B	B	D	A	F	D	A	D
Approach Vol, veh/h		2035			1605			131			144	
Approach Delay, s/veh		27.2			23.6			75.0			53.7	
Approach LOS		C			C			E			D	

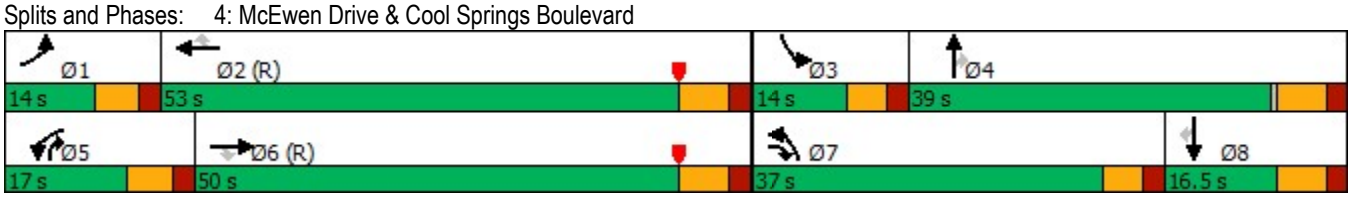
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	78.7	14.0	15.9	16.0	74.1	10.2	19.7
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.6	31.1	10.0	9.7	10.8	55.7	3.6	2.9
Green Ext Time (p_c), s	0.2	21.5	0.0	0.1	0.0	10.5	0.0	0.0

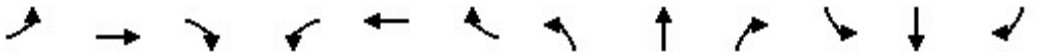
Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1036	819	97	906	43	536	34	232	58	45	35
Future Volume (vph)	26	1036	819	97	906	43	536	34	232	58	45	35
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	2	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	6.5	5.5	6.5	6.0	5.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	7.6	48.2	85.2	10.6	56.3	56.3	30.6	27.0	40.7	16.3	10.0	10.0
Actuated g/C Ratio	0.06	0.40	0.71	0.09	0.47	0.47	0.25	0.22	0.34	0.14	0.08	0.08
v/c Ratio	0.25	0.80	0.72	0.68	0.60	0.06	0.67	0.09	0.43	0.26	0.32	0.13
Control Delay	59.4	38.6	10.0	75.1	28.3	0.1	44.6	35.2	21.7	53.5	58.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	38.6	10.0	75.1	28.3	0.1	44.6	35.2	21.7	53.5	58.0	0.9
LOS	E	D	B	E	C	A	D	D	C	D	E	A
Approach Delay		26.4			31.5			37.6			41.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120.5	
Actuated Cycle Length: 120.5	
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 30.7	Intersection LOS: C
Intersection Capacity Utilization 79.4%	ICU Level of Service D
Analysis Period (min) 15	

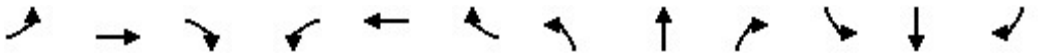
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Maximum Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	32.5	11.0	8.5	10.0	10.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
30th %ile Green (s)	0.0	43.5	31.5	11.0	60.5	60.5	31.5	0.0	11.0	48.0	10.0	10.0
30th %ile Term Code	Skip	Coord	Max	Max	Coord	Coord	Max	Skip	Max	Hold	Max	Max
10th %ile Green (s)	0.0	66.8	26.8	8.9	81.7	81.7	26.8	25.8	8.9	0.0	0.0	0.0
10th %ile Term Code	Skip	Coord	Gap	Gap	Coord	Coord	Gap	Hold	Gap	Skip	Skip	Skip

Intersection Summary
Cycle Length: 120.5
Actuated Cycle Length: 120.5
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1036	819	97	906	43	536	34	232	58	45	35
Future Volume (veh/h)	26	1036	819	97	906	43	536	34	232	58	45	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	1126	890	105	985	47	583	37	252	63	49	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1544	1014	130	1695	756	709	430	480	104	156	132
Arrive On Green	0.03	0.43	0.43	0.07	0.48	0.48	0.21	0.23	0.23	0.06	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	28	1126	890	105	985	47	583	37	252	63	49	38
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.9	31.5	52.1	7.0	24.1	1.9	19.4	1.9	15.8	4.1	3.0	2.7
Cycle Q Clear(g_c), s	1.9	31.5	52.1	7.0	24.1	1.9	19.4	1.9	15.8	4.1	3.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	54	1544	1014	130	1695	756	709	430	480	104	156	132
V/C Ratio(X)	0.52	0.73	0.88	0.81	0.58	0.06	0.82	0.09	0.52	0.60	0.31	0.29
Avail Cap(c_a), veh/h	119	1544	1014	163	1695	756	907	507	545	126	156	132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	28.1	17.8	54.8	22.7	16.9	45.6	36.3	34.7	55.1	51.8	51.7
Incr Delay (d2), s/veh	3.6	1.0	3.9	23.2	1.5	0.2	6.7	0.2	1.9	11.5	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	13.0	19.6	3.9	9.9	0.7	8.9	0.9	6.3	2.2	1.5	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	29.1	21.7	78.0	24.2	17.1	52.3	36.5	36.6	66.6	54.2	54.2
LnGrp LOS	E	C	C	E	C	B	D	D	D	E	D	D
Approach Vol, veh/h		2044			1137			872			150	
Approach Delay, s/veh		26.3			28.8			47.1			59.4	
Approach LOS		C			C			D			E	

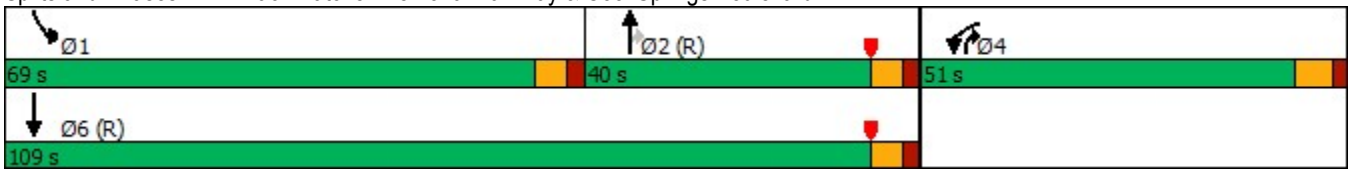
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	63.7	12.5	34.1	14.8	58.6	30.1	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	26.1	6.1	17.8	9.0	54.1	21.4	5.0
Green Ext Time (p_c), s	0.0	11.5	0.0	1.9	0.1	0.0	3.3	0.2

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	741	1565	544	528	1074	511
Future Volume (vph)	741	1565	544	528	1074	511
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	43.5	160.0	35.9	85.4	62.1	104.0
Actuated g/C Ratio	0.27	1.00	0.22	0.53	0.39	0.65
v/c Ratio	0.84	1.05	0.73	0.66	0.86	0.24
Control Delay	57.2	54.9	64.4	30.5	52.5	12.0
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	57.2	54.9	64.4	31.1	52.5	12.0
LOS	E	D	E	C	D	B
Approach Delay	55.6		48.0			39.5
Approach LOS	E		D			D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 48.8	Intersection LOS: D
Intersection Capacity Utilization 82.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Maximum Green (s)	44.5		34.0	44.5	63.0	103.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	39.7		43.3	39.7	58.5	107.8
10th %ile Term Code	Gap		Coord	Gap	Gap	Coord

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	741	1565	544	528	1074	511
Future Volume (veh/h)	741	1565	544	528	1074	511
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	788	0	579	562	1143	544
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	879		899	804	1303	2372
Arrive On Green	0.25	0.00	0.25	0.25	0.38	0.67
Sat Flow, veh/h	3456	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	788	0	579	562	1143	544
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1728	1777
Q Serve(g_s), s	35.2	0.0	23.3	40.5	49.3	9.6
Cycle Q Clear(g_c), s	35.2	0.0	23.3	40.5	49.3	9.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	879		899	804	1303	2372
V/C Ratio(X)	0.90		0.64	0.70	0.88	0.23
Avail Cap(c_a), veh/h	961		899	804	1361	2372
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.6	0.0	53.3	29.4	46.4	10.4
Incr Delay (d2), s/veh	11.5	0.0	3.5	5.0	8.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.6	0.0	10.7	24.1	22.1	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.1	0.0	56.9	34.4	54.9	10.7
LnGrp LOS	E		E	C	D	B
Approach Vol, veh/h	788		1141			1687
Approach Delay, s/veh	69.1		45.8			40.7
Approach LOS	E		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	66.3	46.5		47.2		112.8
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	63.0	34.0		44.5		103.0
Max Q Clear Time (g_c+I1), s	51.3	42.5		37.2		11.6
Green Ext Time (p_c), s	9.1	0.0		3.4		7.9

Intersection Summary			
HCM 6th Ctrl Delay		48.5	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1614	6	11	2117	126	0	0	21	0	0	132
Future Vol, veh/h	0	1614	6	11	2117	126	0	0	21	0	0	132
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1699	6	12	2228	133	0	0	22	0	0	139

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1705	0	0	-	-	853	-	-	1114
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	369	-	-	0	0	302	0	0	203
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	369	-	-	-	-	302	-	-	203
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

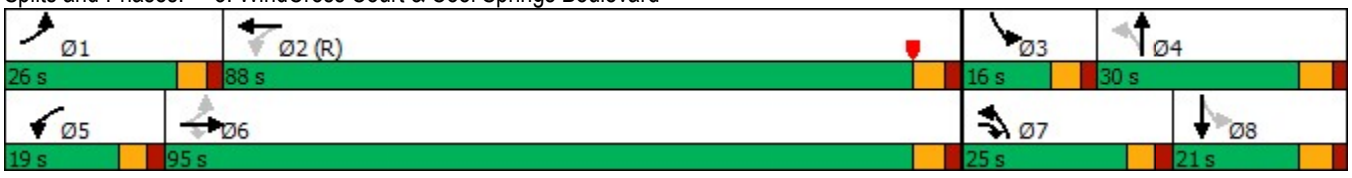
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	17.9	54.2
HCM LOS			C	F

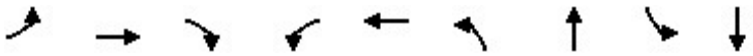
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	302	-	-	369	-	-	203
HCM Lane V/C Ratio	0.073	-	-	0.031	-	-	0.684
HCM Control Delay (s)	17.9	-	-	15.1	-	-	54.2
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	-	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	148	1512	19	132	2160	62	0	158	0
Future Volume (vph)	148	1512	19	132	2160	62	0	158	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	26.0	95.0	25.0	19.0	88.0	25.0	30.0	16.0	21.0
Total Split (%)	16.3%	59.4%	15.6%	11.9%	55.0%	15.6%	18.8%	10.0%	13.1%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	5.5	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	110.5	94.6	121.2	103.6	91.0	35.0	19.8	22.8	16.0
Actuated g/C Ratio	0.69	0.59	0.76	0.65	0.57	0.22	0.12	0.14	0.10
v/c Ratio	0.73	0.79	0.02	0.72	1.18	0.21	0.86	1.05	0.06
Control Delay	43.6	49.8	1.3	35.0	117.3	49.9	53.1	141.4	0.3
Queue Delay	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	50.7	1.3	35.0	117.3	49.9	53.1	141.4	0.3
LOS	D	D	A	C	F	D	D	F	A
Approach Delay		49.5			112.6		52.5		124.2
Approach LOS		D			F		D		F

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.18	
Intersection Signal Delay: 85.2	Intersection LOS: F
Intersection Capacity Utilization 113.2%	ICU Level of Service H
Analysis Period (min) 15	

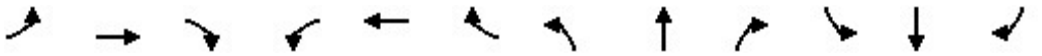
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	26.0	95.0	25.0	19.0	88.0	25.0	30.0	16.0	21.0
Total Split (%)	16.3%	59.4%	15.6%	11.9%	55.0%	15.6%	18.8%	10.0%	13.1%
Maximum Green (s)	20.5	89.0	19.5	13.5	82.0	19.5	24.0	10.5	15.0
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	20.5	89.0	15.9	13.5	82.0	15.9	24.0	10.5	18.6
90th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
70th %ile Green (s)	19.1	89.0	13.6	13.5	83.4	13.6	24.0	10.5	20.9
70th %ile Term Code	Gap	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
50th %ile Green (s)	16.3	90.0	12.2	14.3	88.0	12.2	22.2	10.5	20.5
50th %ile Term Code	Gap	Coord	Gap	Gap	Coord	Gap	Gap	Max	Hold
30th %ile Green (s)	13.5	97.6	34.2	11.2	95.3	34.2	17.7	10.5	0.0
30th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip
10th %ile Green (s)	9.5	107.2	27.4	8.4	106.1	27.4	10.9	10.5	0.0
10th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	1512	19	132	2160	24	62	0	268	158	0	22
Future Volume (veh/h)	148	1512	19	132	2160	24	62	0	268	158	0	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	1643	21	143	2348	26	67	0	139	172	0	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	2285	1094	224	2191	24	273	0	164	183	0	193
Arrive On Green	0.08	0.64	0.64	0.04	0.61	0.61	0.05	0.00	0.10	0.07	0.00	0.12
Sat Flow, veh/h	1781	3554	1585	1781	3600	40	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	161	1643	21	143	1157	1217	67	0	139	172	0	24
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1863	1781	0	1585	1781	0	1585
Q Serve(g_s), s	10.2	49.1	0.7	4.8	97.4	97.4	5.3	0.0	13.8	10.5	0.0	2.2
Cycle Q Clear(g_c), s	10.2	49.1	0.7	4.8	97.4	97.4	5.3	0.0	13.8	10.5	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	185	2285	1094	224	1082	1134	273	0	164	183	0	193
V/C Ratio(X)	0.87	0.72	0.02	0.64	1.07	1.07	0.25	0.00	0.85	0.94	0.00	0.12
Avail Cap(c_a), veh/h	273	2285	1094	296	1082	1134	405	0	238	183	0	193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.30	0.30	0.30	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.8	19.0	7.8	21.9	31.3	31.3	59.9	0.0	70.5	65.0	0.0	62.7
Incr Delay (d2), s/veh	20.7	1.4	0.0	1.3	37.6	39.0	1.0	0.0	25.0	49.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	19.6	0.2	2.5	50.2	53.0	2.5	0.0	6.8	4.5	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.5	20.4	7.8	23.2	68.9	70.3	60.9	0.0	95.5	114.9	0.0	63.3
LnGrp LOS	E	C	A	C	F	F	E	A	F	F	A	E
Approach Vol, veh/h		1825			2517			206			196	
Approach Delay, s/veh		25.4			67.0			84.2			108.6	
Approach LOS		C			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.1	103.4	16.0	22.5	12.6	108.9	13.1	25.4
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	20.5	82.0	10.5	24.0	13.5	89.0	19.5	15.0
Max Q Clear Time (g_c+I1), s	12.2	99.4	12.5	15.8	6.8	51.1	7.3	4.2
Green Ext Time (p_c), s	0.4	0.0	0.0	0.7	0.3	28.6	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

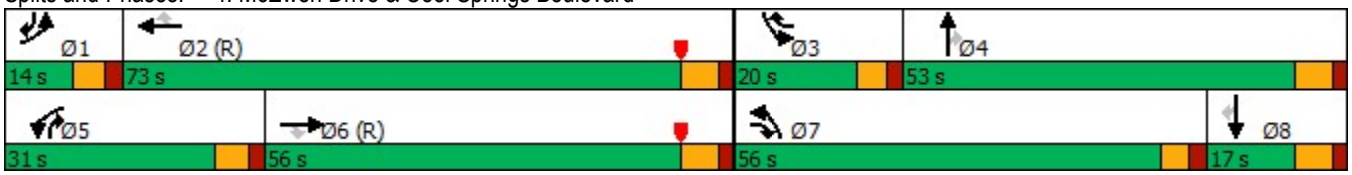
Notes

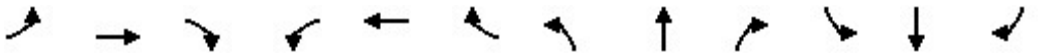
User approved ignoring U-Turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1150	749	268	1282	65	992	51	185	62	47	42
Future Volume (vph)	39	1150	749	268	1282	65	992	51	185	62	47	42
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	56.0	56.0	31.0	73.0	20.0	56.0	53.0	31.0	20.0	17.0	14.0
Total Split (%)	8.8%	35.0%	35.0%	19.4%	45.6%	12.5%	35.0%	33.1%	19.4%	12.5%	10.6%	8.8%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	5.5	5.5	6.5	6.0	5.5	6.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	7.8	50.4	107.4	27.6	72.7	101.2	50.5	40.0	70.7	20.9	10.3	21.3
Actuated g/C Ratio	0.05	0.32	0.67	0.17	0.45	0.63	0.32	0.25	0.44	0.13	0.06	0.13
v/c Ratio	0.49	1.12	0.72	0.96	0.87	0.07	1.00	0.12	0.27	0.29	0.42	0.14
Control Delay	105.6	100.3	13.6	105.8	47.8	1.1	80.2	43.1	13.0	71.8	83.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	100.3	13.6	105.8	47.8	1.1	80.2	43.1	13.0	71.8	83.2	0.9
LOS	F	F	B	F	D	A	F	D	B	E	F	A
Approach Delay		66.9			55.5			68.5			55.4	
Approach LOS		E			E			E			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 63.2	Intersection LOS: E
Intersection Capacity Utilization 97.4%	ICU Level of Service F
Analysis Period (min) 15	

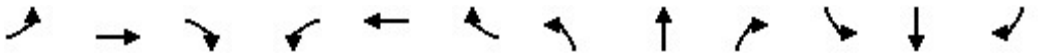
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	56.0	56.0	31.0	73.0	20.0	56.0	53.0	31.0	20.0	17.0	14.0
Total Split (%)	8.8%	35.0%	35.0%	19.4%	45.6%	12.5%	35.0%	33.1%	19.4%	12.5%	10.6%	8.8%
Maximum Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	13.3	50.5	47.7	25.0	13.3	10.5	8.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Max	Max
30th %ile Green (s)	8.3	49.5	50.5	25.3	66.5	11.6	50.5	49.1	25.3	11.6	10.2	8.3
30th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Gap	Max
10th %ile Green (s)	0.0	53.9	50.5	37.6	97.5	50.5	50.5	0.0	37.6	50.5	0.0	0.0
10th %ile Term Code	Skip	Coord	Max	Gap	Coord	Hold	Max	Skip	Gap	Hold	Skip	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	1150	749	268	1282	65	992	51	185	62	47	42
Future Volume (veh/h)	39	1150	749	268	1282	65	992	51	185	62	47	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1250	814	291	1393	71	1078	55	201	67	51	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1111	996	278	1553	769	1091	618	771	85	117	149
Arrive On Green	0.03	0.31	0.31	0.16	0.44	0.44	0.32	0.33	0.33	0.05	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	42	1250	814	291	1393	71	1078	55	201	67	51	46
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.7	50.0	50.0	25.0	58.1	3.9	49.6	3.2	11.9	6.0	4.2	4.3
Cycle Q Clear(g_c), s	3.7	50.0	50.0	25.0	58.1	3.9	49.6	3.2	11.9	6.0	4.2	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	1111	996	278	1553	769	1091	618	771	85	117	149
V/C Ratio(X)	0.74	1.13	0.82	1.05	0.90	0.09	0.99	0.09	0.26	0.78	0.44	0.31
Avail Cap(c_a), veh/h	89	1111	996	278	1553	769	1091	618	771	161	123	154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.48	0.48	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.8	55.0	22.7	67.5	41.7	22.2	54.5	37.0	24.2	75.3	72.3	67.6
Incr Delay (d2), s/veh	12.4	62.8	3.7	66.3	8.5	0.2	24.4	0.1	0.4	27.6	5.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	31.7	23.8	16.4	26.7	1.5	25.3	1.5	4.7	3.4	2.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.2	117.8	26.5	133.8	50.2	22.5	78.9	37.1	24.5	103.0	77.7	70.1
LnGrp LOS	F	F	C	F	D	C	E	D	C	F	E	E
Approach Vol, veh/h		2106			1755			1334			164	
Approach Delay, s/veh		81.9			63.0			69.0			85.9	
Approach LOS		F			E			E			F	

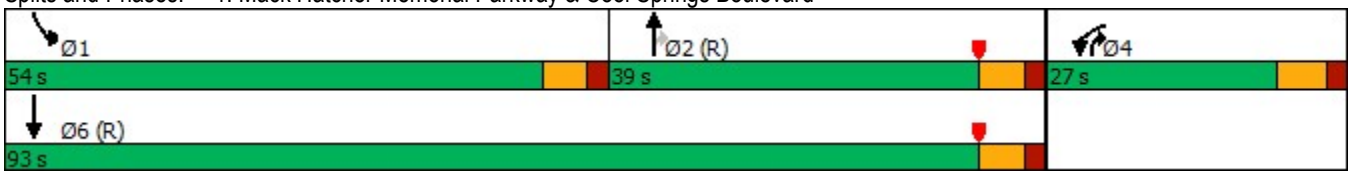
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	76.4	13.2	59.3	31.0	56.5	56.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	66.5	14.5	46.5	25.0	49.5	50.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	60.1	8.0	13.9	27.0	52.0	51.6	6.3
Green Ext Time (p_c), s	0.0	5.6	0.1	2.3	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	72.6
HCM 6th LOS	E

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	297	1013	554	697	1343	563
Future Volume (vph)	297	1013	554	697	1343	563
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	20.5	120.0	33.0	53.0	48.0	87.0
Actuated g/C Ratio	0.17	1.00	0.28	0.44	0.40	0.72
v/c Ratio	0.55	0.68	0.59	1.04	1.02	0.23
Control Delay	35.0	13.1	40.7	74.6	65.1	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	13.1	40.7	74.6	65.1	5.7
LOS	C	B	D	E	E	A
Approach Delay	18.1		59.6			47.6
Approach LOS	B		E			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 42.3	Intersection LOS: D
Intersection Capacity Utilization 92.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Maximum Green (s)	20.5		33.0	20.5	48.0	87.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
10th %ile Term Code	Max		Coord	Max	Max	Coord

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	297	1013	554	697	1343	563
Future Volume (veh/h)	297	1013	554	697	1343	563
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	309	0	577	726	1399	586
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	3	2	2	2	2
Cap, veh/h	498		1051	706	1382	2650
Arrive On Green	0.15	0.00	0.30	0.30	0.40	0.75
Sat Flow, veh/h	3319	1572	3647	1582	3456	3647
Grp Volume(v), veh/h	309	0	577	726	1399	586
Grp Sat Flow(s),veh/h/ln	1659	1572	1777	1582	1728	1777
Q Serve(g_s), s	10.5	0.0	16.4	35.5	48.0	6.0
Cycle Q Clear(g_c), s	10.5	0.0	16.4	35.5	48.0	6.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	498		1051	706	1382	2650
V/C Ratio(X)	0.62		0.55	1.03	1.01	0.22
Avail Cap(c_a), veh/h	567		1051	706	1382	2650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	0.0	35.5	28.3	36.0	4.6
Incr Delay (d2), s/veh	3.0	0.0	2.1	41.4	27.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	7.1	29.1	24.1	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.8	0.0	37.6	69.6	63.2	4.8
LnGrp LOS	D		D	F	F	A
Approach Vol, veh/h	309		1303			1985
Approach Delay, s/veh	50.8		55.4			46.0
Approach LOS	D		E			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	54.0	41.5		24.5		95.5
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	48.0	33.0		20.5		87.0
Max Q Clear Time (g_c+I1), s	50.0	37.5		12.5		8.0
Green Ext Time (p_c), s	0.0	0.0		1.3		8.7

Intersection Summary			
HCM 6th Ctrl Delay		49.8	
HCM 6th LOS		D	

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2001	6	15	1235	108	0	0	6	0	0	68
Future Vol, veh/h	0	2001	6	15	1235	108	0	0	6	0	0	68
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2106	6	16	1300	114	0	0	6	0	0	72

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	2112	0	0	-	-	1056	-	-	650
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	256	-	-	0	0	222	0	0	412
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	256	-	-	-	-	222	-	-	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

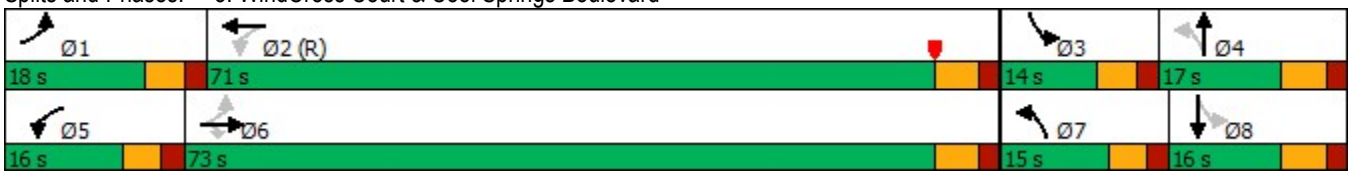
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	21.7	15.6
HCM LOS			C	C

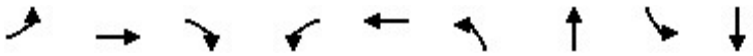
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	222	-	-	256	-	-	412
HCM Lane V/C Ratio	0.028	-	-	0.062	-	-	0.174
HCM Control Delay (s)	21.7	-	-	20	-	-	15.6
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.6

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	110	1802	101	225	1323	25	0	74	0
Future Volume (vph)	110	1802	101	225	1323	25	0	74	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	6	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	77.0	67.0	67.0	83.2	71.4	19.1	10.4	16.3	12.8
Actuated g/C Ratio	0.64	0.56	0.56	0.69	0.60	0.16	0.09	0.14	0.11
v/c Ratio	0.49	0.99	0.12	0.91	0.70	0.11	0.33	0.38	0.04
Control Delay	9.7	41.2	3.6	71.8	20.3	39.4	2.8	48.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	41.2	3.6	71.8	20.3	39.4	2.8	48.6	0.2
LOS	A	D	A	E	C	D	A	D	A
Approach Delay		37.5			27.7		10.3		41.4
Approach LOS		D			C		B		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 32.7	Intersection LOS: C
Intersection Capacity Utilization 87.6%	ICU Level of Service E
Analysis Period (min) 15	

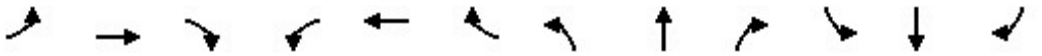
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Maximum Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Max	Hold	Max	Max
70th %ile Green (s)	10.7	67.0	67.0	10.5	66.8	9.5	11.0	8.5	10.0
70th %ile Term Code	Gap	Coord	Coord	Max	Coord	Max	Hold	Max	Max
50th %ile Green (s)	9.0	67.0	67.0	11.5	69.5	24.5	10.0	8.5	0.0
50th %ile Term Code	Gap	Coord	Coord	Max	Coord	Hold	Min	Max	Skip
30th %ile Green (s)	8.3	67.0	67.0	11.5	70.2	0.0	10.0	8.5	24.0
30th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold
10th %ile Green (s)	7.0	67.1	67.1	25.4	85.5	0.0	10.0	0.0	10.0
10th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Skip	Min	Skip	Hold

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1802	101	225	1323	26	25	0	96	74	0	13
Future Volume (veh/h)	110	1802	101	225	1323	26	25	0	96	74	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	1959	110	245	1438	28	27	0	104	80	0	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	2047	913	227	2191	43	246	0	131	194	0	167
Arrive On Green	0.05	0.58	0.58	0.09	0.61	0.61	0.04	0.00	0.08	0.06	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3565	69	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	120	1959	110	245	716	750	27	0	104	80	0	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1858	1781	0	1585	1781	0	1585
Q Serve(g_s), s	3.2	62.5	3.8	10.5	31.2	31.3	1.6	0.0	7.7	4.8	0.0	1.0
Cycle Q Clear(g_c), s	3.2	62.5	3.8	10.5	31.2	31.3	1.6	0.0	7.7	4.8	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	2047	913	227	1092	1142	246	0	131	194	0	167
V/C Ratio(X)	0.44	0.96	0.12	1.08	0.66	0.66	0.11	0.00	0.79	0.41	0.00	0.08
Avail Cap(c_a), veh/h	373	2047	913	227	1092	1142	317	0	145	210	0	167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.5	24.0	11.6	40.6	14.9	14.9	46.9	0.0	54.0	46.2	0.0	48.5
Incr Delay (d2), s/veh	1.5	11.6	0.1	73.1	2.2	2.1	0.4	0.0	28.2	3.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	26.9	1.4	11.3	12.1	12.6	0.8	0.0	4.1	2.3	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	35.6	11.7	113.7	17.1	17.1	47.4	0.0	82.2	49.2	0.0	48.9
LnGrp LOS	B	D	B	F	B	B	D	A	F	D	A	D
Approach Vol, veh/h		2189			1711			131			94	
Approach Delay, s/veh		33.3			30.9			75.0			49.2	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	79.7	12.9	15.9	16.0	75.1	10.2	18.6
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.2	33.3	6.8	9.7	12.5	64.5	3.6	3.0
Green Ext Time (p_c), s	0.2	21.9	0.0	0.1	0.0	2.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

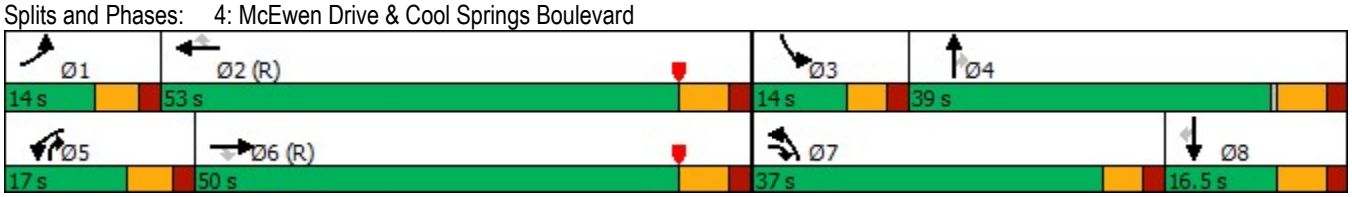
Notes

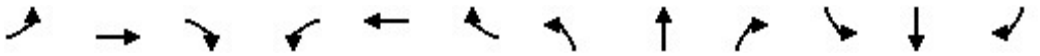
User approved ignoring U-Turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1098	861	107	974	43	566	34	256	58	45	35
Future Volume (vph)	26	1098	861	107	974	43	566	34	256	58	45	35
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	2	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	6.5	5.5	6.5	6.0	5.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	7.6	47.7	85.1	10.7	56.0	56.0	30.9	27.3	41.2	16.3	10.0	10.0
Actuated g/C Ratio	0.06	0.40	0.71	0.09	0.46	0.46	0.26	0.23	0.34	0.14	0.08	0.08
v/c Ratio	0.25	0.85	0.76	0.74	0.64	0.06	0.70	0.09	0.47	0.26	0.32	0.13
Control Delay	59.4	41.8	12.0	80.4	29.6	0.1	45.4	35.2	23.4	53.5	58.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	41.8	12.0	80.4	29.6	0.1	45.4	35.2	23.4	53.5	58.0	0.9
LOS	E	D	B	F	C	A	D	D	C	D	E	A
Approach Delay		29.1			33.3			38.4			41.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120.5	
Actuated Cycle Length: 120.5	
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 32.6	Intersection LOS: C
Intersection Capacity Utilization 82.6%	ICU Level of Service E
Analysis Period (min) 15	

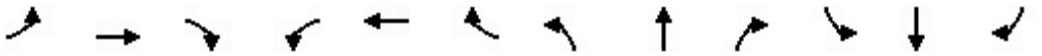
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Maximum Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	32.5	11.0	8.5	10.0	10.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
30th %ile Green (s)	0.0	43.5	31.5	11.0	60.5	60.5	31.5	0.0	11.0	48.0	10.0	10.0
30th %ile Term Code	Skip	Coord	Max	Max	Coord	Coord	Max	Skip	Max	Hold	Max	Max
10th %ile Green (s)	0.0	64.3	28.5	9.7	80.0	80.0	28.5	27.5	9.7	0.0	0.0	0.0
10th %ile Term Code	Skip	Coord	Gap	Gap	Coord	Coord	Gap	Hold	Gap	Skip	Skip	Skip

Intersection Summary
Cycle Length: 120.5
Actuated Cycle Length: 120.5
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1098	861	107	974	43	566	34	256	58	45	35
Future Volume (veh/h)	26	1098	861	107	974	43	566	34	256	58	45	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	1193	936	116	1059	47	615	37	278	63	49	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1490	1003	142	1665	743	738	446	504	104	156	132
Arrive On Green	0.03	0.42	0.42	0.08	0.47	0.47	0.21	0.24	0.24	0.06	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	28	1193	936	116	1059	47	615	37	278	63	49	38
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.9	35.2	50.3	7.7	27.1	1.9	20.4	1.8	17.4	4.1	3.0	2.7
Cycle Q Clear(g_c), s	1.9	35.2	50.3	7.7	27.1	1.9	20.4	1.8	17.4	4.1	3.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	54	1490	1003	142	1665	743	738	446	504	104	156	132
V/C Ratio(X)	0.52	0.80	0.93	0.82	0.64	0.06	0.83	0.08	0.55	0.60	0.31	0.29
Avail Cap(c_a), veh/h	119	1490	1003	163	1665	743	907	507	555	126	156	132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.17	0.17	0.17	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	30.4	19.7	54.4	24.1	17.5	45.1	35.5	33.9	55.1	51.8	51.7
Incr Delay (d2), s/veh	1.9	0.8	3.8	26.1	1.9	0.2	7.3	0.2	2.0	11.5	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	14.5	22.4	4.4	11.3	0.8	9.5	0.9	7.0	2.2	1.5	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	31.3	23.5	80.5	26.0	17.6	52.4	35.7	35.9	66.6	54.2	54.2
LnGrp LOS	E	C	C	F	C	B	D	D	D	E	D	D
Approach Vol, veh/h		2157			1222			930			150	
Approach Delay, s/veh		28.3			30.9			46.8			59.4	
Approach LOS		C			C			D			E	

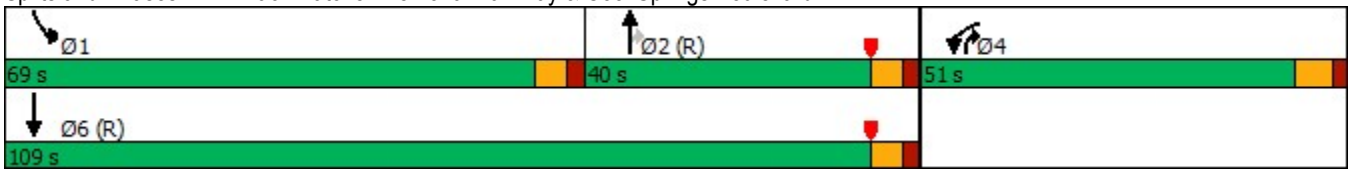
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	62.7	12.5	35.1	15.5	56.8	31.1	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	29.1	6.1	19.4	9.7	52.3	22.4	5.0
Green Ext Time (p_c), s	0.0	11.0	0.0	2.0	0.0	0.0	3.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	783	1680	601	554	1143	565
Future Volume (vph)	783	1680	601	554	1143	565
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	44.1	160.0	34.5	84.6	62.9	103.4
Actuated g/C Ratio	0.28	1.00	0.22	0.53	0.39	0.65
v/c Ratio	0.88	1.13	0.84	0.70	0.90	0.26
Control Delay	56.6	87.9	71.0	32.8	55.9	12.5
Queue Delay	0.0	0.0	0.0	1.6	0.0	0.0
Total Delay	56.6	87.9	71.0	34.4	55.9	12.5
LOS	E	F	E	C	E	B
Approach Delay	77.9		53.4			41.5
Approach LOS	E		D			D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 60.9	Intersection LOS: E
Intersection Capacity Utilization 87.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Maximum Green (s)	44.5		34.0	44.5	63.0	103.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	42.7		36.5	42.7	62.3	104.8
10th %ile Term Code	Gap		Coord	Gap	Gap	Coord

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	783	1680	601	554	1143	565
Future Volume (veh/h)	783	1680	601	554	1143	565
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	833	0	639	589	1216	601
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	910		835	790	1334	2340
Arrive On Green	0.26	0.00	0.24	0.24	0.39	0.66
Sat Flow, veh/h	3456	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	833	0	639	589	1216	601
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1728	1777
Q Serve(g_s), s	37.4	0.0	26.8	37.6	53.3	11.1
Cycle Q Clear(g_c), s	37.4	0.0	26.8	37.6	53.3	11.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	910		835	790	1334	2340
V/C Ratio(X)	0.92		0.76	0.75	0.91	0.26
Avail Cap(c_a), veh/h	961		835	790	1361	2340
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	0.0	57.1	29.6	46.5	11.2
Incr Delay (d2), s/veh	13.5	0.0	6.6	6.3	10.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.8	0.0	12.6	25.5	24.3	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	70.7	0.0	63.7	35.9	57.5	11.5
LnGrp LOS	E		E	D	E	B
Approach Vol, veh/h	833		1228			1817
Approach Delay, s/veh	70.7		50.3			42.3
Approach LOS	E		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	67.7	43.6		48.6		111.4
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	63.0	34.0		44.5		103.0
Max Q Clear Time (g_c+I1), s	55.3	39.6		39.4		13.1
Green Ext Time (p_c), s	6.4	0.0		2.7		9.0

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1707	6	11	2284	71	0	0	21	0	0	116
Future Vol, veh/h	0	1707	6	11	2284	71	0	0	21	0	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1797	6	12	2404	75	0	0	22	0	0	122

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1803	0	0	-	-	902	-	-	1202
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	338	-	-	0	0	281	0	0	177
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	338	-	-	-	-	281	-	-	177
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

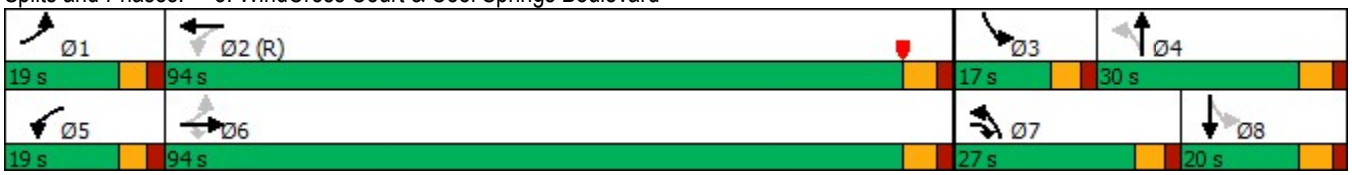
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	18.9	61.3
HCM LOS			C	F

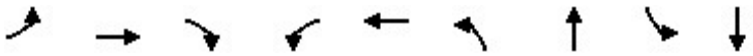
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	281	-	-	338	-	-	177
HCM Lane V/C Ratio	0.079	-	-	0.034	-	-	0.69
HCM Control Delay (s)	18.9	-	-	16	-	-	61.3
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	-	4.2

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	125	1613	40	124	2267	62	0	122	0
Future Volume (vph)	125	1613	40	124	2267	62	0	122	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	19.0	94.0	27.0	19.0	94.0	27.0	30.0	17.0	20.0
Total Split (%)	11.9%	58.8%	16.9%	11.9%	58.8%	16.9%	18.8%	10.6%	12.5%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	5.5	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	106.3	93.4	120.5	106.0	93.3	35.5	19.8	24.5	16.7
Actuated g/C Ratio	0.66	0.58	0.75	0.66	0.58	0.22	0.12	0.15	0.10
v/c Ratio	0.74	0.85	0.04	0.74	1.21	0.21	0.86	0.76	0.07
Control Delay	43.0	53.1	4.8	37.5	127.2	49.0	54.0	82.8	0.4
Queue Delay	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	55.1	4.8	37.5	127.2	49.0	54.0	82.8	0.4
LOS	D	E	A	D	F	D	D	F	A
Approach Delay		53.2			122.6		53.0		70.2
Approach LOS		D			F		D		E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.21	
Intersection Signal Delay: 89.6	Intersection LOS: F
Intersection Capacity Utilization 112.9%	ICU Level of Service H
Analysis Period (min) 15	

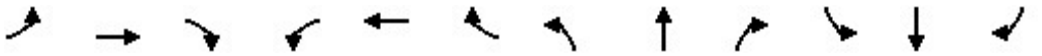
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	19.0	94.0	27.0	19.0	94.0	27.0	30.0	17.0	20.0
Total Split (%)	11.9%	58.8%	16.9%	11.9%	58.8%	16.9%	18.8%	10.6%	12.5%
Maximum Green (s)	13.5	88.0	21.5	13.5	88.0	21.5	24.0	11.5	14.0
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	13.5	88.0	15.8	13.5	88.0	15.8	24.0	11.5	19.7
90th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
70th %ile Green (s)	13.5	88.0	13.6	13.5	88.0	13.6	24.0	11.5	21.9
70th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
50th %ile Green (s)	14.5	88.7	12.2	14.4	88.6	12.2	22.4	11.5	21.7
50th %ile Term Code	Gap	Coord	Gap	Gap	Coord	Gap	Gap	Max	Hold
30th %ile Green (s)	12.0	96.2	35.3	11.5	95.7	35.3	17.8	11.5	0.0
30th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip
10th %ile Green (s)	8.3	106.3	28.5	8.2	106.2	28.5	11.0	11.5	0.0
10th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1613	40	124	2267	24	62	0	268	122	0	22
Future Volume (veh/h)	125	1613	40	124	2267	24	62	0	268	122	0	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	136	1753	43	135	2464	26	67	0	140	133	0	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	2269	1087	195	2223	23	274	0	165	194	0	203
Arrive On Green	0.06	0.64	0.64	0.04	0.62	0.62	0.05	0.00	0.10	0.07	0.00	0.13
Sat Flow, veh/h	1781	3554	1585	1781	3602	38	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	136	1753	43	135	1213	1277	67	0	140	133	0	24
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1864	1781	0	1585	1781	0	1585
Q Serve(g_s), s	8.0	56.3	1.4	4.5	98.7	98.7	5.3	0.0	13.9	10.6	0.0	2.1
Cycle Q Clear(g_c), s	8.0	56.3	1.4	4.5	98.7	98.7	5.3	0.0	13.9	10.6	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	2269	1087	195	1096	1150	274	0	165	194	0	203
V/C Ratio(X)	0.86	0.77	0.04	0.69	1.11	1.11	0.24	0.00	0.85	0.68	0.00	0.12
Avail Cap(c_a), veh/h	195	2269	1087	271	1096	1150	429	0	238	194	0	203
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.17	0.17	0.17	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.7	20.6	8.1	27.7	30.6	30.6	59.9	0.0	70.5	59.1	0.0	61.7
Incr Delay (d2), s/veh	28.3	2.0	0.0	1.1	50.6	52.2	1.0	0.0	25.1	12.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	22.6	0.5	3.2	54.6	57.8	2.5	0.0	6.9	5.5	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.0	22.6	8.1	28.8	81.2	82.9	60.8	0.0	95.6	71.3	0.0	62.3
LnGrp LOS	F	C	A	C	F	F	E	A	F	E	A	E
Approach Vol, veh/h		1932			2625			207			157	
Approach Delay, s/veh		26.6			79.3			84.3			69.9	
Approach LOS		C			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	104.7	17.0	22.6	12.2	108.1	13.1	26.5
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	13.5	88.0	11.5	24.0	13.5	88.0	21.5	14.0
Max Q Clear Time (g_c+I1), s	10.0	100.7	12.6	15.9	6.5	58.3	7.3	4.1
Green Ext Time (p_c), s	0.1	0.0	0.0	0.7	0.3	24.8	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	58.6
HCM 6th LOS	E

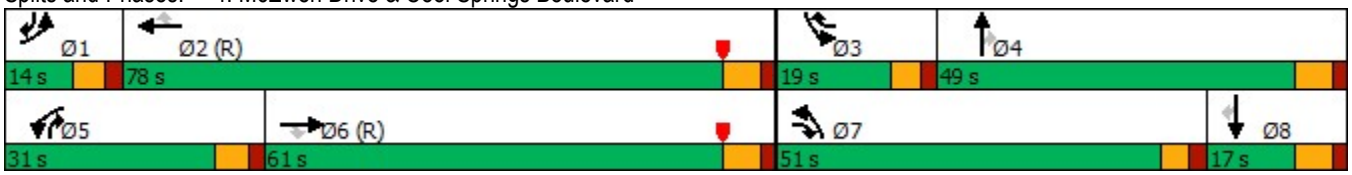
Notes

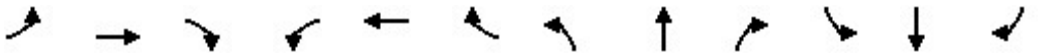
User approved ignoring U-Turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1210	783	297	1341	65	1032	51	205	62	47	42
Future Volume (vph)	39	1210	783	297	1341	65	1032	51	205	62	47	42
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	61.0	51.0	31.0	78.0	19.0	51.0	49.0	31.0	19.0	17.0	14.0
Total Split (%)	8.8%	38.1%	31.9%	19.4%	48.8%	11.9%	31.9%	30.6%	19.4%	11.9%	10.6%	8.8%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	5.5	5.5	6.5	6.0	5.5	6.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	7.8	54.5	106.5	28.5	77.7	104.8	45.5	36.4	68.0	19.5	10.3	21.3
Actuated g/C Ratio	0.05	0.34	0.67	0.18	0.49	0.66	0.28	0.23	0.42	0.12	0.06	0.13
v/c Ratio	0.49	1.09	0.76	1.03	0.85	0.07	1.15	0.13	0.31	0.31	0.42	0.14
Control Delay	99.8	85.9	12.6	120.1	43.6	1.0	129.3	46.3	18.4	73.1	83.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.8	85.9	12.6	120.1	43.6	1.0	129.3	46.3	18.4	73.1	83.2	0.9
LOS	F	F	B	F	D	A	F	D	B	E	F	A
Approach Delay		57.9			55.3			108.3			56.0	
Approach LOS		E			E			F			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 69.6	Intersection LOS: E
Intersection Capacity Utilization 101.8%	ICU Level of Service G
Analysis Period (min) 15	

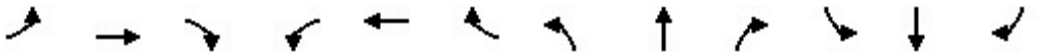
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	61.0	51.0	31.0	78.0	19.0	51.0	49.0	31.0	19.0	17.0	14.0
Total Split (%)	8.8%	38.1%	31.9%	19.4%	48.8%	11.9%	31.9%	30.6%	19.4%	11.9%	10.6%	8.8%
Maximum Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.3	45.5	42.7	25.0	13.3	10.5	8.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Max	Max
30th %ile Green (s)	8.3	54.5	45.5	25.3	71.5	11.6	45.5	44.1	25.3	11.6	10.2	8.3
30th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Gap	Max
10th %ile Green (s)	0.0	54.5	45.5	42.0	102.5	45.5	45.5	0.0	42.0	45.5	0.0	0.0
10th %ile Term Code	Skip	Coord	Max	Max	Coord	Hold	Max	Skip	Max	Hold	Skip	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	1210	783	297	1341	65	1032	51	205	62	47	42
Future Volume (veh/h)	39	1210	783	297	1341	65	1032	51	205	62	47	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1315	851	323	1458	71	1122	55	223	67	51	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1222	996	278	1664	818	983	559	722	85	117	149
Arrive On Green	0.03	0.34	0.34	0.16	0.47	0.47	0.28	0.30	0.30	0.05	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	42	1315	851	323	1458	71	1122	55	223	67	51	46
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.7	55.0	55.0	25.0	59.2	3.6	45.5	3.4	14.3	6.0	4.2	4.3
Cycle Q Clear(g_c), s	3.7	55.0	55.0	25.0	59.2	3.6	45.5	3.4	14.3	6.0	4.2	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	1222	996	278	1664	818	983	559	722	85	117	149
V/C Ratio(X)	0.74	1.08	0.85	1.16	0.88	0.09	1.14	0.10	0.31	0.79	0.44	0.31
Avail Cap(c_a), veh/h	89	1222	996	278	1664	818	983	559	722	150	123	154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.43	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.8	52.5	23.9	67.5	38.4	19.6	57.3	40.5	27.6	75.4	72.3	67.6
Incr Delay (d2), s/veh	11.2	41.8	4.3	104.5	6.8	0.2	76.1	0.2	0.5	27.8	5.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	31.1	26.2	19.3	26.7	1.4	30.2	1.6	5.6	3.4	2.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.0	94.3	28.2	172.0	45.2	19.8	133.4	40.7	28.1	103.2	77.7	70.1
LnGrp LOS	F	F	C	F	D	B	F	D	C	F	E	E
Approach Vol, veh/h		2208			1852			1400			164	
Approach Delay, s/veh		68.7			66.3			113.0			86.0	
Approach LOS		E			E			F			F	

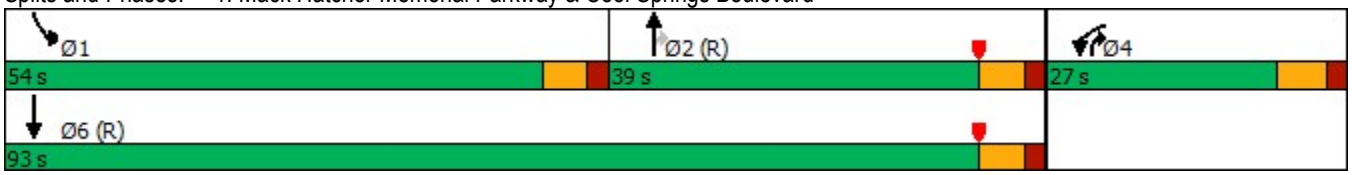
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	81.4	13.2	54.3	31.0	61.5	51.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	71.5	13.5	42.5	25.0	54.5	45.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	61.2	8.0	16.3	27.0	57.0	47.5	6.3
Green Ext Time (p_c), s	0.0	8.8	0.1	2.3	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	79.4
HCM 6th LOS	E

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	307	1023	554	701	1347	563
Future Volume (vph)	307	1023	554	701	1347	563
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	20.5	120.0	33.0	53.0	48.0	87.0
Actuated g/C Ratio	0.17	1.00	0.28	0.44	0.40	0.72
v/c Ratio	0.57	0.69	0.59	1.05	1.02	0.23
Control Delay	35.2	13.4	40.7	76.3	65.9	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	13.4	40.7	76.3	65.9	5.7
LOS	D	B	D	E	E	A
Approach Delay	18.4		60.6			48.2
Approach LOS	B		E			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 42.8	Intersection LOS: D
Intersection Capacity Utilization 92.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Maximum Green (s)	20.5		33.0	20.5	48.0	87.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
10th %ile Term Code	Max		Coord	Max	Max	Coord

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	307	1023	554	701	1347	563
Future Volume (veh/h)	307	1023	554	701	1347	563
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	320	0	577	730	1403	586
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	3	2	2	2	2
Cap, veh/h	498		1051	706	1382	2650
Arrive On Green	0.15	0.00	0.30	0.30	0.40	0.75
Sat Flow, veh/h	3319	1572	3647	1582	3456	3647
Grp Volume(v), veh/h	320	0	577	730	1403	586
Grp Sat Flow(s),veh/h/ln	1659	1572	1777	1582	1728	1777
Q Serve(g_s), s	10.9	0.0	16.4	35.5	48.0	6.0
Cycle Q Clear(g_c), s	10.9	0.0	16.4	35.5	48.0	6.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	498		1051	706	1382	2650
V/C Ratio(X)	0.64		0.55	1.03	1.01	0.22
Avail Cap(c_a), veh/h	567		1051	706	1382	2650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	35.5	28.3	36.0	4.6
Incr Delay (d2), s/veh	3.4	0.0	2.1	43.0	28.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	7.1	29.4	24.3	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.4	0.0	37.6	71.2	64.0	4.8
LnGrp LOS	D		D	F	F	A
Approach Vol, veh/h	320		1307			1989
Approach Delay, s/veh	51.4		56.4			46.6
Approach LOS	D		E			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	54.0	41.5		24.5		95.5
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	48.0	33.0		20.5		87.0
Max Q Clear Time (g_c+I1), s	50.0	37.5		12.9		8.0
Green Ext Time (p_c), s	0.0	0.0		1.3		8.7

Intersection Summary	
HCM 6th Ctrl Delay	50.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2009	6	15	1235	127	0	0	6	0	0	88
Future Vol, veh/h	0	2009	6	15	1235	127	0	0	6	0	0	88
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2115	6	16	1300	134	0	0	6	0	0	93

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	2121	0	0	-	-	1061	-	-	650
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	254	-	-	0	0	220	0	0	412
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	254	-	-	-	-	220	-	-	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

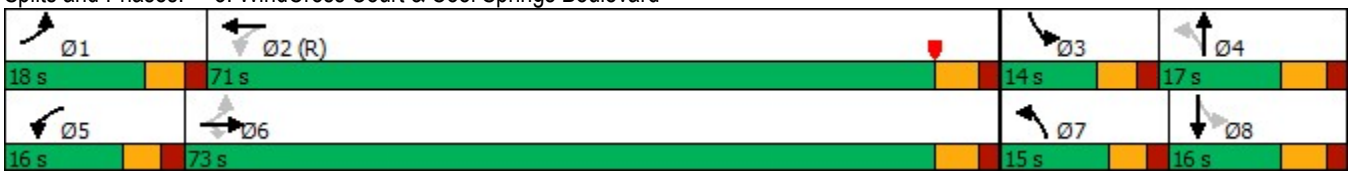
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	21.8	16.3
HCM LOS			C	C

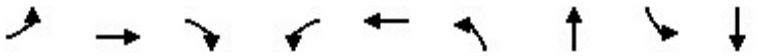
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	220	-	-	254	-	-	412
HCM Lane V/C Ratio	0.029	-	-	0.062	-	-	0.225
HCM Control Delay (s)	21.8	-	-	20.1	-	-	16.3
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	118	1802	101	225	1342	25	0	120	0
Future Volume (vph)	118	1802	101	225	1342	25	0	120	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	6	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	77.4	67.0	67.0	79.8	68.2	20.7	10.4	19.1	15.6
Actuated g/C Ratio	0.64	0.56	0.56	0.66	0.57	0.17	0.09	0.16	0.13
v/c Ratio	0.56	0.99	0.12	1.07	0.74	0.10	0.35	0.55	0.03
Control Delay	14.1	41.0	3.6	111.4	22.6	39.2	3.5	54.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	41.0	3.6	111.4	22.6	39.2	3.5	54.1	0.2
LOS	B	D	A	F	C	D	A	D	A
Approach Delay		37.6			35.2		10.8		48.9
Approach LOS		D			D		B		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 36.2	Intersection LOS: D
Intersection Capacity Utilization 90.2%	ICU Level of Service E
Analysis Period (min) 15	

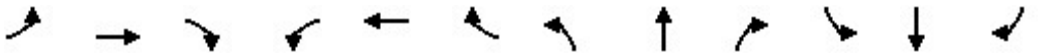
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Maximum Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Max	Hold	Max	Max
70th %ile Green (s)	11.7	67.0	67.0	10.5	65.8	9.5	11.0	8.5	10.0
70th %ile Term Code	Gap	Coord	Coord	Max	Coord	Max	Hold	Max	Max
50th %ile Green (s)	9.5	67.0	67.0	11.5	69.0	24.5	10.0	8.5	0.0
50th %ile Term Code	Gap	Coord	Coord	Max	Coord	Hold	Min	Max	Skip
30th %ile Green (s)	8.5	67.0	67.0	11.5	70.0	0.0	10.0	8.5	24.0
30th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold
10th %ile Green (s)	7.5	67.0	67.0	11.5	71.0	0.0	10.0	8.5	24.0
10th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	1802	101	225	1342	26	25	0	96	120	0	13
Future Volume (veh/h)	118	1802	101	225	1342	26	25	0	96	120	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	128	1959	110	245	1459	28	27	0	104	130	0	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	2016	899	223	2160	41	246	0	131	210	0	181
Arrive On Green	0.05	0.57	0.57	0.09	0.61	0.61	0.04	0.00	0.08	0.07	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3567	68	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	128	1959	110	245	726	761	27	0	104	130	0	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1858	1781	0	1585	1781	0	1585
Q Serve(g_s), s	3.6	63.8	3.9	10.5	32.7	32.8	1.6	0.0	7.7	8.0	0.0	0.9
Cycle Q Clear(g_c), s	3.6	63.8	3.9	10.5	32.7	32.8	1.6	0.0	7.7	8.0	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	265	2016	899	223	1076	1125	246	0	131	210	0	181
V/C Ratio(X)	0.48	0.97	0.12	1.10	0.67	0.68	0.11	0.00	0.79	0.62	0.00	0.08
Avail Cap(c_a), veh/h	363	2016	899	223	1076	1125	317	0	145	210	0	181
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.70	0.70	0.70	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	25.0	12.1	40.9	15.8	15.8	46.9	0.0	54.0	46.4	0.0	47.5
Incr Delay (d2), s/veh	1.9	14.1	0.1	79.4	2.4	2.3	0.4	0.0	28.2	7.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	28.2	1.4	11.5	12.8	13.4	0.8	0.0	4.1	4.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.6	39.1	12.2	120.3	18.2	18.1	47.4	0.0	82.2	54.4	0.0	47.9
LnGrp LOS	B	D	B	F	B	B	D	A	F	D	A	D
Approach Vol, veh/h		2197			1732			131			144	
Approach Delay, s/veh		36.5			32.6			75.0			53.7	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	78.7	14.0	15.9	16.0	74.1	10.2	19.7
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.6	34.8	10.0	9.7	12.5	65.8	3.6	2.9
Green Ext Time (p_c), s	0.2	21.5	0.0	0.1	0.0	1.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D

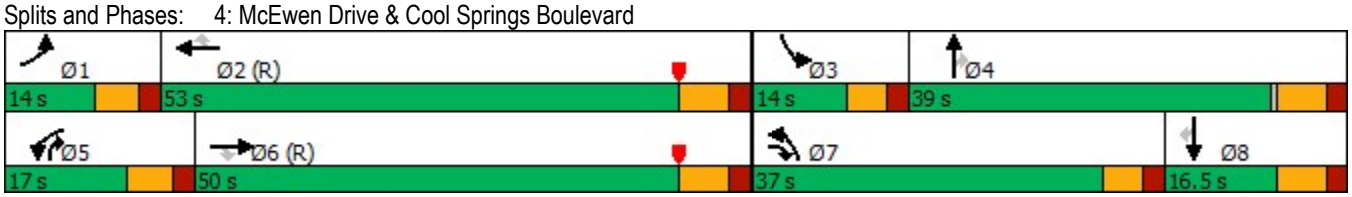
Notes

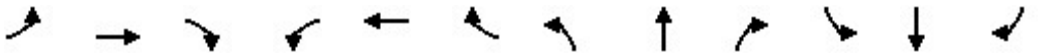
User approved ignoring U-Turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1131	874	107	988	43	571	34	256	58	45	35
Future Volume (vph)	26	1131	874	107	988	43	571	34	256	58	45	35
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	2	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	6.5	5.5	6.5	6.0	5.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	7.6	47.6	85.1	10.7	56.0	56.0	30.9	27.3	41.3	16.3	10.0	10.0
Actuated g/C Ratio	0.06	0.40	0.71	0.09	0.46	0.46	0.26	0.23	0.34	0.14	0.08	0.08
v/c Ratio	0.25	0.88	0.77	0.74	0.65	0.06	0.71	0.09	0.47	0.26	0.32	0.13
Control Delay	59.4	43.6	12.6	80.4	29.8	0.1	45.6	35.2	23.4	53.5	58.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	43.6	12.6	80.4	29.8	0.1	45.6	35.2	23.4	53.5	58.0	0.9
LOS	E	D	B	F	C	A	D	D	C	D	E	A
Approach Delay		30.5			33.5			38.6			41.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120.5	
Actuated Cycle Length: 120.5	
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 33.3	Intersection LOS: C
Intersection Capacity Utilization 83.4%	ICU Level of Service E
Analysis Period (min) 15	

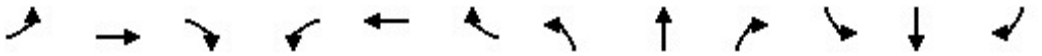
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Maximum Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	32.5	11.0	8.5	10.0	10.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
30th %ile Green (s)	0.0	43.5	31.5	11.0	60.5	60.5	31.5	0.0	11.0	48.0	10.0	10.0
30th %ile Term Code	Skip	Coord	Max	Max	Coord	Coord	Max	Skip	Max	Hold	Max	Max
10th %ile Green (s)	0.0	64.2	28.6	9.7	79.9	79.9	28.6	27.6	9.7	0.0	0.0	0.0
10th %ile Term Code	Skip	Coord	Gap	Gap	Coord	Coord	Gap	Hold	Gap	Skip	Skip	Skip

Intersection Summary
Cycle Length: 120.5
Actuated Cycle Length: 120.5
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1131	874	107	988	43	571	34	256	58	45	35
Future Volume (veh/h)	26	1131	874	107	988	43	571	34	256	58	45	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	1229	950	116	1074	47	621	37	278	63	49	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1485	1003	142	1660	740	744	449	506	104	156	132
Arrive On Green	0.03	0.42	0.42	0.08	0.47	0.47	0.22	0.24	0.24	0.06	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	28	1229	950	116	1074	47	621	37	278	63	49	38
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.9	36.9	50.1	7.7	27.7	2.0	20.6	1.8	17.4	4.1	3.0	2.7
Cycle Q Clear(g_c), s	1.9	36.9	50.1	7.7	27.7	2.0	20.6	1.8	17.4	4.1	3.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	54	1485	1003	142	1660	740	744	449	506	104	156	132
V/C Ratio(X)	0.52	0.83	0.95	0.82	0.65	0.06	0.84	0.08	0.55	0.60	0.31	0.29
Avail Cap(c_a), veh/h	119	1485	1003	163	1660	740	907	507	555	126	156	132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.17	0.17	0.17	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	31.1	20.2	54.4	24.4	17.6	45.1	35.4	33.7	55.1	51.8	51.7
Incr Delay (d2), s/veh	1.9	1.0	4.6	26.1	2.0	0.2	7.4	0.2	2.0	11.5	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	15.3	23.4	4.4	11.6	0.8	9.6	0.9	6.9	2.2	1.5	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	32.1	24.7	80.5	26.4	17.7	52.4	35.5	35.7	66.6	54.2	54.2
LnGrp LOS	E	C	C	F	C	B	D	D	D	E	D	D
Approach Vol, veh/h		2207			1237			936			150	
Approach Delay, s/veh		29.2			31.1			46.8			59.4	
Approach LOS		C			C			D			E	

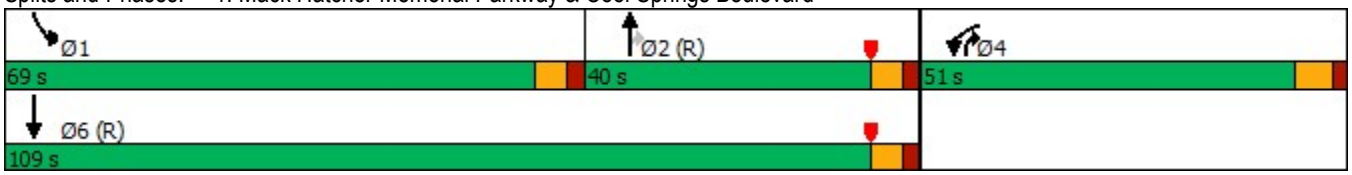
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	62.5	12.5	35.3	15.5	56.6	31.3	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	29.7	6.1	19.4	9.7	52.1	22.6	5.0
Green Ext Time (p_c), s	0.0	10.8	0.0	2.0	0.0	0.0	3.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	791	1688	601	566	1155	565
Future Volume (vph)	791	1688	601	566	1155	565
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	44.2	160.0	34.3	84.5	63.0	103.3
Actuated g/C Ratio	0.28	1.00	0.21	0.53	0.39	0.65
v/c Ratio	0.89	1.13	0.84	0.71	0.91	0.26
Control Delay	57.4	90.5	71.5	33.7	56.6	12.5
Queue Delay	0.0	0.0	0.0	1.8	0.0	0.0
Total Delay	57.4	90.5	71.5	35.5	56.6	12.5
LOS	E	F	E	D	E	B
Approach Delay	79.9		54.0			42.1
Approach LOS	E		D			D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 62.2	Intersection LOS: E
Intersection Capacity Utilization 87.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Maximum Green (s)	44.5		34.0	44.5	63.0	103.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	43.1		35.4	43.1	63.0	104.4
10th %ile Term Code	Gap		Coord	Gap	Max	Coord

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	791	1688	601	566	1155	565
Future Volume (veh/h)	791	1688	601	566	1155	565
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	841	0	639	602	1229	601
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	915		825	788	1338	2335
Arrive On Green	0.26	0.00	0.23	0.23	0.39	0.66
Sat Flow, veh/h	3456	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	841	0	639	602	1229	601
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1728	1777
Q Serve(g_s), s	37.8	0.0	26.9	37.2	54.1	11.2
Cycle Q Clear(g_c), s	37.8	0.0	26.9	37.2	54.1	11.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	915		825	788	1338	2335
V/C Ratio(X)	0.92		0.77	0.76	0.92	0.26
Avail Cap(c_a), veh/h	961		825	788	1361	2335
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	0.0	57.5	29.6	46.6	11.3
Incr Delay (d2), s/veh	13.9	0.0	7.0	6.9	11.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.1	0.0	12.7	26.1	24.7	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	71.1	0.0	64.5	36.5	58.2	11.6
LnGrp LOS	E		E	D	E	B
Approach Vol, veh/h	841		1241			1830
Approach Delay, s/veh	71.1		50.9			42.9
Approach LOS	E		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	67.9	43.2		48.9		111.1
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	63.0	34.0		44.5		103.0
Max Q Clear Time (g_c+I1), s	56.1	39.2		39.8		13.2
Green Ext Time (p_c), s	5.8	0.0		2.6		9.0

Intersection Summary	
HCM 6th Ctrl Delay	51.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1730	6	11	2284	126	0	0	21	0	0	132
Future Vol, veh/h	0	1730	6	11	2284	126	0	0	21	0	0	132
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1821	6	12	2404	133	0	0	22	0	0	139

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1827	0	0	-	-	914	-	-	1202
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	331	-	-	0	0	276	0	0	177
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	331	-	-	-	-	276	-	-	177
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

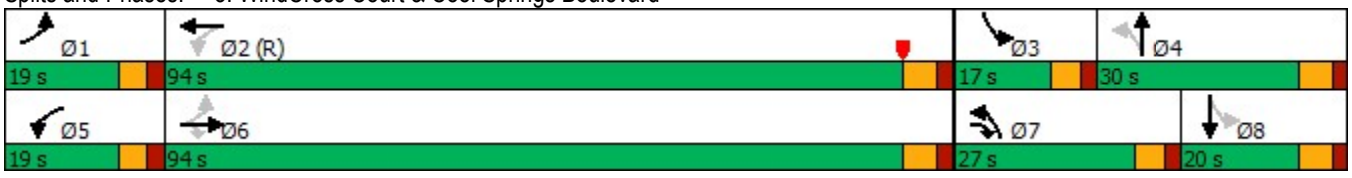
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	19.2	74.6
HCM LOS			C	F

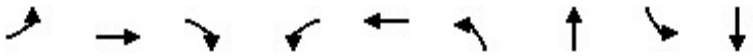
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	276	-	-	331	-	-	177
HCM Lane V/C Ratio	0.08	-	-	0.035	-	-	0.785
HCM Control Delay (s)	19.2	-	-	16.3	-	-	74.6
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	-	5.2

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	148	1613	40	124	2322	62	0	158	0
Future Volume (vph)	148	1613	40	124	2322	62	0	158	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	19.0	94.0	27.0	19.0	94.0	27.0	30.0	17.0	20.0
Total Split (%)	11.9%	58.8%	16.9%	11.9%	58.8%	16.9%	18.8%	10.6%	12.5%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	5.5	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	106.7	92.8	120.3	104.4	91.7	36.0	20.4	24.7	16.9
Actuated g/C Ratio	0.67	0.58	0.75	0.65	0.57	0.22	0.13	0.15	0.11
v/c Ratio	0.83	0.85	0.04	0.74	1.26	0.21	0.87	0.99	0.07
Control Delay	52.3	53.3	4.8	36.5	150.2	48.7	56.3	123.4	0.4
Queue Delay	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	55.5	4.8	36.5	150.2	48.7	56.3	123.4	0.4
LOS	D	E	A	D	F	D	E	F	A
Approach Delay		54.1			144.4		54.9		108.3
Approach LOS		D			F		D		F

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.26	
Intersection Signal Delay: 102.9	Intersection LOS: F
Intersection Capacity Utilization 117.7%	ICU Level of Service H
Analysis Period (min) 15	

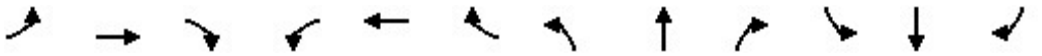
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	19.0	94.0	27.0	19.0	94.0	27.0	30.0	17.0	20.0
Total Split (%)	11.9%	58.8%	16.9%	11.9%	58.8%	16.9%	18.8%	10.6%	12.5%
Maximum Green (s)	13.5	88.0	21.5	13.5	88.0	21.5	24.0	11.5	14.0
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	13.5	88.0	15.8	13.5	88.0	15.8	24.0	11.5	19.7
90th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
70th %ile Green (s)	13.5	88.0	13.6	13.5	88.0	13.6	24.0	11.5	21.9
70th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
50th %ile Green (s)	14.2	88.0	12.1	14.2	88.0	12.1	23.3	11.5	22.7
50th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Gap	Max	Hold
30th %ile Green (s)	14.8	95.0	36.3	11.7	91.9	36.3	18.8	11.5	0.0
30th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip
10th %ile Green (s)	10.9	105.2	29.6	8.2	102.5	29.6	12.1	11.5	0.0
10th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	1613	40	124	2322	24	62	0	268	158	0	22
Future Volume (veh/h)	148	1613	40	124	2322	24	62	0	268	158	0	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	1753	43	135	2524	26	67	0	149	172	0	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	2244	1076	194	2155	22	281	0	174	194	0	212
Arrive On Green	0.08	0.63	0.63	0.04	0.60	0.60	0.05	0.00	0.11	0.07	0.00	0.13
Sat Flow, veh/h	1781	3554	1585	1781	3603	37	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	161	1753	43	135	1242	1308	67	0	149	172	0	24
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1864	1781	0	1585	1781	0	1585
Q Serve(g_s), s	10.2	57.4	1.4	4.7	95.7	95.7	5.3	0.0	14.8	11.5	0.0	2.1
Cycle Q Clear(g_c), s	10.2	57.4	1.4	4.7	95.7	95.7	5.3	0.0	14.8	11.5	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	2244	1076	194	1063	1115	281	0	174	194	0	212
V/C Ratio(X)	0.88	0.78	0.04	0.70	1.17	1.17	0.24	0.00	0.86	0.89	0.00	0.11
Avail Cap(c_a), veh/h	195	2244	1076	267	1063	1115	436	0	238	194	0	212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.13	0.13	0.13	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.4	21.4	8.5	28.2	32.2	32.2	59.1	0.0	70.0	62.2	0.0	60.9
Incr Delay (d2), s/veh	34.6	2.1	0.0	0.9	77.6	79.4	0.9	0.0	26.6	36.8	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	23.2	0.5	3.1	61.4	64.9	2.5	0.0	7.3	3.4	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	23.6	8.5	29.0	109.8	111.5	60.0	0.0	96.6	99.0	0.0	61.4
LnGrp LOS	F	C	A	C	F	F	E	A	F	F	A	E
Approach Vol, veh/h		1957			2685			216			196	
Approach Delay, s/veh		28.9			106.6			85.3			94.4	
Approach LOS		C			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	101.7	17.0	23.5	12.4	107.0	13.1	27.4
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	13.5	88.0	11.5	24.0	13.5	88.0	21.5	14.0
Max Q Clear Time (g_c+I1), s	12.2	97.7	13.5	16.8	6.7	59.4	7.3	4.1
Green Ext Time (p_c), s	0.1	0.0	0.0	0.7	0.3	24.0	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	75.1
HCM 6th LOS	E

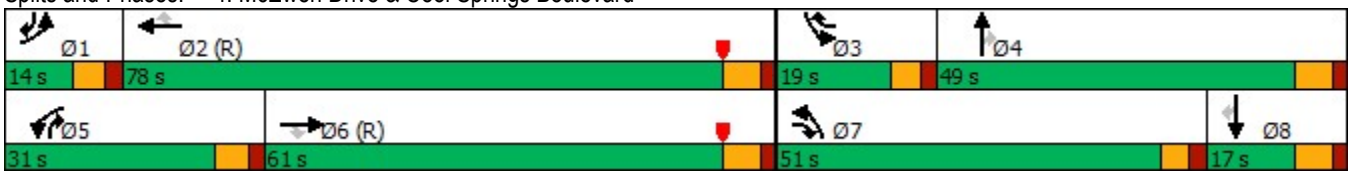
Notes

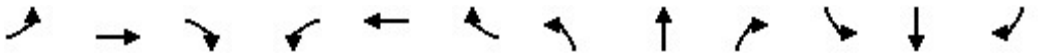
User approved ignoring U-Turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1236	793	297	1380	65	1048	51	205	62	47	42
Future Volume (vph)	39	1236	793	297	1380	65	1048	51	205	62	47	42
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	61.0	51.0	31.0	78.0	19.0	51.0	49.0	31.0	19.0	17.0	14.0
Total Split (%)	8.8%	38.1%	31.9%	19.4%	48.8%	11.9%	31.9%	30.6%	19.4%	11.9%	10.6%	8.8%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	5.5	5.5	6.5	6.0	5.5	6.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	7.8	54.5	106.5	28.5	77.7	104.8	45.5	36.4	68.0	19.5	10.3	21.3
Actuated g/C Ratio	0.05	0.34	0.67	0.18	0.49	0.66	0.28	0.23	0.42	0.12	0.06	0.13
v/c Ratio	0.49	1.11	0.77	1.03	0.87	0.07	1.17	0.13	0.31	0.31	0.42	0.14
Control Delay	98.3	95.0	12.8	120.1	45.3	1.0	135.6	46.3	18.6	73.1	83.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.3	95.0	12.8	120.1	45.3	1.0	135.6	46.3	18.6	73.1	83.2	0.9
LOS	F	F	B	F	D	A	F	D	B	E	F	A
Approach Delay		63.5			56.4			113.7			56.0	
Approach LOS		E			E			F			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 73.4	Intersection LOS: E
Intersection Capacity Utilization 103.0%	ICU Level of Service G
Analysis Period (min) 15	

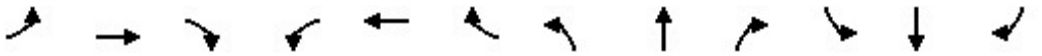
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	61.0	51.0	31.0	78.0	19.0	51.0	49.0	31.0	19.0	17.0	14.0
Total Split (%)	8.8%	38.1%	31.9%	19.4%	48.8%	11.9%	31.9%	30.6%	19.4%	11.9%	10.6%	8.8%
Maximum Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.3	45.5	42.7	25.0	13.3	10.5	8.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Max	Max
30th %ile Green (s)	8.3	54.5	45.5	25.3	71.5	11.6	45.5	44.1	25.3	11.6	10.2	8.3
30th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Gap	Max
10th %ile Green (s)	0.0	54.5	45.5	42.0	102.5	45.5	45.5	0.0	42.0	45.5	0.0	0.0
10th %ile Term Code	Skip	Coord	Max	Max	Coord	Hold	Max	Skip	Max	Hold	Skip	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	1236	793	297	1380	65	1048	51	205	62	47	42
Future Volume (veh/h)	39	1236	793	297	1380	65	1048	51	205	62	47	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1343	862	323	1500	71	1139	55	223	67	51	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1222	996	278	1664	818	983	559	722	85	117	149
Arrive On Green	0.03	0.34	0.34	0.16	0.47	0.47	0.28	0.30	0.30	0.05	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	42	1343	862	323	1500	71	1139	55	223	67	51	46
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.7	55.0	55.0	25.0	62.1	3.6	45.5	3.4	14.3	6.0	4.2	4.3
Cycle Q Clear(g_c), s	3.7	55.0	55.0	25.0	62.1	3.6	45.5	3.4	14.3	6.0	4.2	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	1222	996	278	1664	818	983	559	722	85	117	149
V/C Ratio(X)	0.74	1.10	0.87	1.16	0.90	0.09	1.16	0.10	0.31	0.79	0.44	0.31
Avail Cap(c_a), veh/h	89	1222	996	278	1664	818	983	559	722	150	123	154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.38	0.38	0.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.8	52.5	24.3	67.5	39.1	19.6	57.3	40.5	27.6	75.4	72.3	67.6
Incr Delay (d2), s/veh	10.0	50.2	4.1	104.5	8.3	0.2	83.1	0.2	0.5	27.8	5.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	32.5	26.9	19.3	28.3	1.4	31.2	1.6	5.6	3.4	2.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.8	102.7	28.4	172.0	47.5	19.8	140.3	40.7	28.1	103.2	77.7	70.1
LnGrp LOS	F	F	C	F	D	B	F	D	C	F	E	E
Approach Vol, veh/h		2247			1894			1417			164	
Approach Delay, s/veh		73.9			67.7			118.8			86.0	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	81.4	13.2	54.3	31.0	61.5	51.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	71.5	13.5	42.5	25.0	54.5	45.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	64.1	8.0	16.3	27.0	57.0	47.5	6.3
Green Ext Time (p_c), s	0.0	6.6	0.1	2.3	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	83.3
HCM 6th LOS	F

HISTORIC FRANKLIN TENNESSEE

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04662

DATE: May 19, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development
Chelsea Randolph, Principal Planner

SUBJECT:

Consideration Of Resolution 2023-42, A Resolution Approving A Development Plan For 101 Cool Springs Boulevard PUD Subdivision, For The Property Located East Of Mack Hatcher Memorial Parkway And North Of Cool Springs Boulevard. Establishing A Public Hearing On September 12, 2023
FMPC 5/25/23, 6-0 deferral to 6/22/23; 6/22/23, 6-1 to disapprove

PURPOSE:

PROJECT INFORMATION
COF Project Number: 8157
Applicant: Greg Gamble, Gamble Design Collaborative
Owner: Mitchell Rechler, CSLP GP

BACKGROUND/STAFF COMMENTS:
101 Cool Springs Boulevard PUD Subdivision is approximately 3 acres in size and is located east of Mack Hatcher Memorial Parkway and north of Cool Springs Boulevard on a property addressed as 101 Cool Springs Boulevard. The proposed development consists of 178 multi-family units and 3,362 SF of commercial space. Envision Franklin places this property in the Regional Commerce Design Concept, which states that the area, "contains high-intensity activity centers that attract large numbers of people and employers from both within and outside the City. These areas include major employment and revenue generators that are valuable community resources."

Envision Franklin further states that, "New developments [within Regional Commercial] should have integrated designs with coordinated access, amenities, and cohesive architecture that fits within the context of the corridor," and that, "Buildings should be arranged on sites so that they help to frame and define the streets, giving deliberate form to streets and sidewalk areas. Building setbacks should be minimal to create an active street environment that encourages pedestrian activity. Where internal drives are used to organize buildings and pedestrian movement, setbacks to internal drives should be minimized wherever possible."

The proposed development meets the minimum recommendations of Envision Franklin by providing

a mix of uses that include commercial and multi-family residential, although the amount of activated ground-floor commercial use is very minimal, like approved developments nearby. The site layout provides an urban feel with building-lined streets creating a walkable development and provides architecture that fits in with the style of the corridor. The Regional Commerce Design Concept supports a mix of uses and the uses proposed are supported within the design concept.

With that said, a better mixture of uses, as allowed within the existing RC6 zoning district, could help facilitate an improvement in projected traffic flow by dispersing traffic onto Cool Springs Boulevard at different peak times of day. While the proportion of multi-family to commercial space is consistent with approved projects adjacent to this property, the transportation infrastructure does not support the proposed mixture of uses, which is predominantly multifamily residential with peak traffic volumes projected at similar times of day. Envision Franklin directs growth in areas where existing or planned infrastructure can support the proposed uses, and the uses proposed with this development plan place so much strain on the existing transportation infrastructure that minimum traffic requirements cannot be met. (See below for more detailed information.)

The 101 Cool Springs Development has submitted their final version of the Traffic Impact Analysis (TIA), in accordance with City of Franklin TIA guidelines. There were study intersections that did not meet our overall Level of Service D and individual movements that had delay worse than Level of Service E, thus, there are intersections and movements that did not meet City standards. Mitigation was not recommended for the Cool Springs at McEwen intersection, which is showing the greatest amount of excessive delay in this study. This intersection fails to an overall Level of Service F with this development. The added vehicular trips of this and adjacent developments in this area further increase traffic along Cool Springs Boulevard, and this area in general.

The intersection of Cool Springs Boulevard @ Mallory Lane and Mallory Lane @ McEwen were outside the study area. Any development in this area increases traffic at these intersections, as discussed during the Optima development, adding to existing excessive vehicle delays. It should be noted that the current TIA guidelines are being discussed with the Board, and the TIA requirements are anticipated to be adjusted as a result of these discussions. It is unknown at this time if those adjustments would bring the affected intersections of this development into meeting the future TIA standards.

PROCEDURAL REQUIREMENTS:

1. The applicant shall upload the corrected plan to the online plan review website (https://franklin.contractorsplanroom.com/secure/). All revisions to the approved plans shall be “clouded.” With the resubmittal, each condition of approval/open issue in the online plan review system shall contain a full response from the applicant as to the satisfaction or completion of that condition.
2. The City’s project identification number shall be included in all correspondence with any City department relative to this project.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Franklin Municipal Planning Commission recommends disapproval of Resolution 2023-42 by a vote of 6-1.
Staff recommends that the Board of Mayor and Aldermen disapprove Resolution 2023-42.

RESOLUTION 2023-42

A RESOLUTION APPROVING A DEVELOPMENT PLAN FOR 101 COOL SPRINGS BOULEVARD PUD SUBDIVISION FOR THE PROPERTY LOCATED FOR THE PROPERTY LOCATED EAST OF MACK HATCHER MEMORIAL PARKWAY AND NORTH OF COOL SPRINGS BOULEVARD , LOCATED AT 101 COOL SPRINGS BOULEVARD.

WHEREAS, the Board of Mayor and Aldermen (BOMA) of the City of Franklin, Tennessee, has, or will, approve the zoning for the property as part of Ordinance 2023-22; and

WHEREAS, the Planned Unit Development (PUD) process is a review procedure that is intended to encourage innovative land planning and design and avoid the monotony sometimes associated with large developments by:

a) Reducing or eliminating the inflexibility that sometimes results from strict application of zoning standards that were designed primarily for individual lots;
b) Allowing greater freedom in selecting the means to provide access, light, open space, and design amenities;
c) Encouraging a sensitive design that respects the surrounding established land use character and natural or man-made features of the site including, but not limited to, trees, historic features, streams, hillsides, and floodplains;
d) Promoting quality design and environmentally sensitive development by allowing development to take advantage of special site characteristics, locations, and land uses; and
e) Allowing deviations from certain zoning standards that would otherwise apply if not contrary to the general spirit and intent of this ordinance; and

WHEREAS, the PUD process requires the approval of a Development Plan that is reviewed and approved by BOMA after a public hearing and a recommendation by the Franklin Municipal Planning Commission; and

WHEREAS, in accordance with the provisions of the City of Franklin, Tennessee, Zoning Ordinance, and as required by Tennessee Code Annotated § 13-4-310, as amended, the approval of the Development Plan by the BOMA will initiate a vesting period during which the development standards adopted by the City and in effect on the date of approval shall remain the standards applicable to the approved Development Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF FRANKLIN, TENNESSEE, AS FOLLOWS:

SECTION I. That the legal description of the property included in the Development Plan is as follows:

PREMISES CONSIDERED

Map-Parcel	Acres
062--04510	2.906
Total	2.906

SECTION II. That the attached Location Map and Survey shall serve the purpose of further delineating the geographical boundaries as described by this Resolution.

SECTION III. That the overall entitlements for the 101 Cool Springs Boulevard PUD Subdivision are as follows:

Entitlements	101 Cool Springs Boulevard PUD
Base Zone District	RC-6
Proposed Zoning District	PD (61.3/3,362)
Other Zoning Overlays	500' buffer of the HHO
Number of Dwelling Units	178
Number of Nonresidential Square Footage	3,362
Number of Hotel Rooms	0
Open Space Requirements	5% (6,330 SF)
Open Space Provided	17,173 SF
Number of Phases in Development	1

SECTION IV. That the Development Plan, the exhibits accompanying the Development Plan, and all conditions and restrictions placed upon the Development Plan by the Franklin Municipal Planning Commission and this Board shall be made a part of this Resolution as though copied verbatim herein, and that a permanent record of the Development Plan, the exhibits accompanying the Development Plan, and all such conditions and restrictions shall be kept in the Franklin Planning and Sustainability Department.

SECTION V. That this Resolution shall take effect from and after the passage of Ordinance 2023-22, on third and final reading, the health, safety, and welfare of the citizens requiring it.

IT IS SO RESOLVED AND DONE on this ____ day of _____, 2023.

ATTEST: **CITY OF FRANKLIN, TENNESSEE:**

_____ _____

Eric S. Stuckey
City Administrator

Dr. Ken Moore
Mayor

Law Dept approved 05.18.23

Approved as to form by:

_____
Shauna R. Billingsley
City Attorney

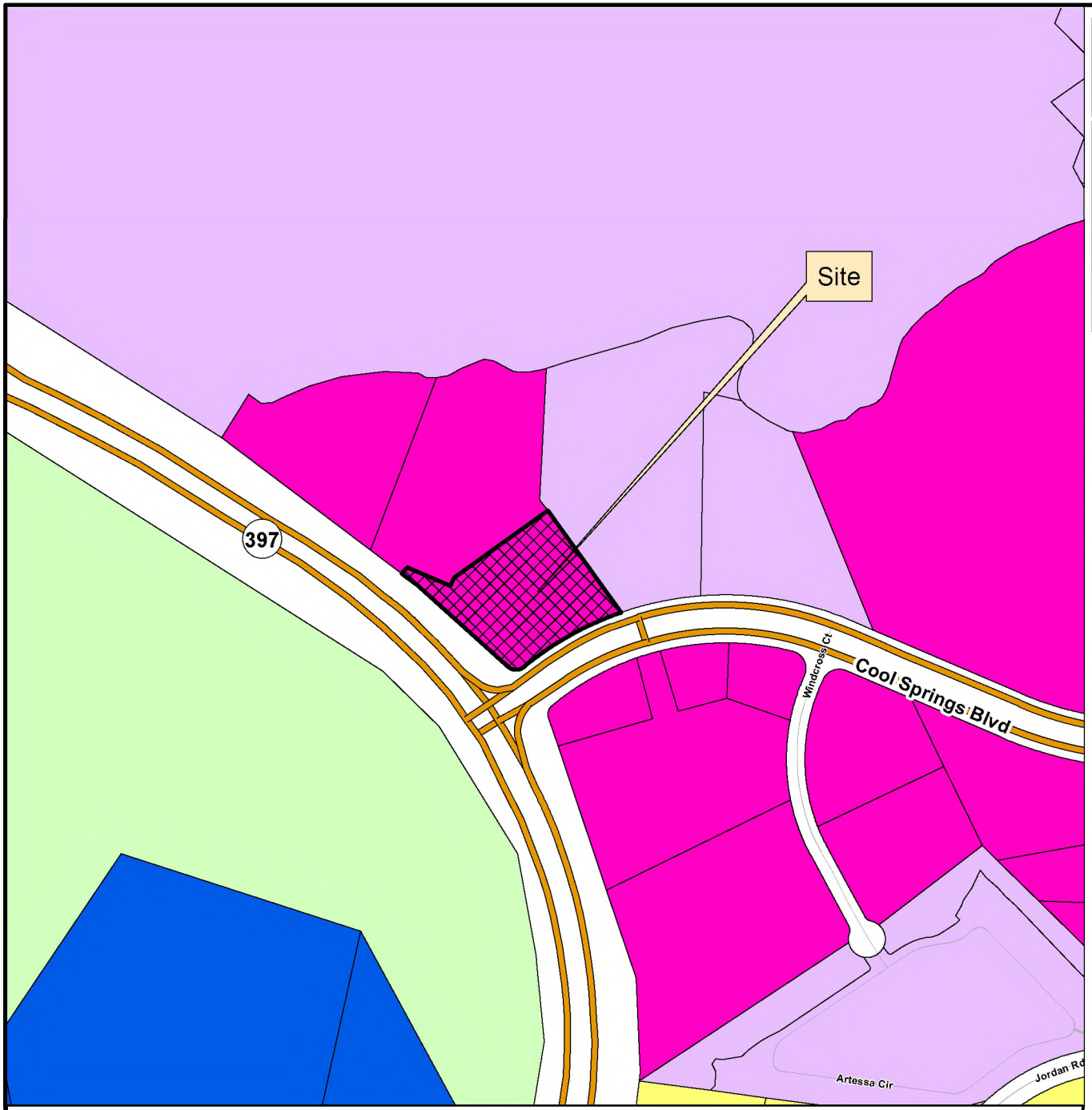
PREAPPLICATION CONFERENCE: _____

BOMA/FMPC JOINT CONCEPTUAL WORKSHOP: _____

NEIGHBORHOOD MEETING: _____

PLANNING COMMISSION RECOMMENDED APPROVAL: _____

PUBLIC HEARING AND BOMA APPROVAL: _____



101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
ORDINANCE 2023-22
RESOLUTION 2023-42

Project Information
Existing Zoning: R-6 Residential 6 District
Proposed Zoning: PD Planned District
Overlay Districts: 500 ft Buffer of Hillside Overlay
Site Acreage: 2.906 acres
Proposed Number of Dwelling Units: 178
Proposed Nonresidential Square Footage: 3,400 SF

Legend

- 101 Cool Springs Boulevard
- AG Agricultural District
- ER Estate Residential District
- R1 Residential 1 District
- R2 Residential 2 District
- R3 Residential 3 District
- R4 Residential 4 District
- R6 Residential 6 District
- MR Mixed Residential District
- PD Planned District
- OR Office Residential District
- CI Civic Institutional District
- NC Neighborhood Commercial
- CC Central Commercial District
- DD Downtown District
- 1ST Avenue District
- 5TH Avenue District
- RC6 Regional Commerce 6 District
- RC12 Regional Commerce 12 District
- GO General Office District
- LI Light Industrial District
- HI Heavy Industrial District

This map was created by the Franklin Planning Department.
It was compiled from the most authentic information available.
The City is not responsible for any errors or omissions contained hereon.
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Feet

HISTORIC FRANKLIN TENNESSEE

101 COOL SPRINGS BOULEVARD

DEVELOPMENT PLAN

PLANNED DISTRICT
FRANKLIN, WILLIAMSON, TENNESSEE



VICINITY MAP
NTS

OWNER:
CSLP GP
85 SOUTH SERVICE RD
PLAINVIEW, NY 10803
MITCHELL RECHLER
631-414-8484
mr@mrechler.com

APPLICANT:
GAMBLE DESIGN COLLABORATIVE
3020 STANSBERRY LANE, SUITE 201
FRANKLIN, TN 37064
GREG GAMBLE
615-975-5765
greg.gamble@gdc-tn.com

ENGINEER:
KIMLEY-HORN
10 LEA AVE, SUITE 400
NASHVILLE, TN 37204
RYAN MCMASTER, PE
615-564-2876
ryan.mcmaster@kimley-horn.com

ARCHITECT:
906 STUIDO ARCHITECTS
143 FIFTH AVE SOUTH
FRANKLIN, TN 37064
MEREDITH BUCHER, AIA
615-721-6024
meredith.bucher@906studio.com

VESTING DEVELOPMENT STANDARDS:

DEVELOPMENT STANDARD	VERSION/DATE
ZONING ORDINANCE	1.1.2023
SUBDIVISION REGULATIONS	1.1.2022
HISTORIC DISTRICT DESIGN GUIDELINES	5.30.2022
TRANSPORTATION & STREET TECH. STANDARDS	7.1.2022
STORMWATER BMP MANUAL	2021
TECHNICAL SPECIFICATIONS FOR UTILITY	10.12.2020
MUNICIPAL CODE	9-27-2022

SITE DATA TABLE

PROJECT NAME:	101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
COF PROJECT #:	8157
MAP:	MAP #94062G
PARCEL #:	062---04510
ADDRESS:	101 COOL SPRINGS BLVD
CITY:	FRANKLIN
COUNTY:	WILLIAMSON
STATE:	TENNESSEE
CIVIL DISTRICT:	10TH CIVIL DISTRICT
EXISTING ZONING:	RC-6 REGIONAL COMMERCE 6
PROPOSED ZONING:	PD-PLANNED DISTRICT (61.3 DUA/3,362 SF COMMERCIAL)
OTHER APPLICABLE OVERLAYS:	500' BUFFER OF HILLSIDE OVERLAY
DESIGN CONCEPT:	REGIONAL COMMERCE
ACREAGE OF LOT 123:	2.906 ACRES
ACREAGE OF ACCESS ESMT:	0.77 ACRES
TOTAL ACREAGE OF SITE:	2.906 ACRES
TOTAL SQUARE FOOTAGE OF SITE:	126,583 SF
OWNERS:	CSLP GP
ADDRESS:	85 SOUTH SERVICE RD PLAINVIEW, NY 10803
PHONE:	631-414-8484
EMAIL:	mr@mrechler.com
CONTACT NAME:	MITCHELL RECHLER
APPLICANT:	GAMBLE DESIGN COLLABORATIVE (GDC)
ADDRESS:	3020 STANSBERRY LANE, SUITE 201 FRANKLIN, TN 37069
PHONE:	615-975-5765
EMAIL:	GREG.GAMBLE@GDC-TN.COM
CONTACT NAME:	GREG GAMBLE, RLA
BUILDING SETBACKS:	15' FRONT, 15' SIDE AND REAR
BUILDING SQUARE FOOTAGE:	504,490 SF
STORIES:	6
DENSITY:	178 UNITS: 61.3 DUA
BUILDING CONSTRUCTION TYPE:	TYPE VA OVER PODIUM TYPE 1A
MAXIMUM BUILDING HEIGHT:	70' - 0" PER 2018 IBC
PROPOSED MAX. BUILDING HEIGHT:	68' - 6" (SEE ARCH PLANS)
MINIMUM LANDSCAPE SURFACE RATIO:	20%
PROVIDED LANDSCAPE SURFACE RATIO:	34.5%; 43,746 SF
APARTMENT PARKING REQUIRED:	311 SPACES 1.5 SPACES PER 1 BEDROOM (134 UNITS) 2.5 SPACES PER 2 BEDROOM (44 UNITS)
COMMERCIAL PARKING REQUIRED	11 SPACES 3.33 SPACES PER 1000 SF (3,362 SF)
TOTAL PARKING REQUIRED:	322 SPACES
TOTAL SHARED PARKING REQUIRED:	297 SPACES (25 SPACE REDUCTION) (SEE SHARED PARKING STUDY)
EXISTING PARKING:	0 SPACES
TOTAL PARKING PROVIDED:	315 TOTAL SPACES (300 IN GARAGE; 15 EXTERIOR)
PARKLAND DEDICATION:	178 UNITS = $766,112; FEES TO BE PAID WITH FINAL PLAT; QUAD 1

NOTES:
1. WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO, THE NEW DEVELOPMENT, ALL UTILITIES, SUCH AS CABLE TELEVISION, ELECTRICAL (EXCLUDING TRANSFORMERS), GAS, SEWER, TELEPHONE, AND WATER LINES SHALL BE PLACED UNDERGROUND.
2. THIS SITE PLAN HAS BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE CITY OF FRANKLIN STANDARDS AND THE APPROVAL OF PLANNING COMMISSION. CHANGES SHALL NOT BE MADE TO THE APPROVED SITE PLAN UNLESS APPROVED BY EITHER RELEVANT DEPARTMENT SUPERINTENDENT OR THE PLANNING COMMISSION.
3. THE INFORMATION SHOWN ON THIS PLAN IS BASED UPON THE TENNESSEE STATE PLANE COORDINATE SYSTEM, ZONE 5301, FLIPZONE 4100 AND NAD 83 DATUM.
4. BASE INFORMATION HAS BEEN TAKEN FROM TWO ALTA SURVEYS PROVIDED BY CEC INC, PERFORMED BY MICHAEL K. STORY DATED 02-23-22 AND 9-14-22. THE INFORMATION PROVIDED SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. KIMLEY-HORN AND ASSOCIATES SHALL NOT BE HELD RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF THE BASE INFORMATION SHOWN.
5. THE CONSULTANT HAS FOUND NO EVIDENCE OF THE MINERAL RIGHTS OF THIS PROPERTY BEING TRANSFERRED TO ANY PARTY OTHER THAN THE OWNER.
6. NO PROPOSED BUILDINGS IN THIS PROJECT FALL WITHIN THE 100 YEAR FLOODPLAIN, PER THE FEMA FIRM MAP NUMBER 47187C0204F, DATED SEPTEMBER 29, 2006

SHEET INDEX

C0.0	COVER SHEET
C1.0	OVERALL EXISTING CONDITIONS
C2.0	OVERALL DEVELOPMENT PLAN
C2.1	DEVELOPMENT PLAN - OPEN SPACE
C3.0	OVERALL GRADING AND DRAINAGE PLAN
C4.1	ROW AND ACCESS - FIRE
C4.2	ROW AND ACCESS - SOLID WASTE
C5.0	OVERALL UTILITY PLAN
L1.0	TREE PRESERVATION PLAN
A1.0	ARCHITECTURE
A1.1	ARCHITECTURE
A1.2	ARCHITECTURE
A1.3	ARCHITECTURE
A1.4	ARCHITECTURE
A1.5	FLOOR PLANS

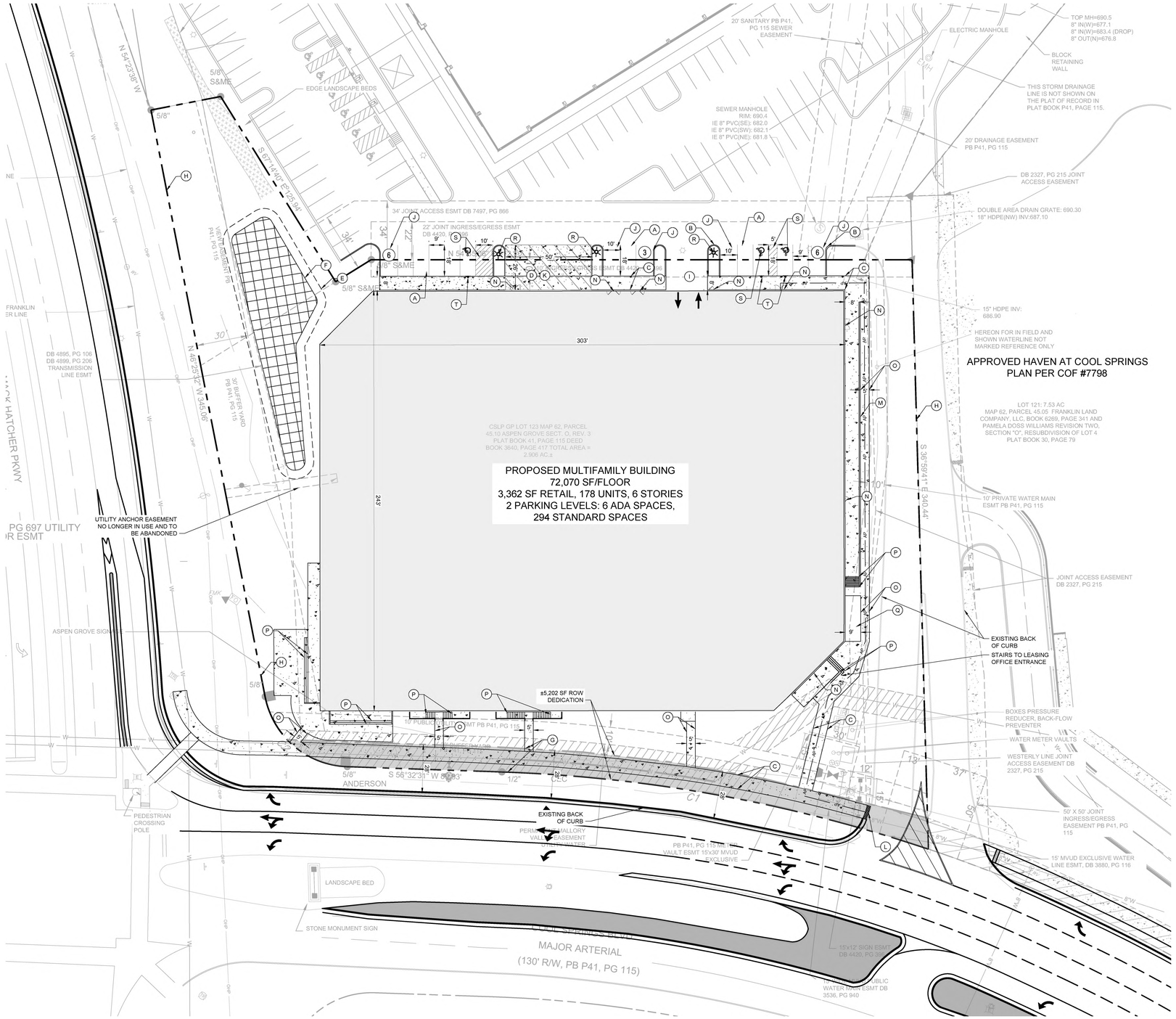
GREGORY C. GAMBLE
REGISTERED
LANDSCAPE ARCHITECT
5423

PRE-APP: November 28, 2022
INITIAL SUBMITTAL: APRIL 10, 2023
RESUBMITTAL: MAY 4, 2023

GAMBLE DESIGN COLLABORATIVE

DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



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SITE PLAN KEYNOTE LEGEND

- (A) 9' X 18' PROPOSED PARKING SPACE (TYP.)
- (B) 6" PROPOSED POST CURB (TYP.)
- (C) 8' SIDEWALK (TYP.)
- (D) REFUSE COLLECTION AREA
- (E) GREEN INFRASTRUCTURE EASEMENT (GIE)
- (F) BIORETENTION POND
- (G) DEDICATED ROW PER CONNECT FRANKLIN PLANS
- (H) EXISTING PROPERTY LINE
- (I) PARKING GARAGE ENTRANCE
- (J) 10'X18' PROPOSED END PARKING SPACE (TYP.)
- (K) DESIGNATED LOADING AREA
- (L) ADA CURB RAMP
- (M) MAX 8' RETAINING WALL
- (N) ENTRANCE/EXIT
- (O) 5' SIDEWALK (TYP.)
- (P) EXTERIOR STAIRS
- (Q) LANDSCAPE BED
- (R) RELOCATED LIGHT POLE
- (S) ADA PARKING STRIPING
- (T) ADA PARKING SIGNAGE

COMPREHENSIVE REVIEW AT SITE PLAN

COMPREHENSIVE REVIEW OF ROADWAY, STORMWATER, AND UTILITY ELEMENTS BY CITY OF FRANKLIN STAFF WILL OCCUR AT SITE PLAN. PROJECT ENTITLEMENTS APPROVED WITH THIS DEVELOPMENT PLAN DO NOT CONSTITUTE APPROVAL OF THE ROADWAY, STORMWATER, AND UTILITY ELEMENTS SHOWN ON THE DEVELOPMENT PLAN. IF, UPON APPLICATION OF CITY OF FRANKLIN STREET, STORMWATER, AND UTILITY STANDARDS AT SITE PLAN, THE APPLICANT CANNOT ACHIEVE THE MAXIMUM APPROVED ENTITLEMENTS, THE APPLICANT SHALL BE CONFINED TO THE ENTITLEMENTS ACHIEVABLE FROM THE APPLICATION OF SAID STANDARDS.

CROSS ACCESS NOTE

IN THE EVENT THAT 151 OR 201 COOL SPRINGS BOULEVARD DOES NOT MOVE FORWARD WITH CONSTRUCTION, THIS DEVELOPMENT SHALL INSTALL THE ACCESS ROAD AND ASSOCIATED STORMWATER TREATMENT AS PART OF THE SITE PLAN SUBMITTAL, TO PROVIDE A FULL ACCESS AT COOL SPRINGS BOULEVARD AND WINDCROSS COURT.

THE CONNECTION TO WINDCROSS MUST BE UNDER CONSTRUCTION PRIOR TO A BUILDING PERMIT FOR THIS SITE AND MUST BE COMPLETED AND ACCEPTED PRIOR TO THE FIRST CERTIFICATE OF OCCUPANCY.

OFFSITE IMPROVEMENTS NOTE

SEE OFFSITE ROADWAY IMPROVEMENTS EXHIBIT FOR DETAILS AND CALLOUTS PERTAINING TO OFFSITE IMPROVEMENTS.

