City of Franklin

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

Meeting Agenda

Franklin Municipal Planning Commission

Thursday, May 25, 2023 | **7:00 PM** | **Board Room**

Notice is hereby given that a meeting of the Franklin Municipal Planning Commission will be held on the date, time and at the location listed above. Additional information can be found at www.franklintn.gov/planning.

The typical process for discussing an item is as follows:

1. *Staff Presentation*
2. *Public comments*
3. *Applicant presentation, and*
4. *Motion / discussion / vote*

Applicants are encouraged to attend the meeting, even if they agree with the staff recommendation. The Planning Commission may defer or disapprove an application/request unless someone is present to represent it.

For accommodations due to disabilities or other special arrangements, please contact the Human Resources Department at (615) 791-3216, at least 24 hours prior to the meeting.

CALL TO ORDER

APPROVAL OF MINUTES

1. Consideration Of Approval Of The April 27, 2023 FMPC Minutes.

CITIZEN COMMENTS ON ITEMS NOT ON THE AGENDA

Open for Franklin citizens to be heard on items not included on this Agenda. As provided by law, the Planning Commission shall make no decisions or consideration of action of citizen comments, except to refer the matter to the Planning Director for administrative consideration, or to schedule the matter for Planning Commission consideration at a later date. Those citizens addressing the Planning Commission are required to complete a Public Comment Card in order for their name and address to be included with the official record.

ANNOUNCEMENTS

VOTE TO PLACE NON-AGENDA ITEMS ON THE AGENDA

The non-agenda process, by design, is reserved for rare instances, and only minor requests shall be considered. Non-agenda items shall be considered only upon the unanimous approval of all of the Planning Commission members.

CONSENT AGENDA

The items under the consent agenda are deemed by the Planning Commission to be non-controversial and routine in nature and will be approved by one motion. The items on the consent agenda will not be

individually discussed. Any member of the Planning Commission, City Staff, or the public desiring to discuss an item on the consent agenda may request that it be removed and placed on the regular agenda. It will then be considered in its printed order.

2. Consideration Of Approval Of Items 3-8 And 13-17 On The Consent Agenda.

SITE PLAN SURETIES

3. Berry Farms Town Center PUD Subdivision, Final Plat, Section 4; Extend The Performance Agreement For Streets Improvement To December 14, 2023. (CONSENT AGENDA)

Sponsors: Melodie Brady

4. Carothers Development Property Subdivision, Final Plat, Revision 1; Extend The Performance Agreement For Drainage Improvement To May 23, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady

5. Hard Bargain Mt. Hope Subdivision, Final Plat; Extend The Performance Agreement For Sidewalks Improvement to May 23, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady

6. Lincoln Square Subdivision, Site Plan, Revision 1, Lots 6-8 (Aspen Grove Plaza Office Park Phase III Building 4); Extend The Performance Agreement For Multipurpose Trail Improvement To May 23, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady

7. Lockwood Glen PUD Subdivision, Final Plat, Section 5; Extend The Performance Agreement For Drainage Improvement To May 23, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady

8. Preserve At Echo Estates PUD Subdivision, Site Plan; Extend The Performance Agreement For Landscaping Section 2 Buffers Improvement To May 23, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady

REZONINGS/DEVELOPMENT PLANS

9. 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)

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

10. 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.

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

11. Consideration Of Ordinance 2023-15, An Ordinance To Rezone 7.2 Acres From Residential 4 (R4) To Planned (PD 38.19/3,000) District For The Property Located East Of Franklin Road And South Of Liberty Pike, Located At 209 Old Liberty Pike (Middle Eight PUD Subdivision).

Sponsors: Emily Wright, Amy Diaz-Barriga

12. Consideration Of Resolution 2023-30, A Resolution Approving A Development Plan For Middle Eight PUD Subdivision With 1 Modifications Of Development Standards (Parking), For The Property Located East Of Franklin Road And South Of Liberty Pike, Located At 209 Old Liberty Pike.

Sponsors: Emily Wright, Amy Diaz-Barriga

SITE PLANS, PRELIMINARY PLATS, AND FINAL PLATS

13. Cool Springs East Subdivision, Site Plan, Section 33, Revision 2, Lot 685 (Comtide Unified Development), Constructing 10,092 Square Feet Of Commercial Building, On 2.65 Acres, Located North Of Market Exchange Court And East Of Comtide Court, At 201 Comtide Court. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

14. 555 Franklin Road PUD Subdivision, Final Plat, Creating 1 Commercial Lot And 1 Open Space Lot, On 32.83 Acres, Located At 555 Franklin Road. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Joseph Bryan

15. Aureum PUD Subdivision, Final Plat, Section 1, Revision 1 (Lot 5), Creating Two Lots, On 15.24 Acres, Located At The Intersection Of Ovation Parkway And Aureum Drive. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

16. Lockwood Glen PUD Subdivision, Final Plat, Section 16, Creating 29 Lots, On 5.92 Acres, Located Between Halswelle Drive and S. Carothers Road. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Ariella Stanford

17. Lockwood Glen PUD Subdivision, Final Plat, Section 17, Creating 51 Lots, On 11.77 Acres, Located Between Halswelle Drive and S. Carothers Road. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Ariella Stanford

NON-AGENDA ITEMS

ANY OTHER BUSINESS

ADJOURN

City of Franklin

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Meeting Minutes

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CALL TO ORDER

Chair Lindsey called the meeting to order at 7:00 pm.