GRAPHIC SCALE IN FEET
0 15 30 60

NORTH

Kimley»Horn
4031 Aspen Grove Dr Suite 200, TN 37067
Main: 615.564.2701 | www.kimley-horn.com
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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER LICENSED PROFESSIONAL ENGINEER 109282 STATE OF TENNESSEE
2023-05-04

No	REVISIONS	DATE	BY
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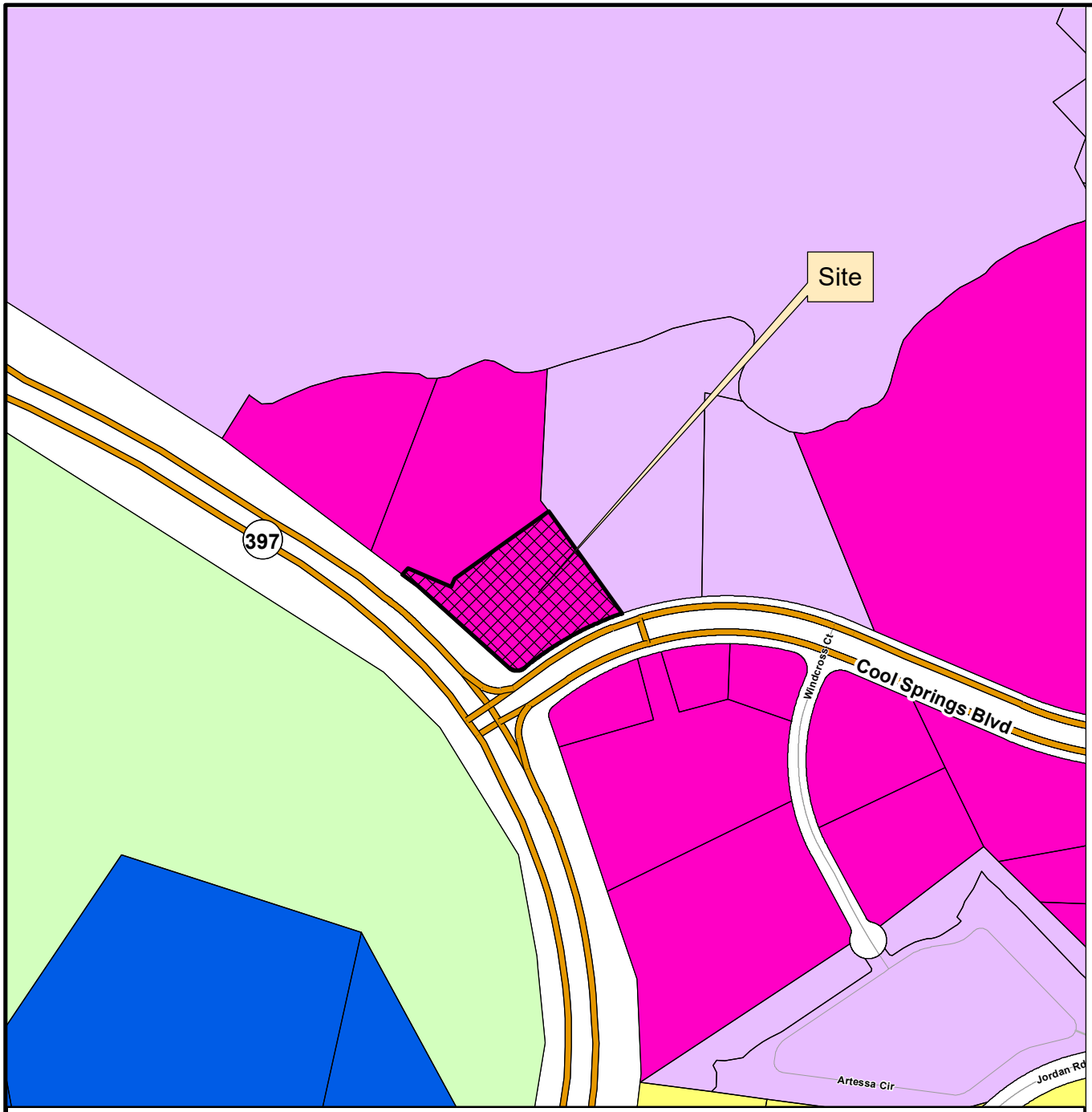
DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023
KIMLEY-HORN PROJECT NO.	118479000

OVERALL SITE PLAN

SHEET NUMBER
C2.0



101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
ORDINANCE 2023-22
RESOLUTION 2023-42

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N

0 250 500 1,000
Feet

HISTORIC FRANKLIN TENNESSEE

COF no: 8157

CONDITIONS OF APPROVAL:

Open Issues: 11 These issues are currently being filtered

Engineering - Development Plan Checklist

General Issues

19. Cross Access

jimmy.wiseman@franklintn.gov 151 and 201 Cool Springs Boulevard have approved site plans that show cross access and associated stormwater treatment being constructed. If for any reason, 151 or 201 Cool Springs Boulevard do not move forward with construction, this development shall install the access road and associated stormwater treatment as a part of the site plan submittal.

The applicant shall add a note to the development plan that reflects this condition.

The connection to Windcross must be under construction prior to a building permit for this site and must be completed and accepted prior to the first certificate of occupancy.

Reply

51. Traffic Impacts

jimmy.wiseman@franklintn.gov The 101 Cool Springs Development has submitted their final version of the Traffic Impact Analysis (TIA), in accordance with City of Franklin TIA guidelines. There were study intersections that did not meet our overall Level of Service D and individual movements that had delay worse than Level of Service E, thus, there are intersections and movements that did not meet City standards. *Mitigation was not recommended for the Cool Springs at McEwen intersection, which is showing the greatest amount of excessive delay in this study. This intersection fails to an overall Level of Service F with this development. The added vehicular trips of this and adjacent developments in this area further increase traffic along Cool Springs Boulevard, and this area in general.*

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Engineering - OLD

General Issues

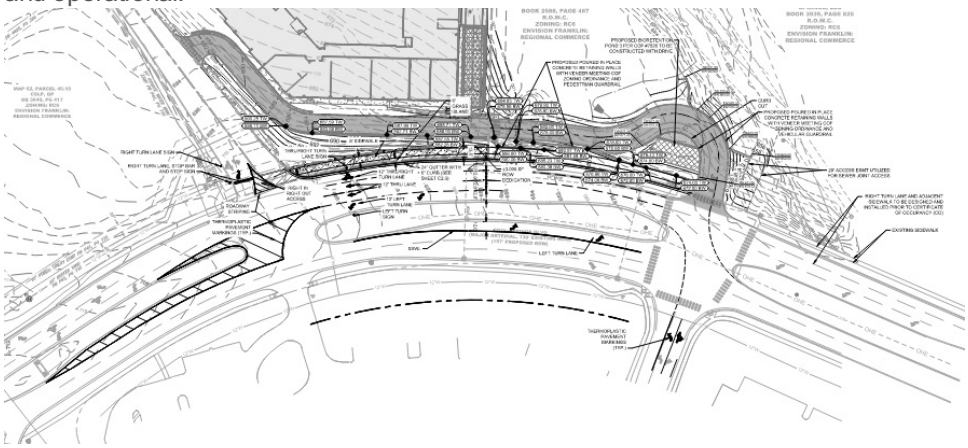
18. (OLD DEVEOPMENT PLAN CHECKLIST) H. Stormwater Management Plan

lance.fittro@franklintn.gov This is an advisory comment to be addressed at Site Plan:

At Site Plan, applicant shall submit a Stormwater Management Report which includes Stormwater Management calculations based on the portion of the property which is to be developed and accounts for any applicable offsite drainage areas. The submitted Stormwater Management Plan shall comply with Green Infrastructure - Runoff Reduction requirements as outlined in Municipal Code Title 23.

25. (OLD DEVEOPMENT PLAN CHECKLIST) F. Development Plan

kevin.long@franklintn.gov Prior to any Certificate of Occupancy associated with this development plan, all required traffic improvements required by the TIA and previously designed by the Haven at Cool Springs and the Legend's View developments shall be fully constructed and operational.



47. (OLD DEVEOPMENT PLAN CHECKLIST) F. Development Plan

kevin.long@franklintn.gov ***This is an advisory comment and does not hinder the approval of this development plan.***

At the site plan stage, all roadway improvements shall be designed in accordance with the appropriate common standards as established by (A) the City of Franklin Transportation and Street Technical Standards, (B) the AASHTO Policy on Geometric Design of Highways and Streets, and (C) the Tennessee Department of Transportation Design Guidelines and Standard Details. Features such as taper lengths, horizontal and vertical geometry, clear zones, guardrail requirements, etc., shall be evaluated In greater detail at the site plan stage and will be required to conform to the accepted standard in order to ensure public safety and well-being, as well as the continued functionality of the existing and proposed street networks.

Engineering Review

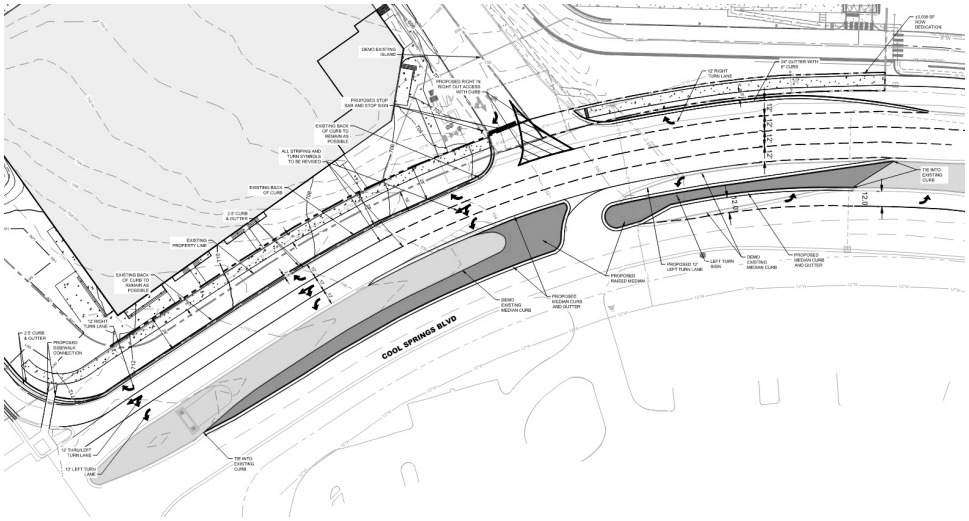
101 Cool Springs Traffic Memo - 11-18-2022.pdf

22. TIA

jimmy.wiseman@franklintn.gov The applicant shall incorporate all of the recommendations of the TIA into this plan. All improvements shall be constructed and accepted prior to the first Certificate of Occupancy for the site.

Per the approved TIA:

- Mack Hatcher Parkway at Cool Springs Boulevard
  - Replace all existing traffic signal backplates with new retroreflective yellow backplates
  - Extend the existing concrete channelized island for the westbound right-turn movement to the north to provide barrier separation for the free-flow slip lane traveling west along Cool Springs Boulevard to north along Mack Hatcher Parkway
  - Extend the westbound left-turn lane to provide 735’ of storage
- Cool Springs Boulevard at Site Driveway
  - With the extension of the westbound left-turn lane at the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1), provide an additional turn lane pocket to provide 100’ of storage for the westbound left-turn movement at Cool Springs Boulevard at Site Driveway (Intersection 2)
- Cool Springs Boulevard at Windcross Court
  - Extend the eastbound left-turn lane to provide 340’ of storage.



[Edited By Kevin Long]

FIRE--Planning--DRT

General Issues

2. Fire Protection

curt.edelmann@franklintn.gov The fire department will keep this comment open to remind future reviewers that this comment remains open. Keeping this comment open will not affect the fire department's approval to let his project continue to the site plan stage.

Parks

General Issues

15. Parkland information

kevinl@franklintn.gov The parkland agreement has been approved by Law and sent to applicant for signature 5-5-23. Fees only agreement.
[Edited By Kevin Lindsey]

Planning

General Issues

43. Building Type

chelsea.randolph@franklintn.gov	Applicant shall add the building type information to the site data chart according to Chapter 6-Building Types within the Zoning Ordinance. The building type of the proposed building is Commercial/Mixed-Use Building.

101 COOL SPRINGS BOULEVARD

DEVELOPMENT PLAN

PLANNED DISTRICT
FRANKLIN, WILLIAMSON, TENNESSEE



VICINITY MAP
NTS

VESTING DEVELOPMENT STANDARDS:

DEVELOPMENT STANDARD	VERSION/DATE
ZONING ORDINANCE	1.1.2023
SUBDIVISION REGULATIONS	1.1.2022
HISTORIC DISTRICT DESIGN GUIDELINES	5.30.2022
TRANSPORTATION & STREET TECH. STANDARDS	7.1.2022
STORMWATER BMP MANUAL	2021
TECHNICAL SPECIFICATIONS FOR UTILITY	10.12.2020
MUNICIPAL CODE	9-27-2022

OWNER:
CSLP GP
85 SOUTH SERVICE RD
PLAINVIEW, NY 10803
MITCHELL RECHLER
631-414-8484
mr@mrechler.com

APPLICANT:
GAMBLE DESIGN COLLABORATIVE
3020 STANSBERRY LANE, SUITE 201
FRANKLIN, TN 37064
GREG GAMBLE
615-975-5765
greg.gamble@gdc-tn.com

ENGINEER:
KIMLEY-HORN
10 LEA AVE, SUITE 400
NASHVILLE, TN 37204
RYAN MCMASTER, PE
615-564-2876
ryan.mcmaster@kimley-horn.com

ARCHITECT:
906 STUIDO ARCHITECTS
143 FIFTH AVE SOUTH
FRANKLIN, TN 37064
MEREDITH BUCHER, AIA
615-721-6024
meredith.bucher@906studio.com

SITE DATA TABLE

PROJECT NAME:	101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
COF PROJECT #:	8157
MAP:	MAP #94062G
PARCEL #:	062—04510
ADDRESS:	101 COOL SPRINGS BLVD
CITY:	FRANKLIN
COUNTY:	WILLIAMSON
STATE:	TENNESSEE
CIVIL DISTRICT:	10TH CIVIL DISTRICT
EXISTING ZONING:	RC-6 REGIONAL COMMERCE 6
PROPOSED ZONING:	PD-PLANNED DISTRICT (61.3 DUA/3,362 SF COMMERCIAL)
OTHER APPLICABLE OVERLAYS:	500' BUFFER OF HILLSIDE OVERLAY
DESIGN CONCEPT:	REGIONAL COMMERCE
ACREAGE OF LOT 123:	2.906 ACRES
ACREAGE OF ACCESS ESMT:	0.77 ACRES
TOTAL ACREAGE OF SITE:	2.906 ACRES
TOTAL SQUARE FOOTAGE OF SITE:	126,583 SF
OWNERS:	CSLP GP
ADDRESS:	85 SOUTH SERVICE RD PLAINVIEW, NY 10803
PHONE:	631-414-8484
EMAIL:	mr@mrechler.com
CONTACT NAME:	MITCHELL RECHLER
APPLICANT:	GAMBLE DESIGN COLLABORATIVE (GDC)
ADDRESS:	3020 STANSBERRY LANE, SUITE 201 FRANKLIN, TN 37069
PHONE:	615-975-5765
EMAIL:	GREG.GAMBLE@GDC-TN.COM
CONTACT NAME:	GREG GAMBLE, RLA
BUILDING SETBACKS:	15' FRONT, 15' SIDE AND REAR
BUILDING SQUARE FOOTAGE:	504,490 SF
STORIES:	6
DENSITY:	178 UNITS: 61.3 DUA
BUILDING CONSTRUCTION TYPE:	TYPE VA OVER PODIUM TYPE 1A
MAXIMUM BUILDING HEIGHT:	70' - 0" PER 2018 IBC
PROPOSED MAX. BUILDING HEIGHT:	68' - 6" (SEE ARCH PLANS)
MINIMUM LANDSCAPE SURFACE RATIO:	20%
PROVIDED LANDSCAPE SURFACE RATIO:	34.5%; 43,746 SF
APARTMENT PARKING REQUIRED:	311 SPACES 1.5 SPACES PER 1 BEDROOM (134 UNITS) 2.5 SPACES PER 2 BEDROOM (44 UNITS)
COMMERCIAL PARKING REQUIRED	11 SPACES 3.33 SPACES PER 1000 SF (3,362 SF)
TOTAL PARKING REQUIRED:	322 SPACES
TOTAL SHARED PARKING REQUIRED:	297 SPACES (25 SPACE REDUCTION) (SEE SHARED PARKING STUDY)
EXISTING PARKING:	0 SPACES
TOTAL PARKING PROVIDED:	315 TOTAL SPACES (300 IN GARAGE; 15 EXTERIOR)
PARKLAND DEDICATION:	178 UNITS = $766,112; FEES TO BE PAID WITH FINAL PLAT; QUAD 1

NOTES:
1. WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO, THE NEW DEVELOPMENT, ALL UTILITIES, SUCH AS CABLE TELEVISION, ELECTRICAL (EXCLUDING TRANSFORMERS), GAS, SEWER, TELEPHONE, AND WATER LINES SHALL BE PLACED UNDERGROUND.
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6. NO PROPOSED BUILDINGS IN THIS PROJECT FALL WITHIN THE 100 YEAR FLOODPLAIN, PER THE FEMA FIRM MAP NUMBER 47187C0204F, DATED SEPTEMBER 29, 2006

SHEET INDEX

C0.0	COVER SHEET
C1.0	OVERALL EXISTING CONDITIONS
C2.0	OVERALL DEVELOPMENT PLAN
C2.1	DEVELOPMENT PLAN - OPEN SPACE
C3.0	OVERALL GRADING AND DRAINAGE PLAN
C4.1	ROW AND ACCESS - FIRE
C4.2	ROW AND ACCESS - SOLID WASTE
C5.0	OVERALL UTILITY PLAN
L1.0	TREE PRESERVATION PLAN
A1.0	ARCHITECTURE
A1.1	ARCHITECTURE
A1.2	ARCHITECTURE
A1.3	ARCHITECTURE
A1.4	ARCHITECTURE
A1.5	FLOOR PLANS



PRE-APP: November 28, 2022
INITIAL SUBMITTAL: APRIL 10, 2023
RESUBMITTAL: MAY 4, 2023

GAMBLE DESIGN COLLABORATIVE

DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE



SITE DATA TABLE

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COUNTY:	WILLIAMSON
STATE:	TENNESSEE
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DESIGN STANDARD:	REGIONAL COMMERCE
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ACREAGE OF ACCESS ESMT:	0.77 ACRES
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SURVEY NOTES

1. THE INFORMATION SHOWN ON THIS PLAN IS BASED UPON THE TENNESSEE STATE PLAN COORDINATE SYSTEM, AND NAD 83 DATUM.
2. BASE INFORMATION WAS TAKEN FROM AN ALTA SURVEY PREPARED BY CIVIL A& ENVIRONMENTAL CONSULTANTS, INC., DATED 02-23-2022. THE INFORMATION PROVIDED SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. KIMLEY-HORN AND ASSOCIATES SHALL NOT BE HELD RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF THE BASE INFORMATION SHOWN.
3. INFORMATION WAS ALSO TAKEN FROM THE CITY OF FRANKLIN GIS AND AERIAL PHOTOGRAPHS.
4. THE CONSULTANT HAS FOUND NO EVIDENCE OF THE MINERAL RIGHTS OF THIS PROPERTY BEING TRANSFERRED TO ANY PARRY OTHER THAN THE OWNER.
5. THIS PROJECT IS NOT LOCATED IN A FLOOD HAZARD AREA ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP 47187C0204F, DATED SEPTEMBER 29, 2006, ZONE "X".

SITE SLOPE TABLE

	14% - 19.99%
	20% and above

EXISTING DETENTION POND NOTE

PER ASPEN GROVE MEDICAL OFFICE BUILDING PLANS, THE EXISTING DETENTION POND HAS BEEN DESIGNED AND CONSTRUCTED TO SERVE THE 101 COOL SPRINGS DEVELOPMENT.
DESIGNED STORAGE CAPACITY:=/- 31,000 CF
EXISTING POND PER SURVEY COMPLETED BY CEC DATED 9/14/2022:
AS-BUILT STAGE STORAGE CAPACITY: +/- 31,441 CF

GRAPHIC SCALE IN FEET
0 25 50 100

NORTH

Kimley»Horn
4031 Aspen Grove Dr Suite 200, TN 37067
Main: 615.564.2701 | www.kimley-horn.com
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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER REGISTERED ENGINEER AGENCY OF COMMERCE No. 120881 STATE OF TENNESSEE
2023-05-04

No.	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023
KIMLEY-HORN PROJECT NO.	118479000

OVERALL EXISTING CONDITIONS

SHEET NUMBER
C1.0

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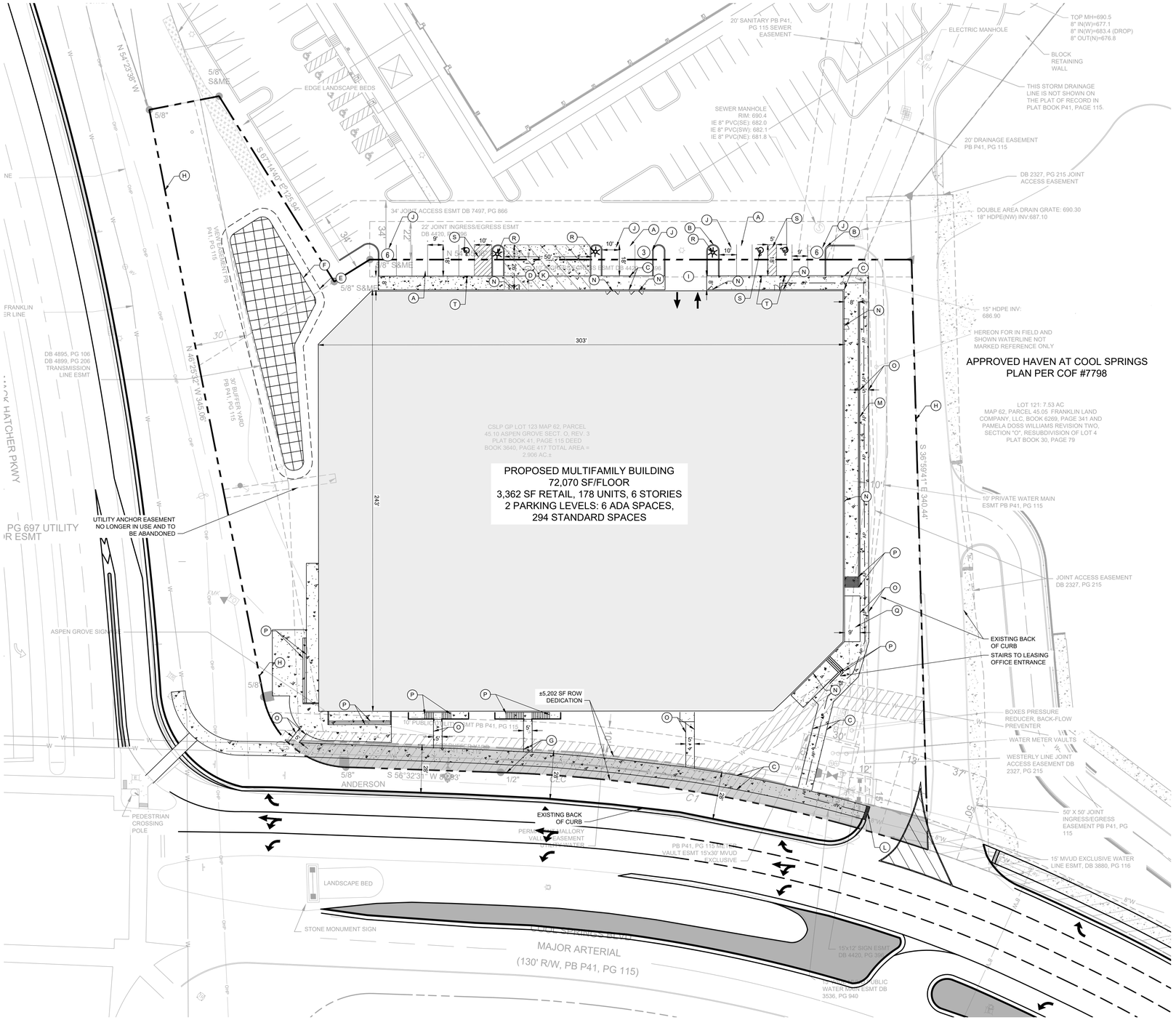

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SITE PLAN KEYNOTE LEGEND

- (A) 9' X 18' PROPOSED PARKING SPACE (TYP.)
- (B) 6" PROPOSED POST CURB (TYP.)
- (C) 8' SIDEWALK (TYP.)
- (D) REFUSE COLLECTION AREA
- (E) GREEN INFRASTRUCTURE EASEMENT (GIE)
- (F) BIORETENTION POND
- (G) DEDICATED ROW PER CONNECT FRANKLIN PLANS
- (H) EXISTING PROPERTY LINE
- (I) PARKING GARAGE ENTRANCE
- (J) 10'X18' PROPOSED END PARKING SPACE (TYP.)
- (K) DESIGNATED LOADING AREA
- (L) ADA CURB RAMP
- (M) MAX 8' RETAINING WALL
- (N) ENTRANCE/EXIT
- (O) 5' SIDEWALK (TYP.)
- (P) EXTERIOR STAIRS
- (Q) LANDSCAPE BED
- (R) RELOCATED LIGHT POLE
- (S) ADA PARKING STRIPING
- (T) ADA PARKING SIGNAGE

COMPREHENSIVE REVIEW AT SITE PLAN

COMPREHENSIVE REVIEW OF ROADWAY, STORMWATER, AND UTILITY ELEMENTS BY CITY OF FRANKLIN STAFF WILL OCCUR AT SITE PLAN. PROJECT ENTITLEMENTS APPROVED WITH THIS DEVELOPMENT PLAN DO NOT CONSTITUTE APPROVAL OF THE ROADWAY, STORMWATER, AND UTILITY ELEMENTS SHOWN ON THE DEVELOPMENT PLAN. IF, UPON APPLICATION OF CITY OF FRANKLIN STREET, STORMWATER, AND UTILITY STANDARDS AT SITE PLAN, THE APPLICANT CANNOT ACHIEVE THE MAXIMUM APPROVED ENTITLEMENTS, THE APPLICANT SHALL BE CONFINED TO THE ENTITLEMENTS ACHIEVABLE FROM THE APPLICATION OF SAID STANDARDS.

CROSS ACCESS NOTE

IN THE EVENT THAT 151 OR 201 COOL SPRINGS BOULEVARD DOES NOT MOVE FORWARD WITH CONSTRUCTION, THIS DEVELOPMENT SHALL INSTALL THE ACCESS ROAD AND ASSOCIATED STORMWATER TREATMENT AS PART OF THE SITE PLAN SUBMITTAL, TO PROVIDE A FULL ACCESS AT COOL SPRINGS BOULEVARD AND WINDCROSS COURT.

THE CONNECTION TO WINDCROSS MUST BE UNDER CONSTRUCTION PRIOR TO A BUILDING PERMIT FOR THIS SITE AND MUST BE COMPLETED AND ACCEPTED PRIOR TO THE FIRST CERTIFICATE OF OCCUPANCY.

OFFSITE IMPROVEMENTS NOTE

SEE OFFSITE ROADWAY IMPROVEMENTS EXHIBIT FOR DETAILS AND CALLOUTS PERTAINING TO OFFSITE IMPROVEMENTS.

GRAPHIC SCALE IN FEET
0 15 30 60

NORTH

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Main: 615.564.2701 | www.kimley-horn.com
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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER LICENSED PROFESSIONAL ENGINEER 109882 STATE OF TENNESSEE 2023-05-04

No	REVISIONS	DATE	BY
1			
2			
3			
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5			
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7			
8			
9			
10			

DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023
KIMLEY-HORN PROJECT NO.	118479000

OVERALL SITE PLAN

SHEET NUMBER
C2.0

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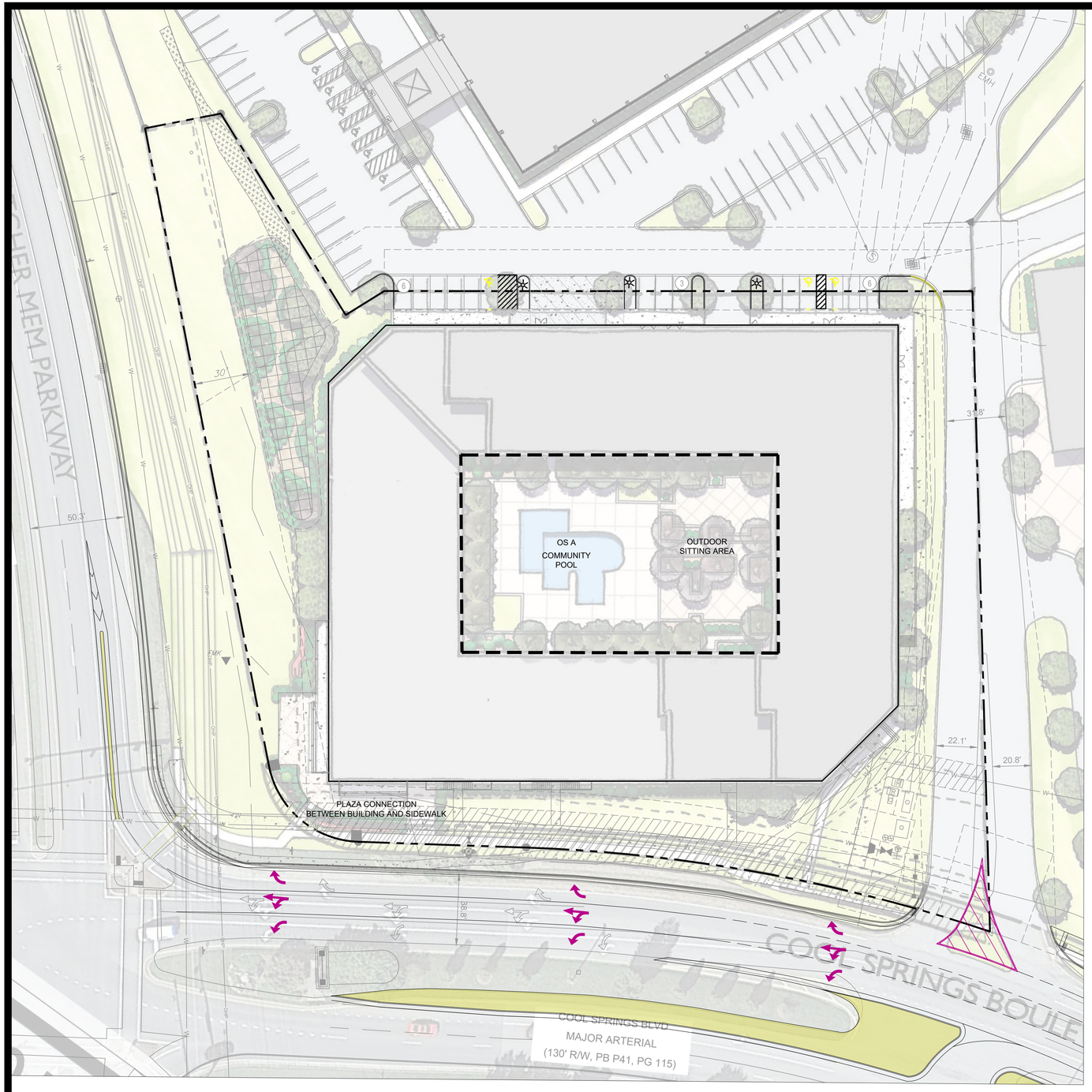


OPEN SPACE REQUIREMENT ZONING ORDINANCE

MINIMUM OPEN SPACE REQUIREMENT
REQUIRED: 5% OPEN SPACE: 6,330 SF
PROVIDED: OPEN SPACE: 17,173 SF

LOT	TYPE	AREA (SF)
OS A	NEIGHBORHOOD AMENITY	17,173 SF

FRONTAGE TYPES:
MACK HATCHER PKWY - LANDSCAPE FRONTAGE
COOL SPRINGS BLVD - LANDSCAPE FRONTAGE

0 30 60 90

GAMBLE DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

101 COOL SPRINGS BOULEVARD DEVELOPMENT PLAN

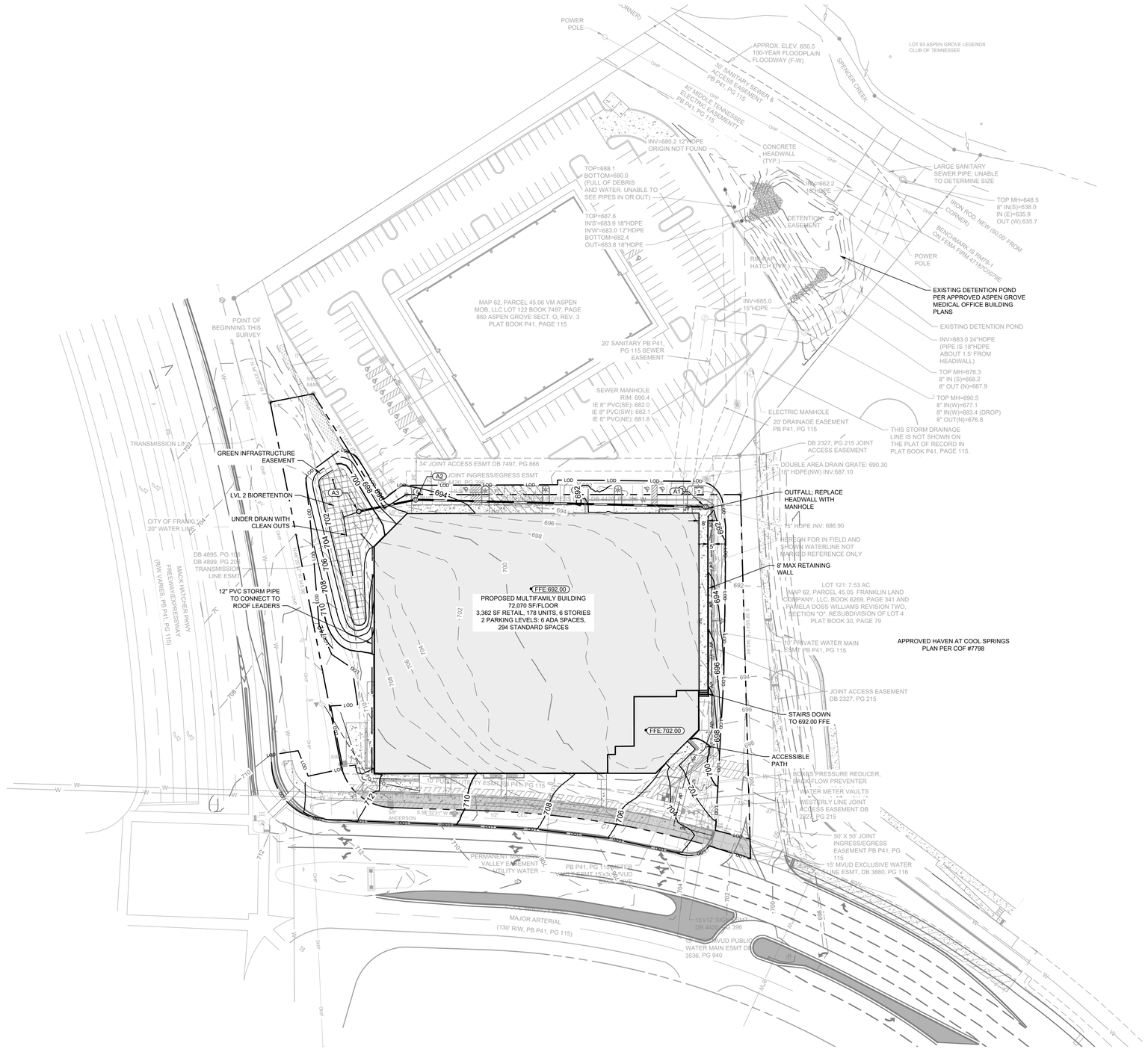
Franklin, Williamson County, Tennessee

GREGORY C. GAMBLE
REGISTERED
LANDSCAPE ARCHITECT
5423

DATE: APRIL 10, 2023

Revision	Date
1	May 4, 2023

DEVELOPMENT PLAN
SHEET
C2.1
COF # 8157



SITE DATA TABLE

PROJECT NAME:	101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
COF PROJECT #:	8157
MAP:	MAP #94062G
PARCEL #:	062---04510
ADDRESS:	101 COOL SPRINGS BLVD
CITY:	FRANKLIN
COUNTY:	WILLIAMSON
STATE:	TENNESSEE
CIVIL DISTRICT:	10TH CIVIL DISTRICT
EXISTING ZONING:	RC-6 REGIONAL COMMERCE 6
PROPOSED ZONING:	PD-PLANNED DISTRICT (61.3 DUA/3,362 SF COMMERCIAL)
OTHER APPLICABLE OVERLAYS:	500' BUFFER OF HILLSIDE OVERLAY
DESIGN STANDARD:	REGIONAL COMMERCE
ACREAGE OF LOT 123:	2.906 ACRES
ACREAGE OF ACCESS ESMT:	0.77 ACRES
TOTAL ACREAGE OF SITE:	2.906 ACRES
TOTAL SQUARE FOOTAGE OF SITE:	126,583 SF
OWNERS:	CSLP GP
ADDRESS:	85 SOUTH SERVICE RD PLAINVIEW, NY 10803
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EMAIL:	mr@mrechler.com
CONTACT NAME:	MITCHELL RECHLER
APPLICANT:	GAMBLE DESIGN COLLABORATIVE (GDC)
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PHONE:	615-975-5765
EMAIL:	GREG.GAMBLE@GDC-TN.COM
CONTACT NAME:	GREG GAMBLE, RLA
BUILDING SETBACKS:	15' FRONT, 15' SIDE AND REAR
BUILDING SQUARE FOOTAGE:	504,490 SF
STORIES:	6
DENSITY:	178 UNITS: 61.3 DUA
BUILDING CONSTRUCTION TYPE:	TYPE VA OVER PODIUM TYPE 1A
MAXIMUM BUILDING HEIGHT:	70' - 0" PER 2018 IBC
PROPOSED MAX. BUILDING HEIGHT:	68' - 6" (SEE ARCH PLANS)
MINIMUM LANDSCAPE SURFACE RATIO:	20%
PROVIDED LANDSCAPE SURFACE RATIO:	34.5%; 43,746 SF
APARTMENT PARKING REQUIRED:	311 SPACES 1.5 SPACES PER 1 BEDROOM (134 UNITS) 2.5 SPACES PER 2 BEDROOM (44 UNITS)
COMMERCIAL PARKING REQUIRED	11 SPACES 3.33 SPACES PER 1000 SF (3,362 SF)
TOTAL PARKING REQUIRED:	322 SPACES
TOTAL SHARED PARKING REQUIRED:	297 SPACES (25 SPACE REDUCTION) (SEE SHARED PARKING STUDY)
EXISTING PARKING:	0 SPACES
TOTAL PARKING PROVIDED:	315 TOTAL SPACES (300 IN GARAGE; 15 EXTERIOR)
PARKLAND DEDICATION:	178 UNITS = $766,112; FEES TO BE PAID WITH FINAL PLAT; QUAD 1

NOTES:
1. WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO, THE NEW DEVELOPMENT, ALL UTILITIES, SUCH AS CABLE TELEVISION, ELECTRICAL (EXCLUDING TRANSFORMERS), GAS, SEWER, TELEPHONE, AND WATER LINES SHALL BE PLACED UNDERGROUND.
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5. THE CONSULTANT HAS FOUND NO EVIDENCE OF THE MINERAL RIGHTS OF THIS PROPERTY BEING TRANSFERRED TO ANY PARTY OTHER THAN THE OWNER.
6. NO PROPOSED BUILDINGS IN THIS PROJECT FALL WITHIN THE 100 YEAR FLOODPLAIN, PER THE FEMA FIRM MAP NUMBER 47187C0204F, DATED SEPTEMBER 29, 2006

COF GRADING & DRAINAGE GENERAL NOTES

1. GRADING PERMIT IS REQUIRED FOR ANY PROJECT DISTURBING MORE THAN 10,000 SF, ADDING MORE THAN 5,000 SF OF IMPERVIOUS SURFACE OR FOR ANY SITE GRADING REQUIRING STOCKPILING OF MATERIAL.
2. THE DEVELOPER SHALL PROVIDE THE NECESSARY LABOR AND SUPERVISION REQUIRED TO SUPPORT FIELD TESTING BY THE INDEPENDENT TESTING FIRM AND INSPECTIONS BY CITY OFFICIALS AT NO COST TO THE CITY. TEST REPORTS OF FIELD TESTING IF APPLICABLE SHALL BE SUBMITTED DIRECTLY TO THE STREET DEPARTMENT. DEFECTS DISCLOSED BY TESTS SHALL BE RECTIFIED.
3. AN AUTHORIZED REPRESENTATIVE OF THE CITY SHALL MAKE A FINAL INSPECTION OF THE PROJECT AFTER COMPLETION TO DETERMINE ACCEPTABILITY OF THE WORK AND FOR RELEASE OF PERFORMANCE BONDS IF REQUIRED. BEFORE THIS FINAL INSPECTION CAN BE MADE, THE ENGINEER RESPONSIBLE FOR THE PROJECT SHALL CERTIFY IN WRITING TO THE CITY ENGINEER THAT THE WORK HAS BEEN COMPLETED IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.
4. DRAINAGE FACILITIES INCLUDING, BUT NOT LIMITED TO, CULVERTS, DETENTION BASINS AND DITCHES, AS WELL AS THE ROADWAY SUB-GRADE, BASE STONE AND BINDER & SURFACE COARSE SHALL BE INSPECTED, TESTED AND GIVEN APPROVAL AT EACH STAGE OF INSTALLATION PRIOR TO PROCEEDING TO THE NEXT STAGE OF CONSTRUCTION. FINAL CONSTRUCTION INSPECTION FOR APPROVAL AND ACCEPTANCE OF STREETS AND DRAINAGE SYSTEMS WILL NOT BE GRANTED UNTIL ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS.
5. LOCATING AND COORDINATION FOR THE RELOCATION OF EXISTING UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR. TENNESSEE'S ONE-CALL AND THE CITY OF FRANKLIN UTILITY LOCATION SERVICE SHALL BE UTILIZED IN ADDITION TO COORDINATION WITH LOCAL UTILITY OWNERS. THE CONTRACTOR SHALL AT ALL TIMES PROTECT EXISTING UTILITIES AND WILL BE RESPONSIBLE FOR COSTS DUE TO DAMAGE CAUSED TO ANY UTILITY LINES.

EXISTING STORMWATER NARRATIVE

STORMWATER RUNOFF FOR THIS SITE ENCOUNTERS GENTLY SLOPING GRASSED HILLSIDE THROUGHOUT THE PROPERTY. WATER CURRENTLY FLOWS VIA SHEETFLOW TO THE NORTH CORNER OF THE SITE AND ENTERS AN EXISTING HEADWALL. IT TRAVELS VIA 15" STORM PIPE TO AN EXISTING DETENTION POND BEHIND THE ADJACENT LOT 122 WHERE IT IS STORED AND EVENTUALLY RELEASED INTO SPENCER CREEK.

EXISTING DETENTION POND NOTE

PER ASPEN GROVE MEDICAL OFFICE BUILDING PLANS, THE EXISTING DETENTION POND HAS BEEN DESIGNED AND CONSTRUCTED TO SERVE THE 101 COOL SPRINGS DEVELOPMENT
DESIGNED STORAGE CAPACITY +/- 31,000 CF
EXISTING POND PER SURVEY COMPLETED BY CEC DATED 9/14/2022:
AS-BUILT STAGE STORAGE CAPACITY: +/- 31,441 CF

GRAPHIC SCALE IN FEET
0 25 50 100

NORTH

Kimley»Horn
4031 Aspen Grove Dr Suite 200, TN 37067
Main: 615.564.2701 | www.kimley-horn.com
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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER REGISTERED PROFESSIONAL ENGINEER 100882 STATE OF TENNESSEE 2023-05-04

No	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023
KIMLEY-HORN PROJECT NO.	118479000

OVERALL GRADING & DRAINAGE PLAN

SHEET NUMBER
C3.0

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

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3. CONSTRUCTION MATERIALS SHALL BE FULLY TESTED IN ACCORDANCE WITH THE DESIGNATIONS AND REQUIREMENTS WITHIN THE REFERENCED "TDOT STANDARD SPECIFICATIONS" SECTIONS, UNLESS OTHERWISE NOTED WITHIN THE "STANDARD SPECIFICATIONS" SECTION OF THE CITY OF FRANKLIN TRANSPORTATION & STREET TECHNICAL STANDARDS.
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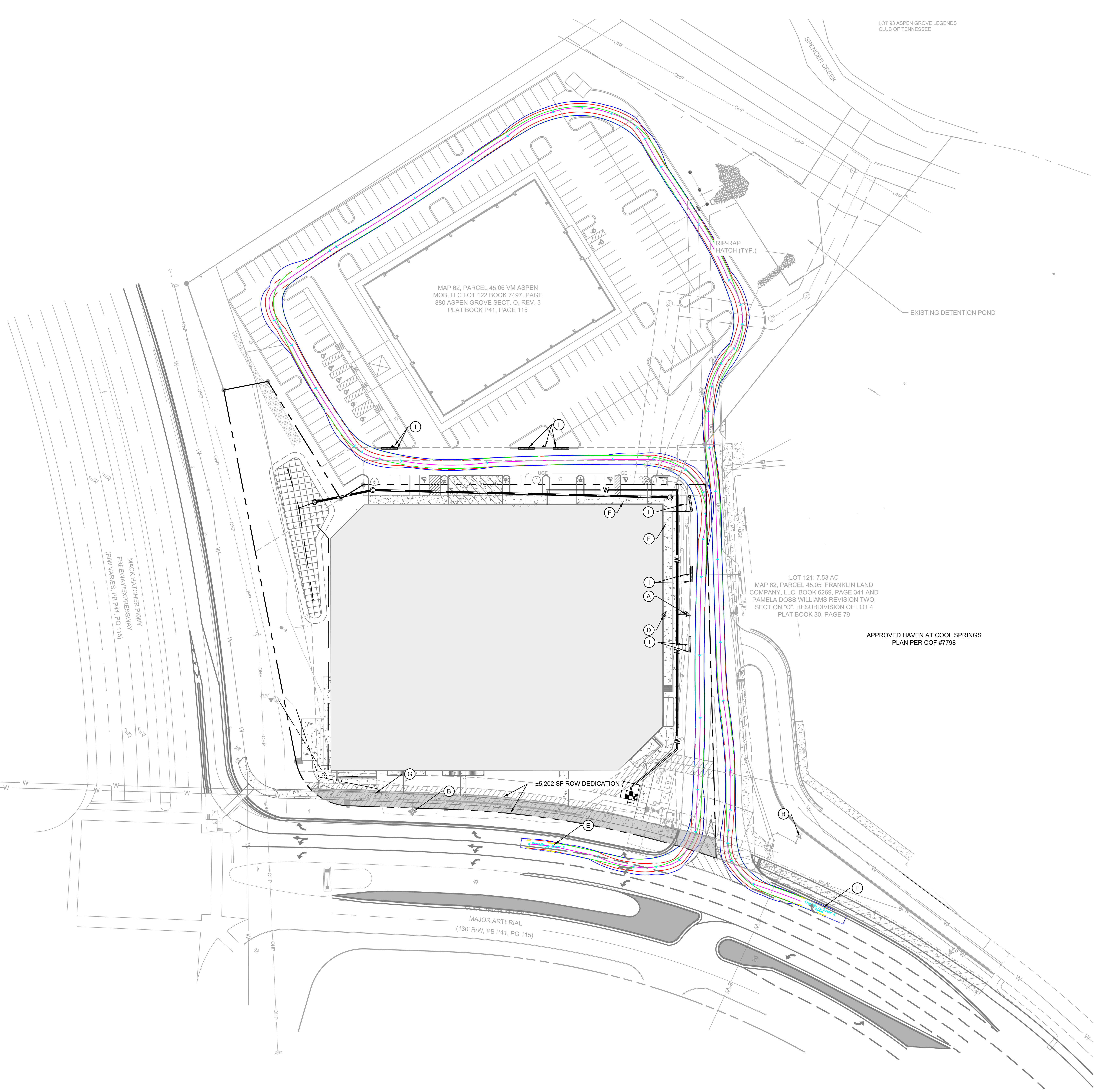

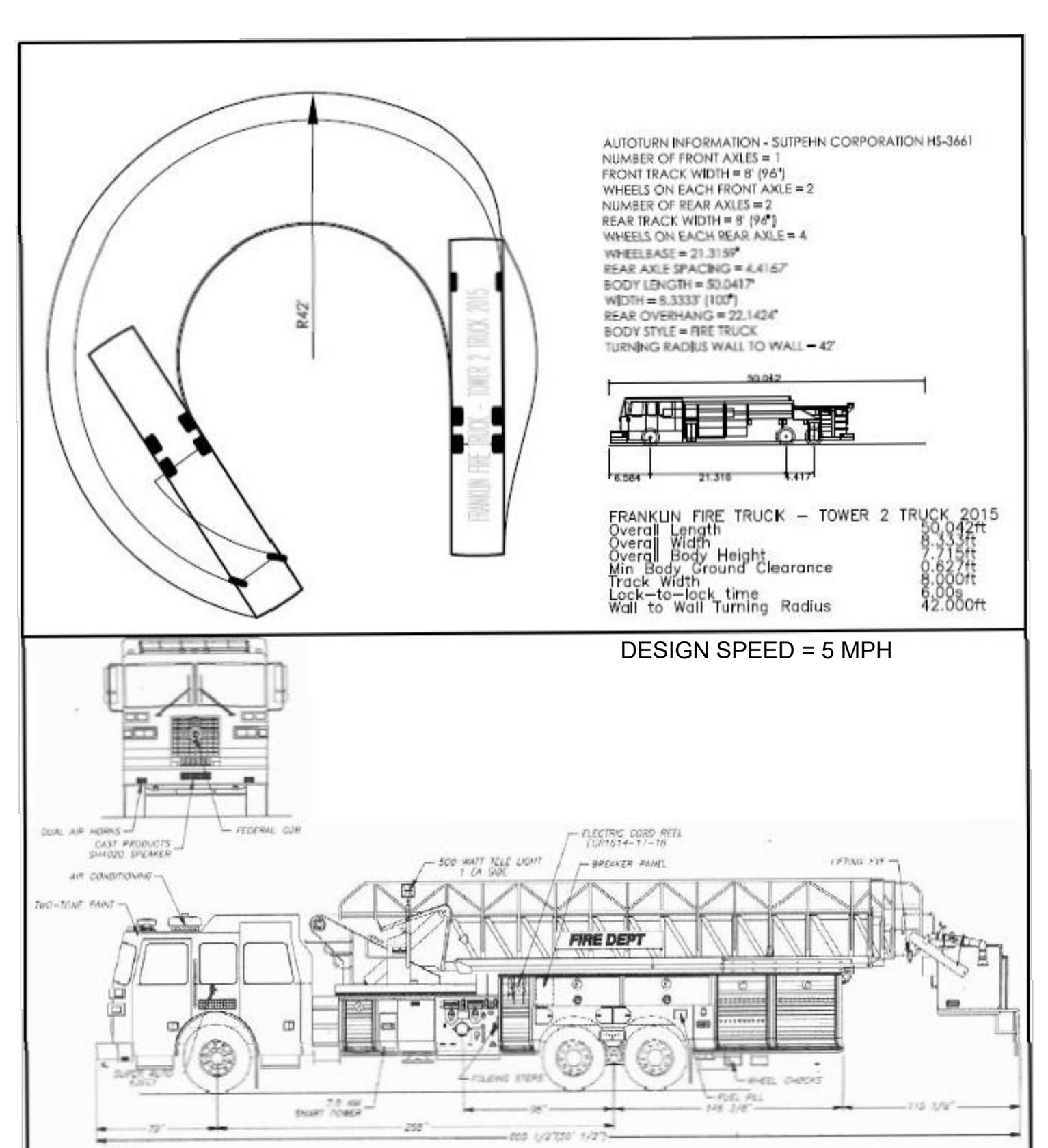

TOWER 2
AUTOTURN TRUCK

CITY OF FRANKLIN ENGINEERING
109 THIRD AVE SOUTH
FRANKLIN, TN 37064

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CONTACT NAME:	GREG GAMBLE, RLA
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BUILDING SQUARE FOOTAGE:	504,490 SF
STORIES:	6
DENSITY:	178 UNITS: 61.3 DUA
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VEHICLE LEGEND

- VEHICLE FENDER PATH
- VEHICLE FRONT WHEEL PATH
- VEHICLE REAR WHEEL PATH

STATEMENT OF IMPACTS

ACCESS TO THE DEVELOPMENT WILL BE PROVIDED FROM A PRIVATE DRIVE THAT IS PERPENDICULAR TO COOL SPRINGS BOULEVARD. ACCESS TO THE PARKING GARAGE IS AVAILABLE OFF THE PERPENDICULAR PRIVATE DRIVE TOWARDS THE NORTH CORNER OF THE DEVELOPMENT. THE PROPOSED SITE TO THE EAST WILL HAVE FULL ACCESS FROM THE PRIVATE DRIVE.

KEYNOTE LEGEND

- (A) PROPOSED FIRE HYDRANT ASSEMBLY
- (B) EXISTING FIRE HYDRANT ASSEMBLY
- (C) FIRE LANE STRIPING, SEE ARCH. SHEETS FOR DETAILS
- (D) STANDPIPE (TYP.) / WALL FIRE HYDRANT
- (E) FRANKLIN T-2 SUTPHEN FIRE TRUCK
- (F) BUILDING MAIN ENTRY
- (G) DEDICATED ROW
- (H) APPROVED PROPOSED FIRE HYDRANT ASSEMBLY COF #7798
- (I) NO PARKING SIGN (TYP.) AND FIRE LANE MARKINGS PER COF SPECIFICATIONS

SITE LEGEND

- PROPOSED SANITARY SEWER PIPE
- PROPOSED WATER MAIN
- PROPOSED STORM PIPE
- EXISTING SANITARY SEWER PIPE
- EXISTING WATER MAIN
- EXISTING GAS MAIN
- EXISTING STORM PIPE
- LIMITS OF DISTURBANCE
- FIRE HYDRANT
- STANDPIPE/WALL HYDRANT

FIRE LANE STRIPPING

FIRE LANES SHALL BE MARKED WITH SIGNS ADJACENT TO THE CURB AND PAVEMENT MARKINGS READING "FIRE LANE - NO PARKING" VISIBLE FROM THE NORMAL LANE OF TRAFFIC AND PAINTED YELLOW OR WHITE AS APPROVED BY THE FIRE MARSHAL. A MAXIMUM OF 50-FEET ALTERNATING BETWEEN SIGNS AND PAVEMENT MARKINGS SHALL BE REQUIRED ALONG THE ENTIRE LENGTH OF THE FIRE LANE. PLACEMENT SUBJECT TO APPROVAL BY THE FIRE MARSHAL. SIZE OF LETTERING ON PAVEMENT SHALL BE 18-INCHES HIGH WITH A 3-INCH BRUSH STROKE.

FIRE FLOW TEST

FIRE FLOW TEST REQUEST AWAITING THE COMPLETION OF THE NEW 12" AND 24" WATER LINE ALONG COOL SPRINGS BOULEVARD.

GRAPHIC SCALE IN FEET
0 25 50 100

NORTH

Kimley»Horn
4031 Aspen Grove Dr Suite 200, TN 37067
Main: 615.564.2701 | www.kimley-horn.com
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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER REGISTERED ENGINEER AGRICULTURE COMMERCE NO. 108982 STATE OF TENNESSEE 2023-05-04

No.	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023

KIMLEY-HORN PROJECT NO. 118479000

ROW AND ACCESS-FIRE

SHEET NUMBER
C4.1

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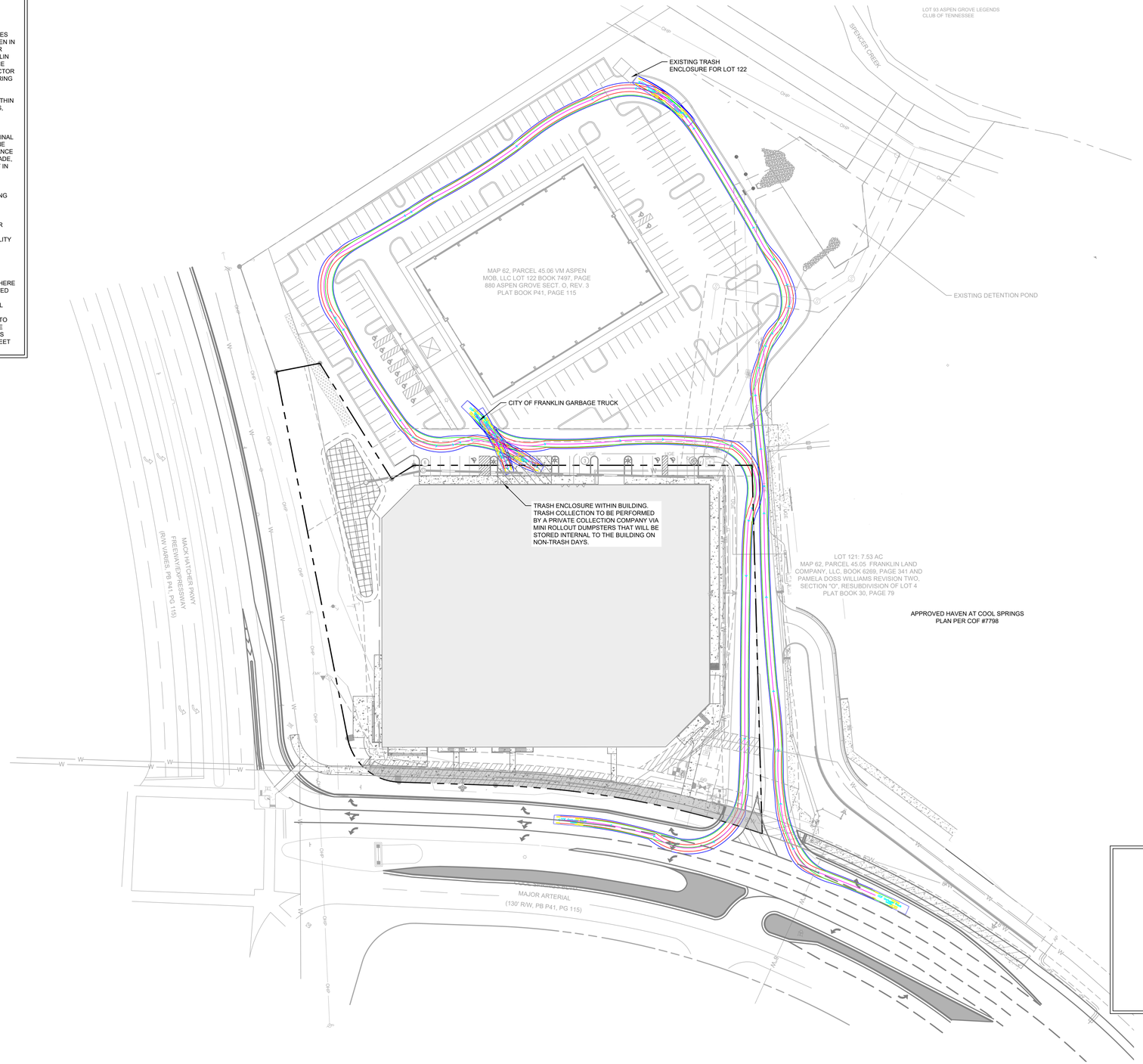

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6. NO PROPOSED BUILDINGS IN THIS PROJECT FALL WITHIN THE 100 YEAR FLOODPLAIN, PER THE FEMA FIRM MAP NUMBER 47187C0204F, DATED SEPTEMBER 29, 2006

VEHICLE LEGEND

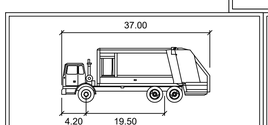
- VEHICLE FENDER PATH
- VEHICLE FRONT WHEEL PATH
- VEHICLE REAR WHEEL PATH

STATEMENT OF IMPACTS

ACCESS TO THE DEVELOPMENT WILL BE PROVIDED FROM A PRIVATE DRIVE THAT IS PERPENDICULAR TO COOL SPRINGS BOULEVARD. ACCESS TO THE PARKING GARAGE IS AVAILABLE OFF THE PERPENDICULAR PRIVATE DRIVE TOWARDS THE NORTH CORNER OF THE DEVELOPMENT. THE PROPOSED SITE TO THE EAST WILL HAVE FULL ACCESS FROM THE PRIVATE DRIVE.

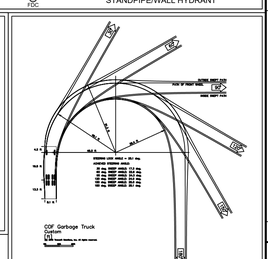
SITE LEGEND

- SS — PROPOSED SANITARY SEWER PIPE
- W — PROPOSED WATER MAIN
- PROPOSED STORM PIPE
- SS — EXISTING SANITARY SEWER PIPE
- W — EXISTING WATER MAIN
- G — EXISTING GAS MAIN
- ST — EXISTING STORM PIPE
- LOD — LIMITS OF DISTURBANCE
- FH — FIRE HYDRANT
- FDC — STANDPIPE/WALL HYDRANT



COF Garbage Truck

	feet
Width	: 8.10
Track	: 6.50
Lock to Lock Time	: 6.0
Steering Angle	: 25.1



TRASH COLLECTION NOTE

TRASH COLLECTION TO BE PERFORMED BY A PRIVATE COLLECTION COMPANY VIA MINI ROLLOUT DUMPSTERS THAT WILL BE STORED INTERNAL TO THE BUILDING ON NON-TRASH DAYS.

GRAPHIC SCALE IN FEET
0 25 50 100

NORTH

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Main: 615.564.2701 | www.kimley-horn.com

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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION

FRANKLIN, TENNESSEE

RYAN McMASTER REGISTERED ENGINEER AGENT COMMERCE No. 109982 STATE OF TENNESSEE
2023-05-04

No.	REVISIONS	DATE	BY
1			
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8			
9			
10			

DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023

KIMLEY-HORN PROJECT NO. 118479000

ROW AND ACCESS- SOLID WASTE

SHEET NUMBER
C4.2

COF #8157

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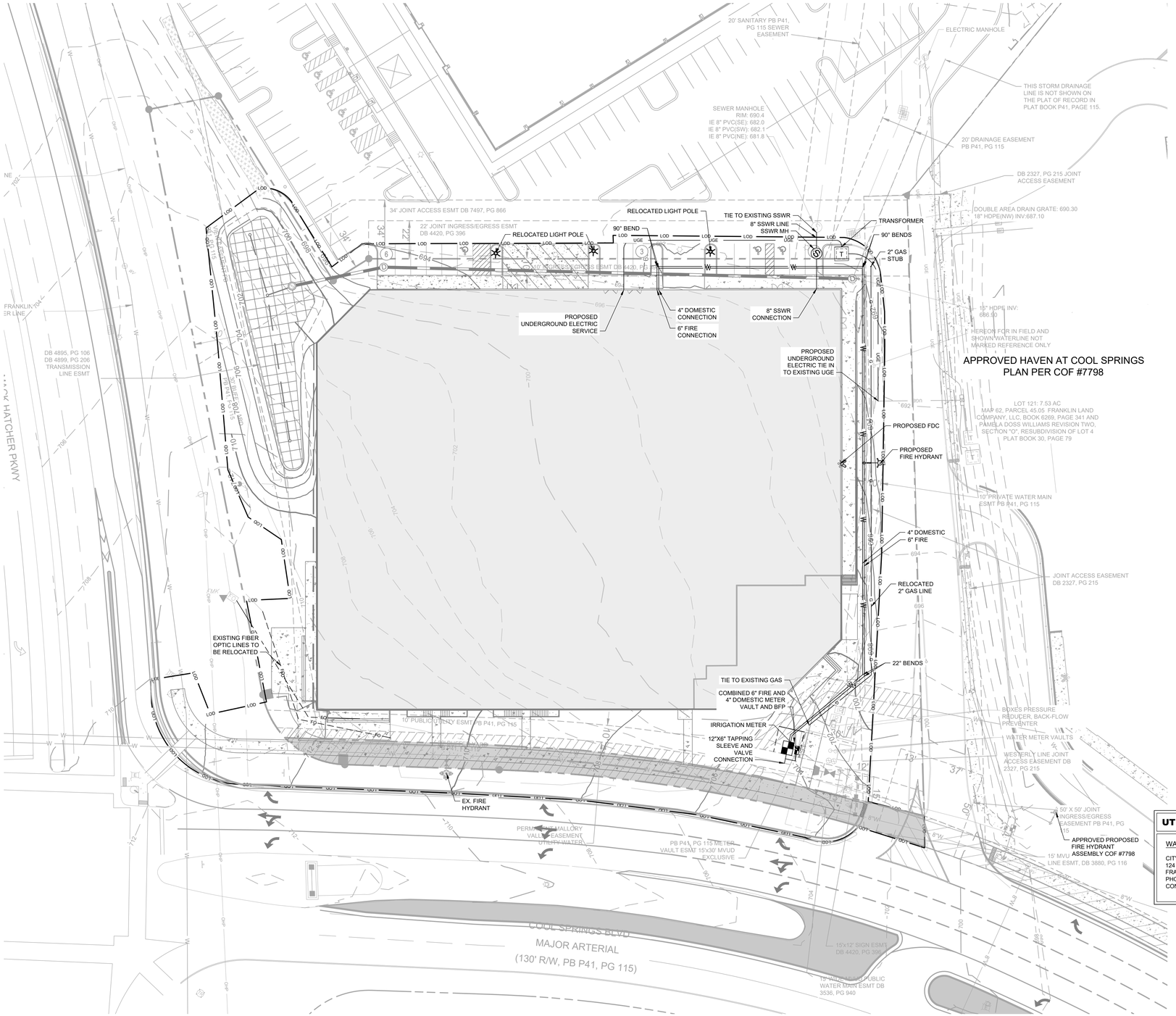

SITE DATA TABLE

PROJECT NAME:	101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
COF PROJECT #:	8157
MAP:	MAP #94062G
PARCEL #:	062---04510
ADDRESS:	101 COOL SPRINGS BLVD
CITY:	FRANKLIN
COUNTY:	WILLIAMSON
STATE:	TENNESSEE
CIVIL DISTRICT:	10TH CIVIL DISTRICT
EXISTING ZONING:	RC-6 REGIONAL COMMERCE 6
PROPOSED ZONING:	PD-PLANNED DISTRICT (61.3 DUA/3,362 SF COMMERCIAL)
OTHER APPLICABLE OVERLAYS:	500' BUFFER OF HILLSIDE OVERLAY
DESIGN STANDARD:	REGIONAL COMMERCE
ACREAGE OF LOT 123:	2.906 ACRES
ACREAGE OF ACCESS ESMT:	0.77 ACRES
TOTAL ACREAGE OF SITE:	2.906 ACRES
TOTAL SQUARE FOOTAGE OF SITE:	126,583 SF
OWNERS:	CSLP GP
ADDRESS:	85 SOUTH SERVICE RD PLAINVIEW, NY 10803
PHONE:	631-414-8484
EMAIL:	mr@mrechler.com
CONTACT NAME:	MITCHELL RECHLER
APPLICANT:	GAMBLE DESIGN COLLABORATIVE (GDC)
ADDRESS:	3020 STANSBERRY LANE, SUITE 201 FRANKLIN, TN 37069
PHONE:	615-975-5765
EMAIL:	GREG.GAMBLE@GDC-TN.COM
CONTACT NAME:	GREG GAMBLE, RLA
BUILDING SETBACKS:	15' FRONT, 15' SIDE AND REAR
BUILDING SQUARE FOOTAGE:	504,490 SF
STORIES:	6
DENSITY:	178 UNITS; 61.3 DUA
BUILDING CONSTRUCTION TYPE:	TYPE VA OVER PODIUM TYPE 1A
MAXIMUM BUILDING HEIGHT:	70' - 0" PER 2018 IBC
PROPOSED MAX. BUILDING HEIGHT:	68' - 6" (SEE ARCH PLANS)
MINIMUM LANDSCAPE SURFACE RATIO:	20%
PROVIDED LANDSCAPE SURFACE RATIO:	34.5%; 43,746 SF
APARTMENT PARKING REQUIRED:	311 SPACES 1.5 SPACES PER 1 BEDROOM (134 UNITS) 2.5 SPACES PER 2 BEDROOM (44 UNITS)
COMMERCIAL PARKING REQUIRED	11 SPACES 3.33 SPACES PER 1000 SF (3,362 SF)
TOTAL PARKING REQUIRED:	322 SPACES
TOTAL SHARED PARKING REQUIRED:	297 SPACES (25 SPACE REDUCTION) (SEE SHARED PARKING STUDY)
EXISTING PARKING:	0 SPACES
TOTAL PARKING PROVIDED:	315 TOTAL SPACES (300 IN GARAGE; 15 EXTERIOR)
PARKLAND DEDICATION:	178 UNITS = $766,112; FEES TO BE PAID WITH FINAL PLAT; QUAD 1

NOTES:
1. WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO, THE NEW DEVELOPMENT, ALL UTILITIES, SUCH AS CABLE TELEVISION, ELECTRICAL (EXCLUDING TRANSFORMERS), GAS, SEWER, TELEPHONE, AND WATER LINES SHALL BE PLACED UNDERGROUND.
2. THIS SITE PLAN HAS BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE CITY OF FRANKLIN STANDARDS AND THE APPROVAL OF PLANNING COMMISSION. CHANGES SHALL NOT BE MADE TO THE APPROVED SITE PLAN UNLESS APPROVED BY EITHER RELEVANT DEPARTMENT SUPERINTENDENT OR THE PLANNING COMMISSION.
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6. NO PROPOSED BUILDINGS IN THIS PROJECT FALL WITHIN THE 100 YEAR FLOODPLAIN, PER THE FEMA FIRM MAP NUMBER 47187C0204F, DATED SEPTEMBER 29, 2006

UTILITY NOTES

1. ALL PERSONS WHO UNDERTAKE THE CONSTRUCTION OF WATER, SEWER AND/OR RECLAIMED WATER LINES LOCATED IN, OR AFFECTING SERVICES PROVIDED BY THE CITY OF FRANKLIN SHALL COMPLY WITH THE REQUIREMENTS AND REGULATIONS SET FORTH IN THE "GENERAL REQUIREMENTS & TECHNICAL SPECIFICATIONS, WATER MANAGEMENT DEPARTMENT, CITY OF FRANKLIN, TENNESSEE" LATEST EDITION, ALONG WITH ANY AMENDMENTS, ADDITIONS, OR ALTERATION THAT MAY THEREAFTER BE ADOPTED BY THE BOARD OF MAYOR AND ALDERMEN BY RESOLUTION.
2. CONTRACTOR SHALL OBTAIN WATER & SEWER INFRASTRUCTURE INSTALLATION PERMIT PRIOR TO SCHEDULING REQUIRED PRE-CONSTRUCTION SITE MEETING. CONTRACTOR SHALL COMPLETE THE PRECONSTRUCTION SITE MEETING PRIOR TO COMMENCING WITH CONSTRUCTION.
3. CONTRACTOR SHALL OBTAIN AND KEEP ALL OF THE FOLLOWING ITEMS ON THE JOBSITE AT ALL TIMES DURING CONSTRUCTION:
   a. APPROVED, STAMPED AND SIGNED WATER AND/OR SEWER PLANS
   b. WATER & SEWER INFRASTRUCTURE INSTALLATION PERMIT, WITH ALL STEPS COMPLETED AND SIGNED BY APPROPRIATE CITY EMPLOYEES.
   c. COPY OF APPROVED AVAILABILITY REQUEST RESPONSE LETTER.
   d. A COPY OF ALL APPROVED CUT SHEETS.
4. ACCEPTANCE OF CITY OF FRANKLIN PUBLIC WATER INFRASTRUCTURE, SANITARY SEWER INFRASTRUCTURE AND/OR RECLAIMED WATER INFRASTRUCTURE SHALL BECOME THE RESPONSIBILITY OF THE CITY OF FRANKLIN, TN FOLLOWING APPROVAL FROM THE CITY OF FRANKLIN INSPECTORS AND ACCEPTANCE BY THE FRANKLIN MUNICIPAL PLANNING COMMISSION. THE ACCEPTANCE DATE SHALL BE BASED ON THE DAY MAINTENANCE SURETIES ARE ESTABLISHED BY THE FRANKLIN MUNICIPAL PLANNING COMMISSION.
5. PRIOR TO THE ACCEPTANCE OF CITY OF FRANKLIN PUBLIC WATER INFRASTRUCTURE, SANITARY SEWER INFRASTRUCTURE AND/OR RECLAIMED WATER INFRASTRUCTURE THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT AS-BUILT DRAWINGS TO THE PLANNING AND SUSTAINABILITY DEPARTMENT.
6. ALL OFF-SITE WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REQUIRE AN APPROVED TRAFFIC CONTROL PLAN WHICH COMPLIES WITH THE MUTCD. NO OFF-SITE EXCAVATION MAY BE UNDERTAKEN IN ANY STREET, ROAD, ALLEY OR RIGHT-OF-WAY OF ANY UTILITY OR TEMPORARY CONSTRUCTION EASEMENT OF THE CITY OF FRANKLIN BY ANY ENTITY UNLESS 72-HOUR NOTICE HAS BEEN GIVEN TO THE CITY OF FRANKLIN TRAFFIC OPERATIONS CENTER. THE CONTRACTOR SHALL HAVE AN APPROVED TRAFFIC CONTROL PLAN ONSITE DURING CONSTRUCTION.
7. ANY DAMAGES CAUSED TO EXISTING UTILITIES DURING CONSTRUCTION SHALL, AT HIS OWN EXPENSE, BE REPLACED OR REPAIRED TO ORIGINAL CONDITION AND QUALITY, AS APPROVED BY THE OWNER AND REPRESENTATIVE OF THE APPROPRIATE UTILITY COMPANY, BY THE CONTRACTOR.

UTILITY CONTACTS

WATER

CITY OF FRANKLIN
124 LUMBER DR.
FRANKLIN, TN 37064
PHONE: (615) 794-4554
CONTACT: UTILITY INSPECTOR

UTILITY LAYOUT NOTE

DETAILS AND LAYOUT OF UTILITIES SHOWN GRAPHICALLY ON THIS PLAN ARE SUBJECT TO CHANGE BETWEEN DEVELOPMENT PLAN AND SITE PLAN SUBMITTALS.

EXISTING UTILITIES NOTE

CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES AND/OR CONFLICTS WITH EXISTING OR PROPOSED UTILITIES PRIOR TO PROCEEDING. COF PARTICIPATES IN 811/TN ONE CALL. CONTACT COF WATER/SEWER DEPT. FOR LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

WATER INFRASTRUCTURE NOTE

WATER LAYOUT SHOWN ON THIS PLAN IS CONCEPTUAL. REFER TO FINAL DRAWINGS PROVIDED BY MALLORY VALLEY UTILITY DISTRICT FOR CONSTRUCTION.

FIRE FLOW TEST

FIRE FLOW TEST REQUEST AWAITING THE COMPLETION OF THE NEW 12" AND 24" WATER LINE ALONG COOL SPRINGS BOULEVARD.

GRAPHIC SCALE IN FEET
0 15 30 60

NORTH

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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER LICENSED PROFESSIONAL ENGINEER AGREEMENT NO. 10 COMMERCE STATE OF TENNESSEE 2023-05-04

No.	REVISIONS	DATE	BY
1			
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DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023

KIMLEY-HORN PROJECT NO. 118479000

OVERALL UTILITY PLAN

SHEET NUMBER
C5.0

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TREE CANOPY RETENTION

OVERALL SITE AREA = 126,583 SF (2.906 AC)

EXISTING TREE CANOPY
0 (AC) 0 SF

NO EXISTING TREE CANOPY ON SITE

FIVE EXISTING CANOPY TREES TO BE REMOVED FROM INGRESS/EGRESS EASEMENT ALONG THE NORTH PROPERTY LINE.

0 30 60 90

GAMBLE DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

101 COOL SPRINGS BOULEVARD DEVELOPMENT PLAN

Franklin, Williamson County, Tennessee

GREGORY C. GAMBLE
TENNESSEE
REGISTERED
LANDSCAPE ARCHITECT
5423

DATE: APRIL 10, 2023

Revision Date
1. May 4, 2023
2.
3.
4.

TREE PRESERVATION PLAN
SHEET
L1.0

COF # 8157





VIEWS ALONG COOL SPRINGS BLVD.





GAMBLE DESIGN COLLABORATIVE

DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

906

101 COOL SPRINGS BLVD
DEVELOPMENT PLAN
Franklin, Williamson County, Tennessee

Revision Date

DEVELOPMENT PLAN

SHEET

A1.0

COF # XXXX



VIEW ALONG COOL SPRINGS BLVD.



VIEW ALONG COOL SPRINGS BLVD.



VIEW ALONG MACK HATCHER MEM. PKWY.



COOL SPRINGS BLVD. AND MACK HATCHER MEM. PKWY.

GAMBLE DESIGN COLLABORATIVE

DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

906

101 COOL SPRINGS BLVD DEVELOPMENT PLAN

Franklin, Williamson County, Tennessee

Revision Date

DEVELOPMENT PLAN

SHEET

A1.2

COF # XXXX



VIEW ALONG MACK HATCHER MEM. PKWY.



COOL SPRINGS BLVD. AND MACK HATCHER MEM. PKWY.



COOL SPRINGS BLVD. AND MACK HATCHER MEM. PKWY.



VIEW ALONG COOL SPRINGS BLVD.

GAMBLE DESIGN COLLABORATIVE

DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

906

101 COOL SPRINGS BLVD
DEVELOPMENT PLAN

Franklin, Williamson County, Tennessee

Revision Date

DEVELOPMENT PLAN

SHEET

A1.3

COF # XXXX



VIEW AT ACCESS ROAD AT BACK OF BUILDING



VIEW AT BACK OF BUILDING



VIEW ALONG MACK HATCHER MEM. PKWY. TOWARDS COOL SPRINGS BLVD.



VIEW ALONG COOL SPRINGS BLVD.

GAMBLE DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

906

101 COOL SPRINGS BLVD
DEVELOPMENT PLAN
Franklin, Williamson County, Tennessee

Revision Date
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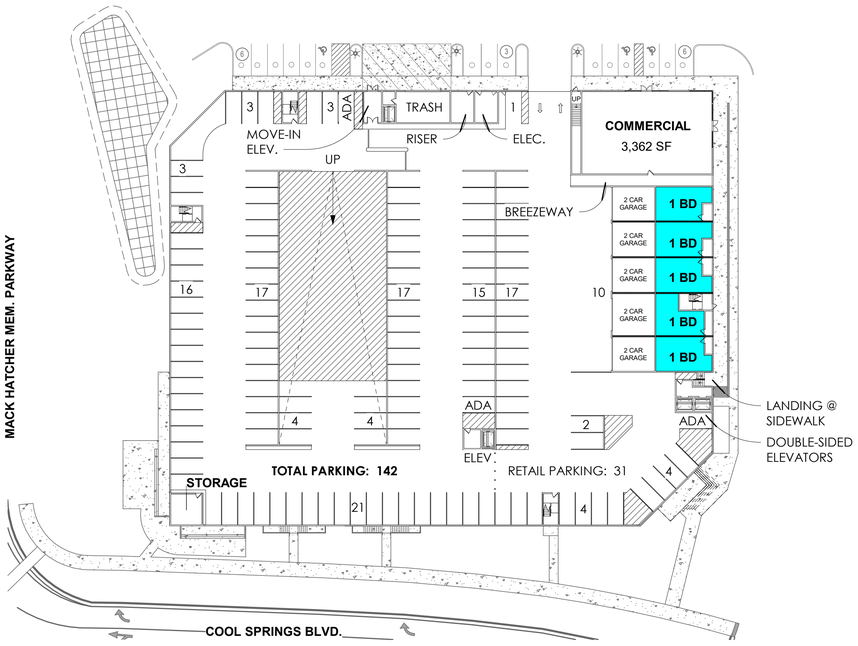
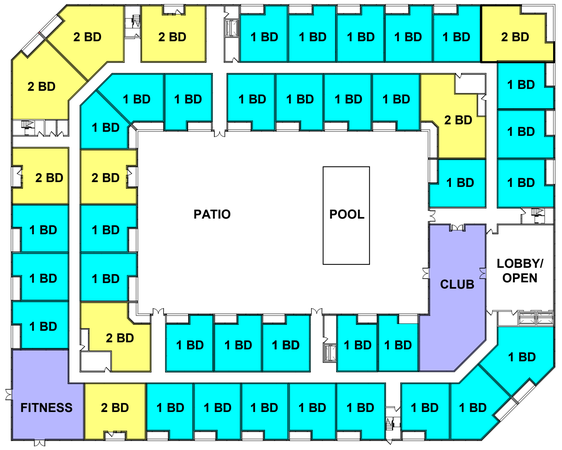
DEVELOPMENT PLAN
SHEET
A1.4
COF # XXXX



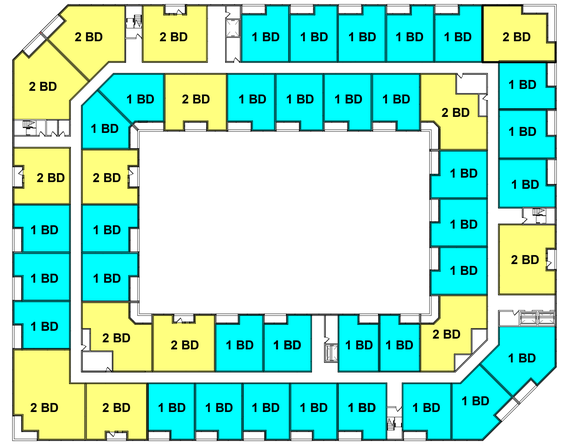
GARAGE LEVEL 1 (692'-0")

1" = 40'-0"



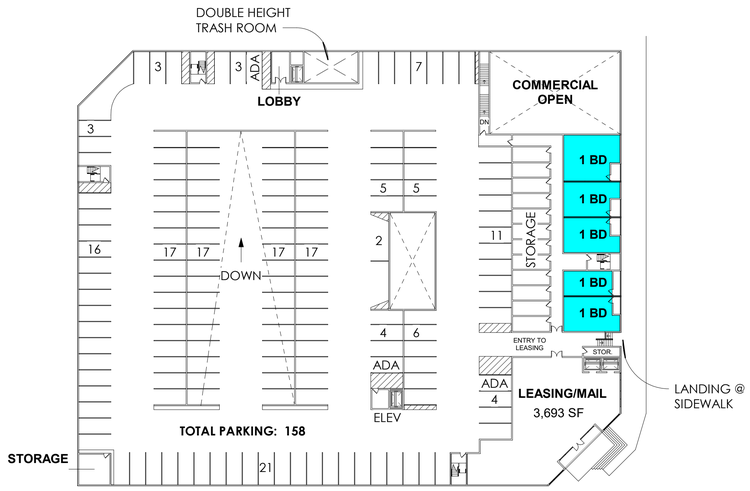
UNIT LEVEL 1 (714'-0")

1" = 40'-0"



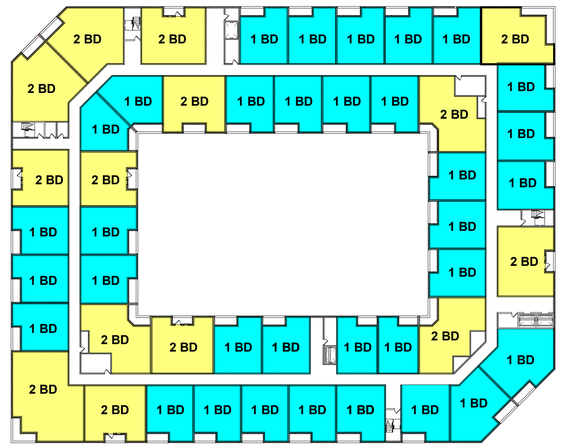
UNIT Level 3 (736'-0")

1" = 40'-0"



GARAGE LEVEL 2 (703'-0")

1" = 40'-0"



UNIT Level 2 (725'-0")

1" = 40'-0"



UNIT Level 4 (747'-0")

1" = 40'-0"

GAMBLE DESIGN COLLABORATIVE

DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

101 COOL SPRINGS BLVD
DEVELOPMENT PLAN
Franklin, Williamson County, Tennessee

Revision Date

DEVELOPMENT PLAN

SHEET

A1.5

COF # XXXX

Traffic Impact Study

101 Cool Springs Boulevard

May 2023

FOR SUBMITTAL TO:

City of Franklin, Tennessee

PREPARED FOR:

Rechler Equity Development LLC

Kimley»Horn

Traffic Impact Study

101 Cool Springs Boulevard

FOR SUBMITTAL TO:

City of Franklin, Tennessee

PREPARED FOR:

Rechler Equity Development LLC

PREPARED BY:

Kimley»Horn

4031 Aspen Grove Drive

Franklin, Tennessee 37067

615.564.2701

May 2023

Project Number 118479000



Kimley»Horn

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1.0 EXECUTIVE SUMMARY

This traffic study re-evaluated the anticipated traffic impacts associated with the *101 Cool Springs Boulevard* development, which is expected to be completed in 2025 (referred to herein as build-out year). As currently envisioned, the development will consist of multifamily housing with approximately 178 dwelling units and 3,500 SF of retail space. The approximate 2.91-acre site is located north of Cool Springs Boulevard and east of Mack Hatcher Parkway within the City of Franklin, Tennessee. The development of the 101 Cool Springs Boulevard site was previously evaluated as a 60,000 sf office complex and included in the Join TIA prepared for the 101, 151 and 201 Cool Springs Boulevard sites. Due to the change in land uses proposed for the 101 Cool Springs Boulevard Site and a slight increase in the expected trip generation, a re-evaluation was requested by the City of Franklin.

The following scenarios were considered in this analysis:

- Existing 2023 Conditions
- Projected 2025 No-Build Conditions
- Projected 2025 Build Conditions
- Projected 2030 No-Build Horizon Conditions
- Projected 2030 Build Horizon Conditions

The study network for this analysis includes the following intersections:

1. Mack Hatcher Parkway and Cool Springs Boulevard
2. Cool Springs Boulevard at Site Driveway/Commercial Driveway
3. Cool Springs Boulevard at Windcross Court
4. Cool Springs Boulevard at McEwen Drive

The proposed development will be served by two driveways:

- Right-in/right-out (RIRO) driveway along Cool Springs Boulevard approximately 475’ east of Mack Hatcher Parkway – currently full access driveway which will be converted to RIRO with other developments and is assumed to be in place by the Projected 2025 No-Build conditions.
- Extension of Windcross Court to become the north leg of the existing signalized intersection also to be completed by others and assumed in place by the Projected 2025 No-Build conditions.

1.1 NO-BUILD IMPROVEMENT RECOMMENDATIONS

The following development improvements are recommended to serve the Projected 2025 No-Build traffic conditions (Note: this would be the improvements needed to serve the background traffic and is unrelated to the *101 Cool Springs Boulevard* development).

- All Intersections
    - It is recommended for the City to continue to monitor actual traffic patterns and volumes and develop updated signal timing plans in order to optimize intersection operations and minimize delays and queue as approved developments continue to develop in the area

1.2 DEVELOPMENT IMPROVEMENT RECOMMENDATIONS

The following development improvements are recommended to serve the Projected 2025 Build traffic conditions (Note: this would be the improvements needed to serve the traffic associated with the *101 Cool Springs Boulevard* development).

- Intersection 1 – Mack Hatcher Parkway at Cool Springs Boulevard
    - Replace all existing traffic signal backplates with new retroreflective yellow backplates
    - Extend the existing concrete channelized island for the westbound right-turn movement to the north to provide barrier separation for the free-flow slip lane traveling west along Cool Springs Boulevard to north along Mack Hatcher Parkway
    - Extend the westbound left-turn lane to provide 735’ of storage
- Intersection 2 – Cool Springs Boulevard at Site Driveway
    - With the extension of the westbound left-turn lane at the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1), provide an additional turn lane pocket to provide 100’ of storage for the westbound left-turn movement at Cool Springs Boulevard at Site Driveway (Intersection 2).
- Intersection 3 – Cool Springs Boulevard at Windcross Court
    - Extend the eastbound left-turn lane to provide 340’ of storage
- Note: A concept graphic illustrating the recommended improvements is provided in **Appendix A**.

2.0 INTRODUCTION

This report presents the re-evaluation of the anticipated traffic impacts associated with the *101 Cool Springs Boulevard* development, which is expected to be completed in 2025 (referred to herein as build-out year). As currently envisioned, the development will consist of multifamily housing with approximately 178 dwelling units and 3,500 SF of retail space. The approximate 2.91-acre site is located north of Cool Springs Boulevard and east of Mack Hatcher Parkway within the City of Franklin, Tennessee. The development of the 101 Cool Springs Boulevard site was previously evaluated as a 60,000 sf office complex and included in the Join TIA prepared for the 101, 151 and 201 Cool Springs Boulevard sites. Due to the change in land uses proposed for the 101 Cool Springs Boulevard Site and a slight increase in the expected trip generation, a re-evaluation was requested by the City of Franklin.

This report will summarize the analyses of the following scenarios:

- Existing 2023 Conditions
- Projected 2025 No-Build Conditions
- Projected 2025 Build Conditions
- Projected 2030 No-Build Horizon Conditions
- Projected 2030 Build Horizon Conditions

The study network for this analysis includes the following intersections:

1. Mack Hatcher Parkway and Cool Springs Boulevard
2. Cool Springs Boulevard at Site Driveway/Commercial Driveway
3. Cool Springs Boulevard at Windcross Court
4. Cool Springs Boulevard at McEwen Drive

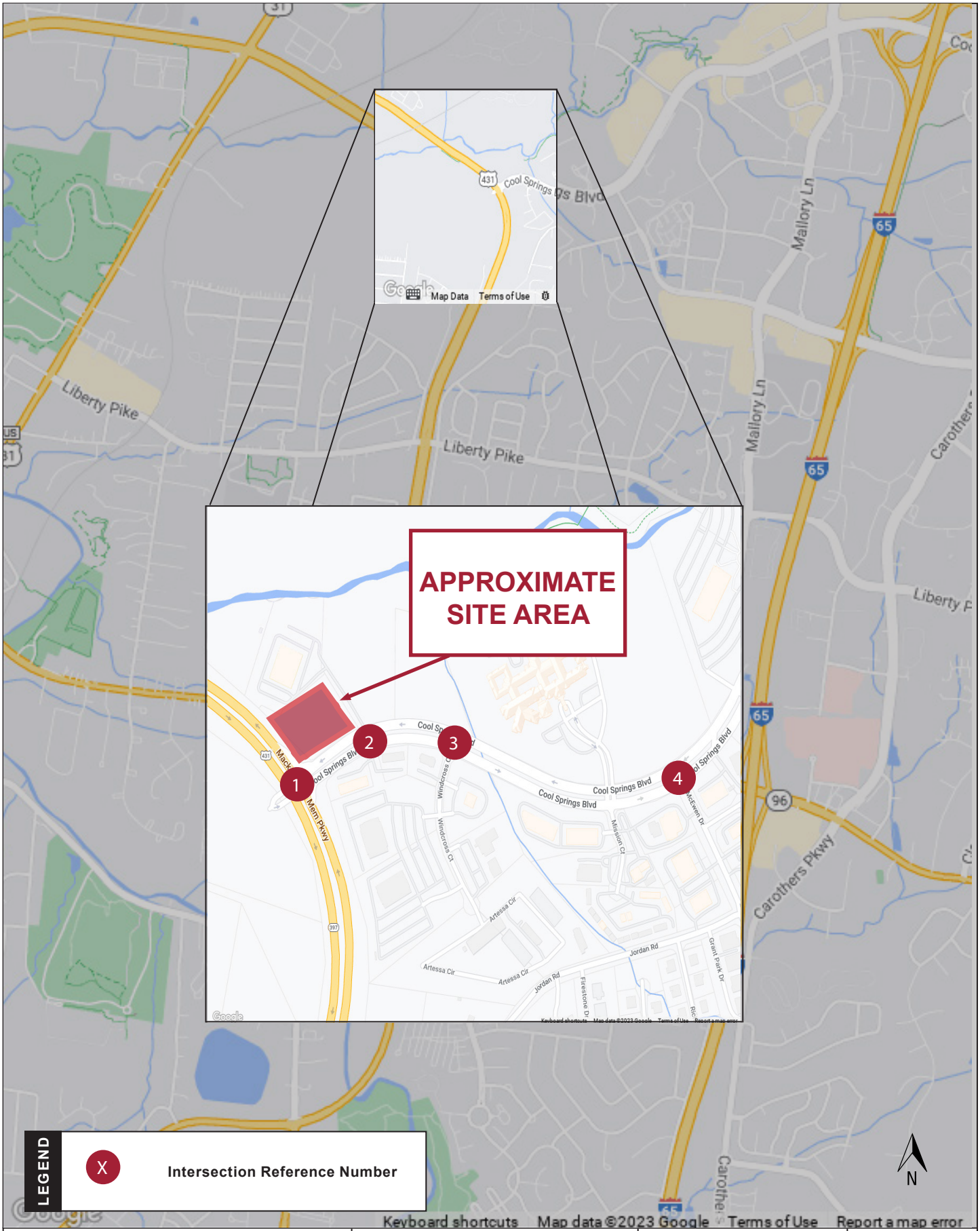
The proposed development will be served by two driveways:

- Right-in/right-out (RIRO) driveway along Cool Springs Boulevard approximately 475’ east of Mack Hatcher Parkway – currently full access driveway which will be converted to RIRO with other developments and is assumed to be in place by the Projected 2025 No-Build conditions.
- Extension of Windcross Court to become the north leg of the existing signalized intersection also to be completed by others and assumed in place by the Projected 2025 No-Build conditions.

For the purposes of this traffic impact study, Cool Springs Boulevard is considered to have an east-west orientation. Mack Hatcher Parkway, Windcross Court, McEwen Drive, Commercial Driveway, and the existing site driveway are considered to have a north-south orientation.

Figure 1 provides a location map of the project site. **Figure 2** provides an aerial image of the project site.

A site plan is also included in **Appendix A**.



Kimley»Horn	101 Cool Springs Boulevard TIS	Site Location Map	Figure 1

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Kimley»Horn	101 Cool Springs Boulevard TIS	Site Aerial	Figure 2

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3.0 EXISTING CONDITIONS

3.1 VEHICULAR NETWORK

Characteristics for the roadways within the study are summarized in **Table 1**. The existing road geometry is illustrated in **Figure 3.**

Table 1: Roadway Network				
Roadway	**Number of Lanes**	**Posted Speed Limit (MPH)**	**Functional Classification**	**2022 TDOT AADT**
Cool Springs Boulevard	4	40	Major Arterial	25,793
Mack Hatcher Parkway	4	45	Freeway/Expressway	29,532
Windcross Court	2	N/A	Local	N/A
McEwen Drive	4	30	Major Arterial	12,411

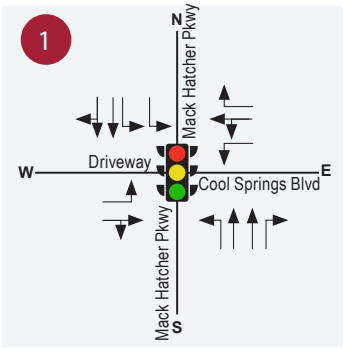
3.2 VEHICULAR VOLUMES

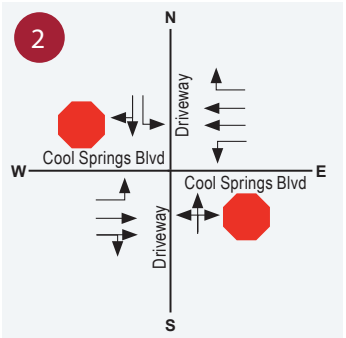
Vehicle peak hour turning movement counts (TMCs) were determined from multiple sources. New traffic counts were collected for the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1) on September 13, 2022. 2020 turning movement counts provided in the Cool Springs Transportation Study (CSTS) model were used as the base for existing counts at the intersections of Cool Springs Boulevard at Windcross Court (Intersection 3) and Cool Springs Boulevard at McEwen Drive (Intersection 4). Based on conversations with City of Franklin traffic engineering staff, the 2020 counts were considered as 2023 counts without any growth adjustment due to traffic patterns changing and/or decreasing within the study network. However, the counts were balanced with the most recent count from Mack Hatcher Parkway with magnetometer data used to determine the existing distribution between turning movements to balance accordingly. The counts for the minor street movements at the intersection of Cool Springs Boulevard at Site Driveway (Intersection 2) were taken directly from the 201 Cool Springs Boulevard (CSB) Joint TIS completed by Neel-Schaffer in 2016. The through volumes were balanced with Intersection 1. The count dates, timeframes, and observed peak hours for each study intersection are shown in **Table 2**.

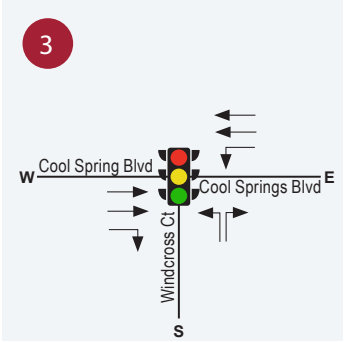
Table 2: Existing Turning Movement Count Sources		
Intersection	**Count Year**	**Count Source**
1. Mack Hatcher Parkway at Cool Springs Boulevard	2022	Collected
2. Cool Springs Boulevard at Site Driveway	2022/2016	Balanced/ 201 CSB Joint TIS
3. Cool Springs Boulevard at Windcross Court	2020	Balanced/ 201 CSB Joint TIS
4. Cool Springs Boulevard at McEwen Drive	2020	CSTS Model

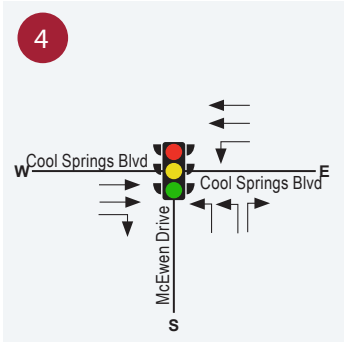
The Existing 2023 peak hour traffic volumes are shown in **Figure 4**. The 2022 collected traffic count data is provided in **Appendix B**.











LEGEND

- Existing Lanage
- Existing Traffic Signal
- Existing Stop Sign

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Kimley»Horn	101 Cool Springs Boulevard TIS	Existing 2023 Intersection Geometry	Figure 3

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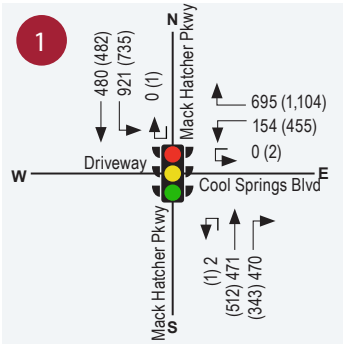

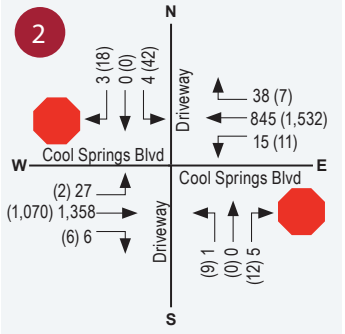

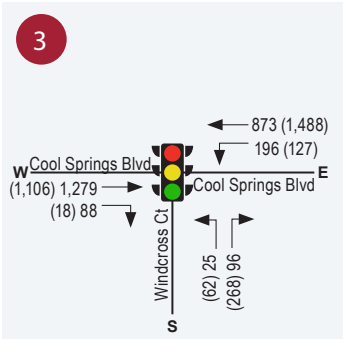

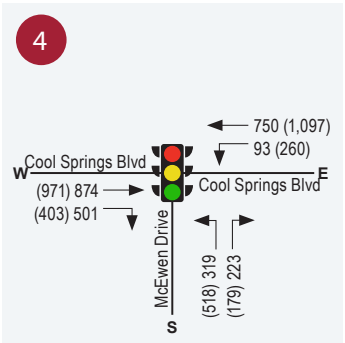

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

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Kimley»Horn	101 Cool Springs Boulevard TIS	Existing 2023 Traffic Volumes	Figure 4

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3.3 HISTORICAL CRASH DATA

Using the *AASHTOWare Safety* tool, historical crash data from 2020-2022 was collected for the intersections and corridors in this study. Crash type, manner of collision and crash rates were collected at each location. The crash summaries are provided in **Table 3**. The 2019-2020 TDOT crash rates were collected for each intersection and segment in the study network and are provided in the table.

Table 3: Crash Summary

Location	Crash Type					Manner of Collision				Rates	
	Fatal	Serious Injury	Possible Injury	Minor Injury	PDO	Angle	No Vehicle Collision	Rear End	Sideswipe	Crash Rate	TDOT Crash Rate
Intersections											
1.Mack Hatcher Pkwy at Cool Springs Blvd	0	0	1	3	36	4	2	24	6	1.293	0.714
2.Cool Springs Blvd at Site Driveway	0	0	1	0	1	1	1	0	0	0.000	0.551
3.Cool Springs Blvd at Windcross Ct	0	0	0	0	7	1	0	4	1	0.301	0.714
4.Cool Springs Blvd at McEwen Dr	0	0	0	1	9	2	1	7	0	0.339	0.714
Segments											
Cool Springs Blvd between Mack Hatcher Parkway & Windcross Ct	0	0	1	0	2	0	1	1	1	0.595	2.027
Cool Springs Blvd between Windcross Ct & McEwen Dr	0	0	1	1	21	4	1	13	4	0.947	2.027

With the exception of the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1), all intersections and segments report below their respective TDOT crash rates averages.

The intersection of Mack Hatcher Parkway at Cool Springs Boulevard shows a crash rate of 1.29 over the 0.714 TDOT average. However, although the rate is higher, data shows that only 4 of the 36 collected collisions registered 1 possible injury and 3 minor injuries. The data shows no fatal or serious injuries registered. Approximately 90% of the collisions were registered as property damage only, with over 60% being rear end collisions.

To minimize rear end collisions, it is recommended for the city to continue to monitor traffic volumes and update signal timings to minimize queuing. In addition, it is recommended that the existing traffic signal backplates be changes to yellow retro reflective backplates.

Additionally, the following improvements were discussed with the City:

- Intersection 1 – Mack Hatcher Parkway at Cool Springs Boulevard
    - Extend the existing concrete channelized island for the westbound right-turn movement to the north to provide barrier separation for the free-flow slip lane traveling west along Cool Springs Boulevard to north along Mack Hatcher Parkway
    - Extend the westbound left-turn lane to provide 735’ of storage
- Intersection 2 – Cool Springs Boulevard at Site Driveway
    - With the extension of the westbound left-turn lane at the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1), provide an additional turn lane pocket to provide 100’ of storage for the westbound left-turn movement at Cool Springs Boulevard at Site Driveway (Intersection 2).
- Intersection 3 – Cool Springs Boulevard at Windcross Court
    - Extend the eastbound left-turn lane to provide 340’ of storage
- Note: A concept graphic illustrating the recommended improvements is provided in **Appendix A**.

4.0 NO-BUILD CONDITIONS

Background traffic is defined as expected traffic on the roadway in future year(s) absent the construction and opening of the proposed project. Background traffic can include a base growth rate based on historical count data as well as population growth data and estimates.

To account for background traffic, the existing traffic volumes were increased by a growth of 2% per year for two years to account for the expected background growth through year 2025. Additionally, the existing traffic volumes were increased by a growth of 2% per year for seven years to account for the expected background growth through year 2030 for the Horizon Year analysis. Movements associated with the site driveway, commercial driveway, and Windcross Court were not grown since these were derived from existing counts or project specific trip generations.

Project trips from approved developments considered in the Cool Springs Transportation Study (CSTS) model were also added to the existing traffic in addition to the background growth rate. Additionally, project trips from The Optima Franklin development, which were not included in the CSTS model, were included in the calculations. The developments in the CSTS model have varying build-out years from now through 2030. However, for the purpose of this study, conservatively all developments were included in the 2025 background traffic projects regardless of the actual build out year of the individual development. In addition, since the CSTS model was completed in 2020, three years ago, some developments, or portions of them have been completed. These projects were excluded from the No-Build models, since traffic from these developments would have been captured in the existing counts. The assumptions for the current build-out state and peak trips included in the model are provided by approved development below in **Table 4**. **Figure 5 and 6** illustrates the Projected 2025 and 2030 No-Build traffic volumes, respectively. Volume development worksheets are provided in **Appendix C** which show the calculations for the No-Build traffic volumes.

Table 4: CSTS Model Approved Developments					
Development Name	**Build-Out Year**	**Current % Occ.**	**Daily Trips**	**AM Peak Trips**	**PM Peak Trips**
1. Liberty Station	2019	100%	0	0	0
2. Franklin Summit	N/A	0%	6,354	475	628
3. Aureum	2026	0%	20,715	1,279	1,738
4. Ovation	2030	15%	27,249	1,852	2,413
5. Huffines Ridge	2023	0%	5,365	383	441
6. Carothers Crossing West	2023	95%	203	14	14
7. Carothers Crossing East	2022	100%	0	0	0
8. Apex Village	N/A	0%	12,796	790	663
9. Franklin Park	2028	40%	23,765	1,538	1,707
10. East Works	2032	0%	30,309	2,331	2,316
11. 7086 Bakers Bridge Avenue	2022	100%	0	0	0
12. The Franklin at Legends	Removed – Added Joint TIS Trips*				
13. Mallory Green	2020	100%	0	0	0
14. McEwen Town Center	2032	20%	22,717	680	1,256
15. Avalon Square	N/A	0%	27,502	1,824	2,322
16. Vintage Franklin	2024	0%	4,695	398	420

**Trip generation for the 201/151 CSB Joint TIS was modified to remove the previous assumptions for the 101 Cool Springs Boulevard development and added to each intersection based on the distribution provided in the TIS*

4.1 FUTURE TRANSPORTATION INFRASTRUCTURE IMPROVEMENTS

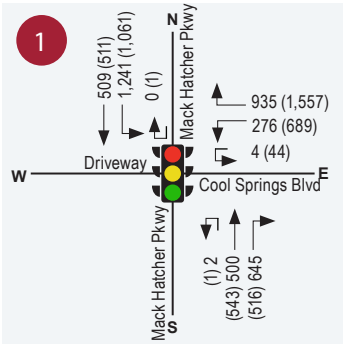
With the development of the projects listed in Table 4, the following improvements were assumed to be completed prior to the Year 2025 Build scenario, since these improvements are condition of approval for some of these development projects:

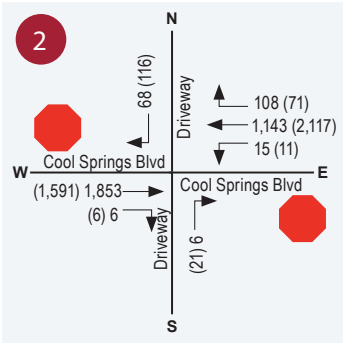
- Intersection 2: Cool Springs Boulevard at Site Driveway/Commercial Driveway
  - Convert the existing full-movement intersection to a right-in/right/out (RIRO) for the southbound approach (north leg)
  - Restripe the existing southbound left-turn lane as an additional southbound right-turn lane (north leg)
  - Prohibit northbound left-turns from exiting the existing commercial driveway (south leg)
  - Maintain allowing the westbound left-turn into the existing commercial driveway (south leg)
- Intersection 3: Cool Springs Boulevard at Windcross Court
  - Construct the north leg of the intersection with one southbound left-turn and one southbound shared through/right-turn lane
  - Restripe the northbound approach to include one northbound left-turn and one northbound shared through/right-turn lane
  - Provide protected-permissive left-turn phasing for all approaches

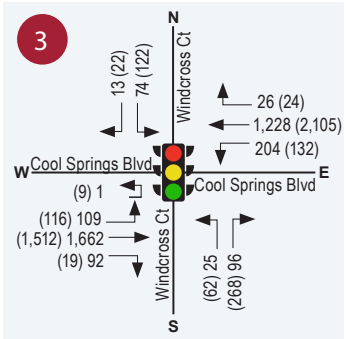
- Intersection 4: Cool Springs Boulevard at McEwen Drive
    - Construct the north leg of the intersection with one southbound left-turn lane, one southbound through lane, and one southbound right-turn lane
    - Provide a westbound right-turn lane
    - Provide an eastbound left-turn lane
    - Provide a northbound through lane
    - Provide protected-permissive left-turn phasing for the southbound, eastbound, and westbound approaches
    - Provide protected only left-turn phasing for the northbound approach

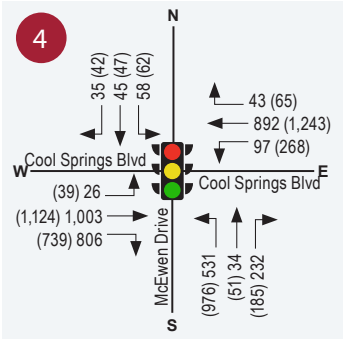
Figure 7 illustrates the intersection geometry assumed for the 2025 and 2030 No-Build conditions.











LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

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Kimley»Horn	101 Cool Springs Boulevard TIS	No-Build 2025 Traffic Volumes	Figure 5

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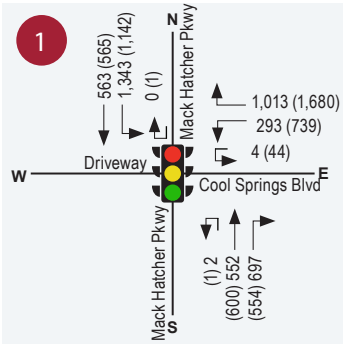

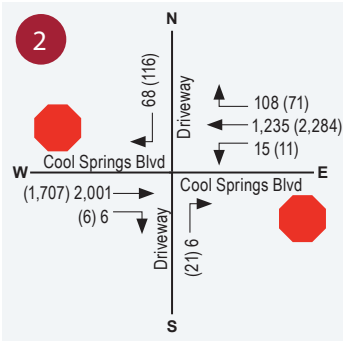

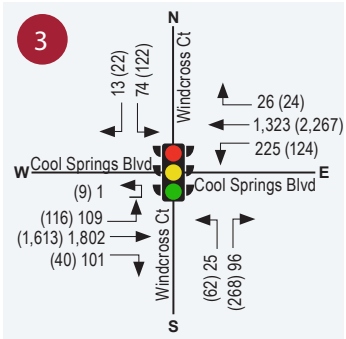

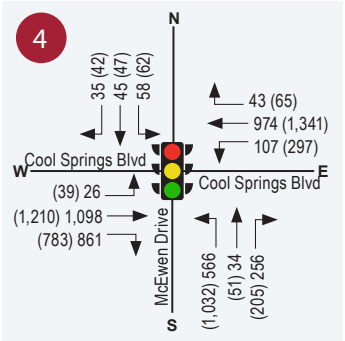

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

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Kimley»Horn	101 Cool Springs Boulevard TIS	No-Build 2030 Horizon Traffic Volumes	Figure 6

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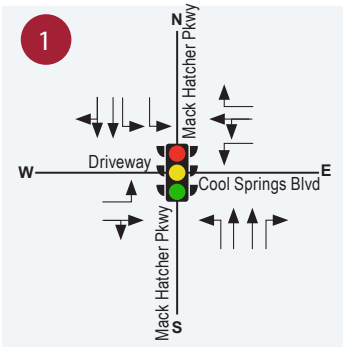

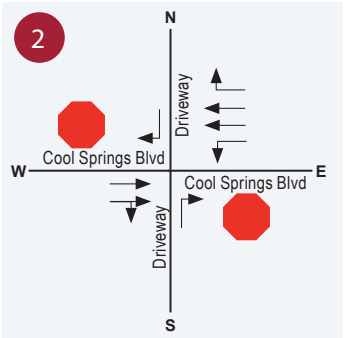

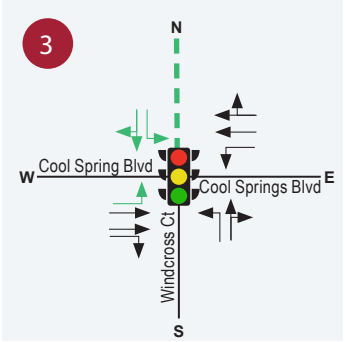

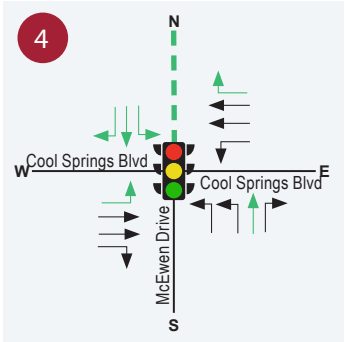



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Kimley»Horn	101 Cool Springs Boulevard TIS	No-Build Intersection Geometry	Figure 7

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5.0 BUILD CONDITIONS

5.1 SITE ACCESS AND CIRCULATION

The proposed project will have access from Intersection 2 (Cool Springs Boulevard at Commercial Driveway) and Intersection 3 (Cool Springs Boulevard and Windcross Court). Both of these intersections will be modified by others prior to this development as described in *Section 4.1*.

5.2 TRIP GENERATION

Traffic for the proposed development was calculated using rates and equations contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, *11th Edition*, using equations where available.

Internal capture (or mixed-use) reductions represent the concept that trips generated by individual land uses within a site may remain internal to the site. Mixed-use vehicle trip reductions are calculated using guidance from the *ITE Trip Generation Handbook, 3rd Edition*.

Alternative modes of transportation include pedestrians, bicyclists, and transit users. Alternate mode reductions account for the notion that some site-generated trips will occur by a means other than an automobile.

A pass-by trip occurs when a proposed development diverts traffic that is already traveling on a street adjacent to the site. Pass-by reductions are calculated using guidance from the *ITE Trip Generation Handbook, 3rd Edition*.

Although the site is likely to generate some alternative mode and/or pass-by trips, the trip generation for the site was determined with only internal capture reductions to the gross trips in order to present a more conservative analysis. However, the internal capture reductions were conservatively limited to 10% for the retail use.

Table 5 summarizes the project trip generation. **Appendix C** provides a detailed trip generation worksheet for the proposed development.

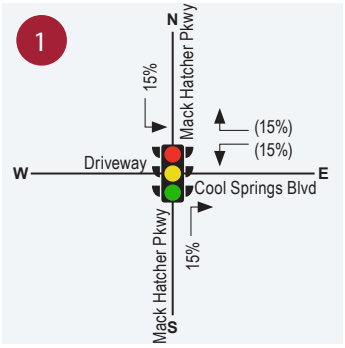
Table 5: Trip Generation								
ITE Code	Land Use	Density	Daily		AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit	Enter	Exit
220	Multifamily Housing (Low-Rise)	178 units	608	608	19	59	61	36
822	Strip Retail Plaza (<40ksf) (Proposed)	3,500 SF	189	189	8	6	19	18
Gross Trips			**797**	**797**	**27**	**65**	**80**	**54**
Reduction – Internal Capture			*-19*	*-19*	*0*	*0*	*-2*	*-2*
New Trips			**778**	**778**	**27**	**65**	**78**	**52**

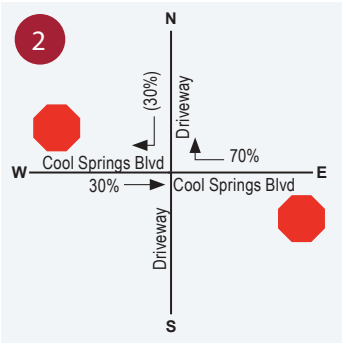
5.3 TRIP DISTRIBUTION AND ASSIGNMENT

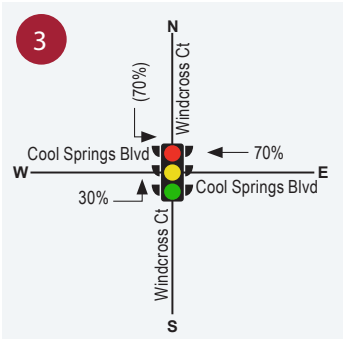
The directional distribution and assignment of new project trips was based on a review of land uses and population densities in the area and the existing peak hour turning movement counts. **Figure 8** illustrates the directional distribution and assignment of new project trips. **Figure 9** illustrates the assignment of project trips to the study network. The Projected 2025 and 2030 Build peak hour volumes are shown in **Figure 10 and 11,** respectively.

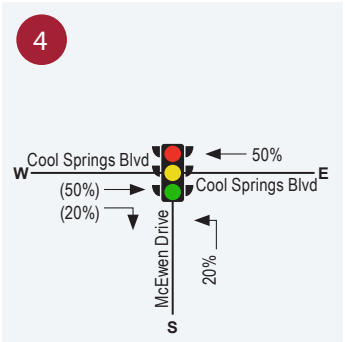
Appendix C provides intersection volume worksheets for all intersections and driveways within the study network.

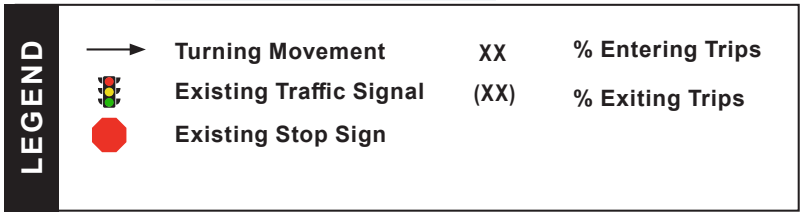














Kimley»Horn	101 Cool Springs Boulevard TIS	Trip Distribution & Assignment	Figure 8

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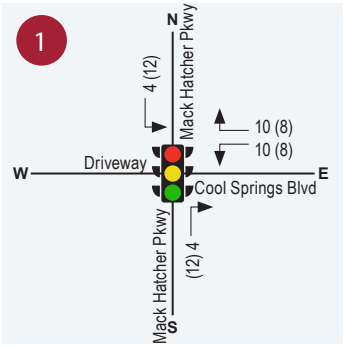

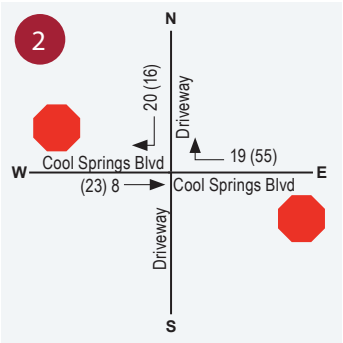

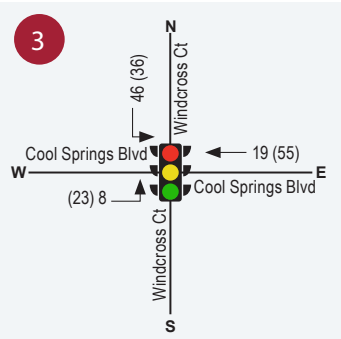

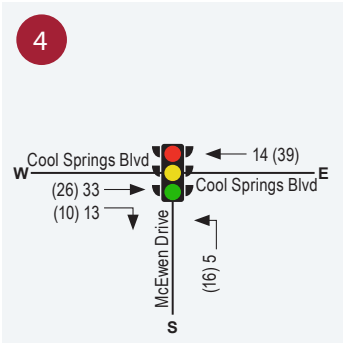

LEGEND

→	Turning Movement	XX	AM Peak Hour Project Trips
	Existing Traffic Signal	(XX)	PM Peak Hour Project Trips
	Existing Stop Sign		

N

Kimley»Horn	101 Cool Springs Boulevard TIS	Project Trips	Figure 9

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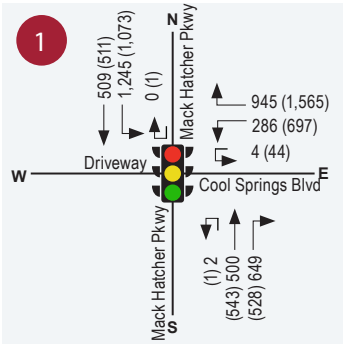

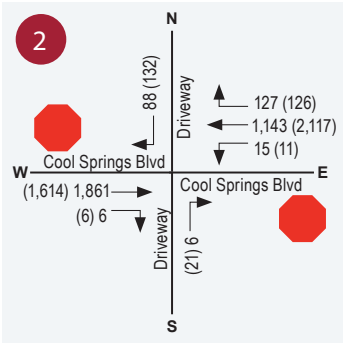

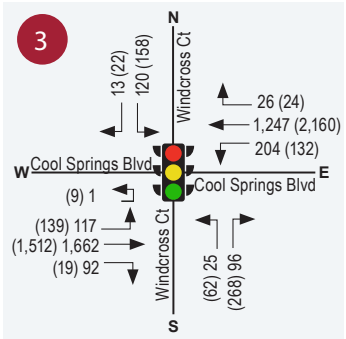

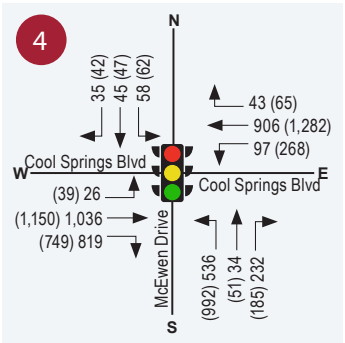

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

N

Kimley»Horn	101 Cool Springs Boulevard TIS	2025 Build Traffic Volumes	Figure 10

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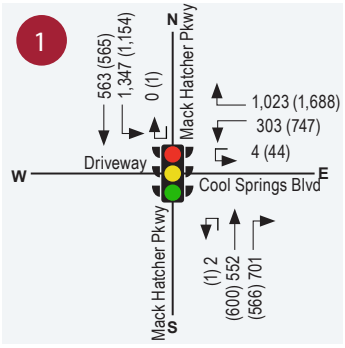

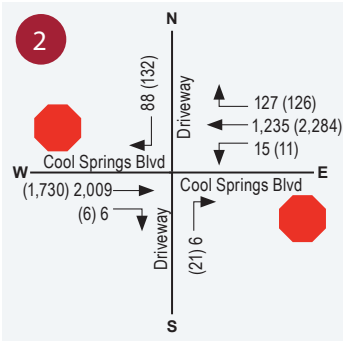

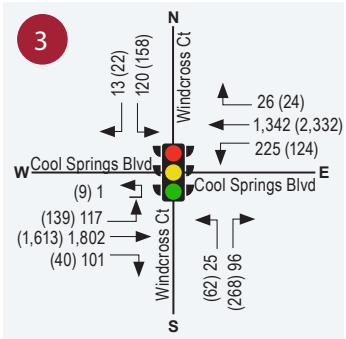

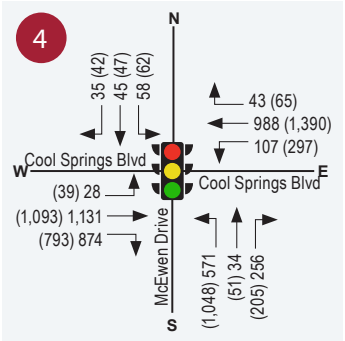

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

N

Kimley»Horn	101 Cool Springs Boulevard TIS	2030 Build Traffic Volumes	Figure 11

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6.0 CAPACITY ANALYSES

6.1 INTERSECTION CAPACITY ANALYSIS

Level-of-service (LOS) determinations were made for the weekday AM and PM peak hours for the study network intersections using *Synchro, Version 11.0. Synchro* software uses methodologies contained in the *Highway Capacity Manual, 6th Edition* to determine the operating characteristics of an intersection. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a specified period under prevailing roadway, traffic, and control conditions.

LOS is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions of a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F the worst.

Levels-of-service for unsignalized intersections, with stop control on the minor street only, are reported for the side-street approaches and major street left-turns. Low levels-of-service for side street approaches are not uncommon, as vehicles may experience significant delay turning onto a major roadway.

Levels-of-service for signalized intersections are reported for the intersection as a whole. One or more movements at an intersection may experience a low level-of-service, while the intersection as a whole may operate acceptably.

Note: Due to software limitations, U-turn movements were added to the adjacent left-turn or through movements (depending on intersection configuration) to include those volumes in the analyses.

The results of the capacity analyses are summarized in **Table 8**. The *Synchro* analyses reports are included in **Appendix D**.

Table 6: Level-of-Service Summary *(Delay in Seconds)*												
Intersection	**Control**	**Approach/ Movement**	**Existing 2023**		**No-Build 2025**		**Build 2025**		**No-Build 2030 Horizon Year**		**Build 2030 Horizon Year**	
			AM Peak	**PM Peak**	**AM Peak**	**PM Peak**	**AM Peak**	**PM Peak**	**AM Peak**	**PM Peak**	**AM Peak**	**PM Peak**
1. Mack Hatcher Pkwy at Cool Springs Blvd	**Signal**	**NBT**	**B (19.6)**	**C (31.2)**	**D (36.3)**	**E (56.2)**	**D (36.3)**	**E (56.9)**	**D (37.6)**	**E (63.7)**	**D (37.6)**	**E (64.5)**
		NBR	**C (21.2)**	**B (18.3)**	**D (51.2)**	**C (33.9)**	**D (52.3)**	**C (34.4)**	**E (69.6)**	**D (35.9)**	**E (71.2)**	**D (36.5)**
		SBL	**D (43.0)**	**E (58.3)**	**D (48.5)**	**D (54.7)**	**D (48.9)**	**D (54.9)**	**E (63.2)**	**E (57.5)**	**E (64.0)**	**E (58.2)**
		SBT	**A (2.7)**	**A (5.6)**	**A (4.7)**	**B (10.6)**	**A (4.7)**	**B (10.7)**	**A (4.8)**	**B (11.5)**	**A (4.8)**	**B (11.6)**
		WBL	**D (46.1)**	**E (76.9)**	**D (50.0)**	**E (68.9)**	**D (50.4)**	**E (69.1)**	**D (50.8)**	**E (70.7)**	**D (51.4)**	**E (71.1)**
		WBR	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**
		NB	**C (20.4)**	**C (26.0)**	**D (44.7)**	**D (45.3)**	**D (45.3)**	**D (45.8)**	**E (55.4)**	**D (50.3)**	**E (56.4)**	**D (50.9)**
		SB	**C (29.2)**	**D (37.4)**	**D (35.8)**	**D (40.3)**	**D (36.1)**	**D (40.7)**	**D (46.0)**	**D (42.3)**	**D (46.6)**	**D (42.9)**
		WB	**D (46.1)**	**E (76.9)**	**D (50.0)**	**E (68.9)**	**D (50.4)**	**E (69.1)**	**D (50.8)**	**E (70.7)**	**D (51.4)**	**E (71.1)**
		Overall	**C (26.9)**	**D (40.7)**	**D (40.3)**	**D (48.1)**	**D (40.7)**	**D (48.5)**	**D (49.8)**	**D (50.9)**	**D (50.5)**	**D (51.5)**
2. Cool Springs Blvd at Commercial Dwy/Site Dwy	**TWSC**	**NB**	**C (19.4)**	**C (23.1)**	**C (19.8)**	**C (17.6)**	**C (19.9)**	**C (17.9)**	**C (21.7)**	**C (18.9)**	**C (21.8)**	**C (19.2)**
		SB	**C (20.8)**	**F (67.8)**	**B (14.7)**	**E (46.4)**	**C (15.3)**	**F (54.2)**	**C (15.6)**	**F (61.3)**	**C (16.3)**	**F (74.6)**
		EBL	**B (10.1)**	**B (14.1)**								
		WBL	**B (12.9)**	**B (11.0)**	**C (17.9)**	**B (14.9)**	**C (18.0)**	**C (15.1)**	**C (20.0)**	**C (16.0)**	**C (20.1)**	**C (16.3)**

Table 6: Level-of-Service Summary *(Delay in Seconds)*												
Intersection	Control	Approach/ Movement	Existing 2023		No-Build 2025		Build 2025		No-Build 2030 Horizon Year		Build 2030 Horizon Year	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
3. Cool Springs Blvd at Windcross Ct	Signal	NBL	D (39.6)	F (86.1)	D (47.4)	E (61.8)	D (47.4)	E (60.9)	D (47.4)	E (60.8)	D (47.4)	E (60.0)
		NBT			A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		NBR	D (54.2)	F (113.1)	F (82.2)	F (94.5)	F (82.2)	F (95.5)	F (82.2)	F (95.6)	F (82.2)	F (96.6)
		SBL			D (49.2)	E (77.6)	D (54.4)	F (114.9)	D (49.2)	E (71.3)	D (54.4)	F (99.0)
		SBT			A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBR			D (48.9)	E (64.2)	D (47.9)	E (63.3)	D (48.9)	E (62.3)	D (47.9)	E (61.4)
		EBL			B (13.5)	E (72.1)	B (14.7)	E (78.5)	B (15.0)	F (84.0)	B (16.6)	F (92.0)
		EBT	B (10.4)	A (5.8)	C (27.1)	B (19.6)	C (28.9)	C (20.4)	D (35.6)	C (22.6)	D (39.1)	C (23.6)
		EBR	A (6.4)	A (3.8)	B (11.6)	A (7.5)	B (12.1)	A (7.8)	B (11.7)	A (8.1)	B (12.2)	A (8.5)
		WBL	B (12.9)	A (4.4)	E (60.4)	C (22.4)	E (64.1)	C (23.2)	F (113.7)	C (28.8)	F (120.3)	C (29.0)
		WBT	A (0.3)	A (0.5)	B (16.2)	C (31.3)	B (17.2)	E (68.9)	B (17.1)	F (81.2)	B (18.2)	F (109.8)
		WBR			B (16.1)	C (32.0)	B (17.1)	E (70.3)	B (17.1)	F (82.9)	B (18.1)	F (111.5)
		NB	D (51.2)	F (101.5)	E (75.0)	F (83.4)	E (75.0)	F (84.2)	E (75.0)	F (84.3)	E (75.0)	F (85.3)
		SB			D (49.2)	E (75.5)	D (53.7)	F (108.6)	D (49.2)	E (69.9)	D (53.7)	F (94.4)
		EB	B (10.1)	A (5.8)	C (25.6)	C (23.4)	C (27.2)	C (25.4)	C (33.3)	C (26.6)	D (36.5)	C (28.9)
		WB	A (2.6)	A (0.8)	C (22.4)	C (31.1)	C (23.6)	E (67.0)	C (30.9)	E (79.3)	C (32.6)	F (106.6)
		Overall	A (8.9)	A (7.8)	C (26.5)	C (31.8)	C (28.3)	D (53.4)	C (34.0)	E (58.6)	D (36.7)	E (75.1)

Table 6: Level-of-Service Summary *(Delay in Seconds)*												
Intersection	Control	Approach/ Movement	Existing 2023		No-Build 2025		Build 2025		No-Build 2030 Horizon Year		Build 2030 Horizon Year	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
4. Cool Springs Blvd at McEwen Dr	Signal	NBL	D (49.4)	F (94.5)	D (52.3)	E (75.1)	D (52.3)	E (78.9)	D (52.4)	F (133.4)	D (52.4)	F (140.3)
		NBT			D (36.6)	D (37.1)	D (36.5)	D (37.1)	D (35.7)	D (40.7)	D (35.5)	D (40.7)
		NBR	D (53.5)	D (53.5)	D (36.8)	C (24.5)	D (36.6)	C (24.5)	D (35.9)	C (28.1)	D (35.7)	C (28.1)
		SBL			E (66.6)	F (103.0)	E (66.6)	F (103.0)	E (66.6)	F (103.2)	E (66.6)	F (103.2)
		SBT			D (54.2)	E (77.7)	D (54.2)	E (77.7)	D (54.2)	E (77.7)	D (54.2)	E (77.7)
		SBR			D (54.2)	E (70.1)	D (54.2)	E (70.1)	D (54.2)	E (70.1)	D (54.2)	E (70.1)
		EBL			E (61.3)	F (90.3)	E (60.9)	F (89.2)	E (59.2)	F (88.0)	E (59.2)	F (86.8)
		EBT	B (12.1)	B (16.9)	C (28.5)	F (108.2)	C (29.1)	F (117.8)	C (31.3)	F (94.3)	C (32.1)	F (102.7)
		EBR	A (7.5)	A (5.5)	C (21.4)	C (26.2)	C (21.7)	C (26.5)	C (23.5)	C (28.2)	C (24.7)	C (28.4)
		WBL	A (8.1)	B (16.5)	E (78.0)	F (133.8)	E (78.0)	F (133.8)	F (80.5)	F (172.0)	F (80.5)	F (172.0)
		WBT	A (5.3)	A (8.9)	C (23.8)	D (47.8)	C (24.2)	D (50.2)	C (26.0)	D (45.2)	C (26.4)	D (47.5)
		WBR			B (17.0)	C (22.5)	B (17.1)	C (22.5)	B (17.6)	B (19.8)	B (17.7)	B (19.8)
		NB	D (51.1)	F (84.0)	D (47.1)	E (65.8)	D (47.1)	E (69.0)	D (46.8)	F (113.0)	D (46.8)	F (118.8)
		SB			E (59.4)	F (85.9)	E (59.4)	F (85.9)	E (59.4)	F (86.0)	E (59.4)	F (86.0)
		EB	B (10.4)	B (13.6)	C (25.8)	E (76.0)	C (26.3)	F (81.9)	C (28.3)	E (68.7)	C (29.2)	E (73.9)
		WB	A (5.6)	B (10.3)	C (28.6)	E (61.4)	C (28.8)	E (63.0)	C (30.9)	E (66.3)	C (31.1)	E (67.7)
		Overall	B (16.9)	C (26.6)	C (32.3)	E (69.0)	C (32.5)	E (72.6)	C (33.9)	E (79.4)	C (34.4)	F (83.3)

Substandard MOVEMENT LOS per City of Franklin guidelines

Substandard OVERALL LOS per City of Franklin guidelines

The City of Franklin Traffic Impact Study (TIS) Guidelines define the substandard LOS for intersection turning movements as LOS F and the overall intersection as LOS E and LOS F.

Under existing PM conditions, the southbound approach at the intersection of Cool Springs Boulevard and Site Driveway (Intersection 2) operates at LOS F. Low levels-of-service for side street approaches are not uncommon, as vehicles may experience significant delay turning onto a major roadway. However, this is projected to be mitigated or reduced with the No-Build improvements prohibiting minor street left-turns. Delay and queues associated with this approach are only impacting the site and do not impact the through movements along Cool Springs Boulevard. The northbound left and northbound right movements at the intersection of Cool Springs Boulevard at Windcross Court (Intersection 3) operates at LOS F during the PM peak hour. Additionally, the northbound left movement at the intersection of Cool Springs Boulevard at McEwen Drive (Intersection 4) operates at LOS F during the PM peak hour.

Under No-Build AM conditions, the northbound right movement at the intersection of Cool Springs Boulevard and Windcross Court (Intersection 3) is projected to operate at LOS F. Under No-Build PM conditions, the northbound right movement at the intersection of Cool Springs Boulevard and Windcross Court (Intersection 3) and the southbound left, eastbound left, eastbound through, and westbound left movements at Cool Springs Boulevard and McEwen Drive (Intersection 4) are projected to operate at LOS F. Windcross Court and McEwen Drive (Intersection 4) is projected to operate at overall LOS E during the No-Build PM peak. The No-Build conditions represent the projected traffic conditions without the *101 Cool Springs Boulevard* development.

Under the Build conditions, the substandard LOS from the No-Build conditions are projected to continue for the same movements with the addition of the southbound right movement at the intersection of Cool Springs Boulevard at Site Driveway (Intersection 2) and the southbound left movement at the intersection of Cool Springs Boulevard and Windcross Court (Intersection 3). Windcross Court and McEwen Drive (Intersection 4) is projected to operate at overall LOS E during the PM peak with an increase in delay of 3.2 seconds.

Under 2030 Horizon Year No-Build and Build conditions, delays will continue to increase with substandard movement and overall LOS indicated by the highlighted cells in the tables above.

6.2 QUEUEING ANALYSIS

The *Highway Capacity Manual 6th Edition* provides insight and guidance regarding the back of queue for signalized intersections.

"The back-of-queue position is the position of the vehicle stopped farthest from the stop line during the cycle as a consequence of the display of a red signal indication. The back-of-queue size depends on the arrival pattern of vehicles and on the number of vehicles that do not clear the intersection during the previous cycle." (Source: *Highway Capacity Manual 6th Edition*, Chapter 19)

A queueing analysis was performed using *Synchro* software to evaluate and determine the forecasted 95th percentile queue lengths for all signalized intersections within the study area. The queue lengths are summarized in **Table 9**. The 95th percentile queueing reports are included in the *Synchro* Reports, in **Appendix D**.

95th percentile queue lengths that are projected to exceed the available storage are indicated by the highlighted cells in the table below. As noted previously in *Section 3.3*, recommendations have been made to improve some storage lengths within the study network. For the purposes of the comparison table below, the existing storage lengths have been provided and compared to the projected queue lengths. The storage improvements are not incorporated into the table below.

Table 7: 95th Percentile Queue Results
(Length in Feet)

Intersection	Control	Approach/ Movement	Storage Length (ft)	Existing 2023		No-Build 2025		Build 2025		No-Build 2030 Horizon Year		Build 2030 Horizon Year	
				AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. Mack Hatcher Pkwy at Cool Springs Blvd	Signal	NBT	-	164	301	238	376	238	376	264	#448	264	#448
		NBR	1000	267	251	#520	526	#527	545	#618	591	#624	614
		SBL	1000	#393	418	#638	642	#641	653	#727	#1415	#730	#1430
		SBT	-	61	104	80	149	80	149	90	166	90	166
		WBL	-	70	323	148	m313	150	m302	143	m369	m146	m363
		WBR	230	29	1025	535	m946	531	m887	566	m#1052	564	m#989
2. Cool Springs Blvd at Commercial Dwy/Site Dwy	TWSC	NB	-	3	7.5	2.5	5	2.5	5	2.5	7.5	2.5	7.5
		SB	-	3	57.5	15	85	20	107.5	15	105	22.5	130
		EBL	270	3	0								
		WBL	335	3	2.5	5	2.5	5	2.5	5	2.5	5	2.5
3. Cool Springs Blvd at Windcross Ct	Signal	NBL	-	41	125	43	107	43	107	43	110	43	110
		NBT				0	#335	0	#347	0	#443	1	#460
		NBR	150	47	#300	0	0	0	0	0	0	0	0
		SBL				97	#207	147	#307	97	198	147	#285
		SBT				0	0	0	0	0	0	0	0
		SBR				0	0	0	0	0	0	0	0
		EBL	260			m31	m126	m34	m160	m29	m36	m31	m42
		EBT	-	m431	516	m785	940	m781	941	m788	m313	m785	m314
		EBR	300	m16	m4	m10	m0	m10	m0	m11	m0	m11	m0
		WBL	235	m98	m16	#289	m82	#287	m80	#337	m68	#330	m65
		WBT	-	60	m107	432	m#1593	440	m#1644	478	m#1477	487	m#1527
		WBR				0	0	0	0	0	0	0	0
4. Cool Springs Blvd at McEwen Dr	Signal	NBL	-	#172	#428	265	#717	269	#736	285	#821	288	#840
		NBT				49	80	49	80	49	81	49	81
		NBR	300	127	140	153	111	153	111	174	152	174	152
		SBL				96	123	96	123	96	124	96	124
		SBT				77	100	77	100	77	100	77	100
		SBR				0	0	0	0	0	0	0	0
		EBL				m29	m59	m27	m58	m27	m57	m25	m56
		EBT	-	103	m121	m386	m#889	m405	m#895	m380	m#891	m419	m#918
		EBR	260	0	m17	m31	m779	m10	m754	m13	m817	m8	m812
		WBL	260	32	129	139	#516	139	#516	#167	#604	#167	#604
		WBT	-	106	275	404	803	412	#884	454	#919	462	#967
		WBR				0	15	0	15	0	14	0	14

Definitions

m = Volume for 95th percentile queue is metered by upstream signal

= 95th percentile volume exceeds capacity, queue may be longer

7.0 CONCLUSION

This traffic study re-evaluated the traffic impacts associated with the *101 Cool Springs Boulevard* development located north of Cool Springs Boulevard and east of Mack Hatcher Parkway within the City of Franklin, Tennessee. The development, which is approximately 2.91-acres in size, will include multifamily housing with approximately 178 dwelling units and 3,500 SF of retail space. The development of the 101 Cool Springs Boulevard site was previously evaluated as a 60,000 sf office complex and included in the Join TIA prepared for the 101, 151 and 201 Cool Springs Boulevard sites. Due to the change in land uses proposed for the 101 Cool Springs Boulevard Site and a slight increase in the expected trip generation, a re-evaluation was requested by the City of Franklin.

7.1 NO-BUILD IMPROVEMENT RECOMMENDATIONS

The following development improvements are recommended to serve the Projected 2025 No-Build traffic conditions (Note: this would be the improvements needed to serve the background traffic and is unrelated to the *101 Cool Springs Boulevard* development).

- All Intersections
    - It is recommended for the City to continue to monitor actual traffic patterns and volumes and develop updated signal timing plans in order to optimize intersection operations and minimize delays and queue as approved developments continue to develop in the area

7.2 DEVELOPMENT IMPROVEMENT RECOMMENDATIONS

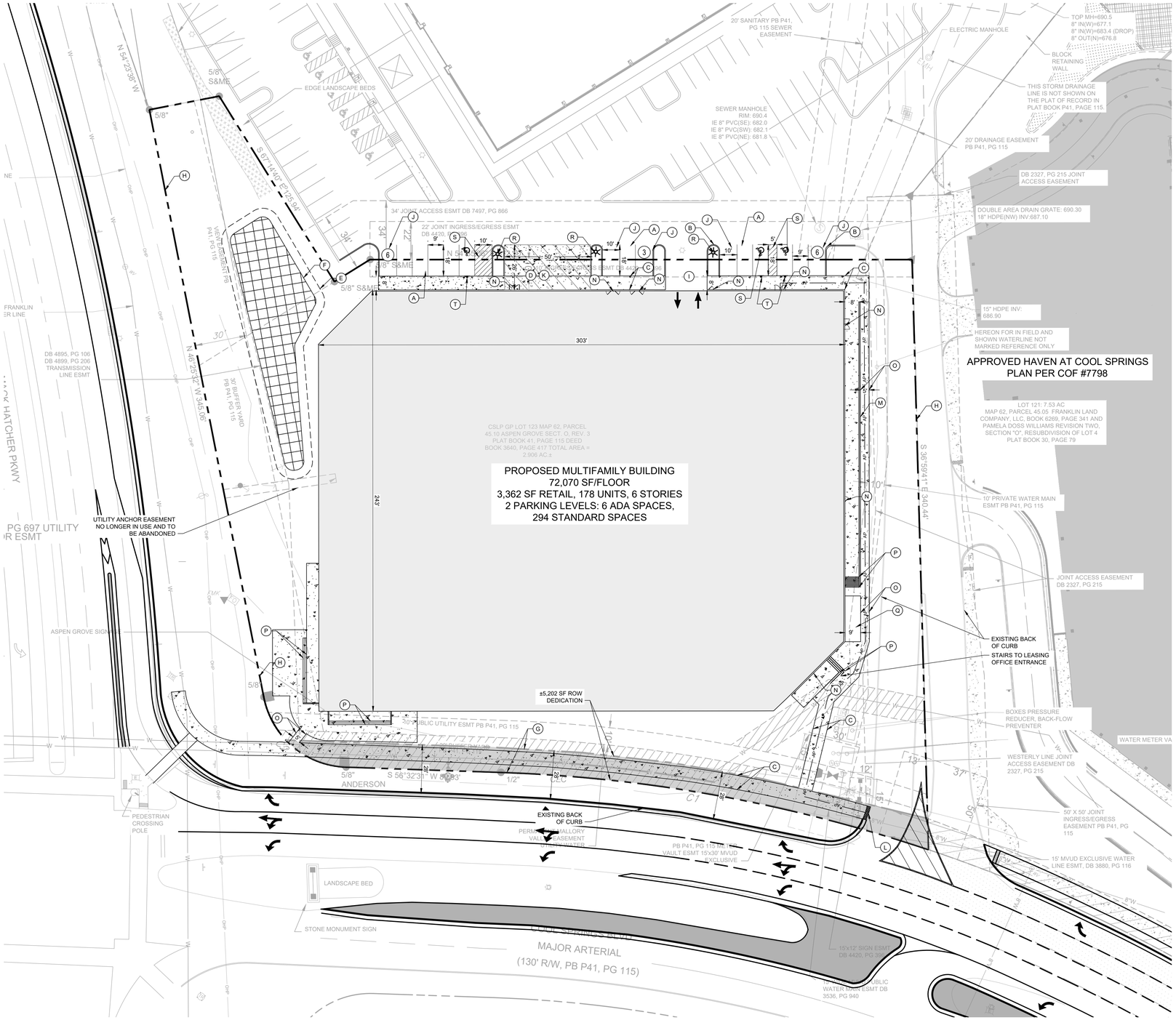
Based on the results of this traffic impact study, Kimley-Horn and Associates, Inc. recommends the following development improvements to serve the Projected 2025 Build traffic conditions (Note: this would be the improvements needed to serve the traffic associated with the *101 Cool Springs Boulevard* development).

- Intersection 1 – Mack Hatcher Parkway at Cool Springs Boulevard
    - Replace all existing traffic signal backplates with new retroreflective yellow backplates
    - Extend the existing concrete channelized island for the westbound right-turn movement to the north to provide barrier separation for the free-flow slip lane traveling west along Cool Springs Boulevard to north along Mack Hatcher Parkway
    - Extend the westbound left-turn lane to provide 735’ of storage
- Intersection 2 – Cool Springs Boulevard at Site Driveway
    - With the extension of the westbound left-turn lane at the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1), provide an additional turn lane pocket to provide 100’ of storage for the westbound left-turn movement at Cool Springs Boulevard at Site Driveway (Intersection 2).
- Intersection 3 – Cool Springs Boulevard at Windcross Court
    - Extend the eastbound left-turn lane to provide 340’ of storage
    - Note: A concept graphic illustrating the recommended improvements is provided in **Appendix A**.

APPENDIX A

Site Plan

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



SITE DATA TABLE

PROJECT NAME:	101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
COF PROJECT #:	8157
MAP:	MAP #94062G
PARCEL #:	062---04510
ADDRESS:	101 COOL SPRINGS BLVD
CITY:	FRANKLIN
COUNTY:	WILLIAMSON
STATE:	TENNESSEE
CIVIL DISTRICT:	10TH CIVIL DISTRICT
EXISTING ZONING:	RC-6 REGIONAL COMMERCE 6
PROPOSED ZONING:	PD-PLANNED DISTRICT (61.3 DUA/3,362 SF COMMERCIAL)
OTHER APPLICABLE OVERLAYS:	500' BUFFER OF HILLSIDE OVERLAY
DEVELOPMENT STANDARD:	TRADITIONAL
ACREAGE OF LOT 123:	2.906 ACRES
ACREAGE OF ACCESS ESMT:	0.77 ACRES
TOTAL ACREAGE OF SITE:	2.906 ACRES
TOTAL SQUARE FOOTAGE OF SITE:	126,583 SF
OWNERS:	CSLP GP
ADDRESS:	85 SOUTH SERVICE RD PLAINVIEW, NY 10803
PHONE:	631-414-8484
EMAIL:	mr@mrechler.com
CONTACT NAME:	MITCHELL RECHLER
APPLICANT:	GAMBLE DESIGN COLLABORATIVE (GDC)
ADDRESS:	3020 STANSBERRY LANE, SUITE 201 FRANKLIN, TN 37069
PHONE:	615-975-5765
EMAIL:	GREG.GAMBLE@GDC-TN.COM
CONTACT NAME:	GREG GAMBLE, RLA
BUILDING SETBACKS:	15' FRONT, 15' SIDE AND REAR
BUILDING SQUARE FOOTAGE:	504,490 SF
STORIES:	6
DENSITY:	178 UNITS: 61.3 DUA
BUILDING CONSTRUCTION TYPE:	TYPE 3
MAXIMUM BUILDING HEIGHT:	85' - 0" PER 2018 IBC
PROPOSED BUILDING HEIGHT:	84' - 0"
MINIMUM LANDSCAPE SURFACE RATIO:	20%
PROVIDED LANDSCAPE SURFACE RATIO:	34.5%; 43,746 SF
MINIMUM PARKING REQUIREMENT:	311 SPACES 1.5 SPACES PER 1 BEDROOM (134 UNITS) 2.5 SPACES PER 2 BEDROOM (44 UNITS)
EXISTING PARKING:	0 SPACES
TOTAL PARKING PROVIDED:	315 TOTAL SPACES (300 IN GARAGE; 15 EXTERIOR)
PARKLAND DEDICATION:	178 UNITS = $766,112; FEES TO BE PAID WITH FINAL PLAT; QUAD 1

NOTES:
1. WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO, THE NEW DEVELOPMENT, ALL UTILITIES, SUCH AS CABLE TELEVISION, ELECTRICAL (EXCLUDING TRANSFORMERS), GAS, SEWER, TELEPHONE, AND WATER LINES SHALL BE PLACED UNDERGROUND.
2. THIS SITE PLAN HAS BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE CITY OF FRANKLIN STANDARDS AND THE APPROVAL OF PLANNING COMMISSION. CHANGES SHALL NOT BE MADE TO THE APPROVED SITE PLAN UNLESS APPROVED BY EITHER RELEVANT DEPARTMENT SUPERINTENDENT OR THE PLANNING COMMISSION.
3. THE INFORMATION SHOWN ON THIS PLAN IS BASED UPON THE TENNESSEE STATE PLANE COORDINATE SYSTEM, ZONE 5301, FLIPZONE 4100 AND NAD 83 DATUM.
4. BASE INFORMATION HAS BEEN TAKEN FROM TWO ALTA SURVEYS PROVIDED BY CEC INC, PERFORMED BY MICHAEL K. STORY DATED 02-23-22 AND 9-14-22. THE INFORMATION PROVIDED SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. KIMLEY-HORN AND ASSOCIATES SHALL NOT BE HELD RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF THE BASE INFORMATION SHOWN.
5. THE CONSULTANT HAS FOUND NO EVIDENCE OF THE MINERAL RIGHTS OF THIS PROPERTY BEING TRANSFERRED TO ANY PARTY OTHER THAN THE OWNER.
6. NO PROPOSED BUILDINGS IN THIS PROJECT FALL WITHIN THE 100 YEAR FLOODPLAIN, PER THE FEMA FIRM MAP NUMBER 47187C0204F, DATED SEPTEMBER 29, 2006

SITE PLAN KEYNOTE LEGEND

- (A) 9' X 18' PROPOSED PARKING SPACE (TYP.)
- (B) 6" PROPOSED POST CURB (TYP.)
- (C) 8' SIDEWALK (TYP.)
- (D) REFUSE COLLECTION AREA
- (E) GREEN INFRASTRUCTURE EASEMENT (GIE)
- (F) BIORETENTION POND
- (G) DEDICATED ROW PER CONNECT FRANKLIN PLANS
- (H) EXISTING PROPERTY LINE
- (I) PARKING GARAGE ENTRANCE
- (J) 10'X18' PROPOSED END PARKING SPACE (TYP.)
- (K) DESIGNATED LOADING AREA
- (L) ADA CURB RAMP
- (M) MAX 8' RETAINING WALL
- (N) ENTRANCE/EXIT
- (O) 5' SIDEWALK (TYP.)
- (P) EXTERIOR STAIRS
- (Q) LANDSCAPE BED
- (R) RELOCATED LIGHT POLE
- (S) ADA PARKING STRIPING
- (T) ADA PARKING SIGNAGE

COMPREHENSIVE REVIEW AT SITE PLAN

COMPREHENSIVE REVIEW OF ROADWAY, STORMWATER, AND UTILITY ELEMENTS BY CITY OF FRANKLIN STAFF WILL OCCUR AT SITE PLAN. PROJECT ENTITLEMENTS APPROVED WITH THIS DEVELOPMENT PLAN DO NOT CONSTITUTE APPROVAL OF THE ROADWAY, STORMWATER, AND UTILITY ELEMENTS SHOWN ON THE DEVELOPMENT PLAN. IF, UPON APPLICATION OF CITY OF FRANKLIN STREET, STORMWATER, AND UTILITY STANDARDS AT SITE PLAN, THE APPLICANT CANNOT ACHIEVE THE MAXIMUM APPROVED ENTITLEMENTS, THE APPLICANT SHALL BE CONFINED TO THE ENTITLEMENTS ACHIEVABLE FROM THE APPLICATION OF SAID STANDARDS.

CROSS ACCESS NOTE

IN THE EVENT THAT 151 OR 201 COOL SPRINGS BOULEVARD DOES NOT MOVE FORWARD WITH CONSTRUCTION, THIS DEVELOPMENT SHALL INSTALL THE ACCESS ROAD AND ASSOCIATED STORMWATER TREATMENT AS PART OF THE SITE PLAN SUBMITTAL, TO PROVIDE A FULL ACCESS AT COOL SPRINGS BOULEVARD AND WINDCROSS COURT.

THE CONNECTION TO WINDCROSS MUST BE UNDER CONSTRUCTION PRIOR TO A BUILDING PERMIT FOR THIS SITE AND MUST BE COMPLETED AND ACCEPTED PRIOR TO THE FIRST CERTIFICATE OF OCCUPANCY.

OFFSITE IMPROVEMENTS NOTE

SEE OFFISTE ROADWAY IMPROVEMENTS EXHIBIT FOR DETAILS AND CALLOUTS PERTAINING TO OFFSITE IMPROVEMENTS.

GRAPHIC SCALE IN FEET
0 15 30 60

NORTH

Kimley»Horn
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Main: 615.564.2701 | www.kimley-horn.com
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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER REGISTERED ENGINEER AGENCY NO. 10028 STATE OF TENNESSEE 2023-05-04

No.	DATE	REVISIONS	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023

KIMLEY-HORN PROJECT NO. 118479000

OVERALL SITE PLAN

SHEET NUMBER
C2.0

SIGNAL IMPROVEMENTS NOTE

ADD RETROELECTIVE BACKPLATES TO ALL SIGNAL HEADS AT MACK HATCHER MEMORIAL PKWY AND COOL SPRINGS BLVD INTERSECTION.

HATCH LEGEND

TYPE	HATCH
PROPOSED RAISED MEDIAN	
EXISTING RAISED MEDIAN	
CONCRETE SIDEWALK	

MACK HATCHER MEMORIAL PARKWAY

COOL SPRINGS BLVD

EXISTING SHOULDER TO REMAIN

EXISTING CURB & GUTTER TO REMAIN

PROPOSED STRIPING

PROPOSED RAISED MEDIAN

2.5' CURB & GUTTER

PROPOSED SIDEWALK CONNECTION

12' THRU/LEFT TURN LANE

12' LEFT TURN LANE

12' RIGHT TURN LANE

EXISTING BACK OF CURB TO REMAIN AS POSSIBLE

EXISTING PROPERTY LINE

2.5' CURB & GUTTER

EXISTING BACK OF CURB

ALL STRIPING AND TURN SYMBOLS TO BE REVISED

EXISTING BACK OF CURB TO REMAIN AS POSSIBLE

PROPOSED STOP BAR AND STOP SIGN

DEMO EXISTING ISLAND

PROPOSED RIGHT IN RIGHT OUT ACCESS WITH CURB

TIE INTO EXISTING CURB

TIE INTO EXISTING CURB

12' RIGHT TURN LANE

24" GUTTER WITH 6" CURB

+3,036 SF ROW DEDICATION

PROPOSED 12' LEFT TURN LANE

LEFT TURN SIGN

DEMO EXISTING MEDIAN CURB

PROPOSED MEDIAN CURB AND GUTTER

PROPOSED RAISED MEDIAN

DEMO EXISTING MEDIAN CURB

PROPOSED MEDIAN CURB AND GUTTER

12'W

12'

12.0'

Kimley»Horn

101 COOL SPRINGS BLVD

OFFSITE IMPROVEMENTS

May 3, 2023

0 15 30 60 90

NORTH

APPENDIX B

Traffic Count Data

Peak Hour Turning Movement Count

Click here for Map

Franklin, TN

Marr Traffic DATA COLLECTION

www.marrtraffic.com



All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0730 - 0745	0	122	117	1	240	207	128	0	0	335	0	0	0	0	0	33	0	195	0	228	803
0745 - 0800	0	120	120	0	240	238	135	0	0	373	0	0	0	0	0	47	0	169	0	216	829
0800 - 0815	0	133	104	0	237	243	105	0	0	348	0	0	0	0	0	45	0	174	0	219	804
0815 - 0830	0	96	129	1	226	233	112	0	0	345	0	0	0	0	0	29	0	157	0	186	757
Total	0	471	470	2	943	921	480	0	0	1401	0	0	0	0	0	154	0	695	0	849	3193
Approach %	0.00	49.95	49.84	0.21	-	65.74	34.26	0.00	0.00	-	0.00	0.00	0.00	0.00	-	18.14	0.00	81.86	0.00	-	
PHF	0.00	0.89	0.91	0.50	**0.98**	0.95	0.89	0.00	0.00	**0.94**	0.00	0.00	0.00	0.00	**0.00**	0.82	0.00	0.89	0.00	**0.93**	**0.96**

Bikes

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0815 - 0830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Passenger Vehicles (1-3)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0730 - 0745	0	111	117	1	229	202	127	0	0	329	0	0	0	0	0	30	0	194	0	224	782
0745 - 0800	0	116	120	0	236	236	131	0	0	367	0	0	0	0	0	43	0	162	0	205	808
0800 - 0815	0	128	102	0	230	240	105	0	0	345	0	0	0	0	0	44	0	167	0	211	786
0815 - 0830	0	91	126	1	218	228	108	0	0	336	0	0	0	0	0	26	0	150	0	176	730
Total	0	446	465	2	913	906	471	0	0	1377	0	0	0	0	0	143	0	673	0	816	3106
Approach %	0.00	48.85	50.93	0.22	-	65.80	34.20	0.00	0.00	-	0.00	0.00	0.00	0.00	-	17.52	0.00	82.48	0.00	-	
PHF	0.00	0.87	0.92	0.50	**0.97**	0.94	0.90	0.00	0.00	**0.94**	0.00	0.00	0.00	0.00	**0.00**	0.81	0.00	0.87	0.00	**0.91**	**0.96**

Single Unit Trucks (4-7)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0730 - 0745	0	6	0	0	6	5	1	0	0	6	0	0	0	0	0	3	0	1	0	4	16
0745 - 0800	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	4	0	6	0	10	15
0800 - 0815	0	4	1	0	5	3	0	0	0	3	0	0	0	0	0	1	0	4	0	5	13
0815 - 0830	0	4	3	0	7	4	4	0	0	8	0	0	0	0	0	2	0	6	0	8	23
Total	0	16	4	0	20	12	8	0	0	20	0	0	0	0	0	10	0	17	0	27	67
Approach %	0.00	80.00	20.00	0.00	-	60.00	40.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	37.04	0.00	62.96	0.00	-	
PHF	0.00	0.67	0.33	0.00	**0.71**	0.60	0.50	0.00	0.00	**0.63**	0.00	0.00	0.00	0.00	**0.00**	0.63	0.00	0.71	0.00	**0.68**	**0.73**

Combination Trucks (8-13)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0730 - 0745	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
0745 - 0800	0	2	0	0	2	2	1	0	0	3	0	0	0	0	0	0	0	1	0	1	6
0800 - 0815	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	5
0815 - 0830	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	1	0	1	0	2	4
Total	0	9	1	0	10	3	1	0	0	4	0	0	0	0	0	1	0	5	0	6	20
Approach %	0.00	90.00	10.00	0.00	-	75.00	25.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	16.67	0.00	83.33	0.00	-	
PHF	0.00	0.45	0.25	0.00	**0.50**	0.38	0.25	0.00	0.00	**0.33**	0.00	0.00	0.00	0.00	**0.00**	0.25	0.00	0.42	0.00	**0.50**	**0.83**

Peak Hour Turning Movement Count

Click here for Map

Franklin, TN

Marr Traffic DATA COLLECTION

www.marrtraffic.com

Tuesday, August 30, 2022	
Period	1600 - 1800
Peak Hour	1645 - 1745

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1645 - 1700	0	130	80	0	210	177	118	0	0	295	0	0	0	0	0	104	0	280	0	384	889
1700 - 1715	0	127	90	0	217	173	110	0	1	284	0	0	0	0	0	123	0	267	1	391	892
1715 - 1730	0	123	85	1	209	191	111	0	0	302	0	0	0	0	0	139	0	316	0	455	966
1730 - 1745	0	132	88	0	220	194	143	0	0	337	0	0	0	0	0	89	0	241	1	331	888
Total	0	512	343	1	856	735	482	0	1	1218	0	0	0	0	0	455	0	1104	2	1561	3635
Approach %	0.00	59.81	40.07	0.12	-	60.34	39.57	0.00	0.08	-	0.00	0.00	0.00	0.00	-	29.15	0.00	70.72	0.13	-	
PHF	0.00	0.97	0.95	0.25	**0.97**	0.95	0.84	0.00	0.25	**0.90**	0.00	0.00	0.00	0.00	**0.00**	0.82	0.00	0.87	0.50	**0.86**	**0.94**

Bikes

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1715 - 1730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1730 - 1745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Passenger Vehicles (1-3)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1645 - 1700	0	127	77	0	204	173	113	0	0	286	0	0	0	0	0	101	0	279	0	380	870
1700 - 1715	0	125	90	0	215	171	109	0	1	281	0	0	0	0	0	121	0	266	1	388	884
1715 - 1730	0	122	83	1	206	189	110	0	0	299	0	0	0	0	0	135	0	313	0	448	953
1730 - 1745	0	132	87	0	219	192	138	0	0	330	0	0	0	0	0	89	0	240	1	330	879
Total	0	506	337	1	844	725	470	0	1	1196	0	0	0	0	0	446	0	1098	2	1546	3586
Approach %	0.00	59.95	39.93	0.12	-	60.62	39.30	0.00	0.08	-	0.00	0.00	0.00	0.00	-	28.85	0.00	71.02	0.13	-	
PHF	0.00	0.96	0.94	0.25	**0.96**	0.94	0.85	0.00	0.25	**0.91**	0.00	0.00	0.00	0.00	**0.00**	0.83	0.00	0.88	0.50	**0.86**	**0.94**

Single Unit Trucks (4-7)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1645 - 1700	0	2	3	0	5	4	5	0	0	9	0	0	0	0	0	3	0	1	0	4	18
1700 - 1715	0	1	0	0	1	2	1	0	0	3	0	0	0	0	0	1	0	1	0	2	6
1715 - 1730	0	1	2	0	3	2	1	0	0	3	0	0	0	0	0	3	0	3	0	6	12
1730 - 1745	0	0	1	0	1	2	2	0	0	4	0	0	0	0	0	0	0	1	0	1	6
Total	0	4	6	0	10	10	9	0	0	19	0	0	0	0	0	7	0	6	0	13	42
Approach %	0.00	40.00	60.00	0.00	-	52.63	47.37	0.00	0.00	-	0.00	0.00	0.00	0.00	-	53.85	0.00	46.15	0.00	-	
PHF	0.00	0.50	0.50	0.00	**0.50**	0.63	0.45	0.00	0.00	**0.53**	0.00	0.00	0.00	0.00	**0.00**	0.58	0.00	0.50	0.00	**0.54**	**0.58**

Combination Trucks (8-13)

	Northbound					Southbound					Eastbound					Westbound					
	TN-397 Mack Hatcher Mem Pkwy (South)					TN-397 Mack Hatcher Mem Pkwy (North)					Driveway					Cool Springs Blvd					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1645 - 1700	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1700 - 1715	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
1715 - 1730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
1730 - 1745	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	2	0	0	0	2	7
Approach %	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	100.00	0.00	0.00	0.00	-	
PHF	0.00	0.50	0.00	0.00	**0.50**	0.00	0.25	0.00	0.00	**0.25**	0.00	0.00	0.00	0.00	**0.00**	0.50	0.00	0.00	0.00	**0.50**	**0.58**

APPENDIX C

Volume Development

Trip Generation - 101 Cool Springs Boulevard

ITE Code	Land Use	Setting/Location	Density		Daily	AM Peak Hour			PM Peak Hour		
						Total	Enter	Exit	Total	Enter	Exit
220	Multifamily Housing (Low-Rise)	General Urban/Suburban	178	d.u.	1,216	78	19	59	97	61	36
822	Strip Retail Plaza (<40ksf) (Proposed)	General Urban/Suburban	3,500	s.f.	378	14	8	6	37	19	18
GROSS TRIPS					**1,594**	**92**	**27**	**65**	**134**	**80**	**54**
Gross Trips - Before Reductions					1,594	92	27	65	134	80	54
Residential					1,216	78	19	59	97	61	36
Retail					378	14	8	6	37	19	18
Reduction - Internal Capture					-38	0	0	0	-4	-2	-2
Retail					-38				-4	-2	-2
NEW TRIPS					**1,556**	**92**	**27**	**65**	**130**	**78**	**52**

INTERSECTION VOLUME WORKSHEET

INTERSECTION 1

Mack Hatcher Memorial Parkway at Cool Springs Boulevard

AM PEAK HOUR

	Driveway Eastbound				Cool Springs Boulevard Westbound				Mack Hatcher Memorial Parkway Northbound				Mack Hatcher Memorial Parkway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: KH Collected Count 8/30/2022)																	
Existing 2022 AM Volumes		**0**	**0**	**0**		**154**	**0**	**695**	**2**	**0**	**471**	**470**		**921**	**480**	**0**	**3193**
Existing Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Conflicting Pedestrians		1		0		0		1		0		1		1		0	
Heavy Vehicles						11		22				5		15	9		
Heavy Vehicle %	2	2	2	2	2	7	2	3	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	
Growth Trips	0	0	0	0	0	9	0	42	0	0	29	29	0	56	29	0	194
RIRO Driveway Adjustment					4												
CSTS Model Trip Distribution IN (EB)												*30%*		*70%*			
CSTS Model Trip Distribution OUT (WB)						*30%*		*70%*									
CSTS Model Trips (w/o Zone 12)						65		151				92		214			522
151/201 CSB Trip Distribution IN												*25%*		*20%*			0.45
151/201 CSB Trip Distribution OUT						*25%*		*20%*									0.45
151/201 CSB Trips	0	0	0	0	0	34	0	27	0	0	0	44	0	35	0	0	140
Optima Trips						14		20				10		15			
No-Build 2025 AM Volumes	**0**	**0**	**0**	**0**	**4**	**276**	**0**	**935**	**2**	**0**	**500**	**645**	**0**	**1241**	**509**	**0**	**4112**
Project Traffic																	
Trip Distribution IN												15%		15%			
Trip Distribution OUT						15%		15%									
Project Trips	0	0	0	0	0	10	0	10	0	0	0	4	0	4	0	0	28
Build 2025 AM Volumes	**0**	**0**	**0**	**0**	**4**	**286**	**0**	**945**	**2**	**0**	**500**	**649**	**0**	**1245**	**509**	**0**	**4140**
% from Existing	0.0%	0.0%	0.0%	0.0%	0.0%	53.8%	0.0%	73.5%	100.0%	0.0%	94.2%	72.4%	0.0%	74.0%	94.3%	0.0%	77.1%
% from Background Growth	0.0%	0.0%	0.0%	0.0%	100.0%	42.7%	0.0%	25.4%	0.0%	0.0%	5.8%	27.0%	0.0%	25.7%	5.7%	0.0%	22.2%
% from Project Trips	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	0.0%	1.1%	0.0%	0.0%	0.0%	0.6%	0.0%	0.3%	0.0%	0.0%	0.7%

PM PEAK HOUR

	Driveway Eastbound				Cool Springs Boulevard Westbound				Mack Hatcher Memorial Parkway Northbound				Mack Hatcher Memorial Parkway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes		**0**	**0**	**0**	**2**	**455**	**0**	**1104**	**1**	**0**	**512**	**343**	**1**	**735**	**482**	**0**	**3635**
Existing Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Conflicting Pedestrians																	
Heavy Vehicles						9		6			6	6		10	12		
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	
Growth Trips	0	0	0	0	0	28	0	67	0	0	31	21	0	45	29	0	221
New Road Adjustment					42												
CSTS Model Trip Distribution IN (EB)												*30%*		*70%*			
CSTS Model Trip Distribution OUT (WB)						*30%*		*70%*									
CSTS Model Trips (w/o Zone 12)						138		323				97		226			784
151/201 CSB Trip Distribution IN												*25%*		*20%*			0.45
151/201 CSB Trip Distribution OUT						*25%*		*20%*									0.45
151/201 CSB Trips	0	0	0	0	0	55	0	44	0	0	0	40	0	32	0	0	171
Optima Trips						13		19				15		23			
No-Build 2025 PM Volumes	**0**	**0**	**0**	**0**	**44**	**689**	**0**	**1557**	**1**	**0**	**543**	**516**	**1**	**1061**	**511**	**0**	**4923**
Project Traffic																	
Trip Distribution IN												15%		15%			
Trip Distribution OUT						15%		15%									
Project Trips	0	0	0	0	0	8	0	8	0	0	0	12	0	12	0	0	40
Build 2025 PM Volumes	**0**	**0**	**0**	**0**	**44**	**697**	**0**	**1565**	**1**	**0**	**543**	**528**	**1**	**1073**	**511**	**0**	**4963**
% from Existing	0.0%	0.0%	0.0%	0.0%	4.5%	65.3%	0.0%	70.5%	100.0%	0.0%	94.3%	65.0%	100.0%	68.5%	94.3%	0.0%	73.2%
% from Background Growth	0.0%	0.0%	0.0%	0.0%	95.5%	33.6%	0.0%	28.9%	0.0%	0.0%	5.7%	32.8%	0.0%	30.4%	5.7%	0.0%	26.0%
% from Project Trips	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.5%	0.0%	0.0%	0.0%	2.3%	0.0%	1.1%	0.0%	0.0%	0.8%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 2

Cool Spring Boulevard at Coldwell Bankers Driveway/Aspen Grove Medical Driveway

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Coldwell Bankers Driveway Northbound				Aspen Grove Medical Driveway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Commercial Driveway Volumes In/Out from 201 CSB Joint TIS, CSB through volumes balanced with Int 1)																	
Existing 2023 AM Volumes		**27**	**1358**	**6**		**15**	**845**	**38**		**1**	**0**	**5**		**4**	**0**	**3**	**2302**
Existing Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1	1.04	1	1.04	1	1.04	1	1	1	1	1	1	1	1	1	
Growth Trips	0	0	54	0	0	0	34	0	0	0	0	0	0	0	0	0	88
RIRO Driveway Adjustment		-27	31				1			-1		1		-4		4	
CSTS Model Trips (w/o Zone 12)			306				216										522
151/201 CSB Trip Distribution IN			*45%*					*40%*								*35%*	1.2
151/201 CSB Trip Distribution OUT							*10%*										0.1
151/201 CSB Trips	0	0	78	0	0	0	13	70	0	0	0	0	0	0	0	61	222
Optima Trips			26				34										
No-Build 2025 AM Volumes	**0**	**0**	**1853**	**6**	**0**	**15**	**1143**	**108**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**68**	**3199**
Project Traffic																	
Trip Distribution IN			30%					70%									
Trip Distribution OUT																30%	
Project Trips	0	0	8	0	0	0	0	19	0	0	0	0	0	0	0	20	47
Build 2025 AM Volumes	**0**	**0**	**1861**	**6**	**0**	**15**	**1143**	**127**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**88**	**3246**
% from Existing	0.0%	0.0%	73.0%	100.0%	0.0%	100.0%	73.9%	29.9%	0.0%	0.0%	0.0%	83.3%	0.0%	0.0%	0.0%	3.4%	70.9%
% from Background Growth	0.0%	0.0%	26.6%	0.0%	0.0%	0.0%	26.1%	55.1%	0.0%	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	73.9%	27.6%
% from Project Trips	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.7%	1.4%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Coldwell Bankers Driveway Northbound				Aspen Grove Medical Driveway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes		**2**	**1070**	**6**		**11**	**1532**	**7**		**9**	**0**	**12**		**42**	**0**	**18**	**2709**
Existing Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1	1.04	1	1.04	1	1.04	1	1	1	1	1	1	1	1	1	
Growth Trips	0	0	43	0	0	0	61	0	0	0	0	0	0	0	0	0	104
New Road Adjustment		-2	44				9			-9		9		-42		42	
CSTS Model Trips (w/o Zone 12)			323				461										784
151/201 CSB Trip Distribution IN			*45%*					*40%*								*35%*	1.2
151/201 CSB Trip Distribution OUT							*10%*										0.1
151/201 CSB Trips	0	0	72	0	0	0	22	64	0	0	0	0	0	0	0	56	214
Optima Trips			39				32										
No-Build 2025 PM Volumes	**0**	**0**	**1591**	**6**	**0**	**11**	**2117**	**71**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**116**	**3933**
Project Traffic																	
Trip Distribution IN			30%					70%									
Trip Distribution OUT																30%	
Project Trips	0	0	23	0	0	0	0	55	0	0	0	0	0	0	0	16	94
Build 2025 PM Volumes	**0**	**0**	**1614**	**6**	**0**	**11**	**2117**	**126**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**132**	**4027**
% from Existing	0.0%	0.0%	66.3%	100.0%	0.0%	100.0%	72.4%	5.6%	0.0%	0.0%	0.0%	57.1%	0.0%	0.0%	0.0%	13.6%	67.3%
% from Background Growth	0.0%	0.0%	32.3%	0.0%	0.0%	0.0%	27.6%	50.8%	0.0%	0.0%	0.0%	42.9%	0.0%	0.0%	0.0%	74.2%	30.4%
% from Project Trips	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	43.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.1%	2.3%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 3

Cool Springs Boulevard at Windcross Court

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Windcross Court Northbound				Windcross Court Extension Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Existing 2020 Vistro Counts, Balanced through volumes with Int 2)																	
Existing 2023 AM Volumes			**1279**	**88**		**196**	**873**	**0**		**25**	**0**	**96**					**2557**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1	1	1	1	1	1	1	1	
Growth Trips	0	0	51	4	0	8	35	0	0	0	0	0	0	0	0	0	98
RIRO Driveway Adjustment	1	31															
CSTS Model Trips (w/o Zone 12)			306				216										522
151/201 CSB Trip Distribution IN		*45%*					*40%*	*15%*									1
151/201 CSB Trip Distribution OUT														*55%*		*10%*	0.65
151/201 CSB Trips	0	78	0	0	0	0	70	26	0	0	0	0	0	74	0	13	261
Optima Trips			26				34										
No-Build 2025 AM Volumes	**1**	**109**	**1662**	**92**	**0**	**204**	**1228**	**26**	**0**	**25**	**0**	**96**	**0**	**74**	**0**	**13**	**3530**
Project Traffic																	
Trip Distribution IN		30%					70%										
Trip Distribution OUT														70%			
Project Trips	0	8	0	0	0	0	19	0	0	0	0	0	0	46	0	0	73
Build 2025 AM Volumes	**1**	**117**	**1662**	**92**	**0**	**204**	**1247**	**26**	**0**	**25**	**0**	**96**	**0**	**120**	**0**	**13**	**3603**
% from Existing	0.0%	0.0%	77.0%	95.7%	0.0%	96.1%	70.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	71.0%
% from Background Growth	100.0%	93.2%	23.0%	4.3%	0.0%	3.9%	28.5%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	61.7%	0.0%	100.0%	27.0%
% from Project Trips	0.0%	6.8%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	38.3%	0.0%	0.0%	2.0%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Windcross Court Northbound				Windcross Court Extension Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes			**1106**	**18**		**127**	**1488**			**62**		**268**					**3069**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1	1	1	1	1	1	1	1	
Growth Trips	0	0	44	1	0	5	60	0	0	0	0	0	0	0	0	0	110
New Road Adjustment	9	44															
CSTS Model Trips (w/o Zone 12)			323				461										784
151/201 CSB Trip Distribution IN		*45%*					*40%*	*15%*									1
151/201 CSB Trip Distribution OUT														*55%*		*10%*	0.65
151/201 CSB Trips	0	72	0	0	0	0	64	24	0	0	0	0	0	122	0	22	304
Optima Trips			39				32										
No-Build 2025 PM Volumes	**9**	**116**	**1512**	**19**	**0**	**132**	**2105**	**24**	**0**	**62**	**0**	**268**	**0**	**122**	**0**	**22**	**4391**
Project Traffic																	
Trip Distribution IN		30%					70%										
Trip Distribution OUT														70%			
Project Trips	0	23	0	0	0	0	55	0	0	0	0	0	0	36	0	0	114
Build 2025 PM Volumes	**9**	**139**	**1512**	**19**	**0**	**132**	**2160**	**24**	**0**	**62**	**0**	**268**	**0**	**158**	**0**	**22**	**4505**
% from Existing	0.0%	0.0%	73.1%	94.7%	0.0%	96.2%	68.9%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	68.1%
% from Background Growth	100.0%	83.5%	26.9%	5.3%	0.0%	3.8%	28.6%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	77.2%	0.0%	100.0%	29.3%
% from Project Trips	0.0%	16.5%	0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.8%	0.0%	0.0%	2.5%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 4

Cool Springs Boulevard at McEwen Drive

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				McEwen Drive Northbound				- Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Existing 2020 Vistro Counts, Balanced volumes with Int 3 with through/turn split %s from Magnetometer Data*)																	
Existing 2023 AM Volumes			**874**	**501**		**93**	**750**			**319**		**223**					**2760**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1	1	1	1	
Growth Trips	0	0	35	20	0	4	30	0	0	13	0	9	0	0	0	0	111
RIRO Driveway Adjustment																	
CSTS Model Trips (w/o Zone 12)			55	251		0	61			155		0					522
151/201 CSB Trip Distribution IN							*30%*			*25%*							0.55
151/201 CSB Trip Distribution OUT			*30%*	*25%*													0.55
151/201 CSB Trips	0	0	40	34	0	0	52	0	0	44	0	0	0	0	0	0	170
Optima Trips		26	-1	0		0	-1	43		0	34	0		58	45	35	
No-Build 2025 AM Volumes	**0**	**26**	**1003**	**806**	**0**	**97**	**892**	**43**	**0**	**531**	**34**	**232**	**0**	**58**	**45**	**35**	**3802**
Project Traffic																	
Trip Distribution IN							50%			20%							
Trip Distribution OUT			50%	20%													
Project Trips	0	0	33	13	0	0	14	0	0	5	0	0	0	0	0	0	65
Build 2025 AM Volumes	**0**	**26**	**1036**	**819**	**0**	**97**	**906**	**43**	**0**	**536**	**34**	**232**	**0**	**58**	**45**	**35**	**3867**
% from Existing	0.0%	0.0%	84.4%	61.2%	0.0%	95.9%	82.8%	0.0%	0.0%	59.5%	0.0%	96.1%	0.0%	0.0%	0.0%	0.0%	71.4%
% from Background Growth	0.0%	100.0%	12.5%	37.2%	0.0%	4.1%	15.7%	100.0%	0.0%	39.6%	100.0%	3.9%	0.0%	100.0%	100.0%	100.0%	26.9%
% from Project Trips	0.0%	0.0%	3.2%	1.6%	0.0%	0.0%	1.5%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				McEwen Drive Northbound				- Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes			**971**	**403**		**260**	**1097**			**518**		**179**					**3428**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1	1	1	1	
Growth Trips	0	0	39	16	0	10	44	0	0	21	0	7	0	0	0	0	137
New Road Adjustment																	
CSTS Model Trips (w/o Zone 12)			55	268		0	61			400		0					784
151/201 CSB Trip Distribution IN							*30%*			*25%*							0.55
151/201 CSB Trip Distribution OUT			*30%*	*25%*													0.55
151/201 CSB Trips	0	0	66	55	0	0	48	0	0	40	0	0	0	0	0	0	209
Optima Trips		39	-7	-3		-2	-7	65		-3	51	-1		62	47	42	
No-Build 2025 PM Volumes	**0**	**39**	**1124**	**739**	**0**	**268**	**1243**	**65**	**0**	**976**	**51**	**185**	**0**	**62**	**47**	**42**	**4841**
Project Traffic																	
Trip Distribution IN							50%			20%							
Trip Distribution OUT			50%	20%													
Project Trips	0	0	26	10	0	0	39	0	0	16	0	0	0	0	0	0	91
Build 2025 PM Volumes	**0**	**39**	**1150**	**749**	**0**	**268**	**1282**	**65**	**0**	**992**	**51**	**185**	**0**	**62**	**47**	**42**	**4932**
% from Existing	0.0%	0.0%	84.4%	53.8%	0.0%	97.0%	85.6%	0.0%	0.0%	52.2%	0.0%	96.8%	0.0%	0.0%	0.0%	0.0%	69.5%
% from Background Growth	0.0%	100.0%	13.3%	44.9%	0.0%	3.0%	11.4%	100.0%	0.0%	46.2%	100.0%	3.2%	0.0%	100.0%	100.0%	100.0%	28.6%
% from Project Trips	0.0%	0.0%	2.3%	1.3%	0.0%	0.0%	3.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%

**Note: Existing EB traffic balanced from Int 3 was split 65%-EBT/35%-EBR. Existing WB traffic balanced from Int 3 was split 65%-WBT/35%-NBL*

INTERSECTION VOLUME WORKSHEET

INTERSECTION 1

Mack Hatcher Memorial Parkway at Cool Springs Boulevard

AM PEAK HOUR

	Driveway Eastbound				Cool Springs Boulevard Westbound				Mack Hatcher Memorial Parkway Northbound				Mack Hatcher Memorial Parkway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: KH Collected Count 8/30/2022)																	
Existing 2022 AM Volumes		**0**	**0**	**0**		**154**	**0**	**695**	**2**	**0**	**471**	**470**		**921**	**480**	**0**	**3193**
Existing Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Conflicting Pedestrians		1		0		0		1		0		1		1		0	
Heavy Vehicles						11		22				5		15	9		
Heavy Vehicle %	2	2	2	2	2	7	2	3	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Growth Factor	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	
Growth Trips	0	0	0	0	0	26	0	120	0	0	81	81	0	158	83	0	549
RIRO Driveway Adjustment					4												
CSTS Model Trip Distribution IN (EB)												*30%*		*70%*			
CSTS Model Trip Distribution OUT (WB)						*30%*		*70%*									
CSTS Model Trips (w/o Zone 12)						65		151				92		214			522
151/201 CSB Trip Distribution IN												*25%*		*20%*			0.45
151/201 CSB Trip Distribution OUT						*25%*		*20%*									0.45
151/201 CSB Trips	0	0	0	0	0	34	0	27	0	0	0	44	0	35	0	0	140
Optima Trips						14		20				10		15			
No-Build 2030 AM Volumes	**0**	**0**	**0**	**0**	**4**	**293**	**0**	**1013**	**2**	**0**	**552**	**697**	**0**	**1343**	**563**	**0**	**4467**
Project Traffic																	
Trip Distribution IN												15%		15%			
Trip Distribution OUT						15%		15%									
Project Trips	0	0	0	0	0	10	0	10	0	0	0	4	0	4	0	0	28
Build 2030 AM Volumes	**0**	**0**	**0**	**0**	**4**	**303**	**0**	**1023**	**2**	**0**	**552**	**701**	**0**	**1347**	**563**	**0**	**4495**
% from Existing	0.0%	0.0%	0.0%	0.0%	0.0%	50.8%	0.0%	67.9%	100.0%	0.0%	85.3%	67.0%	0.0%	68.4%	85.3%	0.0%	71.0%
% from Background Growth	0.0%	0.0%	0.0%	0.0%	100.0%	45.9%	0.0%	31.1%	0.0%	0.0%	14.7%	32.4%	0.0%	31.3%	14.7%	0.0%	28.3%
% from Project Trips	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%	0.0%	1.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.3%	0.0%	0.0%	0.6%

PM PEAK HOUR

	Driveway Eastbound				Cool Springs Boulevard Westbound				Mack Hatcher Memorial Parkway Northbound				Mack Hatcher Memorial Parkway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes		**0**	**0**	**0**	**2**	**455**	**0**	**1104**	**1**	**0**	**512**	**343**	**1**	**735**	**482**	**0**	**3635**
Existing Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Conflicting Pedestrians																	
Heavy Vehicles						9		6			6	6		10	12		
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Growth Factor	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	
Growth Trips	0	0	0	0	0	78	0	190	0	0	88	59	0	126	83	0	624
New Road Adjustment					42												
CSTS Model Trip Distribution IN (EB)												*30%*		*70%*			
CSTS Model Trip Distribution OUT (WB)						*30%*		*70%*									
CSTS Model Trips (w/o Zone 12)						138		323				97		226			784
151/201 CSB Trip Distribution IN												*25%*		*20%*			0.45
151/201 CSB Trip Distribution OUT						*25%*		*20%*									0.45
151/201 CSB Trips	0	0	0	0	0	55	0	44	0	0	0	40	0	32	0	0	171
Optima Trips						13		19				15		23			
No-Build 2030 PM Volumes	**0**	**0**	**0**	**0**	**44**	**739**	**0**	**1680**	**1**	**0**	**600**	**554**	**1**	**1142**	**565**	**0**	**5326**
Project Traffic																	
Trip Distribution IN												15%		15%			
Trip Distribution OUT						15%		15%									
Project Trips	0	0	0	0	0	8	0	8	0	0	0	12	0	12	0	0	40
Build 2030 PM Volumes	**0**	**0**	**0**	**0**	**44**	**747**	**0**	**1688**	**1**	**0**	**600**	**566**	**1**	**1154**	**565**	**0**	**5366**
% from Existing	0.0%	0.0%	0.0%	0.0%	4.5%	60.9%	0.0%	65.4%	100.0%	0.0%	85.3%	60.6%	100.0%	63.7%	85.3%	0.0%	67.7%
% from Background Growth	0.0%	0.0%	0.0%	0.0%	95.5%	38.0%	0.0%	34.1%	0.0%	0.0%	14.7%	37.3%	0.0%	35.3%	14.7%	0.0%	31.5%
% from Project Trips	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.5%	0.0%	0.0%	0.0%	2.1%	0.0%	1.0%	0.0%	0.0%	0.7%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 2

Cool Spring Boulevard at Coldwell Bankers Driveway/Aspen Grove Medical Driveway

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Coldwell Bankers Driveway Northbound				Aspen Grove Medical Driveway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Commercial Driveway Volumes In/Out from 201 CSB Joint TIS, CSB through volumes balanced with Int 1)																	
Existing 2023 AM Volumes		**27**	**1358**	**6**		**15**	**845**	**38**		**1**	**0**	**5**		**4**	**0**	**3**	**2302**
Existing Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1	1.149	1	1.149	1	1.149	1	1	1	1	1	1	1	1	1	
Growth Trips	0	0	202	0	0	0	126	0	0	0	0	0	0	0	0	0	328
RIRO Driveway Adjustment		-27	31				1			-1		1		-4		4	
CSTS Model Trips (w/o Zone 12)			306				216										522
151/201 CSB Trip Distribution IN			*45%*					*40%*								*35%*	1.2
151/201 CSB Trip Distribution OUT							*10%*										0.1
151/201 CSB Trips	0	0	78	0	0	0	13	70	0	0	0	0	0	0	0	61	222
Optima Trips			26				34										
No-Build 2030 AM Volumes	**0**	**0**	**2001**	**6**	**0**	**15**	**1235**	**108**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**68**	**3439**
Project Traffic																	
Trip Distribution IN			30%					70%									
Trip Distribution OUT																30%	
Project Trips	0	0	8	0	0	0	0	19	0	0	0	0	0	0	0	20	47
Build 2030 AM Volumes	**0**	**0**	**2009**	**6**	**0**	**15**	**1235**	**127**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**88**	**3486**
% from Existing	0.0%	0.0%	67.6%	100.0%	0.0%	100.0%	68.4%	29.9%	0.0%	0.0%	0.0%	83.3%	0.0%	0.0%	0.0%	3.4%	66.0%
% from Background Growth	0.0%	0.0%	32.0%	0.0%	0.0%	0.0%	31.6%	55.1%	0.0%	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	73.9%	32.6%
% from Project Trips	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.7%	1.3%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Coldwell Bankers Driveway Northbound				Aspen Grove Medical Driveway Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes		**2**	**1070**	**6**		**11**	**1532**	**7**		**9**	**0**	**12**		**42**	**0**	**18**	**2709**
Existing Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1	1.149	1	1.149	1	1.149	1	1	1	1	1	1	1	1	1	
Growth Trips	0	0	159	0	0	0	228	0	0	0	0	0	0	0	0	0	387
New Road Adjustment		-2	44				9			-9		9		-42		42	
CSTS Model Trips (w/o Zone 12)			323				461										784
151/201 CSB Trip Distribution IN			*45%*					*40%*								*35%*	1.2
151/201 CSB Trip Distribution OUT							*10%*										0.1
151/201 CSB Trips	0	0	72	0	0	0	22	64	0	0	0	0	0	0	0	56	214
Optima Trips			39				32										
No-Build 2030 PM Volumes	**0**	**0**	**1707**	**6**	**0**	**11**	**2284**	**71**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**116**	**4216**
Project Traffic																	
Trip Distribution IN			30%					70%									
Trip Distribution OUT																30%	
Project Trips	0	0	23	0	0	0	0	55	0	0	0	0	0	0	0	16	94
Build 2030 PM Volumes	**0**	**0**	**1730**	**6**	**0**	**11**	**2284**	**126**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**132**	**4310**
% from Existing	0.0%	0.0%	61.8%	100.0%	0.0%	100.0%	67.1%	5.6%	0.0%	0.0%	0.0%	57.1%	0.0%	0.0%	0.0%	13.6%	62.9%
% from Background Growth	0.0%	0.0%	36.8%	0.0%	0.0%	0.0%	32.9%	50.8%	0.0%	0.0%	0.0%	42.9%	0.0%	0.0%	0.0%	74.2%	35.0%
% from Project Trips	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	43.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.1%	2.2%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 3

Cool Springs Boulevard at Windcross Court

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Windcross Court Northbound				Windcross Court Extension Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Existing 2020 Vistro Counts, Balanced through volumes with Int 2)																	
Existing 2023 AM Volumes			**1279**	**88**		**196**	**873**	**0**		**25**	**0**	**96**					**2557**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1	1	1	1	1	1	1	1	
Growth Trips	0	0	191	13	0	29	130	0	0	0	0	0	0	0	0	0	363
RIRO Driveway Adjustment	1	31															
CSTS Model Trips (w/o Zone 12)			306				216										522
151/201 CSB Trip Distribution IN		*45%*					*40%*	*15%*									1
151/201 CSB Trip Distribution OUT														*55%*		*10%*	0.65
151/201 CSB Trips	0	78	0	0	0	0	70	26	0	0	0	0	0	74	0	13	261
Optima Trips			26				34										
No-Build 2030 AM Volumes	**1**	**109**	**1802**	**101**	**0**	**225**	**1323**	**26**	**0**	**25**	**0**	**96**	**0**	**74**	**0**	**13**	**3795**
Project Traffic																	
Trip Distribution IN		30%					70%										
Trip Distribution OUT														70%			
Project Trips	0	8	0	0	0	0	19	0	0	0	0	0	0	46	0	0	73
Build 2030 AM Volumes	**1**	**117**	**1802**	**101**	**0**	**225**	**1342**	**26**	**0**	**25**	**0**	**96**	**0**	**120**	**0**	**13**	**3868**
% from Existing	0.0%	0.0%	71.0%	87.1%	0.0%	87.1%	65.1%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	66.1%
% from Background Growth	100.0%	93.2%	29.0%	12.9%	0.0%	12.9%	33.5%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	61.7%	0.0%	100.0%	32.0%
% from Project Trips	0.0%	6.8%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	38.3%	0.0%	0.0%	1.9%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				Windcross Court Northbound				Windcross Court Extension Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes			**1089**	**35**		**108**	**1488**			**62**		**268**					**3050**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1	1	1	1	1	1	1	1	
Growth Trips	0	0	162	5	0	16	222	0	0	0	0	0	0	0	0	0	405
New Road Adjustment	9	44															
CSTS Model Trips (w/o Zone 12)			323				461										784
151/201 CSB Trip Distribution IN		*45%*					*40%*	*15%*									1
151/201 CSB Trip Distribution OUT														*55%*		*10%*	0.65
151/201 CSB Trips	0	72	0	0	0	0	64	24	0	0	0	0	0	122	0	22	304
Optima Trips			39				32										
No-Build 2030 PM Volumes	**9**	**116**	**1613**	**40**	**0**	**124**	**2267**	**24**	**0**	**62**	**0**	**268**	**0**	**122**	**0**	**22**	**4667**
Project Traffic																	
Trip Distribution IN		30%					70%										
Trip Distribution OUT														70%			
Project Trips	0	23	0	0	0	0	55	0	0	0	0	0	0	36	0	0	114
Build 2030 PM Volumes	**9**	**139**	**1613**	**40**	**0**	**124**	**2322**	**24**	**0**	**62**	**0**	**268**	**0**	**158**	**0**	**22**	**4781**
% from Existing	0.0%	0.0%	67.5%	87.5%	0.0%	87.1%	64.1%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	63.8%
% from Background Growth	100.0%	83.5%	32.5%	12.5%	0.0%	12.9%	33.5%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	77.2%	0.0%	100.0%	33.8%
% from Project Trips	0.0%	16.5%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.8%	0.0%	0.0%	2.4%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 4

Cool Springs Boulevard at McEwen Drive

AM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				McEwen Drive Northbound				- Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic (Count Source: Existing 2020 Vistro Counts, Balanced volumes with Int 3 with through/turn split %s from Magnetometer Data*)																	
Existing 2023 AM Volumes			**874**	**501**		**93**	**750**			**319**		**223**					**2760**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1	1	1	1	
Growth Trips	0	0	130	75	0	14	112	0	0	48	0	33	0	0	0	0	412
RIRO Driveway Adjustment																	
CSTS Model Trips (w/o Zone 12)			55	251		0	61			155		0					522
151/201 CSB Trip Distribution IN							*30%*			*25%*							0.55
151/201 CSB Trip Distribution OUT			*30%*	*25%*													0.55
151/201 CSB Trips	0	0	40	34	0	0	52	0	0	44	0	0	0	0	0	0	170
Optima Trips		26	-1	0		0	-1	43		0	34	0		58	45	35	
No-Build 2030 AM Volumes	**0**	**26**	**1098**	**861**	**0**	**107**	**974**	**43**	**0**	**566**	**34**	**256**	**0**	**58**	**45**	**35**	**4103**
Project Traffic																	
Trip Distribution IN							50%			20%							
Trip Distribution OUT			50%	20%													
Project Trips	0	0	33	13	0	0	14	0	0	5	0	0	0	0	0	0	65
Build 2030 AM Volumes	**0**	**26**	**1131**	**874**	**0**	**107**	**988**	**43**	**0**	**571**	**34**	**256**	**0**	**58**	**45**	**35**	**4168**
% from Existing	0.0%	0.0%	77.3%	57.3%	0.0%	86.9%	75.9%	0.0%	0.0%	55.9%	0.0%	87.1%	0.0%	0.0%	0.0%	0.0%	66.2%
% from Background Growth	0.0%	100.0%	19.8%	41.2%	0.0%	13.1%	22.7%	100.0%	0.0%	43.3%	100.0%	12.9%	0.0%	100.0%	100.0%	100.0%	32.2%
% from Project Trips	0.0%	0.0%	2.9%	1.5%	0.0%	0.0%	1.4%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%

PM PEAK HOUR

	Cool Springs Boulevard Eastbound				Cool Springs Boulevard Westbound				McEwen Drive Northbound				- Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2023 AM Volumes			**954**	**403**		**260**	**1078**			**518**		**179**					**3392**
Existing Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	
Growth Factor	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1	1	1	1	
Growth Trips	0	0	142	60	0	39	161	0	0	77	0	27	0	0	0	0	506
New Road Adjustment																	
CSTS Model Trips (w/o Zone 12)			55	268		0	61			400		0					784
151/201 CSB Trip Distribution IN							*30%*			*25%*							0.55
151/201 CSB Trip Distribution OUT			*30%*	*25%*													0.55
151/201 CSB Trips	0	0	66	55	0	0	48	0	0	40	0	0	0	0	0	0	209
Optima Trips		39	-7	-3		-2	-7	65		-3	51	-1		62	47	42	
No-Build 2030 PM Volumes	**0**	**39**	**1210**	**783**	**0**	**297**	**1341**	**65**	**0**	**1032**	**51**	**205**	**0**	**62**	**47**	**42**	**5174**
Project Traffic																	
Trip Distribution IN							50%			20%							
Trip Distribution OUT			50%	20%													
Project Trips	0	0	26	10	0	0	39	0	0	16	0	0	0	0	0	0	91
Build 2030 PM Volumes	**0**	**39**	**1236**	**793**	**0**	**297**	**1380**	**65**	**0**	**1048**	**51**	**205**	**0**	**62**	**47**	**42**	**5265**
% from Existing	0.0%	0.0%	77.2%	50.8%	0.0%	87.5%	78.1%	0.0%	0.0%	49.4%	0.0%	87.3%	0.0%	0.0%	0.0%	0.0%	64.4%
% from Background Growth	0.0%	100.0%	20.7%	47.9%	0.0%	12.5%	19.1%	100.0%	0.0%	49.0%	100.0%	12.7%	0.0%	100.0%	100.0%	100.0%	33.8%
% from Project Trips	0.0%	0.0%	2.1%	1.3%	0.0%	0.0%	2.8%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%

**Note: Existing EB traffic balanced from Int 3 was split 65%-EBT/35%-EBR. Existing WB traffic balanced from Int 3 was split 65%-WBT/35%-NBL*

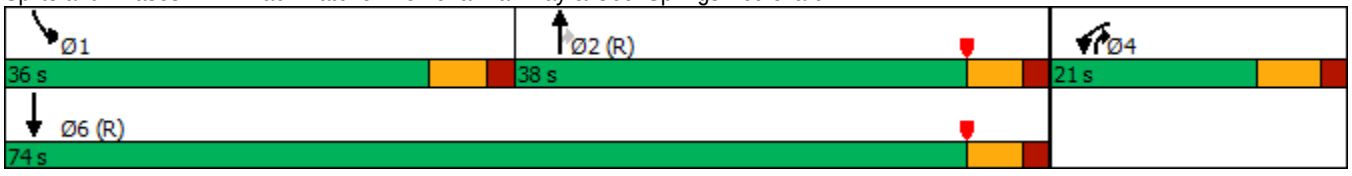
APPENDIX D

Synchro Reports

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	154	695	473	470	921	480
Future Volume (vph)	154	695	473	470	921	480
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	8.0		18.0	8.0	8.0	10.0
Minimum Split (s)	14.5		24.0	14.5	14.0	16.0
Total Split (s)	21.0		38.0	21.0	36.0	74.0
Total Split (%)	22.1%		40.0%	22.1%	37.9%	77.9%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	12.7	95.0	33.8	46.0	30.0	69.8
Actuated g/C Ratio	0.13	1.00	0.36	0.48	0.32	0.73
v/c Ratio	0.37	0.47	0.39	0.64	0.88	0.19
Control Delay	30.4	2.4	24.5	18.1	42.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	2.4	24.5	18.1	42.2	4.3
LOS	C	A	C	B	D	A
Approach Delay	7.5		21.3			29.2
Approach LOS	A		C			C

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 68 (72%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 65.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	160	724	493	490	959	500
v/c Ratio	0.37	0.47	0.39	0.64	0.88	0.19
Control Delay	30.4	2.4	24.5	18.1	42.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	2.4	24.5	18.1	42.2	4.3
Queue Length 50th (ft)	41	19	117	173	280	43
Queue Length 95th (ft)	70	29	164	267	#393	61
Internal Link Dist (ft)	425		1396			1960
Turn Bay Length (ft)		230		1000	1000	
Base Capacity (vph)	499	1549	1258	797	1084	2599
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.47	0.39	0.61	0.88	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	154	695	473	470	921	480
Future Volume (veh/h)	154	695	473	470	921	480
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	160	0	493	490	959	500
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	3	2	2	2	2
Cap, veh/h	275		1467	785	1070	2791
Arrive On Green	0.08	0.00	0.41	0.41	0.31	0.79
Sat Flow, veh/h	3319	1572	3647	1583	3456	3647
Grp Volume(v), veh/h	160	0	493	490	959	500
Grp Sat Flow(s),veh/h/ln	1659	1572	1777	1583	1728	1777
Q Serve(g_s), s	4.4	0.0	9.0	21.5	25.2	3.3
Cycle Q Clear(g_c), s	4.4	0.0	9.0	21.5	25.2	3.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	275		1467	785	1070	2791
V/C Ratio(X)	0.58		0.34	0.62	0.90	0.18
Avail Cap(c_a), veh/h	507		1467	785	1091	2791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	0.0	19.0	17.5	31.3	2.5
Incr Delay (d2), s/veh	4.1	0.0	0.6	3.7	11.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.5	9.3	11.4	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.1	0.0	19.6	21.2	43.0	2.7
LnGrp LOS	D		B	C	D	A
Approach Vol, veh/h	160		983			1459
Approach Delay, s/veh	46.1		20.4			29.2
Approach LOS	D		C			C

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	35.4	45.2		14.4		80.6
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	30.0	32.0		14.5		68.0
Max Q Clear Time (g_c+I1), s	27.2	23.5		6.4		5.3
Green Ext Time (p_c), s	2.2	6.5		0.6		7.0

Intersection Summary	
HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	1358	6	15	845	38	1	0	5	4	0	3
Future Vol, veh/h	27	1358	6	15	845	38	1	0	5	4	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	270	-	-	335	-	130	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	1429	6	16	889	40	1	0	5	4	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	929	0	0	1435	0	0	1965	2449	718	1692	2412	445
Stage 1	-	-	-	-	-	-	1488	1488	-	921	921	-
Stage 2	-	-	-	-	-	-	477	961	-	771	1491	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	732	-	-	469	-	-	38	31	371	60	32	561
Stage 1	-	-	-	-	-	-	130	186	-	291	347	-
Stage 2	-	-	-	-	-	-	538	333	-	359	185	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	732	-	-	469	-	-	36	29	371	56	30	561
Mov Cap-2 Maneuver	-	-	-	-	-	-	101	114	-	162	111	-
Stage 1	-	-	-	-	-	-	125	179	-	280	335	-
Stage 2	-	-	-	-	-	-	517	322	-	340	178	-

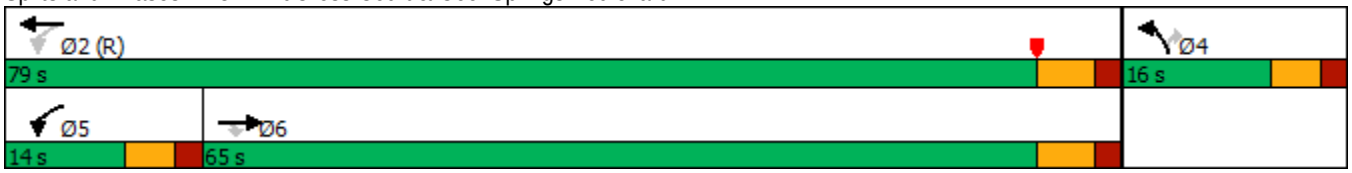
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	19.4	20.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	257	732	-	-	469	-	-	162	561
HCM Lane V/C Ratio	0.025	0.039	-	-	0.034	-	-	0.026	0.006
HCM Control Delay (s)	19.4	10.1	-	-	12.9	-	-	27.8	11.5
HCM Lane LOS	C	B	-	-	B	-	-	D	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-	-	0.1	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1279	88	196	873	25	96
Future Volume (vph)	1279	88	196	873	25	96
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	6.0	20.0	8.0	8.0
Minimum Split (s)	26.0	26.0	11.5	26.0	13.5	13.5
Total Split (s)	65.0	65.0	14.0	79.0	16.0	16.0
Total Split (%)	68.4%	68.4%	14.7%	83.2%	16.8%	16.8%
Yellow Time (s)	4.0	4.0	3.5	4.0	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.5	6.0	5.5	5.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	59.1	59.1	73.5	73.0	10.5	10.5
Actuated g/C Ratio	0.62	0.62	0.77	0.77	0.11	0.11
v/c Ratio	0.63	0.09	0.68	0.35	0.14	0.39
Control Delay	16.7	3.0	28.1	2.5	40.1	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	3.0	28.1	2.5	40.1	12.8
LOS	B	A	C	A	D	B
Approach Delay	15.8			7.2	18.4	
Approach LOS	B			A	B	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 12.3	Intersection LOS: B
Intersection Capacity Utilization 67.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1390	96	213	949	27	104
v/c Ratio	0.63	0.09	0.68	0.35	0.14	0.39
Control Delay	16.7	3.0	28.1	2.5	40.1	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	3.0	28.1	2.5	40.1	12.8
Queue Length 50th (ft)	367	13	28	48	15	0
Queue Length 95th (ft)	m431	m16	m98	60	41	47
Internal Link Dist (ft)	434			1340	817	
Turn Bay Length (ft)		300	360			150
Base Capacity (vph)	2202	1021	313	2719	195	267
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.09	0.68	0.35	0.14	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1279	88	196	873	25	96
Future Volume (veh/h)	1279	88	196	873	25	96
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1390	96	213	949	27	104
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2301	1026	337	2731	197	175
Arrive On Green	0.65	0.65	0.13	1.00	0.11	0.11
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	1390	96	213	949	27	104
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	21.5	2.2	3.7	0.0	1.3	5.9
Cycle Q Clear(g_c), s	21.5	2.2	3.7	0.0	1.3	5.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2301	1026	337	2731	197	175
V/C Ratio(X)	0.60	0.09	0.63	0.35	0.14	0.59
Avail Cap(c_a), veh/h	2301	1026	385	2731	197	175
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	9.7	6.3	9.8	0.0	38.2	40.2
Incr Delay (d2), s/veh	0.7	0.1	3.0	0.3	1.4	13.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.6	1.7	0.1	0.6	5.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.4	6.4	12.9	0.3	39.6	54.2
LnGrp LOS	B	A	B	A	D	D
Approach Vol, veh/h	1486			1162	131	
Approach Delay, s/veh	10.1			2.6	51.2	
Approach LOS	B			A	D	

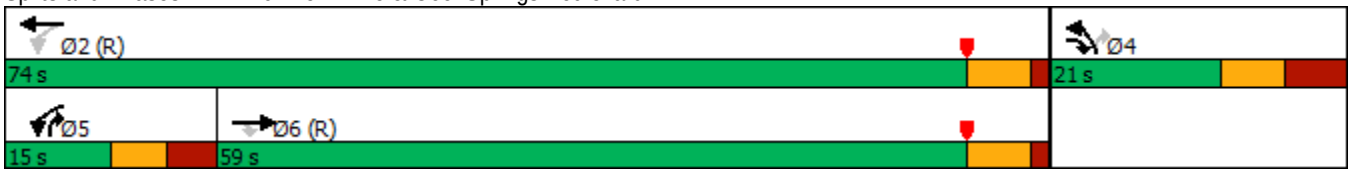
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		79.0		16.0	11.5	67.5
Change Period (Y+Rc), s		6.0		5.5	5.5	6.0
Max Green Setting (Gmax), s		73.0		10.5	8.5	59.0
Max Q Clear Time (g_c+I1), s		2.0		7.9	5.7	23.5
Green Ext Time (p_c), s		17.8		0.2	0.2	23.8

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	874	501	93	750	319	223
Future Volume (vph)	874	501	93	750	319	223
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	6	4	5	2	4	5
Permitted Phases		6	2			4
Detector Phase	6	4	5	2	4	5
Switch Phase						
Minimum Initial (s)	15.0	7.0	6.0	15.0	7.0	6.0
Minimum Split (s)	21.0	16.0	13.5	21.0	16.0	13.5
Total Split (s)	59.0	21.0	15.0	74.0	21.0	15.0
Total Split (%)	62.1%	22.1%	15.8%	77.9%	22.1%	15.8%
Yellow Time (s)	4.5	4.5	4.0	4.5	4.5	4.0
All-Red Time (s)	1.5	4.5	3.5	1.5	4.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	9.0	7.5	6.0	9.0	7.5
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Act Effct Green (s)	54.3	72.0	66.8	68.3	11.7	27.2
Actuated g/C Ratio	0.57	0.76	0.70	0.72	0.12	0.29
v/c Ratio	0.47	0.41	0.27	0.32	0.82	0.45
Control Delay	5.7	0.7	6.3	5.3	57.9	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	0.7	6.3	5.3	57.9	17.0
LOS	A	A	A	A	E	B
Approach Delay	3.9			5.4	41.1	
Approach LOS	A			A	D	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 11.7	Intersection LOS: B
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	950	545	101	815	347	242
v/c Ratio	0.47	0.41	0.27	0.32	0.82	0.45
Control Delay	5.7	0.7	6.3	5.3	57.9	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	0.7	6.3	5.3	57.9	17.0
Queue Length 50th (ft)	39	1	17	81	106	59
Queue Length 95th (ft)	103	0	32	106	#172	127
Internal Link Dist (ft)	1340			514	620	
Turn Bay Length (ft)		260	260			300
Base Capacity (vph)	2024	1335	393	2546	433	550
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.41	0.26	0.32	0.80	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	874	501	93	750	319	223
Future Volume (veh/h)	874	501	93	750	319	223
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	950	545	101	815	347	242
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2054	1117	330	2544	437	293
Arrive On Green	0.58	0.58	0.06	0.72	0.13	0.13
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	950	545	101	815	347	242
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	14.6	14.7	2.0	8.0	9.3	12.0
Cycle Q Clear(g_c), s	14.6	14.7	2.0	8.0	9.3	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2054	1117	330	2544	437	293
V/C Ratio(X)	0.46	0.49	0.31	0.32	0.79	0.82
Avail Cap(c_a), veh/h	2054	1117	366	2544	437	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	6.3	7.9	5.0	40.3	37.2
Incr Delay (d2), s/veh	0.6	1.1	0.2	0.3	9.1	16.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	6.8	0.6	2.3	4.4	12.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.1	7.5	8.1	5.3	49.4	53.5
LnGrp LOS	B	A	A	A	D	D
Approach Vol, veh/h	1495			916	589	
Approach Delay, s/veh	10.4			5.6	51.1	
Approach LOS	B			A	D	

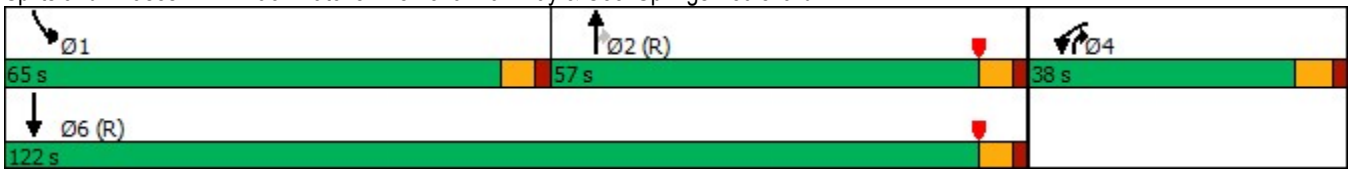
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		74.0		21.0	13.1	60.9
Change Period (Y+Rc), s		6.0		9.0	7.5	6.0
Max Green Setting (Gmax), s		68.0		12.0	7.5	53.0
Max Q Clear Time (g_c+I1), s		10.0		14.0	4.0	16.7
Green Ext Time (p_c), s		20.5		0.0	0.0	27.8

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	457	1104	513	343	736	482
Future Volume (vph)	457	1104	513	343	736	482
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	8.0		18.0	8.0	8.0	10.0
Minimum Split (s)	14.5		24.0	14.5	14.0	16.0
Total Split (s)	38.0		57.0	38.0	65.0	122.0
Total Split (%)	23.8%		35.6%	23.8%	40.6%	76.3%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	29.5	160.0	62.4	97.9	49.6	118.0
Actuated g/C Ratio	0.18	1.00	0.39	0.61	0.31	0.74
v/c Ratio	0.77	0.74	0.40	0.37	0.74	0.20
Control Delay	64.6	8.1	37.9	14.7	53.4	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	8.1	37.9	14.7	53.4	6.8
LOS	E	A	D	B	D	A
Approach Delay	24.7		28.6			34.9
Approach LOS	C		C			C

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 116 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 29.0	Intersection LOS: C
Intersection Capacity Utilization 64.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	486	1174	546	365	783	513
v/c Ratio	0.77	0.74	0.40	0.37	0.74	0.20
Control Delay	64.6	8.1	37.9	14.7	53.4	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	8.1	37.9	14.7	53.4	6.8
Queue Length 50th (ft)	259	828	221	150	378	83
Queue Length 95th (ft)	323	1025	301	251	418	104
Internal Link Dist (ft)	425		1396			1960
Turn Bay Length (ft)		230		1000	1000	
Base Capacity (vph)	675	1583	1379	1012	1265	2609
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.74	0.40	0.36	0.62	0.20

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	457	1104	513	343	736	482
Future Volume (veh/h)	457	1104	513	343	736	482
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	486	0	546	365	783	513
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	563		1535	943	1001	2697
Arrive On Green	0.16	0.00	0.43	0.43	0.29	0.76
Sat Flow, veh/h	3456	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	486	0	546	365	783	513
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1728	1777
Q Serve(g_s), s	21.9	0.0	16.5	19.4	33.3	6.5
Cycle Q Clear(g_c), s	21.9	0.0	16.5	19.4	33.3	6.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	563		1535	943	1001	2697
V/C Ratio(X)	0.86		0.36	0.39	0.78	0.19
Avail Cap(c_a), veh/h	680		1535	943	1274	2697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.2	0.0	30.5	17.1	52.2	5.4
Incr Delay (d2), s/veh	11.7	0.0	0.6	1.2	6.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	0.0	7.1	10.6	15.0	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	76.9	0.0	31.2	18.3	58.3	5.6
LnGrp LOS	E		C	B	E	A
Approach Vol, veh/h	486		911			1296
Approach Delay, s/veh	76.9		26.0			37.4
Approach LOS	E		C			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	52.3	75.1		32.6		127.4
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	59.0	51.0		31.5		116.0
Max Q Clear Time (g_c+I1), s	35.3	21.4		23.9		8.5
Green Ext Time (p_c), s	11.0	16.1		2.2		7.3

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1070	6	11	1532	7	9	0	12	42	0	18
Future Vol, veh/h	2	1070	6	11	1532	7	9	0	12	42	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	270	-	-	335	-	130	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1126	6	12	1613	7	9	0	13	44	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1620	0	0	1132	0	0	1964	2777	566	2204	2773	807
Stage 1	-	-	-	-	-	-	1133	1133	-	1637	1637	-
Stage 2	-	-	-	-	-	-	831	1644	-	567	1136	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	398	-	-	613	-	-	38	19	467	~ 25	19	324
Stage 1	-	-	-	-	-	-	216	276	-	105	157	-
Stage 2	-	-	-	-	-	-	330	156	-	476	275	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	398	-	-	613	-	-	35	19	467	~ 24	19	324
Mov Cap-2 Maneuver	-	-	-	-	-	-	130	97	-	83	97	-
Stage 1	-	-	-	-	-	-	215	275	-	104	154	-
Stage 2	-	-	-	-	-	-	305	153	-	461	274	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	23.1	67.8
HCM LOS			C	F