Commissioners Present: Alma McLemore, Jennifer Williamson, Roger Lindsey, Ann Petersen, Michael Orr, Nick Mann, Marcia Allen, Scott Harrison

Commissioners Absent: Jimmy Franks

APPROVAL OF MINUTES

1. Consideration Of Approval Of The March 23, 2023 FMPC Minutes.

Sponsors:

Attachments: 1. DRAFT FMPC Minutes of March 23 2023

A motion was made by Commissioner Scott Harrison, seconded by Commissioner Michael Orr to Approve the Minutes from the March 23, 2023, meeting. The motion carried 8-0

CITIZEN COMMENTS ON ITEMS NOT ON THE AGENDA

Chair Roger Lindsey asked for citizen comments.

Paul Lebovitz, 102 Winslow Road. Mr. Lebovitz suggested that adjustments have been made to Envision Franklin to meet the needs of the Middle Eight development. The idea that the Middle Eight development will meet affordable housing needs is not accurate. Mr. Lebovitz requested additional neighborhood meetings to be conducted in person and to include residents within 1000 feet of the development. Mr. Lebovitz stated that the taller 5-6 story buildings of the Middle Eight will be a negative to the downtown Franklin culture as the multi-level buildings don't fit into the historical context of the area. The buildings of Middle Eight will tower over the single-family homes adjacent to the

property and the Factory tower will appear secondary to the Middle Eight residential buildings.

Thomas Bell, 177 Lancaster Drive. Mr. Bell stated that he has concerns about the proposed height of the Middle Eight buildings and about the request to increase the height of the buildings. More information is needed regarding the specific heights of each story to have an accurate view of the overall building height. Additional in-person meetings are needed as many people are concerned about the heights of the buildings.

Lillian Stewart, 201 Lewisburg Ave. Ms. Stewart stressed the importance of the gateways into the city of Franklin and the national recognition the city enjoys due to the community character. Years ago, the City of Franklin chose to create a land use plan based on the community's character. Ms. Stewart stated that she has other concerns, including the density of the Middle Eight development and its impact on parking, traffic congestion and the stress on the city and county schools.

Mike Reinfeld, 119 Jamison Station Lane. Mr. Reinfeldt stated that the Middle Eight buildings are too high, creating too much density for the area and too much stress on the infrastructure. According to Mr. Reinfeldt, this development will be 600 feet from downtown Franklin.

ANNOUNCEMENTS

Chair Lindsey welcomed Boy Scout Troop 137, his son's former Troop, to the FMPC meeting. The Troop members are working on their Citizenship badge and will observe the meeting this evening.

VOTE TO PLACE NON-AGENDA ITEMS ON THE AGENDA

Chair Roger Lindsey asked if there were any non-agenda items to be presented. There were none.

CONSENT AGENDA

2. Consideration Of Approval Of Items 3-14, 20-21, And 23-27 On The Consent Agenda.

Sponsors:

Attachments: None

A motion was made by Commissioner Scott Harrison, seconded by Commissioner Marcia Allen to approve items 3-14, 20-21, and 23-27 as presented on the Consent Agenda. The motion carried 8-0.

SITE PLAN SURETIES

3. Andover Park PUD Subdivision, Final Plat; Extend The Performance Agreement For Green Infrastructure Improvement To April 25, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady

Attachments: None

The item was Approved on Consent Agenda.

4. Berry Farms Town Center PUD Subdivision, Final Plat, Section 4; Extend The Performance Agreement For Drainage Improvement To April 25, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady

Attachments: None

The item was Approved on Consent Agenda.

5. Cardel Village PUD Subdivision, Site Plan; Extend The Performance Agreement For Landscaping Improvement To April 25, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady

Attachments: None

The item was Approved on Consent Agenda.

6. Carothers Crossing East PUD Subdivision, Site Plan, Lot 1; Extend The Performance Agreement For Landscaping Improvement To April 25, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady
Attachments: None

The item was Approved on Consent Agenda.