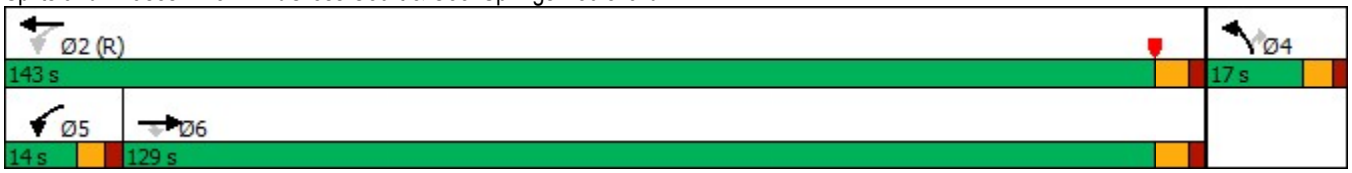
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	221	398	-	-	613	-	-	83	324
HCM Lane V/C Ratio	0.1	0.005	-	-	0.019	-	-	0.533	0.058
HCM Control Delay (s)	23.1	14.1	-	-	11	-	-	89.7	16.8
HCM Lane LOS	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	2.3	0.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1106	18	127	1488	62	268
Future Volume (vph)	1106	18	127	1488	62	268
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	6.0	20.0	8.0	8.0
Minimum Split (s)	26.0	26.0	11.5	26.0	13.5	13.5
Total Split (s)	129.0	129.0	14.0	143.0	17.0	17.0
Total Split (%)	80.6%	80.6%	8.8%	89.4%	10.6%	10.6%
Yellow Time (s)	4.0	4.0	3.5	4.0	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.5	6.0	5.5	5.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	123.4	123.4	137.5	137.0	11.5	11.5
Actuated g/C Ratio	0.77	0.77	0.86	0.86	0.07	0.07
v/c Ratio	0.44	0.02	0.35	0.53	0.53	0.97
Control Delay	12.5	1.2	3.2	2.2	87.2	68.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	1.2	3.2	2.2	87.2	68.2
LOS	B	A	A	A	F	E
Approach Delay	12.4			2.3	71.7	
Approach LOS	B			A	E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 13.4	Intersection LOS: B
Intersection Capacity Utilization 58.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1202	20	138	1617	67	291
v/c Ratio	0.44	0.02	0.35	0.53	0.53	0.97
Control Delay	12.5	1.2	3.2	2.2	87.2	68.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	1.2	3.2	2.2	87.2	68.2
Queue Length 50th (ft)	485	2	11	98	69	100
Queue Length 95th (ft)	516	m4	m16	m107	125	#300
Internal Link Dist (ft)	434			1340	817	
Turn Bay Length (ft)		300	360			150
Base Capacity (vph)	2728	1225	393	3030	127	299
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.02	0.35	0.53	0.53	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1106	18	127	1488	62	268
Future Volume (veh/h)	1106	18	127	1488	62	268
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1202	20	138	1617	67	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2788	1243	425	3043	128	114
Arrive On Green	0.78	0.78	0.07	1.00	0.07	0.07
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	1202	20	138	1617	67	89
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	17.6	0.4	2.3	0.0	5.8	8.8
Cycle Q Clear(g_c), s	17.6	0.4	2.3	0.0	5.8	8.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2788	1243	425	3043	128	114
V/C Ratio(X)	0.43	0.02	0.32	0.53	0.52	0.78
Avail Cap(c_a), veh/h	2788	1243	453	3043	128	114
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.74	0.74	1.00	1.00
Uniform Delay (d), s/veh	5.6	3.8	3.9	0.0	71.6	73.0
Incr Delay (d2), s/veh	0.2	0.0	0.5	0.5	14.5	40.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.1	0.7	0.2	3.2	8.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.8	3.8	4.4	0.5	86.1	113.1
LnGrp LOS	A	A	A	A	F	F
Approach Vol, veh/h	1222			1755	156	
Approach Delay, s/veh	5.8			0.8	101.5	
Approach LOS	A			A	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		143.0		17.0	11.5	131.5
Change Period (Y+Rc), s		6.0		5.5	5.5	6.0
Max Green Setting (Gmax), s		137.0		11.5	8.5	123.0
Max Q Clear Time (g_c+I1), s		2.0		10.8	4.3	19.6
Green Ext Time (p_c), s		62.8		0.1	0.2	31.7

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

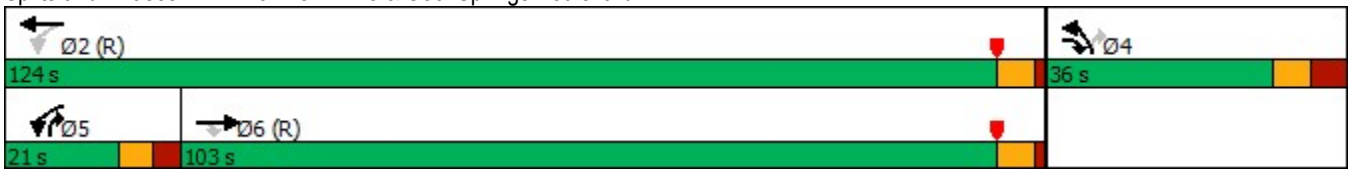
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	971	403	260	1097	518	179
Future Volume (vph)	971	403	260	1097	518	179
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	6	4	5	2	4	5
Permitted Phases		6	2			4
Detector Phase	6	4	5	2	4	5
Switch Phase						
Minimum Initial (s)	15.0	7.0	6.0	15.0	7.0	6.0
Minimum Split (s)	21.0	16.0	13.5	21.0	16.0	13.5
Total Split (s)	103.0	36.0	21.0	124.0	36.0	21.0
Total Split (%)	64.4%	22.5%	13.1%	77.5%	22.5%	13.1%
Yellow Time (s)	4.5	4.5	4.0	4.5	4.5	4.0
All-Red Time (s)	1.5	4.5	3.5	1.5	4.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	9.0	7.5	6.0	9.0	7.5
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Act Effct Green (s)	98.4	131.4	116.5	118.0	27.0	48.1
Actuated g/C Ratio	0.62	0.82	0.73	0.74	0.17	0.30
v/c Ratio	0.49	0.33	0.76	0.46	0.97	0.35
Control Delay	7.0	1.1	21.5	9.0	96.3	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	1.1	21.5	9.0	96.3	20.3
LOS	A	A	C	A	F	C
Approach Delay	5.2			11.4	76.8	
Approach LOS	A			B	E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 22.2	Intersection LOS: C
Intersection Capacity Utilization 74.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1055	438	283	1192	563	195
v/c Ratio	0.49	0.33	0.76	0.46	0.97	0.35
Control Delay	7.0	1.1	21.5	9.0	96.3	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	1.1	21.5	9.0	96.3	20.3
Queue Length 50th (ft)	108	10	88	236	306	67
Queue Length 95th (ft)	m121	m17	129	275	#428	140
Internal Link Dist (ft)	1340			514	620	
Turn Bay Length (ft)		260	260			300
Base Capacity (vph)	2175	1335	385	2610	579	565
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.33	0.74	0.46	0.97	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	971	403	260	1097	518	179
Future Volume (veh/h)	971	403	260	1097	518	179
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1055	438	283	1192	563	195
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2208	1252	415	2621	583	377
Arrive On Green	0.62	0.62	0.07	0.74	0.17	0.17
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1055	438	283	1192	563	195
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	25.6	12.8	9.0	21.2	25.9	17.1
Cycle Q Clear(g_c), s	25.6	12.8	9.0	21.2	25.9	17.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2208	1252	415	2621	583	377
V/C Ratio(X)	0.48	0.35	0.68	0.45	0.97	0.52
Avail Cap(c_a), veh/h	2208	1252	442	2621	583	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	4.9	13.4	8.3	66.0	53.0
Incr Delay (d2), s/veh	0.6	0.6	3.1	0.6	28.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	8.7	3.8	8.1	13.8	15.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.9	5.5	16.5	8.9	94.5	53.5
LnGrp LOS	B	A	B	A	F	D
Approach Vol, veh/h	1493			1475	758	
Approach Delay, s/veh	13.6			10.3	84.0	
Approach LOS	B			B	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		124.0		36.0	18.6	105.4
Change Period (Y+Rc), s		6.0		9.0	7.5	6.0
Max Green Setting (Gmax), s		118.0		27.0	13.5	97.0
Max Q Clear Time (g_c+I1), s		23.2		27.9	11.0	27.6
Green Ext Time (p_c), s		46.5		0.0	0.1	46.2

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

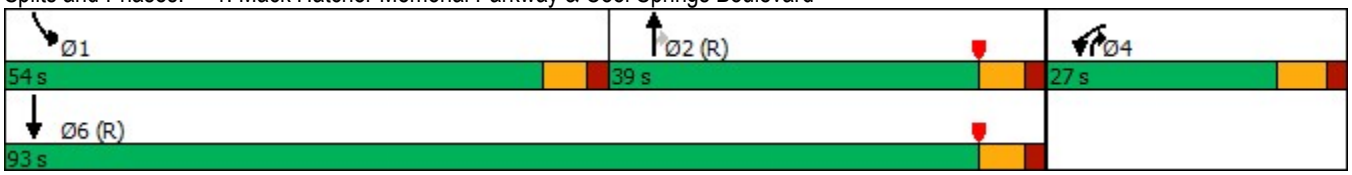
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	280	935	502	645	1241	509
Future Volume (vph)	280	935	502	645	1241	509
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	20.5	120.0	33.0	53.0	48.0	87.0
Actuated g/C Ratio	0.17	1.00	0.28	0.44	0.40	0.72
v/c Ratio	0.52	0.63	0.54	0.96	0.94	0.21
Control Delay	34.0	10.8	39.5	54.1	48.9	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	10.8	39.5	54.1	48.9	5.6
LOS	C	B	D	D	D	A
Approach Delay	16.2		47.7			36.3
Approach LOS	B		D			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 33.5	Intersection LOS: C
Intersection Capacity Utilization 85.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Maximum Green (s)	20.5		33.0	20.5	48.0	87.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
10th %ile Term Code	Max		Coord	Max	Max	Coord

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	280	935	502	645	1241	509
Future Volume (veh/h)	280	935	502	645	1241	509
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	292	0	523	672	1293	530
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	3	2	2	2	2
Cap, veh/h	498		1060	710	1374	2650
Arrive On Green	0.15	0.00	0.30	0.30	0.40	0.75
Sat Flow, veh/h	3319	1572	3647	1582	3456	3647
Grp Volume(v), veh/h	292	0	523	672	1293	530
Grp Sat Flow(s),veh/h/ln	1659	1572	1777	1582	1728	1777
Q Serve(g_s), s	9.8	0.0	14.5	35.8	43.2	5.3
Cycle Q Clear(g_c), s	9.8	0.0	14.5	35.8	43.2	5.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	498		1060	710	1374	2650
V/C Ratio(X)	0.59		0.49	0.95	0.94	0.20
Avail Cap(c_a), veh/h	567		1060	710	1382	2650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	34.7	28.1	34.8	4.6
Incr Delay (d2), s/veh	2.4	0.0	1.6	23.1	13.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	6.3	24.5	19.7	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.0	0.0	36.3	51.2	48.5	4.7
LnGrp LOS	D		D	D	D	A
Approach Vol, veh/h	292		1195			1823
Approach Delay, s/veh	50.0		44.7			35.8
Approach LOS	D		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	53.7	41.8		24.5		95.5
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	48.0	33.0		20.5		87.0
Max Q Clear Time (g_c+I1), s	45.2	37.8		11.8		7.3
Green Ext Time (p_c), s	2.5	0.0		1.3		7.6

Intersection Summary	
HCM 6th Ctrl Delay	40.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1853	6	15	1143	108	0	0	6	0	0	68
Future Vol, veh/h	0	1853	6	15	1143	108	0	0	6	0	0	68
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1951	6	16	1203	114	0	0	6	0	0	72

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1957	0	0	-	-	979	-	-	602
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	294	-	-	0	0	249	0	0	443
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	294	-	-	-	-	249	-	-	443
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

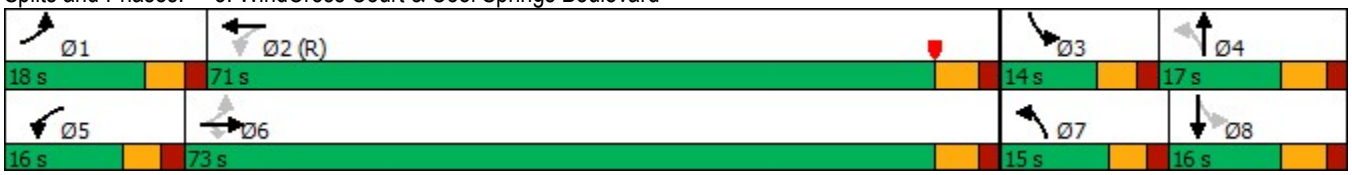
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	19.8	14.7
HCM LOS			C	B

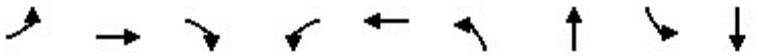
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	249	-	-	294	-	-	443
HCM Lane V/C Ratio	0.025	-	-	0.054	-	-	0.162
HCM Control Delay (s)	19.8	-	-	17.9	-	-	14.7
HCM Lane LOS	C	-	-	C	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.6

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	110	1662	92	204	1228	25	0	74	0
Future Volume (vph)	110	1662	92	204	1228	25	0	74	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	6	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	78.4	68.7	68.7	83.5	71.7	19.1	10.4	16.3	12.8
Actuated g/C Ratio	0.65	0.57	0.57	0.70	0.60	0.16	0.09	0.14	0.11
v/c Ratio	0.45	0.89	0.10	0.91	0.65	0.11	0.33	0.38	0.04
Control Delay	8.9	32.3	3.4	70.1	18.7	39.4	2.7	48.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	32.3	3.4	70.1	18.7	39.4	2.7	48.6	0.2
LOS	A	C	A	E	B	D	A	D	A
Approach Delay		29.5			25.9		10.3		41.4
Approach LOS		C			C		B		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 27.6	Intersection LOS: C
Intersection Capacity Utilization 82.6%	ICU Level of Service E
Analysis Period (min) 15	

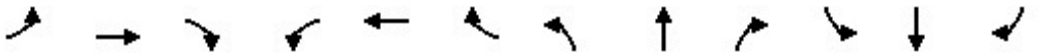
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Maximum Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	12.0	67.0	67.0	10.5	65.5	9.5	11.0	8.5	10.0
90th %ile Term Code	Gap	Coord	Coord	Max	Coord	Max	Hold	Max	Max
70th %ile Green (s)	9.9	67.0	67.0	10.5	67.6	9.5	11.0	8.5	10.0
70th %ile Term Code	Gap	Coord	Coord	Max	Coord	Max	Hold	Max	Max
50th %ile Green (s)	9.0	67.0	67.0	11.5	69.5	24.5	10.0	8.5	0.0
50th %ile Term Code	Gap	Coord	Coord	Max	Coord	Hold	Min	Max	Skip
30th %ile Green (s)	8.3	67.0	67.0	11.5	70.2	0.0	10.0	8.5	24.0
30th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold
10th %ile Green (s)	7.0	75.4	75.4	17.1	85.5	0.0	10.0	0.0	10.0
10th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Skip	Min	Skip	Hold

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1662	92	204	1228	26	25	0	96	74	0	13
Future Volume (veh/h)	110	1662	92	204	1228	26	25	0	96	74	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	1807	100	222	1335	28	27	0	104	80	0	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	300	2048	914	248	2187	46	246	0	131	194	0	167
Arrive On Green	0.05	0.58	0.58	0.09	0.61	0.61	0.04	0.00	0.08	0.06	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3559	75	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	120	1807	100	222	666	697	27	0	104	80	0	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1857	1781	0	1585	1781	0	1585
Q Serve(g_s), s	3.2	52.6	3.4	8.5	27.7	27.8	1.6	0.0	7.7	4.8	0.0	1.0
Cycle Q Clear(g_c), s	3.2	52.6	3.4	8.5	27.7	27.8	1.6	0.0	7.7	4.8	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	300	2048	914	248	1092	1141	246	0	131	194	0	167
V/C Ratio(X)	0.40	0.88	0.11	0.90	0.61	0.61	0.11	0.00	0.79	0.41	0.00	0.08
Avail Cap(c_a), veh/h	398	2048	914	248	1092	1141	317	0	145	210	0	167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.76	0.76	0.76	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.2	21.9	11.5	34.5	14.3	14.3	46.9	0.0	54.0	46.2	0.0	48.5
Incr Delay (d2), s/veh	1.2	5.2	0.1	25.9	1.9	1.9	0.4	0.0	28.2	3.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	21.3	1.2	8.2	10.7	11.2	0.8	0.0	4.1	2.3	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.5	27.1	11.6	60.4	16.2	16.1	47.4	0.0	82.2	49.2	0.0	48.9
LnGrp LOS	B	C	B	E	B	B	D	A	F	D	A	D
Approach Vol, veh/h		2027			1585			131			94	
Approach Delay, s/veh		25.6			22.4			75.0			49.2	
Approach LOS		C			C			E			D	

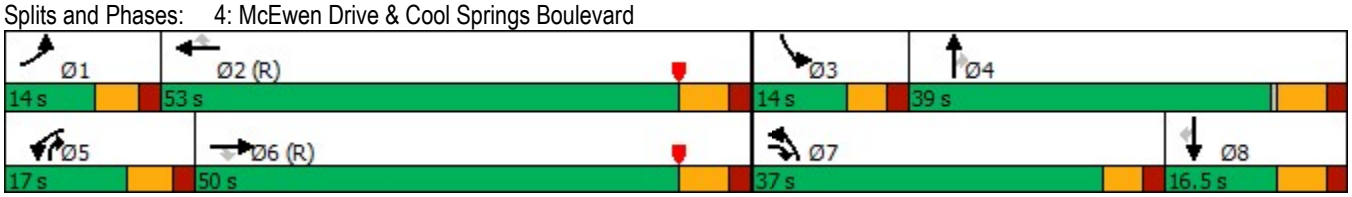
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	79.7	12.9	15.9	16.0	75.2	10.2	18.6
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.2	29.8	6.8	9.7	10.5	54.6	3.6	3.0
Green Ext Time (p_c), s	0.2	21.7	0.0	0.1	0.0	11.5	0.0	0.0

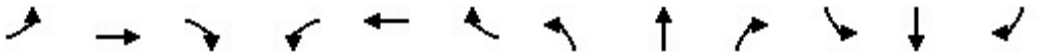
Intersection Summary	
HCM 6th Ctrl Delay	26.5
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1003	806	97	892	43	531	34	232	58	45	35
Future Volume (vph)	26	1003	806	97	892	43	531	34	232	58	45	35
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	2	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	6.5	5.5	6.5	6.0	5.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	7.6	48.2	85.2	10.6	56.4	56.4	30.5	26.9	40.7	16.3	10.0	10.0
Actuated g/C Ratio	0.06	0.40	0.71	0.09	0.47	0.47	0.25	0.22	0.34	0.14	0.08	0.08
v/c Ratio	0.25	0.77	0.71	0.68	0.59	0.06	0.66	0.09	0.43	0.26	0.32	0.13
Control Delay	59.4	37.5	9.6	75.1	28.1	0.1	44.5	35.2	21.8	53.5	58.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	37.5	9.6	75.1	28.1	0.1	44.5	35.2	21.8	53.5	58.0	0.9
LOS	E	D	A	E	C	A	D	D	C	D	E	A
Approach Delay		25.5			31.3			37.5			41.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120.5	
Actuated Cycle Length: 120.5	
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 30.2	Intersection LOS: C
Intersection Capacity Utilization 78.6%	ICU Level of Service D
Analysis Period (min) 15	

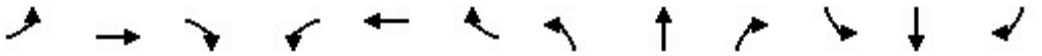
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Maximum Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	32.5	11.0	8.5	10.0	10.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
30th %ile Green (s)	0.0	43.5	31.5	11.0	60.5	60.5	31.5	0.0	11.0	48.0	10.0	10.0
30th %ile Term Code	Skip	Coord	Max	Max	Coord	Coord	Max	Skip	Max	Hold	Max	Max
10th %ile Green (s)	0.0	67.0	26.6	8.9	81.9	81.9	26.6	25.6	8.9	0.0	0.0	0.0
10th %ile Term Code	Skip	Coord	Gap	Gap	Coord	Coord	Gap	Hold	Gap	Skip	Skip	Skip

Intersection Summary
Cycle Length: 120.5
Actuated Cycle Length: 120.5
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1003	806	97	892	43	531	34	232	58	45	35
Future Volume (veh/h)	26	1003	806	97	892	43	531	34	232	58	45	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	1090	876	105	970	47	577	37	252	63	49	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1549	1014	130	1701	759	703	427	478	104	156	132
Arrive On Green	0.03	0.44	0.44	0.07	0.48	0.48	0.20	0.23	0.23	0.06	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	28	1090	876	105	970	47	577	37	252	63	49	38
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.9	29.9	52.3	7.0	23.5	1.9	19.2	1.9	15.8	4.1	3.0	2.7
Cycle Q Clear(g_c), s	1.9	29.9	52.3	7.0	23.5	1.9	19.2	1.9	15.8	4.1	3.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	54	1549	1014	130	1701	759	703	427	478	104	156	132
V/C Ratio(X)	0.52	0.70	0.86	0.81	0.57	0.06	0.82	0.09	0.53	0.60	0.31	0.29
Avail Cap(c_a), veh/h	119	1549	1014	163	1701	759	907	507	545	126	156	132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.37	0.37	0.37	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	27.5	17.4	54.8	22.4	16.8	45.7	36.4	34.8	55.1	51.8	51.7
Incr Delay (d2), s/veh	4.0	1.0	3.9	23.2	1.4	0.2	6.6	0.2	1.9	11.5	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	12.4	19.0	3.9	9.7	0.7	8.8	0.9	6.4	2.2	1.5	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.3	28.5	21.4	78.0	23.8	17.0	52.3	36.6	36.8	66.6	54.2	54.2
LnGrp LOS	E	C	C	E	C	B	D	D	D	E	D	D
Approach Vol, veh/h		1994			1122			866			150	
Approach Delay, s/veh		25.8			28.6			47.1			59.4	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	63.9	12.5	33.9	14.8	58.8	29.9	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	25.5	6.1	17.8	9.0	54.3	21.2	5.0
Green Ext Time (p_c), s	0.0	11.5	0.0	1.9	0.1	0.0	3.3	0.2

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

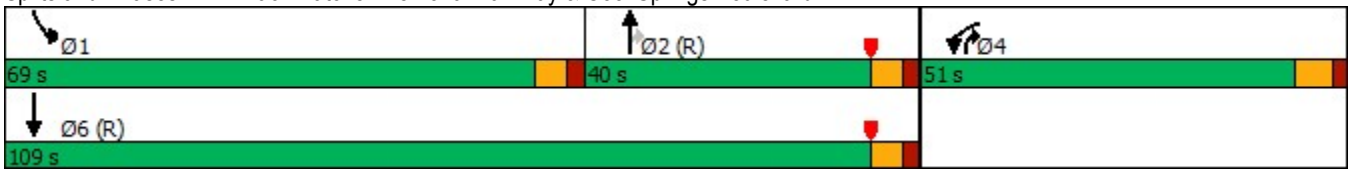
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	733	1557	544	516	1062	511
Future Volume (vph)	733	1557	544	516	1062	511
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	43.5	160.0	36.1	85.6	61.9	104.0
Actuated g/C Ratio	0.27	1.00	0.23	0.54	0.39	0.65
v/c Ratio	0.84	1.05	0.72	0.64	0.85	0.24
Control Delay	57.4	54.8	64.0	29.7	52.1	12.0
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	57.4	54.8	64.0	30.3	52.1	12.0
LOS	E	D	E	C	D	B
Approach Delay	55.6		47.6			39.1
Approach LOS	E		D			D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 48.6	Intersection LOS: D
Intersection Capacity Utilization 81.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Maximum Green (s)	44.5		34.0	44.5	63.0	103.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	39.4		44.6	39.4	57.5	108.1
10th %ile Term Code	Gap		Coord	Gap	Gap	Coord

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	733	1557	544	516	1062	511
Future Volume (veh/h)	733	1557	544	516	1062	511
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	780	0	579	549	1130	544
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	873		912	807	1296	2379
Arrive On Green	0.25	0.00	0.26	0.26	0.38	0.67
Sat Flow, veh/h	3456	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	780	0	579	549	1130	544
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1728	1777
Q Serve(g_s), s	34.9	0.0	23.1	41.1	48.6	9.6
Cycle Q Clear(g_c), s	34.9	0.0	23.1	41.1	48.6	9.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	873		912	807	1296	2379
V/C Ratio(X)	0.89		0.63	0.68	0.87	0.23
Avail Cap(c_a), veh/h	961		912	807	1361	2379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.7	0.0	52.8	29.3	46.4	10.3
Incr Delay (d2), s/veh	11.2	0.0	3.4	4.6	8.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.4	0.0	10.6	23.4	21.8	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	68.9	0.0	56.2	33.9	54.7	10.6
LnGrp LOS	E		E	C	D	B
Approach Vol, veh/h	780		1128			1674
Approach Delay, s/veh	68.9		45.3			40.3
Approach LOS	E		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	66.0	47.1		46.9		113.1
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	63.0	34.0		44.5		103.0
Max Q Clear Time (g_c+I1), s	50.6	43.1		36.9		11.6
Green Ext Time (p_c), s	9.4	0.0		3.5		7.9

Intersection Summary			
HCM 6th Ctrl Delay		48.1	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1591	6	11	2117	71	0	0	21	0	0	116
Future Vol, veh/h	0	1591	6	11	2117	71	0	0	21	0	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1675	6	12	2228	75	0	0	22	0	0	122

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1681	0	0	-	-	841	-	-	1114
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	377	-	-	0	0	308	0	0	203
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	377	-	-	-	-	308	-	-	203
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

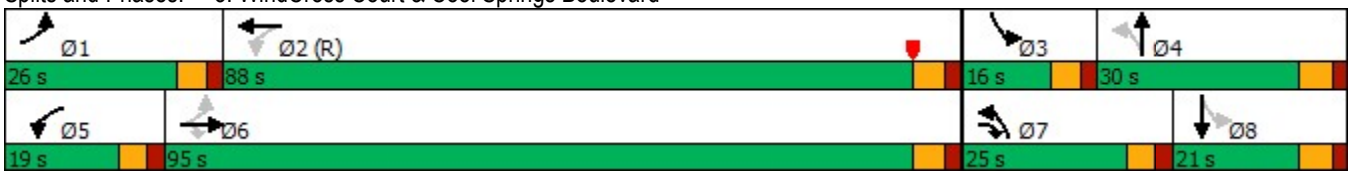
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	17.6	46.4
HCM LOS			C	E

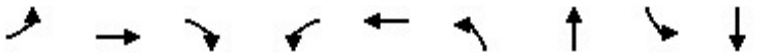
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	-	-	377	-	-	203
HCM Lane V/C Ratio	0.072	-	-	0.031	-	-	0.602
HCM Control Delay (s)	17.6	-	-	14.9	-	-	46.4
HCM Lane LOS	C	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	-	3.4

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	125	1512	19	132	2105	62	0	122	0
Future Volume (vph)	125	1512	19	132	2105	62	0	122	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	26.0	95.0	25.0	19.0	88.0	25.0	30.0	16.0	21.0
Total Split (%)	16.3%	59.4%	15.6%	11.9%	55.0%	15.6%	18.8%	10.0%	13.1%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	5.5	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	109.5	95.2	121.5	105.7	93.1	34.5	19.2	22.6	15.8
Actuated g/C Ratio	0.68	0.60	0.76	0.66	0.58	0.22	0.12	0.14	0.10
v/c Ratio	0.67	0.78	0.02	0.71	1.13	0.22	0.86	0.81	0.06
Control Delay	38.5	49.6	1.4	34.8	92.3	50.3	50.6	91.8	0.3
Queue Delay	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	50.5	1.4	34.8	92.3	50.3	50.6	91.8	0.3
LOS	D	D	A	C	F	D	D	F	A
Approach Delay		49.0			89.0		50.5		77.8
Approach LOS		D			F		D		E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 70.6	Intersection LOS: E
Intersection Capacity Utilization 108.4%	ICU Level of Service G
Analysis Period (min) 15	

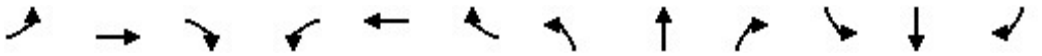
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	26.0	95.0	25.0	19.0	88.0	25.0	30.0	16.0	21.0
Total Split (%)	16.3%	59.4%	15.6%	11.9%	55.0%	15.6%	18.8%	10.0%	13.1%
Maximum Green (s)	20.5	89.0	19.5	13.5	82.0	19.5	24.0	10.5	15.0
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	20.4	89.0	15.9	13.5	82.1	15.9	24.0	10.5	18.6
90th %ile Term Code	Gap	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
70th %ile Green (s)	16.7	89.0	13.6	13.5	85.8	13.6	24.0	10.5	20.9
70th %ile Term Code	Gap	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
50th %ile Green (s)	14.1	91.0	12.3	14.1	91.0	12.3	21.4	10.5	19.6
50th %ile Term Code	Gap	Coord	Gap	Gap	Coord	Gap	Gap	Max	Hold
30th %ile Green (s)	11.6	98.6	33.3	11.1	98.1	33.3	16.8	10.5	0.0
30th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip
10th %ile Green (s)	7.9	108.2	26.5	8.3	108.6	26.5	10.0	10.5	0.0
10th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Min	Max	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1512	19	132	2105	24	62	0	268	122	0	22
Future Volume (veh/h)	125	1512	19	132	2105	24	62	0	268	122	0	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	136	1643	21	143	2288	26	67	0	130	133	0	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	2309	1105	226	2262	26	265	0	155	183	0	184
Arrive On Green	0.06	0.65	0.65	0.06	0.84	0.84	0.05	0.00	0.10	0.07	0.00	0.12
Sat Flow, veh/h	1781	3554	1585	1781	3599	41	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	136	1643	21	143	1127	1187	67	0	130	133	0	24
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1863	1781	0	1585	1781	0	1585
Q Serve(g_s), s	8.0	48.2	0.7	4.7	100.5	100.5	5.3	0.0	12.9	10.5	0.0	2.2
Cycle Q Clear(g_c), s	8.0	48.2	0.7	4.7	100.5	100.5	5.3	0.0	12.9	10.5	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	2309	1105	226	1117	1171	265	0	155	183	0	184
V/C Ratio(X)	0.85	0.71	0.02	0.63	1.01	1.01	0.25	0.00	0.84	0.73	0.00	0.13
Avail Cap(c_a), veh/h	273	2309	1105	299	1117	1171	398	0	238	183	0	184
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.34	0.34	0.34	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.2	18.3	7.4	20.9	13.1	13.1	60.7	0.0	71.0	61.4	0.0	63.5
Incr Delay (d2), s/veh	15.9	1.3	0.0	1.4	18.1	18.8	1.1	0.0	23.5	16.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	19.1	0.2	2.5	25.1	26.6	2.5	0.0	6.3	5.7	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.1	19.6	7.5	22.4	31.3	32.0	61.8	0.0	94.5	77.6	0.0	64.2
LnGrp LOS	E	B	A	C	F	F	E	A	F	E	A	E
Approach Vol, veh/h		1800			2457			197			157	
Approach Delay, s/veh		23.4			31.1			83.4			75.5	
Approach LOS		C			C			F			E	

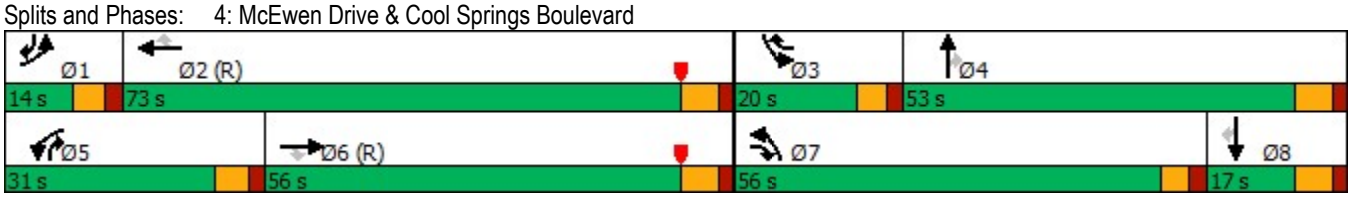
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	106.5	16.0	21.6	12.4	109.9	13.1	24.5
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	20.5	82.0	10.5	24.0	13.5	89.0	19.5	15.0
Max Q Clear Time (g_c+I1), s	10.0	102.5	12.5	14.9	6.7	50.2	7.3	4.2
Green Ext Time (p_c), s	0.4	0.0	0.0	0.7	0.3	29.1	0.2	0.1

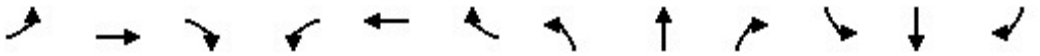
Intersection Summary	
HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1124	739	268	1243	65	976	51	185	62	47	42
Future Volume (vph)	39	1124	739	268	1243	65	976	51	185	62	47	42
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	56.0	56.0	31.0	73.0	20.0	56.0	53.0	31.0	20.0	17.0	14.0
Total Split (%)	8.8%	35.0%	35.0%	19.4%	45.6%	12.5%	35.0%	33.1%	19.4%	12.5%	10.6%	8.8%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	5.5	5.5	6.5	6.0	5.5	6.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	7.8	50.4	107.4	27.6	72.7	101.2	50.5	40.0	70.7	20.9	10.3	21.3
Actuated g/C Ratio	0.05	0.32	0.67	0.17	0.45	0.63	0.32	0.25	0.44	0.13	0.06	0.13
v/c Ratio	0.49	1.10	0.71	0.96	0.84	0.07	0.98	0.12	0.27	0.29	0.42	0.14
Control Delay	107.6	90.5	13.8	105.8	46.2	1.1	76.5	43.1	12.9	71.8	83.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.6	90.5	13.8	105.8	46.2	1.1	76.5	43.1	12.9	71.8	83.2	0.9
LOS	F	F	B	F	D	A	E	D	B	E	F	A
Approach Delay		61.1			54.4			65.4			55.4	
Approach LOS		E			D			E			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 59.8	Intersection LOS: E
Intersection Capacity Utilization 96.3%	ICU Level of Service F
Analysis Period (min) 15	

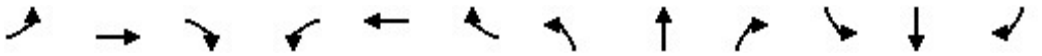
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	56.0	56.0	31.0	73.0	20.0	56.0	53.0	31.0	20.0	17.0	14.0
Total Split (%)	8.8%	35.0%	35.0%	19.4%	45.6%	12.5%	35.0%	33.1%	19.4%	12.5%	10.6%	8.8%
Maximum Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	13.3	50.5	47.7	25.0	13.3	10.5	8.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Max	Max
30th %ile Green (s)	8.3	49.5	50.5	25.3	66.5	11.6	50.5	49.1	25.3	11.6	10.2	8.3
30th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Gap	Max
10th %ile Green (s)	0.0	53.9	50.5	37.6	97.5	50.5	50.5	0.0	37.6	50.5	0.0	0.0
10th %ile Term Code	Skip	Coord	Max	Gap	Coord	Hold	Max	Skip	Gap	Hold	Skip	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	1124	739	268	1243	65	976	51	185	62	47	42
Future Volume (veh/h)	39	1124	739	268	1243	65	976	51	185	62	47	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1222	803	291	1351	71	1061	55	201	67	51	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1111	996	278	1553	769	1091	618	771	85	117	149
Arrive On Green	0.03	0.31	0.31	0.16	0.44	0.44	0.32	0.33	0.33	0.05	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	42	1222	803	291	1351	71	1061	55	201	67	51	46
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.7	50.0	50.0	25.0	55.2	3.9	48.5	3.2	11.9	6.0	4.2	4.3
Cycle Q Clear(g_c), s	3.7	50.0	50.0	25.0	55.2	3.9	48.5	3.2	11.9	6.0	4.2	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	1111	996	278	1553	769	1091	618	771	85	117	149
V/C Ratio(X)	0.74	1.10	0.81	1.05	0.87	0.09	0.97	0.09	0.26	0.78	0.44	0.31
Avail Cap(c_a), veh/h	89	1111	996	278	1553	769	1091	618	771	161	123	154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.53	0.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.8	55.0	22.4	67.5	40.9	22.2	54.1	37.0	24.2	75.3	72.3	67.6
Incr Delay (d2), s/veh	13.5	53.2	3.8	66.3	6.9	0.2	21.1	0.1	0.4	27.6	5.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	30.2	23.3	16.4	25.1	1.5	24.3	1.5	4.7	3.4	2.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.3	108.2	26.2	133.8	47.8	22.5	75.1	37.1	24.5	103.0	77.7	70.1
LnGrp LOS	F	F	C	F	D	C	E	D	C	F	E	E
Approach Vol, veh/h		2067			1713			1317			164	
Approach Delay, s/veh		76.0			61.4			65.8			85.9	
Approach LOS		E			E			E			F	

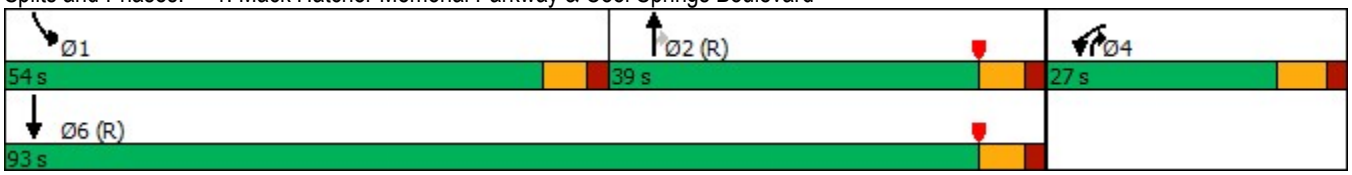
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	76.4	13.2	59.3	31.0	56.5	56.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	66.5	14.5	46.5	25.0	49.5	50.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	57.2	8.0	13.9	27.0	52.0	50.5	6.3
Green Ext Time (p_c), s	0.0	7.7	0.1	2.3	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	69.0
HCM 6th LOS	E

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	290	945	502	649	1245	509
Future Volume (vph)	290	945	502	649	1245	509
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	20.5	120.0	33.0	53.0	48.0	87.0
Actuated g/C Ratio	0.17	1.00	0.28	0.44	0.40	0.72
v/c Ratio	0.54	0.64	0.54	0.96	0.94	0.21
Control Delay	34.0	11.0	39.5	55.3	49.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	11.0	39.5	55.3	49.4	5.6
LOS	C	B	D	E	D	A
Approach Delay	16.4		48.4			36.7
Approach LOS	B		D			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 33.9	Intersection LOS: C
Intersection Capacity Utilization 86.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Maximum Green (s)	20.5		33.0	20.5	48.0	87.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
10th %ile Term Code	Max		Coord	Max	Max	Coord

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	290	945	502	649	1245	509
Future Volume (veh/h)	290	945	502	649	1245	509
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	302	0	523	676	1297	530
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	3	2	2	2	2
Cap, veh/h	498		1059	709	1375	2650
Arrive On Green	0.15	0.00	0.30	0.30	0.40	0.75
Sat Flow, veh/h	3319	1572	3647	1582	3456	3647
Grp Volume(v), veh/h	302	0	523	676	1297	530
Grp Sat Flow(s),veh/h/ln	1659	1572	1777	1582	1728	1777
Q Serve(g_s), s	10.2	0.0	14.5	35.8	43.4	5.3
Cycle Q Clear(g_c), s	10.2	0.0	14.5	35.8	43.4	5.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	498		1059	709	1375	2650
V/C Ratio(X)	0.61		0.49	0.95	0.94	0.20
Avail Cap(c_a), veh/h	567		1059	709	1382	2650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	0.0	34.7	28.2	34.8	4.6
Incr Delay (d2), s/veh	2.7	0.0	1.6	24.1	14.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	6.3	24.9	19.8	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.4	0.0	36.3	52.3	48.9	4.7
LnGrp LOS	D		D	D	D	A
Approach Vol, veh/h	302		1199			1827
Approach Delay, s/veh	50.4		45.3			36.1
Approach LOS	D		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	53.7	41.8		24.5		95.5
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	48.0	33.0		20.5		87.0
Max Q Clear Time (g_c+I1), s	45.4	37.8		12.2		7.3
Green Ext Time (p_c), s	2.3	0.0		1.3		7.6

Intersection Summary		
HCM 6th Ctrl Delay		40.7
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1861	6	15	1143	127	0	0	6	0	0	88
Future Vol, veh/h	0	1861	6	15	1143	127	0	0	6	0	0	88
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1959	6	16	1203	134	0	0	6	0	0	93

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1965	0	0	-	-	983	-	-	602
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	292	-	-	0	0	248	0	0	443
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	292	-	-	-	-	248	-	-	443
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

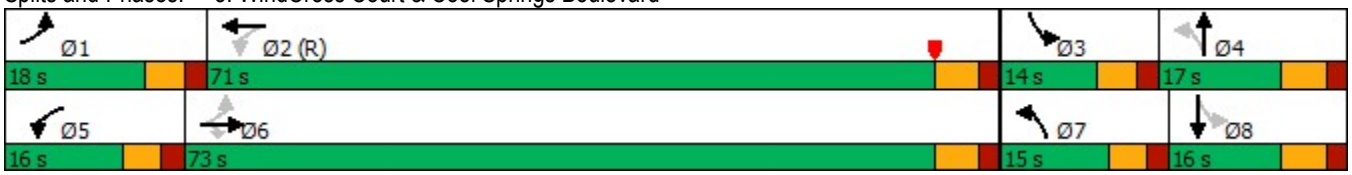
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	19.9	15.3
HCM LOS			C	C

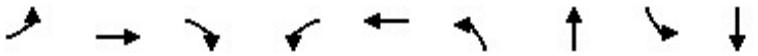
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	248	-	-	292	-	-	443
HCM Lane V/C Ratio	0.025	-	-	0.054	-	-	0.209
HCM Control Delay (s)	19.9	-	-	18	-	-	15.3
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.8

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	118	1662	92	204	1247	25	0	120	0
Future Volume (vph)	118	1662	92	204	1247	25	0	120	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	6	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	77.1	67.0	67.0	80.1	68.5	20.7	10.4	19.1	15.6
Actuated g/C Ratio	0.64	0.56	0.56	0.67	0.57	0.17	0.09	0.16	0.13
v/c Ratio	0.51	0.91	0.11	0.97	0.69	0.10	0.35	0.55	0.03
Control Delay	10.6	34.2	3.3	84.7	20.7	39.2	3.2	54.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	34.2	3.3	84.7	20.7	39.2	3.2	54.1	0.2
LOS	B	C	A	F	C	D	A	D	A
Approach Delay		31.2			29.5		10.6		48.9
Approach LOS		C			C		B		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 30.5	Intersection LOS: C
Intersection Capacity Utilization 85.1%	ICU Level of Service E
Analysis Period (min) 15	

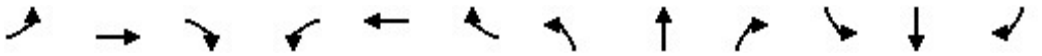
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Maximum Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Max	Hold	Max	Max
70th %ile Green (s)	10.1	67.0	67.0	10.5	67.4	9.5	11.0	8.5	10.0
70th %ile Term Code	Gap	Coord	Coord	Max	Coord	Max	Hold	Max	Max
50th %ile Green (s)	9.2	67.0	67.0	11.5	69.3	24.5	10.0	8.5	0.0
50th %ile Term Code	Gap	Coord	Coord	Max	Coord	Hold	Min	Max	Skip
30th %ile Green (s)	8.5	67.0	67.0	11.5	70.0	0.0	10.0	8.5	24.0
30th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold
10th %ile Green (s)	7.5	67.0	67.0	11.5	71.0	0.0	10.0	8.5	24.0
10th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	1662	92	204	1247	26	25	0	96	120	0	13
Future Volume (veh/h)	118	1662	92	204	1247	26	25	0	96	120	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	128	1807	100	222	1355	28	27	0	104	130	0	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	2016	899	244	2156	45	246	0	131	210	0	181
Arrive On Green	0.05	0.57	0.57	0.09	0.61	0.61	0.04	0.00	0.08	0.07	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3560	74	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	128	1807	100	222	676	707	27	0	104	130	0	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1857	1781	0	1585	1781	0	1585
Q Serve(g_s), s	3.6	53.7	3.5	8.8	29.1	29.1	1.6	0.0	7.7	8.0	0.0	0.9
Cycle Q Clear(g_c), s	3.6	53.7	3.5	8.8	29.1	29.1	1.6	0.0	7.7	8.0	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	2016	899	244	1076	1125	246	0	131	210	0	181
V/C Ratio(X)	0.44	0.90	0.11	0.91	0.63	0.63	0.11	0.00	0.79	0.62	0.00	0.08
Avail Cap(c_a), veh/h	388	2016	899	244	1076	1125	317	0	145	210	0	181
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.76	0.76	0.76	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	22.9	12.0	35.3	15.1	15.1	46.9	0.0	54.0	46.4	0.0	47.5
Incr Delay (d2), s/veh	1.5	6.1	0.1	28.8	2.1	2.0	0.4	0.0	28.2	7.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	22.1	1.3	8.4	11.4	11.8	0.8	0.0	4.1	4.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	28.9	12.1	64.1	17.2	17.1	47.4	0.0	82.2	54.4	0.0	47.9
LnGrp LOS	B	C	B	E	B	B	D	A	F	D	A	D
Approach Vol, veh/h		2035			1605			131			144	
Approach Delay, s/veh		27.2			23.6			75.0			53.7	
Approach LOS		C			C			E			D	

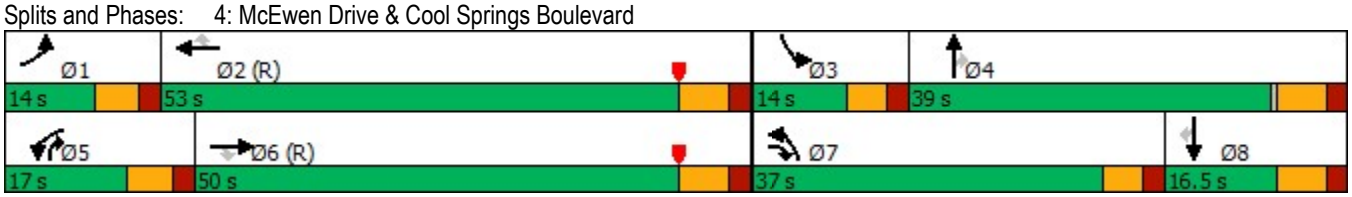
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	78.7	14.0	15.9	16.0	74.1	10.2	19.7
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.6	31.1	10.0	9.7	10.8	55.7	3.6	2.9
Green Ext Time (p_c), s	0.2	21.5	0.0	0.1	0.0	10.5	0.0	0.0

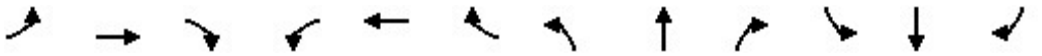
Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1036	819	97	906	43	536	34	232	58	45	35
Future Volume (vph)	26	1036	819	97	906	43	536	34	232	58	45	35
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	2	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	6.5	5.5	6.5	6.0	5.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	7.6	48.2	85.2	10.6	56.3	56.3	30.6	27.0	40.7	16.3	10.0	10.0
Actuated g/C Ratio	0.06	0.40	0.71	0.09	0.47	0.47	0.25	0.22	0.34	0.14	0.08	0.08
v/c Ratio	0.25	0.80	0.72	0.68	0.60	0.06	0.67	0.09	0.43	0.26	0.32	0.13
Control Delay	59.4	38.6	10.0	75.1	28.3	0.1	44.6	35.2	21.7	53.5	58.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	38.6	10.0	75.1	28.3	0.1	44.6	35.2	21.7	53.5	58.0	0.9
LOS	E	D	B	E	C	A	D	D	C	D	E	A
Approach Delay		26.4			31.5			37.6			41.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120.5	
Actuated Cycle Length: 120.5	
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 30.7	Intersection LOS: C
Intersection Capacity Utilization 79.4%	ICU Level of Service D
Analysis Period (min) 15	

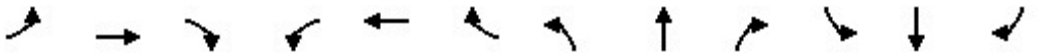
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Maximum Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	32.5	11.0	8.5	10.0	10.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
30th %ile Green (s)	0.0	43.5	31.5	11.0	60.5	60.5	31.5	0.0	11.0	48.0	10.0	10.0
30th %ile Term Code	Skip	Coord	Max	Max	Coord	Coord	Max	Skip	Max	Hold	Max	Max
10th %ile Green (s)	0.0	66.8	26.8	8.9	81.7	81.7	26.8	25.8	8.9	0.0	0.0	0.0
10th %ile Term Code	Skip	Coord	Gap	Gap	Coord	Coord	Gap	Hold	Gap	Skip	Skip	Skip

Intersection Summary
Cycle Length: 120.5
Actuated Cycle Length: 120.5
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1036	819	97	906	43	536	34	232	58	45	35
Future Volume (veh/h)	26	1036	819	97	906	43	536	34	232	58	45	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	1126	890	105	985	47	583	37	252	63	49	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1544	1014	130	1695	756	709	430	480	104	156	132
Arrive On Green	0.03	0.43	0.43	0.07	0.48	0.48	0.21	0.23	0.23	0.06	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	28	1126	890	105	985	47	583	37	252	63	49	38
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.9	31.5	52.1	7.0	24.1	1.9	19.4	1.9	15.8	4.1	3.0	2.7
Cycle Q Clear(g_c), s	1.9	31.5	52.1	7.0	24.1	1.9	19.4	1.9	15.8	4.1	3.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	54	1544	1014	130	1695	756	709	430	480	104	156	132
V/C Ratio(X)	0.52	0.73	0.88	0.81	0.58	0.06	0.82	0.09	0.52	0.60	0.31	0.29
Avail Cap(c_a), veh/h	119	1544	1014	163	1695	756	907	507	545	126	156	132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	28.1	17.8	54.8	22.7	16.9	45.6	36.3	34.7	55.1	51.8	51.7
Incr Delay (d2), s/veh	3.6	1.0	3.9	23.2	1.5	0.2	6.7	0.2	1.9	11.5	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	13.0	19.6	3.9	9.9	0.7	8.9	0.9	6.3	2.2	1.5	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	29.1	21.7	78.0	24.2	17.1	52.3	36.5	36.6	66.6	54.2	54.2
LnGrp LOS	E	C	C	E	C	B	D	D	D	E	D	D
Approach Vol, veh/h		2044			1137			872			150	
Approach Delay, s/veh		26.3			28.8			47.1			59.4	
Approach LOS		C			C			D			E	

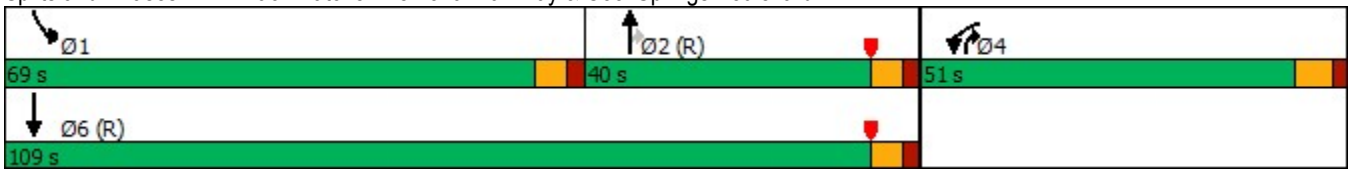
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	63.7	12.5	34.1	14.8	58.6	30.1	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	26.1	6.1	17.8	9.0	54.1	21.4	5.0
Green Ext Time (p_c), s	0.0	11.5	0.0	1.9	0.1	0.0	3.3	0.2

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	741	1565	544	528	1074	511
Future Volume (vph)	741	1565	544	528	1074	511
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	43.5	160.0	35.9	85.4	62.1	104.0
Actuated g/C Ratio	0.27	1.00	0.22	0.53	0.39	0.65
v/c Ratio	0.84	1.05	0.73	0.66	0.86	0.24
Control Delay	57.2	54.9	64.4	30.5	52.5	12.0
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	57.2	54.9	64.4	31.1	52.5	12.0
LOS	E	D	E	C	D	B
Approach Delay	55.6		48.0			39.5
Approach LOS	E		D			D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 48.8	Intersection LOS: D
Intersection Capacity Utilization 82.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Maximum Green (s)	44.5		34.0	44.5	63.0	103.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	39.7		43.3	39.7	58.5	107.8
10th %ile Term Code	Gap		Coord	Gap	Gap	Coord

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	741	1565	544	528	1074	511
Future Volume (veh/h)	741	1565	544	528	1074	511
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	788	0	579	562	1143	544
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	879		899	804	1303	2372
Arrive On Green	0.25	0.00	0.25	0.25	0.38	0.67
Sat Flow, veh/h	3456	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	788	0	579	562	1143	544
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1728	1777
Q Serve(g_s), s	35.2	0.0	23.3	40.5	49.3	9.6
Cycle Q Clear(g_c), s	35.2	0.0	23.3	40.5	49.3	9.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	879		899	804	1303	2372
V/C Ratio(X)	0.90		0.64	0.70	0.88	0.23
Avail Cap(c_a), veh/h	961		899	804	1361	2372
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.6	0.0	53.3	29.4	46.4	10.4
Incr Delay (d2), s/veh	11.5	0.0	3.5	5.0	8.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.6	0.0	10.7	24.1	22.1	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.1	0.0	56.9	34.4	54.9	10.7
LnGrp LOS	E		E	C	D	B
Approach Vol, veh/h	788		1141			1687
Approach Delay, s/veh	69.1		45.8			40.7
Approach LOS	E		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	66.3	46.5		47.2		112.8
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	63.0	34.0		44.5		103.0
Max Q Clear Time (g_c+I1), s	51.3	42.5		37.2		11.6
Green Ext Time (p_c), s	9.1	0.0		3.4		7.9

Intersection Summary			
HCM 6th Ctrl Delay		48.5	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1614	6	11	2117	126	0	0	21	0	0	132
Future Vol, veh/h	0	1614	6	11	2117	126	0	0	21	0	0	132
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1699	6	12	2228	133	0	0	22	0	0	139

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1705	0	0	-	-	853	-	-	1114
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	369	-	-	0	0	302	0	0	203
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	369	-	-	-	-	302	-	-	203
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

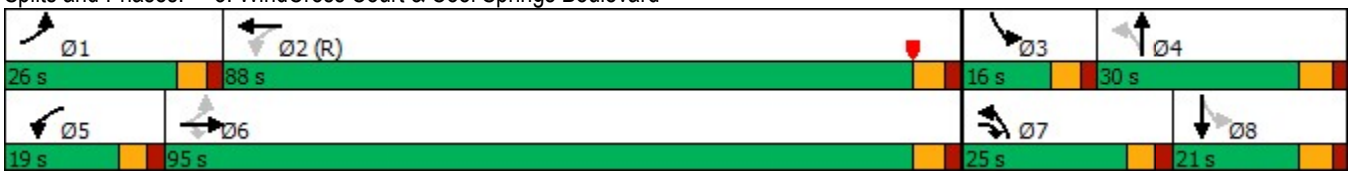
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	17.9	54.2
HCM LOS			C	F

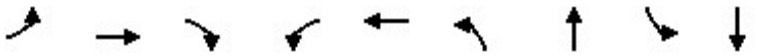
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	302	-	-	369	-	-	203
HCM Lane V/C Ratio	0.073	-	-	0.031	-	-	0.684
HCM Control Delay (s)	17.9	-	-	15.1	-	-	54.2
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	-	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	148	1512	19	132	2160	62	0	158	0
Future Volume (vph)	148	1512	19	132	2160	62	0	158	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	26.0	95.0	25.0	19.0	88.0	25.0	30.0	16.0	21.0
Total Split (%)	16.3%	59.4%	15.6%	11.9%	55.0%	15.6%	18.8%	10.0%	13.1%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	5.5	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	110.5	94.6	121.2	103.6	91.0	35.0	19.8	22.8	16.0
Actuated g/C Ratio	0.69	0.59	0.76	0.65	0.57	0.22	0.12	0.14	0.10
v/c Ratio	0.73	0.79	0.02	0.72	1.18	0.21	0.86	1.05	0.06
Control Delay	43.6	49.8	1.3	35.0	117.3	49.9	53.1	141.4	0.3
Queue Delay	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	50.7	1.3	35.0	117.3	49.9	53.1	141.4	0.3
LOS	D	D	A	C	F	D	D	F	A
Approach Delay		49.5			112.6		52.5		124.2
Approach LOS		D			F		D		F

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.18	
Intersection Signal Delay: 85.2	Intersection LOS: F
Intersection Capacity Utilization 113.2%	ICU Level of Service H
Analysis Period (min) 15	

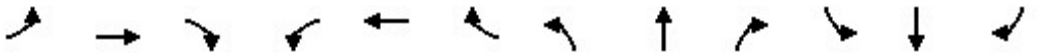
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	26.0	95.0	25.0	19.0	88.0	25.0	30.0	16.0	21.0
Total Split (%)	16.3%	59.4%	15.6%	11.9%	55.0%	15.6%	18.8%	10.0%	13.1%
Maximum Green (s)	20.5	89.0	19.5	13.5	82.0	19.5	24.0	10.5	15.0
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	20.5	89.0	15.9	13.5	82.0	15.9	24.0	10.5	18.6
90th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
70th %ile Green (s)	19.1	89.0	13.6	13.5	83.4	13.6	24.0	10.5	20.9
70th %ile Term Code	Gap	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
50th %ile Green (s)	16.3	90.0	12.2	14.3	88.0	12.2	22.2	10.5	20.5
50th %ile Term Code	Gap	Coord	Gap	Gap	Coord	Gap	Gap	Max	Hold
30th %ile Green (s)	13.5	97.6	34.2	11.2	95.3	34.2	17.7	10.5	0.0
30th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip
10th %ile Green (s)	9.5	107.2	27.4	8.4	106.1	27.4	10.9	10.5	0.0
10th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	1512	19	132	2160	24	62	0	268	158	0	22
Future Volume (veh/h)	148	1512	19	132	2160	24	62	0	268	158	0	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	1643	21	143	2348	26	67	0	139	172	0	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	2285	1094	224	2191	24	273	0	164	183	0	193
Arrive On Green	0.08	0.64	0.64	0.04	0.61	0.61	0.05	0.00	0.10	0.07	0.00	0.12
Sat Flow, veh/h	1781	3554	1585	1781	3600	40	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	161	1643	21	143	1157	1217	67	0	139	172	0	24
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1863	1781	0	1585	1781	0	1585
Q Serve(g_s), s	10.2	49.1	0.7	4.8	97.4	97.4	5.3	0.0	13.8	10.5	0.0	2.2
Cycle Q Clear(g_c), s	10.2	49.1	0.7	4.8	97.4	97.4	5.3	0.0	13.8	10.5	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	185	2285	1094	224	1082	1134	273	0	164	183	0	193
V/C Ratio(X)	0.87	0.72	0.02	0.64	1.07	1.07	0.25	0.00	0.85	0.94	0.00	0.12
Avail Cap(c_a), veh/h	273	2285	1094	296	1082	1134	405	0	238	183	0	193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.30	0.30	0.30	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.8	19.0	7.8	21.9	31.3	31.3	59.9	0.0	70.5	65.0	0.0	62.7
Incr Delay (d2), s/veh	20.7	1.4	0.0	1.3	37.6	39.0	1.0	0.0	25.0	49.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	19.6	0.2	2.5	50.2	53.0	2.5	0.0	6.8	4.5	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.5	20.4	7.8	23.2	68.9	70.3	60.9	0.0	95.5	114.9	0.0	63.3
LnGrp LOS	E	C	A	C	F	F	E	A	F	F	A	E
Approach Vol, veh/h		1825			2517			206			196	
Approach Delay, s/veh		25.4			67.0			84.2			108.6	
Approach LOS		C			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.1	103.4	16.0	22.5	12.6	108.9	13.1	25.4
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	20.5	82.0	10.5	24.0	13.5	89.0	19.5	15.0
Max Q Clear Time (g_c+I1), s	12.2	99.4	12.5	15.8	6.8	51.1	7.3	4.2
Green Ext Time (p_c), s	0.4	0.0	0.0	0.7	0.3	28.6	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

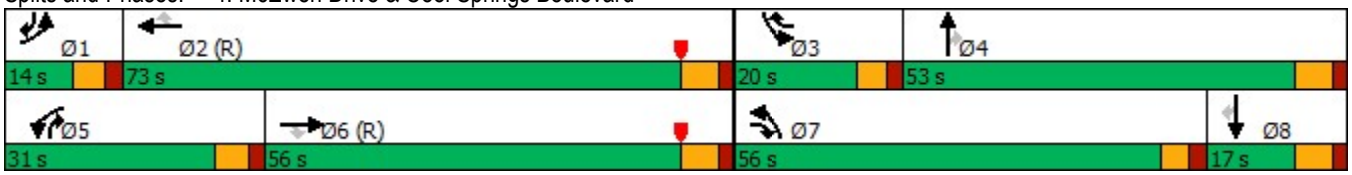
Notes

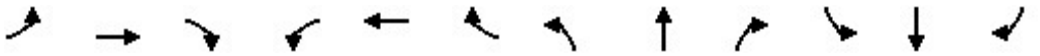
User approved ignoring U-Turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1150	749	268	1282	65	992	51	185	62	47	42
Future Volume (vph)	39	1150	749	268	1282	65	992	51	185	62	47	42
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	56.0	56.0	31.0	73.0	20.0	56.0	53.0	31.0	20.0	17.0	14.0
Total Split (%)	8.8%	35.0%	35.0%	19.4%	45.6%	12.5%	35.0%	33.1%	19.4%	12.5%	10.6%	8.8%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	5.5	5.5	6.5	6.0	5.5	6.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	7.8	50.4	107.4	27.6	72.7	101.2	50.5	40.0	70.7	20.9	10.3	21.3
Actuated g/C Ratio	0.05	0.32	0.67	0.17	0.45	0.63	0.32	0.25	0.44	0.13	0.06	0.13
v/c Ratio	0.49	1.12	0.72	0.96	0.87	0.07	1.00	0.12	0.27	0.29	0.42	0.14
Control Delay	105.6	100.3	13.6	105.8	47.8	1.1	80.2	43.1	13.0	71.8	83.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	100.3	13.6	105.8	47.8	1.1	80.2	43.1	13.0	71.8	83.2	0.9
LOS	F	F	B	F	D	A	F	D	B	E	F	A
Approach Delay		66.9			55.5			68.5			55.4	
Approach LOS		E			E			E			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 63.2	Intersection LOS: E
Intersection Capacity Utilization 97.4%	ICU Level of Service F
Analysis Period (min) 15	

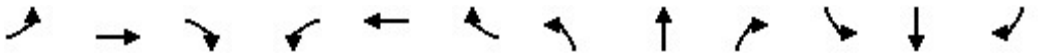
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	56.0	56.0	31.0	73.0	20.0	56.0	53.0	31.0	20.0	17.0	14.0
Total Split (%)	8.8%	35.0%	35.0%	19.4%	45.6%	12.5%	35.0%	33.1%	19.4%	12.5%	10.6%	8.8%
Maximum Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	14.5	50.5	46.5	25.0	14.5	10.5	8.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	49.5	50.5	25.0	66.5	13.3	50.5	47.7	25.0	13.3	10.5	8.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Max	Max
30th %ile Green (s)	8.3	49.5	50.5	25.3	66.5	11.6	50.5	49.1	25.3	11.6	10.2	8.3
30th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Gap	Max
10th %ile Green (s)	0.0	53.9	50.5	37.6	97.5	50.5	50.5	0.0	37.6	50.5	0.0	0.0
10th %ile Term Code	Skip	Coord	Max	Gap	Coord	Hold	Max	Skip	Gap	Hold	Skip	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	1150	749	268	1282	65	992	51	185	62	47	42
Future Volume (veh/h)	39	1150	749	268	1282	65	992	51	185	62	47	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1250	814	291	1393	71	1078	55	201	67	51	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1111	996	278	1553	769	1091	618	771	85	117	149
Arrive On Green	0.03	0.31	0.31	0.16	0.44	0.44	0.32	0.33	0.33	0.05	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	42	1250	814	291	1393	71	1078	55	201	67	51	46
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.7	50.0	50.0	25.0	58.1	3.9	49.6	3.2	11.9	6.0	4.2	4.3
Cycle Q Clear(g_c), s	3.7	50.0	50.0	25.0	58.1	3.9	49.6	3.2	11.9	6.0	4.2	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	1111	996	278	1553	769	1091	618	771	85	117	149
V/C Ratio(X)	0.74	1.13	0.82	1.05	0.90	0.09	0.99	0.09	0.26	0.78	0.44	0.31
Avail Cap(c_a), veh/h	89	1111	996	278	1553	769	1091	618	771	161	123	154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.48	0.48	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.8	55.0	22.7	67.5	41.7	22.2	54.5	37.0	24.2	75.3	72.3	67.6
Incr Delay (d2), s/veh	12.4	62.8	3.7	66.3	8.5	0.2	24.4	0.1	0.4	27.6	5.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	31.7	23.8	16.4	26.7	1.5	25.3	1.5	4.7	3.4	2.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.2	117.8	26.5	133.8	50.2	22.5	78.9	37.1	24.5	103.0	77.7	70.1
LnGrp LOS	F	F	C	F	D	C	E	D	C	F	E	E
Approach Vol, veh/h		2106			1755			1334			164	
Approach Delay, s/veh		81.9			63.0			69.0			85.9	
Approach LOS		F			E			E			F	

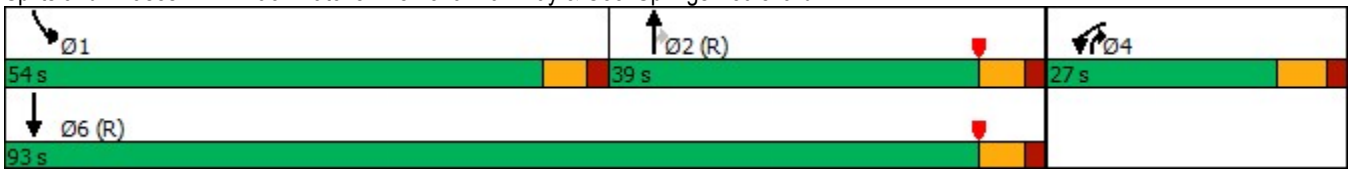
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	76.4	13.2	59.3	31.0	56.5	56.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	66.5	14.5	46.5	25.0	49.5	50.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	60.1	8.0	13.9	27.0	52.0	51.6	6.3
Green Ext Time (p_c), s	0.0	5.6	0.1	2.3	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	72.6
HCM 6th LOS	E

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	297	1013	554	697	1343	563
Future Volume (vph)	297	1013	554	697	1343	563
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	20.5	120.0	33.0	53.0	48.0	87.0
Actuated g/C Ratio	0.17	1.00	0.28	0.44	0.40	0.72
v/c Ratio	0.55	0.68	0.59	1.04	1.02	0.23
Control Delay	35.0	13.1	40.7	74.6	65.1	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	13.1	40.7	74.6	65.1	5.7
LOS	C	B	D	E	E	A
Approach Delay	18.1		59.6			47.6
Approach LOS	B		E			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 42.3	Intersection LOS: D
Intersection Capacity Utilization 92.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Maximum Green (s)	20.5		33.0	20.5	48.0	87.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
10th %ile Term Code	Max		Coord	Max	Max	Coord

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	297	1013	554	697	1343	563
Future Volume (veh/h)	297	1013	554	697	1343	563
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	309	0	577	726	1399	586
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	3	2	2	2	2
Cap, veh/h	498		1051	706	1382	2650
Arrive On Green	0.15	0.00	0.30	0.30	0.40	0.75
Sat Flow, veh/h	3319	1572	3647	1582	3456	3647
Grp Volume(v), veh/h	309	0	577	726	1399	586
Grp Sat Flow(s),veh/h/ln	1659	1572	1777	1582	1728	1777
Q Serve(g_s), s	10.5	0.0	16.4	35.5	48.0	6.0
Cycle Q Clear(g_c), s	10.5	0.0	16.4	35.5	48.0	6.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	498		1051	706	1382	2650
V/C Ratio(X)	0.62		0.55	1.03	1.01	0.22
Avail Cap(c_a), veh/h	567		1051	706	1382	2650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	0.0	35.5	28.3	36.0	4.6
Incr Delay (d2), s/veh	3.0	0.0	2.1	41.4	27.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	7.1	29.1	24.1	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.8	0.0	37.6	69.6	63.2	4.8
LnGrp LOS	D		D	F	F	A
Approach Vol, veh/h	309		1303			1985
Approach Delay, s/veh	50.8		55.4			46.0
Approach LOS	D		E			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	54.0	41.5		24.5		95.5
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	48.0	33.0		20.5		87.0
Max Q Clear Time (g_c+I1), s	50.0	37.5		12.5		8.0
Green Ext Time (p_c), s	0.0	0.0		1.3		8.7

Intersection Summary	
HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2001	6	15	1235	108	0	0	6	0	0	68
Future Vol, veh/h	0	2001	6	15	1235	108	0	0	6	0	0	68
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2106	6	16	1300	114	0	0	6	0	0	72

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	2112	0	0	-	-	1056	-	-	650
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	256	-	-	0	0	222	0	0	412
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	256	-	-	-	-	222	-	-	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

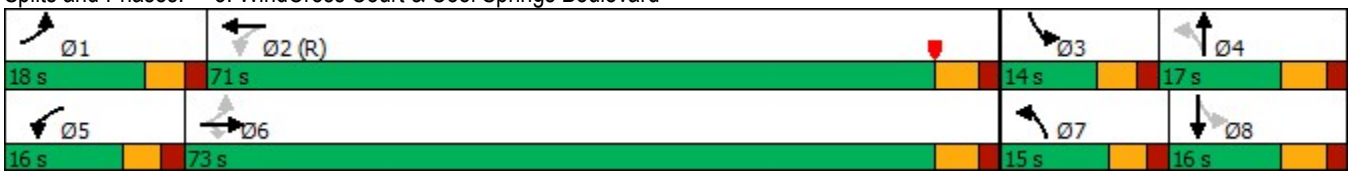
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	21.7	15.6
HCM LOS			C	C

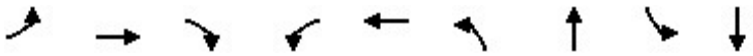
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	222	-	-	256	-	-	412
HCM Lane V/C Ratio	0.028	-	-	0.062	-	-	0.174
HCM Control Delay (s)	21.7	-	-	20	-	-	15.6
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.6

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	110	1802	101	225	1323	25	0	74	0
Future Volume (vph)	110	1802	101	225	1323	25	0	74	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	6	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	77.0	67.0	67.0	83.2	71.4	19.1	10.4	16.3	12.8
Actuated g/C Ratio	0.64	0.56	0.56	0.69	0.60	0.16	0.09	0.14	0.11
v/c Ratio	0.49	0.99	0.12	0.91	0.70	0.11	0.33	0.38	0.04
Control Delay	9.7	41.2	3.6	71.8	20.3	39.4	2.8	48.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	41.2	3.6	71.8	20.3	39.4	2.8	48.6	0.2
LOS	A	D	A	E	C	D	A	D	A
Approach Delay		37.5			27.7		10.3		41.4
Approach LOS		D			C		B		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 32.7	Intersection LOS: C
Intersection Capacity Utilization 87.6%	ICU Level of Service E
Analysis Period (min) 15	

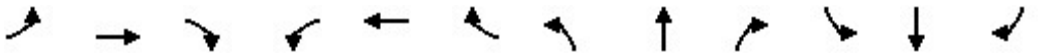
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Maximum Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Max	Hold	Max	Max
70th %ile Green (s)	10.7	67.0	67.0	10.5	66.8	9.5	11.0	8.5	10.0
70th %ile Term Code	Gap	Coord	Coord	Max	Coord	Max	Hold	Max	Max
50th %ile Green (s)	9.0	67.0	67.0	11.5	69.5	24.5	10.0	8.5	0.0
50th %ile Term Code	Gap	Coord	Coord	Max	Coord	Hold	Min	Max	Skip
30th %ile Green (s)	8.3	67.0	67.0	11.5	70.2	0.0	10.0	8.5	24.0
30th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold
10th %ile Green (s)	7.0	67.1	67.1	25.4	85.5	0.0	10.0	0.0	10.0
10th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Skip	Min	Skip	Hold

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1802	101	225	1323	26	25	0	96	74	0	13
Future Volume (veh/h)	110	1802	101	225	1323	26	25	0	96	74	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	1959	110	245	1438	28	27	0	104	80	0	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	2047	913	227	2191	43	246	0	131	194	0	167
Arrive On Green	0.05	0.58	0.58	0.09	0.61	0.61	0.04	0.00	0.08	0.06	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3565	69	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	120	1959	110	245	716	750	27	0	104	80	0	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1858	1781	0	1585	1781	0	1585
Q Serve(g_s), s	3.2	62.5	3.8	10.5	31.2	31.3	1.6	0.0	7.7	4.8	0.0	1.0
Cycle Q Clear(g_c), s	3.2	62.5	3.8	10.5	31.2	31.3	1.6	0.0	7.7	4.8	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	2047	913	227	1092	1142	246	0	131	194	0	167
V/C Ratio(X)	0.44	0.96	0.12	1.08	0.66	0.66	0.11	0.00	0.79	0.41	0.00	0.08
Avail Cap(c_a), veh/h	373	2047	913	227	1092	1142	317	0	145	210	0	167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.5	24.0	11.6	40.6	14.9	14.9	46.9	0.0	54.0	46.2	0.0	48.5
Incr Delay (d2), s/veh	1.5	11.6	0.1	73.1	2.2	2.1	0.4	0.0	28.2	3.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	26.9	1.4	11.3	12.1	12.6	0.8	0.0	4.1	2.3	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	35.6	11.7	113.7	17.1	17.1	47.4	0.0	82.2	49.2	0.0	48.9
LnGrp LOS	B	D	B	F	B	B	D	A	F	D	A	D
Approach Vol, veh/h		2189			1711			131			94	
Approach Delay, s/veh		33.3			30.9			75.0			49.2	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	79.7	12.9	15.9	16.0	75.1	10.2	18.6
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.2	33.3	6.8	9.7	12.5	64.5	3.6	3.0
Green Ext Time (p_c), s	0.2	21.9	0.0	0.1	0.0	2.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

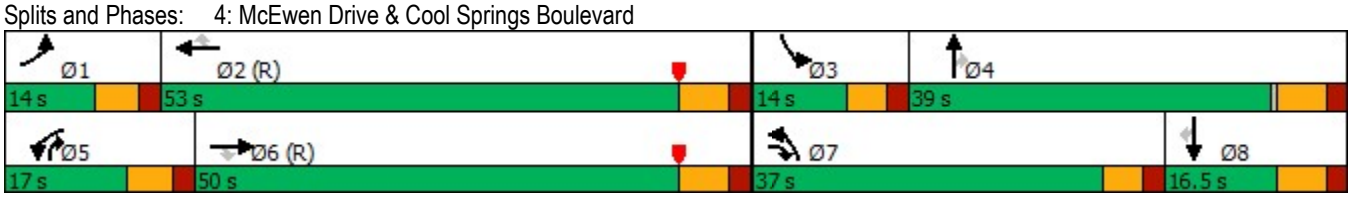
Notes

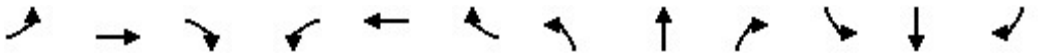
User approved ignoring U-Turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1098	861	107	974	43	566	34	256	58	45	35
Future Volume (vph)	26	1098	861	107	974	43	566	34	256	58	45	35
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	2	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	6.5	5.5	6.5	6.0	5.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	7.6	47.7	85.1	10.7	56.0	56.0	30.9	27.3	41.2	16.3	10.0	10.0
Actuated g/C Ratio	0.06	0.40	0.71	0.09	0.46	0.46	0.26	0.23	0.34	0.14	0.08	0.08
v/c Ratio	0.25	0.85	0.76	0.74	0.64	0.06	0.70	0.09	0.47	0.26	0.32	0.13
Control Delay	59.4	41.8	12.0	80.4	29.6	0.1	45.4	35.2	23.4	53.5	58.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	41.8	12.0	80.4	29.6	0.1	45.4	35.2	23.4	53.5	58.0	0.9
LOS	E	D	B	F	C	A	D	D	C	D	E	A
Approach Delay		29.1			33.3			38.4			41.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120.5	
Actuated Cycle Length: 120.5	
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 32.6	Intersection LOS: C
Intersection Capacity Utilization 82.6%	ICU Level of Service E
Analysis Period (min) 15	

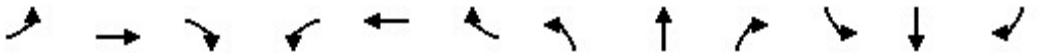
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Maximum Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	32.5	11.0	8.5	10.0	10.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
30th %ile Green (s)	0.0	43.5	31.5	11.0	60.5	60.5	31.5	0.0	11.0	48.0	10.0	10.0
30th %ile Term Code	Skip	Coord	Max	Max	Coord	Coord	Max	Skip	Max	Hold	Max	Max
10th %ile Green (s)	0.0	64.3	28.5	9.7	80.0	80.0	28.5	27.5	9.7	0.0	0.0	0.0
10th %ile Term Code	Skip	Coord	Gap	Gap	Coord	Coord	Gap	Hold	Gap	Skip	Skip	Skip

Intersection Summary
Cycle Length: 120.5
Actuated Cycle Length: 120.5
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1098	861	107	974	43	566	34	256	58	45	35
Future Volume (veh/h)	26	1098	861	107	974	43	566	34	256	58	45	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	1193	936	116	1059	47	615	37	278	63	49	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1490	1003	142	1665	743	738	446	504	104	156	132
Arrive On Green	0.03	0.42	0.42	0.08	0.47	0.47	0.21	0.24	0.24	0.06	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	28	1193	936	116	1059	47	615	37	278	63	49	38
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.9	35.2	50.3	7.7	27.1	1.9	20.4	1.8	17.4	4.1	3.0	2.7
Cycle Q Clear(g_c), s	1.9	35.2	50.3	7.7	27.1	1.9	20.4	1.8	17.4	4.1	3.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	54	1490	1003	142	1665	743	738	446	504	104	156	132
V/C Ratio(X)	0.52	0.80	0.93	0.82	0.64	0.06	0.83	0.08	0.55	0.60	0.31	0.29
Avail Cap(c_a), veh/h	119	1490	1003	163	1665	743	907	507	555	126	156	132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.17	0.17	0.17	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	30.4	19.7	54.4	24.1	17.5	45.1	35.5	33.9	55.1	51.8	51.7
Incr Delay (d2), s/veh	1.9	0.8	3.8	26.1	1.9	0.2	7.3	0.2	2.0	11.5	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	14.5	22.4	4.4	11.3	0.8	9.5	0.9	7.0	2.2	1.5	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	31.3	23.5	80.5	26.0	17.6	52.4	35.7	35.9	66.6	54.2	54.2
LnGrp LOS	E	C	C	F	C	B	D	D	D	E	D	D
Approach Vol, veh/h		2157			1222			930			150	
Approach Delay, s/veh		28.3			30.9			46.8			59.4	
Approach LOS		C			C			D			E	

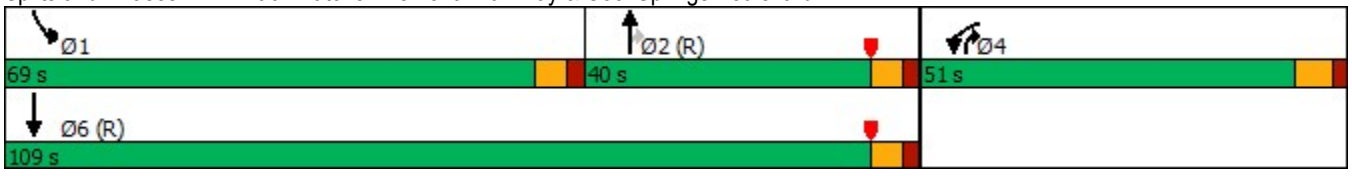
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	62.7	12.5	35.1	15.5	56.8	31.1	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	29.1	6.1	19.4	9.7	52.3	22.4	5.0
Green Ext Time (p_c), s	0.0	11.0	0.0	2.0	0.0	0.0	3.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	783	1680	601	554	1143	565
Future Volume (vph)	783	1680	601	554	1143	565
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	44.1	160.0	34.5	84.6	62.9	103.4
Actuated g/C Ratio	0.28	1.00	0.22	0.53	0.39	0.65
v/c Ratio	0.88	1.13	0.84	0.70	0.90	0.26
Control Delay	56.6	87.9	71.0	32.8	55.9	12.5
Queue Delay	0.0	0.0	0.0	1.6	0.0	0.0
Total Delay	56.6	87.9	71.0	34.4	55.9	12.5
LOS	E	F	E	C	E	B
Approach Delay	77.9		53.4			41.5
Approach LOS	E		D			D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 60.9	Intersection LOS: E
Intersection Capacity Utilization 87.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Maximum Green (s)	44.5		34.0	44.5	63.0	103.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	42.7		36.5	42.7	62.3	104.8
10th %ile Term Code	Gap		Coord	Gap	Gap	Coord

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	783	1680	601	554	1143	565
Future Volume (veh/h)	783	1680	601	554	1143	565
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	833	0	639	589	1216	601
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	910		835	790	1334	2340
Arrive On Green	0.26	0.00	0.24	0.24	0.39	0.66
Sat Flow, veh/h	3456	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	833	0	639	589	1216	601
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1728	1777
Q Serve(g_s), s	37.4	0.0	26.8	37.6	53.3	11.1
Cycle Q Clear(g_c), s	37.4	0.0	26.8	37.6	53.3	11.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	910		835	790	1334	2340
V/C Ratio(X)	0.92		0.76	0.75	0.91	0.26
Avail Cap(c_a), veh/h	961		835	790	1361	2340
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	0.0	57.1	29.6	46.5	11.2
Incr Delay (d2), s/veh	13.5	0.0	6.6	6.3	10.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.8	0.0	12.6	25.5	24.3	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	70.7	0.0	63.7	35.9	57.5	11.5
LnGrp LOS	E		E	D	E	B
Approach Vol, veh/h	833		1228			1817
Approach Delay, s/veh	70.7		50.3			42.3
Approach LOS	E		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	67.7	43.6		48.6		111.4
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	63.0	34.0		44.5		103.0
Max Q Clear Time (g_c+I1), s	55.3	39.6		39.4		13.1
Green Ext Time (p_c), s	6.4	0.0		2.7		9.0

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1707	6	11	2284	71	0	0	21	0	0	116
Future Vol, veh/h	0	1707	6	11	2284	71	0	0	21	0	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1797	6	12	2404	75	0	0	22	0	0	122

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1803	0	0	-	-	902	-	-	1202
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	338	-	-	0	0	281	0	0	177
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	338	-	-	-	-	281	-	-	177
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

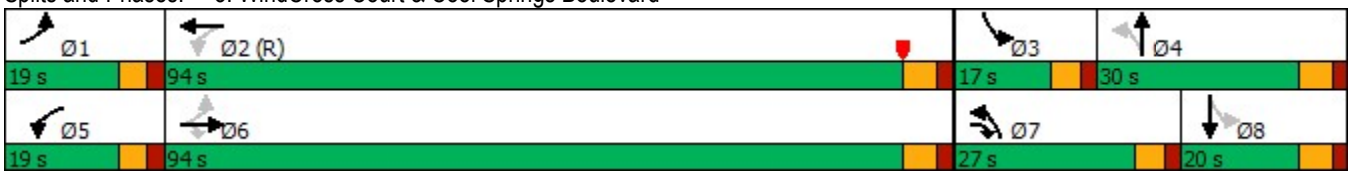
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	18.9	61.3
HCM LOS			C	F

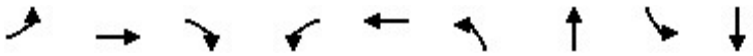
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	281	-	-	338	-	-	177
HCM Lane V/C Ratio	0.079	-	-	0.034	-	-	0.69
HCM Control Delay (s)	18.9	-	-	16	-	-	61.3
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	-	4.2

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	125	1613	40	124	2267	62	0	122	0
Future Volume (vph)	125	1613	40	124	2267	62	0	122	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	19.0	94.0	27.0	19.0	94.0	27.0	30.0	17.0	20.0
Total Split (%)	11.9%	58.8%	16.9%	11.9%	58.8%	16.9%	18.8%	10.6%	12.5%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	5.5	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	106.3	93.4	120.5	106.0	93.3	35.5	19.8	24.5	16.7
Actuated g/C Ratio	0.66	0.58	0.75	0.66	0.58	0.22	0.12	0.15	0.10
v/c Ratio	0.74	0.85	0.04	0.74	1.21	0.21	0.86	0.76	0.07
Control Delay	43.0	53.1	4.8	37.5	127.2	49.0	54.0	82.8	0.4
Queue Delay	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	55.1	4.8	37.5	127.2	49.0	54.0	82.8	0.4
LOS	D	E	A	D	F	D	D	F	A
Approach Delay		53.2			122.6		53.0		70.2
Approach LOS		D			F		D		E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.21	
Intersection Signal Delay: 89.6	Intersection LOS: F
Intersection Capacity Utilization 112.9%	ICU Level of Service H
Analysis Period (min) 15	

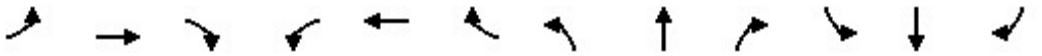
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	19.0	94.0	27.0	19.0	94.0	27.0	30.0	17.0	20.0
Total Split (%)	11.9%	58.8%	16.9%	11.9%	58.8%	16.9%	18.8%	10.6%	12.5%
Maximum Green (s)	13.5	88.0	21.5	13.5	88.0	21.5	24.0	11.5	14.0
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	13.5	88.0	15.8	13.5	88.0	15.8	24.0	11.5	19.7
90th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
70th %ile Green (s)	13.5	88.0	13.6	13.5	88.0	13.6	24.0	11.5	21.9
70th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
50th %ile Green (s)	14.5	88.7	12.2	14.4	88.6	12.2	22.4	11.5	21.7
50th %ile Term Code	Gap	Coord	Gap	Gap	Coord	Gap	Gap	Max	Hold
30th %ile Green (s)	12.0	96.2	35.3	11.5	95.7	35.3	17.8	11.5	0.0
30th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip
10th %ile Green (s)	8.3	106.3	28.5	8.2	106.2	28.5	11.0	11.5	0.0
10th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1613	40	124	2267	24	62	0	268	122	0	22
Future Volume (veh/h)	125	1613	40	124	2267	24	62	0	268	122	0	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	136	1753	43	135	2464	26	67	0	140	133	0	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	2269	1087	195	2223	23	274	0	165	194	0	203
Arrive On Green	0.06	0.64	0.64	0.04	0.62	0.62	0.05	0.00	0.10	0.07	0.00	0.13
Sat Flow, veh/h	1781	3554	1585	1781	3602	38	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	136	1753	43	135	1213	1277	67	0	140	133	0	24
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1864	1781	0	1585	1781	0	1585
Q Serve(g_s), s	8.0	56.3	1.4	4.5	98.7	98.7	5.3	0.0	13.9	10.6	0.0	2.1
Cycle Q Clear(g_c), s	8.0	56.3	1.4	4.5	98.7	98.7	5.3	0.0	13.9	10.6	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	2269	1087	195	1096	1150	274	0	165	194	0	203
V/C Ratio(X)	0.86	0.77	0.04	0.69	1.11	1.11	0.24	0.00	0.85	0.68	0.00	0.12
Avail Cap(c_a), veh/h	195	2269	1087	271	1096	1150	429	0	238	194	0	203
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.17	0.17	0.17	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.7	20.6	8.1	27.7	30.6	30.6	59.9	0.0	70.5	59.1	0.0	61.7
Incr Delay (d2), s/veh	28.3	2.0	0.0	1.1	50.6	52.2	1.0	0.0	25.1	12.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	22.6	0.5	3.2	54.6	57.8	2.5	0.0	6.9	5.5	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.0	22.6	8.1	28.8	81.2	82.9	60.8	0.0	95.6	71.3	0.0	62.3
LnGrp LOS	F	C	A	C	F	F	E	A	F	E	A	E
Approach Vol, veh/h		1932			2625			207			157	
Approach Delay, s/veh		26.6			79.3			84.3			69.9	
Approach LOS		C			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	104.7	17.0	22.6	12.2	108.1	13.1	26.5
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	13.5	88.0	11.5	24.0	13.5	88.0	21.5	14.0
Max Q Clear Time (g_c+I1), s	10.0	100.7	12.6	15.9	6.5	58.3	7.3	4.1
Green Ext Time (p_c), s	0.1	0.0	0.0	0.7	0.3	24.8	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	58.6
HCM 6th LOS	E

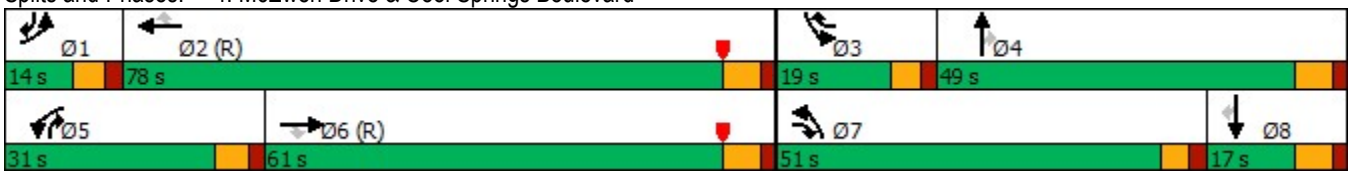
Notes

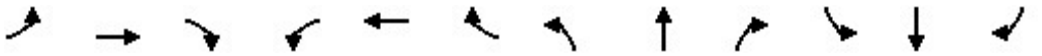
User approved ignoring U-Turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1210	783	297	1341	65	1032	51	205	62	47	42
Future Volume (vph)	39	1210	783	297	1341	65	1032	51	205	62	47	42
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	61.0	51.0	31.0	78.0	19.0	51.0	49.0	31.0	19.0	17.0	14.0
Total Split (%)	8.8%	38.1%	31.9%	19.4%	48.8%	11.9%	31.9%	30.6%	19.4%	11.9%	10.6%	8.8%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	5.5	5.5	6.5	6.0	5.5	6.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	7.8	54.5	106.5	28.5	77.7	104.8	45.5	36.4	68.0	19.5	10.3	21.3
Actuated g/C Ratio	0.05	0.34	0.67	0.18	0.49	0.66	0.28	0.23	0.42	0.12	0.06	0.13
v/c Ratio	0.49	1.09	0.76	1.03	0.85	0.07	1.15	0.13	0.31	0.31	0.42	0.14
Control Delay	99.8	85.9	12.6	120.1	43.6	1.0	129.3	46.3	18.4	73.1	83.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.8	85.9	12.6	120.1	43.6	1.0	129.3	46.3	18.4	73.1	83.2	0.9
LOS	F	F	B	F	D	A	F	D	B	E	F	A
Approach Delay		57.9			55.3			108.3			56.0	
Approach LOS		E			E			F			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 69.6	Intersection LOS: E
Intersection Capacity Utilization 101.8%	ICU Level of Service G
Analysis Period (min) 15	

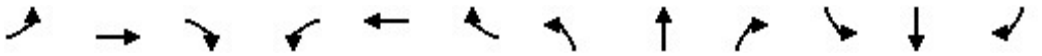
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	61.0	51.0	31.0	78.0	19.0	51.0	49.0	31.0	19.0	17.0	14.0
Total Split (%)	8.8%	38.1%	31.9%	19.4%	48.8%	11.9%	31.9%	30.6%	19.4%	11.9%	10.6%	8.8%
Maximum Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.3	45.5	42.7	25.0	13.3	10.5	8.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Max	Max
30th %ile Green (s)	8.3	54.5	45.5	25.3	71.5	11.6	45.5	44.1	25.3	11.6	10.2	8.3
30th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Gap	Max
10th %ile Green (s)	0.0	54.5	45.5	42.0	102.5	45.5	45.5	0.0	42.0	45.5	0.0	0.0
10th %ile Term Code	Skip	Coord	Max	Max	Coord	Hold	Max	Skip	Max	Hold	Skip	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	1210	783	297	1341	65	1032	51	205	62	47	42
Future Volume (veh/h)	39	1210	783	297	1341	65	1032	51	205	62	47	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1315	851	323	1458	71	1122	55	223	67	51	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1222	996	278	1664	818	983	559	722	85	117	149
Arrive On Green	0.03	0.34	0.34	0.16	0.47	0.47	0.28	0.30	0.30	0.05	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	42	1315	851	323	1458	71	1122	55	223	67	51	46
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.7	55.0	55.0	25.0	59.2	3.6	45.5	3.4	14.3	6.0	4.2	4.3
Cycle Q Clear(g_c), s	3.7	55.0	55.0	25.0	59.2	3.6	45.5	3.4	14.3	6.0	4.2	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	1222	996	278	1664	818	983	559	722	85	117	149
V/C Ratio(X)	0.74	1.08	0.85	1.16	0.88	0.09	1.14	0.10	0.31	0.79	0.44	0.31
Avail Cap(c_a), veh/h	89	1222	996	278	1664	818	983	559	722	150	123	154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.43	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.8	52.5	23.9	67.5	38.4	19.6	57.3	40.5	27.6	75.4	72.3	67.6
Incr Delay (d2), s/veh	11.2	41.8	4.3	104.5	6.8	0.2	76.1	0.2	0.5	27.8	5.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	31.1	26.2	19.3	26.7	1.4	30.2	1.6	5.6	3.4	2.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.0	94.3	28.2	172.0	45.2	19.8	133.4	40.7	28.1	103.2	77.7	70.1
LnGrp LOS	F	F	C	F	D	B	F	D	C	F	E	E
Approach Vol, veh/h		2208			1852			1400			164	
Approach Delay, s/veh		68.7			66.3			113.0			86.0	
Approach LOS		E			E			F			F	

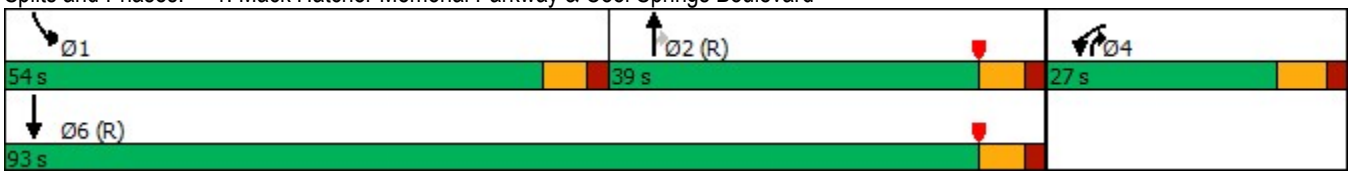
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	81.4	13.2	54.3	31.0	61.5	51.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	71.5	13.5	42.5	25.0	54.5	45.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	61.2	8.0	16.3	27.0	57.0	47.5	6.3
Green Ext Time (p_c), s	0.0	8.8	0.1	2.3	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	79.4
HCM 6th LOS	E

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	307	1023	554	701	1347	563
Future Volume (vph)	307	1023	554	701	1347	563
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	20.5	120.0	33.0	53.0	48.0	87.0
Actuated g/C Ratio	0.17	1.00	0.28	0.44	0.40	0.72
v/c Ratio	0.57	0.69	0.59	1.05	1.02	0.23
Control Delay	35.2	13.4	40.7	76.3	65.9	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	13.4	40.7	76.3	65.9	5.7
LOS	D	B	D	E	E	A
Approach Delay	18.4		60.6			48.2
Approach LOS	B		E			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 42.8	Intersection LOS: D
Intersection Capacity Utilization 92.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	27.0		39.0	27.0	54.0	93.0
Total Split (%)	22.5%		32.5%	22.5%	45.0%	77.5%
Maximum Green (s)	20.5		33.0	20.5	48.0	87.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	20.5		33.0	20.5	48.0	87.0
10th %ile Term Code	Max		Coord	Max	Max	Coord

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 87 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	307	1023	554	701	1347	563
Future Volume (veh/h)	307	1023	554	701	1347	563
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1796	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	320	0	577	730	1403	586
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	3	2	2	2	2
Cap, veh/h	498		1051	706	1382	2650
Arrive On Green	0.15	0.00	0.30	0.30	0.40	0.75
Sat Flow, veh/h	3319	1572	3647	1582	3456	3647
Grp Volume(v), veh/h	320	0	577	730	1403	586
Grp Sat Flow(s),veh/h/ln	1659	1572	1777	1582	1728	1777
Q Serve(g_s), s	10.9	0.0	16.4	35.5	48.0	6.0
Cycle Q Clear(g_c), s	10.9	0.0	16.4	35.5	48.0	6.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	498		1051	706	1382	2650
V/C Ratio(X)	0.64		0.55	1.03	1.01	0.22
Avail Cap(c_a), veh/h	567		1051	706	1382	2650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	35.5	28.3	36.0	4.6
Incr Delay (d2), s/veh	3.4	0.0	2.1	43.0	28.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	7.1	29.4	24.3	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.4	0.0	37.6	71.2	64.0	4.8
LnGrp LOS	D		D	F	F	A
Approach Vol, veh/h	320		1307			1989
Approach Delay, s/veh	51.4		56.4			46.6
Approach LOS	D		E			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	54.0	41.5		24.5		95.5
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	48.0	33.0		20.5		87.0
Max Q Clear Time (g_c+I1), s	50.0	37.5		12.9		8.0
Green Ext Time (p_c), s	0.0	0.0		1.3		8.7

Intersection Summary	
HCM 6th Ctrl Delay	50.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2009	6	15	1235	127	0	0	6	0	0	88
Future Vol, veh/h	0	2009	6	15	1235	127	0	0	6	0	0	88
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2115	6	16	1300	134	0	0	6	0	0	93

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	2121	0	0	-	-	1061	-	-	650
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	254	-	-	0	0	220	0	0	412
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	254	-	-	-	-	220	-	-	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

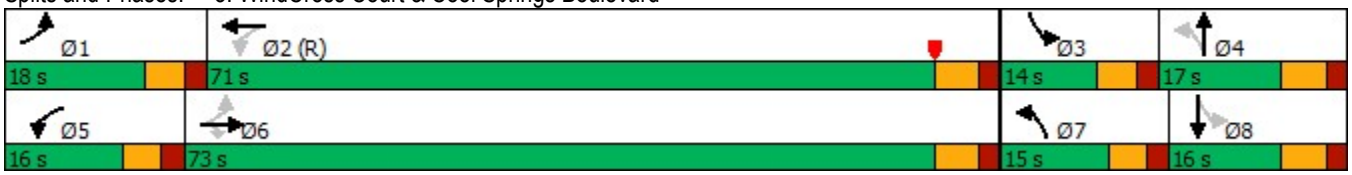
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	21.8	16.3
HCM LOS			C	C

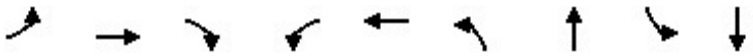
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	220	-	-	254	-	-	412
HCM Lane V/C Ratio	0.029	-	-	0.062	-	-	0.225
HCM Control Delay (s)	21.8	-	-	20.1	-	-	16.3
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	118	1802	101	225	1342	25	0	120	0
Future Volume (vph)	118	1802	101	225	1342	25	0	120	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	6	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	77.4	67.0	67.0	79.8	68.2	20.7	10.4	19.1	15.6
Actuated g/C Ratio	0.64	0.56	0.56	0.66	0.57	0.17	0.09	0.16	0.13
v/c Ratio	0.56	0.99	0.12	1.07	0.74	0.10	0.35	0.55	0.03
Control Delay	14.1	41.0	3.6	111.4	22.6	39.2	3.5	54.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	41.0	3.6	111.4	22.6	39.2	3.5	54.1	0.2
LOS	B	D	A	F	C	D	A	D	A
Approach Delay		37.6			35.2		10.8		48.9
Approach LOS		D			D		B		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 36.2	Intersection LOS: D
Intersection Capacity Utilization 90.2%	ICU Level of Service E
Analysis Period (min) 15	

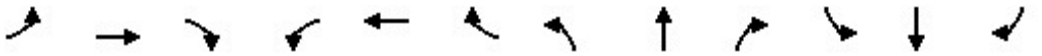
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6		5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	20.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	26.0	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	18.0	73.0	73.0	16.0	71.0	15.0	17.0	14.0	16.0
Total Split (%)	15.0%	60.8%	60.8%	13.3%	59.2%	12.5%	14.2%	11.7%	13.3%
Maximum Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	12.5	67.0	67.0	10.5	65.0	9.5	11.0	8.5	10.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Max	Hold	Max	Max
70th %ile Green (s)	11.7	67.0	67.0	10.5	65.8	9.5	11.0	8.5	10.0
70th %ile Term Code	Gap	Coord	Coord	Max	Coord	Max	Hold	Max	Max
50th %ile Green (s)	9.5	67.0	67.0	11.5	69.0	24.5	10.0	8.5	0.0
50th %ile Term Code	Gap	Coord	Coord	Max	Coord	Hold	Min	Max	Skip
30th %ile Green (s)	8.5	67.0	67.0	11.5	70.0	0.0	10.0	8.5	24.0
30th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold
10th %ile Green (s)	7.5	67.0	67.0	11.5	71.0	0.0	10.0	8.5	24.0
10th %ile Term Code	Gap	Coord	Coord	Max	Coord	Skip	Min	Max	Hold

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	1802	101	225	1342	26	25	0	96	120	0	13
Future Volume (veh/h)	118	1802	101	225	1342	26	25	0	96	120	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	128	1959	110	245	1459	28	27	0	104	130	0	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	2016	899	223	2160	41	246	0	131	210	0	181
Arrive On Green	0.05	0.57	0.57	0.09	0.61	0.61	0.04	0.00	0.08	0.07	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3567	68	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	128	1959	110	245	726	761	27	0	104	130	0	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1858	1781	0	1585	1781	0	1585
Q Serve(g_s), s	3.6	63.8	3.9	10.5	32.7	32.8	1.6	0.0	7.7	8.0	0.0	0.9
Cycle Q Clear(g_c), s	3.6	63.8	3.9	10.5	32.7	32.8	1.6	0.0	7.7	8.0	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	265	2016	899	223	1076	1125	246	0	131	210	0	181
V/C Ratio(X)	0.48	0.97	0.12	1.10	0.67	0.68	0.11	0.00	0.79	0.62	0.00	0.08
Avail Cap(c_a), veh/h	363	2016	899	223	1076	1125	317	0	145	210	0	181
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.70	0.70	0.70	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	25.0	12.1	40.9	15.8	15.8	46.9	0.0	54.0	46.4	0.0	47.5
Incr Delay (d2), s/veh	1.9	14.1	0.1	79.4	2.4	2.3	0.4	0.0	28.2	7.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	28.2	1.4	11.5	12.8	13.4	0.8	0.0	4.1	4.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.6	39.1	12.2	120.3	18.2	18.1	47.4	0.0	82.2	54.4	0.0	47.9
LnGrp LOS	B	D	B	F	B	B	D	A	F	D	A	D
Approach Vol, veh/h		2197			1732			131			144	
Approach Delay, s/veh		36.5			32.6			75.0			53.7	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	78.7	14.0	15.9	16.0	74.1	10.2	19.7
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.6	34.8	10.0	9.7	12.5	65.8	3.6	2.9
Green Ext Time (p_c), s	0.2	21.5	0.0	0.1	0.0	1.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D

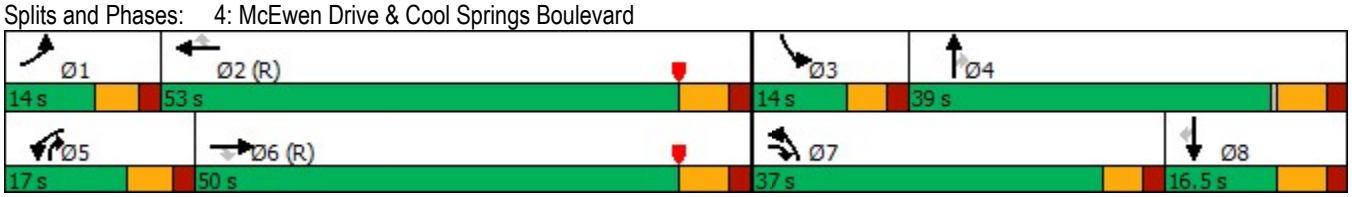
Notes

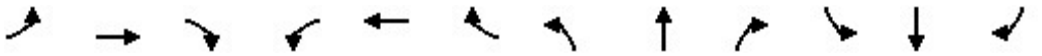
User approved ignoring U-Turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1131	874	107	988	43	571	34	256	58	45	35
Future Volume (vph)	26	1131	874	107	988	43	571	34	256	58	45	35
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	2	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	6.5	5.5	6.5	6.0	5.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	7.6	47.6	85.1	10.7	56.0	56.0	30.9	27.3	41.3	16.3	10.0	10.0
Actuated g/C Ratio	0.06	0.40	0.71	0.09	0.46	0.46	0.26	0.23	0.34	0.14	0.08	0.08
v/c Ratio	0.25	0.88	0.77	0.74	0.65	0.06	0.71	0.09	0.47	0.26	0.32	0.13
Control Delay	59.4	43.6	12.6	80.4	29.8	0.1	45.6	35.2	23.4	53.5	58.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	43.6	12.6	80.4	29.8	0.1	45.6	35.2	23.4	53.5	58.0	0.9
LOS	E	D	B	F	C	A	D	D	C	D	E	A
Approach Delay		30.5			33.5			38.6			41.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120.5	
Actuated Cycle Length: 120.5	
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 33.3	Intersection LOS: C
Intersection Capacity Utilization 83.4%	ICU Level of Service E
Analysis Period (min) 15	

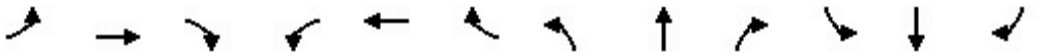
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	20.0	8.0	10.0	6.0	8.0	10.0	10.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	26.5	13.5	16.5	12.0	13.5	16.5	16.5
Total Split (s)	14.0	50.0	37.0	17.0	53.0	53.0	37.0	39.0	17.0	14.0	16.5	16.5
Total Split (%)	11.6%	41.5%	30.7%	14.1%	44.0%	44.0%	30.7%	32.4%	14.1%	11.6%	13.7%	13.7%
Maximum Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	32.5	11.0	8.5	10.0	10.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	4.5	3.5	4.5	4.0	3.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	43.5	31.5	11.0	46.5	46.5	31.5	33.0	11.0	8.5	10.0	10.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Hold	Max	Max	Max	Max
30th %ile Green (s)	0.0	43.5	31.5	11.0	60.5	60.5	31.5	0.0	11.0	48.0	10.0	10.0
30th %ile Term Code	Skip	Coord	Max	Max	Coord	Coord	Max	Skip	Max	Hold	Max	Max
10th %ile Green (s)	0.0	64.2	28.6	9.7	79.9	79.9	28.6	27.6	9.7	0.0	0.0	0.0
10th %ile Term Code	Skip	Coord	Gap	Gap	Coord	Coord	Gap	Hold	Gap	Skip	Skip	Skip

Intersection Summary
Cycle Length: 120.5
Actuated Cycle Length: 120.5
Offset: 119.5 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1131	874	107	988	43	571	34	256	58	45	35
Future Volume (veh/h)	26	1131	874	107	988	43	571	34	256	58	45	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	1229	950	116	1074	47	621	37	278	63	49	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1485	1003	142	1660	740	744	449	506	104	156	132
Arrive On Green	0.03	0.42	0.42	0.08	0.47	0.47	0.22	0.24	0.24	0.06	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	28	1229	950	116	1074	47	621	37	278	63	49	38
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.9	36.9	50.1	7.7	27.7	2.0	20.6	1.8	17.4	4.1	3.0	2.7
Cycle Q Clear(g_c), s	1.9	36.9	50.1	7.7	27.7	2.0	20.6	1.8	17.4	4.1	3.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	54	1485	1003	142	1660	740	744	449	506	104	156	132
V/C Ratio(X)	0.52	0.83	0.95	0.82	0.65	0.06	0.84	0.08	0.55	0.60	0.31	0.29
Avail Cap(c_a), veh/h	119	1485	1003	163	1660	740	907	507	555	126	156	132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.17	0.17	0.17	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.3	31.1	20.2	54.4	24.4	17.6	45.1	35.4	33.7	55.1	51.8	51.7
Incr Delay (d2), s/veh	1.9	1.0	4.6	26.1	2.0	0.2	7.4	0.2	2.0	11.5	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	15.3	23.4	4.4	11.6	0.8	9.6	0.9	6.9	2.2	1.5	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	32.1	24.7	80.5	26.4	17.7	52.4	35.5	35.7	66.6	54.2	54.2
LnGrp LOS	E	C	C	F	C	B	D	D	D	E	D	D
Approach Vol, veh/h		2207			1237			936			150	
Approach Delay, s/veh		29.2			31.1			46.8			59.4	
Approach LOS		C			C			D			E	

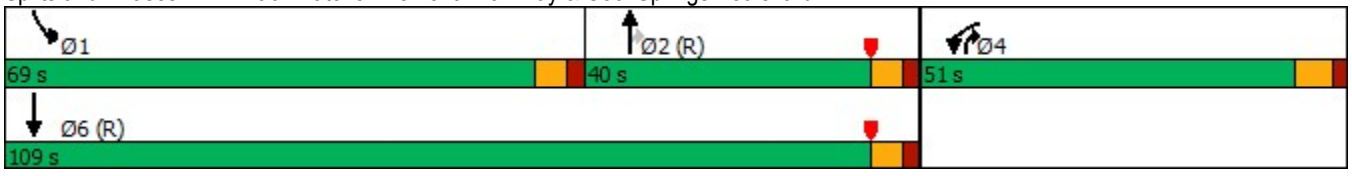
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	62.5	12.5	35.3	15.5	56.6	31.3	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	29.7	6.1	19.4	9.7	52.1	22.6	5.0
Green Ext Time (p_c), s	0.0	10.8	0.0	2.0	0.0	0.0	3.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	791	1688	601	566	1155	565
Future Volume (vph)	791	1688	601	566	1155	565
Turn Type	Prot	Free	NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.0	6.5	6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		C-Max	None	None	C-Max
Act Effct Green (s)	44.2	160.0	34.3	84.5	63.0	103.3
Actuated g/C Ratio	0.28	1.00	0.21	0.53	0.39	0.65
v/c Ratio	0.89	1.13	0.84	0.71	0.91	0.26
Control Delay	57.4	90.5	71.5	33.7	56.6	12.5
Queue Delay	0.0	0.0	0.0	1.8	0.0	0.0
Total Delay	57.4	90.5	71.5	35.5	56.6	12.5
LOS	E	F	E	D	E	B
Approach Delay	79.9		54.0			42.1
Approach LOS	E		D			D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 62.2	Intersection LOS: E
Intersection Capacity Utilization 87.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Mack Hatcher Memorial Parkway & Cool Springs Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases	4		2	4	1	6
Permitted Phases		Free		2		
Minimum Initial (s)	18.0		18.0	18.0	8.0	10.0
Minimum Split (s)	24.5		24.0	24.5	14.0	16.0
Total Split (s)	51.0		40.0	51.0	69.0	109.0
Total Split (%)	31.9%		25.0%	31.9%	43.1%	68.1%
Maximum Green (s)	44.5		34.0	44.5	63.0	103.0
Yellow Time (s)	4.5		4.0	4.5	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	5.0		7.0	5.0	7.0	5.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		C-Max	None	None	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
90th %ile Term Code	Max		Coord	Max	Max	Coord
70th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
70th %ile Term Code	Max		Coord	Max	Max	Coord
50th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
50th %ile Term Code	Max		Coord	Max	Max	Coord
30th %ile Green (s)	44.5		34.0	44.5	63.0	103.0
30th %ile Term Code	Max		Coord	Max	Max	Coord
10th %ile Green (s)	43.1		35.4	43.1	63.0	104.4
10th %ile Term Code	Gap		Coord	Gap	Max	Coord

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 82 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	791	1688	601	566	1155	565
Future Volume (veh/h)	791	1688	601	566	1155	565
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	841	0	639	602	1229	601
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	915		825	788	1338	2335
Arrive On Green	0.26	0.00	0.23	0.23	0.39	0.66
Sat Flow, veh/h	3456	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	841	0	639	602	1229	601
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	1728	1777
Q Serve(g_s), s	37.8	0.0	26.9	37.2	54.1	11.2
Cycle Q Clear(g_c), s	37.8	0.0	26.9	37.2	54.1	11.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	915		825	788	1338	2335
V/C Ratio(X)	0.92		0.77	0.76	0.92	0.26
Avail Cap(c_a), veh/h	961		825	788	1361	2335
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	0.0	57.5	29.6	46.6	11.3
Incr Delay (d2), s/veh	13.9	0.0	7.0	6.9	11.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.1	0.0	12.7	26.1	24.7	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	71.1	0.0	64.5	36.5	58.2	11.6
LnGrp LOS	E		E	D	E	B
Approach Vol, veh/h	841		1241			1830
Approach Delay, s/veh	71.1		50.9			42.9
Approach LOS	E		D			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	67.9	43.2		48.9		111.1
Change Period (Y+Rc), s	6.0	6.0		6.5		6.0
Max Green Setting (Gmax), s	63.0	34.0		44.5		103.0
Max Q Clear Time (g_c+I1), s	56.1	39.2		39.8		13.2
Green Ext Time (p_c), s	5.8	0.0		2.6		9.0

Intersection Summary	
HCM 6th Ctrl Delay	51.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1730	6	11	2284	126	0	0	21	0	0	132
Future Vol, veh/h	0	1730	6	11	2284	126	0	0	21	0	0	132
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	335	-	130	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1821	6	12	2404	133	0	0	22	0	0	139

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	1827	0	0	-	-	914	-	-	1202
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	331	-	-	0	0	276	0	0	177
Stage 1	0	-	-	-	-	-	0	0	-	0	0	-
Stage 2	0	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	331	-	-	-	-	276	-	-	177
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

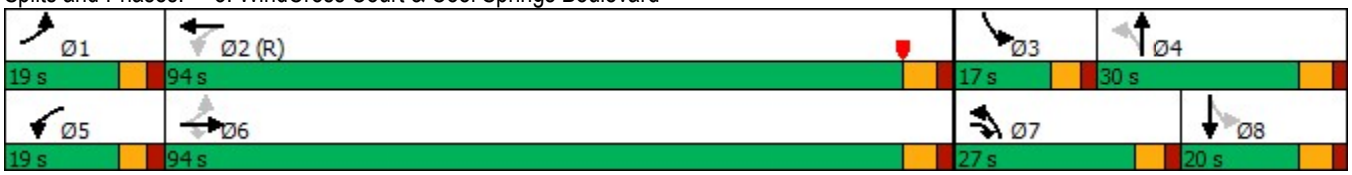
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	19.2	74.6
HCM LOS			C	F

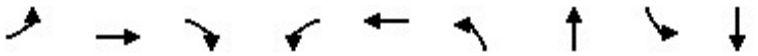
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	276	-	-	331	-	-	177
HCM Lane V/C Ratio	0.08	-	-	0.035	-	-	0.785
HCM Control Delay (s)	19.2	-	-	16.3	-	-	74.6
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	-	5.2

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	148	1613	40	124	2322	62	0	158	0
Future Volume (vph)	148	1613	40	124	2322	62	0	158	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	19.0	94.0	27.0	19.0	94.0	27.0	30.0	17.0	20.0
Total Split (%)	11.9%	58.8%	16.9%	11.9%	58.8%	16.9%	18.8%	10.6%	12.5%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	6.0	5.5	5.5	6.0	5.5	6.0	5.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Act Effct Green (s)	106.7	92.8	120.3	104.4	91.7	36.0	20.4	24.7	16.9
Actuated g/C Ratio	0.67	0.58	0.75	0.65	0.57	0.22	0.13	0.15	0.11
v/c Ratio	0.83	0.85	0.04	0.74	1.26	0.21	0.87	0.99	0.07
Control Delay	52.3	53.3	4.8	36.5	150.2	48.7	56.3	123.4	0.4
Queue Delay	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	55.5	4.8	36.5	150.2	48.7	56.3	123.4	0.4
LOS	D	E	A	D	F	D	E	F	A
Approach Delay		54.1			144.4		54.9		108.3
Approach LOS		D			F		D		F

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.26	
Intersection Signal Delay: 102.9	Intersection LOS: F
Intersection Capacity Utilization 117.7%	ICU Level of Service H
Analysis Period (min) 15	

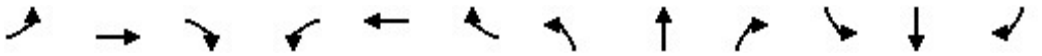
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases	6		6	2		4		8	
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	10.0	8.0	10.0
Minimum Split (s)	11.5	26.0	13.5	11.5	26.0	13.5	16.0	13.5	16.0
Total Split (s)	19.0	94.0	27.0	19.0	94.0	27.0	30.0	17.0	20.0
Total Split (%)	11.9%	58.8%	16.9%	11.9%	58.8%	16.9%	18.8%	10.6%	12.5%
Maximum Green (s)	13.5	88.0	21.5	13.5	88.0	21.5	24.0	11.5	14.0
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	13.5	88.0	15.8	13.5	88.0	15.8	24.0	11.5	19.7
90th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
70th %ile Green (s)	13.5	88.0	13.6	13.5	88.0	13.6	24.0	11.5	21.9
70th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Max	Max	Hold
50th %ile Green (s)	14.2	88.0	12.1	14.2	88.0	12.1	23.3	11.5	22.7
50th %ile Term Code	Max	Coord	Gap	Max	Coord	Gap	Gap	Max	Hold
30th %ile Green (s)	14.8	95.0	36.3	11.7	91.9	36.3	18.8	11.5	0.0
30th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip
10th %ile Green (s)	10.9	105.2	29.6	8.2	102.5	29.6	12.1	11.5	0.0
10th %ile Term Code	Gap	Coord	Hold	Gap	Coord	Hold	Gap	Max	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	1613	40	124	2322	24	62	0	268	158	0	22
Future Volume (veh/h)	148	1613	40	124	2322	24	62	0	268	158	0	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	1753	43	135	2524	26	67	0	149	172	0	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	2244	1076	194	2155	22	281	0	174	194	0	212
Arrive On Green	0.08	0.63	0.63	0.04	0.60	0.60	0.05	0.00	0.11	0.07	0.00	0.13
Sat Flow, veh/h	1781	3554	1585	1781	3603	37	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	161	1753	43	135	1242	1308	67	0	149	172	0	24
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1864	1781	0	1585	1781	0	1585
Q Serve(g_s), s	10.2	57.4	1.4	4.7	95.7	95.7	5.3	0.0	14.8	11.5	0.0	2.1
Cycle Q Clear(g_c), s	10.2	57.4	1.4	4.7	95.7	95.7	5.3	0.0	14.8	11.5	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	2244	1076	194	1063	1115	281	0	174	194	0	212
V/C Ratio(X)	0.88	0.78	0.04	0.70	1.17	1.17	0.24	0.00	0.86	0.89	0.00	0.11
Avail Cap(c_a), veh/h	195	2244	1076	267	1063	1115	436	0	238	194	0	212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.13	0.13	0.13	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.4	21.4	8.5	28.2	32.2	32.2	59.1	0.0	70.0	62.2	0.0	60.9
Incr Delay (d2), s/veh	34.6	2.1	0.0	0.9	77.6	79.4	0.9	0.0	26.6	36.8	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	23.2	0.5	3.1	61.4	64.9	2.5	0.0	7.3	3.4	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	23.6	8.5	29.0	109.8	111.5	60.0	0.0	96.6	99.0	0.0	61.4
LnGrp LOS	F	C	A	C	F	F	E	A	F	F	A	E
Approach Vol, veh/h		1957			2685			216			196	
Approach Delay, s/veh		28.9			106.6			85.3			94.4	
Approach LOS		C			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	101.7	17.0	23.5	12.4	107.0	13.1	27.4
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	13.5	88.0	11.5	24.0	13.5	88.0	21.5	14.0
Max Q Clear Time (g_c+I1), s	12.2	97.7	13.5	16.8	6.7	59.4	7.3	4.1
Green Ext Time (p_c), s	0.1	0.0	0.0	0.7	0.3	24.0	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	75.1
HCM 6th LOS	E

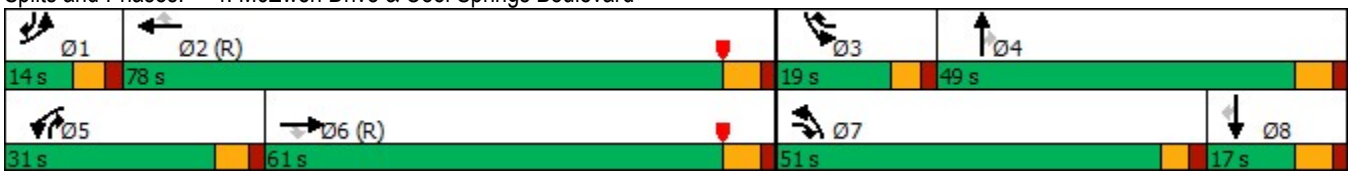
Notes

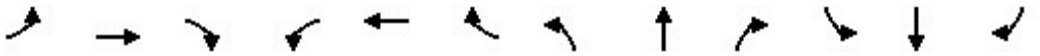
User approved ignoring U-Turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1236	793	297	1380	65	1048	51	205	62	47	42
Future Volume (vph)	39	1236	793	297	1380	65	1048	51	205	62	47	42
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	61.0	51.0	31.0	78.0	19.0	51.0	49.0	31.0	19.0	17.0	14.0
Total Split (%)	8.8%	38.1%	31.9%	19.4%	48.8%	11.9%	31.9%	30.6%	19.4%	11.9%	10.6%	8.8%
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.5	5.5	6.0	6.5	5.5	5.5	6.5	6.0	5.5	6.5	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	7.8	54.5	106.5	28.5	77.7	104.8	45.5	36.4	68.0	19.5	10.3	21.3
Actuated g/C Ratio	0.05	0.34	0.67	0.18	0.49	0.66	0.28	0.23	0.42	0.12	0.06	0.13
v/c Ratio	0.49	1.11	0.77	1.03	0.87	0.07	1.17	0.13	0.31	0.31	0.42	0.14
Control Delay	98.3	95.0	12.8	120.1	45.3	1.0	135.6	46.3	18.6	73.1	83.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.3	95.0	12.8	120.1	45.3	1.0	135.6	46.3	18.6	73.1	83.2	0.9
LOS	F	F	B	F	D	A	F	D	B	E	F	A
Approach Delay		63.5			56.4			113.7			56.0	
Approach LOS		E			E			F			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 73.4	Intersection LOS: E
Intersection Capacity Utilization 103.0%	ICU Level of Service G
Analysis Period (min) 15	

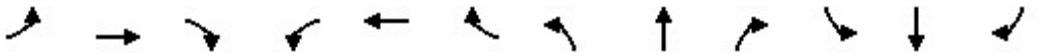
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Minimum Initial (s)	6.0	20.0	8.0	6.0	20.0	8.0	8.0	10.0	6.0	8.0	10.0	6.0
Minimum Split (s)	12.0	26.5	13.5	12.0	26.5	13.5	13.5	16.5	12.0	13.5	16.5	12.0
Total Split (s)	14.0	61.0	51.0	31.0	78.0	19.0	51.0	49.0	31.0	19.0	17.0	14.0
Total Split (%)	8.8%	38.1%	31.9%	19.4%	48.8%	11.9%	31.9%	30.6%	19.4%	11.9%	10.6%	8.8%
Maximum Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
Yellow Time (s)	4.0	4.5	3.5	4.0	4.5	3.5	3.5	4.5	4.0	3.5	4.5	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
70th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.5	45.5	42.5	25.0	13.5	10.5	8.0
70th %ile Term Code	Max	Coord	Max	Max	Coord	Max	Max	Hold	Max	Max	Max	Max
50th %ile Green (s)	8.0	54.5	45.5	25.0	71.5	13.3	45.5	42.7	25.0	13.3	10.5	8.0
50th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Max	Max
30th %ile Green (s)	8.3	54.5	45.5	25.3	71.5	11.6	45.5	44.1	25.3	11.6	10.2	8.3
30th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Gap	Max
10th %ile Green (s)	0.0	54.5	45.5	42.0	102.5	45.5	45.5	0.0	42.0	45.5	0.0	0.0
10th %ile Term Code	Skip	Coord	Max	Max	Coord	Hold	Max	Skip	Max	Hold	Skip	Skip

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 159.5 (100%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	1236	793	297	1380	65	1048	51	205	62	47	42
Future Volume (veh/h)	39	1236	793	297	1380	65	1048	51	205	62	47	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1343	862	323	1500	71	1139	55	223	67	51	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1222	996	278	1664	818	983	559	722	85	117	149
Arrive On Green	0.03	0.34	0.34	0.16	0.47	0.47	0.28	0.30	0.30	0.05	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	42	1343	862	323	1500	71	1139	55	223	67	51	46
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.7	55.0	55.0	25.0	62.1	3.6	45.5	3.4	14.3	6.0	4.2	4.3
Cycle Q Clear(g_c), s	3.7	55.0	55.0	25.0	62.1	3.6	45.5	3.4	14.3	6.0	4.2	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	1222	996	278	1664	818	983	559	722	85	117	149
V/C Ratio(X)	0.74	1.10	0.87	1.16	0.90	0.09	1.16	0.10	0.31	0.79	0.44	0.31
Avail Cap(c_a), veh/h	89	1222	996	278	1664	818	983	559	722	150	123	154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.38	0.38	0.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.8	52.5	24.3	67.5	39.1	19.6	57.3	40.5	27.6	75.4	72.3	67.6
Incr Delay (d2), s/veh	10.0	50.2	4.1	104.5	8.3	0.2	83.1	0.2	0.5	27.8	5.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	32.5	26.9	19.3	28.3	1.4	31.2	1.6	5.6	3.4	2.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.8	102.7	28.4	172.0	47.5	19.8	140.3	40.7	28.1	103.2	77.7	70.1
LnGrp LOS	F	F	C	F	D	B	F	D	C	F	E	E
Approach Vol, veh/h		2247			1894			1417			164	
Approach Delay, s/veh		73.9			67.7			118.8			86.0	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	81.4	13.2	54.3	31.0	61.5	51.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	71.5	13.5	42.5	25.0	54.5	45.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	64.1	8.0	16.3	27.0	57.0	47.5	6.3
Green Ext Time (p_c), s	0.0	6.6	0.1	2.3	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	83.3
HCM 6th LOS	F

HISTORIC FRANKLIN TENNESSEE

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-03272

DATE: June 19, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development
Chelsea Randolph, Principal Planner

SUBJECT:

Consideration Of Resolution 2023-49, A Resolution Adopting A Plan Of Services For The Annexation Of Property Located South Of The Intersection Of Peytonsville Road And Pratt Lane, Outside Of The Southeastern Part Of The Franklin Urban Growth Boundary (UGB), By The City Of Franklin, Tennessee. Establishing A Public Hearing On September 12, 2023
FMPC 6/22/23, 7-0

PURPOSE:

PROJECT INFORMATION
COF Project Number:8187
Applicant: Greg Gamble, Gamble Design Collaborative
Owner: Dinesh Reddt Ramreddy Gari, Radhika Kotagiri, Venu Alokam, and Krishna Alapati with Venkusa LLC

BACKGROUND/STAFF COMMENTS:
In May 2018, a BOMA Special Work Session was held to present and discuss annexation and growth priorities. Two drainage basins were identified as having short-term capability for annexation—the West Basin and the Goose Creek Basin. Additionally, the potential land uses that would be planned within the Goose Creek Basin would likely be a combination of commercial, office, and residential, due to the property's proximity to I-65 and major corridor extensions, such as Carothers Parkway. The BOMA adopted a resolution in March 2021 to proceed with a study of land uses, infrastructure, and road network for the Goose Creek Basin.

The City has received an annexation request for a property in the Goose Creek Basin that is located outside of the UGB, located South of the Intersection Of Peytonsville Road and Pratt Lane (4436 Pratt Lane). A map of the property is attached. The plan of services outlines how the City will serve the property should it be annexed and gives any considerations for future development. The property is served by the Milcrofton Water District. Development of the property will require extension of the sanitary sewer main. Access to the property shall be provided from Pratt Lane. As the property develops, street improvements may be required. No additional manpower or equipment will be necessary for either Fire, Police Protection, or Sanitation. Since this property lies outside the Urban

Growth Boundary (UGB), long-range city plans will need to be updated prior to future rezonings and development plans.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Franklin Municipal Planning Commission recommended to the Board of Mayor and Aldermen to approve Resolution 2023-49 by a vote of 7-0.
Staff recommends that the Board of Mayor and Aldermen approve Resolution 2023-49.

RESOLUTION 2023-49

A RESOLUTION ADOPTING A PLAN OF SERVICES FOR THE ANNEXATION OF PROPERTY, LOCATED AT 4436 PRATT LANE, OUTSIDE OF THE SOUTHEASTERN PART OF THE FRANKLIN URBAN GROWTH BOUNDARY (UGB), BY THE CITY OF FRANKLIN, TENNESSEE

WHEREAS, Tennessee Code Annotated (T.C.A.) § 6-51-102, as amended, requires that a Plan of Services be adopted by a municipal governing body prior to an annexation; and

WHEREAS, the property owners as listed below petitioned the Board of Mayor and Aldermen (BOMA) of the City of Franklin, Tennessee (City), to annex one (1) parcel, containing 5 acres, located outside of the Franklin Urban Growth Boundary (UGB); and

WHEREAS, the Properties are located at 4436 Pratt Lane, as described herein and as depicted on the Map attached hereto as Exhibit A:

Map	Parcel	Acreage	Address	Owner
117	42.06	5	4436 Pratt Lane	Dinesh Reddy Ramreddy Gari, Venu Alokam, Krishna K. Alapati
		5	TOTAL ACRES	

WHEREAS, this resolution shall bind the Owners and subsequent Owners of the Property; and

WHEREAS, the Franklin Municipal Planning Commission has reviewed and recommended the Plan of Services for the annexation area; and

WHEREAS, a public hearing was held following public notice as required by T.C.A. § 6-51-102, as amended; and

WHEREAS, it is believed it is in the best interest of the City to adopt a Plan of Services for the area petitioned to be annexed in order to provide for future development in accordance with City standards; and

WHEREAS, this resolution shall not bind the City to later annex the Property.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF FRANKLIN, TENNESSEE, AS FOLLOWS:

SECTION I. Pursuant to the provisions of T.C.A. §§ 6-51-102 and 6-51-104 (d) (4), as amended, there is hereby adopted, for the area bounded as described above, the following Plan of Services:

The Properties are located at 4436 Pratt Lane, as described herein and as depicted on the Map attached hereto as Exhibit A:

Map	Parcel	Acreage	Address	Owner
117	42.06	5	4436 Pratt Lane	Dinesh Reddy Ramreddy Gari, Venu Alokam, Krishna K. Alapati
		5	TOTAL ACRES	

A. Water

1. The Property is located within the Milcrofton service area.
2. Water availability shall be approved and provided through the City of Franklin prior to annexation.
3. The Owner shall be required to provide adequate fire flow and pressure to the Property.

B. Reclaimed Water

1. According to the City of Franklin's Municipal Code, reclaimed water systems shall be extended to a development if the development is located within 1,000 feet of an existing reclaimed water line.
2. In the case of this Property, an approximately 900-foot extension would be required to serve the Property. For this reason, reclaimed water will be required to be extended to the Property.

C. Wastewater

1. The Property lies within the Goose Creek Basin as defined in the City of Franklin Sanitary Sewer Basin Study.
2. The Owner shall be required to extend the sewer main approximately 1,600 linear feet to provide service to the Property.
3. The Owner shall be required to submit engineering calculations to determine final sizing requirements.
4. The Owner shall be required to provide Engineering design, construction, easements, rights-of-way and the costs associated with the on-site sanitary sewer infrastructure required to serve the development of this Property.
5. The Owner shall be responsible for the payment of fees per the policies and procedures outlined in Franklin Municipal Code.

D. Stormwater

1. The Owner shall be responsible for the engineering, design and construction of the necessary stormwater infrastructure for the development of the Property and shall comply with the requirements as outlined in the Franklin Municipal Code.
2. As the Property develops, the City will charge prevailing stormwater user fees per policies and procedures as outlined in the Franklin Municipal Code.

E. Streets

1. Emergency maintenance of streets will begin on the effective date of annexation.
2. Reconstruction and resurfacing of streets, routine maintenance, and installation of storm drainage will be accomplished under existing City policies.
3. Access to the Property shall be provided from Pratt Lane.
4. Unless waived by the Franklin Engineering Department, the Owner of the Property shall be required to submit a traffic impact study prior to submitting a development plan for review and approval. The exact scope associated with this traffic impact study shall be determined prior to submittal of the development plan. Required street improvements shall be determined as part of the plan. The roadways constructed as part of this development shall comply with City Street Standards.

F. Traffic Control

1. Traffic signals, traffic signs, street markings, and other traffic control devices shall be installed as the need is established by appropriate study and traffic standards. No needs have been identified for the area at this time.
2. New development after the effective date of annexation shall comply with City regulations governing traffic control devices and markings.

G. Street Lighting

1. No off-site street lighting is proposed at this time.
2. Street lighting within new developments shall be funded and installed by the Owner per City policy, which includes the installation of electric meters to allow for future ownership and maintenance by the City or homeowners association. The installation and operation of street lights shall coincide with the phasing of development and issuance of Certificates of Occupancy.

H. Street Name Signs

1. No additional street name signs in the area have been deemed necessary.
2. New development shall install street name signs per City policy.

I. Fire Protection

1. Fire protection by the present personnel and equipment of the Franklin Fire Department will be provided on and after the effective date of annexation.
2. No additional manpower or equipment will be necessary to serve the annexation area at this time.

J. Planning and Zoning

1. The planning and zoning jurisdiction of the City will extend to the annexed area on and after the effective date of annexation.
2. Upon annexation, the Property will be zoned by the Board of Mayor and Aldermen to a Zoning District and any applicable Overlay Zoning District(s), pursuant to the requirements of the Franklin Zoning Ordinance.

K. Parks and Recreation

1. The benefit and use of the recreational facilities and programs provided by the Parks Department will be available on and after the effective date of the annexation. Recreational facilities and programs will be provided with existing personnel, facilities and resources.

2. New development in the annexed area shall comply with the City of Franklin Parkland Impact Fees and Parkland Dedication Ordinance 2016-25. The Ordinance can be found at https://library.municode.com/tn/franklin/codes/code_of_ordinances
3. The Parks Master Plan is due to be updated 2023-24 to include new amendments that have been add over the past few years as we improve our processes. At this time Parks will look at the outer boundaries of the UGB for land and growth potential to build City Parks. Assured that Neighborhood Parks and Trails will need to be a part of future planning.

L. Police Protection

1. Police patrol and response to calls by the Franklin Police Department will be provided on and after the effective date of annexation.
2. Police services will be provided with existing personnel and equipment.

M. Building and Code Inspection Services

1. Building and code inspection services will begin in the annexed area on and after the effective date of the annexation.
2. New development in the annexed area shall comply with adopted City Building Codes, pay the applicable fees, and obtain the required permits for inspection services.

N. Garbage and Recycling Pickup and Environmental

1. The Sanitation and Environmental Services Department will begin providing services in the annexed area on and after the effective date of the annexation in accordance with adopted City requirements.
2. No additional manpower or equipment will be necessary to serve the annexation area at this time.

SECTION II. This Resolution shall be contingent upon the certification of the election for annexation and take effect 30 days after the certification of the election.

IT IS SO RESOLVED AND DONE on this ____ day of _____, 2023.

ATTEST:

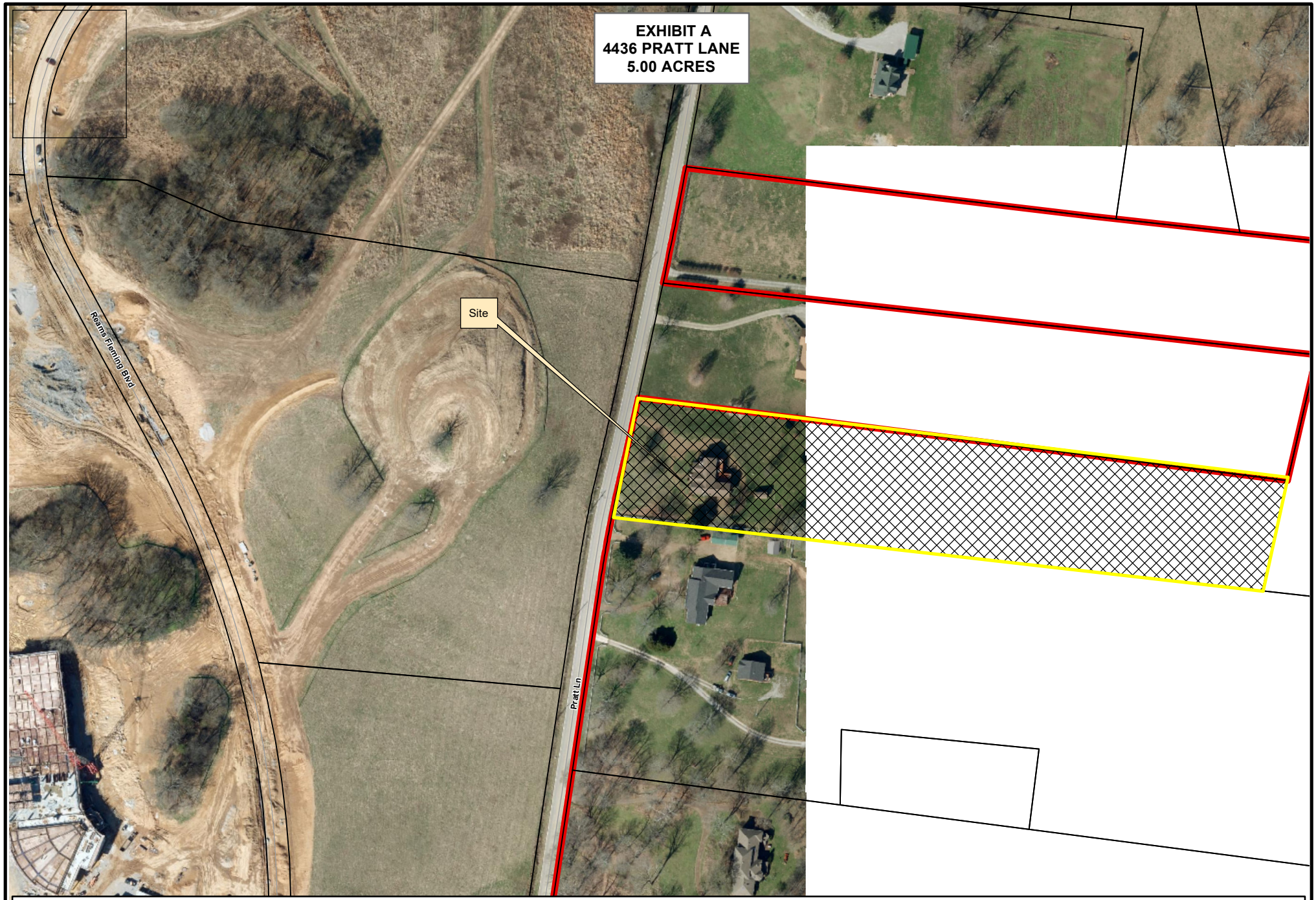
_____
ERIC S. STUCKEY
City Administrator

CITY OF FRANKLIN, TENNESSEE:

_____
DR. KEN MOORE
Mayor

Approved as to form by:

_____
Shauna R. Billingsley
City Attorney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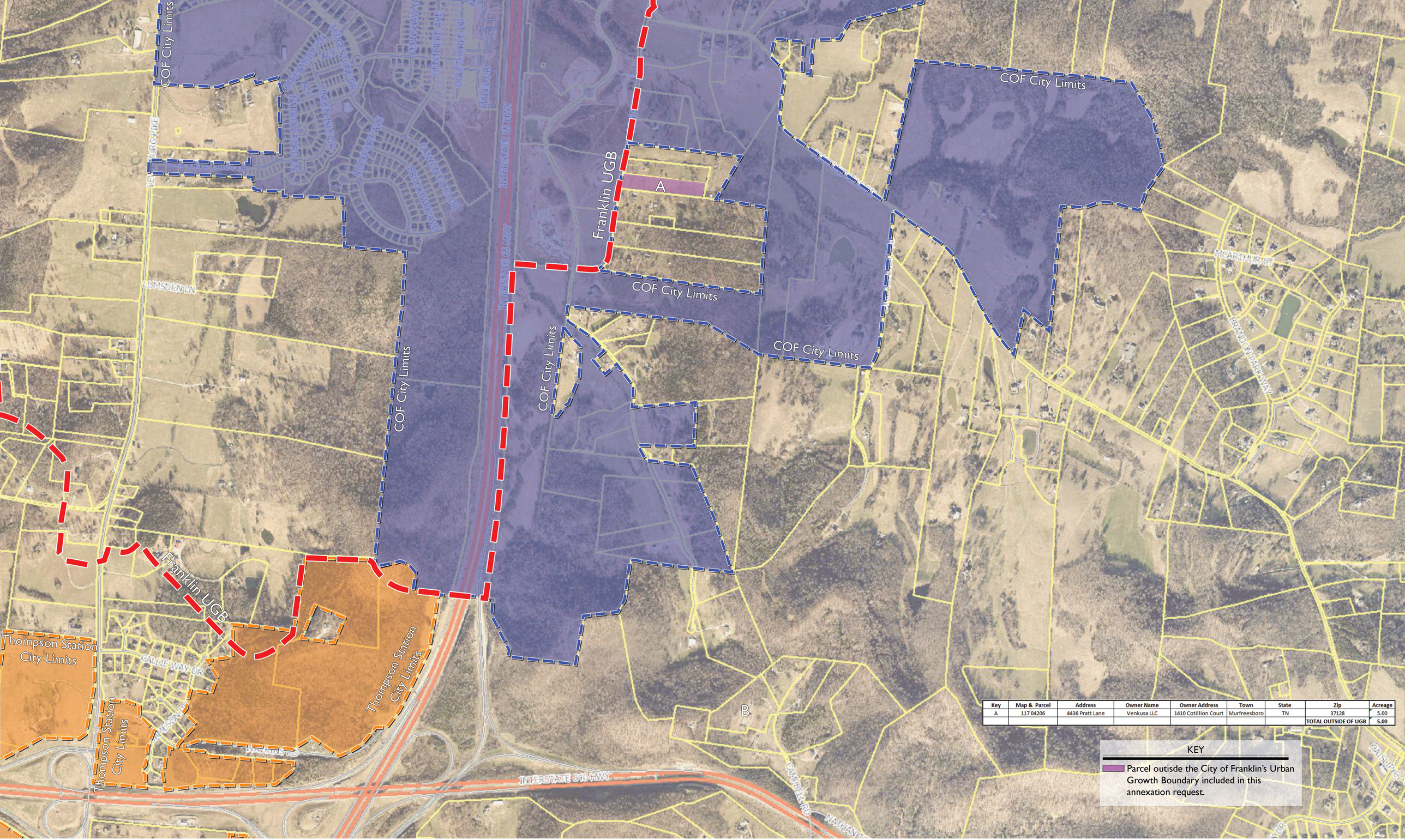


Key	Map & Parcel	Address	Owner Name	Owner Address	Town	State	Zip	Acreage
A	117 04206	4436 Pratt Lane	Venkusa LLC	1410 Cotillion Court	Murfreesboro	TN	37128	5.00
							TOTAL OUTSIDE OF UGB	5.00

KEY

Parcel outisde the City of Franklin's Urban Growth Boundary included in this annexation request.

N

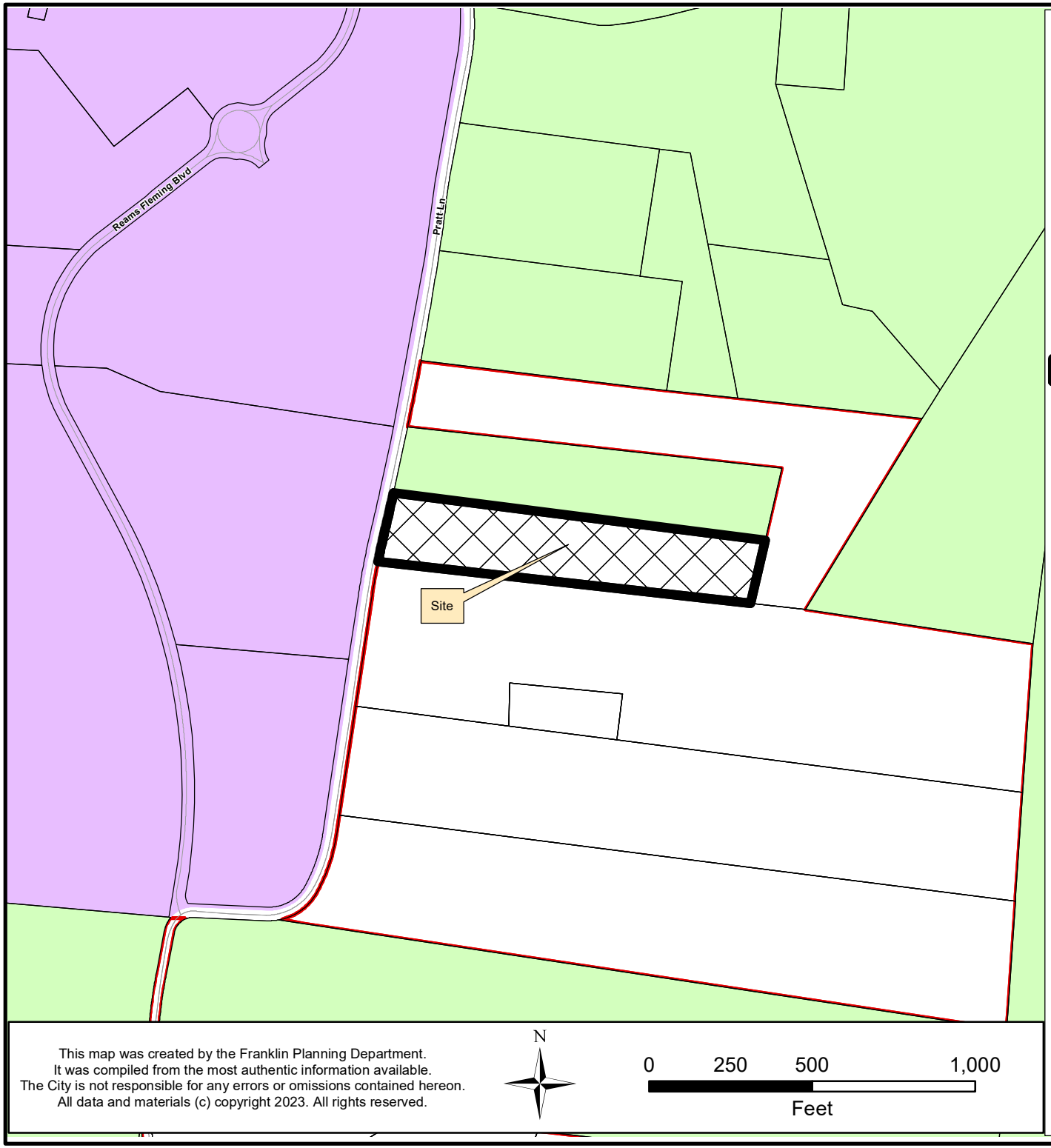
0 500 1000
GRAPHIC SCALE

WILLIAMSON COUNTY PARCEL

PARCEL REQUESTING ANNEXATION - COF Project # 8187

June 1, 2023

GAMBLE DESIGN COLLABORATIVE



4436 PRATT LANE
ANNEXATION, PLAN OF SERVICE, AND ZONING
ORDINANCE 2023-24
RESOLUTION 2023-49
RESOLUTION 2023-48

Project Information
Existing Land Use: Vacant
Proposed Land Use: Single-Family
Proposed Zoning: ER, Estate Residential
Site Acreage:5 acres

Legend

- Subject Property
- AG Agricultural District
- ER Estate Residential District
- R1 Residential 1 District
- R2 Residential 2 District
- R3 Residential 3 District
- R4 Residential 4 District
- R6 Residential 6 District
- MR Mixed Residential District
- PD Planned District
- OR Office Residential District
- CI Civic Institutional District
- NC Neighborhood Commercial
- CC Central Commercial District
- DD Downtown District
- 1ST Avenue District
- 5TH Avenue District
- RC6 Regional Commerce 6 District
- RC12 Regional Commerce 12 District
- GO General Office District
- LI Light Industrial District
- HI Heavy Industrial District

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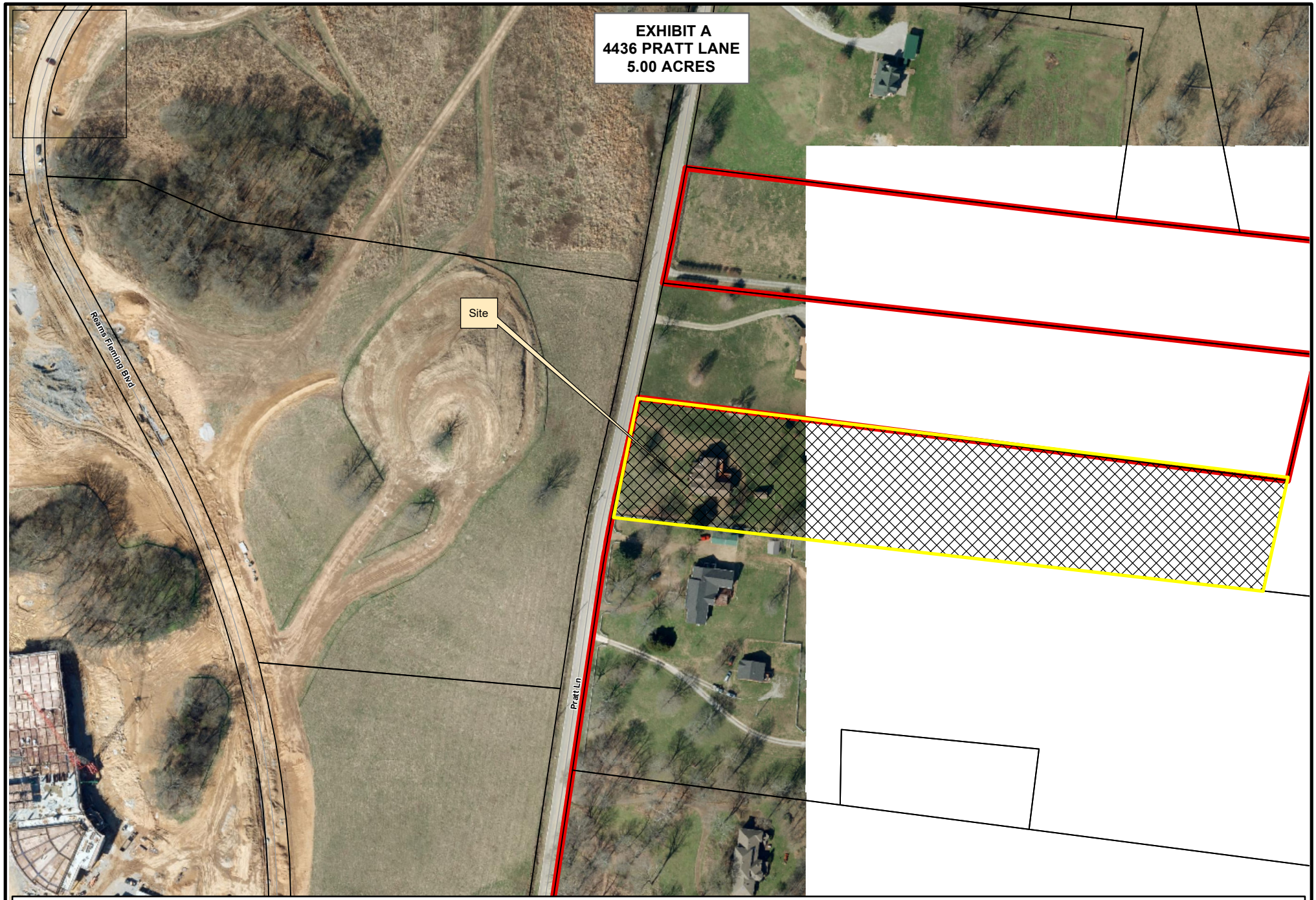
HISTORIC FRANKLIN TENNESSEE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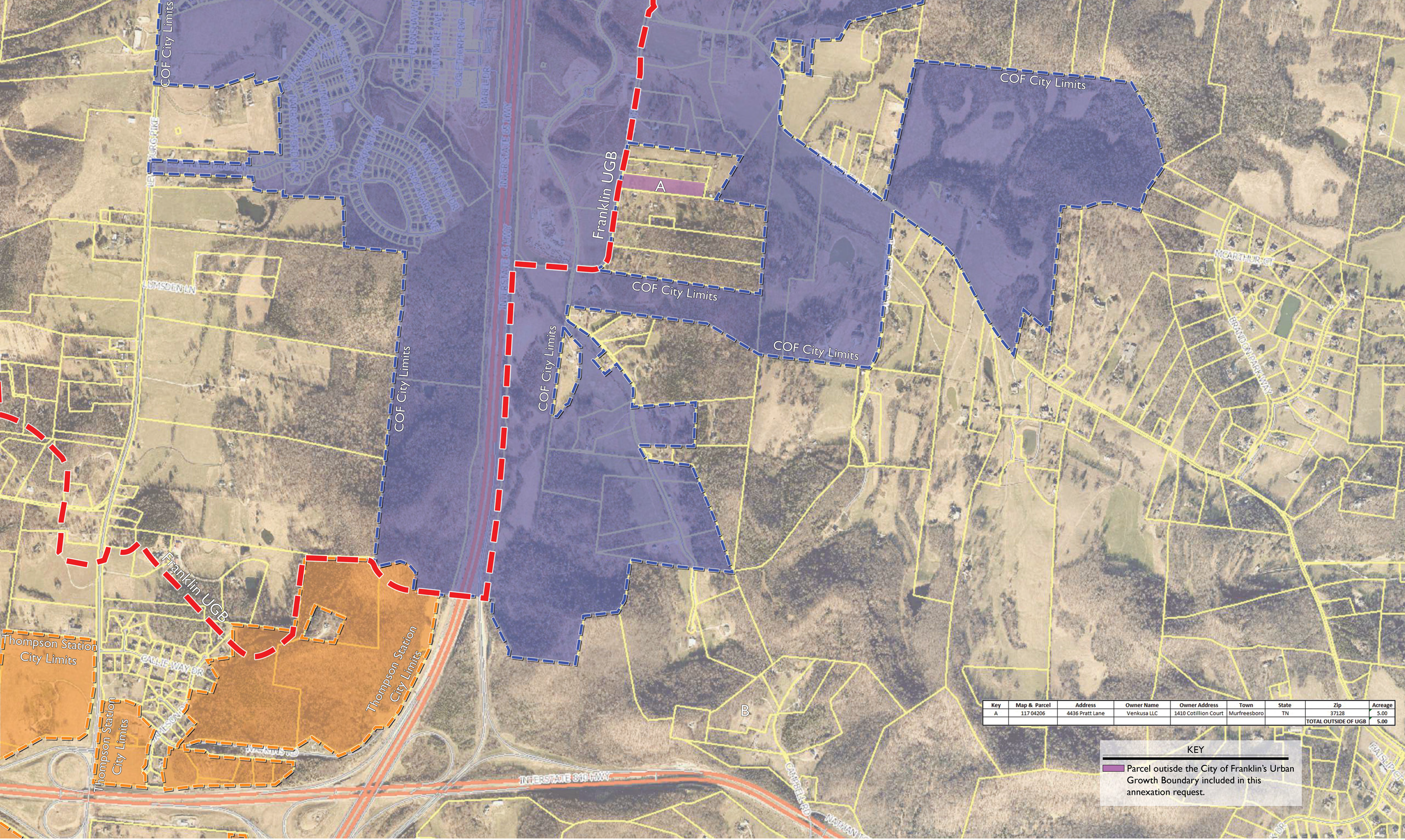


Key	Map & Parcel	Address	Owner Name	Owner Address	Town	State	Zip	Acreage
A	117 04206	4436 Pratt Lane	Venkusa LLC	1410 Cotillion Court	Murfreesboro	TN	37128	5.00
							TOTAL OUTSIDE OF UGB	5.00

KEY

Parcel outisde the City of Franklin's Urban Growth Boundary included in this annexation request.

N

0 500 1000
GRAPHIC SCALE

WILLIAMSON COUNTY PARCEL

PARCEL REQUESTING ANNEXATION - COF Project # 8187

June 1, 2023

GAMBLE DESIGN COLLABORATIVE

HISTORIC FRANKLIN TENNESSEE

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-03273

DATE: June 19, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development
Chelsea Randolph, Principal Planner

SUBJECT:

Consideration Of Resolution 2023-48, A Resolution Requesting A Referendum For The Annexation Of Property Located South Of The Intersection Of Peytonsville Road And Pratt Lane, And Outside Of The Southeastern Part Of The Franklin Urban Growth Boundary (UGB), By The City Of Franklin, Tennessee. Establishing A Public Hearing On September 12, 2023
FMPC 6/22/23, 7-0

PURPOSE:

PROJECT INFORMATION
COF Project Number:8187
Applicant: Greg Gamble, Gamble Design Collaborative
Owner: Dinesh Reddt Ramreddy Gari, Radhika Kotagiri, Venu Alokam, and Krishna Alapati with Venkusa LLC

BACKGROUND/STAFF COMMENTS:
In May 2018, a BOMA Special Work Session was held to present and discuss annexation and growth priorities. Two drainage basins were identified as having short-term capability for annexation—the West Basin and the Goose Creek Basin. Additionally, the potential land uses that would be planned within the Goose Creek Basin would likely be a combination of commercial, office, and residential, due to the property's proximity to I-65 and major corridor extensions, such as Carothers Parkway. The BOMA adopted a resolution in March, 2021 to proceed with a study of land uses, infrastructure, and road network for the Goose Creek Basin.

The City has received an annexation request for a property in the Goose Creek Basin that is located outside of the UGB, located East of the Intersection Of Peytonsville Road and Pratt Lane (4436 Pratt Lane). A map of the property is attached. Annexation cannot occur until a referendum has been held, where a majority of the property owners requesting annexation vote to have their property annexed by the City of Franklin. This resolution authorizes the request to the Williamson County Election Commission to hold a referendum on October 24, 2023 in conjunction with the City Of Franklin Municipal Election. A full timeline of the annexation by referendum is attached as an exhibit with this request.

The subject property is within close proximity to other parcels that were annexed into the City Limits over the last several years, and partially fills in a "donut hole" created by past annexations.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Franklin Municipal Planning Commission recommends to the Board of Mayor and Aldermen approve Resolution 2023-48 by a vote of 7-0.
Staff recommends that the Board of Mayor and Aldermen approve Resolution 2023-48.

RESOLUTION 2023-48

A RESOLUTION REQUESTING A REFERENDUM FOR THE ANNEXATION OF PROPERTY LOCATED 4436 PRATT LANE, AND OUTSIDE OF THE SOUTHEASTERN PART OF THE FRANKLIN URBAN GROWTH BOUNDARY (UGB), BY THE CITY OF FRANKLIN, TENNESSEE

WHEREAS, *Tennessee Code Annotated* (T.C.A.) § 6-58-111 (c)(2) states as an alternative to a municipality annexing in a county's planned growth area or rural area by first amending the growth plan as described in subdivision (c)(1), a municipality may annex within a county's planned growth area or rural area, but the annexation must be by referendum only and not by ordinance, and the municipality must follow the referendum process as provided for in §§ 6-51-104 and 6-51-105; and

WHEREAS, T.C.A. § 6-51-104 (a) permits a municipality, when petitioned by interested persons, or upon its own initiative, by resolution for annexation by referendum; and

WHEREAS, T.C.A. § 6-51-105 (a) states at least thirty (30) days and not more than sixty (60) days after the last of such publications, the proposed annexation of territory shall be submitted by the county election commission in an election held on the request and at the expense of the proposing municipality, for approval or disapproval of the qualified voters who reside in the territory proposed for annexation; and

WHEREAS, T.C.A. § 6-51-105 (e) states if a majority of all the qualified voters voting thereon in the territory proposed to be annexed, or in the event of two (2) elections as provided for in subsections (a) and (b), a majority of the voters voting thereon in the territory to be annexed and a majority of the voters voting thereon in the municipality approve the resolution, annexation as provided therein shall become effective thirty (30) days after the certification of the election or elections; and

WHEREAS, the property owner, petitioned the Board of Mayor and Aldermen (BOMA) of the City of Franklin, Tennessee (City), to annex 1 parcel, containing 5 acres, located outside of the Franklin Urban Growth Boundary (UGB); and

WHEREAS, the Properties are located south of the intersection of Peytonsville Road and Pratt Lane, as described herein and as depicted on the Map attached hereto as Exhibit A:

Map	Parcel	Acreage	Address	Owner
117	42.06	5	4436 Pratt Lane	Dinesh Reddy Ramreddy Gari, Venu Alokam, Krishna K. Alapati
		5	TOTAL ACRES	

WHEREAS, the referendum shall bind the Owners and subsequent Owners of the Property; and

WHEREAS, a Plan of Services for the area petitioned to be annexed will be adopted prior to the annexation becoming effective, in order to provide for future development in accordance with City standards, and the Board Of Mayor and Aldermen has, or will, approve the Plan of Services as part of Resolution 2023-49.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF FRANKLIN, TENNESSEE, AS FOLLOWS:

SECTION I. Pursuant to the provisions of T.C.A. §§ 6-51-104 and 6-51-105, as amended, the City of Franklin requests that a referendum for annexation be held for the following properties:

Map	Parcel	Acreage	Address	Owner
117	42.06	5	4436 Pratt Lane	Dinesh Reddy Ramreddy Gari, Venu Alokam, Krishna K. Alapati
		23.19	TOTAL ACRES	

SECTION II. The City of Franklin requests the referendum be held on October 24, 2023, in conjunction with the City Of Franklin Municipal Election".

SECTION III. The question to be submitted to the qualified voters who reside in the area proposed to be annexed shall be "FOR ANNEXATION" and "AGAINST ANNEXATION."

SECTION IV. This Resolution shall take effect from and after its adoption.

IT IS SO RESOLVED AND DONE on this ____ day of _____, 2023.

ATTEST:

_____
ERIC S. STUCKEY
City Administrator

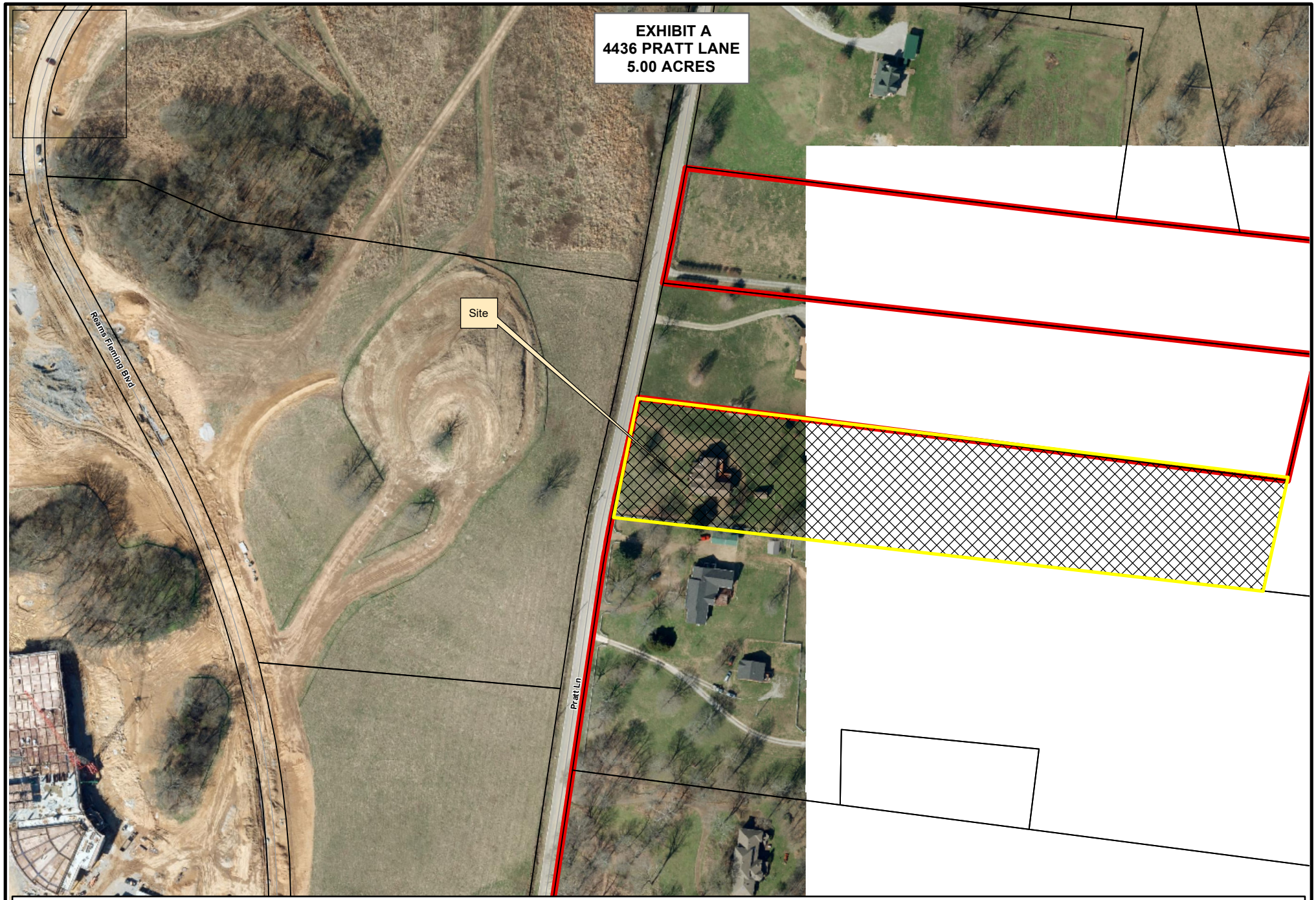
CITY OF FRANKLIN, TENNESSEE:

_____
DR. KEN MOORE
Mayor

Approved as to form by:

_____
Shauna R. Billingsley
City Attorney

Law Dept approved 06.14.23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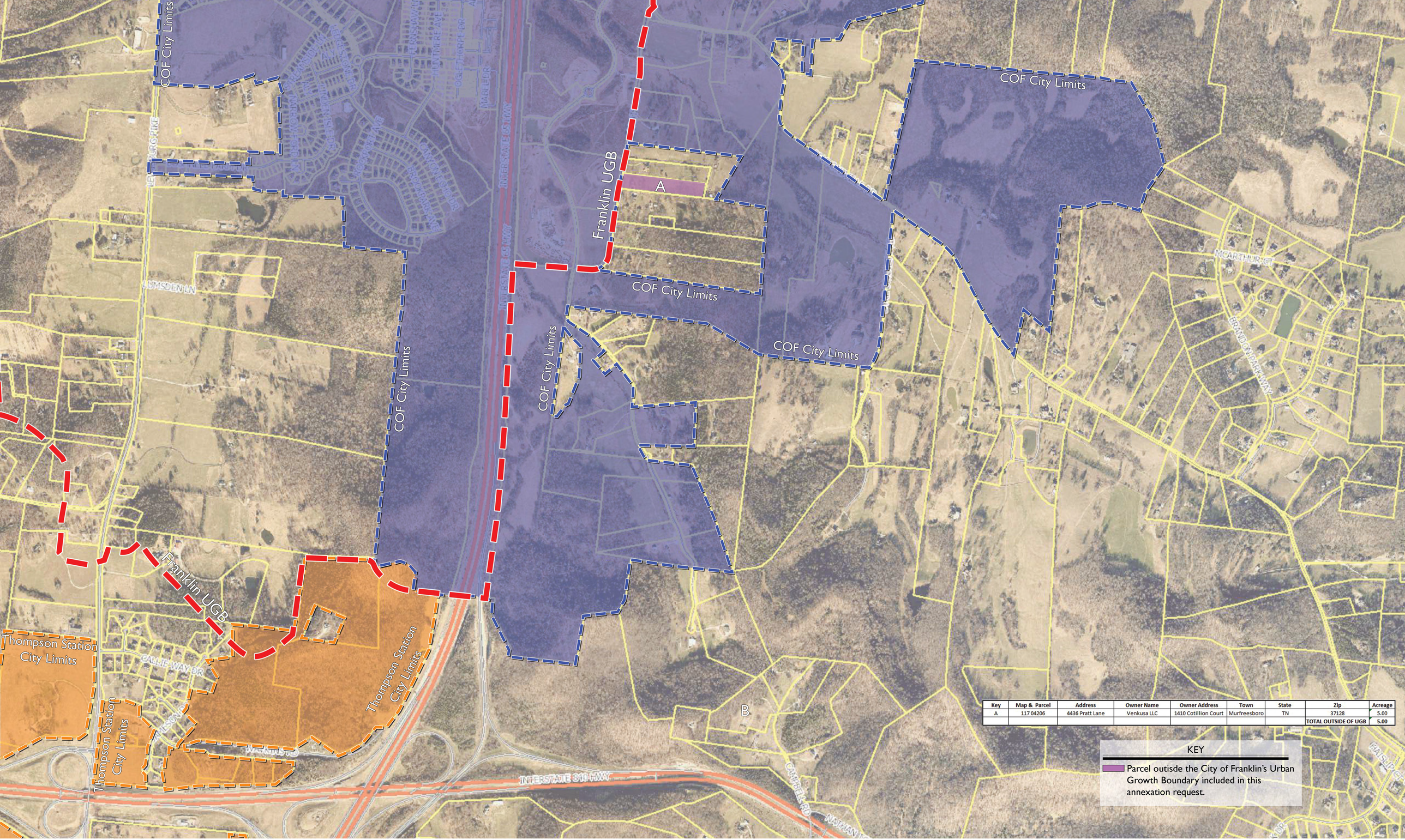


Key	Map & Parcel	Address	Owner Name	Owner Address	Town	State	Zip	Acreage
A	117 04206	4436 Pratt Lane	Venkusa LLC	1410 Cotillion Court	Murfreesboro	TN	37128	5.00
							TOTAL OUTSIDE OF UGB	5.00

KEY

Parcel outisde the City of Franklin's Urban Growth Boundary included in this annexation request.

N

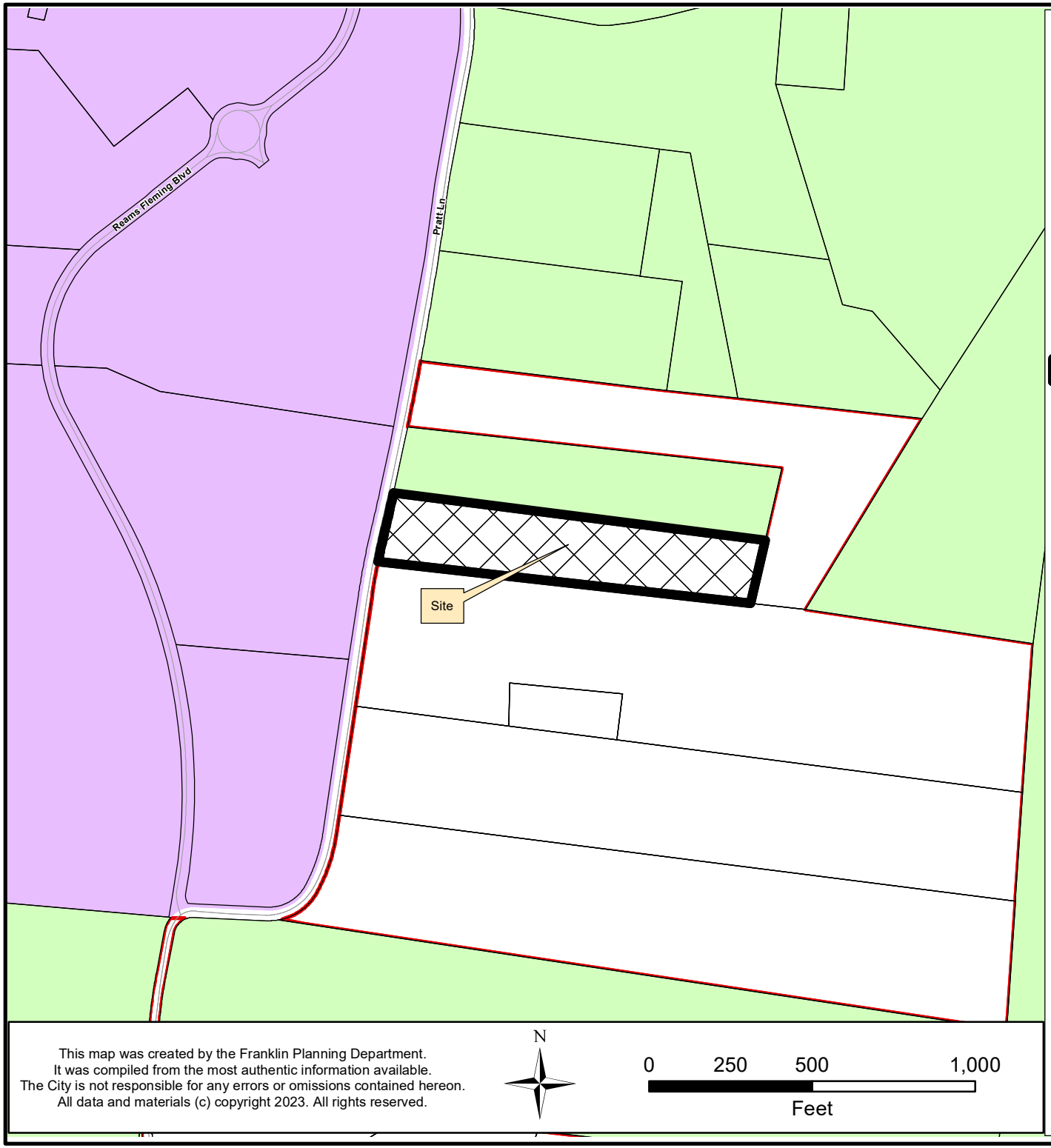
0 500 1000
GRAPHIC SCALE

WILLIAMSON COUNTY PARCEL

PARCEL REQUESTING ANNEXATION - COF Project # 8187

June 1, 2023

GAMBLE DESIGN COLLABORATIVE



4436 PRATT LANE
ANNEXATION, PLAN OF SERVICE, AND ZONING
ORDINANCE 2023-24
RESOLUTION 2023-49
RESOLUTION 2023-48

Project Information
Existing Land Use: Vacant
Proposed Land Use: Single-Family
Proposed Zoning: ER, Estate Residential
Site Acreage:5 acres

Legend

- Subject Property
- AG Agricultural District
- ER Estate Residential District
- R1 Residential 1 District
- R2 Residential 2 District
- R3 Residential 3 District
- R4 Residential 4 District
- R6 Residential 6 District
- MR Mixed Residential District
- PD Planned District
- OR Office Residential District
- CI Civic Institutional District
- NC Neighborhood Commercial
- CC Central Commercial District
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- 5TH Avenue District
- RC6 Regional Commerce 6 District
- RC12 Regional Commerce 12 District
- GO General Office District
- LI Light Industrial District
- HI Heavy Industrial District

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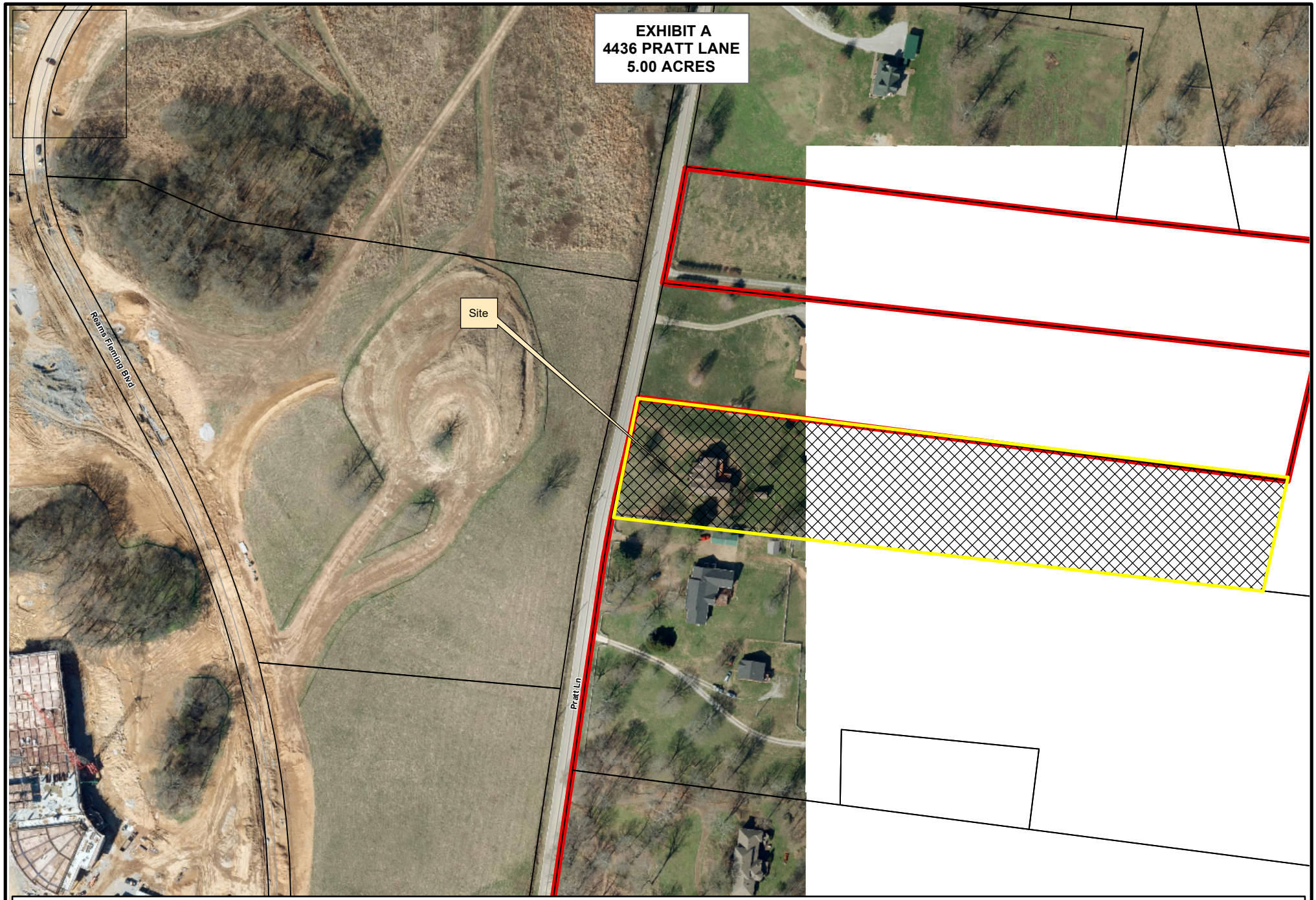
HISTORIC FRANKLIN TENNESSEE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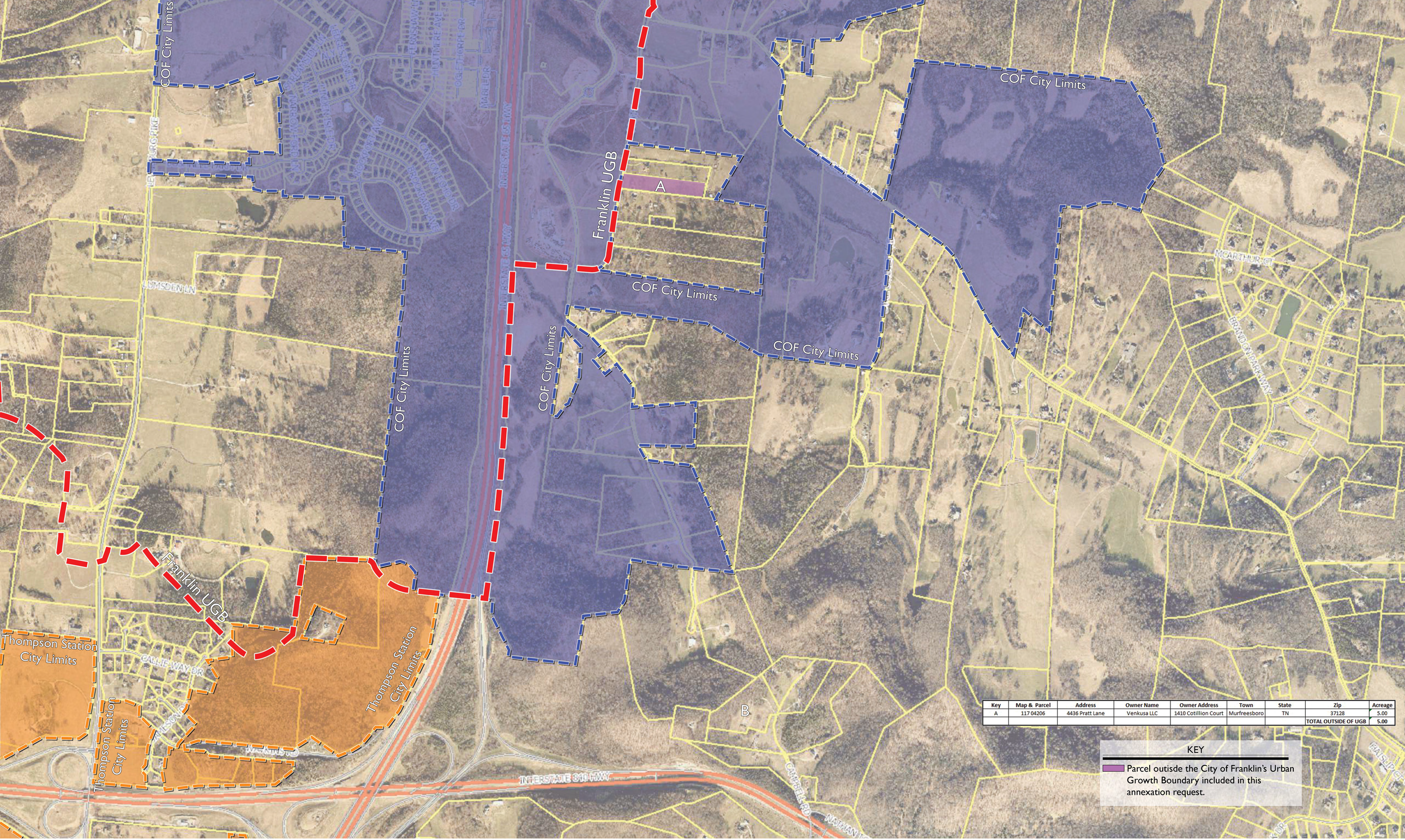

Key	Map & Parcel	Address	Owner Name	Owner Address	Town	State	Zip	Acreage
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							TOTAL OUTSIDE OF UGB	5.00

WILLIAMSON COUNTY PARCEL

PARCEL REQUESTING ANNEXATION - COF Project # 8187

June 1, 2023

GAMBLE DESIGN COLLABORATIVE

Annexation by Referendum Timeline (10/24/2023 ELECTION)		
No later than 2/6; must be in LAW's review queue by 2/14	Applicant completes application in IDT for Annexation initiation; provides owner affidavits and parcel descriptions of all properties included in request	1-2 months for staff to prepare RES Proposed Annexation by Referendum, DRAFT Plan of Services
	PROPERTY OWNERS CANNOT BE LLCS BUT BE INDIVIDUALS, IN ORDER TO VOTE IN THE REFERENDUM	
3/28/2023	Last available BOMA Worksession	Discussion to consider the Proposed Annexation by Referendum
4/25/2023	Last available BOMA Public Hearing	RES Proposed Annexation by Referendum and DRAFT Plan of Services
5/8/2023	Initial Submittal	Staff prepares RES Annexation by Referendum, RES Plan of Services, ORD Zone properties
June 22, 2023	FMPC	Recommendation to BOMA on annexation by referendum, POS, and Zoning
July 11, 2023 (can't be 7/25 because BOMA recess in July)	BOMA Worksession	Discussion to consider Annexation by Referendum, and associated Plan of Services and Zoning
Resolutions for Referendums only need a Worksession and Public Hearing		
August 8, 2023	BOMA regular meeting (1st Reading)	1st reading Zoning only
SEPTEMBER 12, 2023:	BOMA Public Hearing	RES Annexation by Referendum RES Plan of Services ORD Zone properties (2nd reading)
September 26, 2023	BOMA 3rd Reading	ORD Zone properties 3rd reading
October 24, 2023 Franklin Municipal Election	Election	(Annexation Law rules: 30 days prior = Sunday, September 24; 60 days prior = Friday, August 24)
TBD	Certification by the Election Commission	Annexation, Plan of Services and Zone properties become effective

HISTORIC FRANKLIN TENNESSEE

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-03274

DATE: June 19, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development
Chelsea Randolph, Principal Planner

SUBJECT:

Consideration Of Ordinance 2023-24, An Ordinance To Zone 5 Acres Estate Residential (ER) District, For The Property Located South Of The Intersection Of Peytonsville Road And Pratt Lane, At 4436 Pratt Lane. Establishing A Public Hearing On September 12, 2023
FMPC 6/22/23, 7-0

PURPOSE:

PROJECT INFORMATION
COF Project Number:8187
Applicant: Greg Gamble, Gamble Design Collaborative
Owner: Dinesh Reddt Ramreddy Gari, Radhika Kotagiri, Venu Alokam, and Krishna Alapati with Venkusa LLC

BACKGROUND/STAFF COMMENTS:
The applicant is requesting to zone the property located South of the Intersection Of Peytonsville Road and Pratt Lane (4436 Pratt Lane) to Estate Residential (ER), should the Plan of Services, RES 2023-49, and Annexation, RES 2023-48, be approved by BOMA and the referendum for annexation pass. The planning and zoning jurisdiction of the City will extend to the annexed area on and after the effective date of annexation. Upon annexation, the Planning Commission will amend Envision Franklin to include these parcels into the document, including assigning Design Concepts for all parcels. The proposed zoning of Estate Residential (ER) is appropriate for the existing land use and is consistent with the zoning of the surrounding properties that were recently annexed into the City. No corresponding site plan or development plan for the property has been submitted at this time.

PROCEDURAL REQUIREMENTS:
1. The City's project identification number shall be included on all correspondence with any City department relative to this project.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Franklin Municipal Planning Commission recommends to the Board of Mayor and Aldermen to approve Ordinance 2023-24 by a vote of 7-0.
Staff recommends that the Board of Mayor and Aldermen approve Ordinance 2023-24.

ORDINANCE 2023-24

AN ORDINANCE TO ZONE 5 ACRES ESTATE RESIDENTIAL (ER) DISTRICT, FOR THE PROPERTY LOCATED SOUTH OF THE INTERSECTION OF PEYTONSVILLE ROAD AND PRATT LANE, AT 4436 PRATT LANE

WHEREAS, several property owners, listed below, of properties located south of 4436 Pratt Lane, petitioned the Board of Mayor and Aldermen (BOMA) of the City of Franklin, Tennessee (City), to annex Property adjoining the City limits and located outside of the Franklin Urban Growth Boundary (UGB); and

WHEREAS, the BOMA has adopted a Plan of Services as described in Resolution 2023-49, and annexed the property through referendum held on October 24, 2023; and

WHEREAS, the City of Franklin, Tennessee, encourages responsible growth and the sensible transition of land uses and densities; and

WHEREAS, the Estate Residential (ER) district, provides zoning for land uses compatible with both the existing use of the property and the surrounding development; and

WHEREAS, the appropriate Overlay Districts will be assigned after the area can be studied by the Planning and Sustainability Department, and the land can be included in Envision Franklin; and

WHEREAS, the zoning has been reviewed and approved by BOMA after a public hearing and a recommendation by the Franklin Municipal Planning Commission (FMPC).

NOW THEREFORE BE IT ORDAINED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF FRANKLIN, TENNESSEE, AS FOLLOWS:

SECTION I. That the following described Property shall be, and is hereby, zoned Estate Residential (ER) District:

PREMISES CONSIDERED

Map	Parcel	Acreage	Address	Owner
117	42.06	5	4436 Pratt Lane	Dinesh Reddy Ramreddy Gari, Venu Alokam, Krishna K. Alapati
		5	TOTAL ACRES	

SECTION II: That the attached Location Map (Exhibit A) shall serve the purpose of further delimiting the geographical boundaries as described by this Ordinance.

SECTION III: The zoning shall be effective contingent on the certification of the election (referendum) and shall be effective 30 days after the certification of the election to coincide with the timing of the annexation.

SECTION IV. BE IT FINALLY ORDAINED by the Board of Mayor and Aldermen of the City of Franklin, Tennessee, that this Ordinance shall take effect from and after its passage on third and final reading, the health, safety, and welfare of the citizens requiring it.

IT IS SO RESOLVED AND DONE on this ____ day of _____, 2023.

ATTEST:

By: _____
Eric Stuckey
City Administrator

CITY OF FRANKLIN, TENNESSEE:

By: _____
Dr. Ken Moore
Mayor

Approved as to form by:

_____
Shauna R. Billingsley
City Attorney

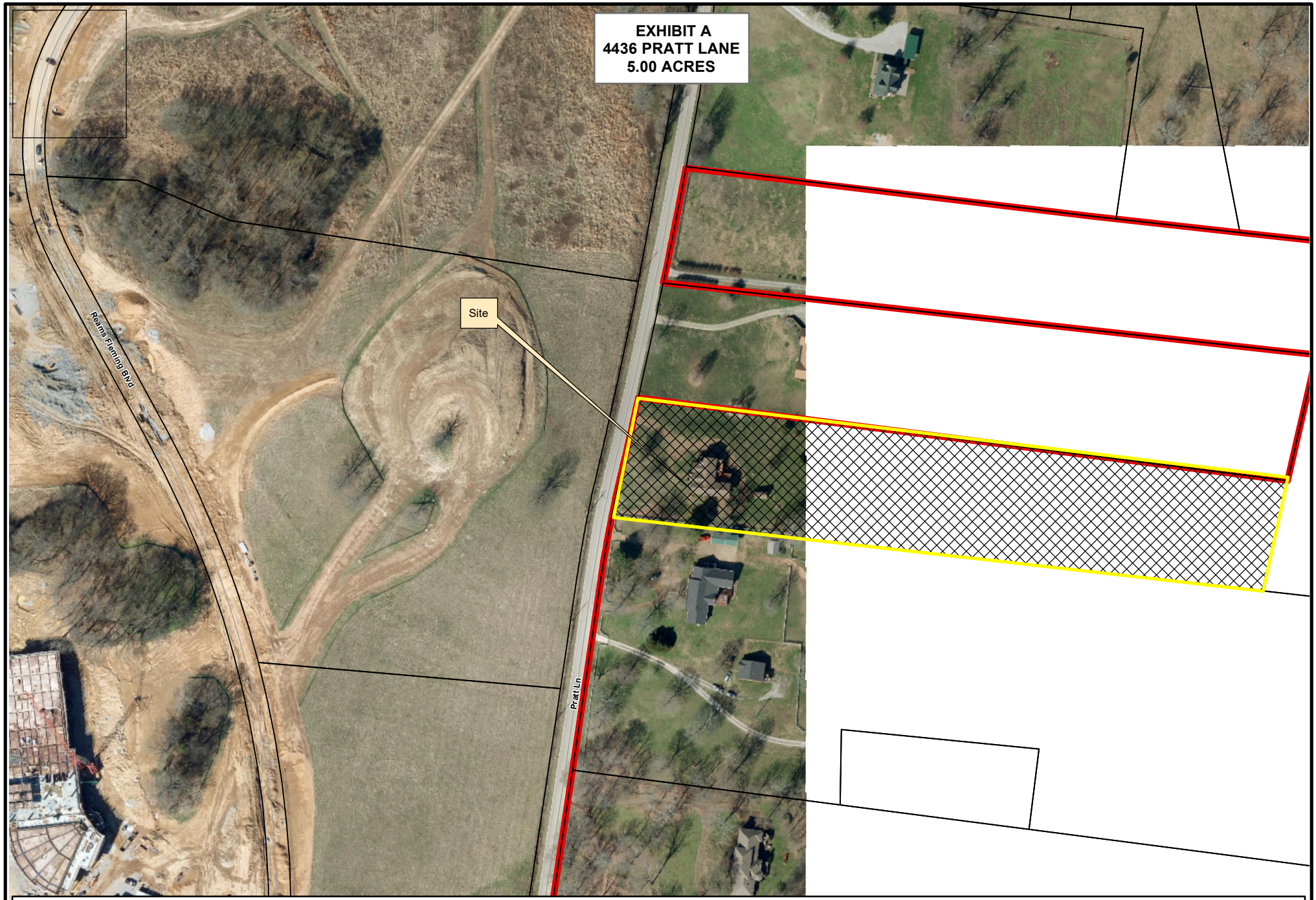
PLANNING COMMISSION RECOMMENDED: _____

PASSED FIRST READING: _____

PUBLIC HEARING HELD: _____

PASSED SECOND READING: _____

PASSED THIRD READING: _____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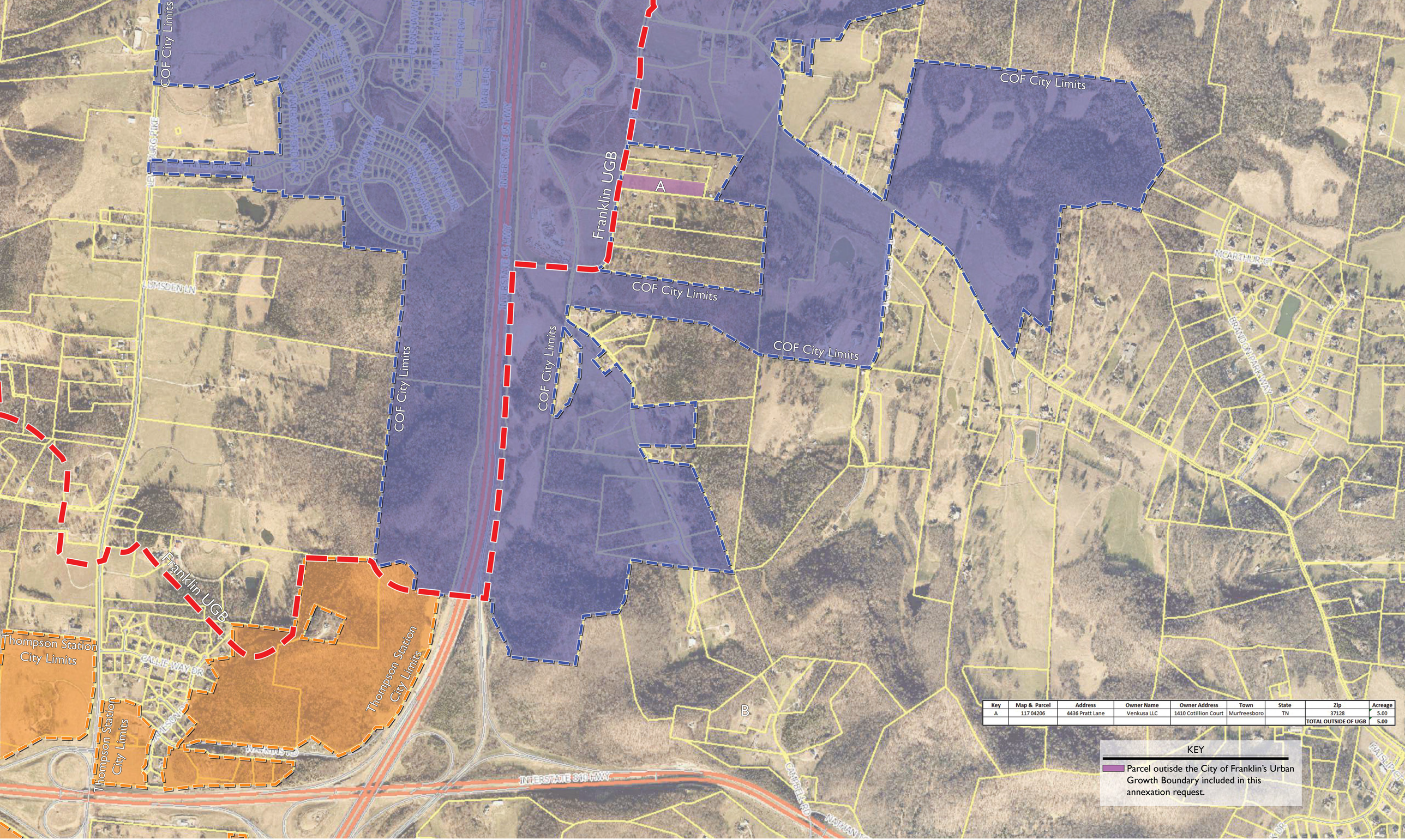


Key	Map & Parcel	Address	Owner Name	Owner Address	Town	State	Zip	Acreage
A	117 04206	4436 Pratt Lane	Venkusa LLC	1410 Cotillion Court	Murfreesboro	TN	37128	5.00
							TOTAL OUTSIDE OF UGB	5.00

KEY

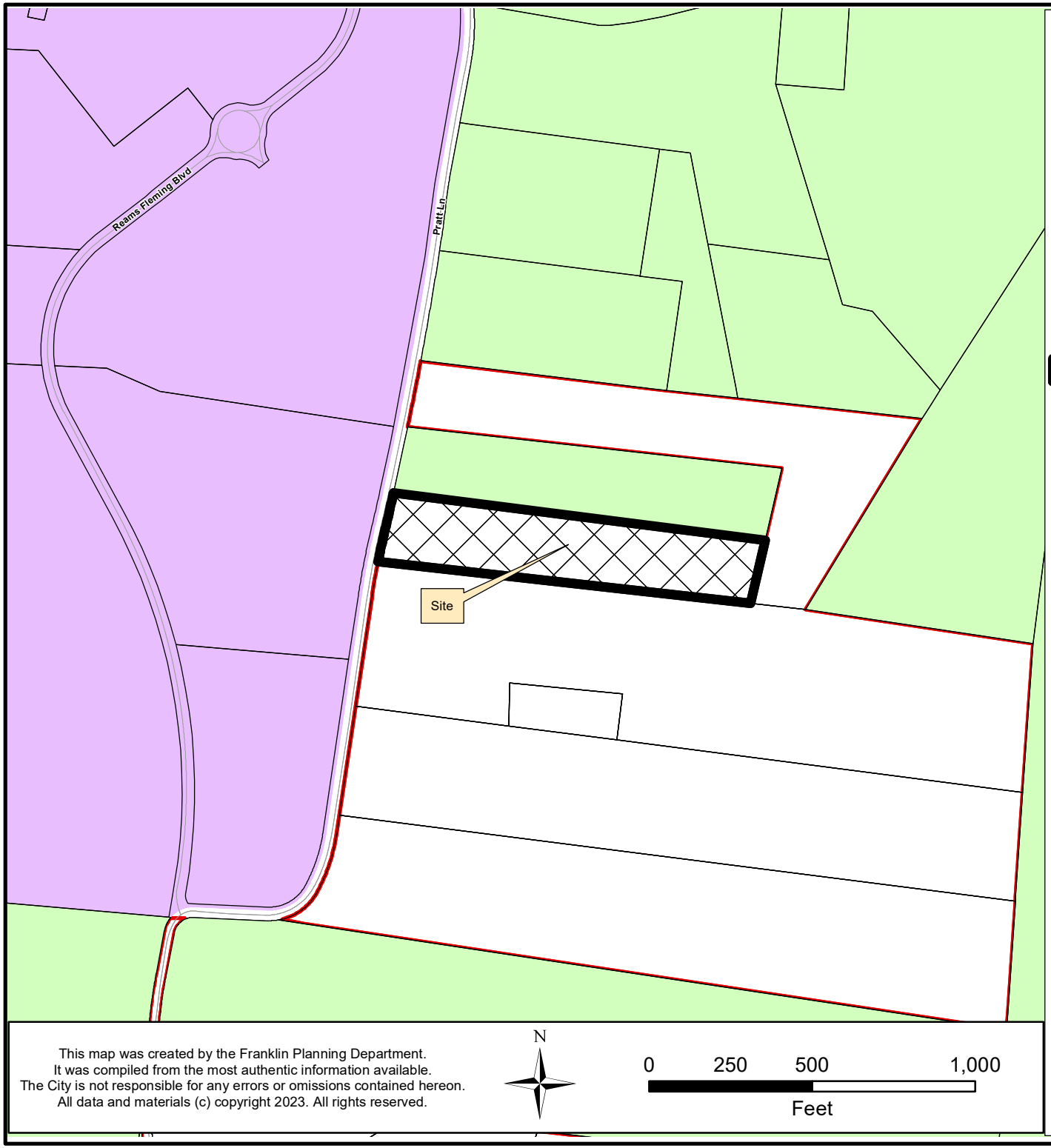
Parcel outisde the City of Franklin's Urban Growth Boundary included in this annexation request.

WILLIAMSON COUNTY PARCEL

PARCEL REQUESTING ANNEXATION - COF Project # 8187

June 1, 2023

GAMBLE DESIGN COLLABORATIVE



4436 PRATT LANE
ANNEXATION, PLAN OF SERVICE, AND ZONING
ORDINANCE 2023-24
RESOLUTION 2023-49
RESOLUTION 2023-48

Project Information
Existing Land Use: Vacant
Proposed Land Use: Single-Family
Proposed Zoning: ER, Estate Residential
Site Acreage:5 acres

Legend

- Subject Property
- AG Agricultural District
- ER Estate Residential District
- R1 Residential 1 District
- R2 Residential 2 District
- R3 Residential 3 District
- R4 Residential 4 District
- R6 Residential 6 District
- MR Mixed Residential District
- PD Planned District
- OR Office Residential District
- CI Civic Institutional District
- NC Neighborhood Commercial
- CC Central Commercial District
- DD Downtown District
- 1ST Avenue District
- 5TH Avenue District
- RC6 Regional Commerce 6 District
- RC12 Regional Commerce 12 District
- GO General Office District
- LI Light Industrial District
- HI Heavy Industrial District

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It was compiled from the most authentic information available.
The City is not responsible for any errors or omissions contained hereon.
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N

0 250 500 1,000
Feet

HISTORIC FRANKLIN TENNESSEE

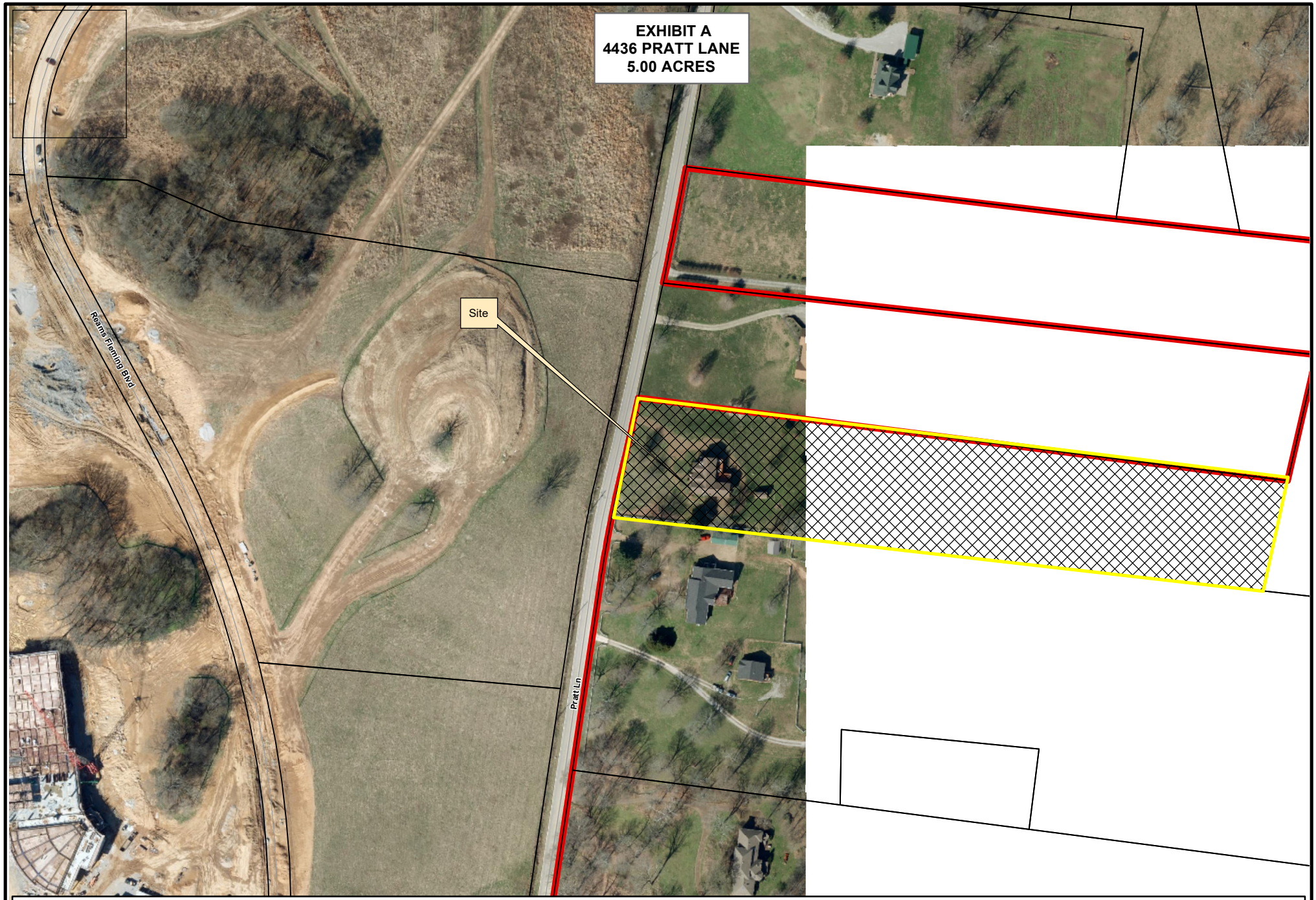
EXHIBIT A
4436 PRATT LANE
5.00 ACRES
Site
Reams Fleming Blvd
Pratt Ln
Legend
4436 Pratt Lane
Limits
N
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250
500
1,000
Feet
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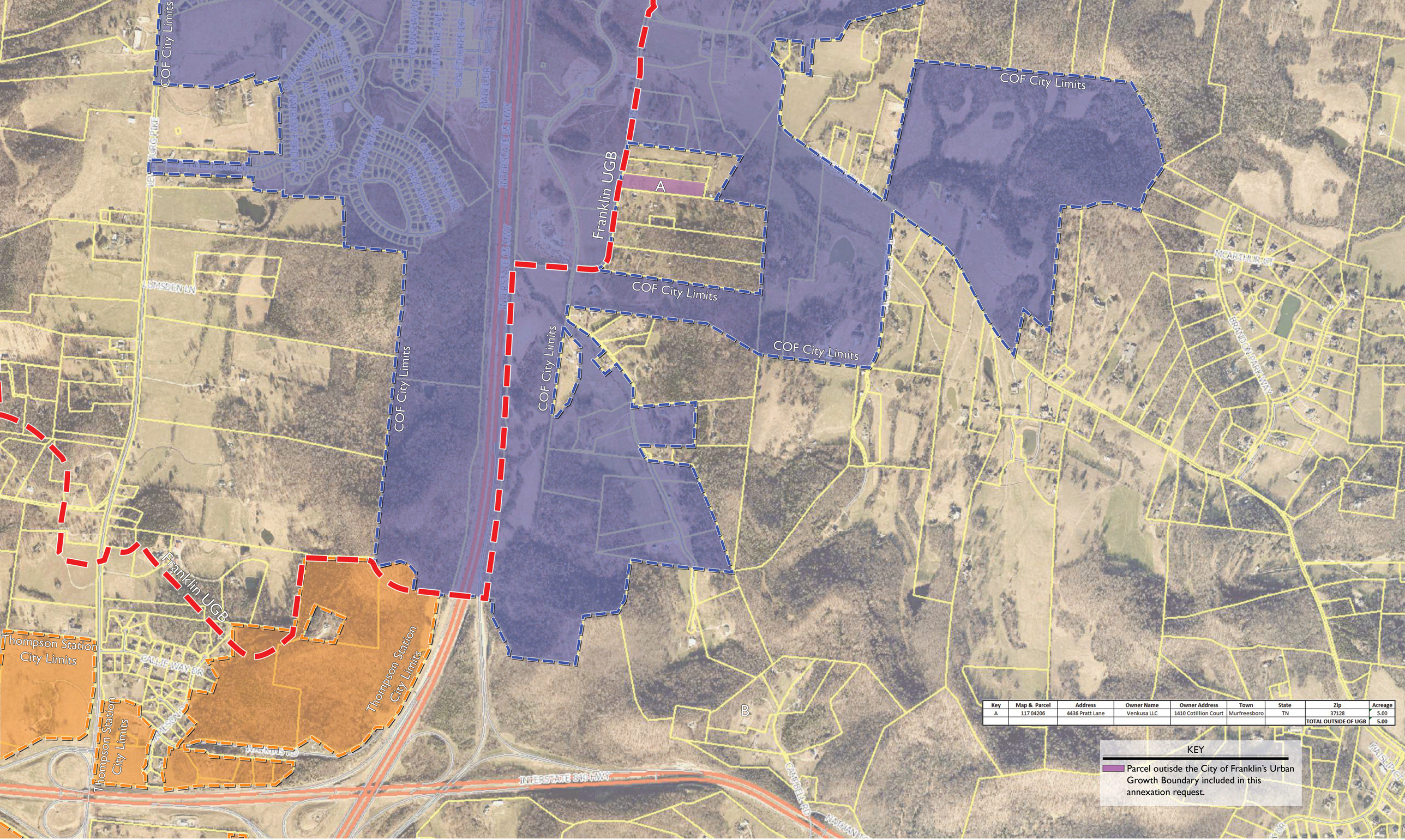


Key	Map & Parcel	Address	Owner Name	Owner Address	Town	State	Zip	Acreage
A	117 04206	4436 Pratt Lane	Venkusa LLC	1410 Cotillion Court	Murfreesboro	TN	37128	5.00
							TOTAL OUTSIDE OF UGB	5.00

KEY

Parcel outside the City of Franklin's Urban Growth Boundary included in this annexation request.

N

0 500 1000
GRAPHIC SCALE

WILLIAMSON COUNTY PARCEL

PARCEL REQUESTING ANNEXATION - COF Project # 8187

June 1, 2023

GAMBLE DESIGN COLLABORATIVE

HISTORIC FRANKLIN TENNESSEE

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04820

DATE: June 15, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Emily Wright, Director of Planning and Sustainability
Andrew Orr, Long Range Planning Supervisor

SUBJECT:

Consideration Of Resolution 2023-44, A Resolution To Recommend Changes To The Williamson County Growth Plan To The Williamson County Coordinating Committee. Establishing A Public Hearing On August 8, 2023

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) concerning Resolution 2023-44.

BACKGROUND/STAFF COMMENTS:

Franklin has consistently experienced fast-paced growth since the late 1980s and this trend is expected to continue. In 2010, the City's population was 62,487 and in 2020, the population was 83,452. In 2013, the US Census Bureau named Franklin as the 14th fastest growing city in the nation for cities with a population over 50,000. In 2017, The US Census Bureau identified Franklin as the fastest growing city in Tennessee and the 8th fastest growing city in the nation. Consistent population growth is expected to continue for the next twenty years.

City of Franklin Population Growth and Projections

Year	Type	Population
1980	Federal Census	12,407
1990	Federal Census	20,098
2000	Federal Census	41,842
2010	Federal Census	62,487
2020	Federal Census	83,452
2021	Estimate	86,628
2030	Projection	106,409
2040	Projection	128,089

Throughout the summer of 2021, an interdepartmental team of City staff began meeting weekly to analyze the Franklin Urban Growth Boundary (UGB) by drainage basins. During these meetings, City

of Franklin staff discussed infrastructure availability, extensions and needs, and costs associated with providing public services to territory within the UGB and for the territory proposed to be added. Environmental features such as floodplains, steep slopes, and agricultural lands that wish to remain working farms were all considered during the discussions and analysis. Development suitability, the cost to extend municipal services, population projections, and the study of necessary land uses to accommodate managed and strategic growth all factored into the preliminary staff recommendations for the updated UGB.

Through a series of community meetings and a public survey, City of Franklin staff engaged the citizens to raise awareness of the UGB study and provide feedback on the preliminary recommendations. Several property owners made specific requests to be removed from the UGB, and they were given an opportunity to publicly present their unique circumstances to the BOMA. Based on these presentations and feedback from the BOMA, adjustments to the boundary were made accordingly. In total, the staff engaged the Franklin Board of Mayor and Aldermen at six different public work session meetings throughout the fall of 2021 and the spring of 2022 for their input and guidance. Additionally, the staff engaged the Franklin Municipal Planning Commission and Franklin Board of Mayor and Aldermen and two public joint workshops during the fall of 2021.

The City of Franklin is proposing changes to its UGB. Due to continued growth and development along the I-65 corridor, the City proposes an expansion of the UGB south of Long Lane and east of I-65. Through the referendum process, the City has annexed properties outside of the UGB in this area, and city services and infrastructure can be extended to support additional growth. A coordinated study of land uses and infrastructure is ongoing for the territory recommended to be added. The City is also proposing a reduction of the UGB north of New Highway 96 West, along US 31 Columbia Pike, and also along Carters Creek Pike and Southall Road. The reductions will help preserve rural character in these areas. Minor adjustments along the fringes of the UGB have been made so the proposed boundary follows parcel lines. In total, the City of Franklin is proposing adding approximately 2,173 acres to the UGB and removing approximately 2,534 acres for a net loss of 361 acres.

The Coordinating Committee officially met for the first time on June 13, 2023. They have six months to complete the state-required process. The next steps for the City include holding two public hearings. The FMPC will hold a public hearing at the July 27, 2023 meeting and also vote on Resolution 2023-44. The BOMA will also hold a public hearing and vote on Resolution 2023-44 at the August 8, 2023 meeting. It is anticipated that each City will present its recommendations to the Coordinating Committee in late August, prior to the Coordinating Committee holding two public hearings and holding a recommendation vote on the Growth Plan. Then, each municipality and the County will be requested to ratify the Growth Plan at the legislative body level.

FINANCIAL IMPACT:

N/A

RECOMMENDATION:

Staff recommends that the Board of Mayor and Aldermen approve Resolution 2023-44.

RESOLUTION 2023-44

A RESOLUTION TO RECOMMEND CHANGES TO THE WILLIAMSON COUNTY GROWTH PLAN TO THE WILLIAMSON COUNTY COORDINATING COMMITTEE

WHEREAS, the Tennessee General Assembly in 1998 approved Public Chapter 1101 (PC 1101), a law establishing growth planning policy within the cities and counties of Tennessee; and

WHEREAS, PC 1101 directed a comprehensive growth policy plan for each county within the State of Tennessee be formulated by a coordinating committee in each county of the State; and

WHEREAS, PC 1101 outlines the procedures for updating the County Growth Plan; and

WHEREAS, the Williamson County Coordinating Committee was formally requested by the Williamson County Mayor on May 1, 2023, and convened initially regarding an update to the County Growth Plan on June 13, 2023; and

WHEREAS, the City of Franklin held or will hold two public hearings for the Williamson County Growth Plan as required by PC 1101 on July 27, 2023 at the Franklin Municipal Planning Commission Meeting and on August 8, 2023 at the Board of Mayor and Aldermen Meeting.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF FRANKLIN, TENNESSEE, AS FOLLOWS:

SECTION I. That the Board of Mayor and Aldermen recommend approval to the Williamson County Coordinating Committee of the map of the Franklin Urban Growth Boundary and the Williamson County Growth Plan, as depicted in Exhibit 1.

SECTION II. BE IT FINALLY ORDAINED by the Board of Mayor and Aldermen of the City of Franklin, Tennessee, that this Resolution shall take effect from and after its passage on final reading, the health, safety, and welfare of the citizens requiring it.

ATTEST:

_____

Eric S. Stuckey
City Administrator

CITY OF FRANKLIN, TENNESSEE:

_____

Dr. Ken Moore
Mayor

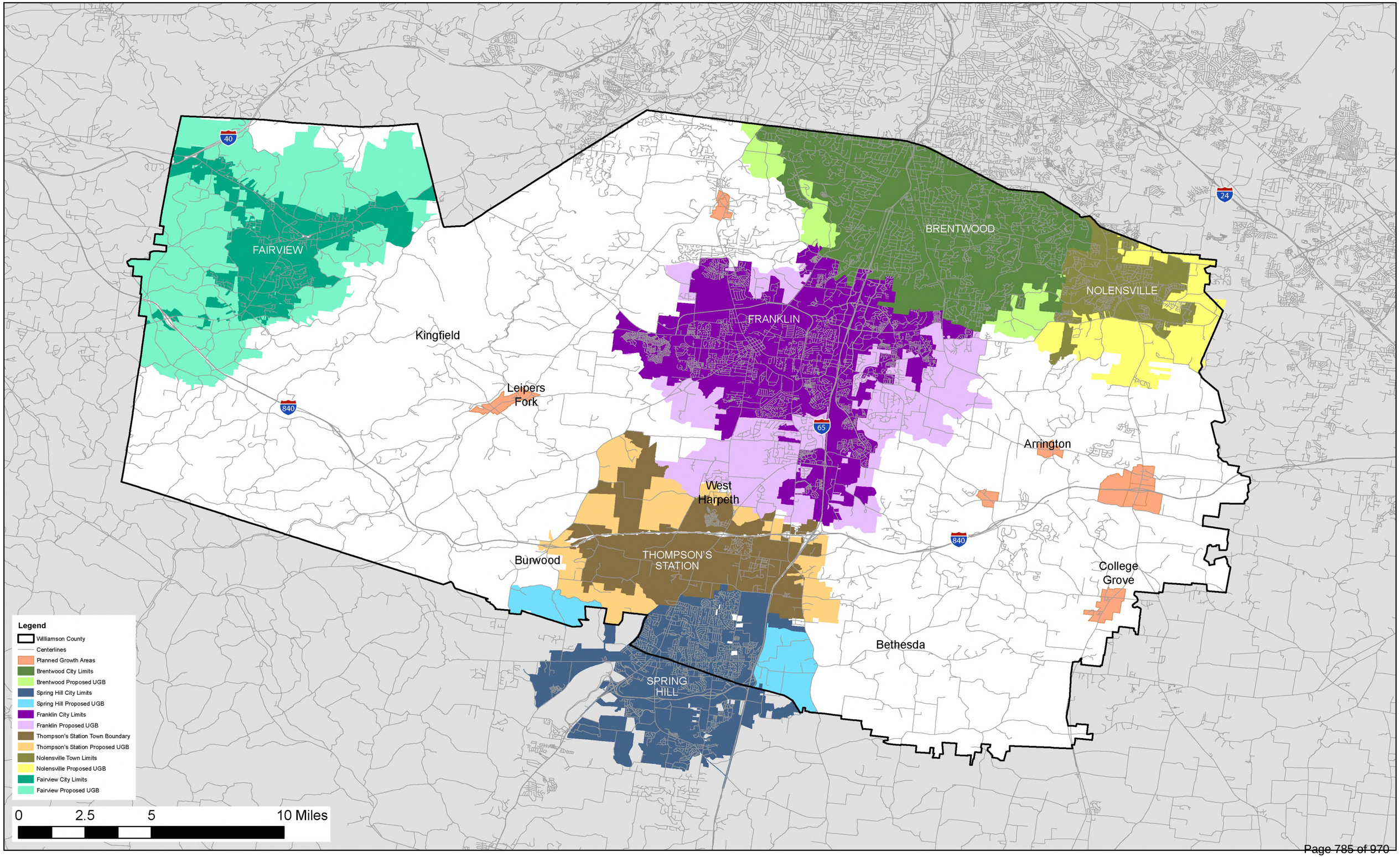
Approved as to form by:

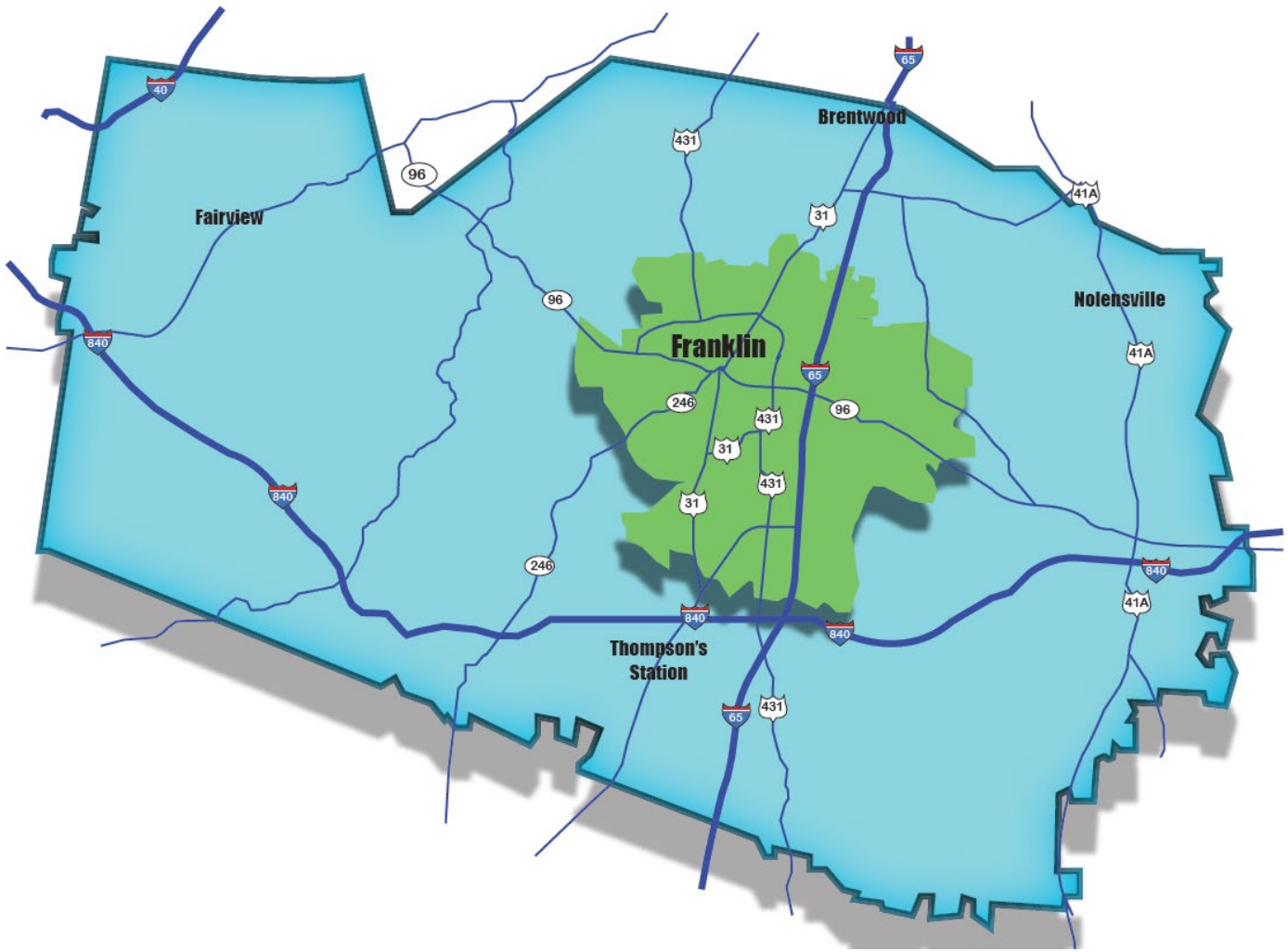
_____

Shauna R. Billingsley
City Attorney

Law Dept approved 06.27.23

Williamson County, TN Proposed Urban Growth Boundaries & Planned Growth Areas





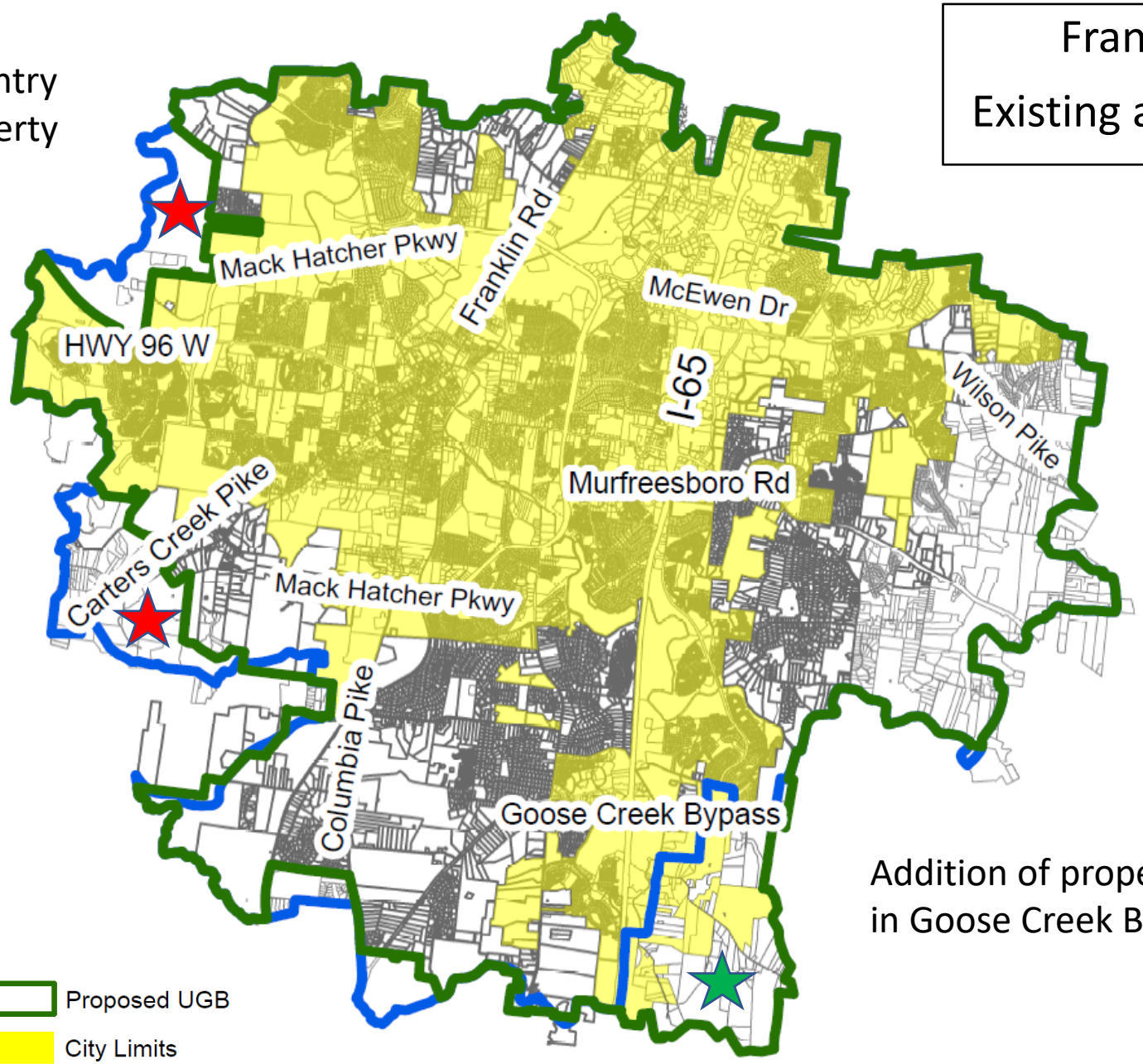
Williamson County Growth Plan Update

July 11, 2023 BOMA Work Session

Franklin UGB
Existing and Proposed

Removal of Gentry Farm and property directly north

Removal of Southall Farms and properties to west



Addition of properties in Goose Creek Basin

Legend

- Parcels
- Current Franklin UGB
- Proposed UGB
- City Limits

N

Next Steps

- June 13, 2023 Coordinating Committee convened and six-month timeline began to complete update
- July 11, 2023 BOMA Work Session to discuss Resolution 2023-44 recommending approval of Franklin's proposed UGB
- July 27, 2023 FMPC to hold public hearing and vote to recommend approval of Resolution 2023-44
- August 8, 2023 BOMA to hold public hearing and vote to recommend approval of Resolution 2023-44

Anticipated Schedule

- Late August: City of Franklin to present proposed UGB to Coordinating Committee
- September: Coordinating Committee to prepare updated draft Growth Plan
- September/October: Coordinating Committee to hold two public hearings
- October: Coordinating Committee to make any final adjustments and officially vote on and approve its recommended Growth Plan.
- November/December: City of Franklin to ratify recommended growth plan
- January 2024: After all jurisdictions approve the recommended growth plan, it is transmitted to the Local Government Planning Advisory Committee for approval.

HISTORIC FRANKLIN TENNESSEE

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04769

DATE: June 28, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Shauna Billingsley, City Attorney
Jessica Davey, Revenue & Licensing Manager

SUBJECT:

Consideration Of Ordinance 2023-16, An Ordinance To Amend Title 8, Chapter 2, Section 211 Of The Franklin Municipal Code Relative To Special Event Beer Permits
Beer 6/13/23, 2-0
WS 6/27/23, deferred

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) concerning an ordinance to amend the Franklin Municipal Code relative to special event beer permits.

BACKGROUND/STAFF COMMENTS:

The Franklin Municipal Code requires event organizers to obtain a permit for their special event under certain circumstances. Should the organizers desire to serve beer at their event, they are required to obtain a special event beer permit from the beer board. Failure to obtain a special event permit when required prohibits organizers from holding the special event where beer was intended to be served. The practice of the Beer Board has been to grant beer permits conditioned upon the event organizer receiving a special event permit when the beer permit approval was on a Beer Board agenda prior to obtaining the special event permit.

The ordinance amendment as drafted would require that where a special event permit is necessary and the event organizers desire to serve beer, the special event permit must be obtained before appearing before the beer board. It is important to note that, while BOMA meets twice monthly, the Beer Board meets only once a month. The differing timelines for the two governing bodies, along with their respective filing deadlines, could create a hardship for applicants, and result in their inability to obtain a beer permit before their event. And, many times, the special event application was at work session the prior meeting and then set on the Beer Board agenda and the voting meeting on the same night. However, Beer Board meets before BOMA and having the flexibity to approve a beer permit contingent on the special event approval has worked well.

As stated above, the practice has been to obtain the issuance of the special event beer permit contingent upon receiving approval for the special event. This would be consistent with the Beer

Board’s current practice related to certificates of use and occupancy. For establishments going through the building inspection process the beer board issues a permit that is contingent upon obtaining a certificate of use and occupancy so that the business experiences no delay once it has passed inspection and is ready to open its doors.

FINANCIAL IMPACT:

There is no financial impact.

RECOMMENDATION:

Staff recommends that the Board of Mayor and Aldermen deny Ordinance 2023-16.

ORDINANCE 2023-16

AN ORDINANCE TO AMEND TITLE 8, CHAPTER 2, SECTION 211 OF THE FRANKLIN MUNICIPAL CODE RELATIVE TO SPECIAL EVENT BEER PERMITS.

WHEREAS, in order to promote the health, safety, prosperity, and general welfare of the people of Franklin, Tennessee, the Board of Mayor and Aldermen is authorized to prescribe regulations and standards relative to beer permits within the City; and

WHEREAS, the City of Franklin Municipal Code Title 16, Chapter 5 requires special event organizers to obtain a permit for their special event under certain circumstances; and

WHEREAS, the City of Franklin Municipal Code Title 8, Chapter 2, Section 211 provides that the beer board is authorized to issue beer permits for use at special events under certain criteria; and

WHEREAS, failure to receive a special event permit where one is required stops an event organizer from holding the special event where beer was intended to be served; and

WHEREAS, to ensure all proper permitting requirements are met the Board of Mayor and Aldermen deems it prudent to require that where a special event permit is necessary and the event oragnizers desire to serve beer, the special event permit must be obtained before appearing before the beer board to obtain a beer permit for the special event; and

WHEREAS, the Board of Mayor and Aldermen find this action to be in the best interests of the City.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY OF FRANKLIN BOARD OF MAYOR AND ALDERMEN, AS FOLLOWS:

SECTION I. That the Franklin Municipal Code, Title 8, Chapter 2, Section 211 be amended by deleting the section in its entirety and adding the new Section 211 listed below:

Sec. 8-211. – Special event permits.

(1) The beer board is authorized to issue special event beer permits to bona fide charitable, nonprofit or political organizations for special events. If a special event permit is required for the event under Title 16, Chapter 5 of this code, the event organizers must obtain the special event permit before appearing before the beer board to obtain a special event beer permit.

(2) The special event beer permit shall not be issued for longer than one 48-hour period unless otherwise specified, subject to any limitations on the hours of sale imposed by law. The application for the special event beer permit shall state whether the applicant is a charitable, nonprofit or political organization, include documents showing evidence of the type of organization, and state the location of the premises upon which alcoholic beverages shall be served and the purpose for the request for the beer permit.

(3) For purposes of this section:

(a) Bone fide charitable or nonprofit organization means any corporation which has been recognized as exempt from federal taxes under section 501(c) of the Internal Revenue Code.

(b) Bona fide political organization means any political campaign committee as defined in T.C.A. § 2-10-102 or any political party as defined in T.C.A. § 2-13-101.

(4) No charitable, nonprofit or political organization possessing a special event beer permit shall purchase, for sale or distribution, beer from any source other than a licensee as provided pursuant to state law.

(5) Failure of the special event beer permittee to abide by the conditions of the permit and all laws of the State of Tennessee and the City of Franklin will result in a denial of a special event beer permit for the sale of beer for a period of one year.

SECTION II. BE IT FINALLY ORDAINED by the Board of Mayor and Aldermen of the City of Franklin, Tennessee, that this Ordinance shall take effect from and after its passage on second and final reading, the health, safety, and welfare of the citizens of Franklin, Tennessee, requiring it.

ATTEST:

By: _____
Eric Stuckey
City Administrator

CITY OF FRANKLIN, TENNESSEE:

By: _____
Dr. Ken Moore
Mayor

Approved as to form by:

_____
William E. Squires
Assistant City Attorney

PASSED FIRST READING _____

PASSED SECOND READING: _____

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04799

DATE: June 13, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Tom Marsh, Building and Neighborhood Services Director
Kathleen Sauseda, Housing Development Coordinator

SUBJECT:

Consideration Of COF Contract No. 2023-0063, With The Hard Bargain Association For The Reimbursement Of $100,000 For The Cost Of Purchasing Vacant Land In The Hard Bargain Neighborhood To Further The Goal Of Building Affordable, Deed Restricted Home(s) In The Hard Bargin Neighborhood

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) regarding COF Contract 2023-0063 to reimburse The Hard Bargain Association for costs incurred for the purchase of property to support the further development of affordable housing units within the Hard Bargain Planned Unit Development (PUD).

BACKGROUND/STAFF COMMENTS:

The mission of the Hard Bargain Association is to preserve the historic Hard Bargain neighborhood by renovating existing homes and building high quality affordable housing. To pursue their mission, the Association must acquire properties in the neighborhood as they become available. The Association was able recently to purchase the property at 611 Mount Hope ST. This contract will reimburse the Association for part of the purchase of the property. The acquisition of this property will over time enable the Association to expand the area covered and protected by the PUD and provide additional new or renovated affordable housing units in the neighborhood.

FINANCIAL IMPACT:

The funding to support this development will come from the City's Community Development Block Grant available funds.

RECOMMENDATION:

Staff recommends that the Board of Mayor and Aldermen approve Contract No. 2023-0063 with The Hard Bargain Association.

CONTRACT BETWEEN THE CITY OF FRANKLIN AND HARD BARGAIN ASSOCIATION FOR THE RECEIPT OF COMMUNITY DEVELOPMENT BLOCK GRANT FUNDS AS REIMBURSEMENT FOR COSTS ASSOCIATED WITH CONSTRUCTION OF SINGLE-FAMILY HOMES THAT BENEFIT LOW TO MODERATE INCOME RESIDENTS
COF Contract No. 2023-0063

This Contract is by and between the City of Franklin, (hereinafter "CITY") and Hard Bargain Association (hereinafter called "ORGANIZATION").

WITNESSETH:

WHEREAS, CITY is eligible for entitlement funds through the federal Community Development Block Grant ("CDBG") program; and

WHEREAS, CITY has identified a need to fund a Community Based Development Organization ("CBDO") Program; and

WHEREAS, ORGANIZATION is experienced in developing Affordable Housing projects, as defined by the United States Department of Housing and Urban Development ("HUD") and has met the certification requirements of becoming a CBDO.

NOW, THEREFORE, in consideration of the mutual promises as contained herein, the parties hereto have agreed and hereby enter into this Contract according to the provisions as set forth herein.

SECTION 1 - SCOPE OF SERVICES

ORGANIZATION will carry out activities necessary for acquisition of vacant land, rehabilitation and resale, new construction, or conversion of a nonresidential to a residential structure for low to moderate income occupants in the City of Franklin. Low to moderate income is defined as households with incomes equal to or less that 80% of median family income for the Metropolitan Statistical Area.

When applicable, the work will also include testing, remediating, and clearing structures for lead-based paint hazards. All structures constructed pre-1978 must be tested and cleared for lead-based paint hazards. In the presence of lead-based paint hazards, contractors/workers are required to be certified in and use safe-work practices. **A United States Department of Housing and Urban Development ("HUD") Environmental Review Report will be required.**

SECTION 2 - RESPONSIBILITIES OF PARTIES

A. ORGANIZATION will perform the duties described above and take other actions necessary to accomplish the spirit of this Contract.

Law Dept approved 04.03.23

B. ORGANIZATION will submit regular reports (not less often than quarterly) as directed by CITY detailing the progress of their project.

C. At the request of CITY, ORGANIZATION will periodically send a representative to neighborhood or other public meetings to discuss and promote their project.

D. CITY will provide funding for the program from the Community Development Block Grant program as set forth in Section 3 of this Contract.

SECTION 3 – COMPENSATION

ORGANIZATION will receive **One-Hundred Thousand and No/100 Dollars ($100,000.00)** for the services outlined above from the approved Community Development Block Grant program for eligible expenses.

SECTION 4 – TIME OF PERFORMANCE

Services shall start upon execution of this Contract and shall be completed within twenty-four (24) months of the execution of this Contract.

SECTION 5 - PAYMENT TERMS AND CONDITIONS

A. CITY shall reimburse ORGANIZATION for services rendered based on submittal of valid invoices for project costs with a description and documentation of work performed. CITY has the option of inspecting the completed work prior to making any payments.

B. Invoices may be submitted while the project is in progress as work is performed. CITY may choose to reimburse the ORGANIZATION for incremental expenses incurred as work is completed and inspected for satisfactory progress.

C. Final payment will be subject to receipt of a final report that is satisfactory to CITY in the CITY's sole discretion.

SECTION 6 - NOTICES

All notices under this Contract shall be in writing and sent by certified mail to the address listed below for each party.

Kathleen L. Sauseda
City of Franklin – City Hall
109 3rd Avenue South
Franklin, TN 37064

Hard Bargain Association
608 Mt. Hope Street
Franklin, TN 37064

SECTION 7 - PROGRAM PROCEEDS

ORGANIZATION is acting as a CBDO and not as a subrecipient under the terms of this Contract. Revenues generated by activities undertaken by ORGANIZATION with funds provided through this Contract are not considered to be program income. CITY does require ORGANIZATION to use program proceeds to continue ORGANIZATION'S mission of providing affordable housing. Toward that end, CITY requires ORGANIZATION to submit a written statement within thirty (30) days of receipt of any initial program proceeds outlining their intended future use.

SECTION 8 - REVERSION OF ASSETS.

Any real property under ORGANIZATION's control that was acquired or improved in whole or in part with program funds in excess of $25,000.00 shall be either: (i) used to meet one of the national objectives in 24 CFR 570.208 until five (5) years after expiration of the Contract; or (ii) not used in accordance with the above paragraph (i) of this section, in which event ORGANIZATION shall pay to the CITY an amount equal to the current market value of the property less any portion of the value attributable to expenditures of non-program funds for the acquisition of, or improvement to, the property at CITY's sole reasonable discretion.

SECTION 9 - STANDARD TERMS AND CONDITIONS

A. COMPLIANCE WITH FEDERAL LAWS/REGULATIONS

ORGANIZATION shall comply with all applicable Federal and State laws and regulations in the performance of this Contract, including, but not limited to Federal Code 2 CFR 200.318, 2 CFR 200.326, and 2 CFR 200.318 (c)(1).

B. ANTIDISCRIMINATION/AFFIRMATIVE ACTION AND EQUAL EMPLOYMENT OPPORTUNITY

No person on the grounds of handicap, age, race, color, religion, sex, national origin, disability, or marital/familial status or any other classification protected by Federal and/or State of Tennessee constitutional and/or statutory law-shall be excluded from participation in, or be denied benefits or, or be otherwise subjected to discrimination in the performance of this Contract.

C. AUDIT REQUIREMENTS

i. This Contract, as well as any sub-agreement made with other participating agencies, is subject to all administrative requirements in OMB Circulars A-110 and A-122.

ii. CITY hereby notifies ORGANIZATION that a single audit is required for non-profit agencies receiving $300,000.00 or more in federal funds in any single fiscal year. This requirement is in accordance with OMB Circulars A-110 and A-133. If

required, a copy of the single audit report will be kept on file and made available to CITY staff during sub-recipient monitoring visits and appropriate officials as requested.

D. CONFLICT OF INTEREST

ORGANIZATION agrees to abide by the following requirements with respect to conflicts of interest, and covenants that it presently has no interest, direct or indirect, and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required under this Contract. ORGANIZATION further covenants that in the performance of this Contract no person having such an interest, direct or indirect, shall be employed or retained by ORGANIZATION hereunder. These conflict-of-interest provisions apply to any person who is an employee, agent, consultant, officer, or elected official or appointed official of ORGANIZATION or of any designated public agencies or sub-recipients that are receiving funds under this program.

E. PROCUREMENT STANDARDS AND METHODS

ORGANIZATION shall comply with CITY's current policy concerning the purchase of equipment and shall maintain inventory records of all non-expendable personal property as defined by such policy as may be procured with funds herein.

ORGANIZATION shall procure all materials, property, or services in accordance with the requirements of Attachment O of OMB Circular A-110, Procurement Standards.

F. APPLICABLE LAW; CHOICE OF FORUM/VENUE

This Contract constitutes the entire agreement and is made under and will be construed in accordance with the laws of the State of Tennessee without giving effect to any state's choice-of-law rules. The choice of forum and venue shall be exclusively in the Courts of Williamson County, Tennessee. The ORGANIZATION acknowledges and agrees that any rights or claims against the CITY or its employees, or elected or appointed officials hereunder, and any remedies arising there from, shall be subject to and limited to those rights and remedies, if any, available under Tenn. Code Ann. §§ 9-8-101 through 9-8-407.

G. ASSIGNMENT

Neither CITY nor ORGANIZATION may assign its rights or delegate its responsibilities under this contract.

H. ENTIRE CONTRACT AND MODIFICATION

The Contract between the parties supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of the entire Contract. The terms and conditions of

this Contract may not be changed except by an amendment expressly referencing this Contract by section number and signed by an authorized representative of each party. If seeking any addition or modification to the Contract, the parties agree to reference the specific paragraph number sought to be changed on any future document or purchase order issued in furtherance of the Contract, however, an omission of the reference to same shall not affect its applicability. In no event shall either party be bound by any terms contained in any purchase order, acknowledgement, or other writings unless: (a) such purchase order, acknowledgement, or other writings specifically refer to the Contract or to the specific clause they are intended to modify; (b) clearly indicate the intention of both parties to override and modify the Contract; and (c) such purchase order, acknowledgement, or other writings are signed, with specific material clauses separately initialed, by authorized representatives of both parties.

I. SEVERABILITY

If any provision of this Contract is held invalid, the remainder of the Contract shall not be affected thereby, and all other parts of this Contract shall nevertheless be in full force and effect.

J. TIME OF THE ESSENCE

The parties agree that TIME IS OF THE ESSENCE with respect to the parties' performance of all provisions of the Contract.

K. NO TAXES, NO INTEREST PAYMENTS

As a tax-exempt entity, CITY shall not be responsible for sales or use taxes incurred for products or services. CITY shall supply ORGANIZATION with its Sales and Use Tax Exemption Certificate upon ORGANIZATION's request. ORGANIZATION shall bear the burden of providing its suppliers with a copy of CITY's tax exemption certificate and shall assume all liability for such taxes, if any, that should be incurred. CITY does not agree to pay any interest for late payments, having agreed to pay in a timely manner.

L. WAIVER

Neither party's failure or delay to exercise any of its rights or powers under the Contract will constitute or be deemed a waiver or forfeiture of those rights or powers. For a waiver of a right or power to be effective, it must be in writing signed by the waiving party. An effective waiver of a right or power shall not be construed as either (a) a future or continuing waiver of that same right or power, or (b) the waiver of any other right or power.

M. TERMINATION

This Contract may be terminated upon thirty (30) days written notice by either party. Upon deliberate breach of the Contract by either party, the non-breaching party shall be entitled to terminate the Contract without notice, with all the remedies it would have in the

event of termination and may also have such other remedies as it may be entitled to in law or in equity.

N. INDEMNIFICATION AND LIMITATIONS OF LIABILITY

The CITY, being a Tennessee governmental entity, is governed by the provisions of the Tennessee Governmental Tort Liability Act, Tenn. Code Ann. § 29-20-101 et. seq. for causes of action sounding in tort. Further, no contract provision requiring a Tennessee political entity to indemnify or hold harmless the ORGANIZATION beyond the liability imposed by law is enforceable because it appropriates public money and nullifies governmental immunity without the authorization of the General Assembly.

O. IRAN DIVESTMENT ACT.

By 1) entering into this Contract and/or by 2) submission of a bid or proposal to the CITY, the ORGANIZATION and each person signing on behalf of any consultant, certifies, and in the case of a joint bid or proposal each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that neither they, nor any assignee of the resulting contract, is on the list created pursuant to T.C.A. § 12-12-106. The ORGANIZATION further certifies that it shall not utilize any subcontractor/subconsultant identified on the list created pursuant to T.C.A. § 12-12-106.

P. NON-BOYCOTT OF ISRAEL

Except for any contract with a total potential value of less than $250,000, each consultant, except those with fewer than ten employees, and each person signing on behalf of any such consultant, by entering into this agreement certifies, under penalty of perjury, that, to the best of its knowledge and belief, such consultant is not currently engaged in, and will not, for the duration of any such contract, engage in, a boycott of Israel, as that term is defined in Tenn. Code Ann. § 12-4-119.

Q. LOBBYING

The ORGANIZATION certifies, to the best of its knowledge and belief, that:

a. No federally appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension,

continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

b. If any funds other than federally appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this contract, grant, loan, or cooperative agreement, the ORGANIZATION shall complete and submit Standard Form-LLL, ``Disclosure Form to Report Lobbying," in accordance with its instructions.

c. The ORGANIZATION shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into and is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code.

R. PUBLIC ACCOUNTABILITY

If the ORGANIZATION is subject to Tenn. Code Ann. § 8-4-401, et seq., or if this Contract involves the provision of services to citizens by the ORGANIZATION on behalf of the State, the ORGANIZATION agrees to establish a system through which recipients of services may present grievances about ORGANIZATION's operation of the service program. The ORGANIZATION shall also display in a prominent place, located near the passageway through which the public enters in order to receive contract-supported services, a sign at least eleven inches (11") in height and seventeen inches (17") in width stating the following:

NOTICE: THIS AGENCY IS A RECIPIENT OF TAXPAYER FUNDING. IF YOU OBSERVE AN AGENCY DIRECTOR OR EMPLOYEE ENGAGING IN ANY ACTIVITY THAT YOU CONSIDER TO BE ILLEGAL, IMPROPER, OR WASTEFUL, PLEASE CALL THE STATE COMPTROLLER'S TOLL-FREE HOTLINE: 1-800-232-5454

The sign shall be of the form prescribed by the Comptroller of the Treasury. The GNRC shall request copies of the sign from the Comptroller of the Treasury and provide signs to contractors.

THE CITY OF FRANKLIN

By: _____ **Date:** _____
Dr. Ken Moore
Mayor

Attest:

_____ **Date:** _____
Eric S. Stuckey
City Administrator

Approved as to Form:

_____
J. Blake Harper
Staff Attorney

HARD BARGAIN ASSOCIATION:

By: Derrick L. Solomon Derrick Solomon (May 1, 2023 10:44 CDT) **Date:** May 1, 2023

Its: _____

Law Dept approved 04.03.23

Activity # 67

EXHIBIT A

DocuSign Envelope ID: 9F396374-5830-459C-83 F935A9CCFEB

ALTA Combined Settlement Statement

McCann & Hubbard
1804 Williamson Court
Suite 201
Brentwood, TN 37027
(615) 377-3319

File #:	22-733	Property	611 Mount Hope Street Franklin, TN 37064	Settlement Date	02/03/2023
Prepared:	02/01/2023			Disbursement Date	02/03/2023
Attorney:	Russell J. McCann	Buyer	Hard Bargain Mt. Hope, Inc.		
		Seller	Tamara Waldon, Tanya Swift, James C. Swift, Jr., Talava Washington, and Tamisha Jackson		
		Lender			

Seller			Buyer	
Debit	Credit		Debit	Credit
		Primary Charges & Credits		
	$220,000.00	Sales Price of Property	$220,000.00	
		Deposit		$1,000.00
$41,452.03		Proceeds to Tamara Waldon		
		Prorations/Adjustments		
$73.69		County Taxes 01/01/2023 to 02/03/2023		$73.69
$41,452.02		Proceeds to James C. Swift, Jr.		
$41,452.02		Proceeds to Talava Washington		
$41,452.02		Proceeds to Tamisha Jackson		
$41,452.02		Proceeds to Tanya Swift		
		Government Recording and Transfer Charges		
		Recording Fees	$28.00	
		---Deed: $28.00		
		Conveyance Tax (State Deed Taxes) to Williamson County Register of Deeds	$814.00	
		E-Recording Fee to Simplifile	$5.00	
		Commissions		
$8,800.00		Listing Agent Commission to Heritage Realty Group		
		Title Charges		
$50.00		Title - Courier Fee to McCann & Hubbard		
$495.00		Title - Settlement or Closing Fee to McCann & Hubbard	$495.00	
$1,419.50		Title - Owner's Title Policy to Old Republic National Title Insurance Company		
		Miscellaneous Charges		
$125.00		Remote Notary to GoGreen Notaries		
$815.00		Property Taxes to Williamson County Trustee		
$961.70		2021 Property Taxes to Williamson County Trustee		

Seller			Buyer	
Debit	Credit		Debit	Credit
$220,000.00	$220,000.00	Subtotals	$221,342.00	$1,073.69
		Due from Buyer		$220,268.31
$0.00		Due to Seller		
$220,000.00	$220,000.00	Totals	$221,342.00	$221,342.00

See signature addendum

Signature Addendum

Acknowledgement

We/I have carefully reviewed the Settlement Statement and find it to be a true and accurate statement of all receipts and disbursements made on my account or by me in this transaction and further certify that I have received a copy of the Settlement Statement.
We/I authorize McCann & Hubbard to cause the funds to be disbursed in accordance with this statement.

Hard Bargain Mt. Hope, Inc., a Corporation

DocuSigned by:
By: Derrick L. Solomon 2/1/2023
Derrick Solomon, Executive Director Date

Tamara Waldon Date

Tanya Swift Date

James C. Swift, Jr. Date

Talava Washington Date

Tamisha Jackson Date

Settlement Agent Date

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04855

DATE: June 27, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Angie Johnson, City Recorder

SUBJECT:

Consideration Of Liquor License For Life Of Reilly, LLC, DBA Happy Ours Wine & Spirits, Owned By Jody W. Reilly (Managing Agent) 595 Hillsboro Road, Franklin, TN 37064

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) concerning the transfer of an existing liquor license at 595 Hillsboro Road, Franklin, TN.

BACKGROUND/STAFF COMMENTS:

A retail liquor license certificate request has been received for the location at 595 Hillsboro Road, Happy Ours Wine & Spirits. A City of Franklin Retail Certificate is required for the owners to obtain their Tennessee ABC license.

This request is to transfer an existing liquor license at an existing location to a new owner.

In accordance with policy, a background records checks currently being performed by the Franklin Police Department. The resolution of the report will be provided when this item in heard at the August 8, 2023 Board of Mayor and Aldermen meeting for consideration.

FINANCIAL IMPACT:

N/A

RECOMMENDATION:

Staff recommends that the Board of Mayor and Aldermen approve the transfer of a liquor license to Life of Reilly, LLC, if the background check comes back clear.

ADMINISTRATION
Angie Johnson, CMC
City Recorder

Dr. Ken Moore
Mayor

Eric S. Stuckey
City Administrator

HISTORIC
FRANKLIN
TENNESSEE

DRAFT

RETAILER'S CERTIFICATE

Pursuant to T.C.A. §57-3-208, the City of Franklin hereby certifies the following facts concerning application in the name of Life of Reilly, LLC, D/B/A Happy Ours Wine & Spirits, owned by Jody W. Reilly (managing agent), who has made application for a retailer's license to handle alcoholic beverages at 595 Hillsboro Rd, Franklin, TN 37064, which is within the corporate limits of the City of Franklin, Williamson County, Tennessee:

1. The owner(s) who are to be in actual charge of the business have not been convicted of any violation of the laws against possession, sale, manufacture, or transportation of beer or other alcoholic beverages, or of any felony, or of any crime involving moral turpitude, within the past ten (10) years immediately preceding the date of application, and will not violate any of the provisions of Tennessee Code Annotated, Title 57, Chapter 3;

2. The applicant(s) will resume business at the current location for the business which complies with all restrictions of local law, ordinances, or resolutions, duly adopted by the local authorities as to location.

3. The applicant has complied with local laws, ordinances, and resolutions duly adopted by the local authority regulating the number of retail licenses to be issued within the jurisdiction.

This, the 8th Day of August 2023.

_____

Dr. Ken Moore
Mayor

File #: 21-04858

DATE: June 28, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Bill Squires, Asst. City Attorney

SUBJECT:

Consideration Of Resolution 2023-53, A Resolution Approving The City's On-Call Title Opinion Professional Services Agreements, COF Contracts 2023-0190, 2023-0191, 2023-1092, 2023-1093, And 2023-0194 And Authorizing The Use Of These Contracts Once Executed

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) concerning Resolution No. 2023-53, which approves the City entering into Professional Service Agreements with providers of title opinions for use in City easement and right-of-way acquisition.

BACKGROUND/STAFF COMMENTS:

The City engages in public works and other construction projects as approved by the BOMA. Those projects often require the City to obtain easements and/or right-of-way from property owners. While viewed as a last resort rather, from time to time the City must file a condemnation action in order to obtain the necessary easements and/or right-of-way. When that happens, title to the property must be thoroughly researched and investigated, and a professional opinion regarding ownership must be obtained so that the City is certain it is naming the correct parties in the condemnation suit.

The City has for some time now maintained a rotating on-call list of service providers for obtaining these title opinions. Looking to expand that list and keep access to those services as available and efficient as possible, on April 25, 2023, the City published an RFQ for interested Respondents to apply to be on that list. The City also direct mailed and/or e-mailed the RFQ to more than one-hundred (100) potential applicants.

Five entities responded by the deadline of May 18, 2023. After review of those submissions, city staff finds that they met the required criteria and recommends the approval of agreements with each of them to join the on-call list. Those entities were Century Title & Escrow, Inc. (COF Contract No. 2023-0190), Samuel J. Gowin, Esq. (COF Contract No. 2023-0191), Cindy S. Smith, P.C. (COF Contract No. 2023-0191), Security American Title (COF Contract no. 2023-0193), and Home Surety Title & Escrow, LLC (COF Contract No. 2023-0194).

FINANCIAL IMPACT:

The City currently pays a fixed amount per title opinion, and there is no additional cost to the City by adding additional on-call providers.

RECOMMENDATION:

Staff recommends that the Board of Mayor and Aldermen approve Resolution 2023-53.

RESOLUTION 2023-53

A RESOLUTION APPROVING THE CITY'S ON-CALL TITLE OPINION PROFEESIONAL SERVICES AGREEMENTS (COF CONTRACT NOS. 2023-0190, 2023-0191, 2023-0192, 2023-0193, 2021-0194) AND AUTHORIZING THE USE OF THESE CONTRACTS ONCE EXECUTED.

WHEREAS, the City of Franklin engages in public works and other construction projects which, from time to time, require the City to file condemnation cases to obtain necessary easements and other rights-of-way; and

WHEREAS, when the City files condemnation cases, title to the property must be thoroughly researched and investigated and a professional opinion rendered as to ownership of the property; and

WHEREAS, the Board of Mayor and Aldermen ("BOMA") finds it advantageous for the City to maintain an on-call list of service providers to request and obtain title opinions for this purpose; and

WHEREAS, on April 25, 2023, the City published a "Request For Qualifications (RFQ) For Professional Services Pertaining To Title Searches And Reports" for on-call title research and opinion services; and

WHEREAS, the City received five (5) submissions for consideration prior to the published deadline of May 18, 2023 at 3:00 PM (CDT); and

WHEREAS, after careful review and scoring of all submissions, city staff recommends the approval of Professional Services Agreements for On-Call Title Opinion Services with Century Title & Escrow, Inc. (COF Contract No. 2023-0190), Samuel J. Gowin, Esq. (COF Contract No. 2023-0191), Cindy S. Smith, P.C. (COF Contract No. 2023-0192), Security American Title (COF Contract No. 2023-0193), and Home Surety Title & Escrow, LLC (COF Contract No. 2023-0194); and

WHEREAS, to efficiently facilitate obtaining the necessary title research and opinion services as part of the City's Easement and Right-of-Way process, the BOMA finds that it is in the best interests of the City of Franklin to authorize obtaining services through the above contracts once they are executed.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF FRANKLIN, TENNESSEE, AS FOLLOWS:

SECTION I. The City Administrator is hereby authorized to enter into Professional Services Agreements for On-Call Title Opinion Professional Services with Century Title & Escrow, Inc. (COF Contract No. 2023-0190), Samuel J. Gowin, Esq. (COF Contract No. 2023-0191), Cindy S. Smith, P.C. (COF Contract No. 2023-0192), Security American Title (COF Contract No. 2023-0193), and Home Surety Title & Escrow, LLC (COF Contract No. 2023-0194).

SECTION II. The City Administrator is hereby authorized to request, review, and approve the spending of funds under the Professional Services Agreements for On-Call Title Opinion Services (COF Contract Nos. 2023-0190, 2023-0191, 2023-0192, 2023-0193, and 2023-0194) once they are fully executed. The City Administrator may delegate these tasks to appropriate City staff as necessary.

IT IS SO RESOLVED AND DONE on this ____ day of _____, 20__.

ATTEST:

By:_____
Eric S. Stuckey
City Administrator

CITY OF FRANKLIN, TENNESSEE:

By:_____
Dr. Ken Moore
Mayor

Approved as to Form:

By: _____
William E. Squires
Assistant City Attorney

CITY OF FRANKLIN, TENNESSEE
PROFESIONAL SERVICES AGREEMENT

(City of Franklin Contract No. 2023-0190)

THIS PROFESSIONAL SERVICES AGREEMENT ("AGREEMENT") is entered into by and between the City of Franklin, Tennessee ("CITY"), and Century Title & Escrow, Inc. ("VENDOR"), who mutually agree as follows:

1. CITY issued on April 25, 2023, Solicitation RFQ Legal File No. 2023-0001, a request for qualifications for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes. ("SOLICITATION").

2. In response to SOLICITATION, VENDOR submitted a statement of qualifications dated May 10, 2023, ("SUBMITTAL"), a copy of excerpts from which is attached hereto as Attachment No. 1 and hereby incorporated by reference as if fully set forth herein.

3. VENDOR included in SUBMITTAL CITY's Standard Procurement Terms and Conditions with VENDOR'S contact information inserted ("CITY'S TERMS"), a copy of which is attached hereto in SUBMITTAL and is hereby incorporated by reference as if fully set forth herein.

4. VENDOR has, subsequent to or with SUBMITTAL, also submitted Certificate(s) of Insurance ("CERTIFICATE(S) OF INSURANCE"), a copy/copies of which is/are attached hereto as and hereby incorporated by reference as if fully set forth herein, that meets or exceeds CITY's Insurance Requirements.

5. If and when insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above expires either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall immediately suspend work or supply and delivery unless and until it provides one or more unexpired replacement certificates of insurance that either indicates or collectively indicate the new date(s) of insurance coverage expiration and that either (a) meets or exceeds or (b) collectively meet or exceed CITY's Insurance Requirements as specified in SOLICITATION.

6. In the event that insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above is materially modified or canceled either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall, immediately upon learning of any such material modification or cancelation, suspend work or supply and delivery and shall, within three (3) calendar days of such learning, notify CITY of any such material modification or cancelation.

7. VENDOR has also submitted CITY's Indemnification Agreement, executed for VENDOR ("INDEMNIFICATION AGREEMENT"), a copy of which is attached hereto as part of SUBMITTAL and hereby incorporated by reference as if fully set forth herein.

8. CITY has awarded to VENDOR membership and participation on the CITY'S rotating on-call list for professional services pertaining to title searches and reports for the City's

voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes pursuant to SOLICITATION and SUBMITTAL.

9. The term of award shall commence upon execution of this AGREEMENT and shall expire three (3) years from the effective date of this AGREEMENT. At any time after commencement but before expiration of this term of award, CITY and VENDOR may, by mutual consent, exercise not more than two (2) options to extend the term of award, each time for up to one (1) additional year, for a maximum possible term of award of five (5) years total, provided: (a) that both parties consent to such an extension at that time; (b) that the decision to exercise such an extension is memorialized in writing and is executed by authorized representatives of each party (in the case of CITY, CITY's City Administrator); (c) that the same terms and conditions that apply to the original term of award shall also apply to such an extension unless otherwise amended, including pricing; (d) that if VENDOR chooses not to consent to an extension to the term of award, then it shall notify CITY of that decision a minimum of six (6) months in advance of the scheduled expiration of the term of award; and (e) at CITY's discretion, CITY and VENDOR may negotiate an additional extension beyond such expiration. Note that CITY and VENDOR each specifically retain the non-exclusive right, with or without cause, not to extend the term of award.

10. In the event of a conflict between the following documents, the order of precedence shall be as follows: (a) this AGREEMENT; (b) CITY's TERMS; (c) INDEMNIFICATION AGREEMENT; (d) SOLICITATION; and (e) SUBMITTAL.

EXECUTED THIS _____ DAY OF _____ 20____.

For Century Title & Escrow, Inc.:

_____
(signature of VENDOR's authorized representative)

TITLE: _____

For CITY:

_____

TITLE: City Administrator

Approved as to Form:

_____
William E. Squires, Assistant City Attorney for CITY

Attachment No. 1

VENDOR'S SUBMITTAL DOCUMENTS

Response Submittal Form

a form required to be completed by respondents to

City of Franklin, Tennessee

Legal RFQ File No. 2023-0001

Respondent's name, street address, and mailing address (if different):	Century title + escrow, InC. 7047 Lee Hwy #205 Chattanooga, TN 37421
Respondent's contact person's name (printed), title, telephone number and e-mail address:	Amanda Stofan Owner 423-894-1890 amanda@805310O.com
Does the respondent take any exceptions to the City's procurement solicitation?	☐ Yes, see enclosed. ☒ No, respondent takes no exceptions.
Are exceptions, if any, to the City's procurement solicitation listed separately, described, compared to the City's intention as expressed and implied by the City's solicitation documents, and submitted?	☐ Yes, see enclosed. ☒ No, respondent takes no exceptions.
Are the City's preferred payment terms (net 30 days from date of delivery or date of invoice, whichever is later) acceptable to respondent?	☒ Yes. ☐ No, respondent requests the following payment terms: _____.
Last date that submittal is valid and may be accepted by the City:	_____
Method of payment: The City's default method of payment is by electronic means, either by direct deposit (i.e., "ACH" or "Electronic Funds Transfer"), or by bank credit card, rather than by conventional check. Which electronic payment method would the respondent prefer?	☒ ACH or Electronic Funds Transfer. ☐ Bank credit card.

Response Submittal Form

a form required to be completed by respondents to

City of Franklin, Tennessee

Legal RFQ File No. 2023-0001

Respondent's name:	Century Title + Escrow, Inc.
Are the following included with this Response Submittal Form in the submittal? • Statement of qualifications that is responsive to the procurement solicitation including the Request for Qualifications; • Identification, listing and description of any exceptions to the procurement solicitation including the Request for Qualifications; • Contact information for references required per the Request for Qualifications; • City of Franklin Standard Procurement Terms and Conditions, with the respondent's contact information inserted; • City of Franklin Affidavit of Non-Collusion, executed in full; • City of Franklin Affidavit of Title VI Compliance, executed in full; and • A complete copy of submittal documents per the Instructions for Response Submittal.	☒ Yes, see enclosed. ☐ No, respondent chooses not to include all of these components (WARNING: doing so may cause the City to deem the submittal non-responsive).
Acknowledge any and all issued addenda to this solicitation: (Prior to submitting its response, it is the responsibility of each potential respondent to determine whether any addenda to this procurement solicitation have in fact been issued by the City.)	☐ Addendum No. 1. ☐ Addenda Nos. 1 through _____. ☐ No addenda.
First subscription and affirmation of respondent's authorized representative: By submission of this response, each submitter and each person signing on behalf of any submitter certifies, and in the case of a joint submittal each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each submitter is not on the list created pursuant to Tennessee Code Annotated § 12-12-106.	_____ (signature)
Second subscription and affirmation of respondent's authorized representative: Except for any contract resulting from the submittal of this response with a total potential value of less than $250,000, by submission of this response, each respondent, except those with fewer than ten employees, and each person signing on behalf of any such respondent certifies, and in the case of a joint submittal each party thereto certifies as to its own organization, under penalty of perjury, that, to the best of its knowledge and belief, such respondent is not currently engaged in, and will not, for the duration of any such contract, engage in, a boycott of Israel.	_____ (signature)
Signature of respondent's authorized representative: I affirm that I am authorized by the respondent to sign this Response Submittal Form as well as any and all companion forms and documents included herewith. I have obtained and read, and do understand and consent, to all instructions, terms and conditions, including those imposed by reference, which apply to this procurement solicitation and compliance with which is required as a condition precedent to consideration of the response submitted herewith.	_____ (signature)
Title of respondent's authorized representative:	OWNER / PRESIDENT
Respondent's name:	AMANDA M. STOFAN
Date of signatures:	5/10/2023

Affidavit of Non-Collusion

a form required of Bidders and Proposers on purchases of supplies, materials, equipment and services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Hamilton)

Affiant, Amanda Stofan, deposes and makes oath that:
(printed name of person signing Affidavit)

1. He or she is the Owner & PRESIDENT of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Century Title + Escrow, Inc.,
(legal name of entity submitting bid or proposal)
the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. Such bid or proposal is genuine and is not a collusive or sham bid or proposal;

4. Neither the said Bidder or Proposer nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this Affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any official or agent of the City of Franklin or with any other firm, person, or potential or actual bidder or proposer to submit a collusive or sham bid or proposal in connection with the contract for which the attached bid or proposal has been submitted, or to refrain from bidding or proposing indirectly, or sought by agreement, or collusion, or communication, or conference with any other firm, person, or potential or actual bidder or proposer to fix the price or prices or cost element of the bid, quoted or proposed price or the bid, quoted or proposed price of any other potential or actual bidder or proposer, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of Franklin or any person interested in the proposed contract;

5. The price or prices quoted in the attached bid or proposal are fair and proper and are not tainted by a collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this Affiant; and

6. He or she understands that Article VIII, Section 16, of the City Charter of Franklin, and T.C.A. §6-54-107, prohibit any member of the Board of Mayor and Aldermen, or officer elected by said Board, from being interested in any contract, or work of any kind whatever, under its control and direction, and any contract in which any such person shall have an interest shall be void and unenforceable, subjecting any funds received by contractor to be returned in full to the City, in addition to any other penalties provided by law.

(signature of Affiant) PRESIDENT (title of Affiant)

Sworn and subscribed to before me this 10 day of May, 2023

Amber Hagen (Notary Public) My Commission Expires: 4-12-24

AMBER HAGEN STATE OF TENNESSEE NOTARY PUBLIC HAMILTON COUNTY

(Submitted in response to City of Franklin Law Department Solicitation No. 2023-0001)

Affidavit of Title VI Compliance

a form required of Bidders and Proposers on purchases of services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Hamilton)

Affiant, Amanda Stofen, deposes and makes oath that:
(printed name of person signing Affidavit)

1. He or she is the PRESIDENT of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Century title & escrow, INC.,
(legal name of entity submitting bid or proposal)

the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. No person on the grounds of handicap or disability, age, race, color, religion, sex, national origin or any other class protected by federal and/or Tennessee constitutional, statutory and/or case law shall be excluded from participation in, or denied benefits of, or be otherwise subjected to discrimination in, the performance of the contract that results from the procurement solicitation to which this affidavit is a component, or in the employment practices of the successful Bidder or Proposer during the performance of the contract that results from said procurement solicitation;

4. The successful Bidder or Proposer shall, upon request, show proof of such non-discrimination, and shall post in conspicuous places, available to employees and job applicants, notices of such non-discrimination;

5. If, with the prior consent of the City, the successful Bidder or Proposer subcontracts any portion of the contract that results from the procurement solicitation to which this affidavit is a component, then the successful Bidder or Proposer shall contractually obligate all of its subcontractors for said contract to comply with the same non-discrimination provisions as those required of the successful Bidder or Proposer; and

6. This Affidavit is made on personal knowledge.

(signature of Affiant)

PRESIDENT
(title of Affiant)

Sworn and subscribed to before me this 10 day of May, 2023

(Notary Public)

My Commission Expires: 4-12-26

AMBER G. HAGEN
STATE OF TENNESSEE NOTARY PUBLIC
HAMILTON COUNTY

City of Franklin Notice of Confidentiality & Proprietary Rights

Legal File No.: 2023-0001

THE CONTENTS OF THE CITY OF FRANKLIN, TENNESSEE PROCUREMENT AWARD MADE PURSUANT TO THE CITY'S PROCUREMENT SOLICITION REFERENCED ABOVE, AND SOME OR ALL INFORMATION THAT MAY BE OBTAINED IN THE COURSE OF ITS PERFORMANCE, MAY INCLUDE HIGHLY CONFIDENTIAL INFORMATION THAT MAY SUBJECT ANYONE DISCLOSING SUCH INFORMATION TO CIVIL AND CRIMINAL PENALTIES IMPOSED BY LOCAL, STATE AND FEDERAL LAW.

The successful Vendor must necessarily be granted access to public and private information that may be confidential under the Tennessee Open Records Law and other privacy laws.

CONFIDENTIAL INFORMATION

As a result of the procurement award, the parties may provide each other with Confidential Information. For the purposes of this Notice, "Confidential Information" is any information disclosed or discovered in written, graphic, verbal, or machine-recognizable form, whether or not clearly marked, designated, labeled or identified as such. Notwithstanding any other provisions of this Notice, Confidential Information shall not include any information that:

1. is or becomes publicly known through no wrongful act of the receiving party;
2. is already known to the receiving party without restriction when it is disclosed;
3. is, or subsequently becomes, rightfully and without breach of this Notice, in the receiving party's possession without any obligation restricting disclosure;
4. is independently developed by the receiving party without breach of this Notice;
5. is explicitly approved for release by written authorization of the disclosing party; or
6. is required to be disclosed under state or federal law.

Each party agrees to:

1. maintain the confidentiality of the other party's Confidential Information and not disclose it to any third party, except as authorized by the disclosing party in writing or as required by state or federal law or by a court of competent jurisdiction;
2. restrict disclosure of Confidential Information to its employees who have a "need to know" and not copy or reproduce such Confidential Information;
3. take necessary and appropriate precautions to guard the confidentiality of Confidential Information, including informing and requiring written acknowledgements from its employees who handle such Confidential Information that it is confidential and not to be disclosed to others, but such precautions shall be at least the same degree of care that the receiving party applies to its own confidential information and shall not be less than reasonable care; and
4. use such Confidential Information only in furtherance of the performance of this Notice.

City of Franklin Notice of Confidentiality & Proprietary Rights

Law Department Solicitation No.: 2023-0001

Confidential Information is and shall at all times remain the property of the disclosing party, and no grant of any proprietary rights in the Confidential Information is hereby given or intended, including any express or implied license, other than the limited right of the Vendor to use the Confidential Information in the manner and to the extent permitted by the scope of work. Vendor agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of Vendor's intentional, negligent, inadvertent or unintentional release of City documents or information.

PRESERVATION OF CITY'S PROPRIETARY RIGHTS, RIGHTS OF THIRD PARTIES

The City, including its contractors, agents, employees and any third party manufacturers of any equipment, and the copyright owner of any Non-Vendor Software shall own and retain all of their respective Proprietary Rights in any Equipment and Software. Nothing in this Notice is intended to restrict the Proprietary Rights of Vendor, any copyright owner of Non-Vendor Software, or any third party manufacturer of equipment. All intellectual property developed, originated, or prepared by Vendor in connection with providing to City consulting services in connection with the evaluation of the City's equipment, software, or related systems and services remain vested exclusively in City, and this Notice does not grant to Vendor any shared development rights of intellectual property. Exclusive title to all data input, generated by or transferred into or out of the City's system by City shall remain vested in City.

Nothing in this Notice will be deemed to grant, either directly or by implication, estoppel, or otherwise, any right, title or interest in Vendor's Proprietary Rights. City agrees not to modify, disassemble, peel components, decompile, otherwise reverse engineer or attempt to reverse engineer, derive source code or create derivative works from, adapt, translate, merge with other software, reproduce, distribute, sublicense, sell or export the Software, or permit or encourage any third party to do so. The preceding sentence shall not apply to Open Source Software which is governed by the standard license of the copyright owner.

I HAVE READ THE ABOVE TERMS, UNDERSTAND THEM AND AGREE TO ABIDE BY THEM UNDER PENALTY OF LAW.

SO ACKNOWLEDGED:

Signature of authorized representative of Vendor

5/10/23
Date

Employee's signature
(to be signed by each employee at the time of commencement of services)

Date

Standard Procurement Terms and Conditions
City of Franklin, Tennessee

1. Assignment and Successors. Neither party may assign any rights or obligations under these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, without the prior written consent of the other party. These Standard Procurement Terms and Conditions, and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, will be binding upon and inure to the benefit of the parties and their respective successors and permitted assigns.

2. Subcontracting. Vendor may subcontract any portion of the work only with the prior consent of the City, but such subcontracting will not relieve Vendor of its duties under these Standard Procurement Terms and Conditions and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

3. Time of the Essence. The parties agree that TIME IS OF THE ESSENCE with respect to the vendor's performance of all provisions of the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

4. Taxes. As a tax-exempt entity, the City shall not be responsible for sales or use taxes incurred for products or services. Upon request, the City shall supply Vendor with a copy of its Sales and Use Tax Exemption Certificate. Vendor shall bear the burden of providing its suppliers with a copy of the City's tax exemption certificate and shall assume all liability for such taxes, if any, that should be incurred.

5. Notices. Any notice provided pursuant to these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, if specified to be in writing, will be in writing and will be deemed given: (a) if by hand delivery, then upon receipt thereof; (b) if mailed, then three (3) City business days after deposit in the mail where sender is located, postage prepaid, certified mail return receipt requested; (c) if by next day delivery service, then upon such delivery; or (d) if by facsimile transmission or electronic mail, then upon confirmation of receipt. All notices will be addressed to the parties at the addresses set forth below (or set forth in such other document to which these Standard Procurement Terms and Conditions apply, or such other address as either party may in the future specify in writing to the other):

In the case of the City:	In the case of Vendor:
City of Franklin	Century title + escrow, Inc.
Attn: Law Department	Attn: Amanda Stofan
Re: City of Franklin Law Department Legal File No. ____-___	
109 Third Ave. South	7047 Lee Hwy
P.O. Box 305	Suite 205
Franklin, TN 37065-0305	Chatt, TN 37421
FAX: 615-550-6998	

6. Confidentiality and Proprietary rights. Vendor waives any right to confidentiality of any document, e-mail or file it fails to clearly mark on each page (or section as the case may be) as confidential or proprietary. Proprietary rights do not extend to the data created by the City's users of the System; all rights to that data (including derivative or hidden data such as metadata) shall vest solely in City at the moment of creation and City shall retain exclusive rights, title, and ownership of all data and images created therefrom at the moment of creation and utilization, through and including image creation. City may be required to disclose documents under state or federal law. City shall notify Vendor if a request for documents has been made and shall give Vendor a reasonable opportunity under the circumstances to respond to the request by redacting proprietary or other confidential information. In exchange, Vendor agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of (i) the City's failure to disclose such documents or information required to be disclosed by law, or (ii) the City's release of documents as a result of City's reliance upon Vendor's representation that materials supplied by Vendor (in full or redacted form) do not contain trade secrets or proprietary information, provided that the City impleads Vendor and Vendor assumes control over that claim.

7. Derivative Works. To the extent that the Agreement contains Vendor's reservation of rights, such definitions and limitations are superseded by the following: "Derivative Work" means a program that is based on or derived from one or more existing programs or components. If the original software is modified to create a new program, a derived work is created. If the original software was designed to accept plug-ins or drivers using a defined mechanism, such a driver or plug-in does not form a derived work. Linking to a library in the way it was designed to be interfaced with, does *not* constitute deriving a work. "Derivative work" is *not* the data that the Licensee inputs, manipulates, modifies or otherwise improves, nor the images resulting therefrom.

8. Arbitration/Mediation. No arbitration shall be required as a condition precedent to filing any legal claim arising out of or relating to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply. No arbitration or mediation shall be binding.

9. Waiver. Neither party's failure or delay to exercise any of its rights or powers under these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, will constitute or be deemed a waiver or forfeiture of those rights or powers. For a waiver of a right or power to be effective, it must be in writing signed by the waiving party. An effective waiver of a right or power shall not be construed as either (a) a future or continuing waiver of that same right or power, or (b) the waiver of any other right or power.

10. Warranties/Limitation of Liability/Waiver. City reserves all rights afforded to local governments under law for all general and implied warranties. The City does not waive any rights it may have to all remedies provided by law and therefore any attempt by Vendor to limit its liability shall be void and unenforceable.

11. Severability. If any term or provision of these Standard Procurement Terms and Conditions is held to be illegal or unenforceable, the validity or enforceability of the remainder of these Standard Procurement Terms and Conditions will not be affected.

12. Precedence. In the event of conflict between the provisions of these Standard Procurement Terms and Conditions and that of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, the provisions of these Standard Procurement Terms and Conditions will to the extent of such conflict take precedence unless such document expressly states that it is amending these Standard Procurement Terms and Conditions.

13. Indemnification. Vendor agrees to indemnify and save the Government of Franklin, the City of Franklin and individual, on or off duty, officers, and employees of the City of Franklin, harmless from any and all losses, damages and expenses, including court costs and attorneys' fees, by reason of any loss, whatsoever, arising out of or relating to or in consequence of the work done in connection with any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, excepting only such losses as shall be occasioned solely by the negligence of the City of Franklin.

14. Additions/Modifications. If seeking any addition or modification to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, the parties agree to reference the specific paragraph number sought to be changed on any future document or purchase order issued in furtherance of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, however, an omission of the reference to same shall not affect its applicability. In no event shall either party be bound by any terms contained in any purchase order, acknowledgement, or other writings unless: (a) such purchase order, acknowledgement, or other writings specifically refer to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply or to the specific clause they are intended to modify; (b) clearly indicate the intention of both parties to override and modify any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply; and (c) such purchase order, acknowledgement, or other writings are signed, with specific material clauses separately initialed, by authorized representatives of both parties.

15. Applicable Law; Choice of Forum/Venue. These Standard Procurement Terms and Conditions and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply are made under and will be construed in accordance with the laws of the State of Tennessee without giving effect to any state's choice-of-law rules. The choice of forum and venue shall be exclusively in the Courts of Williamson County, TN.

16. Termination. Unless the City has indicated otherwise in the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, either party may terminate the contract or agreement or purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, with or without cause, upon thirty (30) calendar days' notice to the other. Upon termination by the vendor, the City shall be entitled to retain ownership of any and all goods and equipment purchased. Upon termination by the City, the vendor shall be entitled to receive any amounts due as a result of goods and equipment already delivered and/or services already

rendered; however, the City shall maintain ownership and control of any goods and equipment purchased. Upon termination of services, whether connected or unconnected to goods and equipment, such services shall be rendered until the conclusion of the 30th calendar day as stated in the notice or until a contractual benchmark has been achieved, or as the parties may otherwise agree.

17. Breach. Upon deliberate breach of these Standard Procurement Terms and Conditions, or of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, by either party, the non-breaching party shall be entitled to terminate the contract or agreement or purchase order or other procurement to which these Standard Procurement Terms and Conditions apply without notice, with all of the remedies it would have in the event of termination under the "Severability" section above, and may also have such other remedies as it may be entitled to in law or in equity.

18. Default. If Vendor fails to perform or comply with any provision of these Standard Procurement Terms and Conditions, or of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, then the City (i) may cancel the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, in whole or in part, without penalty or protest by Vendor; (ii) may consider such failure to perform or comply as a breach of contract; (iii) reserves the right to purchase its requirements from the vendor that submitted the next lowest and best responsive and responsible bid, or the vendor that submitted the next best proposal, if that vendor will still honor that bid or proposal, or to seek new bids or proposals, or to pursue one or more other options available to the City in compliance with its then current purchasing policy; and (iv) may hold the defaulting vendor liable for all damages provided by law, including cost of cover.

19. Entire Agreement. These Standard Procurement Terms and Conditions, including any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, constitutes the entire agreement between the parties and supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of these Standard Procurement Terms and Conditions. The terms and conditions of these Standard Procurement Terms and Conditions may not be changed except by an amendment expressly referencing these Standard Procurement Terms and Conditions by section title and signed by an authorized representative of each party.

20. Survival. These Standard Procurement Terms and Conditions shall survive the completion of or any termination of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

The Hanover Insurance Group™

SURPLUS LINES

Title Agents Advantage

Professional Liability Insurance

Declarations Page

NOTICE: THIS POLICY IS A CLAIMS-MADE POLICY. PLEASE READ THE POLICY CAREFULLY.

Policy Number

L3D-J302485-00

The Hanover Atlantic Insurance Company, LTD
C/O March Management Services
Victoria Hall, 11 Victoria Street
PO Box hm 1826
Hamilton, HM 11, Bermuda
(A Stock Insurance Company, herein called the **Company**)

SURPLUS LINES POLICYHOLDER NOTICE

This insurance contract is with an insurer not licensed to transact insurance in this state and is issued and delivered as a surplus lines coverage pursuant to the Tennessee insurance statutes. Brian Norman 10050 Innovation Drive, Suite 340, Miamisburg, OH 45342

Broker Name: Norman-Spencer Agency, LLC

Address: 10050 Innovation Drive, Suite 340, Miamisburg, OH 45342

Code: 1602657
Signature:

BROKER STAMP

Premium:	$8,147.00
Surplus Lines Tax	$412.35
Surplus Lines Stamping Fee	$0.00
Filing Fee	$100.00
Clearinghouse Fee	$14.43
Total:	**$8,673.78**

The Hanover Insurance Group™

SURPLUS LINES

Title Agents Advantage

Professional Liability Insurance

Declarations Page

Issue Date 02/01/2023

Item 1. **NAMED INSURED AND ADDRESS**

Century Title and Escrow Inc
7047 LEE HWY STE 205
CHATTANOOGA, TN 37421

Item 2. **POLICY PERIOD**

Inception Date: 01/31/2023 Expiration Date: 01/31/2024

(12:01 AM standard time at the address shown in Item 1.)

Item 3. **LIMIT OF LIABILITY**

a.	$3,000,000	for each **Claim**; not to exceed
b.	$3,000,000	for all **Claims** in the Aggregate

Item 4. **SUBLIMITS OF LIABILITY**

Personal Injury	**a.**	$3,000,000	for each **Claim**; not to exceed
	b.	$3,000,000	for all **Claims** in the Aggregate

Item 5. **DEDUCTIBLE**

a.	$5,000	each **Claim**
b.	N/A	for all **Claims** in the Aggregate

Item 6. **SUPPLEMENTAL COVERAGE LIMIT AND DEDUCTIBLE**

	LIMIT		DEDUCTIBLE
Disciplinary Proceedings	$25,000	in the Aggregate	n/a
Consumer Financial Protection Bureau Defense	$250,000	in the Aggregate	n/a
Employee Dishonest Acts	$50,000	in the Aggregate	n/a
Loss of Earnings and Expense Reimbursement	$500 $10,000	per Day per Insured In the Aggregate	n/a

Item 7. **PROFESSIONAL SERVICES**

Title Agent, Abstractor/Searcher, Escrow/Closing Services

Item 8. **RETROACTIVE DATE** 01/31/2023

Item 9. **PREMIUM FOR THE POLICY PERIOD** $8,147.00

Total Premium: $8,147.00

Item 10. **ENDORSEMENTS EFFECTIVE AT INCEPTION:** See Schedule of Forms attached.

Item 11. **NOTICE TO INSURER**

Report a claim to the Company as required by Section G. Duties in the Event of Claim(s) or Potential Claim(s) to:

www.hanover.com/report-claim-online
The Hanover Atlantic Insurance Company, LTD
Care of: The Hanover Insurance Company

440 Lincoln Street
Worcester, MA 01653

National Claims Telephone Number: 508.855.6281
Facsimile: 508.635.1868
Email: proclaim@hanover.com

The Hanover Atlantic Insurance Company, Ltd.
C/O Marsh Management Services
Victoria Hall, 11 Victoria Street
PO Box hm 1826
Hamilton, HM 11, Bermuda
Tel 301-495-7722

THE ONLY SIGNATURES APPLICABLE TO THIS POLICY ARE THOSE REPRESENTING THE COMPANY NAMED ABOVE.

In Witness Whereof, The Hanover Atlantic Insurance Company, Ltd. has caused this policy to be executed by is duly authorized officers.



Bryan Salvatore
President



Nathaniel W. Clarkin
Treasurer

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This is a CLAIMS-MADE AND REPORTED policy. Subject to the terms, conditions, exclusions and limitations of this Policy, coverage is limited to liability for only those Claims that are first made against You and reported to Us in writing after the Retroactive Date and during the Policy Period or any optional Extended Reporting Period.

This is a "defense within limits" Policy with Claim Expenses included within the Limit of Liability. The Limit of Liability available to pay Damages will be reduced by amounts We pay for Claim Expenses as defined in the Policy. Further note that amounts incurred for Claim Expenses and Damages are subject to the deductible.

Please read this policy carefully.

Throughout this **Policy**, the terms **We**, **Us** and **Our** refer to the **Company** providing this insurance. The terms **You** and **Your** refer to the persons and entities insured under this **Policy**. Other terms in bold print have special meaning and are defined in this **Policy**.

In consideration of the premium charged, in reliance upon the statements in **Your** application and subject to the Declarations page, limitations, conditions, definitions and other provisions of this **Policy**, including endorsements hereto, **We** agree with **You** as follows:

A. COVERAGE

1. Professional Services Coverage

   We will pay on **Your** behalf those sums which **You** become legally obligated to pay as **Damages** because of any **Claim** made against **You** for a **Wrongful Act**.

2. Personal Injury Coverage

   We will pay on **Your** behalf those sums which **You** become legally obligated to pay as **Damages** because of any **Claim** made against **You** for a **Wrongful Act** and are for **Personal Injury**.

3. Supplemental Coverage

   a. Pre-Claim Assistance

      If **You** report a **Potential Claim** to **Us** in writing during the **Policy Period**, any costs or **Defense Expenses** **We** incur in investigating or monitoring the **Potential Claim** will be paid by **Us**. The decision to incur any costs or **Defense Expenses** in regards to a **Potential Claim** is at **Our** sole discretion.

   b. Disciplinary Proceedings

      We will pay on **Your** behalf only **Defense Expenses** incurred in responding to a **Disciplinary Proceeding** commenced against **You** and reported to **Us** in writing during the **Policy Period**, or which was commenced during the **Policy Period** and reported to **Us** in writing during any applicable **Extended Reporting Period**. **We** shall not pay any **Damages** incurred as a result of **Disciplinary Proceedings**.

   c. Consumer Financial Protection Bureau Defense

      We will pay on **Your** behalf only **Defense Expenses** incurred in responding to a **CFPB Matter** that resulted from a **Wrongful Act,** first received by **You** and reported to **Us** in writing during the **Policy Period.** There will be no **Extended Reporting Period** for the coverage provided in this section. **We** shall not pay any **Damages** incurred as a result of **CFPB Matters**.

   d. Employee Dishonest Acts

      1) Employee Dishonest Acts Other Than Loss of Money

         We will pay **You** as **Defense Expenses** for direct loss of or damage to **Your** personal property, or pay on **Your** behalf for direct loss of or damage to personal property of **Your** client held in **Your** care, custody and control. The direct loss of, or damage to, personal property must result from a **Dishonest Act** that first occurred, and was also reported to **Us** in writing, during the **Policy Period.** The **Dishonest Act** must have been committed by an **Employee,** acting alone or in collusion with other persons, and involve a real estate property transaction. The coverage provided by this paragraph does not apply to loss of, or

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damage to, **Money**; to any taxes, criminal or civil fines, penalties, sanctions; or to any monetary assessment, judgment, award, or settlement of any type or kind.

2) Employee Dishonest Acts Involving Loss of Money

We will pay **You as Defense Expenses** for direct loss of **Money** from **Your** escrow funds or account, including an account at a financial institution. The account must be used to purchase, sell or finance real estate. The coverage provided by this paragraph only applies if such direct loss of **Money** results from:

(a) A **Dishonest Act**;

(b) Theft, stealing, conversion or embezzlement; or

(c) Improper or unauthorized deposit, withdrawal, transfer or delivery or use, or other misappropriation;

Which was committed by an **Employee**, acting alone or in collusion with other persons. The direct loss of **Money** must first occurr, and also be reported to **Us** in writing, during the **Policy Period**. The coverage provided by this paragraph does not apply to taxes, criminal or civil fines, penalties, sanctions; or to any monetary assessment, judgment, award, or settlement of any type or kind.

e. Loss of Earnings and Expense Reimbursement

We will reimburse **You** for loss of earnings and reasonable expenses **You** incur to attend hearings, trials or alternative dispute resolution proceedings, involving a **Claim** or **Disciplinary Proceeding**, at **Our** written request. **You** must submit to **Us** a written request for such expenses, and written proof of payment of such expenses, as soon as practicable, but in no event more than sixty (60) days after such expenses are incurred.

The following additional requirements and limitations shall apply to coverage provided under A.1., A.2., and A.3. above:

a. The **Wrongful Act** and **Professional Service**s must have first occurred on or after the applicable **Retroactive Date(s)**;

b. None of **You** had knowledge of a **Wrongful Act**, or any facts or other circumstances, which may reasonably give rise to a **Claim** or **Supplemental Coverage Matter**, or knowledge of any **Claim** or **Supplemental Coverage Matter**, prior to the inception date of this **Policy**, or prior to the inception date of any prior policy with **Us** and continuously renewed; and

c. The **Claim** or **Supplemental Coverage Matter** must first be made and reported to **Us** in writing during the **Policy Period** or an applicable **Extended Reporting Period**.

B. DEFENSE AND SETTLEMENT

1. **We** have the exclusive right and duty to defend any **Claim** made under this **Policy**, even if the allegations are groundless, false or fraudulent. **You** may select defense counsel from **Our** preapproved panel counsel, subject to **Our** prior written consent. **We** will pay **Claim Expenses** in connection with a **Claim We** defend, but only for that portion of any **Claim** for which coverage is afforded under this **Policy**. **We** are not obligated to defend any criminal investigation, criminal proceeding or prosecution, or any **Claim** for **Equitable Relief**, against **You**. If a **Claim** is not covered under this **Policy**, **We** will have no duty to defend it. **We** reserve the right to recoup and seek reimbursement for all **Claim Expenses** incurred in defending a **Claim**, or any portion of a **Claim**, that is determined by a court of law not to be covered.
2. **Our** duty to defend any **Claim** or pay any amount as **Damages**, **Claim Expenses** or **Defense Expenses** will cease when **Our** Limit of Liability has been exhausted, or there is a **Final Adjudication** against **You**. Upon exhaustion of the limits of liability, **We** will tender control of the defense to the **Named Insured**. The **Named Insured** agrees to accept this tender of defense.
3. **We** will not settle a **Claim** without **Your** consent, which shall not be unreasonably withheld. **You** agree to consult with **Us** to resolve any differences relating to such a settlement.
4. The **Named Insured** is responsible for any expenses, including fees or costs charged by a lawyer defending **You**, incurred without **Our** prior written consent.

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C. LIMIT OF LIABILITY AND DEDUCTIBLE

1. Limit of Liability

   a. The Limit of Liability shown on Item 3.a. of the Declarations page per each **Claim** is the most **We** will pay for the sum of all **Damages** and **Claim Expenses** arising out of a single **Claim** or a series of related **Claims**, regardless of the number of persons or entities insured under this **Policy**, number of **Claims** made or the number of persons or entities making **Claims** during the **Policy Period** or during any applicable **Extended Reporting Period**.

   b. All **Claim Expenses** will first be subtracted from the Limit of Liability, with the remainder, if any, being the amount available to pay for **Damages**.

   c. The Aggregate limit shown on Item 3.b. of the Declarations page is the most **We** will pay for the sum of all **Damages** and **Claim Expenses** for all **Claims** under this **Policy**.

   d. The **Supplemental Coverage** Limits shown on Item 6. of the Declarations page, if applicable, are the most **We** will pay for all **Defense Expenses** arising out of a single **Supplemental Coverage Matter** or a series of related **Supplemental Coverage Matters** for each **Supplemental Coverage**. The Aggregate **Supplemental Coverage** Limits shown on Item 6. of the Declarations page, if applicable, are the most **We** will pay for the sum of all **Defense Expenses** for all **Supplemental Coverage Matters** for each **Supplemental Coverage**. The applicable **Supplemental Coverage** Limits are in addition to the Limits of Liability referenced in Item 3. of the Declarations page.

2. Deductible

   a. **You** will pay the deductible amounts shown on the Declarations page. The deductibles apply as applicable to each **Claim** or **Supplemental Coverage Matter**. **You** must pay the deductible immediately when invoiced or, in the event that offers of judgment or settlement demands are made which **You** and **We** agree should be accepted, prior to the expiration of the time period for responding to such offers or demands.

      If different parts of a **Claim** or **Supplemental Coverage Matter** are subject to different deductibles, the applicable deductible will be applied separately to each part of such **Claim** or **Supplemental Coverage Matter,** but the sum of such deductibles shall not exceed the largest applicable deductible.

   b. If a **Claim** brought against **You** is settled prior to litigation, arbitration, **Mediation,** or any court mandated proceeding, **Your** deductible obligation will be reduced by 75%, subject to a maximum reduction of $10,000.

   c. If **We** ask, and **You** agree to use **Mediation** to resolve a **Claim** brought against **You**, and if the **Claim** is resolved by **Mediation**, **Your** deductible obligation for that **Claim** will be reduced by 50%, subject to a maximum reduction of $10,000.

   d. The deductible reductions provided above may not be combined. Only one reduction in **Your** deductible obligation may be applied to a single **Claim**. A deductible reduction will not be applied:

      1) To any subsequent **Claims** in the **Policy Period**.

      2) If the **Policy** is cancelled, terminated, non-renewed, or subject to an **Extended Reporting Period**.

3. Aggregate Deductible

   The Aggregate Deductible amount will be shown in the Declarations page, if applicable, and is the most **You** will pay for the sum of all Deductibles for all **Claims** first made and reported to **Us** during the **Policy Period**.

4. Reimbursement

   In the event that **We** voluntarily choose or are compelled by a court of law to make any payment of the deductible, or any **Loss** not covered by this **Policy**, and request reimbursement from **You**, the reimbursement is payable immediately, but no later than ten (10) days after **Our** written demand.

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D. DEFINITIONS

Affiliate means any entity related to any of **You** through common ownership, control or management, however **Affiliate** does not mean a **Subsidiary**.

Bodily Injury means physical injury of a person, sickness, disease or death and, if arising out of the foregoing, mental anguish, emotional distress, mental injury, shock or humiliation.

Breach Notice Law means any federal, state, local or foreign privacy legislation, regulation and their functional equivalent that requires an entity to provide notice to affected natural persons of any actual or potential unauthorized access to their **Confidential Records**.

CFPB means the Consumer Financial Protection Bureau created pursuant to Section X of the Dodd-Frank Wall Street Reform and Consumer Protection Act, 12 U.S.C. Section 5301 (the "Act").

CFPB Matter means:

1. A subpoena received by **You**, issued by the **CFPB** pursuant to Section 1052 of the Act, for attendance, and testimony of witnesses and the production of papers, books, documents, or other material;
2. A civil investigative demand, received by **You**, issued by the **CFPB** pursuant to Section 1052 of the Act;
3. A hearing or adjudication proceeding with respect to any of **You**, conducted by the **CFPB** pursuant to Section 1053 of the Act; or
4. A civil action, by the **CFPB**, against **You**, commenced pursuant to Section 1054 of the Act.

Claim means any:

1. Demand received by an **Insured** for money, services or **Equitable Relief**;
2. **Suit**;
3. Formal administrative or regulatory proceeding commenced by the filing of charges, formal investigative order or similar document;
4. Arbitration or mediation proceeding commenced by the receipt of a demand for mediation or similar document; or
5. Written request first received by an **Insured** to toll or waive a statute of limitations.

All **Claims** made against any **Insured** that include, in whole or in part, allegations of **Wrongful Acts**, facts or circumstances that have a causal or logical connection will be considered one **Claim**. All such **Claims** will be considered first made at the time the earliest such **Claim** was made against any **Insured**. **Wrongful Acts**, facts or circumstances have a causal connection if the **Wrongful Acts**, facts or circumstances give rise, directly or indirectly, to the other such **Wrongful Acts**, facts or circumstances. **Wrongful Acts**, facts or circumstances have a logical connection if there is a goal, motive or methodology that is both common and central to the matters alleged.

Claim Expenses means expenses **We** incur or authorize in writing for the investigation, adjustment, defense or appeal of that portion of a **Claim** which is covered under this **Policy**. These expenses include fees charged by a lawyer, mediator or arbitrator with **Our** consent for which **You** are obligated. **Claim Expenses** also means premiums on appeal, attachment or similar bonds.

Claim Expenses do not include salaries, wages, fees, overhead or benefit expenses associated with:

1. Any **Insured,** except as specified in A.3.e. Loss of Earnings and Expense Reimbursement; or
2. **Our** employees, except for salaries, wages, fees, overhead or benefit expenses charged by **Our** employed attorneys who are designated to represent **You**, with **Your** prior written consent.

Claim Expenses also do not include any amount incurred in defense of any criminal action or proceeding of any type or kind.

Company means the insurance company that issued this **Policy**, as shown on the Declarations page or referred to herein as **We**, **Us**, or **Our**.

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Computer means a single hardware device or group of hardware devices, on which software, applications, script, code or computer programs, containing **Data**, can be operated and viewed.

Confidential Record means a natural person's first name or first initial and last name, in combination with:

1. Non-public personally identifiable information, as defined in applicable federal, state, local or foreign legislation or regulations, including social security number, driver's license number or other personal identification number (including an employee identification number or student identification number);
2. Financial account number (including a bank account number, retirement account number or healthcare spending account number);
3. Credit, debit or payment card numbers;
4. Any Information related to employment by an **Insured**;
5. Individually identifiable information considered nonpublic personal information pursuant to Title V of the Gramm-Leach Bliley Act of 1999, as amended; or
6. Any individually identifiable information considered protected health information pursuant to the Health Insurance Portability and Accountability Act of 1996 (HIPAA), as amended;

which is owned by an **Insured** or for which an **Insured** is legally liable and is intended by an **Insured** to be accessible only by natural persons or entities it has specifically authorized to have such access.

Cyber Attack means the transmission of fraudulent or unauthorized **Data** that is intended to, and successfully modifies, alters, damages, destroys, deletes, records, transmits, or consumes information within a **System** without authorization, including **Data** that is self-replicating or self-propagating, and which causes the disruption of the normal operation of a **System**.

Damages mean:

1. Compensatory monetary judgments, awards or settlements, unless otherwise excluded; and
2. Punitive or exemplary damages, and the multiple portions thereof, if insurable under the law of the applicable jurisdiction most favorable to the insurability of such **Damages**.

Damages do not include:

3. Any costs or expenses in complying with any demand for or award of **Equitable Relief**, even if such compliance is compelled as a result of a judgment, award or settlement;
4. Any return, restitution or reduction of professional fees;
5. Correcting, re-performing or completing any **Professional Services**; or
6. Criminal or civil fines, statutory penalties, or sanctions against **You**, except as provided in 2. above with respect to punitive or exemplary damages, whether imposed by law or otherwise.

Data means a representation of information, knowledge, facts, concepts or instructions which are being processed or have been processed in a **Computer**.

Defense Expenses means all expenses **We** incur, or authorize in writing, for a **Supplemental Coverage Matter**. These expenses include fees charged by a lawyer, mediator or arbitrator with **Our** consent for which **You** are obligated. **Defense Expenses** do not include **Damages**, other relief or **Claim Expenses**. **Defense Expenses** do not include any tax, criminal or civil fine, penalty or sanction, registration or licensing fees, or any monetary assessment, judgment, award, or settlement of any type or kind.

Disciplinary Proceeding means an administrative or regulatory proceeding by a regulatory or disciplinary official or agency to investigate or prosecute charges alleging professional misconduct in the performance of **Professional Services**. A **Disciplinary Proceeding** does not include any criminal investigation or proceeding.

Dishonest Act means a dishonest or fraudulent act committed by an **Employee** with the apparent intent to cause the **Named Insured** to sustain loss or damage, and to obtain financial benefit for the **Employee** or for any other **Employee**, person, or organization. Financial benefit does not include salary, commission, bonus, fee, profit sharing, or any other employee benefit.

Domestic Partner means any natural person granted legal status as a domestic partner under any applicable federal, state or local law or under the provisions of any formal program established by the **Named Insured**.

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Employee means an employee of the **Named Insured,** other than a partner, officer, director, trustee, managing member, agent, broker, commissioned merchant, consignee, independent contractor or any representative of the same general character as the foregoing. **Employee** also does not include a former employee retained as a consultant.

Employment Practices means any actual or alleged:

1. Wrongful termination of the employment of, demotion of, or failure or refusal to hire or promote any person in violation of law or in breach of any agreement to commence or continue employment;
2. Unlawful employment discrimination;
3. Sexual harassment of an employee or applicant for employment; or
4. Retaliatory treatment against an employee on account of that employee's exercise or attempted exercise of his or her rights under law.

Equitable Relief means a remedy other than the payment of expenses or monetary damages. **Equitable Relief** includes non-monetary relief and injunctive relief.

Extended Reporting Period means an additional period of time for reporting **Claim(s)**.

Final Adjudication means a final judgment or settlement entered into terminating the litigation or administrative proceedings.

Independent Contractor means a natural person who performs **Professional Services** on behalf of the **Named Insured**, subject to a written contract with, and at the direction and control of the **Named Insured**.

Insured, also referred to herein as **You** or **Your**, means the **Named Insured** and:

1. If the **Named Insured** is a sole proprietorship, any past or present employee, but only while acting on behalf of the **Named Insured** in their capacity as an employee;
2. If the **Named Insured** is a partnership, any past or present general or managing partner, principal or employee, but only while acting on behalf of the **Named Insured** in such capacity;
3. If the **Named Insured** is a limited liability company, any past or present managing member, principal or employee, but only while acting on behalf of the **Named Insured** in such capacity;
4. If the **Named Insured** is a corporation, any past or present officer, director, or employee, but only while acting on behalf of the **Named Insured** in such capacity;
5. The **Named Insured's** temporary or leased employees, but only while acting on behalf of the **Named Insured**;
6. A past or present **Subsidiary** of the **Named Insured**, but only for **Professional Services** rendered while a **Subsidiary** of the **Named Insured**;
7. **Your** lawful spouse or **Domestic Partner**, solely for liability arising from any **Wrongful Act** of an **Insured** committed without the participation of such spouse or **Domestic Partner**;
8. **Your** heirs, assigns and legal representatives in the event of **Your** death, incapacity or bankruptcy to the extent that **You** would have been covered;
9. An **Independent Contractor**, but only while acting in such capacity on behalf of, and at the direction of, the **Named Insured**; or
10. The **Named Insured's** participation in a joint venture, but solely for the **Named Insured's** legal liability for **Professional Services** provided by the **Named Insured**. **Insured** does not include the joint venture itself or any other entity that is part of the joint venture;

Loss means **Claim Expenses**, **Damages** and **Defense Expenses** and does not include **Equitable Relief**.

Mediation means the non-binding intervention of a qualified neutral third party chosen by **You** and the other party to a **Claim** with agreement by **Us**.

Money means a medium of exchange in current use and authorized or adopted by a domestic or foreign government, including:

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1. Currency, coins and bank notes in current use and having a face value;
2. Traveler's checks, registered checks and money orders held for sale to the public; and
3. Deposits in the **Named Insured's** account at a financial institution.

Named Insured means the sole proprietor, entity, partnership, or corporation designated in the Declarations page.

Personal Injury means, when committed by any **Insured** or person for whom the **Named Insured** is legally liable, solely in the performance of **Professional Services**:

1. False arrest, detention or imprisonment;
2. Wrongful entry, eviction or other invasion of private occupancy committed by or on behalf of its owner, landlord, or lessor;
3. Malicious prosecution;
4. Abuse of process;
5. The publication or utterance of libel, slander or other defamatory or disparaging material; or
6. A publication in violation of a person's right of privacy.

Policy means this policy form, the Declarations page, and any endorsements to the **Policy** issued by **Us**, and **Your** application.

Policy Period means the period from the inception date of this **Policy** to the **Policy Termination Date**.

Policy Termination Date means the expiration date of this **Policy** as shown on the Declarations page, or the cancellation date of this **Policy**, whichever is earlier.

Pollutants include, but are not limited to, any solid, liquid, gaseous, biological, radiological or thermal irritant or contaminant, including smoke, vapor, dust, fibers, soot, fumes, asbestos or asbestos-containing products, acids, alkalis, chemicals, waste and any electric, magnetic or electromagnetic field of any frequency. Waste includes but is not limited to, materials to be recycled, reconditioned or reclaimed and nuclear materials.

Potential Claim means a **Wrongful Act** which may subsequently give rise to a **Claim** within the scope of coverage of this **Policy**.

Privacy Breach means:

1. **Your** failure to protect a **Confidential Record**, including a **Cyber Attack** on **Your System**, or the actions of a **Rogue Employee**, which directly results in the unauthorized disclosure of one or more **Confidential Records**;
2. The theft or negligent loss of hardware, **Storage Media**, **System Output**, **Data** or other documents owned or controlled by, or on behalf of, **You** on which **Confidential Records** are stored or recorded;
3. **Your** negligent failure to disclose an event referenced in 1. or 2. above in violation of any **Breach Notice Law**; or
4. **Your** negligent violation of any applicable federal, state, foreign or local privacy legislation or regulation in connection with any **Claim**.

Professional Services means those services described in Item 7. of the Declarations page which **You** perform for others for a fee, provided the service is included on the following list:

1. Title Insurance Agent;
2. Title Abstractor;
3. Title Searcher;
4. Title Opinions;
5. Title Certifications;
6. Escrow Agent;
7. Closing Agent;
8. Settlement Agent;

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9. Notary Public;
10. Public Records Searcher (including UCC searches);
11. Corporate Document Searcher;
12. Flood Zone Certifications; or
13. Witness Closer, Mobile Closer or Signing Agent.

Property Damage means physical injury to, loss of, or destruction of tangible property, including the resulting loss of use thereof; or loss of use of tangible property which has not been physically injured or destroyed. **Data** is not tangible property.

Retroactive Date(s) refer to the dates shown in Item 8. of the Declarations page. If no **Retroactive Date** is shown on the Declarations page, the **Retroactive Date** will be inception date of the **Policy**.

Rogue Employee means a permanent employee of the **Named Insured** who has gained unauthorized access, or has exceeded authorized access, to a **System** or **Confidential Records** owned or controlled by **You** or an entity that is authorized by **You** to hold, process or store **Confidential Records** for **Your** exclusive benefit.

Security Breach means:

1. The failure or violation of the security of **Your System**, including the impairment or denial of access to **Your System**, a **Cyber Attack**, or unauthorized acts or omissions by a **Rogue Employee** which damages or harms **Your System** or the **System** of a third party with whom **You** provide services for a fee;
2. The theft or loss of hardware or **Storage Media** controlled by, or on behalf of, **You** on which **Data** is stored; or
3. The failure to disclose an event in 1. or 2. above which violates any **Breach Notice Law**.

Storage Media means objects on which **Data** is stored so that it can be read, retrieved or processed by a **Computer**. **Storage Media** does not mean paper. **Storage Media** also does not mean money, financial instruments, or documents.

Subsidiary means any entity of which the **Named Insured** owns more than fifty percent (50%) either directly or indirectly; and

1. Is identified by **You** in **Your** last application provided to **Us** for this **Policy**, or to **Us** for a **Policy** of which this **Policy** is a renewal or replacement; or
2. Which becomes a subsidiary during the **Policy Period**, but only upon the condition that within ninety (90) days of it becoming a subsidiary, **You** have provided **Us** with full particulars of the new subsidiary and agree to any additional premium and/or amendment of the provisions of this **Policy** required by **Us** relating to such new subsidiary, subject to the review and acceptance by **Us** of full and complete underwriting information. Further, coverage as shall be afforded to the new subsidiary is conditioned upon the **Named Insured** paying when due any additional premium required by **Us** relating to such new subsidiary.

Suit means a civil proceeding for monetary, non-monetary or injunctive relief, which is commenced by service of a complaint or similar pleading. **Suit** includes a binding arbitration proceeding in which **Damages** are alleged, and to which **You** must submit or do submit with **Our** consent.

Supplemental Coverage means coverages under Section A.3. Supplemental Coverage.

Supplemental Coverage Matter means facts or other circumstances which are covered under Section A.3. Supplemental Coverage.

System means a **Computer**, **Storage Media** and all input, output, processing storage and communication devices controlled, supervised or accessed by the operation systems that are proprietary to, or licensed to, the owner of the **Computer**.

System Output means a tangible substance on which one or more **Confidential Records** are printed from a **System**.

Unauthorized Access means the use of or access to **Systems** by a person not authorized to do so by the **Named Insured**; or the use or access to **Systems** in a manner not authorized by the **Named Insured**.

Wrongful Act and **Wrongful Acts** means any actual or alleged negligent act, error, omission, misstatement or **Personal Injury**, solely in the rendering or failure to render **Your Professional Services**.

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E. EXCLUSIONS

This **Policy** does not apply to **Claim(s)** or **Supplemental Coverage Matter(s)**:

1. Conduct

   Based upon, arising out of, or in any way relating to, directly or indirectly, any **Insured** committing or directing any intentional, dishonest or fraudulent act or omission, or a willful violation of any statute or regulation, however **We** will defend **Claims** alleging any of the foregoing conduct until there is a judgment, **Final Adjudication**, adverse admission or finding of fact against **You** as to such conduct at which time **You** shall reimburse **Us** for **Claim Expenses**. **We** shall not cover any **Claim** if **You** plead nolo contendere or no contest to a criminal proceeding against **You** arising out of the same, or essentially the same, material facts as such **Claim.** This Exclusion 1. does not apply to the strictly vicarious liability for the conduct for another **Insured**, of an **Insured,** other than the **Named Insured**, who did not personally commit or personally participate in such conduct, provided that:

   a. Such **Insured** had neither notice nor knowledge of such intentional, dishonest or fraudulent act or omission, or willful violation of any statute or regulation; and

   b. Such **Insured**, upon receipt of notice or knowledge of such intentional, dishonest or fraudulent act or omission, or willful violation of any statute or regulation, immediately notifies Us;

   This Exclusion 1. does not apply to coverage provided under Supplemental Coverage 3.d. Employee Dishonest Acts;

2. Unearned Personal Profit

   Based upon, arising out of, or in any way relating to, directly or indirectly, any **Insured** gaining any profit, remuneration or advantage to which such **Insured** was not legally entitled, however this Exclusion 2. does not apply to an **Insured,** other than the **Named Insured,** who did not personally commit or personally participate in such conduct, or personally acquiesce in or remain passive after having personal knowledge of such conduct. **We** will defend **Claims** alleging any of the foregoing conduct until there is a judgment, **Final Adjudication**, adverse admission or finding of fact against **You** as to such at which time **You** shall reimburse **Us** for **Claim Expenses. We** shall not cover any **Claim** if **You** plead nolo contendere or no contest to a criminal proceeding against **You** arising out of the same, or essentially the same, material facts as such **Claim**;

3. Criminal Acts

   Based upon, arising out of, or in any way relating to, directly or indirectly, any willful or criminal act, or violation of any statute, rule or law, however this Exclusion 3. does not apply to an **Insured** who did not personally commit or personally participate in committing such willful or criminal act, or violation of any statute, rule or law, provided that:

   a. Such **Insured** had neither notice nor knowledge of such any willful or criminal act, or violation of any statute, rule or law; and

   b. Such **Insured,** upon receipt of notice or knowledge of such any willful or criminal act, or violation of any statute, rule or law, immediately notifies **Us**;

   This Exclusion 3. does not apply to coverage provided under Supplemental Coverage 3.d. Employee Dishonest Acts;

4. Non-Monetary Relief

   Based upon, arising out of, or in any way relating to, directly or indirectly, any demand for **Equitable Relief**;

5. Pollution

   Based upon, arising out of, or in any way relating to, directly or indirectly:

   a. Asbestos, or any materials containing asbestos in any form or quantity;

   b. The existence, emission or discharge of any electromagnetic field, nuclear reaction, electromagnetic radiation, electromagnetism, radiation or contamination, under any circumstances, regardless of cause;

   c. The actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of **Pollutants**;

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d. Any directive, request or voluntary decision that any **Insured** monitor, clean up, remove, contain, treat, detoxify or neutralize **Pollutants**; or

e. Any governmental or regulatory directive or request to test for, monitor, clean up, remove, contain, treat, detoxify or neutralize **Pollutants**;

6. Fungi

Based upon, arising out of, or in any way relating to, in whole or in part, directly or indirectly:

a. The presence of, suspected presence of or exposure to:

1) Fungi, including but not limited to mold, mildew and yeast; or

2) Bacteria or viruses; or

3) Dust, spores, odors, particulates or byproducts, including but not limited to mycotoxins and endotoxins, resulting from any of the organisms listed in 1) or 2) above, from any source whatsoever; or

b. Any loss, cost or expense, arising out of the testing for, monitoring of, cleaning up of, removal of, containment of, treatment of, detoxification of, neutralization of, remediation of, disposal of or any other response to or assessment of the effects of any of the items in a. above, from any source whatsoever;

7. Bodily Injury or Property Damage

Based upon, arising out of, or in any way relating to, directly or indirectly, **Bodily Injury** or **Property Damage**, however this Exclusion 7. does not apply to coverage provided under Supplemental Coverage 3.d. Employee Dishonest Acts;

8. Securities Laws

Based upon, arising out of, or in any way relating to, directly or indirectly:

a. Any violation of any securities law, including the Securities Act of 1933 as amended, or the Securities Exchange Act of 1934 as amended, or any regulation promulgated under the foregoing statutes, or any federal, state or local laws similar to the foregoing statutes (including "Blue Sky" laws), whether such law is statutory, regulatory or common law;

b. Any violation of the Organized Crime Control Act of 1970 (commonly known as Racketeer Influenced And Corrupt Organizations Act, or "RICO") as amended, or any ruling or regulation promulgated thereunder or any federal, state or local law similar to the foregoing, whether such law is statutory, regulatory or common law; or

c. Any actual or alleged violations of the Real Estate Settlement Procedures Act (RESPA) as amended, or any regulation promulgated thereunder or any federal, state or local law similar to the foregoing, whether such law is statutory, regulatory or common law;

9. ERISA

Based upon, arising out of, or in any way relating to, directly or indirectly, any pension, health care, welfare, profit sharing, mutual or investment plan, fund or trust, or any violation of any provision of the Employee Retirement Income Security Act of 1974 (ERISA) as amended, or similar statutory or common law of the United States of America or any state or jurisdiction therein; or any violation of any ruling or regulation issued pursuant to any such laws;

10. Employment Practices

Based upon, arising out of, or in any way relating to, directly or indirectly:

a. Any **Employment Practices** liability; or

b. Any discrimination on any basis, including, but not limited to: race, creed, color, religion, ethnic background, national origin, age, handicap, disability, gender, marital status, sexual orientation or pregnancy;

11. Intellectual Property

Based upon, arising out of, or in any way relating to, directly or indirectly, any misappropriation or misuse of trade secret or infringement of patent, copyright, trademark, trade dress or any other intellectual property right;

12. Deceptive Business Practices

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Based upon, arising out of, or in any way relating to, directly or indirectly, false advertising, misrepresentation in advertising, antitrust, unfair competition, restraint of trade, unfair or deceptive business practices, including but not limited to, violations of any local, state or federal consumer protection laws or any action by the Consumer Financial Protection Bureau, however this Exclusion 12. shall not apply to coverage provided under Supplemental Coverage 3.c. Consumer Financial Protection Bureau Defense;

13. Spamming

    Based upon, arising out of, or in any way relating to, directly or indirectly, any alleged unsolicited fax, electronic mail or any other means, where prohibited by law, including any actual or alleged violation of the Telephone Consumer Protection Act ("TCPA") of 1991, any amendments thereto, any rules or regulations promulgated thereunder, or any similar provisions of any federal, state, or local, statutory law or common law, anywhere in the world;

14. Government Intervention

    Based upon, arising out of, or in any way relating to, directly or indirectly, any governmental intervention, cease and desist order, insolvency, receivership, bankruptcy, licensing or liquidation of any organization in which **You** have placed or obtained insurance coverage, or placed the funds of a client or account;

15. Contract

    Based upon, arising out of, or in any way relating to, directly or indirectly, liability **You** assume under any contract or agreement; however, this Exclusion 15. does not apply to liability **You** would have in the absence of such contract or agreement;

16. Insured vs Insured

    Arising out of a **Claim** by any **Insured** under this **Policy** against any other person or entitiy Insured under this **Policy**, or against any of **You** that is brought by or on behalf of:

    a. Any business entity that is controlled, managed or operated, directly or indirectly, in whole or in part, by any of **You**;
    b. Any business enterprise or entity in which any of **You** hold an interest of more than 10%;
    c. Any business enterprise or entity in which any of **You** were a principal, partner, managing member, officer, director or employee;
    d. Any business enterprise or entity that wholly or partly owns any **Insured** or to any extent controls, operates or manages any **Insured**, including any parent company, **Subsidiary**, successor or assignee of **Yours**, or anyone affiliated with **You** or such business entity through common majority ownership or control; or
    e. Any independent contractor supplying material or services to **You**;

17. Insurance Placement

    Based upon, arising out of, or in any way relating to, directly or indirectly, **Your** advising, requiring, obtaining, or failing to advise, require, or obtain, any bond, suretyship or other form of insurance, other than title insurance;

18. Misappropriation

    Based upon, arising out of, or in any way relating to, directly or indirectly,

    a. Any actual or alleged commingling, improper use, theft, stealing, conversion, embezzlement or misappropriation of funds, accounts, or negotiable instruments or monies, by anyone;
    b. Any of **Your** commingling, loss of, failure to safeguard, or failure or refusal to pay or return any client or customer funds, accounts or negotiable instruments;
    c. Any sums received by any of **You** or credited to any of **Your** accounts;
    d. Any fees, premium, taxes, claims, commissions or brokerage monies; or
    e. Any actual or alleged, willful or intentional failure to follow, or disregard of, any escrow or closing instructions.

    However, this Exclusion 18.a. and 18.b. do not apply to coverage provided under Supplemental Coverage 3.d. Employee Dishonest Acts;

19. False Pretenses

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Based upon, arising out of, or in any way relating to, directly or indirectly, any transfer, payment or delivery of funds, money or property, by anyone, which was caused or induced by trick, artifice, or the misrepresentation of a fact including, but not limited to, funds transfer fraud, social engineering, computer fraud, pretexting, phishing, spear phishing or any other confidence trick;

20. Cyber

    Based upon, arising out of, or in any way relating to, directly or indirectly:

    a. Electronic data processing services performed by **You,** or data processing equipment used on behalf of **Your** client, except when such services or equipment are an incidental part of **Your Professional Services**;

    b. The mechanical or electrical failure, malfunction, or breakdown of computer hardware or non-customized commercially available computer software products; or

    c. Any **Privacy Breach** or **Security Breach**;

21. Delay

    Based upon, arising out of or in any way relating to, directly or indirectly, any delay in delivery or performance, or failure to deliver or perform at or within an agreed upon period of time;

22. Warranty

    Based upon, arising out of or in any way relating to, directly or indirectly, the failure of goods, products, or services to conform with any electronic, oral, written, or other representation or warranty with respect to durability, fitness, performance, quality or use; or breach of any other contractual obligation that goes beyond an express or implied duty based upon applicable industry standards to exercise a degree of care or skill;

23. Unwitnessed Notarization

    Based upon, arising out of or in any way relating to, directly or indirectly, the actual or alleged notarization, certification, acknowledgment or acceptance by an **Insured** of a signature, including an electronic signature, on a document when the **Insured** did not witness the signature being placed on the document; or by a notary public other than an **Insured,** who did not witness the signature being placed on the document. Compliance with all state requirements of the **Insured's** applicable state for notarial acts using communication technology will be deemed to be witnessing the signature being placed on the document;

24. Capacity

    Based upon, arising out of or in any way relating to, directly or indirectly, the performance of **Professional Services** as an employee, owner, partner, stockholder, director or officer of any entity which is not the **Named Insured,** an **Affiliate** or a **Subsidiary**;

25. Guaranty of Funds

    Based upon, arising out of or in any way relating to, directly or indirectly, any guarantee of the availability of funds, or any specified rate of return or interest;

26. Insolvency

    Based upon, arising out of or in any way relating to, directly or indirectly, the insolvency or bankruptcy of any **Insured,** or of any other entity, including the failure, inability, or unwillingness to pay claims, losses, or benefits due to the insolvency, liquidation or bankruptcy of any such individual or entity;

27. Licensing

    Based upon, arising out of or in any way relating to, directly or indirectly, any professional services performed by any **Insured** who is not licensed or certified to perform such professional services if such licensing or certification is required by law;

28. Inadequate Price Description

    Based upon, arising out of or in any way relating to, directly or indirectly,

    a. Any inaccurate, inadequate, or incomplete description of the price of goods, products, or services;

    b. Any cost guarantee, cost representation, contract price, estimate of probable cost, or cost estimate, actually or allegedly exceeded;

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c. The failure of goods, products or services to conform with any representation contained in advertising; or

d. Any actual or alleged gambling, contest, lottery, promotion, game, sweepstakes, contest or other game of chance;

29. Your Fees

Based upon, arising out of or in any way relating to, directly or indirectly, any disputes involving **Your** fees or charges, including over-charges;

30. Other Services

Based upon, arising out of or in any way relating to, directly or indirectly, any services as an attorney or any services that may only be performed by an attorney; or any services that are not **Professional Services**;

31. Reported Under A Prior Policy

Based upon, arising out of or in any way relating to, directly or indirectly, any **Claim** or **Potential Claim** reported under any policy whose term expired prior to the effective date of this **Policy**, including any common **Wrongful Act,** fact, circumstance, transaction, advice or decision involving **Professional Services**, to such **Claim** or **Potential Claim**;

32. Personal Property Liens

Based upon, arising out of or in any way relating to, directly or indirectly, any duty to record, file, preserve, or perfect any legal, equitable, beneficial or other interest in any personal property of any kind, except for mobile homes;

33. Loans Made By Insured

Based upon, arising out of or in any way relating to, directly or indirectly, any loan made by any person or entity insured under this **Policy**;

34. Title Defects Not In Public Records

Based upon, arising out of or in any way relating to, directly or indirectly, any defect in title not disclosed in the public records, or of which any **Insured** has actual or constructive knowledge at the date of issuance of any title insurance policy or other evidence of insurance for such title;

35. Disregard of Underwriting Authority

Any intentional or willful breach of, or disregard of, any oral or written underwriting or binding authority;

36. Civil Authority

Based upon, arising out of or in any way relating to, directly or indirectly, any loss resulting from any civil authority, including seizure, confiscation, destruction, or quarantine of property; or

37. System Errors

Based upon, arising out of or in any way relating to, directly or indirectly, any malfunction or defect of a **System.**

F. EXTENDED REPORTING PERIODS

1. Automatic Extended Reporting Period

You will be entitled to an automatic **Extended Reporting Period** for no additional premium. This extension is applicable to any **Claim** made against **You** during the **Policy Period** and reported to **Us** in writing, during the sixty (60) days immediately following the **Policy Termination Date**.

2. Optional Extended Reporting Period

We will provide an optional **Extended Reporting Period** as described below:

If this **Policy** is cancelled, terminated or non-renewed, **You** shall have the right, upon payment of an additional premium, to an extension of the reporting period for any **Claim** against you first made and reported after the **Policy Termination Date**, but only with respect to **Wrongful Acts** committed wholly prior to the **Policy Termination Date** and otherwise covered by this **Policy**.

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a. The available optional **Extended Reporting Period** options and additional premium are determined in accordance with the rules, rates and rating plans **We** then have in effect in **Your** state.

b. **You** must request the optional **Extended Reporting Period** in writing and must pay **Us** the additional premium within sixty (60) days following the date of such cancellation, termination or non-renewal. If **We** do not receive **Your** request and premium payment within sixty (60) days following the date of such cancellation, termination or non-renewal, **Your** right to purchase the optional **Extended Reporting Period** shall cease.

c. If **We** cancel for non-payment of premium or deductible, the **Named Insured** may purchase an optional **Extended Reporting Period** only after any earned premium or deductible due **Us** is paid within ten (10) days after the date of cancellation or **Policy** expiration, whichever comes first.

d. All premiums paid for an optional **Extended Reporting Period** shall be deemed fully earned as of the first day of the optional **Extended Reporting Period**. Once the premium for the optional **Extended Reporting Period** is paid, it may not be cancelled.

e. An optional **Extended Reporting Period** is not available unless all premiums and deductibles due for this **Policy,** and all premiums and deductibles on any other policy issued by **Us**, or by any company of The Hanover Insurance Group, in any uninterrupted series of policies of which this **Policy** is a renewal or replacement, or which this **Policy** succeeds in time, have been paid.

The optional **Extended Reporting Period** does not extend the **Policy Period** or change the scope of coverage provided. There are no separate, additional or reinstated limits of liability for the **Extended Reporting Period**.

G. DUTIES IN THE EVENT OF CLAIM(S), POTENTIAL CLAIM(S), OR SUPPLEMENTAL COVERAGE MATTER(S)

1. If **You** receive a **Claim** or **Disciplinary Proceeding**, **You** must provide **Us** written notice of the **Claim** or **Disciplinary Proceeding**, with full details including the date received, as soon as practicable, but in no event later than sixty (60) days after the **Policy Termination Date** or during any **Extended Reporting Period**, if purchased.
2. No **Insured** will, except at that **Insured's** own cost, voluntarily make a payment, assume any obligation, agree to a settlement or incur any expense related to a **Claim** without **Our** consent.
3. If **You** become aware of a **Potential Claim**, **You** must provide **Us** written notice as soon as practicable, but in no event later than the **Policy Termination Date**. As a condition precedent to the coverage, the notice must include:
   a. The specific **Wrongful Act;**
   b. The date the **Wrongful Act** took place;
   c. The injury or damage resulting from, or which may result from, such **Wrongful Act**;
   d. The names and addresses of any persons and entities involved;
   e. Any facts or circumstance concerning the **Wrongful Act**; and
   f. The circumstances by which the **Insured** first became aware of or suspected such **Wrongful Act.**
4. If **We** receive proper notice of the **Potential Claim** according to paragraph 3. above, any **Claim** arising out of that **Wrongful Act** which is subsequently made against **You** shall be deemed to have been first made at the time **We** received such written notice from **You**.
5. If **You** receive a **Supplemental Coverage Matter**, **You** must provide **Us** with written notice of the **Supplemental Coverage Matter**, with full details, including the date received, as soon as practicable, but in no event later than the **Policy Termination Date**. With respect to the Employee Dishonest Acts **Supplemental Coverage, You** must also provide **Us** proof of loss, duly sworn to, with full particulars, within sixty (60) days after such notice.
6. **You** and any other involved **Insured** must:
   a. Immediately send **Us** copies of any demands, notices, summonses or legal papers received in connection with the **Claim**, **Potential Claim** or **Supplemental Coverage Matter**;
   b. Authorize **Us** to obtain records and other information;

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c. Cooperate with **Us** in the investigation, defense or settlement of the **Claim**, **Potential Claim** or **Supplemental Coverage Matter**; and

d. Assist **Us**, upon **Our** request, in the enforcement of any right against any person or entity which may be liable to **You** because of **Damages** to which this insurance may apply.

The date of mailing shall constitute the date that such notice was given, and proof of mailing shall be sufficient proof of notice.

H. CONDITIONS

1. Cancellation and Non-Renewal

   a. **We** may cancel this **Policy** by written notice to the **Named Insured**. **We** will provide written notice at least sixty (60) days before cancellation is to be effective, however if **We** cancel for failure to pay premium or deductible when due, including premium or deductible(s) due on any other policies issued by **Us**, or by any company of The Hanover Insurance Group, in an uninterrupted series of policies of which this **Policy** is a renewal or replacement, **We** will give ten (10) days written notice to the **Named Insured** before such cancellation is effective. Regardless of the reason for cancellation, return of unearned premium shall be calculated on a prorata basis.

   b. The **Named Insured** may cancel this **Policy** by written notice to **Us** stating when thereafter the cancellation shall be effective. Return of unearned premium shall be calculated in accordance with customary short rates.

   c. **We** are not required to renew this **Policy,** however written notice of **Our** intent to non-renew this **Policy** shall be sent to the **Named Insured** at least sixty (60) days prior to expiration of the **Policy Period**. The offer of renewal policy terms, conditions, or premium amount different than those in effect prior to renewal does not constitute non-renewal.

2. Representations and Application

   By accepting this **Policy**, all of **You** agree that:

   a. The statements in the Declarations are accurate and complete;

   b. Those statements are based on representations **You** made to **Us** in **Your** application for this insurance **Policy**, or to **Us** for a policy of which this **Policy** is a renewal or replacement;

   c. The representations made in **Your** application are the basis of this **Policy** are to be considered as incorporated into and constitute a part of this **Policy**;

   d. Those representations are material to the acceptance of the risk **We** assumed under this **Policy**; and

   e. **We** have issued this **Policy** in reliance upon the truth, accuracy and completeness of such representations.

3. Legal Action Against Us

   No person or entity has a right under this **Policy** to:

   a. Join **Us** as a party or otherwise bring **Us** into a **Suit** asking for **Damages** from an **Insured**; or

   b. Sue **Us** on this **Policy** unless all of its terms have been fully complied with.

   A person or entity may sue **Us** to recover on an agreed settlement or on a final judgment against an **Insured**; but **We** will not be liable for **Damages** that are not payable under the terms of this **Policy** or that are in excess of the applicable Limit of Liability. An agreed settlement means a settlement and release of liability signed by **Us**, the **Insured,** and the claimant or the claimant's legal representative.

4. Change in Ownership, Control or Exposure

   If during the **Policy Period**:

   a. Another person, entity, or group of persons or entities acquires more than fifty (50) percent of the assets of the **Named Insured**; or

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b. Another person, entity, or group of persons or entities, acquires an amount of the outstanding securities representing more than fifty (50) percent of the voting power for the election of the **Named Insured's** directors or trustees; or

c. The **Named Insured** consolidates with or merges with another entity;

You shall notify **Us** of the change described in a., b., or c. above ("transaction"), as soon as practicable, but not later than sixty (60) days after the effective date of such transaction. **You** shall provide such additional information, pay any additional premium and agree to any amendment of the provisions of this **Policy**, as **We** require.

If **you** fail to meet the conditions described above, coverage under this **Policy** shall continue until termination of the **Policy Period**, but only with respect to **Claims** made for **Wrongful Acts** which took place prior to the transaction.

5. Transfer of Rights of Recovery Against Others to Us

If **You** have any rights to recover all or part of any payment **We** have made under this **Policy**, these rights are transferred to **Us**. **You** must do nothing after a **Loss** to impair **Our** rights to seek or obtain recovery from others. At **Our** request, **You** will sue those responsible or transfer those rights to **Us** and help **Us** enforce them. In the event of any payment under this **Policy**, **We** shall be subrogated to the extent of such payment to all of **Your** rights of recovery. **You** shall execute and deliver such instruments and papers and do whatever else is necessary to secure such rights and shall do nothing to prejudice or compromise such rights without **Our** express written consent.

We shall not exercise any such rights against **You** except **We** may exercise any rights of subrogation against any of **You** in connection with any **Claim** brought about or contributed to by an intentional, willful, dishonest, criminal, fraudulent act or omission of such **Insured,** or by an act or omission of such **Insured** that constitutes a willful violation of any statute or regulation.

6. Assignment

No change in, modification of or assignment of interest in this **Policy** shall be effective except when made by a written endorsement to the **Policy**.

7. Sole Agent for the Insured

By accepting this **Policy**, all of **You** agree that only the **Named Insured** is authorized to act as the sole agent on behalf of all of **You** with respect to the following: effecting or accepting notices under this **Policy**, amendments to or cancellations of this **Policy**, completing of any application, making of statements, representations and warranties, consenting to settlement or releasing rights under this **Policy**, payment of premiums, receiving return premiums, requesting any **Extended Reporting Period** and agreeing to any changes in this insurance **Policy**. Each of **You** agrees that the **Named Insured** will act on its or their behalf with respect to such matters.

8. Coverage Territory and Valuation

a. This **Policy** applies to a **Wrongful Act** committed anywhere in the world provided that the **Claim** or **Supplemental Coverage Matter** is made, and suit is brought against **You**, within the United States, its territories or possessions or Canada.

b. All premiums, limits, deductibles, and other amounts are expressed and payable in the currency of the United States of America. If a judgment is rendered, a settlement is denominated or another element of **Loss** under this **Policy** is stated in a currency other than the United States of America dollars, payment under this **Policy** will be made in United States of America dollar equivalent determined by the rate of exchange published in the *Wall Street Journal* on the date the judgment becomes final, the amount of the settlement is agreed upon or any element of **Loss** is due, respectively.

9. Other Insurance

a. If other valid and collectible insurance is available to **You** for **Loss** covered under this **Policy**, the insurance provided by this **Policy** shall be excess over such other insurance, regardless of whether or not such insurance is primary, contributory, excess, contingent or otherwise. This condition will not apply to insurance specifically purchased as excess over this **Policy**.

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b. When this insurance is excess, **We** have no duty to defend **You** against any **Claim** if any other insurer has a duty to defend **You** against the **Claim**. If no other insurer defends **You**, **We** will undertake to do so but **We** will be entitled to **Your** rights against those other insurers.

c. When this insurance is excess over other insurance, **We** will pay only **Our** share of the amount of **Loss**, if any, that exceeds the sum of:

1) The total amount that all such other insurance would pay for the **Loss** in the absence of this insurance; and

2) The total of all deductibles, self-insurance and retentions under all that other insurance.

We will share the remaining **Loss**, if any, with any other insurance that is not described in this provision and was not bought specifically to apply in excess of the Limit of Liability shown in the Declarations page of this **Policy**.

d. When **We** share any **Loss** with any other insurance,

If all the other insurance permits contribution by equal shares, **We** will follow this method also. Under this approach each insurer contributes equal amounts until it has paid its applicable Limit of Liability or none of the **Loss** remains, whichever comes first.

If any other insurance does not permit contribution by equal shares, **We** will contribute by limits. Under this method, each insurer's share is based on the ratio of its applicable Limit of Liability to the total applicable limits of liability of all insurers.

10. Two or More Policies, Coverage Parts, or Endorsements Issued by Us

It is **Our** stated intention that this **Policy** and any other policy, coverage part or endorsement issued by **Us**, or by any company of The Hanover Insurance Group, shall not provide duplicate or overlapping coverage for the same **Claim** or **Supplemental Coverage Matter**. If this **Policy** and any other policy issued by **Us**, or by any company of The Hanover Insurance Group, to **You**, apply to the same **Claim** or **Supplemental Coverage Matter** then, Condition 9. Other Insurance notwithstanding:

a. **We** shall not be liable under this **Policy** for a greater proportion of the **Loss** than the applicable Limit of Liability of this **Policy** bears to the sum of the total limits of liability of all such policies; and

b. The maximum amount payable under all such policies combined shall not exceed the highest applicable Limit of Liability under any one policy.

11. Conformance to Law and Trade Sanctions

Coverage under this **Policy** does not apply to the extent trade, economic sanction, insurance or other laws or regulations prohibit **Us** from providing insurance.

12. Section Titles

The titling of sections and paragraphs within this **Policy** is for convenience only and shall not be interpreted as a term or condition of this **Policy**.

13. Bankruptcy

You or **Your** estate's bankruptcy or insolvency does not relieve **Us** of **Our** obligations under this **Policy**.

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The Hanover Insurance Group™

Endorsement

Coverage: MPL

Issued To: Century Title and Escrow Inc

Issued By: The Hanover Atlantic Insurance Company, LTD

Endorsement Number: 1

Policy Number: L3D-J302485-00

Effective Date: 01/31/2023

SCHEDULE OF FORMS

To be attached to and form part of the Policy Number listed above.

918-0002SL 07/21 Title Agents SL RPG Declarations
918-0001SL 06/22 Title Agents Advantage Base Policy Form
918-0003SL 07/21 Schedule of Forms
918-1520SL 07/21 Service of Suit
918-1800SL PHN 07/21 OFAC Policyholder Notice
918-1801SL PHN 07/21 Privacy Notice
918-1805SL PHN 07/21 ERP Policyholder Notice
918-1827SL PHN 07/21 HPP Risk Management Hotline (TA)
918-1828SL PHN 07/21 Claim Reporting Guidelines
918-1225SL 04/22 Escrow Funds Transfer (Call Back)
918-1434SL 07/21 Specific Entity Exclusion
918-1435SL 07/21 Specified Professional Services Exclusion

All other policy terms and conditions remain unchanged. The title and any headings in this endorsement are solely for convenience and form no part of the terms and conditions of coverage.

Coverage: MPL

Endorsement Number: 2

Issued To: Century Title and Escrow Inc

Policy Number: L3D-J302485-00

Issued By: The Hanover Atlantic Insurance Company, LTD

Effective Date: 01/31/2023

SERVICE OF SUIT CLAUSE

In consideration of the premium charged it is agreed that:

Section H. Conditions is amended to include:

Service of Suit

In the event of our failure to pay any amount claimed to be due by the terms of this policy, at your request, we will submit to the jurisdiction of a court of competent jurisdiction within the United States. Nothing in this endorsement constitutes or should be understood to constitute a waiver of our rights to commence an action in any court of competent jurisdiction in the United States, to remove an action to a United States District Court, or to seek a transfer of a case to another court as permitted by the laws of the United States, or of any state in the United States. It is further agreed that service of process in such suit may be made upon Counsel, Legal Department, The Hanover Insurance Company, 440 Lincoln Street, Worcester, Massachusetts, 01653 or his or her representative, and that in any suit instituted against us by the terms of this policy, we will abide by the final decision of such court or of any appellate court in the event of an appeal.

If any statute of any state, territory, or district of the United States makes such provision, we hereby designate the Superintendent, Commissioner, or Director of Insurance, or other officer specified for that purpose in the statute, or his or her successors in office, as our true and lawful attorney upon whom may be served any lawful process in any action, suit, or proceeding instituted by you or on your behalf, or your beneficiary, arising out of this insurance policy. We designate the above Counsel as the person to whom said officer is authorized to mail such process or a true copy thereof.

The paragraph above is amended to include the applicable state specific requirements and disclosures below:

Arizona

By issuing or delivering a surplus lines policy through a surplus lines broker in Arizona, we are conclusively deemed to have irrevocably appointed the Arizona Director of Insurance as our agent for acceptance of service of all legal process issued in Arizona in any action or proceeding under or arising out of such policy, and service of the process on the director is lawful personal service on us.

California

We may be sued upon any cause of action arising in California under any surplus line insurance contract made by us, or any evidence of such insurance issued or delivered by the surplus line broker, pursuant to the procedures set forth in Cal. Ins. Code §§ 1610 to 1620, inclusive. Further, by assuming surplus line insurance, we subject ourselves to Chapter 6 of the California Insurance Code.

Idaho

We shall be sued upon any cause of action arising in Idaho under any contract issued by us as a surplus line contract pursuant to Idaho surplus lines law, in the district court of the county in which the cause of action arose.

Service of legal process against us may be made in any such action by service upon the Director of the Department of Insurance of Idaho as provided in Idaho Code Ann. § 41-334(1). The director shall forthwith mail a copy of the process served to the person designated in the first paragraph of this Endorsement, by prepaid registered mail with return receipt requested. We have thirty (30) days from the date of service upon the director

within which to plead, answer, or otherwise defend the action. Upon service of process upon the director in accordance with Idaho Code Ann. § 41-1231 the court shall be deemed to have jurisdiction in personam over us.

Illinois

We hereby designate the Illinois Director of Insurance and his successors in office as our true and lawful attorney, upon whom may be served all lawful process in any action, suit or proceeding arising out of any insurance we write delivered pursuant to 215 Ill. Comp. Stat. § 5/445.

Iowa

We may be sued upon a cause of action arising in Iowa under a surplus lines insurance policy or contract placed by us or upon evidence of insurance placed by us and issued or delivered in Iowa by a surplus lines insurance producer.

Kentucky

We shall be sued upon any cause of action arising in Kentucky under any contract issued by us as a surplus lines contract pursuant to subtitle 10 of the Kentucky Insurance Code, in the Circuit Court of the county in which the cause of action arose. Any service of legal process against us may be made in any such action by service upon the Secretary of State of the State of Kentucky as provided in Ky. Rev. Stat. Ann. § 304.3-230(5).

Louisiana

We shall be sued upon any cause of action arising in Louisiana under any contract issued by us as a surplus lines contract pursuant to Chapter 2, Part 1, Subpart O of the Louisiana Insurance Code, in the district court of the parish in which the cause of action arose.

Service of legal process against us may be made in any such action by service upon the Secretary of State of the State of Louisiana or some other person in his office whom he may designate during his absence. The secretary of state shall forthwith mail the documents of process served, or a true copy thereof, to the person designated in the first paragraph of this Endorsement by registered or certified mail or by commercial courier as defined in La. Rev. Stat. Ann. tit. § 13:3204(D). We have forty (40) days from the date of service upon the secretary of state within which to plead, answer, or otherwise defend the action. Upon service of process upon the secretary of state in accordance with this provision, the court shall be deemed to have jurisdiction in personam over us.

Maryland

We hereby appoint the Maryland Insurance Commissioner as agent for the acceptance of service of process in Maryland.

Michigan

We hereby appoint the Michigan Insurance Commissioner as our resident agent for the purposes of service of process in Michigan.

Pennsylvania

We may be sued upon any cause of action arising in the Commonwealth of Pennsylvania under any surplus lines insurance contract made by us or evidence of such insurance issued or delivered by a surplus lines licensee. Any service of process on us shall be made pursuant to the procedures provided by 42 Pa.C.S. Ch. 53 Subch. B (relating to interstate and international procedure). By accepting surplus lines insurance we are deemed thereby to have subjected ourselves to accepting service of process under 42 Pa.C.S. Ch. 53 Subch. B.

Puerto Rico

In any action brought in Puerto Rico under an insurance contract issued as a surplus line pursuant to Title 26, Subtitle 1, Chapter 10, by us, duplicate copies of legal process shall be served upon the Commissioner of

Insurance of the Commonwealth of Puerto Rico. The Commissioner shall forthwith mail one copy of the process so served to the person designated in the first paragraph of this Endorsement, by registered mail with return receipt requested. Upon service of process upon the Commissioner and such mailing of process, the court shall be deemed to have jurisdiction in personam over us. We shall have forty-five days after such date of mailing within which to plead, answer, or otherwise defend the action. At time of such service of process the plaintiff shall pay to the Commissioner three dollars, taxable as costs in the action.

South Dakota

Any cause of action against us arising in South Dakota on a surplus line contract shall be brought in the circuit court for the county in which the cause of action arose. Service of legal process against us may be made in any such action by service upon the South Dakota director of the Division of Insurance as provided in S.D. Codified Laws § 58-6-39. The director shall forthwith mail a copy of the process served, to the person designated in the first paragraph of this Endorsement, by prepaid registered or certified mail with return receipt requested. We shall have thirty days from the date of service upon the director within which to plead, answer, or otherwise defend the action. Upon service of process upon the director in accordance with S.D. Codified Laws § 58-6-38, the court shall be deemed to have jurisdiction in personam over us. By issuing a surplus lines policy, we are deemed thereby to have authorized service of process against us in the manner and to the effect as provided in S.D. Codified Laws § 58-6-37.

Tennessee

We may be sued upon any cause of action arising in Tennessee under any surplus lines insurance contract issued by us or certificate, cover note or other confirmation of the insurance issued by the surplus lines agent, pursuant to the same procedure as is provided for unauthorized insurers in Title 56, Chapter 2, Part 6 and Tenn. Code Ann. § 56-7-105(b) of the of Tennessee Insurance Law. By assuming a surplus lines insurance risk pursuant to Title 56, Chapter 14, Part 1, we are deemed to have subjected ourselves to the requirements of Tenn. Code Ann. § 56-14-112.

Texas

We may be sued on any cause of action arising in Texas under any surplus lines insurance contract issued by us or under any certificate, cover note, or other confirmation of that insurance issued by the surplus lines agent, under the same procedure as is provided for unauthorized insurers in Sections 7.1404, 7.1410, and 7.1411 of Title 28 of the Texas Administrative Code (relating to Service of Process Procedure for Domestic Insurers Approved To Operate under the Insurance Code, Article 1.28, Foreign and Alien Insurance Companies, Risk Retention Groups, Purchasing Groups, Third Party Administrators, Unauthorized Persons or Insurers, Organizations Formed under the Insurance Code, Article 3.71, and Surplus Lines Insurers; Service of Process on Commissioner on Behalf of Unauthorized Persons or Insurers; and Service of Process, Notice, Order, or Pleading on Secretary of State on Behalf of Unauthorized Persons and Insurers).

By assuming a surplus lines risk under Chapter 981 of the Texas Insurance Code, we are subject to Tex. Ins. Code Ann. § 804.106. Any act of engaging in the business of insurance by us, an eligible surplus lines insurer, constitutes the irrevocable appointment by us of the Texas Secretary of State as agent for service of process arising from our engagement of the business of insurance in Texas, other than service of process for an action or proceeding by the department or state, and signifies our agreement that service under Tex. Ins. Code Ann. § 804.106 has the same effect as personal service on us or our successor in interest. The plaintiff shall supply the address provided in the first paragraph of this Endorsement in any citation served under Tex. Ins. Code Ann. § 804.106. Service of process as set forth in this Endorsement is in addition to any other method provided by law for service of process on a surplus lines insurer, including the method provided by Chapter 804, Subchapter C of the Texas Insurance Code.

The Hanover Insurance Group™

Endorsement

Coverage:	MPL	Endorsement Number:	2
Issued To:	Century Title and Escrow Inc	Policy Number:	L3D-J302485-00
Issued By:	The Hanover Atlantic Insurance Company, LTD	Effective Date:	01/31/2023

Washington

For any cause of action arising in Washington under any contract issued as a surplus line contract under Chapter 48.15, we must be sued in the superior court of the county in which the cause of action arose. By issuing a policy under Chapter 48.15, we have authorized service of process against us in the manner prescribed under Wash. Rev. Code § 48.02.200. We hereby designate the Washington Commissioner of Insurance as the person upon whom such service of process may be made.

All other policy terms and conditions remain unchanged. The title and any headings in this endorsement are solely for convenience and form no part of the terms and conditions of coverage.

U.S. Treasury Department's Office of Foreign Assets Control ("OFAC") Advisory Notice To Policyholders

No coverage is provided by this policyholder notice nor can it be construed to replace any provisions of your policy. You should read your policy and review your Declarations page for complete information on the coverages you are provided.

This notice provides information concerning possible impact on your insurance coverage due to directives issued by OFAC. **Please read this notice carefully.**

The Office of Foreign Assets Control ("OFAC") administers and enforces sanctions policy, based on Presidential Declarations of National Emergency.

OFAC has identified and listed numerous foreign agents, front organizations, terrorists, terrorist organizations, and narcotics traffickers as "Specially Designated Nationals and Blocked Persons". This list can be located on the United States Treasury's web site: http//www.treas.gov/ofac.

In accordance with OFAC regulations, if it is determined that you or any other insured, or any person or entity claiming the benefits of this insurance has violated United States sanctions law or is a Specially Designated National and Blocked Person, as identified by OFAC, this insurance will be considered a blocked or frozen contract and all provisions of this insurance are immediately subject to OFAC. When an insurance policy is considered to be such a blocked or frozen contract, no payments nor premium refunds may be made without authorization from OFAC.

Other limitations on the premiums and payments also apply.

CUSTOMER NOTICE OF PRIVACY POLICY AND PRODUCER COMPENSATION PRACTICES DISCLOSURES—PRIVACY POLICY DISCLOSURE

Collection of Information

We collect personal information so that we may offer quality products and services. This information may include, but is not limited to, name, address, Social Security number, and consumer reports from consumer reporting agencies in connection with your application for insurance or any renewal of insurance. For example, we may access driving records, insurance scores or health information. Our information sources will differ depending on your state and/or the product or service we are providing to you. This information may be collected directly from you and/or from affiliated companies, non-affiliated third parties, consumer reporting agencies, medical providers and third parties such as the Medical Information Bureau.

We, and the third parties we partner with, may track some of the web pages you visit through cookies, pixel tagging or other technologies. We currently do not process or comply with any web browser's "do not track" signals or similar mechanisms that request us to take steps to disable online tracking. For additional information regarding online privacy, please see our online privacy statement, located at www.hanover.com.

Disclosure of Information

We may disclose non-public, personal information you provide, as required to conduct our business and as permitted or required by law. We may share information with our insurance company affiliates or with third parties that assist us in processing and servicing your account. We also may share your information with regulatory or law enforcement agencies, reinsurers and others, as permitted or required by law.

Our insurance companies may share information with their affiliates, but will not share information with non-affiliated third parties who would use the information to market products or services to you.

Our standards for disclosure apply to all of our current and former customers.

Safeguards to Protect Your Personal Information

We recognize the need to prevent unauthorized access to the information we collect, including information held in an electronic format on our computer systems. We maintain physical, electronic and procedural safeguards intended to protect the confidentiality and integrity of all non-public, personal information, including but not limited to social security numbers, driver's license numbers and other personally identifiable information.

Internal Access to Information

Access to personal, non-public information is limited to those people who need the information to provide our customers with products or services. These people are expected to protect this information from inappropriate access, disclosure and modification.

Consumer Reports

In some cases, we may obtain a consumer report in connection with an application for insurance. Depending on the type of policy, a consumer report may include information about you or your business, such as:

- character, general reputation, personal characteristics, mode of living;
- credit history, driving record (including records of any operators who will be insured under the policy); and/or
- an appraisal of your dwelling or place of business that may include photos and comments on its general condition.

Access to Information

Upon written request, we will inform you if we have ordered an investigative consumer report. You have the right to make a written request within a reasonable period for information concerning the nature and scope of the report and to be interviewed as part of its preparation. You may obtain a copy of the report from the reporting agency and, under certain circumstances, you may be entitled to a copy at no cost.

You also may review certain information we have about you or your business in our files. To review information we maintain in our files about you or your business, please write to us, providing your complete name, address and policy number(s), and indicating specifically what you would like to see. If you request actual copies of your file, there may be a nominal charge.

We will tell you to whom we have disclosed the information within the two years prior to your request. If there is not a record indicating that the information was provided to another party, we will tell you to whom such information is normally disclosed.

There is information that we cannot share with you. This may include information collected in order to evaluate a claim under an insurance policy, when the possibility of a lawsuit exists. It may also include medical information that we would have to forward to a licensed medical doctor of your choosing so that it may be properly explained.

Correction of Information

If after reviewing your file you believe information is incorrect, please write to the consumer reporting agency or to us, whichever is applicable, explaining your position. The information in question will be investigated. If appropriate, corrections will be made to your file and the parties to whom the incorrect information was disclosed, if any, will be notified. However, if the investigation substantiates the information in the file, you will be notified of the reasons why the file will not be changed. If you are not satisfied with the evaluation, you have the right to place a statement in the file explaining why you believe the information is incorrect. We also will send a copy of your statement to the parties, if any, to whom we previously disclosed the information and include it in any future disclosures.

Our Commitment to Privacy

In the insurance and financial services business, lasting relationships are built upon mutual respect and trust. With that in mind, we will periodically review and revise our privacy policy and procedures to ensure that we remain compliant with all state and federal requirements. If any provision of our privacy policy is found to be non-compliant, then that provision will be modified to reflect the appropriate state or federal requirement. If any modifications are made, all remaining provisions of this privacy policy will remain in effect. For more detailed information about our customer privacy policy (including any applicable state-specific policies) and our online privacy statement, visit our Web site, located at www.hanover.com.

Further Information

If you have questions about our customer privacy policy (including any applicable state-specific policies) or our online privacy statement, or if you would like to request information we have on file, please write to us at our Privacy Office, N435, The Hanover Insurance Group, Inc., 440 Lincoln Street, Worcester, MA 01653. Please provide your complete name, address and policy number(s). A copy of our Producer Compensation Disclosure is also available upon written request addressed to the attention of the Corporate Secretary, N435, The Hanover Insurance Group, 440 Lincoln Street, Worcester, MA 01653.

Producer Compensation Disclosure

Our products are sold through independent agents and brokers, often referred to as "Producers." We may pay Producers a fixed commission for placing and renewing business with our company. We may also pay additional commission and other forms of compensation and incentives to Producers who place and maintain their business with us. Details of our Producer compensation practices may be found at www.hanover.com.

This notice is being provided on behalf of the following Hanover Companies: The Hanover Insurance Group, Inc. - Allmerica Financial Alliance Insurance Company - Allmerica Financial Benefit Insurance Company - Allmerica Plus Insurance Agency, Inc. - Citizens Insurance Company of America - Citizens Insurance Company of Illinois - Citizens Insurance Company of the Midwest - Citizens Insurance Company of Ohio - Citizens Management, Inc. - AIX Ins. Services of California, Inc.- Campania Insurance Agency Co. Inc. - Campmed Casualty & Indemnity Co. Inc. - Chaucer Syndicates Limited- Educators Insurance Agency, Inc.- Hanover Specialty Insurance Brokers, Inc. - The Hanover American Insurance Company - The Hanover Insurance Company - The Hanover New Jersey Insurance Company - The Hanover National Insurance Company - Hanover Lloyd's Insurance Company - Massachusetts Bay Insurance Company - Opus Investment Management, Inc. - Professionals Direct Insurance Services, Inc. - Professional Underwriters Agency, Inc. - Verlan Fire Insurance Company - Nova Casualty Company - AIX Specialty Insurance Company - Hanover Atlantic Insurance Company, Ltd.

INFORMATION REGARDING EXTENDED REPORTING PERIOD ENDORSEMENT ("ERP COVERAGE")

The enclosed policy provides coverage for claims reported during the policy period. Subject to the policy's terms and conditions, you may purchase an Extended Reporting Period Endorsement, also known as "ERP coverage", that will extend the time for reporting claims arising out of professional services rendered while the policy was still in effect although the policy may have been cancelled or non-renewed or terminated. Please refer to Section F. of your policy for the terms and conditions for eligibility, purchasing or obtaining an Extended Reporting Period endorsement. *There is a limited time for requesting such an endorsement.*

The premium charged for the endorsement is expressed as a percentage of your policy's annual premium.

Length of "ERP Coverage" Offered	***"ERP Coverage" Premium***
12 months	100 % of expiring annual premium
24 months	150 % of expiring annual premium
36 months	200 % of expiring annual premium
48 months	225 % of expiring annual premium
60 months	250 % of expiring annual premium
Unlimited	300% of expiring annual premium

**Extended Reporting Period Endorsements may be subject to state regulatory requirements.*

Please contact your agent or customer service representative for pricing specific to your situation and location.

IMPORTANT POLICYHOLDER INFORMATION

RISK MANAGEMENT RESOURCES

We are pleased to direct you to the following Risk Management Resources, which are available to you free of charge.

As a first line of defense in helping to manage your risk exposure, we recommend that you visit the Hanover Risk Management Portal. The Portal has an excellent compendium of materials designed to help you manage your practice, avoid risk and better understand professional liability insurance coverage. The Portal is updated regularly to ensure policyholders are receiving the most relevant articles and the appropriate tools needed to be prepared against risk in this ever-changing environment.

- Go to www.HanoverProRisk.com
- Register as a Hanover Policyholder for access to all materials

You can also call our **Risk Management Hotline:** 1-866-512-9953

Press #3 for 'Miscellaneous Professionals'
(including **Title Agents, Real Estate Agents/Brokers, Home Inspectors, Mortgage Field Services Vendors, Property Managers,** etc.**)**

Our Professional Liability Risk Management Hotline is staffed by professionals with years of experience working with Real Estate Agents/Brokers, Home Inspectors, Mortgage Field Services Vendors and other Miscellaneous Professionals and are familiar with the day-to-day business and risk management issues for our policyholders. The Hotline is a resource for discussing problems and questions that can arise about best practices and potential claims.

Calls placed during business hours are returned within one business day.

If you have other questions, you can also call our **Director of Risk Management**:

J. Michael Reese, JD/LL.M
Hanover Insurance Group
Director of Risk Management
Professional Liability
630-760-3026
MReese@Hanover.com

As a reminder, whenever you become aware of a claim or suit, or circumstances that may result in a claim, you should immediately give notice to Hanover via our online reporting site, call 1-508-855-6281, or email at ProClaim@Hanover.com.

CLAIM REPORTING GUIDELINES

At Hanover Professionals, we are committed to providing timely and efficient claims assistance to our Insureds. Please follow these guidelines to help us help you.

Notice of a Claim

Report a claim to Hanover Professionals online, by email, or facsimile as soon as possible to provide timely notice as required by your Hanover Policy. Contact us at:

www.hanover.com/hpro/pli

You may also contact us directly by email proclaim@hanover.com, phone 508.855.6281, or fax 508.635.1868.

Claims Requiring Expedited Handling

Some claims are time sensitive. Please report such claims as soon as you become aware of them, and while allowing sufficient time for the carrier to investigate and meaningfully respond. Do not wait until the eve of the response deadline as it threatens our ability to timely respond. Those items include, but are not limited to:

You have been served with a summons and complaint

- ✓ You received a demand from a Claimant which expires on a date certain
- ✓ You received notice of a proceeding requiring an immediate answer or an answer within a limited timeframe

Correspondence We Need From You

Please provide a written narrative of the circumstances surrounding the claim or potential claim. The narrative should include:

- ✓ The Named Insured
- ✓ The Insureds (i.e., the professionals involved in the professional services issue), your policy number, and effective date of coverage
- ✓ The client (Claimant's) name, address, and telephone number (also include the name, address, and telephone number of the Claimant's attorney)
- ✓ The timeframe in which you provided professional services to the Claimant
- ✓ Whether your relationship with the Claimant is ongoing or has been terminated
- ✓ A brief summary of the services rendered
- ✓ The date the error (alleged error) occurred
- ✓ A brief summary of the alleged (potential) error - please include the date you first became aware of the claim and the potential amount of damages that will be sought
- ✓ All pertinent letters or documents necessary for us to properly evaluate the claim (if there are numerous documents, please note this and provide those most pertinent)

The Hanover Insurance Group™

Endorsement

Coverage: MPL

Endorsement Number: 3

Issued To: Century Title and Escrow Inc

Policy Number: L3D-J302485-00

Issued By: The Hanover Atlantic Insurance Company, LTD

Effective Date: 01/31/2023

ESCROW FUNDS TRANSFER (CALL BACK)

In consideration of the premium charged it is agreed that:

Section E.19.of Exclusions is deleted and replaced by:

19. False Pretenses

Based upon, arising out of, or in any way related to, directly or indirectly, any transfer, payment or delivery of funds, money or property, by anyone, which was caused or induced by trick, artifice, or the misrepresentation of a fact including, but not limited to, funds transfer fraud, social engineering, computer fraud, pretexting, phishing, spear phishing or any other confidence trick. However, subject to the annual aggregate limit stated below, this exclusion shall not apply to a transfer, payment or delivery of escrow funds or escrow money by an **Insured**, from an **Insured's** account or an account controlled by an **Insured**, which was caused or induced by trick, artifice, or the misrepresentation of a fact provided:

a. The **Insured**, before any transfer, payment or delivery of escrow funds or escrow money, verifies the authenticity and accuracy of the instructions received from the purported client, including routing numbers and account numbers, by calling at a predetermined telephone number the client who purportedly transmitted the instruction to the **Insured**; and

b. That the **Insured** has preserved a contemporaneous written record of this verification.

Such **Claims** shall be subject to an aggregate sublimit of $150,000. This aggregate sublimit is included within and not in addition to the applicable Limits of Liability and is subject to a separate deductible of $25,000. Deductible reductions do not apply to this deductible. The aggregate sublimit is the most **We** shall pay for all such **Loss** to which this insurance applies.

All other policy terms and conditions remain unchanged. The title and any headings in this endorsement are solely for convenience and form no part of the terms and conditions of coverage. © 2022 The Hanover Insurance Company. All Rights Reserved.

The Hanover Insurance Group™

Endorsement

Coverage:	MPL	Endorsement Number:	4
Issued To:	Century Title and Escrow Inc	Policy Number:	L3D-J302485-00
Issued By:	The Hanover Atlantic Insurance Company, LTD	Effective Date:	01/31/2023

SPECIFIC ENTITY EXCLUSION

In consideration of the premium charged it is agreed that:

Section E. Exclusions is amended to include:
This **Policy** does not apply to **Claim(s)** or **Supplemental Coverage Matter(s)**:

Based upon, arising out of, or in any way relating, directly or indirectly, to:

Farinash &Stofan
Hatcher Title and Escrow Agency Inc

All other policy terms and conditions remain unchanged. The title and any headings in this endorsement are solely for convenience and form no part of the terms and conditions of coverage.

The Hanover Insurance Group™

Endorsement

Coverage:	MPL	Endorsement Number:	5
Issued To:	Century Title and Escrow Inc	Policy Number:	L3D-J302485-00
Issued By:	The Hanover Atlantic Insurance Company, LTD	Effective Date:	01/31/2023

SPECIFIED PROFESSIONAL SERVICES EXCLUSION

In consideration of the premium charged it is agreed that:

Section E. Exclusions is amended to include:

This **Policy** does not apply to **Claim(s)** or **Supplemental Coverage Matter(s)**:

Based upon, arising out of, or in any way related to, directly or indirectly, the rendering of or failure to render, in whole or in part, any of the following professional services, advice or instruction by **You** or on **Your** behalf:

Legal Services

All other policy terms and conditions remain unchanged. The title and any headings in this endorsement are solely for convenience and form no part of the terms and conditions of coverage.

Attachment No. 1

Experience and Qualifications

Century Title and Escrow, Inc. has been under the same ownership for 3 months as of the date of the submittal of this proposal. Attorneys Jerrold Farinash and Amanda Stofan purchased the company from Nina Boss effective February 1, 2023. Prior to that the company was owned solely by Nina Boss since it's incorporation in 2002.

Jerrold Farinash and Amanda Stofan have their own law firm, Farinash and Stofan, which also operates Hatcher Title and Escrow Agency, Inc. in Chattanooga, Tennessee, with Attorney Paul Hatcher Of Counsel with the firm. Both companies write for Old Republic and Fidelity National insurers. Mr. Hatcher has been providing realty title search and opinion services for 40 years and routinely provides such services to Hamilton County and the State of Tennessee. Mr. Farinash and Ms. Stofan have continued that work since they assumed operation of Hatcher Title in 2021. To our knowledge, none of our companies have engaged with the City of Franklin.

Mr. Farinash spent 30 years as a Chapter 7 Bankruptcy Trustee and is extremely knowledgeable in the field. For 15 years, Ms. Stofan has focused her legal practice on bankruptcy and probate and therefore has extensive knowledge and comprehension regarding title issues. We complete the majority of our title examinations in-house and for that reason we are more efficient than many other firms. Both attorneys review the title examination and sign the reports that are produced at Century. We also rely on Mr. Hatcher's 40 years of experience in the event we need additional assistance with a title issue. We issue title reports daily for our lender clients, and understand the City's need for a prompt and reliable product.

Indemnification Agreement

a form required of Bidders and Proposers on purchases of services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Hamilton)

On behalf of Bidder/Proposer, AMANDA STOTAN agrees that:
(printed name of person signing Agreement)

1. He or she is the PRESIDENT of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
CENTURY TITLE & ESCROW, INC.,
(legal name of entity submitting bid or proposal)
the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. The Bidder or Proposer agrees to indemnify and save the Government of Franklin, the City of Franklin and individual, on or off duty, officers, and employees of the City of Franklin, harmless from any and all losses, damages and expenses, including court costs and attorneys' fees, by reason of any loss, whatsoever, arising out of or relating to or in consequence of the work done in connection with any contract, agreement, purchase order or other procurement to which this Agreement applies, excepting only such losses as shall be occasioned solely by the negligence of the City of Franklin; and

4. This Agreement is made on personal knowledge.

(signature of person whose printed name appears above)

PRESIDENT
(title of person whose printed name appears above)

Sworn and subscribed to before me this 10 day of May, 2023

AMBER G. HAGEN
STATE OF TENNESSEE NOTARY PUBLIC
HAMILTON COUNTY

(Notary Public)

My Commission Expires: 4-12-26

(Submitted in response to City of Franklin Law Department Solicitation No. 2023-0001)

Form revised 12/12/2016

CITY OF FRANKLIN, TENNESSEE
PROCUREMENT AGREEMENT

(City of Franklin Contract No. 2023-0001)

THIS PROCUREMENT AGREEMENT ("AGREEMENT") is by and between the City of Franklin, Tennessee ("CITY"), and Century Title + Escrow, Inc. ("VENDOR"), who mutually agree as follows:

1. CITY issued (a) on 4 18, 2023 Purchasing Office Solicitation No. 2023-1001, a request for proposals for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes ("SOLICITATION").

2. In response to SOLICITATION, VENDOR submitted a statement of qualifications dated 5/10, 2023 ("SUBMITTAL"), a copy of excerpts from which is attached hereto as Attachment No. 1 and hereby incorporated by reference as if fully set forth herein.

3. VENDOR included in SUBMITTAL CITY's Standard Procurement Terms and Conditions with VENDOR's contact information inserted ("CITY'S TERMS"), a copy of which is attached hereto and hereby incorporated by reference as if fully set forth herein.

[4-9, if applicable:]

4. VENDOR has, subsequent to SUBMITTAL, also submitted Certificate(s) of Insurance ("CERTIFICATE(S) OF INSURANCE"), a copy/copies of which is/are attached hereto as Attachment No. 3 and hereby incorporated by reference as if fully set forth herein, that meets or exceeds CITY's Insurance Requirements as specified in SOLICITATION.

5. If and when insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above expires either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall immediately suspend work or supply and delivery unless and until it provides one or more unexpired replacement certificates of insurance that either indicates or collectively indicate the new date(s) of insurance coverage expiration and that either (a) meets or exceeds or (b) collectively meet or exceed CITY's Insurance Requirements as specified in SOLICITATION.

6. In the event that insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above is materially modified or canceled either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall, immediately upon learning of any such material modification or cancelation, suspend work or supply and delivery and shall, within three (3) calendar days of such learning, notify CITY of any such material modification or cancelation.

7. VENDOR has, subsequent to SUBMITTAL, also submitted CITY's Indemnification Agreement, executed for VENDOR ("INDEMNIFICATION AGREEMENT"), a copy of which is attached hereto as Attachment No. 4 and hereby incorporated by reference as if fully set forth herein.

8. CITY has awarded to VENDOR membership and participation on the CITY'S rotation on-call list for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes pursuant to SOLICITATION and SUBMITTAL.

9. The term of award shall commence upon execution of this AGREEMENT and shall expire three (3) years from the effective date of this AGREEMENT. At any time after commencement but before expiration of this term of award, CITY and VENDOR may, by mutual consent, exercise not more than two (2) options to extend the term of award, each time for up to one (1) additional year, for a maximum possible term of award of five (5) years total, provided: (a) that both parties consent to such an extension at that time; (b) that the decision to exercise such an extension is memorialized in writing and is executed by authorized representatives of each party (in the case of CITY, CITY's City Administrator); (c) that the same terms and conditions that apply to the original term of award shall also apply to such an extension unless otherwise amended, including pricing; (d) that if VENDOR chooses not to consent to an extension to the term of award, then it shall notify CITY of that decision a minimum of six (6) months in advance of the scheduled expiration of the term of award; and (e) at CITY's discretion, CITY and VENDOR may negotiate an additional extension beyond such expiration. Note that CITY and VENDOR each specifically retain the non-exclusive right, with or without cause, not to extend the term of award.

10. In the event of a conflict between the following documents, the order of precedence shall be as follows: (a) this AGREEMENT; (b) CITY's TERMS; (c) INDEMNIFICATION AGREEMENT; (d) SOLICITATION; and (e) SUBMITTAL.

EXECUTED THIS 10TH DAY OF MAY 2023.

For VENDOR:

(signature of VENDOR's authorized representative)

TITLE: PRESIDENT

For CITY:

(signature of CITY's authorized representative)

TITLE: City Administrator

Approved as to Form:

William E. Squires, Assistant City Attorney

CITY OF FRANKLIN, TENNESSEE
PROFESIONAL SERVICES AGREEMENT

(City of Franklin Contract No. 2023-0191)

THIS PROFESSIONAL SERVICES AGREEMENT ("AGREEMENT") is entered into by and between the City of Franklin, Tennessee ("CITY"), and Samuel J. Gowin, Attorney At Law ("VENDOR"), who mutually agree as follows:

1. CITY issued on April 25, 2023, Solicitation RFQ Legal File No. 2023-0001, a request for qualifications for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes. ("SOLICITATION").

2. In response to SOLICITATION, VENDOR submitted a statement of qualifications dated May 18, 2023, ("SUBMITTAL"), a copy of excerpts from which is attached hereto as Attachment No. 1 and hereby incorporated by reference as if fully set forth herein.

3. VENDOR included in SUBMITTAL CITY's Standard Procurement Terms and Conditions with VENDOR'S contact information inserted ("CITY'S TERMS"), a copy of which is attached hereto in SUBMITTAL and is hereby incorporated by reference as if fully set forth herein.

4. VENDOR has, subsequent to or with SUBMITTAL, also submitted Certificate(s) of Insurance ("CERTIFICATE(S) OF INSURANCE"), a copy/copies of which is/are attached hereto as and hereby incorporated by reference as if fully set forth herein, that meets or exceeds CITY's Insurance Requirements.

5. If and when insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above expires either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall immediately suspend work or supply and delivery unless and until it provides one or more unexpired replacement certificates of insurance that either indicates or collectively indicate the new date(s) of insurance coverage expiration and that either (a) meets or exceeds or (b) collectively meet or exceed CITY's Insurance Requirements as specified in SOLICITATION.

6. In the event that insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above is materially modified or canceled either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall, immediately upon learning of any such material modification or cancelation, suspend work or supply and delivery and shall, within three (3) calendar days of such learning, notify CITY of any such material modification or cancelation.

7. VENDOR has also submitted CITY's Indemnification Agreement, executed for VENDOR ("INDEMNIFICATION AGREEMENT"), a copy of which is attached hereto as part of SUBMITTAL and hereby incorporated by reference as if fully set forth herein.

8. CITY has awarded to VENDOR membership and participation on the CITY'S rotating on-call list for professional services pertaining to title searches and reports for the City's

voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes pursuant to SOLICITATION and SUBMITTAL.

9. The term of award shall commence upon execution of this AGREEMENT and shall expire three (3) years from the effective date of this AGREEMENT. At any time after commencement but before expiration of this term of award, CITY and VENDOR may, by mutual consent, exercise not more than two (2) options to extend the term of award, each time for up to one (1) additional year, for a maximum possible term of award of five (5) years total, provided: (a) that both parties consent to such an extension at that time; (b) that the decision to exercise such an extension is memorialized in writing and is executed by authorized representatives of each party (in the case of CITY, CITY's City Administrator); (c) that the same terms and conditions that apply to the original term of award shall also apply to such an extension unless otherwise amended, including pricing; (d) that if VENDOR chooses not to consent to an extension to the term of award, then it shall notify CITY of that decision a minimum of six (6) months in advance of the scheduled expiration of the term of award; and (e) at CITY's discretion, CITY and VENDOR may negotiate an additional extension beyond such expiration. Note that CITY and VENDOR each specifically retain the non-exclusive right, with or without cause, not to extend the term of award.

10. In the event of a conflict between the following documents, the order of precedence shall be as follows: (a) this AGREEMENT; (b) CITY's TERMS; (c) INDEMNIFICATION AGREEMENT; (d) SOLICITATION; and (e) SUBMITTAL.

EXECUTED THIS _____ DAY OF _____ 20____.

For Samuel J. Gowin, Attorney At Law

_____
(signature of VENDOR's authorized representative)

TITLE: _____

For CITY:

_____

TITLE: City Administrator

Approved as to Form:

_____
William E. Squires, Assistant City Attorney for CITY

Attachment No. 1

VENDOR'S SUBMITTAL DOCUMENTS

SEALED SUBMITTAL
City of Franklin Solicitation
Legal RFQ File No. 2023-0001

Response Submittal Form

a form required to be completed by respondents to

City of Franklin, Tennessee

Legal RFQ File No. 2023-0001

Respondent's name:	Samuel J. Gowin
Are the following included with this Response Submittal Form in the submittal? • Statement of qualifications that is responsive to the procurement solicitation including the Request for Qualifications; • Identification, listing and description of any exceptions to the procurement solicitation including the Request for Qualifications; • Contact information for references required per the Request for Qualifications; • City of Franklin Standard Procurement Terms and Conditions, with the respondent's contact information inserted; • City of Franklin Affidavit of Non-Collusion, executed in full; • City of Franklin Affidavit of Title VI Compliance, executed in full; and • A complete copy of submittal documents per the Instructions for Response Submittal.	☒ Yes, see enclosed. ☐ No, respondent chooses <u>not</u> to include all of these components (WARNING: doing so may cause the City to deem the submittal non-responsive).
Acknowledge any and all issued addenda to this solicitation: (Prior to submitting its response, it is the responsibility of each potential respondent to determine whether any addenda to this procurement solicitation have in fact been issued by the City.)	☐ Addendum No. 1. ☐ Addenda Nos. 1 through _____. ☒ No addenda.
First subscription and affirmation of respondent's authorized representative: By submission of this response, each submitter and each person signing on behalf of any submitter certifies, and in the case of a joint submittal each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each submitter is not on the list created pursuant to Tennessee Code Annotated § 12-12-106.	(signature)
Second subscription and affirmation of respondent's authorized representative: Except for any contract resulting from the submittal of this response with a total potential value of less than $250,000, by submission of this response, each respondent, except those with fewer than ten employees, and each person signing on behalf of any such respondent certifies, and in the case of a joint submittal each party thereto certifies as to its own organization, under penalty of perjury, that, to the best of its knowledge and belief, such respondent is not currently engaged in, and will not, for the duration of any such contract, engage in, a boycott of Israel.	(signature)
Signature of respondent's authorized representative: I affirm that I am authorized by the respondent to sign this Response Submittal Form as well as any and all companion forms and documents included herewith. I have obtained and read, and do understand and consent, to all instructions, terms and conditions, including those imposed by reference, which apply to this procurement solicitation and compliance with which is required as a condition precedent to consideration of the response submitted herewith.	(signature)
Title of respondent's authorized representative:	Attorney/Owner
Respondent's name:	Sam Gowin
Date of signatures:	5/5/2023

Response Submittal Form

a form required to be completed by respondents to

City of Franklin, Tennessee

Legal RFQ File No. 2023-0001

Respondent's name, street address, and mailing address (if different):	Samuel J. Gowin Gowin Law 7693 Nashville Street Ringgold, Georgia 30736
Respondent's contact person's name (printed), title, telephone number and e-mail address:	Samuel J. Gowin, Attorney at Law, 423-266-3131 sgowin@gowinlaw.com
Does the respondent take any exceptions to the City's procurement solicitation?	☐ Yes, see enclosed. ☒ No, respondent takes no exceptions.
Are exceptions, if any, to the City's procurement solicitation listed separately, described, compared to the City's intention as expressed and implied by the City's solicitation documents, and submitted?	☐ Yes, see enclosed. ☒ No, respondent takes no exceptions.
Are the City's preferred payment terms (net 30 days from date of delivery or date of invoice, whichever is later) acceptable to respondent?	☒ Yes. ☐ No, respondent requests the following payment terms: _____.
Last date that submittal is valid and may be accepted by the City:	5/18/2023, 3:00 pm
Method of payment: The City's default method of payment is by electronic means, either by direct deposit (i.e., "ACH" or "Electronic Funds Transfer"), or by bank credit card, rather than by conventional check. Which electronic payment method would the respondent prefer?	☒ ACH or Electronic Funds Transfer. ☐ Bank credit card.

Indemnification Agreement

a form required of Bidders and Proposers on purchases of services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Hamilton)

On behalf of Bidder/Proposer, Samuel Gowin agrees that:
(printed name of person signing Agreement)

1. He or she is the Owner of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Gowin Law, LLC,
(legal name of entity submitting bid or proposal)
the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. The Bidder or Proposer agrees to indemnify and save the Government of Franklin, the City of Franklin and individual, on or off duty, officers, and employees of the City of Franklin, harmless from any and all losses, damages and expenses, including court costs and attorneys' fees, by reason of any loss, whatsoever, arising out of or relating to or in consequence of the work done in connection with any contract, agreement, purchase order or other procurement to which this Agreement applies, excepting only such losses as shall be occasioned solely by the negligence of the City of Franklin; and

4. This Agreement is made on personal knowledge.

[signature] Owner/attorney
(signature of person whose printed name appears above) (title of person whose printed name appears above)

Sworn and subscribed to before me this 5th day of May, 2023

[signature]
(Notary Public)

My Commission Expires: 5-12-25

MISTY BOOTH
NOTARY PUBLIC
Walker County
State of Georgia
My Comm. Expires May 12, 2025

(Submitted in response to City of Franklin Law Department Solicitation No. 2023 -) 5/18/2023, 3:00

Form revised 12/12/2016

Affidavit of Non-Collusion

a form required of Bidders and Proposers on purchases of supplies, materials, equipment and services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Hamilton)

Affiant, _____, deposes and makes oath that:
(printed name of person signing Affidavit)

1. He or she is the _____ of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)

_____,
(legal name of entity submitting bid or proposal)

the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;
3. Such bid or proposal is genuine and is not a collusive or sham bid or proposal;
4. Neither the said Bidder or Proposer nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this Affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any official or agent of the City of Franklin or with any other firm, person, or potential or actual bidder or proposer to submit a collusive or sham bid or proposal in connection with the contract for which the attached bid or proposal has been submitted, or to refrain from bidding or proposing indirectly, or sought by agreement, or collusion, or communication, or conference with any other firm, person, or potential or actual bidder or proposer to fix the price or prices or cost element of the bid, quoted or proposed price or the bid, quoted or proposed price of any other potential or actual bidder or proposer, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of Franklin or any person interested in the proposed contract;
5. The price or prices quoted in the attached bid or proposal are fair and proper and are not tainted by a collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this Affiant; and
6. He or she understands that Article VIII, Section 16, of the City Charter of Franklin, and T.C.A. §6-54-107, prohibit any member of the Board of Mayor and Aldermen, or officer elected by said Board, from being interested in any contract, or work of any kind whatever, under its control and direction, and any contract in which any such person shall have an interest shall be void and unenforceable, subjecting any funds received by contractor to be returned in full to the City, in addition to any other penalties provided by law.

_____ Owner/attorney
(signature of Affiant) (title of Affiant)

Sworn and subscribed to before me this 5th day of May, 2023

_____ My Commission Expires: _____
(Notary Public)

MISTY BOOTH
NOTARY PUBLIC
Walker County
State of Georgia
My Comm. Expires May 12, 2025

(Submitted in response to City of Franklin Law Department Solicitation No. 2023-_____)

5/18/2023, 3:00

City of Franklin Notice of Confidentiality & Proprietary Rights

Legal File No.: 2023-0001

THE CONTENTS OF THE CITY OF FRANKLIN, TENNESSEE PROCUREMENT AWARD MADE PURSUANT TO THE CITY'S PROCUREMENT SOLICITION REFERENCED ABOVE, AND SOME OR ALL INFORMATION THAT MAY BE OBTAINED IN THE COURSE OF ITS PERFORMANCE, MAY INCLUDE HIGHLY CONFIDENTIAL INFORMATION THAT MAY SUBJECT ANYONE DISCLOSING SUCH INFORMATION TO CIVIL AND CRIMINAL PENALTIES IMPOSED BY LOCAL, STATE AND FEDERAL LAW.

The successful Vendor must necessarily be granted access to public and private information that may be confidential under the Tennessee Open Records Law and other privacy laws.

CONFIDENTIAL INFORMATION

As a result of the procurement award, the parties may provide each other with Confidential Information. For the purposes of this Notice, "Confidential Information" is any information disclosed or discovered in written, graphic, verbal, or machine-recognizable form, whether or not clearly marked, designated, labeled or identified as such. Notwithstanding any other provisions of this Notice, Confidential Information shall not include any information that:

1. is or becomes publicly known through no wrongful act of the receiving party;
2. is already known to the receiving party without restriction when it is disclosed;
3. is, or subsequently becomes, rightfully and without breach of this Notice, in the receiving party's possession without any obligation restricting disclosure;
4. is independently developed by the receiving party without breach of this Notice;
5. is explicitly approved for release by written authorization of the disclosing party; or
6. is required to be disclosed under state or federal law.

Each party agrees to:

1. maintain the confidentiality of the other party's Confidential Information and not disclose it to any third party, except as authorized by the disclosing party in writing or as required by state or federal law or by a court of competent jurisdiction;
2. restrict disclosure of Confidential Information to its employees who have a "need to know" and not copy or reproduce such Confidential Information;
3. take necessary and appropriate precautions to guard the confidentiality of Confidential Information, including informing and requiring written acknowledgements from its employees who handle such Confidential Information that it is confidential and not to be disclosed to others, but such precautions shall be at least the same degree of care that the receiving party applies to its own confidential information and shall not be less than reasonable care; and
4. use such Confidential Information only in furtherance of the performance of this Notice.

Affidavit of Title VI Compliance

a form required of Bidders and Proposers on purchases of services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Hamilton)

Affiant, _____, deposes and makes oath that:
(printed name of person signing Affidavit)

1. He or she is the _____ of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)

_____,
(legal name of entity submitting bid or proposal)

the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. No person on the grounds of handicap or disability, age, race, color, religion, sex, national origin or any other class protected by federal and/or Tennessee constitutional, statutory and/or case law shall be excluded from participation in, or denied benefits of, or be otherwise subjected to discrimination in, the performance of the contract that results from the procurement solicitation to which this affidavit is a component, or in the employment practices of the successful Bidder or Proposer during the performance of the contract that results from said procurement solicitation;

4. The successful Bidder or Proposer shall, upon request, show proof of such non-discrimination, and shall post in conspicuous places, available to employees and job applicants, notices of such non-discrimination;

5. If, with the prior consent of the City, the successful Bidder or Proposer subcontracts any portion of the contract that results from the procurement solicitation to which this affidavit is a component, then the successful Bidder or Proposer shall contractually obligate all of its subcontractors for said contract to comply with the same non-discrimination provisions as those required of the successful Bidder or Proposer; and

6. This Affidavit is made on personal knowledge.

_____ Attorney
(signature of Affiant) (title of Affiant)

Sworn and subscribed to before me this 5th day of May, 2023

_____ My Commission Expires: 5-12-25
(Notary Public)

MISTY BOOTH
NOTARY PUBLIC
Walker County
State of Georgia
My Comm. Expires May 12, 2025

City of Franklin Notice of Confidentiality & Proprietary Rights

Law Department Solicitation No.: 2023-0001

Confidential Information is and shall at all times remain the property of the disclosing party, and no grant of any proprietary rights in the Confidential Information is hereby given or intended, including any express or implied license, other than the limited right of the Vendor to use the Confidential Information in the manner and to the extent permitted by the scope of work. Vendor agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of Vendor's intentional, negligent, inadvertent or unintentional release of City documents or information.

PRESERVATION OF CITY'S PROPRIETARY RIGHTS, RIGHTS OF THIRD PARTIES

The City, including its contractors, agents, employees and any third party manufacturers of any equipment, and the copyright owner of any Non-Vendor Software shall own and retain all of their respective Proprietary Rights in any Equipment and Software. Nothing in this Notice is intended to restrict the Proprietary Rights of Vendor, any copyright owner of Non-Vendor Software, or any third party manufacturer of equipment. All intellectual property developed, originated, or prepared by Vendor in connection with providing to City consulting services in connection with the evaluation of the City's equipment, software, or related systems and services remain vested exclusively in City, and this Notice does not grant to Vendor any shared development rights of intellectual property. Exclusive title to all data input, generated by or transferred into or out of the City's system by City shall remain vested in City.

Nothing in this Notice will be deemed to grant, either directly or by implication, estoppel, or otherwise, any right, title or interest in Vendor's Proprietary Rights. City agrees not to modify, disassemble, peel components, decompile, otherwise reverse engineer or attempt to reverse engineer, derive source code or create derivative works from, adapt, translate, merge with other software, reproduce, distribute, sublicense, sell or export the Software, or permit or encourage any third party to do so. The preceding sentence shall not apply to Open Source Software which is governed by the standard license of the copyright owner.

I HAVE READ THE ABOVE TERMS, UNDERSTAND THEM AND AGREE TO ABIDE BY THEM UNDER PENALTY OF LAW.

SO ACKNOWLEDGED:

Signature of authorized representative of Vendor	5/4/2023 Date
Employee's signature *(to be signed by each employee at the time of commencement of services)*	Date

Standard Procurement Terms and Conditions
City of Franklin, Tennessee

1. Assignment and Successors. Neither party may assign any rights or obligations under these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, without the prior written consent of the other party. These Standard Procurement Terms and Conditions, and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, will be binding upon and inure to the benefit of the parties and their respective successors and permitted assigns.

2. Subcontracting. Vendor may subcontract any portion of the work only with the prior consent of the City, but such subcontracting will not relieve Vendor of its duties under these Standard Procurement Terms and Conditions and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

3. Time of the Essence. The parties agree that TIME IS OF THE ESSENCE with respect to the vendor's performance of all provisions of the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

4. Taxes. As a tax-exempt entity, the City shall not be responsible for sales or use taxes incurred for products or services. Upon request, the City shall supply Vendor with a copy of its Sales and Use Tax Exemption Certificate. Vendor shall bear the burden of providing its suppliers with a copy of the City's tax exemption certificate and shall assume all liability for such taxes, if any, that should be incurred.

5. Notices. Any notice provided pursuant to these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, if specified to be in writing, will be in writing and will be deemed given: (a) if by hand delivery, then upon receipt thereof; (b) if mailed, then three (3) City business days after deposit in the mail where sender is located, postage prepaid, certified mail return receipt requested; (c) if by next day delivery service, then upon such delivery; or (d) if by facsimile transmission or electronic mail, then upon confirmation of receipt. All notices will be addressed to the parties at the addresses set forth below (or set forth in such other document to which these Standard Procurement Terms and Conditions apply, or such other address as either party may in the future specify in writing to the other):

In the case of the City:	In the case of Vendor:
City of Franklin	Gowin Law, LLC
Attn: Law Department	Business Opportunities with the City
Re: City of Franklin Law Department Legal File No.	2023 - 0001
109 Third Ave. South	7693 Nashville Street
P.O. Box 305	Ringgold, Georgia 30736
Franklin, TN 37065-0305	Number: 423-266-3131
FAX: 615-550-6998	Email: sgowin@gowinlaw.com

6. Confidentiality and Proprietary rights. Vendor waives any right to confidentiality of any document, e-mail or file it fails to clearly mark on each page (or section as the case may be) as confidential or proprietary. Proprietary rights do not extend to the data created by the City's users of the System; all rights to that data (including derivative or hidden data such as metadata) shall vest solely in City at the moment of creation and City shall retain exclusive rights, title, and ownership of all data and images created therefrom at the moment of creation and utilization, through and including image creation. City may be required to disclose documents under state or federal law. City shall notify Vendor if a request for documents has been made and shall give Vendor a reasonable opportunity under the circumstances to respond to the request by redacting proprietary or other confidential information. In exchange, Vendor agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of (i) the City's failure to disclose such documents or information required to be disclosed by law, or (ii) the City's release of documents as a result of City's reliance upon Vendor's representation that materials supplied by Vendor (in full or redacted form) do not contain trade secrets or proprietary information, provided that the City impleads Vendor and Vendor assumes control over that claim.

7. Derivative Works. To the extent that the Agreement contains Vendor's reservation of rights, such definitions and limitations are superseded by the following: "Derivative Work" means a program that is based on or derived from one or more existing programs or components. If the original software is modified to create a new program, a derived work is created. If the original software was designed to accept plug-ins or drivers using a defined mechanism, such a driver or plug-in does not form a derived work. Linking to a library in the way it was designed to be interfaced with, does *not* constitute deriving a work. "Derivative work" is *not* the data that the Licensee inputs, manipulates, modifies or otherwise improves, nor the images resulting therefrom.

8. Arbitration/Mediation. No arbitration shall be required as a condition precedent to filing any legal claim arising out of or relating to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply. No arbitration or mediation shall be binding.

9. Waiver. Neither party's failure or delay to exercise any of its rights or powers under these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, will constitute or be deemed a waiver or forfeiture of those rights or powers. For a waiver of a right or power to be effective, it must be in writing signed by the waiving party. An effective waiver of a right or power shall not be construed as either (a) a future or continuing waiver of that same right or power, or (b) the waiver of any other right or power.

10. Warranties/Limitation of Liability/Waiver. City reserves all rights afforded to local governments under law for all general and implied warranties. The City does not waive any rights it may have to all remedies provided by law and therefore any attempt by Vendor to limit its liability shall be void and unenforceable.

11. Severability. If any term or provision of these Standard Procurement Terms and Conditions is held to be illegal or unenforceable, the validity or enforceability of the remainder of these Standard Procurement Terms and Conditions will not be affected.

12. Precedence. In the event of conflict between the provisions of these Standard Procurement Terms and Conditions and that of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, the provisions of these Standard Procurement Terms and Conditions will to the extent of such conflict take precedence unless such document expressly states that it is amending these Standard Procurement Terms and Conditions.

13. Indemnification. Vendor agrees to indemnify and save the Government of Franklin, the City of Franklin and individual, on or off duty, officers, and employees of the City of Franklin, harmless from any and all losses, damages and expenses, including court costs and attorneys' fees, by reason of any loss, whatsoever, arising out of or relating to or in consequence of the work done in connection with any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, excepting only such losses as shall be occasioned solely by the negligence of the City of Franklin.

14. Additions/Modifications. If seeking any addition or modification to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, the parties agree to reference the specific paragraph number sought to be changed on any future document or purchase order issued in furtherance of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, however, an omission of the reference to same shall not affect its applicability. In no event shall either party be bound by any terms contained in any purchase order, acknowledgement, or other writings unless: (a) such purchase order, acknowledgement, or other writings specifically refer to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply or to the specific clause they are intended to modify; (b) clearly indicate the intention of both parties to override and modify any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply; and (c) such purchase order, acknowledgement, or other writings are signed, with specific material clauses separately initialed, by authorized representatives of both parties.

15. Applicable Law; Choice of Forum/Venue. These Standard Procurement Terms and Conditions and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply are made under and will be construed in accordance with the laws of the State of Tennessee without giving effect to any state's choice-of-law rules. The choice of forum and venue shall be exclusively in the Courts of Williamson County, TN.

16. Termination. Unless the City has indicated otherwise in the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, either party may terminate the contract or agreement or purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, with or without cause, upon thirty (30) calendar days' notice to the other. Upon termination by the vendor, the City shall be entitled to retain ownership of any and all goods and equipment purchased. Upon termination by the City, the vendor shall be entitled to receive any amounts due as a result of goods and equipment already delivered and/or services already

rendered; however, the City shall maintain ownership and control of any goods and equipment purchased. Upon termination of services, whether connected or unconnected to goods and equipment, such services shall be rendered until the conclusion of the 30th calendar day as stated in the notice or until a contractual benchmark has been achieved, or as the parties may otherwise agree.

17. Breach. Upon deliberate breach of these Standard Procurement Terms and Conditions, or of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, by either party, the non-breaching party shall be entitled to terminate the contract or agreement or purchase order or other procurement to which these Standard Procurement Terms and Conditions apply without notice, with all of the remedies it would have in the event of termination under the "Severability" section above, and may also have such other remedies as it may be entitled to in law or in equity.

18. Default. If Vendor fails to perform or comply with any provision of these Standard Procurement Terms and Conditions, or of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, then the City (i) may cancel the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, in whole or in part, without penalty or protest by Vendor; (ii) may consider such failure to perform or comply as a breach of contract; (iii) reserves the right to purchase its requirements from the vendor that submitted the next lowest and best responsive and responsible bid, or the vendor that submitted the next best proposal, if that vendor will still honor that bid or proposal, or to seek new bids or proposals, or to pursue one or more other options available to the City in compliance with its then current purchasing policy; and (iv) may hold the defaulting vendor liable for all damages provided by law, including cost of cover.

19. Entire Agreement. These Standard Procurement Terms and Conditions, including any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, constitutes the entire agreement between the parties and supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of these Standard Procurement Terms and Conditions. The terms and conditions of these Standard Procurement Terms and Conditions may not be changed except by an amendment expressly referencing these Standard Procurement Terms and Conditions by section title and signed by an authorized representative of each party.

20. Survival. These Standard Procurement Terms and Conditions shall survive the completion of or any termination of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

CITY OF FRANKLIN, TENNESSEE
PROCUREMENT AGREEMENT

(City of Franklin Contract No. 20___-_____)

THIS PROCUREMENT AGREEMENT ("AGREEMENT") is by and between the City of Franklin, Tennessee ("CITY"), and _____ ("VENDOR"), who mutually agree as follows:

1. CITY issued (a) on _____ __, 20__ Purchasing Office Solicitation No. 20__-___, a request for proposals for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes ("SOLICITATION").

2. In response to SOLICITATION, VENDOR submitted a statement of qualifications dated _____ __, 20__ ("SUBMITTAL"), a copy of excerpts from which is attached hereto as Attachment No. 1 and hereby incorporated by reference as if fully set forth herein.

3. VENDOR included in SUBMITTAL CITY's Standard Procurement Terms and Conditions with VENDOR's contact information inserted ("CITY'S TERMS"), a copy of which is attached hereto and hereby incorporated by reference as if fully set forth herein.

[4-9, if applicable:]

4. VENDOR has, subsequent to SUBMITTAL, also submitted Certificate(s) of Insurance ("CERTIFICATE(S) OF INSURANCE"), a copy/copies of which is/are attached hereto as Attachment No. 3 and hereby incorporated by reference as if fully set forth herein, that meets or exceeds CITY's Insurance Requirements as specified in SOLICITATION.

5. If and when insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above expires either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall immediately suspend work or supply and delivery unless and until it provides one or more unexpired replacement certificates of insurance that either indicates or collectively indicate the new date(s) of insurance coverage expiration and that either (a) meets or exceeds or (b) collectively meet or exceed CITY's Insurance Requirements as specified in SOLICITATION.

6. In the event that insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above is materially modified or canceled either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall, immediately upon learning of any such material modification or cancelation, suspend work or supply and delivery and shall, within three (3) calendar days of such learning, notify CITY of any such material modification or cancelation.

7. VENDOR has, subsequent to SUBMITTAL, also submitted CITY's Indemnification Agreement, executed for VENDOR ("INDEMNIFICATION AGREEMENT"), a copy of which is attached hereto as Attachment No. 4 and hereby incorporated by reference as if fully set forth herein.

Samuel Gowin
Gowin Law, LLC

Statement of Qualifications – Title Searches

I have practiced law since 2004 and been licensed in the state of Tennessee since 2011.
I have conducted business as Gowin Law, LLC since 2021 and as Law Office of Samuel Gowin since 2011.

I have conducted close to 1000 title searches in that time. This includes residential, commercial property and municipal property.

I have not conducted services for Tennessee municipal clients.

I have not conducted services to the City of Franklin, Tennessee.

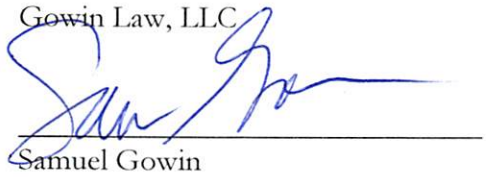
I understand the service needs of the city, to provide title searches, title reports and/or title opinions about property located in the city of Franklin so as to identify property owners, mortgage and lien holders for public works projects. I can generally return searches in 48 hours but can turn over searches in 24 hours if need be.

I have responded to the Request for Qualifications and I ask for no exceptions.

My firm has three employees so I do not carry workers compensation or employers liability coverage.

I have professional liability insurance with $1,000,000 limits.

Gowin Law, LLC



Samuel Gowin

References

Debbie Hayworth Underwood
Choice Title Company
7703 Nashville St.
Ringgold, GA 30736
(706) 937-6136
debbie@choicetitlecompany.com

Darren Kennedy, Esq.
414 Vine Street.
Chattanooga, TN 37403
(423) 648-7865
darren@darrenwkennedy.com

Debra E. Baker, Esq.
Davis, Pickren, Seydel & Sneed, LLP
2300 Marquis Two Tower
285 Peachtree Center Avenue, N.E.
Atlanta, Georgia 30303
(404) 979-6522
dbaker@dpsslegal.com

Chris Tallent
Peoples Loan and Finance
302 N. Glenwood Ave.
Dalton, GA 30721
(706) 278-8011
ctallent@peoplesfinancial.net

CITY OF FRANKLIN, TENNESSEE
PROFESIONAL SERVICES AGREEMENT

(City of Franklin Contract No. 2023-0192)

THIS PROFESSIONAL SERVICES AGREEMENT ("AGREEMENT") is entered into by and between the City of Franklin, Tennessee ("CITY"), and Cindy S. Smith, P.C. ("VENDOR"), who mutually agree as follows:

1. CITY issued on April 25, 2023, Solicitation RFQ Legal File No. 2023-0001, a request for qualifications for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes. ("SOLICITATION").
2. In response to SOLICITATION, VENDOR submitted a statement of qualifications dated May 17, 2023, ("SUBMITTAL"), a copy of excerpts from which is attached hereto as Attachment No. 1 and hereby incorporated by reference as if fully set forth herein.
3. VENDOR included in SUBMITTAL CITY's Standard Procurement Terms and Conditions with VENDOR'S contact information inserted ("CITY'S TERMS"), a copy of which is attached hereto in SUBMITTAL and is hereby incorporated by reference as if fully set forth herein.
4. VENDOR has, subsequent to or with SUBMITTAL, also submitted Certificate(s) of Insurance ("CERTIFICATE(S) OF INSURANCE"), a copy/copies of which is/are attached hereto as and hereby incorporated by reference as if fully set forth herein, that meets or exceeds CITY's Insurance Requirements.
5. If and when insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above expires either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall immediately suspend work or supply and delivery unless and until it provides one or more unexpired replacement certificates of insurance that either indicates or collectively indicate the new date(s) of insurance coverage expiration and that either (a) meets or exceeds or (b) collectively meet or exceed CITY's Insurance Requirements as specified in SOLICITATION.
6. In the event that insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above is materially modified or canceled either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall, immediately upon learning of any such material modification or cancelation, suspend work or supply and delivery and shall, within three (3) calendar days of such learning, notify CITY of any such material modification or cancelation.
7. VENDOR has also submitted CITY's Indemnification Agreement, executed for VENDOR ("INDEMNIFICATION AGREEMENT"), a copy of which is attached hereto as part of SUBMITTAL and hereby incorporated by reference as if fully set forth herein.
8. CITY has awarded to VENDOR membership and participation on the CITY'S rotating on-call list for professional services pertaining to title searches and reports for the City's

voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes pursuant to SOLICITATION and SUBMITTAL.

9. The term of award shall commence upon execution of this AGREEMENT and shall expire three (3) years from the effective date of this AGREEMENT. At any time after commencement but before expiration of this term of award, CITY and VENDOR may, by mutual consent, exercise not more than two (2) options to extend the term of award, each time for up to one (1) additional year, for a maximum possible term of award of five (5) years total, provided: (a) that both parties consent to such an extension at that time; (b) that the decision to exercise such an extension is memorialized in writing and is executed by authorized representatives of each party (in the case of CITY, CITY's City Administrator); (c) that the same terms and conditions that apply to the original term of award shall also apply to such an extension unless otherwise amended, including pricing; (d) that if VENDOR chooses not to consent to an extension to the term of award, then it shall notify CITY of that decision a minimum of six (6) months in advance of the scheduled expiration of the term of award; and (e) at CITY's discretion, CITY and VENDOR may negotiate an additional extension beyond such expiration. Note that CITY and VENDOR each specifically retain the non-exclusive right, with or without cause, not to extend the term of award.

10. In the event of a conflict between the following documents, the order of precedence shall be as follows: (a) this AGREEMENT; (b) CITY's TERMS; (c) INDEMNIFICATION AGREEMENT; (d) SOLICITATION; and (e) SUBMITTAL.

EXECUTED THIS 28th DAY OF June 2023.

For Cindy S. Smith, P.C.

(signature of VENDOR's authorized representative)

TITLE: Pres

For CITY:

TITLE: City Administrator

Approved as to Form:

William E. Squires, Assistant City Attorney for CITY

Attachment No. 1

VENDOR'S SUBMITTAL DOCUMENTS

CINDY S. SMITH, P.C.

ATTORNEYS AT LAW
Office: 2739 Larmon Drive, Nashville, TN 37204
Mailing Address: P.O. Box 292004, Nashville, TN 37229
Telephone: (615) 259-1152
Facsimile: (615) 296-4344
Email: lawyers@csspc.us

May 17, 2023 VIA Hand Delivery

City of Franklin Law Department
Franklin City Hall
109 3rd Avenue South
Franklin, TN 37064

RE: City of Franklin Solicitation for Bids: Title Research and Opinions
(Legal RFQ File No. 2023-0001)

To the City of Franklin:

Thank you for the opportunity to submit a bid for the above Solicitation for Bids. Please accept this letter as part of the submittal package for Cindy S. Smith, P.C. ("Applicant"). As directed and required, please find enclosed the following for your consideration:

1) Notice to Service Providers;
2) City of Franklin Instructions for Response Submittal (signed and sealed);
3) City of Franklin Request for Qualification ("RFQ");
4) City of Franklin Response Submittal Form;
5) City of Franklin Affidavit of Non-Collusion;
6) City of Franklin Affidavit of Title VI Compliance;
7) City of Franklin Notice of Confidentiality & Proprietary Rights;
8) City of Franklin Standard Procurement Terms and Conditions;
9) City of Franklin Procurement Agreement sample; and
10) City of Franklin Indemnification Agreement.

Additional responses as requested in said RFQ are noted below:

RFQ 11 response:
Detailed Description of proposed products, items, and/or services:
Provide title search/report from the Register of Deeds Office for Williamson County, Tennessee, on a standard Attorney Title Opinion Letter in our usual form as requested by the City pursuant to the said RFQ together with title documents (copies provided as requested and as available) and tax information to determine if taxes are delinquent or

due. Other documents as requested will be provided. Title curative measures will be provided upon request.

Applicant accepts and intends to comply with all provisions of the City's Request for Qualifications pertaining to this solicitation.

RFQ 11.7 response:
Key Personnel:

Attorney, Cindy S. Smith, licensed since 1987;
Associate Attorney, Mary Kathryn Charlton, licensed since 2022
(and also a licensed CPA since 2018);
Applicant has three (3) other staff members who will assist with the required services.

References:

Ms. Amy Charles, Branch Manager
Pinnacle Bank
424 Donelson Pike
Nashville, TN 37214
Amy.Charles@pnfp.com

Ms. Jenny Harris, Vice President
F&M Bank
4151 N. Mount Juliet Road
Mount Juliet, TN 37122
Jenny.Harris@myfmbank.com

RFQ 11.8A response:
Experience and Qualifications:

i. Cindy S. Smith, Attorney, has owned the Applicant firm since its inception and, prior to that time, worked either as a solo practitioner or as a partner in a real estate law firm.
ii. Applicant has over 36 combined years of experience in the real estate title industry. Applicant is a licensed agent for Stewart Title. Applicant examines approximately 300-500 titles annually. Applicant has experience with residential, commercial, and development projects.
iii. For over 35 years, either Cindy S. Smith, P.C., or Cindy S. Smith, Attorney, has provided title searches of and title opinions of real estate located within the State of Tennessee.
iv. Applicant has not provided services to other Tennessee municipal clients; however, Applicant has worked with and/or communicated with municipalities while assisting other clients' development projects.
v. Applicant has not previously provided services to the City of Franklin.

RFQ 11.8B response:
Your Applicant submits that it has a good understanding of the City's service needs as anticipated in the Request for Qualifications. For example, as your Applicant understands the procedure, the City will request a title search/title opinion on a specified property either which the City intends to purchase or against which the City will pursue eminent domain proceedings. The City will request Applicant to provide a title opinion on the specified property within 30 days. Applicant would then provide the title opinion to the City, which would include information necessary to identify the true owner of the property, all mortgage or lienholders, and the holders of any other interest therein. Upon request, recorded documents would be provided for review. All deliveries would be made via email unless otherwise required. It is not anticipated that physical inspections would be made by Applicant, except a visual inspection may be made when deemed necessary by Applicant in order to provide the service needs of the City contemplated herein.

Applicant affirms that it has responded thoroughly to the best of its knowledge to the Request for Qualifications, including the companion documents that, with the Request for Qualifications, comprise the entire procurement solicitation.

Applicant submits that to the best of its knowledge the results outlined above would address the City's purpose and objective.

RFQ 11.9 response:
Please find enclosed herewith the following:

1) Certificates of Insurance for Workers Compensation, including Employer's Liability, reflecting limits set forth in RFQ 11.9; and
2) Certificate of Professional Liability Insurance reflecting limits set forth in RFQ 11.9.

RFQ 11.10 response:
Unsuccessful attempts have been made to locate said Policy online. It is anticipated that the Policy contains standard professional requirements, and Applicant anticipates compliance. Reservation is made pending review of said Policy and Procedures.

As of Noon on May 17, 2023, no Addenda appeared on the below website for the above solicitation: https://www.franklintn.gov/business/business-opportunities-with-the-city-1494

By submitting the response submittal herein, Applicant certifies that to the best of its knowledge, it has read and accepts all terms, conditions, and requirements of said solicitation, including the terms and conditions identified and listed in the City of Franklin Standard Procurement Terms and Conditions as provided in the Solicitation Release dated 04.18.23.

Thank you for your consideration. If awarded a successful bid, Applicant would be honored to serve the City of Franklin.

Sincerely,

CINDY S. SMITH, P.C.

By: _____
Cindy S. Smith, President

CSS/ss

Enclosures

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 03/30/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Stewart Insurance	
Stewart Insurance 1360 Post Oak Boulevard Suite 1000 MC 10-2 Houston TX 77056	PHONE (A/C, No, Ext): (866) 798-2827	FAX (A/C, No): (713) 985-1061
	E-MAIL ADDRESS: stewartinsurance@stewart.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Underwriters, Lloyds of London	
INSURED Cindy S. Smith, P.C. Central Title, LLC 2739 Larmon Avenue Nashville TN 37204	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** CL2333031631 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	CLAIMS-MADE OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$
	OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N						PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	N/A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Total Professional Liability				03/21/2023	03/21/2024	Per Claim	$2,000,000
							Aggregate	$4,000,000
							Deductible	$5,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

A. Professional Liability SUASLPL10206-2301 03/21/2023-03/21/2024 $1,000,000 Per Claim $2,000,000 Aggregate $5,000 Deductible

A. Excess Professional Liability SUAXS1125-2301 03/21/2024-03/21/2024 $1,000,000 Per Claim $2,000,000 Aggregate

CERTIFICATE HOLDER

Cindy S. Smith, P.C
2739 Larmon Avenue
Nashville TN 37204

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Will Eckert

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 05/16/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	**CONTACT NAME:** Chad Hawkins
StateFarm Chad Hawkins State Farm Agency 783 Old Hickory Blvd Ste 150 Brentwood, TN 37027	**PHONE (A/C, No, Ext):** 615-373-0100 **FAX (A/C, No):** **E-MAIL ADDRESS:** Chad@chad-hawkins.com
	INSURER(S) AFFORDING COVERAGE / **NAIC #** **INSURER A :** State Farm Fire and Casualty Company / 25143
INSURED Cindy S Smith PC 2606 Eugenia Ave # B Nashville, TN 37211	**INSURER B :** **INSURER C :** **INSURER D :** **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADD INSD	SUB WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [ ] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [ ] PRO-JECT [ ] LOC [ ] OTHER:			92-AA-H113-0	03/30/2023	03/30/2024	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
	AUTOMOBILE LIABILITY [ ] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ $ $ $ $
	[ ] UMBRELLA LIAB [ ] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $						EACH OCCURRENCE AGGREGATE $	$ $ $
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: Y (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		92-NG-X523-6	11/09/2022	11/09/2023	[ ] PER STATUTE [X] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ 1,000,000 $ 1,000,000 $ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Completed by an authorized State Farm representative. If signature is required, please contact a State Farm agent.

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HISTORIC
FRANKLIN
TENNESSEE

CITY OF FRANKLIN'S REQUEST FOR QUALIFICATIONS (RFQ) FOR PROFESSIONAL SERVICES PERTAINING TO TITLE SEARCHES AND REPORTS FOR CITY PUBLIC WORKS PROJECTS WHEN PURCHASING REAL ESTATE OR ACQUIRING BY EMINENT DOMAIN

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City of Franklin, Tennessee Notice to Service Providers

Legal RFQ File No. 2023-0001

{text above this line not to be published}

NOTICE TO SERVICE PROVIDERS

NOTICE IS HEREBY GIVEN that the City of Franklin, TN, will receive sealed written responses in the City's Law Department, City Hall, 109 3rd Avenue South, Franklin, TN 37064, until 3:00 p.m. Central Time on May 18, 2023 at which time and location they will be publicly opened, for the following procurement: Solicitation of professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes (Legal RFQ File No. 2023-0001). Responses may also be submitted electronically to bill.squires@franklintn.gov.

Responses must be prepared and submitted in accordance with the City of Franklin's request for qualifications and other procurement documents pertaining to this solicitation, including any addenda that may be issued, available on the Business Opportunities page of the City's website (https://www.franklintn.gov/) or by contacting Bill Squires in the the City of Franklin Law Department (bill.squires@franklintn.gov; 615-550-6603). The City reserves the right to reject any and all submittals, and to waive minor informalities.

{text below this line not to be published}

DATE OF PUBLICATION OF THIS NOTICE TO SERVICE PROVIDERS: 04.20.23

City of Franklin, Tennessee Instructions for Response Submittal

Legal RFQ File No. 2023-0001

1. Solicitation identified: These Instructions for Response Submittal apply to the following procurement solicitation:

   Solicitation for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes

   Legal RFQ File No. 2023-0001

2. Solicitation packet component documents: These Instructions for Response Submittal accompany the following documents which, in total, represent the complete solicitation packet:

   a. Notice to Service Providers;
   b. City of Franklin Instructions for Response Submittal (this document);
   c. City of Franklin Request for Qualifications;
   d. City of Franklin Response Submittal Form;
   e. City of Franklin Affidavit of Non-Collusion;
   f. City of Franklin Affidavit of Title VI Compliance;
   g. City of Franklin Notice of Confidentiality & Proprietary Rights;
   h. City of Franklin Standard Procurement Terms and Conditions;
   i. City of Franklin Procurement Agreement sample; and
   j. City of Franklin Indemnification Agreement.

3. Location of opening of response submittals: The opening of response submittals will be held in the City of Franklin Law Department Conference Room (see address below, under "Delivery of response submittals"), or at another location within the City of Franklin City Hall. If the location of the opening of response submittals is other than at the Law Department Conference Room, such location shall be posted on the front door of the Law Department and City Administration Offices at least five (5) minutes before the appointed time of such opening of response submittals. All persons attending the opening of response submittals must identify themselves and any entity they are representing.

4. Withdrawal of response submittals; expiration of submittal validity (see also "Errors and omissions" below):

   a. Before the response submittal deadline, submitted responses may be withdrawn upon the request of the submitting party. At the request of the submitting party, withdrawn response submittals may be returned unopened to the submitting party but only at the submitting party's expense. Such a request to withdraw a response submittal and such a request to return a withdrawn response submittal must be in writing, shall be addressed to the Law Department, must be received by the Law Department before the response submittal deadline, and may be submitted via either e-mail (bill.squires@franklintn.gov) or fax (615-550-6998).

   b. After the response submittal deadline, submitted responses may not be withdrawn.

c. Upon award, the accepted response submittal shall be considered valid for the term of the award.

5. Submittal timing:

   a. Response submittals to be delivered by response submittal deadline: Response submittals shall be delivered *no later than* the response submittal deadline.

   b. Response submittals delivered too late: Response submittals delivered after the response submittal deadline shall be rejected and not evaluated.

6. Response submittals rejected on account of timing: Respondents whose response submittals are rejected on account of timing shall be notified by the City of such rejection as soon as practicable. Response submittals rejected on account of timing may be retrieved by the respondent at the respondent's expense.

7. Response submittal to be signed and sealed: Each response submittal shall be either (a) signed and submitted via email to bill.squires@franklintn.gov or (b) printed on paper, signed and submitted inside one (1) or more sealed container(s).

8. Submittal to include one (1) set of original submittal documents: Please submit one (1) set of submittal documents on paper with original signatures. No duplicate copies, either printed on paper or in electronic or digital medium, are required.

9. Response submittal contents: Included with the response submittal are to be the following components:

   a. City of Franklin Response Submittal Form, executed in full;
   b. Statement of qualifications that is responsive to the procurement solicitation including the Request for Qualifications;
   c. Identification, listing and description of any exceptions to the procurement solicitation including the Request for Qualifications;
   d. Contact information for references required per the Request for Qualifications;
   e. City of Franklin Standard Procurement Terms and Conditions, with the respondent's contact information inserted;
   f. City of Franklin Affidavit of Non-Collusion, executed in full;
   g. City of Franklin Affidavit of Title VI Compliance, executed in full; and
   h. a complete copy of submittal documents per these Instructions for Response Submittal.

10. Response submittal container label: The outside face of the response submittal container(s) shall be labeled with the following information:

    a. the respondent's name and address; and

    b. the following text:

SEALED SUBMITTAL
City of Franklin Solicitation
Legal RFQ File No. 2023-0001

NOT TO BE OPENED EXCEPT AT
SUBMITTAL OPENING May 18,
2023, 3:00 p.m. Central Time

11. Delivery of response submittals:

a. Response submittals are to be sealed, addressed and delivered to:

City of Franklin Law Department
Franklin City Hall
109 3rd Ave. South
Franklin, TN 37064

b. Sealed response submittals may be mailed via U.S. Mail or shipped via courier other than U.S. Mail or delivered personally. Response submittals submitted to the City via e-mail shall be sent to bill.squires@franklintn.gov.

c. A response submittal is not considered delivered unless and until it has been received by the City of Franklin Law Department at the physical location or email address listed above. A response submittal that is in route via U.S. Mail or courier, or delivery of a response submittal to another City office or location, does not in and of itself constitute delivery of that response submittal to the City of Franklin Law Department.

12. Tabulation of response submittals; notice of intent to award: The tabulation of response submittals received, as prepared by the City, may also indicate a recommendation as to the selection of the response submittal to be awarded the purchase, in which case the tabulation of response submittals received also functions as the City's notice of intent to award. Respondents may request a copy of the tabulation of response submittals received by contacting the City's Purchasing Office (see contact information below) at any time on or after the tentative date of release of the City's tabulation of response submittals received and notice of intent to award (see Request for Qualifications).

13. Award to be made by BOMA: Purchases shall be awarded by the City of Franklin's Board of Mayor and Aldermen. See Request for Qualifications for tentative date of award. If awarded, the procurement shall be awarded to any responsible respondent that submits the responsive submittal that meets the needs of the City. (The term "responsible respondent" shall mean a business entity or individual determined by the City to have the integrity and reliability as well as the financial and technical capacity to perform the requirements of the procurement solicitation and subsequent contract. The term "responsive submittal" shall mean a submittal determined by the City to fully conform in all material respects to the procurement solicitation and all of its requirements, including all form and substance.) The award shall be memorialized in writing, using the City's Procurement Agreement form.

14. Other documents to be required of the service provider recommended to be awarded the purchase: Before award of the procurement by the City, any service provider recommended to be awarded the purchase shall provide the following documents:

a. City-supplied contract by and between the City and any respondent to be awarded the procurement, the final terms and conditions of which are mutually acceptable to both parties, executed for the respondent;
b. City of Franklin Indemnification Agreement, executed in full;
c. Certificate of Insurance that meets or exceeds the City's Insurance Requirements;
d. City of Franklin Notice of Confidentiality & Proprietary Rights, executed for the respondent;
e. City of Franklin Procurement Agreement form, executed for the respondent; and
f. If the respondent prefers to be paid by direct deposit (such as "ACH" or "Electronic Funds Transfer") as opposed to credit card, and if the respondent has not been paid by the City by means of direct deposit within the last two (2) years, then the respondent shall submit a completed City of Franklin Vendor Information Form and IRS Form W-9 (both of which forms are available upon request from the Purchasing Office).

15. City's right to reject response submittals: The City reserves the right to reject any and all response submittals.

16. City's right to waive minor informalities: The City reserves the right to waive minor informalities (defined to mean matters of form rather than substance evident from the response submittal document, or insignificant mistakes that can be waived or corrected without prejudice to other respondents; that is, the effect on contractual conditions is negligible). The Purchasing Manager shall waive minor informalities or allow the respondent to correct them depending on which is in the best interest of the City. Examples of minor informalities include the failure of a respondent to: (i) return the number of signed response submittals required by the procurement solicitation; (ii) sign the response submittal, but only if the unsigned response submittal is accompanied by other material indicating the respondent's intent to be bound; or (iii) acknowledge receipt of an addendum to the procurement solicitation, but only if: (A) it is clear from the response submittal that the respondent received the addendum and intended to be bound by its terms; or (B) the addendum involved had a negligible effect on contractual conditions.

17. City's right to negotiate: The City reserves the right to negotiate, as deemed necessary by the City, a final scope of services and a final fee or schedule of fees for services with the respondent whose submittal, including any post-submittal interview, demonstration and/or subsequent submittal, is evaluated to be most favorable to the City, based on the evaluation criteria identified in the Request for Qualifications. If such negotiations are unsuccessful, then the City reserves the right to negotiate, as deemed necessary by the City, a final scope of services and a final fee or schedule of fees for services with the respondent(s) whose submittal(s), including any post-submittal interview, demonstration and/or subsequent submittal, is (are) evaluated to be the next most favorable to the City based on the evaluation criteria identified in the Request for Qualifications.

18. Errors, omissions and deficiencies (see also "Withdrawal of response submittals; expiration of submittal validity" above):

a. Errors and/or omissions made by the respondent on the Response Submittal Form or elsewhere in the respondent's submittal packet that are discovered by the respondent before submittal shall be corrected by the respondent. If such a correction results in altering but not replacing one or more documents, then the respondent's representative shall initial each such correction in non-erasable ink.

b. Errors and/or omissions made by the respondent on the Response Submittal Form or elsewhere in the respondent's submittal packet that are discovered by the respondent after submittal but before the response submittal deadline may be corrected by the respondent but only by submitting such replacement documents as necessary to make the correction. Such a submittal of replacement documents shall be labeled "SEALED AMENDED SUBMITTAL" and shall otherwise be submitted pursuant to the same instructions above as for the submittal of the original submittal documents. Such a submittal of replacement documents shall not be submitted electronically, and shall not be submitted after the response submittal deadline.

c. Uncorrected errors made by the respondent on the Response Submittal Form or elsewhere in the respondent's submittal packet shall be considered on a case-by-case basis by the City. Uncorrected errors made by the respondent may be deemed by the City to be so severe as to make the submittal non-responsive. (The term "non-responsive" shall mean a response to a procurement solicitation determined by the City not to conform to the mandatory or essential requirements contained in the solicitation.) At the discretion of the City, respondents may be permitted to clarify a submittal, but no submittal shall be altered or amended by the respondent after submittal except in the case of minor informalities. In the case of a discrepancy between the respondent's unit price for a particular line item as quoted in any pricing proposal and the unit price calculated by dividing the respondent's extension price for that same line item by the quantity indicated for that same line item, then the respondent's unit price for that line item as quoted in the pricing proposal shall prevail.

d. Uncorrected omissions from and/or other deficiencies to a respondent's submittal packet shall be considered on a case-by-case basis by the City. Omissions and/or other deficiencies may be deemed by the City to be so severe as to make the submittal non-responsive. At the discretion of the City, respondents may be permitted to clarify a submittal, but no submittal shall be altered or amended by the respondent after submittal except in the case of minor informalities.

19. Questions seeking to clarify or revise the procurement solicitation: Questions seeking to clarify or revise any aspect of the procurement solicitation shall be submitted by contacting:

City of Franklin Law Department (see street address above)
bill.squires@franklintn.gov
Tel: 615-550-6603
Fax: 615-550-6998

Such questions of a non-procedural nature shall be submitted before the deadline for optional submittal in writing of questions of a non-procedural nature seeking to clarify or revise the procurement solicitation.

Such questions of a procedural nature may be submitted either before or after the deadline for optional submittal in writing of questions of a non-procedural nature seeking to clarify or revise the procurement solicitation.

Depending upon the inquiry, the City may request that the question seeking to clarify or revise any aspect of the procurement solicitation be submitted in writing, and the City may choose to announce, typically in the form of an addendum, both the inquiry and the City's response thereto.

20. Addenda: Addenda to this procurement solicitation may be issued. Before submitting its response, it is the responsibility of each respondent to determine whether any addenda to this procurement solicitation have in fact been issued by the City. To do so, please browse to the Business Opportunities webpage of the City's website (https://www.franklintn.gov/), or contact the City of Franklin Law Department (bill.squires@franklintn.gov; 615-550-6603). Other than by posting addenda on the City's website, the City does not anticipate notifying prospective respondents of the issuance of addenda.

21. Communication with City during procurement phase: Any questions seeking to clarify or revise any aspect of the procurement solicitation should be addressed to the City as described above. Until the procurement award has been made, suppliers / service providers shall not communicate about either the content of or the procurement process pertaining to this procurement solicitation with any official, employee or other representative of the City except through the City's Law Department. The City reserves the right to disqualify any supplier / service provider that initiates unauthorized communication with the City during the procurement phase (that is, the period of time between when the procurement solicitation has been posted on the Business Opportunities webpage of the City's website (https://www.franklintn.gov/) and when the procurement award has been made).

22. Vendor protest: Vendors who feel the need to object either to a deficiency of this procurement solicitation or to a proposed award pertaining to this procurement solicitation are encouraged, as soon as possible, to express their concerns to and seek remedy from the Purchasing Manager (see contact information above). Vendors who are not satisfied with, or who choose not to pursue, such an informal resolution of their concerns and who feel compelled to lodge a formal protest about some aspect of a City procurement not pertaining to new construction shall do so pursuant to the City's Vendor Protest Procedure for City procurements not pertaining to new construction, a mandatory administrative procedure which all aggrieved actual or prospective vendors must utilize and exhaust prior to seeking judicial review or remedy. For a copy of the City's Vendor Protest Procedure for City of Franklin procurements not pertaining to new construction, please contact the City's Purchasing Office or click on the following link: https://www.franklintn.gov/government/departments-a-j/finance-administration/purchasing-office/vendor-protest-procedure.

Cindy S. Smith, P.C.

City of Franklin Request for Qualifications
Legal RFQ File No. 2023-0001

1. Solicitation identified: This Request for Qualifications applies to the following procurement:

   Professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes.

2. Legal notice publication date: **04.20.23**

3. Request for Qualifications release date: **04.20.23**

4. Deadline for optional submittal in writing of questions seeking to revise or clarify any aspect of this procurement solicitation: **05.12.23, 3:00 p.m. Central Time**

5. Response submittal deadline and scheduled opening: **05.18.23, 3:00 p.m. Central Time**

6. Tentative date of release of City's tabulation of response submittals received and notice of intent to award: **06.01.23**

7. Tentative date of award: Meeting of Board of Mayor and Aldermen at which is tentatively scheduled to be awarded the selection of the best qualified responsive and responsible potential service provider: **06.13.23**

8. Objective: To secure, by means of a competitive procurement process, the selection of the best qualified responsive and responsible potential service provider to furnish all labor, materials and means necessary to render the services anticipated by this procurement solicitation. See the accompanying Instructions for Response Submittal for additional information and instructions.

9. Exceptions:

   a. In order to avoid the need to take an exception to this procurement solicitation, potential service providers may request revisions to the procurement solicitation before the deadline for optional submittal in writing of questions seeking to revise or clarify any aspect of this procurement solicitation. See the accompanying Instructions for Response Submittal for contact information.

b. Any deviation or variance from this procurement solicitation shall be considered to be an exception.

c. Any exceptions to this procurement solicitation shall be listed in detail in a separate document to be prepared by the potential service provider. Such listing shall include a description of exactly how such exceptions deviate from the City's expectations as expressed and implied by the procurement solicitation, and shall indicate why such exceptions should be judged by the City to meet or exceed those expectations. Any and all exceptions to this procurement solicitation which the City, in its sole discretion, deems not to meet or exceed the City's intention as expressed and implied by the procurement solicitation may be considered by the City as a factor in evaluating the submittal.

10. General terms and conditions:

a. Proposed pricing: Any proposed pricing, if solicited, shall include all equipment, labor, materials, permit(s), freight and required insurance to render the specified service(s).

b. Delivery terms: As a matter of practice, the City of Franklin expects vendor to ship any and all deliverables FOB destination, freight prepaid and added. The City's preferred delivery terms, as described in the preceding sentence, are offered to the potential service provider as a condition of award. If the City's preferred delivery terms are unacceptable to the potential service provider, then the potential service provider shall indicate on the Response Submittal Form its preferred delivery terms. Delivery terms may be a factor in the City's selection criteria. Delivery terms are non-negotiable after award is made.

c. Payment terms: As a matter of practice, the City of Franklin pays for goods and/or services only after receipt and acceptance by the City of such goods and/or services, and only after receipt of an accurate, proper, complete and itemized invoice for such goods and/or services, net 30 calendar days from date of delivery or service rendering or date of invoice, whichever is later. The City's preferred payment terms, as described in the preceding sentence, are offered to the potential service provider as a condition of award. If the City's preferred payment terms are unacceptable to the potential service provider, then the potential service provider shall indicate on the Response Submittal Form its preferred payment terms. Payment terms may be a factor in the City's selection criteria. Payment terms are non-negotiable after award is made.

d. Applicable laws and regulations: All applicable federal and state laws, city ordinances, orders, rules and regulations of all authorities having jurisdiction over the specified service(s) shall apply to any quoted purchase pricing, and they will be deemed to be included in this procurement solicitation the same as though they are written out in full herein.

e. Use of subcontractors: The successful service provider (that is, the vendor who is recommended be awarded the purchase) may subcontract any portion of the award but only with the prior consent of the City. Requirements for references and insurance shall apply to any subcontractor.

f. Safe work area: The successful service provider will be expected to utilize best practices to minimize the risk of personal injury to the public, City personnel and employees of the service provider and/or the service provider's subcontractors, if any.

g. Other documents to be required of successful service provider: See the accompanying Instructions for Response Submittal for a listing of other documents to be required of the successful service provider.

h. Damages: The successful service provider shall be responsible for any damages it causes in the course of performing the service(s) anticipated by this procurement solicitation, and shall repair or replace any damaged property to the satisfaction of the City of Franklin at its own expense.

i. Terms and Conditions: By submitting its response submittal, the vendor certifies that it has read and accepts all terms, conditions and requirements of this solicitation, including the terms and conditions identified and listed in the City of Franklin Standard Procurement Terms and Conditions attached hereto and hereby incorporated by reference.

j. Refusal to honor submittal: If and after an award is made by the City, if the vendor refuses to execute an agreement or contract or in any other way honor the terms and conditions of its response submittal, then the City shall be entitled to seek compensation for its damages, which may include the cost of conducting a new solicitation.

k. Confidential and/or proprietary information; trade secrets. All contents of all response submittals are subject to public disclosure and shall not contain any confidential and/or proprietary information and/or trade secrets. Further, by submitting its response submittal, the vendor indemnifies and holds the City of Franklin harmless against any loss or damage, including reasonable attorney fees, it may incur as a result of the City's reliance upon the vendor's representation that any documentation and materials supplied by the vendor do not contain trade secrets or proprietary information which is not subject to public disclosure.

11. Detailed requirements: Please note:

- Potential service providers are required to submit with their response submittal a detailed description of any proposed products, items and/or services.
- Any exceptions to this procurement solicitation shall be listed in detail in a separate document to be prepared by the potential service provider. Such listing shall include a description of exactly how such exceptions deviate from the City's expectations as expressed and implied by the procurement solicitation, and shall indicate why such exceptions should be judged by the City to meet or exceed those expectations. Whether the firm accepts and intends to comply with all provisions of the City's Request for Qualifications pertaining to this solicitation and, if not, exactly how.

11.1. Overview and Purpose

The purpose of this Request for Qualifications (RFQ) is for the City of Franklin, Tennessee to establish for use a rotating on-call list of qualified, responsive and

responsible firms (attorneys and/or title insurance companies) who will agree to provide to the City, on a rotating basis, professional title search and report or opinion services upon request, in order to facilitate the City's purchase of real estate or interests therein for City streets, water and sewer, or other public works projects, or for other public purposes, at a fixed flat rate of $450.00 per search and report or opinion. Under very limited circumstances, certain work which the parties agree is "complex" may be paid at a negotiated rate as described below in Section 11.6.

11.2. Background and context; information supplied

The City of Franklin requires professional services from time to time pertaining to title searches and reports for the voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes.

11.3. Term of award

The services to be rendered pursuant to this procurement solicitation are to be offered as a requirements contract for a term of award of **three (3)** years, effective upon acceptance by the City. At any time after commencement but before or as soon as practicable after the expiration of this term of award, the City, in its sole discretion, may exercise an option to extend the term of award **twice**, each time for up to **one (1) additional year**, for a maximum possible term of award of **five (5) years** total, provided: (a) that both parties consent to such an extension at that time; (b) that the decision to exercise such an extension is memorialized in writing and is executed by authorized representatives of each party; and (c) that the same terms and conditions that apply to the original term of award shall also apply to such an extension, {including pricing}. Note that the City of Franklin specifically retains the exclusive right, with or without cause, not to extend the term of award.

11.4. Anticipated scope of work

Service provider shall provide, for the indicated term of award, professional services pertaining to realty title search and report or opinion of real estate located within or beyond the corporate limits of Franklin, Tennessee. Such reports or opinions, whether for acquisition of easements or rights-of-way for streets, water, sewer and storm-water projects, or other public purposes, shall include such information as is necessary to identify the true owner of the property, all mortgage or lien-holders, and the holders of any other interest therein.

11.5. Process once awarded

A. Upon establishment of the list of qualified attorneys and/or title insurance companies, the City will then request services from all qualified service providers in rotation, as a rule on a project-by-project basis, with the same firm doing all searches and reports with respect to the same public works project.

B. The City may alter this practice at its sole discretion. Examples of instances when the City may choose to do so include but are not limited to the following:

1. When a project involves more than one search and report, and assigning the workload within the project to more than one service provider seems to the City to be a prudent means of achieving its desired timing.
2. When the service provider next in the rotation schedule informs the City that it would be unable to commence work on the assignment within five (5) City business days. (In this case, the City reserves the right to skip this service provider for this assignment, but the service provider would remain next on the rotation schedule for the next assignment. However, see first sentence of provision 11.5.E below.)

C. The order of rotation on the list shall be established by the City by some random selection method.

D. The City shall use best efforts to see that title search work is equitably allocated among qualified firms on the list, but the City does not guarantee any service provider any particular number of assignments per year or that the assignments will in fact be evenly divided.

E. A service provider may decline up to three consecutive assignments without forfeiting its turn in the rotation schedule (that is, the service provider would remain next on the rotation schedule for the next assignment). A service provider may withdraw from the rotation schedule during the term of award without penalty.

F. The City may suspend or remove a firm from the list for cause. Examples of instances when the City may choose to do so include but are not limited to the following:

1. Timeliness in completing assignments.
2. Poor quality of work in the exclusive judgment of the City.
3. Refusal to accept more than three consecutive assignments (considering all reasonable circumstances).
4. Other reasons deemed by the City to be in its best interests.

11.6. Fee for services rendered

Except as described below. The fee for all services rendered shall equal $450.00 per title search and report or opinion. This fee is to be all-inclusive. Service provider shall not charge, and the City of Franklin shall not pay, any other fees or charges submitted by service provider for any expense directly or indirectly related to the provision of the required services.

In extraordinary circumstances, and upon agreement of the parties, a particular request for title may be deemed "complex." Upon such designation, the parties may negotiate a different rate of pay based upon the complexity or anticipated difficulty of the title opinion request. The City anticipates such designations to be highly uncommon, and if

agreement upon a negotiated rate cannot be reached in such situation, the City reserves the right to move to another title opinion provider.

11.7. Evaluation criteria

Submittals will be reviewed and evaluated by the City's Law Department and Purchasing Office. At any point in the selection process, the service provider may be requested to submit information supplemental to its submittal. If deemed necessary, personal interviews will be conducted with representatives of some or all of the service providers. Criteria to be used in evaluating the submittals for inclusion on the list will include qualifications, experience, size of operations that can be committed to title work, reputation, references, judgment of timeliness and quality of prior work, if any, for the City.

The following criteria shall be used to evaluate response submittals:

A. Experience and qualifications: Experience and qualifications of the firm, as well as of key personnel to be assigned to the project, with projects of similar scope for clients of similar description. Quality and relevance of the identified client references. Any conflicts of interest between the firm and/or key personnel and the City. Whether the firm has the financial wherewithal to perform the services anticipated by the Request for Qualifications. Value: up to __ points. (suggestion: 60 points)

B. Unique strengths of the potential service provider: Exceptional, value-added features or capabilities of the firm and/or individuals that would be assigned to the project/client; identifiable differentiation(s) between the firm and its competition. Unique strengths of the response submittal. Value: up to __ points. (suggestion: 10 points)

C. Thoroughness and quality of response submittal: Thoroughness and degree of responsiveness of the response submittal to the entire procurement solicitation. Degree to which the response submittal conveys an understanding of the City's needs. Degree to which the response submittal describes the likely results of the City accepting the respective response submittal and whether those results would address the City's purpose and objective. Value: up to __ points. (suggestion: 30 points)

11.8. Information required to be included in response submittal

The following information shall be included by the potential service provider in its submittal in order for it to be considered responsive:

A. Experience and qualifications:

1. Qualifications of firms selected: Firms submitting responses to this Request for Qualifications shall include with their submittal a detailed statement of qualifications. Submitted statements of qualifications shall include information on the following topics:

i. Number of years the firm has been under the same ownership as the current ownership.

ii. Number of years the firm has offered and provided realty title search and opinion of real estate located within the State of Tennessee.

iii. Whether the firm has provided the required services to other Tennessee municipal clients and, if so, which ones and over what period of time.

iv. Whether the firm has provided the required services to the City of Franklin and, if so, over what period of time.

B. Thoroughness and quality of response submittal:

1. Provide evidence that you understand the City's service needs as anticipated in the Request for Qualifications.

2. Affirm that you have responded thoroughly to the Request for Qualifications, including the companion documents that, with the Request for Qualifications, comprise the entire procurement solicitation.

3. Indicate whether those results would address the City's purpose and objective.

11.9. Insurance Requirements

Before award of the procurement by the City, the successful service provider (that is, the vendor who is recommended be awarded the purchase) shall provide one or more unexpired certificates of insurance providing evidence of the following minimum types and limits of insurance coverage:

Type of Coverage	Limits of Coverage	Certificate of Insurance
Workers Compensation (not required of an individual or of a firm with fewer than five (5) persons)	Statutory limits	Certificate Holder only
Employers Liability (not required of an individual or of a firm with fewer than five (5) persons)	$1,000,000 Bodily Injury Each Accident $1,000,000 Policy Limit Bodily Injury by Disease $1,000,000 Each Employee Bodily Injury by Disease	Certificate Holder only
Professional Liability	$1,000,000 Combined Single Limit	Certificate Holder only

If and when insurance coverage documented by the certificate(s) of insurance referenced above expires before the expiration of any specified term of award, including any extensions thereto, or the supply, delivery and acceptance of the ordered products and/or services, pursuant to this procurement solicitation, then the successful service provider shall immediately suspend work or supply unless and until it provides one or more unexpired replacement certificates of insurance that indicates the new

date(s) of insurance coverage expiration and that meets or exceeds the insurance requirements as specified above.

In the event that insurance coverage documented by the certificate(s) of insurance referenced above is materially modified or canceled before the expiration of any specified term of award, including any extensions thereto, or the supply, delivery and acceptance of the ordered products and/or services, pursuant to this procurement solicitation, then the successful service provider shall, immediately upon learning of any such material modification or cancelation, suspend work or supply and shall, within three (3) calendar days of such learning, notify the City of any such material modification or cancelation.

The successful service provider agrees to impose the City's insurance requirements upon any subcontractors it utilizes for this procurement. Use of any particular subcontractor for this procurement shall have been approved by the City in advance of that subcontractor commencing work for this procurement.

11.10. City of Franklin Law Department Policy and Procedures for Outside Legal Counsel

The *City of Franklin Law Department Policy and Procedures for Outside Legal Counsel* applies to this procurement.

Response Submittal Form

a form required to be completed by respondents to

City of Franklin, Tennessee

Legal RFQ File No. 2023-0001

Respondent's name, street address, and mailing address (if different):	Cindy S. Smith, P.C. Attorneys at Law 2739 Larmon Drive Nashville, TN 37204
Respondent's contact person's name (printed), title, telephone number and e-mail address:	Cindy S. Smith, President 615-259-1152 cindy@csspc.us
Does the respondent take any exceptions to the City's procurement solicitation?	☐ Yes, see enclosed. ☒ No, respondent takes no exceptions.
Are exceptions, if any, to the City's procurement solicitation listed separately, described, compared to the City's intention as expressed and implied by the City's solicitation documents, and submitted?	☐ Yes, see enclosed. ☒ No, respondent takes no exceptions.
Are the City's preferred payment terms (net 30 days from date of delivery or date of invoice, whichever is later) acceptable to respondent?	☒ Yes. ☐ No, respondent requests the following payment terms: Cindy S. Smith, P.C. .
Last date that submittal is valid and may be accepted by the City:	May 18, 2023
Method of payment: The City's default method of payment is by electronic means, either by direct deposit (i.e., "ACH" or "Electronic Funds Transfer"), or by bank credit card, rather than by conventional check. Which electronic payment method would the respondent prefer?	☒ ACH or Electronic Funds Transfer. ☐ Bank credit card.

Response Submittal Form

a form required to be completed by respondents to

City of Franklin, Tennessee

Legal RFQ File No. 2023-0001

Respondent's name:	Cindy S. Smith, P.C.
Are the following included with this Response Submittal Form in the submittal? • Statement of qualifications that is responsive to the procurement solicitation including the Request for Qualifications; • Identification, listing and description of any exceptions to the procurement solicitation including the Request for Qualifications; • Contact information for references required per the Request for Qualifications; • City of Franklin Standard Procurement Terms and Conditions, with the respondent's contact information inserted; • City of Franklin Affidavit of Non-Collusion, executed in full; • City of Franklin Affidavit of Title VI Compliance, executed in full; and • A complete copy of submittal documents per the Instructions for Response Submittal.	☒ Yes, see enclosed. ☐ No, respondent chooses not to include all of these components (WARNING: doing so may cause the City to deem the submittal non-responsive).
Acknowledge any and all issued addenda to this solicitation: (Prior to submitting its response, it is the responsibility of each potential respondent to determine whether any addenda to this procurement solicitation have in fact been issued by the City.)	☐ Addendum No. 1. ☐ Addenda Nos. 1 through _____. ☒ No addenda.
First subscription and affirmation of respondent's authorized representative: By submission of this response, each submitter and each person signing on behalf of any submitter certifies, and in the case of a joint submittal each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each submitter is not on the list created pursuant to Tennessee Code Annotated § 12-12-106.	(signature)
Second subscription and affirmation of respondent's authorized representative: Except for any contract resulting from the submittal of this response with a total potential value of less than $250,000, by submission of this response, each respondent, except those with fewer than ten employees, and each person signing on behalf of any such respondent certifies, and in the case of a joint submittal each party thereto certifies as to its own organization, under penalty of perjury, that, to the best of its knowledge and belief, such respondent is not currently engaged in, and will not, for the duration of any such contract, engage in, a boycott of Israel.	(signature)
Signature of respondent's authorized representative: I affirm that I am authorized by the respondent to sign this Response Submittal Form as well as any and all companion forms and documents included herewith. I have obtained and read, and do understand and consent, to all instructions, terms and conditions, including those imposed by reference, which apply to this procurement solicitation and compliance with which is required as a condition precedent to consideration of the response submitted herewith.	(signature)
Title of respondent's authorized representative:	President
Respondent's name:	Cindy S. Smith
Date of signatures:	5-17-2023

Affidavit of Non-Collusion

a form required of Bidders and Proposers on purchases of supplies, materials, equipment and services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Davidson)

Affiant, Cindy S. Smith, deposes and makes oath that:
(printed name of person signing Affidavit)

1. He or she is the President of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Cindy S. Smith, P.C.,
(legal name of entity submitting bid or proposal)
the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. Such bid or proposal is genuine and is not a collusive or sham bid or proposal;

4. Neither the said Bidder or Proposer nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this Affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any official or agent of the City of Franklin or with any other firm, person, or potential or actual bidder or proposer to submit a collusive or sham bid or proposal in connection with the contract for which the attached bid or proposal has been submitted, or to refrain from bidding or proposing indirectly, or sought by agreement, or collusion, or communication, or conference with any other firm, person, or potential or actual bidder or proposer to fix the price or prices or cost element of the bid, quoted or proposed price or the bid, quoted or proposed price of any other potential or actual bidder or proposer, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of Franklin or any person interested in the proposed contract;

5. The price or prices quoted in the attached bid or proposal are fair and proper and are not tainted by a collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this Affiant; and

6. He or she understands that Article VIII, Section 16, of the City Charter of Franklin, and T.C.A. §6-54-107, prohibit any member of the Board of Mayor and Aldermen, or officer elected by said Board, from being interested in any contract, or work of any kind whatever, under its control and direction, and any contract in which any such person shall have an interest shall be void and unenforceable, subjecting any funds received by contractor to be returned in full to the City, in addition to any other penalties provided by law.

_____ President
(signature of Affiant) (title of Affiant)

Sworn and subscribed to before me this 17th day of May, 2023

_____
(Notary Public)

My Commission Expires: _____

SARAH CUNNINGHAM
STATE OF TENNESSEE
NOTARY PUBLIC
WILLIAMSON COUNTY
My Commission Expires MARCH 21, 2026

(Submitted in response to City of Franklin Law Department Solicitation No. 2023-)

Affidavit of Title VI Compliance

a form required of Bidders and Proposers on purchases of services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Davidson)

Affiant, Cindy S. Smith, deposes and makes oath that:
(printed name of person signing Affidavit)

1. He or she is the President of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Cindy S. Smith, P.C.,
(legal name of entity submitting bid or proposal)
the Bidder or Proposer who has submitted the attached bid or proposal;
2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;
3. No person on the grounds of handicap or disability, age, race, color, religion, sex, national origin or any other class protected by federal and/or Tennessee constitutional, statutory and/or case law shall be excluded from participation in, or denied benefits of, or be otherwise subjected to discrimination in, the performance of the contract that results from the procurement solicitation to which this affidavit is a component, or in the employment practices of the successful Bidder or Proposer during the performance of the contract that results from said procurement solicitation;
4. The successful Bidder or Proposer shall, upon request, show proof of such non-discrimination, and shall post in conspicuous places, available to employees and job applicants, notices of such non-discrimination;
5. If, with the prior consent of the City, the successful Bidder or Proposer subcontracts any portion of the contract that results from the procurement solicitation to which this affidavit is a component, then the successful Bidder or Proposer shall contractually obligate all of its subcontractors for said contract to comply with the same non-discrimination provisions as those required of the successful Bidder or Proposer; and
6. This Affidavit is made on personal knowledge.

(signature of Affiant)

President
(title of Affiant)

Sworn and subscribed to before me this 17th day of May, 2023.

(Notary Public)

My Commission Expires: March 21, 2026

SARAH CUNNINGHAM
STATE OF TENNESSEE
NOTARY PUBLIC
WILLIAMSON COUNTY
My Commission Expires MARCH 21, 2026

City of Franklin Notice of Confidentiality & Proprietary Rights

Legal File No.: 2023-0001

THE CONTENTS OF THE CITY OF FRANKLIN, TENNESSEE PROCUREMENT AWARD MADE PURSUANT TO THE CITY'S PROCUREMENT SOLICITION REFERENCED ABOVE, AND SOME OR ALL INFORMATION THAT MAY BE OBTAINED IN THE COURSE OF ITS PERFORMANCE, MAY INCLUDE HIGHLY CONFIDENTIAL INFORMATION THAT MAY SUBJECT ANYONE DISCLOSING SUCH INFORMATION TO CIVIL AND CRIMINAL PENALTIES IMPOSED BY LOCAL, STATE AND FEDERAL LAW.

The successful Vendor must necessarily be granted access to public and private information that may be confidential under the Tennessee Open Records Law and other privacy laws.

CONFIDENTIAL INFORMATION

As a result of the procurement award, the parties may provide each other with Confidential Information. For the purposes of this Notice, "Confidential Information" is any information disclosed or discovered in written, graphic, verbal, or machine-recognizable form, whether or not clearly marked, designated, labeled or identified as such. Notwithstanding any other provisions of this Notice, Confidential Information shall not include any information that:

1. is or becomes publicly known through no wrongful act of the receiving party;
2. is already known to the receiving party without restriction when it is disclosed;
3. is, or subsequently becomes, rightfully and without breach of this Notice, in the receiving party's possession without any obligation restricting disclosure;
4. is independently developed by the receiving party without breach of this Notice;
5. is explicitly approved for release by written authorization of the disclosing party; or
6. is required to be disclosed under state or federal law.

Each party agrees to:

1. maintain the confidentiality of the other party's Confidential Information and not disclose it to any third party, except as authorized by the disclosing party in writing or as required by state or federal law or by a court of competent jurisdiction;
2. restrict disclosure of Confidential Information to its employees who have a "need to know" and not copy or reproduce such Confidential Information;
3. take necessary and appropriate precautions to guard the confidentiality of Confidential Information, including informing and requiring written acknowledgements from its employees who handle such Confidential Information that it is confidential and not to be disclosed to others, but such precautions shall be at least the same degree of care that the receiving party applies to its own confidential information and shall not be less than reasonable care; and
4. use such Confidential Information only in furtherance of the performance of this Notice.

City of Franklin Notice of Confidentiality & Proprietary Rights

Law Department Solicitation No.: 2023-0001

Confidential Information is and shall at all times remain the property of the disclosing party, and no grant of any proprietary rights in the Confidential Information is hereby given or intended, including any express or implied license, other than the limited right of the Vendor to use the Confidential Information in the manner and to the extent permitted by the scope of work. Vendor agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of Vendor's intentional, negligent, inadvertent or unintentional release of City documents or information.

PRESERVATION OF CITY'S PROPRIETARY RIGHTS, RIGHTS OF THIRD PARTIES

The City, including its contractors, agents, employees and any third party manufacturers of any equipment, and the copyright owner of any Non-Vendor Software shall own and retain all of their respective Proprietary Rights in any Equipment and Software. Nothing in this Notice is intended to restrict the Proprietary Rights of Vendor, any copyright owner of Non-Vendor Software, or any third party manufacturer of equipment. All intellectual property developed, originated, or prepared by Vendor in connection with providing to City consulting services in connection with the evaluation of the City's equipment, software, or related systems and services remain vested exclusively in City, and this Notice does not grant to Vendor any shared development rights of intellectual property. Exclusive title to all data input, generated by or transferred into or out of the City's system by City shall remain vested in City.

Nothing in this Notice will be deemed to grant, either directly or by implication, estoppel, or otherwise, any right, title or interest in Vendor's Proprietary Rights. City agrees not to modify, disassemble, peel components, decompile, otherwise reverse engineer or attempt to reverse engineer, derive source code or create derivative works from, adapt, translate, merge with other software, reproduce, distribute, sublicense, sell or export the Software, or permit or encourage any third party to do so. The preceding sentence shall not apply to Open Source Software which is governed by the standard license of the copyright owner.

I HAVE READ THE ABOVE TERMS, UNDERSTAND THEM AND AGREE TO ABIDE BY THEM UNDER PENALTY OF LAW.

SO ACKNOWLEDGED:

Cindy S. Smith, P.C.

Signature of authorized representative of Vendor

5-17-2023

Date

Employee's signature

(to be signed by each employee at the time of commencement of services)

Date

Standard Procurement Terms and Conditions
City of Franklin, Tennessee

1. Assignment and Successors. Neither party may assign any rights or obligations under these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, without the prior written consent of the other party. These Standard Procurement Terms and Conditions, and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, will be binding upon and inure to the benefit of the parties and their respective successors and permitted assigns.

2. Subcontracting. Vendor may subcontract any portion of the work only with the prior consent of the City, but such subcontracting will not relieve Vendor of its duties under these Standard Procurement Terms and Conditions and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

3. Time of the Essence. The parties agree that TIME IS OF THE ESSENCE with respect to the vendor's performance of all provisions of the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

4. Taxes. As a tax-exempt entity, the City shall not be responsible for sales or use taxes incurred for products or services. Upon request, the City shall supply Vendor with a copy of its Sales and Use Tax Exemption Certificate. Vendor shall bear the burden of providing its suppliers with a copy of the City's tax exemption certificate and shall assume all liability for such taxes, if any, that should be incurred.

5. Notices. Any notice provided pursuant to these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, if specified to be in writing, will be in writing and will be deemed given: (a) if by hand delivery, then upon receipt thereof; (b) if mailed, then three (3) City business days after deposit in the mail where sender is located, postage prepaid, certified mail return receipt requested; (c) if by next day delivery service, then upon such delivery; or (d) if by facsimile transmission or electronic mail, then upon confirmation of receipt. All notices will be addressed to the parties at the addresses set forth below (or set forth in such other document to which these Standard Procurement Terms and Conditions apply, or such other address as either party may in the future specify in writing to the other):

In the case of the City:	In the case of Vendor:
City of Franklin	Cindy S. Smith, P.C.
Attn: Law Department	ATTN: Cindy S. Smith
Re: City of Franklin Law Department Legal File No. 2023-0001	
109 Third Ave. South	2739 Larmon Drive
P.O. Box 305	Nashville, TN 37204
Franklin, TN 37065-0305	FAX: 615-296-4344
FAX: 615-550-6998	

6. Confidentiality and Proprietary rights. Vendor waives any right to confidentiality of any document, e-mail or file it fails to clearly mark on each page (or section as the case may be) as confidential or proprietary. Proprietary rights do not extend to the data created by the City's users of the System; all rights to that data (including derivative or hidden data such as metadata) shall vest solely in City at the moment of creation and City shall retain exclusive rights, title, and ownership of all data and images created therefrom at the moment of creation and utilization, through and including image creation. City may be required to disclose documents under state or federal law. City shall notify Vendor if a request for documents has been made and shall give Vendor a reasonable opportunity under the circumstances to respond to the request by redacting proprietary or other confidential information. In exchange, Vendor agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of (i) the City's failure to disclose such documents or information required to be disclosed by law, or (ii) the City's release of documents as a result of City's reliance upon Vendor's representation that materials supplied by Vendor (in full or redacted form) do not contain trade secrets or proprietary information, provided that the City impleads Vendor and Vendor assumes control over that claim.

7. Derivative Works. To the extent that the Agreement contains Vendor's reservation of rights, such definitions and limitations are superseded by the following: "Derivative Work" means a program that is based on or derived from one or more existing programs or components. If the original software is modified to create a new program, a derived work is created. If the original software was designed to accept plug-ins or drivers using a defined mechanism, such a driver or plug-in does not form a derived work. Linking to a library in the way it was designed to be interfaced with, does *not* constitute deriving a work. "Derivative work" is *not* the data that the Licensee inputs, manipulates, modifies or otherwise improves, nor the images resulting therefrom.

8. Arbitration/Mediation. No arbitration shall be required as a condition precedent to filing any legal claim arising out of or relating to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply. No arbitration or mediation shall be binding.

9. Waiver. Neither party's failure or delay to exercise any of its rights or powers under these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, will constitute or be deemed a waiver or forfeiture of those rights or powers. For a waiver of a right or power to be effective, it must be in writing signed by the waiving party. An effective waiver of a right or power shall not be construed as either (a) a future or continuing waiver of that same right or power, or (b) the waiver of any other right or power.

10. Warranties/Limitation of Liability/Waiver. City reserves all rights afforded to local governments under law for all general and implied warranties. The City does not waive any rights it may have to all remedies provided by law and therefore any attempt by Vendor to limit its liability shall be void and unenforceable.

11. Severability. If any term or provision of these Standard Procurement Terms and Conditions is held to be illegal or unenforceable, the validity or enforceability of the remainder of these Standard Procurement Terms and Conditions will not be affected.

12. Precedence. In the event of conflict between the provisions of these Standard Procurement Terms and Conditions and that of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, the provisions of these Standard Procurement Terms and Conditions will to the extent of such conflict take precedence unless such document expressly states that it is amending these Standard Procurement Terms and Conditions.

13. Indemnification. Vendor agrees to indemnify and save the Government of Franklin, the City of Franklin and individual, on or off duty, officers, and employees of the City of Franklin, harmless from any and all losses, damages and expenses, including court costs and attorneys' fees, by reason of any loss, whatsoever, arising out of or relating to or in consequence of the work done in connection with any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, excepting only such losses as shall be occasioned solely by the negligence of the City of Franklin.

14. Additions/Modifications. If seeking any addition or modification to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, the parties agree to reference the specific paragraph number sought to be changed on any future document or purchase order issued in furtherance of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, however, an omission of the reference to same shall not affect its applicability. In no event shall either party be bound by any terms contained in any purchase order, acknowledgement, or other writings unless: (a) such purchase order, acknowledgement, or other writings specifically refer to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply or to the specific clause they are intended to modify; (b) clearly indicate the intention of both parties to override and modify any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply; and (c) such purchase order, acknowledgement, or other writings are signed, with specific material clauses separately initialed, by authorized representatives of both parties.

15. Applicable Law; Choice of Forum/Venue. These Standard Procurement Terms and Conditions and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply are made under and will be construed in accordance with the laws of the State of Tennessee without giving effect to any state's choice-of-law rules. The choice of forum and venue shall be exclusively in the Courts of Williamson County, TN.

16. Termination. Unless the City has indicated otherwise in the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, either party may terminate the contract or agreement or purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, with or without cause, upon thirty (30) calendar days' notice to the other. Upon termination by the vendor, the City shall be entitled to retain ownership of any and all goods and equipment purchased. Upon termination by the City, the vendor shall be entitled to receive any amounts due as a result of goods and equipment already delivered and/or services already

rendered; however, the City shall maintain ownership and control of any goods and equipment purchased. Upon termination of services, whether connected or unconnected to goods and equipment, such services shall be rendered until the conclusion of the 30th calendar day as stated in the notice or until a contractual benchmark has been achieved, or as the parties may otherwise agree.

17. Breach. Upon deliberate breach of these Standard Procurement Terms and Conditions, or of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, by either party, the non-breaching party shall be entitled to terminate the contract or agreement or purchase order or other procurement to which these Standard Procurement Terms and Conditions apply without notice, with all of the remedies it would have in the event of termination under the "Severability" section above, and may also have such other remedies as it may be entitled to in law or in equity.

18. Default. If Vendor fails to perform or comply with any provision of these Standard Procurement Terms and Conditions, or of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, then the City (i) may cancel the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, in whole or in part, without penalty or protest by Vendor; (ii) may consider such failure to perform or comply as a breach of contract; (iii) reserves the right to purchase its requirements from the vendor that submitted the next lowest and best responsive and responsible bid, or the vendor that submitted the next best proposal, if that vendor will still honor that bid or proposal, or to seek new bids or proposals, or to pursue one or more other options available to the City in compliance with its then current purchasing policy; and (iv) may hold the defaulting vendor liable for all damages provided by law, including cost of cover.

19. Entire Agreement. These Standard Procurement Terms and Conditions, including any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, constitutes the entire agreement between the parties and supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of these Standard Procurement Terms and Conditions. The terms and conditions of these Standard Procurement Terms and Conditions may not be changed except by an amendment expressly referencing these Standard Procurement Terms and Conditions by section title and signed by an authorized representative of each party.

20. Survival. These Standard Procurement Terms and Conditions shall survive the completion of or any termination of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

CITY OF FRANKLIN, TENNESSEE
PROCUREMENT AGREEMENT

(City of Franklin Contract No. 20___-_____)

THIS PROCUREMENT AGREEMENT ("AGREEMENT") is by and between the City of Franklin, Tennessee ("CITY"), and _____ ("VENDOR"), who mutually agree as follows:

1. CITY issued (a) on _____ __, 20__ Purchasing Office Solicitation No. 20__-___, a request for proposals for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes ("SOLICITATION").

2. In response to SOLICITATION, VENDOR submitted a statement of qualifications dated _____ __, 20__ ("SUBMITTAL"), a copy of excerpts from which is attached hereto as Attachment No. 1 and hereby incorporated by reference as if fully set forth herein.

3. VENDOR included in SUBMITTAL CITY's Standard Procurement Terms and Conditions with VENDOR's contact information inserted ("CITY'S TERMS"), a copy of which is attached hereto and hereby incorporated by reference as if fully set forth herein.

[4-9, if applicable:]

4. VENDOR has, subsequent to SUBMITTAL, also submitted Certificate(s) of Insurance ("CERTIFICATE(S) OF INSURANCE"), a copy/copies of which is/are attached hereto as Attachment No. 3 and hereby incorporated by reference as if fully set forth herein, that meets or exceeds CITY's Insurance Requirements as specified in SOLICITATION.

5. If and when insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above expires either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall immediately suspend work or supply and delivery unless and until it provides one or more unexpired replacement certificates of insurance that either indicates or collectively indicate the new date(s) of insurance coverage expiration and that either (a) meets or exceeds or (b) collectively meet or exceed CITY's Insurance Requirements as specified in SOLICITATION.

6. In the event that insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above is materially modified or canceled either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall, immediately upon learning of any such material modification or cancelation, suspend work or supply and delivery and shall, within three (3) calendar days of such learning, notify CITY of any such material modification or cancelation.

7. VENDOR has, subsequent to SUBMITTAL, also submitted CITY's Indemnification Agreement, executed for VENDOR ("INDEMNIFICATION AGREEMENT"), a copy of which is attached hereto as Attachment No. 4 and hereby incorporated by reference as if fully set forth herein.

8. CITY has awarded to VENDOR membership and participation on the CITY'S rotation on-call list for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes pursuant to SOLICITATION and SUBMITTAL.

9. The term of award shall commence upon execution of this AGREEMENT and shall expire three (3) years from the effective date of this AGREEMENT. At any time after commencement but before expiration of this term of award, CITY and VENDOR may, by mutual consent, exercise not more than two (2) options to extend the term of award, each time for up to one (1) additional year, for a maximum possible term of award of five (5) years total, provided: (a) that both parties consent to such an extension at that time; (b) that the decision to exercise such an extension is memorialized in writing and is executed by authorized representatives of each party (in the case of CITY, CITY's City Administrator); (c) that the same terms and conditions that apply to the original term of award shall also apply to such an extension unless otherwise amended, including pricing; (d) that if VENDOR chooses not to consent to an extension to the term of award, then it shall notify CITY of that decision a minimum of six (6) months in advance of the scheduled expiration of the term of award; and (e) at CITY's discretion, CITY and VENDOR may negotiate an additional extension beyond such expiration. Note that CITY and VENDOR each specifically retain the non-exclusive right, with or without cause, not to extend the term of award.

10. In the event of a conflict between the following documents, the order of precedence shall be as follows: (a) this AGREEMENT; (b) CITY's TERMS; (c) INDEMNIFICATION AGREEMENT; (d) SOLICITATION; and (e) SUBMITTAL.

EXECUTED THIS _____ DAY OF _____ 20____.

For VENDOR:

_____
(signature of VENDOR's authorized representative)

TITLE: _____

For CITY:

_____
(signature of CITY's authorized representative)

TITLE: City Administrator

Approved as to Form:

_____
William E. Squires, Assistant City Attorney

Attachment No. 1

Excerpts from SUBMITTAL

SAMPLE

Attachment No. 2

CITY'S TERMS

SAMPLE

Attachment No. 3

CERTIFICATE(S) OF INSURANCE

Certificate Date	Producer	Certificate Number	Certificate Holder	Type of Insurance	Policy Expiration
				Commercial General Liability	
				Automobile Liability	
				Workers Compensation and Employers' Liability	

Attachment No. 4

INDEMNIFICATION AGREEMENT

SAMPLE

Attachment No. 5

_____ AGREEMENT

SAMPLE

Indemnification Agreement

a form required of Bidders and Proposers on purchases of services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Davidson)

On behalf of Bidder/Proposer, Cindy S. Smith agrees that:
(printed name of person signing Agreement)

1. He or she is the President of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Cindy S. Smith, P.C.,
(legal name of entity submitting bid or proposal)

   the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. The Bidder or Proposer agrees to indemnify and save the Government of Franklin, the City of Franklin and individual, on or off duty, officers, and employees of the City of Franklin, harmless from any and all losses, damages and expenses, including court costs and attorneys' fees, by reason of any loss, whatsoever, arising out of or relating to or in consequence of the work done in connection with any contract, agreement, purchase order or other procurement to which this Agreement applies, excepting only such losses as shall be occasioned solely by the negligence of the City of Franklin; and

4. This Agreement is made on personal knowledge.

(signature of person whose printed name appears above)

President
(title of person whose printed name appears above)

Sworn and subscribed to before me this 17th day of May, 2023

(Notary Public)

My Commission Expires: May 18, 2023

SARAH CUNNINGHAM
STATE OF TENNESSEE
NOTARY PUBLIC
WILLIAMSON COUNTY
My Commission Expires MARCH 21, 2026

(Submitted in response to City of Franklin Law Department Solicitation No. 2023-)

Form revised 12/12/2016

CITY OF FRANKLIN, TENNESSEE
PROFESIONAL SERVICES AGREEMENT

(City of Franklin Contract No. 2023-0192)

THIS PROFESSIONAL SERVICES AGREEMENT ("AGREEMENT") is entered into by and between the City of Franklin, Tennessee ("CITY"), and Security American Title ("VENDOR"), who mutually agree as follows:

1. CITY issued on April 25, 2023, Solicitation RFQ Legal File No. 2023-0001, a request for qualifications for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes. ("SOLICITATION").
2. In response to SOLICITATION, VENDOR submitted a statement of qualifications dated May 11, 2023, ("SUBMITTAL"), a copy of excerpts from which is attached hereto as Attachment No. 1 and hereby incorporated by reference as if fully set forth herein.
3. VENDOR included in SUBMITTAL CITY's Standard Procurement Terms and Conditions with VENDOR'S contact information inserted ("CITY'S TERMS"), a copy of which is attached hereto in SUBMITTAL and is hereby incorporated by reference as if fully set forth herein.
4. VENDOR has, subsequent to or with SUBMITTAL, also submitted Certificate(s) of Insurance ("CERTIFICATE(S) OF INSURANCE"), a copy/copies of which is/are attached hereto as and hereby incorporated by reference as if fully set forth herein, that meets or exceeds CITY's Insurance Requirements.
5. If and when insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above expires either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall immediately suspend work or supply and delivery unless and until it provides one or more unexpired replacement certificates of insurance that either indicates or collectively indicate the new date(s) of insurance coverage expiration and that either (a) meets or exceeds or (b) collectively meet or exceed CITY's Insurance Requirements as specified in SOLICITATION.
6. In the event that insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above is materially modified or canceled either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall, immediately upon learning of any such material modification or cancelation, suspend work or supply and delivery and shall, within three (3) calendar days of such learning, notify CITY of any such material modification or cancelation.
7. VENDOR has also submitted CITY's Indemnification Agreement, executed for VENDOR ("INDEMNIFICATION AGREEMENT"), a copy of which is attached hereto as part of SUBMITTAL and hereby incorporated by reference as if fully set forth herein.
8. CITY has awarded to VENDOR membership and participation on the CITY'S rotating on-call list for professional services pertaining to title searches and reports for the City's

voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes pursuant to SOLICITATION and SUBMITTAL.

9. The term of award shall commence upon execution of this AGREEMENT and shall expire three (3) years from the effective date of this AGREEMENT. At any time after commencement but before expiration of this term of award, CITY and VENDOR may, by mutual consent, exercise not more than two (2) options to extend the term of award, each time for up to one (1) additional year, for a maximum possible term of award of five (5) years total, provided: (a) that both parties consent to such an extension at that time; (b) that the decision to exercise such an extension is memorialized in writing and is executed by authorized representatives of each party (in the case of CITY, CITY's City Administrator); (c) that the same terms and conditions that apply to the original term of award shall also apply to such an extension unless otherwise amended, including pricing; (d) that if VENDOR chooses not to consent to an extension to the term of award, then it shall notify CITY of that decision a minimum of six (6) months in advance of the scheduled expiration of the term of award; and (e) at CITY's discretion, CITY and VENDOR may negotiate an additional extension beyond such expiration. Note that CITY and VENDOR each specifically retain the non-exclusive right, with or without cause, not to extend the term of award.

10. In the event of a conflict between the following documents, the order of precedence shall be as follows: (a) this AGREEMENT; (b) CITY's TERMS; (c) INDEMNIFICATION AGREEMENT; (d) SOLICITATION; and (e) SUBMITTAL.

EXECUTED THIS 29th DAY OF June 20 23 .

For Security American Title

(signature of VENDOR's authorized representative)

TITLE: President

For CITY:

TITLE: City Administrator

Approved as to Form:

William E. Squires, Assistant City Attorney for CITY

Attachment No. 1

VENDOR'S SUBMITTAL DOCUMENTS



Security American Title- Executive Summary

Security American Title was founded in 2002 and is has had a focus on title search for over 20 years. We have a team of 11 title abstractors that perform our title work in house. We are a service-disabled Veteran owned business and our work shows it. We are obsessive over the quality of our work and meeting our deadlines. We are capable of commercial and residential title work no matter how complex. Our President, John Alexander is a certified title examiner from the Title Training Institute. We have years of experience with projects similar to the one offered here by the City of Franklin and have worked with many municipalities. We have served the state of TN with residential searches for 2 years but have yet to work with Franklin City directly. However, our experience makes us qualified to handle the task at hand. Most recently we worked with the metro project in Loudoun County VA called “Wishing Star to Mars”. This was a project between Loudoun County and Dominion Energy to expand the sub-station footprint. This was a highly complex title job that we were able to complete on time and within budget. We are ready to take on any and all title work you may have. We will work closely with you all to design the type of search you all require. We will provide copies, updates, recordings or any other service you may need that is title search related. We look forward to working with you all.

President: John Alexander

jalexander@securityamerican.com

C: 205-393-3580

Affidavit of Title VI Compliance

a form required of Bidders and Proposers on purchases of services for the

City of Franklin, Tennessee

State of Virginia)
) SS
County of Henrico)

Affiant, John Alexander, deposes and makes oath that:
(printed name of person signing Affidavit)

1. He or she is the President of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Security American Title,
(legal name of entity submitting bid or proposal)
the Bidder or Proposer who has submitted the attached bid or proposal;
2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;
3. No person on the grounds of handicap or disability, age, race, color, religion, sex, national origin or any other class protected by federal and/or Tennessee constitutional, statutory and/or case law shall be excluded from participation in, or denied benefits of, or be otherwise subjected to discrimination in, the performance of the contract that results from the procurement solicitation to which this affidavit is a component, or in the employment practices of the successful Bidder or Proposer during the performance of the contract that results from said procurement solicitation;
4. The successful Bidder or Proposer shall, upon request, show proof of such non-discrimination, and shall post in conspicuous places, available to employees and job applicants, notices of such non-discrimination;
5. If, with the prior consent of the City, the successful Bidder or Proposer subcontracts any portion of the contract that results from the procurement solicitation to which this affidavit is a component, then the successful Bidder or Proposer shall contractually obligate all of its subcontractors for said contract to comply with the same non-discrimination provisions as those required of the successful Bidder or Proposer; and
6. This Affidavit is made on personal knowledge.

(signature of Affiant)

President
(title of Affiant)

MARY CATHRYN PROCTOR
NOTARY
My Comm. Expires 12-31-26
8017123
PUBLIC
COMMONWEALTH OF VIRGINIA

Sworn and subscribed to before me this 11 day of MAY, 2023

(Notary Public)

My Commission Expires: 12-31-26

Form revised 10/30/2012 **Submitted in response to City of Franklin Law Department Solicitation No.** 2023-0001

City of Franklin Notice of Confidentiality & Proprietary Rights

Legal File No.:

THE CONTENTS OF THE CITY OF FRANKLIN, TENNESSEE PROCUREMENT AWARD MADE PURSUANT TO THE CITY'S PROCUREMENT SOLICITION REFERENCED ABOVE, AND SOME OR ALL INFORMATION THAT MAY BE OBTAINED IN THE COURSE OF ITS PERFORMANCE, MAY INCLUDE HIGHLY CONFIDENTIAL INFORMATION THAT MAY SUBJECT ANYONE DISCLOSING SUCH INFORMATION TO CIVIL AND CRIMINAL PENALTIES IMPOSED BY LOCAL, STATE AND FEDERAL LAW.

The successful Vendor must necessarily be granted access to public and private information that may be confidential under the Tennessee Open Records Law and other privacy laws.

CONFIDENTIAL INFORMATION

As a result of the procurement award, the parties may provide each other with Confidential Information. For the purposes of this Notice, "Confidential Information" is any information disclosed or discovered in written, graphic, verbal, or machine-recognizable form, whether or not clearly marked, designated, labeled or identified as such. Notwithstanding any other provisions of this Notice, Confidential Information shall not include any information that:

1. is or becomes publicly known through no wrongful act of the receiving party;
2. is already known to the receiving party without restriction when it is disclosed;
3. is, or subsequently becomes, rightfully and without breach of this Notice, in the receiving party's possession without any obligation restricting disclosure;
4. is independently developed by the receiving party without breach of this Notice;
5. is explicitly approved for release by written authorization of the disclosing party; or
6. is required to be disclosed under state or federal law.

Each party agrees to:

1. maintain the confidentiality of the other party's Confidential Information and not disclose it to any third party, except as authorized by the disclosing party in writing or as required by state or federal law or by a court of competent jurisdiction;
2. restrict disclosure of Confidential Information to its employees who have a "need to know" and not copy or reproduce such Confidential Information;
3. take necessary and appropriate precautions to guard the confidentiality of Confidential Information, including informing and requiring written acknowledgements from its employees who handle such Confidential Information that it is confidential and not to be disclosed to others, but such precautions shall be at least the same degree of care that the receiving party applies to its own confidential information and shall not be less than reasonable care; and
4. use such Confidential Information only in furtherance of the performance of this Notice.

Standard Procurement Terms and Conditions
City of Franklin, Tennessee

1. Assignment and Successors. Neither party may assign any rights or obligations under these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, without the prior written consent of the other party. These Standard Procurement Terms and Conditions, and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, will be binding upon and inure to the benefit of the parties and their respective successors and permitted assigns.

2. Subcontracting. Vendor may subcontract any portion of the work only with the prior consent of the City, but such subcontracting will not relieve Vendor of its duties under these Standard Procurement Terms and Conditions and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

3. Time of the Essence. The parties agree that TIME IS OF THE ESSENCE with respect to the vendor's performance of all provisions of the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

4. Taxes. As a tax-exempt entity, the City shall not be responsible for sales or use taxes incurred for products or services. Upon request, the City shall supply Vendor with a copy of its Sales and Use Tax Exemption Certificate. Vendor shall bear the burden of providing its suppliers with a copy of the City's tax exemption certificate and shall assume all liability for such taxes, if any, that should be incurred.

5. Notices. Any notice provided pursuant to these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, if specified to be in writing, will be in writing and will be deemed given: (a) if by hand delivery, then upon receipt thereof; (b) if mailed, then three (3) City business days after deposit in the mail where sender is located, postage prepaid, certified mail return receipt requested; (c) if by next day delivery service, then upon such delivery; or (d) if by facsimile transmission or electronic mail, then upon confirmation of receipt. All notices will be addressed to the parties at the addresses set forth below (or set forth in such other document to which these Standard Procurement Terms and Conditions apply, or such other address as either party may in the future specify in writing to the other):

In the case of the City:	In the case of Vendor:
City of Franklin	Security American Title
Attn: Law Department	
Re: City of Franklin Law Department Legal File No.	2023-001
109 Third Ave. South	477 McLaws Circle #3
P.O. Box 305	Williamsburg VA 23185
Franklin, TN 37065-0305	
FAX: 615-550-6998	

City of Franklin Notice of Confidentiality & Proprietary Rights

Law Department Solicitation No.: 2023 0001

Confidential Information is and shall at all times remain the property of the disclosing party, and no grant of any proprietary rights in the Confidential Information is hereby given or intended, including any express or implied license, other than the limited right of the Vendor to use the Confidential Information in the manner and to the extent permitted by the scope of work. Vendor agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of Vendor's intentional, negligent, inadvertent or unintentional release of City documents or information.

PRESERVATION OF CITY'S PROPRIETARY RIGHTS, RIGHTS OF THIRD PARTIES

The City, including its contractors, agents, employees and any third party manufacturers of any equipment, and the copyright owner of any Non-Vendor Software shall own and retain all of their respective Proprietary Rights in any Equipment and Software. Nothing in this Notice is intended to restrict the Proprietary Rights of Vendor, any copyright owner of Non-Vendor Software, or any third party manufacturer of equipment. All intellectual property developed, originated, or prepared by Vendor in connection with providing to City consulting services in connection with the evaluation of the City's equipment, software, or related systems and services remain vested exclusively in City, and this Notice does not grant to Vendor any shared development rights of intellectual property. Exclusive title to all data input, generated by or transferred into or out of the City's system by City shall remain vested in City.

Nothing in this Notice will be deemed to grant, either directly or by implication, estoppel, or otherwise, any right, title or interest in Vendor's Proprietary Rights. City agrees not to modify, disassemble, peel components, decompile, otherwise reverse engineer or attempt to reverse engineer, derive source code or create derivative works from, adapt, translate, merge with other software, reproduce, distribute, sublicense, sell or export the Software, or permit or encourage any third party to do so. The preceding sentence shall not apply to Open Source Software which is governed by the standard license of the copyright owner.

I HAVE READ THE ABOVE TERMS, UNDERSTAND THEM AND AGREE TO ABIDE BY THEM UNDER PENALTY OF LAW.

SO ACKNOWLEDGED:

Signature of authorized representative of Vendor	5/11/23 Date
Employee's signature *(to be signed by each employee at the time of commencement of services)*	Date

Indemnification Agreement

a form required of Bidders and Proposers on purchases of services for the

City of Franklin, Tennessee

State of Virginia)
) SS
County of Henrico)

On behalf of Bidder/Proposer, John Alexander agrees that:
(printed name of person signing Agreement)

1. He or she is the President of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Security American Title,
(legal name of entity submitting bid or proposal)
the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. The Bidder or Proposer agrees to indemnify and save the Government of Franklin, the City of Franklin and individual, on or off duty, officers, and employees of the City of Franklin, harmless from any and all losses, damages and expenses, including court costs and attorneys' fees, by reason of any loss, whatsoever, arising out of or relating to or in consequence of the work done in connection with any contract, agreement, purchase order or other procurement to which this Agreement applies, excepting only such losses as shall be occasioned solely by the negligence of the City of Franklin; and

4. This Agreement is made on personal knowledge.

(signature of person whose printed name appears above)

President
(title of person whose printed name appears above)

Sworn and subscribed to before me this 11 day of MAY, 2023

(Notary Public)

My Commission Expires: 12-31-26

MARY CATHRYN PROCTOR NOTARY PUBLIC COMMONWEALTH OF VIRGINIA My Comm. Expires 12-31-26 8017123

(Submitted in response to City of Franklin Law Department Solicitation No. 2023 0001)

Form revised 12/12/2016

Affidavit of Non-Collusion

a form required of Bidders and Proposers on purchases of supplies, materials, equipment and services for the

City of Franklin, Tennessee

State of Virginia)
) SS
County of Henrico)

Affiant, John Alexander, deposes and makes oath that:
(printed name of person signing Affidavit)

1. He or she is the President of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Security American Title,
(legal name of entity submitting bid or proposal)
the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. Such bid or proposal is genuine and is not a collusive or sham bid or proposal;

4. Neither the said Bidder or Proposer nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this Affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any official or agent of the City of Franklin or with any other firm, person, or potential or actual bidder or proposer to submit a collusive or sham bid or proposal in connection with the contract for which the attached bid or proposal has been submitted, or to refrain from bidding or proposing indirectly, or sought by agreement, or collusion, or communication, or conference with any other firm, person, or potential or actual bidder or proposer to fix the price or prices or cost element of the bid, quoted or proposed price or the bid, quoted or proposed price of any other potential or actual bidder or proposer, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of Franklin or any person interested in the proposed contract;

5. The price or prices quoted in the attached bid or proposal are fair and proper and are not tainted by a collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this Affiant; and

6. He or she understands that Article VIII, Section 16, of the City Charter of Franklin, and T.C.A. §6-54-107, prohibit any member of the Board of Mayor and Aldermen, or officer elected by said Board, from being interested in any contract, or work of any kind whatever, under its control and direction, and any contract in which any such person shall have an interest shall be void and unenforceable, subjecting any funds received by contractor to be returned in full to the City, in addition to any other penalties provided by law.

MARY CATHRYN PROCTOR NOTARY My Comm. Expires 12-31-26 8017123 PUBLIC COMMONWEALTH OF VIRGINIA

(signature of Affiant) — President (title of Affiant)

Sworn and subscribed to before me this 11 day of MAY, 2023

(Notary Public)

My Commission Expires: 12-31-2026

(Submitted in response to City of Franklin Law Department Solicitation No. 2023-0001)

Response Submittal Form

a form required to be completed by respondents to

City of Franklin, Tennessee

Legal RFQ File No. 2023-0001

Respondent's name, street address, and mailing address (if different):	Security American Title 471 McLaws Circle #3 Williamsburg VA 23185
Respondent's contact person's name (printed), title, telephone number and e-mail address:	John Alexander President 205-393-3580 Jalexander@securityamerican.com
Does the respondent take any exceptions to the City's procurement solicitation?	☐ Yes, see enclosed. ☒ No, respondent takes no exceptions.
Are exceptions, if any, to the City's procurement solicitation listed separately, described, compared to the City's intention as expressed and implied by the City's solicitation documents, and submitted?	☐ Yes, see enclosed. ☒ No, respondent takes no exceptions.
Are the City's preferred payment terms (net 30 days from date of delivery or date of invoice, whichever is later) acceptable to respondent?	☒ Yes. ☐ No, respondent requests the following payment terms: _____.
Last date that submittal is valid and may be accepted by the City:	3PM Ceentral May 18, 2023
Method of payment: The City's default method of payment is by electronic means, either by direct deposit (i.e., "ACH" or "Electronic Funds Transfer"), or by bank credit card, rather than by conventional check. Which electronic payment method would the respondent prefer?	☒ ACH or Electronic Funds Transfer. ☐ Bank credit card.

Response Submittal Form

a form required to be completed by respondents to

City of Franklin, Tennessee

Legal RFQ File No. 2023-0001

Respondent's name:	John Alexander
Are the following included with this Response Submittal Form in the submittal? • Statement of qualifications that is responsive to the procurement solicitation including the Request for Qualifications; • Identification, listing and description of any exceptions to the procurement solicitation including the Request for Qualifications; • Contact information for references required per the Request for Qualifications; • City of Franklin Standard Procurement Terms and Conditions, with the respondent's contact information inserted; • City of Franklin Affidavit of Non-Collusion, executed in full; • City of Franklin Affidavit of Title VI Compliance, executed in full; and • A complete copy of submittal documents per the Instructions for Response Submittal.	☒ Yes, see enclosed. ☐ No, respondent chooses not to include all of these components (WARNING: doing so may cause the City to deem the submittal non-responsive).
Acknowledge any and all issued addenda to this solicitation: (Prior to submitting its response, it is the responsibility of each potential respondent to determine whether any addenda to this procurement solicitation have in fact been issued by the City.)	☐ Addendum No. 1. ☐ Addenda Nos. 1 through _____. ☐ No addenda.
First subscription and affirmation of respondent's authorized representative: By submission of this response, each submitter and each person signing on behalf of any submitter certifies, and in the case of a joint submittal each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each submitter is not on the list created pursuant to Tennessee Code Annotated § 12-12-106.	_____ (signature)
Second subscription and affirmation of respondent's authorized representative: Except for any contract resulting from the submittal of this response with a total potential value of less than $250,000, by submission of this response, each respondent, except those with fewer than ten employees, and each person signing on behalf of any such respondent certifies, and in the case of a joint submittal each party thereto certifies as to its own organization, under penalty of perjury, that, to the best of its knowledge and belief, such respondent is not currently engaged in, and will not, for the duration of any such contract, engage in, a boycott of Israel.	_____ (signature)
Signature of respondent's authorized representative: I affirm that I am authorized by the respondent to sign this Response Submittal Form as well as any and all companion forms and documents included herewith. I have obtained and read, and do understand and consent, to all instructions, terms and conditions, including those imposed by reference, which apply to this procurement solicitation and compliance with which is required as a condition precedent to consideration of the response submitted herewith.	_____ (signature)
Title of respondent's authorized representative:	President
Respondent's name:	John Alexander
Date of signatures:	5/11/23

Title Agents, Abstractors & Escrow Agents

Errors & Omissions Liability Insurance Policy

DECLARATIONS

Ascot Specialty Insurance Company

Policy Number: TUS-0662400 **Renewal of Policy Number:** NEW

Broker Name: TitlePac, Inc. - Oklahoma City, OK

This is a Claims-Made and Reported Policy. Subject to its terms and conditions, this Policy only covers **Claims** first made against the **Insured** during the **Policy Period** or **Extended Reporting Period**, if applicable, and reported to the Insurer in writing during the **Policy Period**, but in no event later than thirty (30) days after expiration or termination of this Policy, or during the **Extended Reporting Period**, if applicable. **Claims Expenses** are included within, and will reduce, the Limits of Liability. Please read the entire Policy carefully, and consult with your broker/agent or other professional to the extent you do not understand any terms or conditions of this Policy.

Item 1. **NAMED INSURED** - NAME AND ADDRESS:

SECURITY AMERICAN TITLE LLC
477 McLaws Cir #3
Williamsburg, VA 23185

Description of Business: Abstractor / Searcher

Item 2. **POLICY PERIOD**:

(A) Inception Date: 3/01/2023
(B) Expiration Date: 3/01/2024
at 12:01 a.m. both dates at the Address set forth in Item 1.

Item 3. **LIMITS OF LIABILITY** (INCLUSIVE OF **CLAIMS EXPENSES**):

Limits of Liability are:

(A) Each **Claim**:	$1,000,000
(B) Maximum Policy Aggregate:	$1,000,000

Subject to Extensions of Coverage and Sublimits summarized on Page 3 of Declarations.

Item 4. **DEDUCTIBLE** (SUBJECT TO **CLAIMS EXPENSES**):

(A) Each **Claim**:	$ 5,000

Item 5. **RETROACTIVE DATE**:

Retroactive Date: 3/01/2002

Item 6. **RATES/PREMIUM**:

Premium:	$ 5,166.00
Surplus Lines Tax:	$ 125.23
Stamping Fee:	$ 1.39
Policy Fee:	$ 400.00
Total Premium:	**$ 5,692.62**

Reference 1

Name of Business, County, County or Agency	Street Address	County & State	Contract Dates
JDM Title	1577 Spring Hill Rd #300A	Fairfax VA	2015 - current
Contact	Title	Telephone	Email Address
Angela Rena	General Manager	703-891-2599	areina@jdmtitle.com
Description of Work Performed:		Contract Amount: $ 500,000 +	
We perform a variety of title searches for them. We have done current owner searches, foreclosures, full searches,			
commercial searches, updates and much more. We provide document copies and anything else they may need			
to successfully transfer clear title.			

Reference 2

Name of Business, County, County or Agency	Street Address	County & State	Contract Dates
Title Check LLC	2523 Kenwood Ave	Henrico VA	2010 - current
Contact	Title	Telephone	Email Address
Chris Beahr	Partner	757-619-8745	chrisbeahr@yahoo.com
Description of Work Performed:		Contract Amount: $ 500,000 +	
We have a similar scope of work with this company. We do all things title from searches to updates and recordings.			

Reference 3

Name of Business, County, County or Agency	Street Address	County & State	Contract Dates
First American Title	9000 E PIMA CENTER PKWY	Scottsdale	2018 - current
Contact	Title	Telephone	Email Address
Admin staff	Admin team	unk	MAGICPEN@FIRSTAM.COM
Description of Work Performed:		Contract Amount: $ 100000+	
Much like the other references, we provide title work for them in VA, MD and other areas on a case by case basis.			

Reference 4

Name of Business, County, County or Agency	Street Address	County & State	Contract Dates
KDR REAL ESTATE	2500 GRENOBLE RD	Richmond VA	2020- current
Contact	Title	Telephone	Email Address
Jill Medina	Senior Technician	804-956-4633	jmedina@kdrrealestate.com
Description of Work Performed:		Contract Amount: $ 100000 +	
This client is more commercial leaning. We help with right of way projects and commercial searches. We have done several projects with them for the county of Loudoun VA.			

Reference 5

Name of Business, County, County or Agency	Street Address	County & State	Contract Dates
Philadelphia Credit Bureau	418 Baltimore Pike	Media PA	2020 - current
Contact	Title	Telephone	Email Address
Whole office	Entire firm	unk	general@phillysub.com
Description of Work Performed:		Contract Amount: $ 50000+	
We do title searches for closings and foreclosures.			

Reference 6

Name of Business, County, County or Agency	Street Address	County & State	Contract Dates
Department of Veteran Affairs	1510 5TH ST NW	WDC	2022
Contact	Title	Telephone	Email Address
Mr. Gupta	unk	unk	vgupta_98@yahoo.com
Description of Work Performed:		Contract Amount: $ 2000	
Performed various title work.			

CITY OF FRANKLIN, TENNESSEE
PROFESIONAL SERVICES AGREEMENT

(City of Franklin Contract No. 2023-0192)

THIS PROFESSIONAL SERVICES AGREEMENT ("AGREEMENT") is entered into by and between the City of Franklin, Tennessee ("CITY"), and Home Surety Title & Escrow, LLC ("VENDOR"), who mutually agree as follows:

1. CITY issued on April 25, 2023, Solicitation RFQ Legal File No. 2023-0001, a request for qualifications for professional services pertaining to title searches and reports for the City's voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes. ("SOLICITATION").

2. In response to SOLICITATION, VENDOR submitted a statement of qualifications dated May 8, 2023, ("SUBMITTAL"), a copy of excerpts from which is attached hereto as Attachment No. 1 and hereby incorporated by reference as if fully set forth herein.

3. VENDOR included in SUBMITTAL CITY's Standard Procurement Terms and Conditions with VENDOR'S contact information inserted ("CITY'S TERMS"), a copy of which is attached hereto in SUBMITTAL and is hereby incorporated by reference as if fully set forth herein.

4. VENDOR has, subsequent to or with SUBMITTAL, also submitted Certificate(s) of Insurance ("CERTIFICATE(S) OF INSURANCE"), a copy/copies of which is/are attached hereto as and hereby incorporated by reference as if fully set forth herein, that meets or exceeds CITY's Insurance Requirements.

5. If and when insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above expires either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall immediately suspend work or supply and delivery unless and until it provides one or more unexpired replacement certificates of insurance that either indicates or collectively indicate the new date(s) of insurance coverage expiration and that either (a) meets or exceeds or (b) collectively meet or exceed CITY's Insurance Requirements as specified in SOLICITATION.

6. In the event that insurance coverage documented by CERTIFICATE(S) OF INSURANCE referenced above is materially modified or canceled either before the expiration of any specified term of award, including any extensions thereto, or before the supply and delivery by VENDOR and the acceptance by CITY of all of the products and/or services ordered from VENDOR, pursuant to this AGREEMENT, then VENDOR shall, immediately upon learning of any such material modification or cancelation, suspend work or supply and delivery and shall, within three (3) calendar days of such learning, notify CITY of any such material modification or cancelation.

7. VENDOR has also submitted CITY's Indemnification Agreement, executed for VENDOR ("INDEMNIFICATION AGREEMENT"), a copy of which is attached hereto as part of SUBMITTAL and hereby incorporated by reference as if fully set forth herein.

8. CITY has awarded to VENDOR membership and participation on the CITY'S rotating on-call list for professional services pertaining to title searches and reports for the City's

voluntary purchase of real estate or its acquisition by eminent domain for City public works projects and other public purposes pursuant to SOLICITATION and SUBMITTAL.

9. The term of award shall commence upon execution of this AGREEMENT and shall expire three (3) years from the effective date of this AGREEMENT. At any time after commencement but before expiration of this term of award, CITY and VENDOR may, by mutual consent, exercise not more than two (2) options to extend the term of award, each time for up to one (1) additional year, for a maximum possible term of award of five (5) years total, provided: (a) that both parties consent to such an extension at that time; (b) that the decision to exercise such an extension is memorialized in writing and is executed by authorized representatives of each party (in the case of CITY, CITY's City Administrator); (c) that the same terms and conditions that apply to the original term of award shall also apply to such an extension unless otherwise amended, including pricing; (d) that if VENDOR chooses not to consent to an extension to the term of award, then it shall notify CITY of that decision a minimum of six (6) months in advance of the scheduled expiration of the term of award; and (e) at CITY's discretion, CITY and VENDOR may negotiate an additional extension beyond such expiration. Note that CITY and VENDOR each specifically retain the non-exclusive right, with or without cause, not to extend the term of award.

10. In the event of a conflict between the following documents, the order of precedence shall be as follows: (a) this AGREEMENT; (b) CITY's TERMS; (c) INDEMNIFICATION AGREEMENT; (d) SOLICITATION; and (e) SUBMITTAL.

EXECUTED THIS 29th DAY OF June 2023.

For Home Surety Title & Escrow, LLC

(signature of VENDOR's authorized representative)

TITLE: Attorney

For CITY:

TITLE: City Administrator

Approved as to Form:

William E. Squires, Assistant City Attorney for CITY

CITY OF FRANKLIN, TENNESSEE
PROFESIONAL SERVICES AGREEMENT

(City of Franklin Contract No. 2023-0192)

Attachment No. 1

VENDOR'S SUBMITTAL DOCUMENTS

HOME SURETY TITLE & ESCROW, LLC

ATTN: Kelly Peevyhouse, Esq.

5583 Murray Rd. Ste 120

Memphis, TN 38119

901-737-2100

SEALED SUBMITTAL

City of Franklin Solicitation

Legal RFQ File No. 2023-0001

NOT TO BE OPENED EXCEPT AT SUBMITTAL OPENING:

May 18, 2023, 3:00 p.m. Central Time

Response Submittal Form

a form required to be completed by respondents to

City of Franklin, Tennessee

Legal RFQ File No. 2023-0001

Respondent's name, street address, and mailing address (if different):	Home Surety Title + Escrow, LLC 5583 Murray Rd. Suite 120 Memphis, TN 38119 (Affiliate: Jeffrey F. McEvoy, Atty at Law)
Respondent's contact person's name (printed), title, telephone number and e-mail address:	Kelly A. Peevyhouse Attorney 901-737-2100 Kpeevyhouse@homesuretytitle.com
Does the respondent take any exceptions to the City's procurement solicitation?	☐ Yes, see enclosed. ☒ No, respondent takes no exceptions.
Are exceptions, if any, to the City's procurement solicitation listed separately, described, compared to the City's intention as expressed and implied by the City's solicitation documents, and submitted?	☐ Yes, see enclosed. ☒ No, respondent takes no exceptions.
Are the City's preferred payment terms (net 30 days from date of delivery or date of invoice, whichever is later) acceptable to respondent?	☒ Yes. ☐ No, respondent requests the following payment terms: _____.
Last date that submittal is valid and may be accepted by the City:	May 15, 2023
Method of payment: The City's default method of payment is by electronic means, either by direct deposit (i.e., "ACH" or "Electronic Funds Transfer"), or by bank credit card, rather than by conventional check. Which electronic payment method would the respondent prefer?	☒ ACH or Electronic Funds Transfer. ☐ Bank credit card.

Response Submittal Form

a form required to be completed by respondents to

City of Franklin, Tennessee

Legal RFQ File No. 2023-0001

Respondent's name:	Home Sorety Title & Escrow, LLC.
Are the following included with this Response Submittal Form in the submittal? • Statement of qualifications that is responsive to the procurement solicitation including the Request for Qualifications; • Identification, listing and description of any exceptions to the procurement solicitation including the Request for Qualifications; • Contact information for references required per the Request for Qualifications; • City of Franklin Standard Procurement Terms and Conditions, with the respondent's contact information inserted; • City of Franklin Affidavit of Non-Collusion, executed in full; • City of Franklin Affidavit of Title VI Compliance, executed in full; and • A complete copy of submittal documents per the Instructions for Response Submittal.	☒ Yes, see enclosed. ☐ No, respondent chooses not to include all of these components (WARNING: doing so may cause the City to deem the submittal non-responsive).
Acknowledge any and all issued addenda to this solicitation: (Prior to submitting its response, it is the responsibility of each potential respondent to determine whether any addenda to this procurement solicitation have in fact been issued by the City.)	☐ Addendum No. 1. ☐ Addenda Nos. 1 through _____. ☒ No addenda.
First subscription and affirmation of respondent's authorized representative: By submission of this response, each submitter and each person signing on behalf of any submitter certifies, and in the case of a joint submittal each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each submitter is not on the list created pursuant to Tennessee Code Annotated § 12-12-106.	Kelly A (signature)
Second subscription and affirmation of respondent's authorized representative: Except for any contract resulting from the submittal of this response with a total potential value of less than $250,000, by submission of this response, each respondent, except those with fewer than ten employees, and each person signing on behalf of any such respondent certifies, and in the case of a joint submittal each party thereto certifies as to its own organization, under penalty of perjury, that, to the best of its knowledge and belief, such respondent is not currently engaged in, and will not, for the duration of any such contract, engage in, a boycott of Israel.	Kelly A (signature)
Signature of respondent's authorized representative: I affirm that I am authorized by the respondent to sign this Response Submittal Form as well as any and all companion forms and documents included herewith. I have obtained and read, and do understand and consent, to all instructions, terms and conditions, including those imposed by reference, which apply to this procurement solicitation and compliance with which is required as a condition precedent to consideration of the response submitted herewith.	Kelly A (signature)
Title of respondent's authorized representative:	Attorney
Respondent's name:	Kelly A. Peevyhouse
Date of signatures:	May 8, 2023

Home Surety Title & Escrow, LLC

Attorneys
Owner/ Operator, Jeffrey F. McEvoy
Eric Alsobrook
Johnny Douglass
William Hultman
Kelly Peevyhouse
Amy Spicer

Home Surety Title

5583 Murray Road, Suite 120
Memphis, TN 38119

TEL (901) 737-2100
FAX (901) 737-7558

docs@homesuretytitle.com
website: www.homesuretytitle.com

STATEMENT OF QUALIFICATIONS
RE: City of Franklin Legal RFW File No. 2023-0001

William E. Squires
Assistant City Attorney
City of Franklin, Tennessee Law Department
Bill.squires@franklintn.gov

Mr. Squires,

Our firm has over twenty years of experience in Tennessee title review and transactional real estate law with six staff attorneys available to quickly answer questions and timely review title work for the City of Franklin. Since its inception, our company has been owned and operated by our founding attorney, Jeffrey F. McEvoy. Our firm has not provided regular title services to the City of Franklin or any other municipalities in the state of Tennessee, but has completed a few one-off transactions for the City of Memphis. No such services have been rendered in at least the last three years.

For the quoted $450 fixed flat rate, our office will obtain a full title search from one of our abstractors and have it reviewed by one of our staff attorneys. Once reviewed, we will provide to the City an Ownership and Encumbrance Report indicating current vesting information and legal description for the real property in question together with current tax assessments and any liens on title. In addition, we will include instrument and/or page numbers for any documents of record that affect title to the real property such as restrictive covenants or easements.

Should the City determine to voluntarily purchase any of the real properties searched and opt for our office to either prepare documents for said purchase OR provide title insurance on the real property in question, an additional fee would apply.

We work daily as agents of four national title insurance providers (Fidelity National Title, First American Title, Stewart Title and WFG) and are able to provide insurance on most transactions should the City like the additional coverage provided by a title insurance policy. In addition, our relationship with these national insurers positions us to be able to work closely with national underwriting counsel to provide your office with creative solutions to any title challenges discovered along the way.

Our office has worked with a variety of private and public entities including several para-governmental organizations to review and clear title defects such as tax sale, eminent domain, and determinations of condemnation or public nuisance. In addition, our title curative department is well versed in identifying and clearing more commonplace issues such as open mortgages, judgment liens, tax liens and other issues affecting title.

Home Surety is committed to privacy and the security of your project information as evidenced by our Soc 2 certification through the American Institute of CPAs.

Thank you for advising our office of the opportunity to join the City of Franklin's on-call service provider list as to Title Research and Opinions. We look forward to the opportunity to work with your office on your upcoming title projects and would be happy to provide additional information regarding our firm at any point.

Regards,

Kelly A. Peevyhouse
Staff Attorney
kpeevyhouse@homesuretytitle.com
901-737-2100

Home Surety Title & Escrow, LLC

Attorneys
Owner/ Operator, Jeffrey F. McEvoy
Eric Alsobrook
Johnny Douglass
William Hultman
Kelly Peevyhouse
Amy Spicer

Home Surety Title

5583 Murray Road, Suite 120
Memphis, TN 38119

TEL (901) 737-2100
FAX (901) 737-7558

docs@homesuretytitle.com
website: www.homesuretytitle.com

REFERRALS

RE: City of Franklin Legal RFW File No. 2023-0001

1) Tron Huyn
   Operations/Agency Manager
   Fidelity National Title Group – Memphis
   901-786-6000 (office)
   Tron.huynh@fnf.com
2) Michael O. Harris
   Executive Director
   Memphis Metropolitan Land Bank Authority (previously Blight Authority of Memphis)
   901-355-0750 (office)
   Michael.harris@memphistn.gov
3) Amy Schaftlein
   Executive Director
   United Housing, Inc.
   901-272-1122(office)
   aschaftlein@uhinc.org

Standard Procurement Terms and Conditions
City of Franklin, Tennessee

1. Assignment and Successors. Neither party may assign any rights or obligations under these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, without the prior written consent of the other party. These Standard Procurement Terms and Conditions, and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, will be binding upon and inure to the benefit of the parties and their respective successors and permitted assigns.

2. Subcontracting. Vendor may subcontract any portion of the work only with the prior consent of the City, but such subcontracting will not relieve Vendor of its duties under these Standard Procurement Terms and Conditions and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

3. Time of the Essence. The parties agree that TIME IS OF THE ESSENCE with respect to the vendor's performance of all provisions of the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

4. Taxes. As a tax-exempt entity, the City shall not be responsible for sales or use taxes incurred for products or services. Upon request, the City shall supply Vendor with a copy of its Sales and Use Tax Exemption Certificate. Vendor shall bear the burden of providing its suppliers with a copy of the City's tax exemption certificate and shall assume all liability for such taxes, if any, that should be incurred.

5. Notices. Any notice provided pursuant to these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, if specified to be in writing, will be in writing and will be deemed given: (a) if by hand delivery, then upon receipt thereof; (b) if mailed, then three (3) City business days after deposit in the mail where sender is located, postage prepaid, certified mail return receipt requested; (c) if by next day delivery service, then upon such delivery; or (d) if by facsimile transmission or electronic mail, then upon confirmation of receipt. All notices will be addressed to the parties at the addresses set forth below (or set forth in such other document to which these Standard Procurement Terms and Conditions apply, or such other address as either party may in the future specify in writing to the other):

In the case of the City:

City of Franklin

Attn: Law Department

Re: City of Franklin Law Department Legal File No. 2023-0001

109 Third Ave. South

P.O. Box 305

Franklin, TN 37065-0305

FAX: 615-550-6998

In the case of Vendor:

Home Surety Title & Escrow, LLC

Attn. Kelly A. Perryhouse

5583 Murray Rd.

Ste 120

Memphis, TN 38119

Fax: 901-737-7558

6. Confidentiality and Proprietary rights. Vendor waives any right to confidentiality of any document, e-mail or file it fails to clearly mark on each page (or section as the case may be) as confidential or proprietary. Proprietary rights do not extend to the data created by the City's users of the System; all rights to that data (including derivative or hidden data such as metadata) shall vest solely in City at the moment of creation and City shall retain exclusive rights, title, and ownership of all data and images created therefrom at the moment of creation and utilization, through and including image creation. City may be required to disclose documents under state or federal law. City shall notify Vendor if a request for documents has been made and shall give Vendor a reasonable opportunity under the circumstances to respond to the request by redacting proprietary or other confidential information. In exchange, Vendor agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of (i) the City's failure to disclose such documents or information required to be disclosed by law, or (ii) the City's release of documents as a result of City's reliance upon Vendor's representation that materials supplied by Vendor (in full or redacted form) do not contain trade secrets or proprietary information, provided that the City impleads Vendor and Vendor assumes control over that claim.

7. Derivative Works. To the extent that the Agreement contains Vendor's reservation of rights, such definitions and limitations are superseded by the following: "Derivative Work" means a program that is based on or derived from one or more existing programs or components. If the original software is modified to create a new program, a derived work is created. If the original software was designed to accept plug-ins or drivers using a defined mechanism, such a driver or plug-in does not form a derived work. Linking to a library in the way it was designed to be interfaced with, does *not* constitute deriving a work. "Derivative work" is *not* the data that the Licensee inputs, manipulates, modifies or otherwise improves, nor the images resulting therefrom.

8. Arbitration/Mediation. No arbitration shall be required as a condition precedent to filing any legal claim arising out of or relating to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply. No arbitration or mediation shall be binding.

9. Waiver. Neither party's failure or delay to exercise any of its rights or powers under these Standard Procurement Terms and Conditions, or any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, will constitute or be deemed a waiver or forfeiture of those rights or powers. For a waiver of a right or power to be effective, it must be in writing signed by the waiving party. An effective waiver of a right or power shall not be construed as either (a) a future or continuing waiver of that same right or power, or (b) the waiver of any other right or power.

10. Warranties/Limitation of Liability/Waiver. City reserves all rights afforded to local governments under law for all general and implied warranties. The City does not waive any rights it may have to all remedies provided by law and therefore any attempt by Vendor to limit its liability shall be void and unenforceable.

11. Severability. If any term or provision of these Standard Procurement Terms and Conditions is held to be illegal or unenforceable, the validity or enforceability of the remainder of these Standard Procurement Terms and Conditions will not be affected.

12. Precedence. In the event of conflict between the provisions of these Standard Procurement Terms and Conditions and that of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, the provisions of these Standard Procurement Terms and Conditions will to the extent of such conflict take precedence unless such document expressly states that it is amending these Standard Procurement Terms and Conditions.

13. Indemnification. Vendor agrees to indemnify and save the Government of Franklin, the City of Franklin and individual, on or off duty, officers, and employees of the City of Franklin, harmless from any and all losses, damages and expenses, including court costs and attorneys' fees, by reason of any loss, whatsoever, arising out of or relating to or in consequence of the work done in connection with any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, excepting only such losses as shall be occasioned solely by the negligence of the City of Franklin.

14. Additions/Modifications. If seeking any addition or modification to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, the parties agree to reference the specific paragraph number sought to be changed on any future document or purchase order issued in furtherance of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, however, an omission of the reference to same shall not affect its applicability. In no event shall either party be bound by any terms contained in any purchase order, acknowledgement, or other writings unless: (a) such purchase order, acknowledgement, or other writings specifically refer to any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply or to the specific clause they are intended to modify; (b) clearly indicate the intention of both parties to override and modify any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply; and (c) such purchase order, acknowledgement, or other writings are signed, with specific material clauses separately initialed, by authorized representatives of both parties.

15. Applicable Law; Choice of Forum/Venue. These Standard Procurement Terms and Conditions and any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply are made under and will be construed in accordance with the laws of the State of Tennessee without giving effect to any state's choice-of-law rules. The choice of forum and venue shall be exclusively in the Courts of Williamson County, TN.

16. Termination. Unless the City has indicated otherwise in the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, either party may terminate the contract or agreement or purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, with or without cause, upon thirty (30) calendar days' notice to the other. Upon termination by the vendor, the City shall be entitled to retain ownership of any and all goods and equipment purchased. Upon termination by the City, the vendor shall be entitled to receive any amounts due as a result of goods and equipment already delivered and/or services already

rendered; however, the City shall maintain ownership and control of any goods and equipment purchased. Upon termination of services, whether connected or unconnected to goods and equipment, such services shall be rendered until the conclusion of the 30th calendar day as stated in the notice or until a contractual benchmark has been achieved, or as the parties may otherwise agree.

17. Breach. Upon deliberate breach of these Standard Procurement Terms and Conditions, or of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, by either party, the non-breaching party shall be entitled to terminate the contract or agreement or purchase order or other procurement to which these Standard Procurement Terms and Conditions apply without notice, with all of the remedies it would have in the event of termination under the "Severability" section above, and may also have such other remedies as it may be entitled to in law or in equity.

18. Default. If Vendor fails to perform or comply with any provision of these Standard Procurement Terms and Conditions, or of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, then the City (i) may cancel the contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, in whole or in part, without penalty or protest by Vendor; (ii) may consider such failure to perform or comply as a breach of contract; (iii) reserves the right to purchase its requirements from the vendor that submitted the next lowest and best responsive and responsible bid, or the vendor that submitted the next best proposal, if that vendor will still honor that bid or proposal, or to seek new bids or proposals, or to pursue one or more other options available to the City in compliance with its then current purchasing policy; and (iv) may hold the defaulting vendor liable for all damages provided by law, including cost of cover.

19. Entire Agreement. These Standard Procurement Terms and Conditions, including any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply, constitutes the entire agreement between the parties and supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of these Standard Procurement Terms and Conditions. The terms and conditions of these Standard Procurement Terms and Conditions may not be changed except by an amendment expressly referencing these Standard Procurement Terms and Conditions by section title and signed by an authorized representative of each party.

20. Survival. These Standard Procurement Terms and Conditions shall survive the completion of or any termination of any contract, agreement, purchase order or other procurement to which these Standard Procurement Terms and Conditions apply.

Affidavit of Non-Collusion

a form required of Bidders and Proposers on purchases of supplies, materials, equipment and services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Shelby)

Affiant, Kelly A. Peevyhouse, deposes and makes oath that:
(printed name of person signing Affidavit)

1. He or she is the Representative of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Home Surety Title & Escrow, LLC,
(legal name of entity submitting bid or proposal)
the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. Such bid or proposal is genuine and is not a collusive or sham bid or proposal;

4. Neither the said Bidder or Proposer nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this Affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any official or agent of the City of Franklin or with any other firm, person, or potential or actual bidder or proposer to submit a collusive or sham bid or proposal in connection with the contract for which the attached bid or proposal has been submitted, or to refrain from bidding or proposing indirectly, or sought by agreement, or collusion, or communication, or conference with any other firm, person, or potential or actual bidder or proposer to fix the price or prices or cost element of the bid, quoted or proposed price or the bid, quoted or proposed price of any other potential or actual bidder or proposer, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of Franklin or any person interested in the proposed contract;

5. The price or prices quoted in the attached bid or proposal are fair and proper and are not tainted by a collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this Affiant; and

6. He or she understands that Article VIII, Section 16, of the City Charter of Franklin, and T.C.A. §6-54-107, prohibit any member of the Board of Mayor and Aldermen, or officer elected by said Board, from being interested in any contract, or work of any kind whatever, under its control and direction, and any contract in which any such person shall have an interest shall be void and unenforceable, subjecting any funds received by contractor to be returned in full to the City, in addition to any other penalties provided by law.

Kelly A. Peevyhouse
(signature of Affiant)

Attorney - Representative
(title of Affiant)

Sworn and subscribed to before me this 8th day of May, 2023

WILLIAM HULTMAN
STATE OF TENNESSEE
NOTARY PUBLIC
SHELBY COUNTY
My Commission Expires 03-11-2026

(Notary Public)

My Commission Expires: 3-11-2026

(Submitted in response to City of Franklin Law Department Solicitation No. 2023-0001)

Affidavit of Title VI Compliance

a form required of Bidders and Proposers on purchases of services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Shelby)

Affiant, Kelly L. Peevyhouse, deposes and makes oath that:
(printed name of person signing Affidavit)

1. He or she is the Representative of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)

Home Surety Title & Escrow, LLC,
(legal name of entity submitting bid or proposal)

the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. No person on the grounds of handicap or disability, age, race, color, religion, sex, national origin or any other class protected by federal and/or Tennessee constitutional, statutory and/or case law shall be excluded from participation in, or denied benefits of, or be otherwise subjected to discrimination in, the performance of the contract that results from the procurement solicitation to which this affidavit is a component, or in the employment practices of the successful Bidder or Proposer during the performance of the contract that results from said procurement solicitation;

4. The successful Bidder or Proposer shall, upon request, show proof of such non-discrimination, and shall post in conspicuous places, available to employees and job applicants, notices of such non-discrimination;

5. If, with the prior consent of the City, the successful Bidder or Proposer subcontracts any portion of the contract that results from the procurement solicitation to which this affidavit is a component, then the successful Bidder or Proposer shall contractually obligate all of its subcontractors for said contract to comply with the same non-discrimination provisions as those required of the successful Bidder or Proposer; and

6. This Affidavit is made on personal knowledge.

Kelly L. Peevyhouse
(signature of Affiant)

Attorney - Representative
(title of Affiant)

Sworn and subscribed to before me this 8th day of May, 2023

(Notary Public)

My Commission Expires: 3-11-2026

WILLIAM HULTMAN
NOTARY PUBLIC
STATE OF TENNESSEE
SHELBY COUNTY
My Commission Expires 03-11-2026

City of Franklin Notice of Confidentiality & Proprietary Rights

Legal File No.: 2023-0001

THE CONTENTS OF THE CITY OF FRANKLIN, TENNESSEE PROCUREMENT AWARD MADE PURSUANT TO THE CITY'S PROCUREMENT SOLICITION REFERENCED ABOVE, AND SOME OR ALL INFORMATION THAT MAY BE OBTAINED IN THE COURSE OF ITS PERFORMANCE, MAY INCLUDE HIGHLY CONFIDENTIAL INFORMATION THAT MAY SUBJECT ANYONE DISCLOSING SUCH INFORMATION TO CIVIL AND CRIMINAL PENALTIES IMPOSED BY LOCAL, STATE AND FEDERAL LAW.

The successful Vendor must necessarily be granted access to public and private information that may be confidential under the Tennessee Open Records Law and other privacy laws.

CONFIDENTIAL INFORMATION

As a result of the procurement award, the parties may provide each other with Confidential Information. For the purposes of this Notice, "Confidential Information" is any information disclosed or discovered in written, graphic, verbal, or machine-recognizable form, whether or not clearly marked, designated, labeled or identified as such. Notwithstanding any other provisions of this Notice, Confidential Information shall not include any information that:

1. is or becomes publicly known through no wrongful act of the receiving party;
2. is already known to the receiving party without restriction when it is disclosed;
3. is, or subsequently becomes, rightfully and without breach of this Notice, in the receiving party's possession without any obligation restricting disclosure;
4. is independently developed by the receiving party without breach of this Notice;
5. is explicitly approved for release by written authorization of the disclosing party; or
6. is required to be disclosed under state or federal law.

Each party agrees to:

1. maintain the confidentiality of the other party's Confidential Information and not disclose it to any third party, except as authorized by the disclosing party in writing or as required by state or federal law or by a court of competent jurisdiction;
2. restrict disclosure of Confidential Information to its employees who have a "need to know" and not copy or reproduce such Confidential Information;
3. take necessary and appropriate precautions to guard the confidentiality of Confidential Information, including informing and requiring written acknowledgements from its employees who handle such Confidential Information that it is confidential and not to be disclosed to others, but such precautions shall be at least the same degree of care that the receiving party applies to its own confidential information and shall not be less than reasonable care; and
4. use such Confidential Information only in furtherance of the performance of this Notice.

City of Franklin Notice of Confidentiality & Proprietary Rights

Law Department Solicitation No.: 2023-0001

Confidential Information is and shall at all times remain the property of the disclosing party, and no grant of any proprietary rights in the Confidential Information is hereby given or intended, including any express or implied license, other than the limited right of the Vendor to use the Confidential Information in the manner and to the extent permitted by the scope of work. Vendor agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of Vendor's intentional, negligent, inadvertent or unintentional release of City documents or information.

PRESERVATION OF CITY'S PROPRIETARY RIGHTS, RIGHTS OF THIRD PARTIES

The City, including its contractors, agents, employees and any third party manufacturers of any equipment, and the copyright owner of any Non-Vendor Software shall own and retain all of their respective Proprietary Rights in any Equipment and Software. Nothing in this Notice is intended to restrict the Proprietary Rights of Vendor, any copyright owner of Non-Vendor Software, or any third party manufacturer of equipment. All intellectual property developed, originated, or prepared by Vendor in connection with providing to City consulting services in connection with the evaluation of the City's equipment, software, or related systems and services remain vested exclusively in City, and this Notice does not grant to Vendor any shared development rights of intellectual property. Exclusive title to all data input, generated by or transferred into or out of the City's system by City shall remain vested in City.

Nothing in this Notice will be deemed to grant, either directly or by implication, estoppel, or otherwise, any right, title or interest in Vendor's Proprietary Rights. City agrees not to modify, disassemble, peel components, decompile, otherwise reverse engineer or attempt to reverse engineer, derive source code or create derivative works from, adapt, translate, merge with other software, reproduce, distribute, sublicense, sell or export the Software, or permit or encourage any third party to do so. The preceding sentence shall not apply to Open Source Software which is governed by the standard license of the copyright owner.

I HAVE READ THE ABOVE TERMS, UNDERSTAND THEM AND AGREE TO ABIDE BY THEM UNDER PENALTY OF LAW.

SO ACKNOWLEDGED:

Signature of authorized representative of Vendor — May 8, 2023 (Date)

Employee's signature — Date

(to be signed by each employee at the time of commencement of services)

Indemnification Agreement

a form required of Bidders and Proposers on purchases of services for the

City of Franklin, Tennessee

State of Tennessee)
) SS
County of Shelby)

On behalf of Bidder/Proposer, Kelly A. Peevyhouse agrees that:
(printed name of person signing Agreement)

1. He or she is the Representative of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)
Home Surety Title & Escrow, LLC,
(legal name of entity submitting bid or proposal)
the Bidder or Proposer who has submitted the attached bid or proposal;

2. The Bidder or Proposer is fully informed respecting the preparation and content of the attached bid or proposal and of all pertinent circumstances respecting such bid or proposal;

3. The Bidder or Proposer agrees to indemnify and save the Government of Franklin, the City of Franklin and individual, on or off duty, officers, and employees of the City of Franklin, harmless from any and all losses, damages and expenses, including court costs and attorneys' fees, by reason of any loss, whatsoever, arising out of or relating to or in consequence of the work done in connection with any contract, agreement, purchase order or other procurement to which this Agreement applies, excepting only such losses as shall be occasioned solely by the negligence of the City of Franklin; and

4. This Agreement is made on personal knowledge.

Kelly A. Peevyhouse
(signature of person whose printed name appears above)

Attorney - Representative
(title of person whose printed name appears above)

Sworn and subscribed to before me this 8th day of May, 2023

W. Hultman
(Notary Public)

My Commission Expires: 3-11-2026

WILLIAM HULTMAN
STATE OF TENNESSEE NOTARY PUBLIC
SHELBY COUNTY
My Commission Expires 03-11-2026

(Submitted in response to City of Franklin Law Department Solicitation No. 2023 - 0001)

Form revised 12/12/2016

HISTORIC FRANKLIN TENNESSEE

City of Franklin

109 3rd Ave S.
Franklin, TN 37064
(615) 791-3217

File #: 21-04717

DATE: June 28, 2023

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Vernon Gerth, Asst. City Administrator Community Development
Jessica Davey, Revenue & Licensing Manager

SUBJECT:

Discussion Of Peddlers, Solicitors, And Itinerant Merchants - Pop-Up Commercial Merchandise Sales, Services, And Permitting Requirements
6/27/23, deferred

PURPOSE:

The purpose of this memorandum is to provide information to the Franklin Board of Mayor and Aldermen (BOMA) concerning the permitting and operation of peddlers, solicitors, and itinerant merchants.

BACKGROUND/STAFF COMMENTS:

Title 9, Chapter 2 of the City of Franklin Municipal Code authorizes and provides for specific permitting and operating requirements for peddlers, solicitors, and itinerant merchants. This ordinance was created in the mid-1970's and amended last in 2004 and 2009.

Recently, City Staff has received inquiries from potential permitees whose business models do not strictly fit the definitions and requirements in the current code as written. Additionally, some business owners have expressed concerns that some of the requirements are restrictive. City team members from Revenue Management and our Building and Neighborhood Services and Law Departments have identified sections of the Municipal Code that may be suited for an update. However, discussion and guidance from the Board regarding this section of the Municipal Code is needed.

FINANCIAL IMPACT:

For context, in FY 22 Franklin issued 63 permits with a total application fee of $ 3,150 and, in FY 23, we have issued 95 permits to date with $4,750 collected. If the BOMA decides to proceed with minor amendments to this section of the Municipal Code, there would likely be no additional administrative impact. Staff is not recommending that the current application fee of fifty ($50) dollars be changed.

However, with an increasing number of peddlers, solicitors, and itinerant merchants, the impact on existing brick-and-mortar businesses is not measurable.

RECOMMENDATION:

Staff recommends that the Board of Mayor and Aldermen provide guidance on amendments to the City's Municipal Code regarding the permitting and operation of peddlers, solicitors, and itinerant merchants for consideration in the future.

Title 9 – Chapter 2
City of Franklin Municipal Code

Peddlers, Solicitors, and Itinerant Merchants

Are The Regulations Current? Topics For Discussion…

- Municipal Code – Created in mid-1970's – Last Changes 2004 and 2009
- Permit Required for Every Person - Not for a Business or Organization
- Requirement of a $ 1,000 Surety Bond/person
- Peddlers and Solicitors – Hours of Operation
  9:00 am – 7/8:00 pm --- Monday - Saturday
- Itinerant Merchants – Increased Interest in Non-Typical "Pop-up" Retail Sales/Services That Require Customers Entering a Trailer to View Goods or Receive Treatments
- Permission Required from Property Owner and Only Allowed when Open for Business. No Overnight Staging or Storage
- Should Sale of Produce be Exempt from Permit whether a single site or as a participant in a Permitted Farmers Market?

TITLE 9 BUSINESS, PEDDLERS, SOLICITORS, ETC.[1]

CHAPTER 1. MISCELLANEOUS

Sec. 9-101. Going out of business sales.

It shall be unlawful for any person to falsely represent a sale as being a "going out of business" sale. A "going out of business" sale, for the purposes of this section, shall be a "fire sale," "bankrupt sale," "loss of lease sale," or any other sale made in anticipation of the termination of a business at its present location. When any person, after advertising a "going out of business" sale, adds to his stock or fails to go out of business within 90 days he shall prima facie be deemed to have violated this section.

(1976 Code, § 5-101)

Sec. 9-102. Dance halls.

It shall be unlawful for any business place where public dancing is permitted on the premises to remain open or in operation between the hours of 1:30 A.M. and 8:00 A.M. on any day unless a special permit has been obtained in advance from the chief of police for a special event or celebration.

(1976 Code, § 5-102)

Sec. 9-103. Tree trimmers.

(1) Any person, association, or corporation, except departments of municipal or governmental agencies, engage in the business of removing trees, trimming trees, repairing trees, or performing any service wherein trees are trimmed or altered in any manner whatsoever, shall register with the city recorder before engaging in any of the aforementioned activities, and shall furnish the names and addresses of all employees or associates who are participating with him in said activities.

(2) No person shall perform any service for profit wherein trees are cut, trimmed, or altered, and wherein an accumulation of brush, wood, debris, or other refuse is the result of such work or service, without being equipped with a truck or other vehicle capable of removing said brush, wood, debris, or other refuse to a dumping area previously designated as such by the sanitation department head of the City of Franklin, and said brush, wood, debris or other refuse shall be so removed by the person causing or crating its accumulation.

(3) Any person violating any provision of this section shall be guilty of a misdemeanor and, upon conviction, shall be fined under the general penalty clause for this Code.

(1976 Code, § 5-103)

[1]Cross reference(s)—Building, plumbing, wiring and housing regulations: title 12; liquor and beer regulations: title 8; noise reductions: title 11; zoning: title 14.

CHAPTER 2. PEDDLERS, SOLICITORS, ETC.[2]

Sec. 9-201. Definitions.

(1) *Goods,wares* or *merchandise* shall mean all variety of merchandise items, whether handmade or manufactured, or services, whether personal or professional categorized as, but not necessarily limited to, souvenirs, gifts, prizes, art, school supplies, cloth, clothing or wearing apparel, toys, balloons, novelties, small appliances, works of art or crafts, directional information and/or charts, street photographers, tools or mechanical, devices of any nature.

(2) *Itinerant merchant* shall mean any person who is not a mobile food vendor, and is authorized to, engage in the giving away, the selling or offering for sale, of goods, wares or merchandise, or who solicits patronage for any person, business, or service by word of mouth, to entice or persuade anyone to buy, sell or accept goods, wares, or merchandise within the corporate limits of the city, where the above-mentioned activities are conducted from a temporary or transient location with the express, written permission of the private property owner(s). For purposes of this section, "temporary or transient location" means from a stand, stall, kiosk, trailer, and/or vehicle that is temporary and removed from the property when not open for business (unless otherwise expressly permitted by the city). This section shall also apply to any and all ancillary equipment associated with the itinerant merchant, including, but not limited to, signs, tables, chairs, marketing materials, set-ups, and/or trash bins.

(3) *Peddler* shall mean any person who goes from dwelling to dwelling, business to business, place to place or from street to street, carrying or transporting goods, wares or merchandise and offering or exposing the same for sale. Connotes one who makes sales and delivery of merchandise or services concurrently and on-the-spot to a residential or commercial customer.

(4) *Solicitor* shall mean any person who goes from dwelling to dwelling, business to business, place to place or from street to street, taking or attempting to take orders for any goods, wares or merchandise, or personal property of any nature whatever for future delivery. Does not include bona fide charitable, religious, patriotic or philanthropic organizations to the extent they are regulated by chapter 3 of this title.

(1976 Code, § 5-201; Ord. No. 2004-68, 12- -2004; Ord. No. 2018-29 , § I, 8-28-2018)

Sec. 9-202. Permit required; exemptions.

(1) It shall be unlawful for any peddler, solicitor, or itinerant merchant to ply his or her trade within the corporate limits without first obtaining a permit in compliance with the provisions of this chapter. A permit shall be issued to an individual only. No permit shall be used at any time by any person other than the one to whom it is issued.

(2) Exemptions. Except as may be required in chapter 3 of this title, the terms of this chapter shall not be applicable to persons selling at wholesale to dealers, nor to newsboys, nor to bona fide merchants who merely deliver goods in the regular course of business, nor to sellers responding to a prior invitation by the

[2]Cross reference(s)—Privilege taxes: title 5.

owner or occupant of a residence, nor to bona fide charitable, religious, patriotic or philanthropic organizations, nor to a person receiving authorization to ply his or her trade under a special event permit.

(3) Violation and penalty. Any person violating any of the provisions of this chapter, or filing, or causing to be filed, an application for a permit or certificate under this chapter containing false or fraudulent statements shall be fined as specified in appendix A, comprehensive fees and penalties. Each solicitation that occurs in violation of this chapter shall be deemed a separate offense.

(1976 Code, § 5-202; Ord. No. 2004-68, 12- -2004; Ord. No. 2009-39, § I, 7-28-2009)

Sec. 9-203. Application for permit.

(1) Applicants for a solicitor's permit under this chapter must file with the city recorder a sworn written application containing the following for each peddler, solicitor or itinerant merchant:

(a) Name and physical description of applicant.

(b) Complete permanent home address and local address of the applicant and, in the case of itinerant merchants, the local address from which proposed sales will be made.

(c) A brief description of the nature of the business and the goods to be sold or the nature of the solicitation.

(d) If employed, the name and address of the employer, together with credentials therefrom establishing the exact relationship.

(e) The length of time for which the right to do business is desired.

(f) Two recent clear photographs approximately two inches square showing the head and shoulders of the applicant.

(g) The names of at least two reputable local property owners who will certify as to the applicant's good moral reputation and business responsibility, or in lieu of the names of references, such other available evidence as will enable an investigator to evaluate properly the applicant's moral reputation and business responsibility.

(h) A statement as to whether or not the applicant has been convicted of any crime or misdemeanor or for violating any municipal ordinance; the nature of the offense; and, the punishment or penalty assessed therefor.

(i) The last three cities or towns, if that many, where applicant carried on business immediately preceding the date of application and, in the case of itinerant merchants, the addresses from which such business was conducted in those municipalities.

(j) At the time of filing the application, a nonrefundable fee as specified in appendix A, comprehensive fees and penalties, shall be paid to the city to cover the cost of investigating the facts stated therein.

(1976 Code, § 5-203; Ord. No. 2002-27, 8- -2002; Ord. No. 2004-68, 12- -2004; Ord. No. 2009-39, § II, 7-28-2009)

Sec. 9-204. Issuance or refusal of permit.

(1) Upon receipt of a complete application and all applicable fees and taxes, each application shall be referred by the city recorder to the chief of police for investigation. The chief shall report his findings to the city recorder within 72 hours.

(2) If as a result of such investigation the chief reports the applicant's moral reputation and/or business responsibility to be unsatisfactory the city recorder shall notify the applicant that his application is disapproved and that no permit will be issued. If, on the other hand, the chief's report indicates that the moral reputation and business responsibility of the applicant are satisfactory the city recorder shall issue a revocable permit upon the payment of all applicable fees and taxes and the filing of the bond required by section 9-206. The city recorder shall keep a permanent record of all permits issued.

(1976 Code, § 5-204; Ord. No. 2004-68, 12- -2004)

Sec. 9-205. Appeal.

Any person aggrieved by the action of the chief of police and/or the city recorder in the denial of a permit shall have the right to appeal to the board of mayor and aldermen. Such appeal shall be taken by filing with the mayor within 14 days after notice of the action complained of, a written statement setting forth fully the grounds for the appeal. The mayor shall set a time and place for a hearing on such appeal and notice of the time and place of such hearing shall be given to the appellant. The notice shall be in writing and shall be mailed, postage prepaid, to the applicant at his last known address at least five days prior to the date set for hearing, or shall be delivered by a police officer in the same manner as a summons at least three days prior to the date set for hearing.

(1976 Code, § 5-205)

Sec. 9-206. Bond.

Every permittee shall file with the city recorder a surety bond running to the city in the amount as specified in appendix A, comprehensive fees and penalties, or if named as an authorized participant in a special event, a peddler, solicitor or itinerant merchant shall be considered to be covered by the special event's bond or deposit as required under title 16, chapter 5 of this Code. The bond shall be conditioned that the permittee shall comply fully with all the provisions of the ordinances of this city and the statutes of the state and shall guarantee to any citizen of the city that all money paid as a down payment will be accounted for and applied according to the representations of the permittee, and further guaranteeing to any citizen of the city doing business with said permittee that the property purchased will be delivered according to the representations of the permittee. Action on such bond may be brought by any person aggrieved and for whose benefit, among others, the bond is given, but the surety may, by paying, pursuant to order of the court, the face amount of the bond to the clerk of the court in which the suit is commenced, be relieved without costs of all further liability.

(1976 Code, § 5-206; Ord. No. 2004-68, 12- -2004; Ord. No. 2009-39, § III, 7-28-2009)

Sec. 9-207. Loud noises and speaking devices.

No permittee, nor any person in his behalf, shall shout, cry out, blow a horn, ring a bell or use any sound amplifying device upon any of the sidewalks, streets, alleys, parks or other public places of the city or upon private premises in violation of the city's noise ordinance.

(1976 Code, § 5-207; Ord. No. 2004-68, 12- -2004)

Sec. 9-208. Limitations on use of streets and sidewalks.

(1) *Nonexclusive use of streets.* No permittee shall have any exclusive right to any location in the public streets, nor shall any be permitted a stationary location thereon, nor shall any be permitted to operate in a congested area where the operation might impede or inconvenience the public use of the streets. For the

purpose of this chapter, the judgment of a police officer, exercised in good faith, shall be deemed conclusive as to whether the area is congested and the public impeded or inconvenienced.

(2) *Prohibitions.* The following activities shall be declared unlawful:

(a) Soliciting by parked vehicle or movable receptacle on public streets, highways, sidewalks, right-of-way, and public places.

(b) The erection of stands or similar contrivances on public streets, highways, sidewalks, rights-of-way, and public places for the purpose of giving away displaying and/or buying or selling of goods, wares or merchandise.

(c) Sale of drinks or other prepared foods and/or edible items upon public streets, sidewalks, highways and rights-of-way, except as may be regulated elsewhere in this Code.

(1976 Code, § 5-208; Ord. No. 2004-68, 12- -2004)

Sec. 9-209. Exhibition of permit.

Permittees are required to exhibit their permits for inspection at all times and upon the request of any police officer or citizen. Failure to exhibit a permit shall constitute a violation of this section.

(1976 Code, § 5-209; Ord. No. 2004-68, 12- -2004)

Sec. 9-210. Police officers and codes officers to enforce.

It shall be the duty of all police officers and codes officers to see that the provisions of this chapter are enforced.

(1976 Code, § 5-210; Ord. No. 2004-68, 12- -2004)

Sec. 9-211. Revocation or suspension of permit.

(1) Permits issued under the provisions of this chapter may be revoked or suspended by the board of mayor and aldermen after notice and hearing, for any of the following causes:

(a) Fraud, misrepresentation, or incorrect statement contained in the application for permit, or made in the course of carrying on the permitted business.

(b) Any violation of this chapter.

(c) Conviction of any crime or misdemeanor.

(d) Conducting the business of peddler, solicitor, or itinerant merchant, as the case may be, in an unlawful manner or in such a manner as to constitute a breach of the peace or to constitute a menace to the health, safety, or general welfare of the public.

(2) Notice of the hearing for revocation of a permit shall be given by the city recorder in writing, setting forth specifically the grounds of complaint and the time and place of hearing. Such notice shall be mailed to the permittee at his last known address at least five days prior to the date set for hearing, or it shall be delivered by a police officer in the same manner as a summons at least three days prior to the date set for hearing.

(3) When reasonably necessary in the public interest the mayor may suspend a permit pending the revocation hearing.

(1976 Code, § 5-211; Ord. No. 2004-68, 12- -2004)

Sec. 9-212. Reapplication.

No permittee whose permit has been revoked shall make further application until a period of at least six months has elapsed since the last revocation.

(1976 Code, § 5-212)

Sec. 9-213. Expiration and renewal of permit.

Permits issued under the provisions of this chapter shall expire one year from the date of issuance or upon the expiration of a permit holder's privilege license, whichever is sooner. Permits may be revoked if, at any time, any condition of the permit or requirement of this chapter has not been met, including but not limited to maintaining all required permits and licenses.

(1976 Code, § 5-213; Ord. No. 2004-68, 12- -2004)

Sec. 9-214. Hours in which business may be conducted; trespassing.

(1) No permittee shall conduct any solicitations or sales except between the hours of 9:00 A.M. and 7:00 P.M. (8:00 P.M. during daylight savings time) on Monday through Saturday, it being the intent that door-to-door sales occur during daylight hours and at times when citizens feel secure in their homes to receive unexpected visitors.

(2) Trespass. It shall be unlawful and deemed to be a trespass for any permittee acting under this division to fail to leave promptly the private premises of any person who requests or directs the permittee to leave or has posted a sign that indicates solicitors are not welcome.

(Ord. No. 2002-27, 8- -2002; Ord. No. 2004-68, 12- -2004)

CHAPTER 3. CHARITABLE SOLICITORS

Sec. 9-301. Definition; permit required.

(1) *Definition.* "Charitable solicitor" means any person firm, corporation or organization who or which solicits contributions from the public, either on the streets of the city or from door-to-door, business-to-business, place-to-place or from street-to-street, for any charitable or religious organization. No entity shall qualify as a "charitable" or "religious" organization unless the organization has a current exemption certificate from the Internal Revenue Service.

(2) *Permit required.* No person shall solicit contributions or anything else of value for any charitable or religious purpose on any public street, sidewalk, or other public or private property in the City of Franklin, without a permit authorizing such solicitation in accordance with the procedure in chapter 2 of this title. This section applies only to commercial activities and to the solicitation of funds and shall not apply to any locally established organization or church operated exclusively for charitable or religious purposes if the solicitations are conducted exclusively among the members thereof, voluntarily and without remuneration for making such solicitations, and if the solicitations are in the form of collections or contributions at the regular assemblies of any such established organization or church.

(3) *Violation and penalty.* Any person violating any of the provisions of this chapter, or filing, or causing to be filed, an application for a permit or certificate under this chapter containing false or fraudulent statements

shall be fined as specified in appendix A, comprehensive fees and penalties. Each solicitation which occurs in violation of this chapter shall be deemed a separate offense.

(1976 Code, § 5-301; Ord. No. 2004-68, 12- -2004; Ord. No. 2009-39, § IV, 7-28-2009)

Sec. 9-302. Prerequisites for a permit; revocation or suspension of permit.

The city recorder shall issue a revocable permit, subject to revocation or suspension under the conditions and procedures in chapter 2 of this title. The following prerequisites must be met:

(1) The application form has been completed by the applicant and all information requested has been verified by the police chief or his designee. The application shall include all information required to be submitted of every solicitor and shall be subject to the procedure in sections 9-203—9-205 of this Code.

(2) The organization requesting permission to solicit must prove that it is a tax-exempt organization under one of the applicable provisions of the Internal Revenue Code as evidenced by a current letter from the Internal Revenue Service.

(1976 Code, § 5-302; Ord. No. 2004-68, 12- -2004)

Sec. 9-303. Time, place, and manner of restrictions.

The following restrictions are placed on the time, place and manner of charitable solicitations that may be done on any street, sidewalk, or other property in the City of Franklin, Tennessee:

(1) No person under the age of 18 is permitted to solicit on public property.

(2) No person shall be upon or go upon any street or roadway or shall be upon or go upon any shoulder of any street or roadway for the purpose of soliciting employment, business, or charitable contributions of any kind from the occupant of any vehicle.

(3) Solicitors will wear adequate identification regarding the club/charity for which they are soliciting.

(4) No club or charity may conduct a solicitation within the city limits more than once every ten months.

(1976 Code, § 5-303)

Sec. 9-304. Appeal from denial of permit.

Any applicant for a permit to make charitable or religious solicitations may appeal to the board of mayor and aldermen if a permit has not be granted within 15 days after completion of the application requirements therefor.

(1976 Code, § 5-304; Ord. No. 2004-68, 12- -2004)

Sec. 9-305. Exhibition of permit.

Any solicitor required by this chapter to have a permit shall exhibit such permit for inspection all times and upon the request of any police officer or person solicited. Failure to exhibit a permit shall constitute a violation of this section.

(1976 Code, § 5-305; Ord. No. 2004-68, 12- -2004)

Sec. 9-306. Hours in which business may be conducted; trespassing.

(1) No charitable solicitor shall conduct any solicitations or sales except between the hours of 9:00 A.M. and 7:00 P.M. (8:00 P.M. during daylight savings time) on Monday through Saturday, it being the intent that door-to-door charitable solicitations occur during daylight hours and at times when citizens feel secure in their homes to receive unexpected visitors.

(2) Trespass. It shall be unlawful and deemed to be a trespass for any permittee acting under this division to fail to leave promptly the private premises of any person who requests or directs the permittee to leave or has posted a sign that indicates solicitors are not welcome.

(Ord. No. 2004-68, 12- -2004)