7. Cottages At 509 Hill Drive PUD Subdivision, Final Plat; Extend The Performance Agreement For Drainage, Green Infrastructure, Sewer And Streets Improvements To December 14, 2023. (CONSENT AGENDA)

Sponsors: Melodie Brady
Attachments: None

The item was Approved on Consent Agenda.

8. Forrest Crossing Subdivision, Final Plat, Section 1, Revision 11 (Rachel Springs Business Village); Release The Maintenance Agreement For Drainage Improvement On The Referenced Final Plat. (CONSENT AGENDA)

Sponsors: Melodie Brady
Attachments: None

The item was Approved on Consent Agenda.

9. Hard Bargain Development Subdivision, Site Plan; Accept The Landscaping Improvement, Release The Performance Agreement And Establish A Maintenance Agreement For One Year To April 25, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady
Attachments: None

The item was Approved on Consent Agenda.

10. McEwen Place PUD Subdivision, Site Plan, Section 3, Lot 303 And 304 (Block C); Extend The Performance Agreement For Sidewalks Improvement To April 25, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady
Attachments: None

The item was Approved on Consent Agenda.

11. McEwen Place Town Center PUD Subdivision, Site Plan, Section 3 (Infrastructure); Extend The Performance Agreement For Drainage, Green Infrastructure And Streets Improvements To April 25, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady
Attachments: None

The item was Approved on Consent Agenda.

12. October Park PUD Subdivision, Site Plan; Extend The Performance Agreement For Landscaping Improvement To April 25, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady
Attachments: None

The item was Approved on Consent Agenda.

13. Resource Centre PUD Subdivision, Final Plat; Extend The Performance Agreement For Traffic Signal And Warrant Study Improvement To April 25, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady
Attachments: None

The item was Approved on Consent Agenda.

14. Wynfield Village Subdivision, Site Plan; Extend The Performance Agreement For Green Infrastructure, ITS Elements, Landscaping And Sidewalks Improvements To April 25, 2024. (CONSENT AGENDA)

Sponsors: Melodie Brady
Attachments: None

The item was Approved on Consent Agenda.

ENVISION FRANKLIN PLAN AMENDMENTS

15. PUBLIC HEARING: Consideration Of Resolution 2023-010, A Resolution To Adopt An Envision Franklin Plan Amendment For A Parcel Located At 4315 S Carothers Road, Known As Map 089 Parcel 04600, To Change The Design Concepts Map From Mixed Residential To Neighborhood Commercial.

Sponsors: Emily Wright, Andrew Orr, Teresa Anderson
Attachments:
1. Location Map
2. RES 2023-10 Envision Franklin_S Carothers Road_Law approved
3. Applicant Submittal Part 1
4. Applicant Submittal Part 2

Staff Presentation: Teresa Anderson. Ms. Anderson stated that this application is to amend the Envision Franklin Design Concepts Map for a 3.96-acre parcel located at 4315 S. Carothers Road. The property currently has the Mixed Residential Design Concept and is part of Lockwood Glen PUD. The applicant is requesting the parcel receive the Design Concept of Neighborhood Commercial. The parcel is currently covered mostly with trees and brush along with a stream that flows along the southern border into Robinson Lake. The staff shared concerns that the property would have to be compatible with the

Lockwood Glen neighborhood due to the proximity of single-family uses. The applicant has requested to defer this item to the June 22, 2023 meeting.

Chair Roger Lindsey asked if anyone from the public would like to comment on this item. There was none.

Applicant Presentation: Greg Gamble. Mr. Gamble stated that a neighborhood meeting of 60 people from five neighborhoods resulted in several ideas that will be discussed. The team will be working closely with staff specifically on special considerations that restrict land use and design concepts. Mr. Gamble stated that the community meeting went well, and his team will be working on a proposal for the FMPC June meeting.

Chair Lindsey asked for a motion from the Board.

A motion was made by Commissioner Alma McLemore, seconded by Commissioner Michael Orr to Defer Item 15 to the June 22, 2023, FMPC meeting. The motion carried 8-0.

16. PUBLIC HEARING: Consideration Of Resolution 2023-011, A Resolution To Adopt An Envision Franklin Plan Amendment For Parcels Located At 3453, 3465, 3485, 3513, and 3515 Carothers Parkway, Known As Map 089 Parcels 02611, 02605,02604, and 02600, To Change The Design Concepts Map From Mixed Residential To Neighborhood Commercial.

Sponsors: Emily Wright, Andrew Orr, Teresa Anderson

Attachments:
1. Location Map
2. RES 2023-11 Envision Franklin_Carothers Parkway_Law approved
3. Applicant Submittal Package Part 1
4. Applicant Submittal Package Part 2

Chair Roger Lindsey stated this item runs with item 15 and the applicant has requested deferral, therefore we won't go through staff presentation.

Chair Roger Lindsey asked if anyone from the public would like to comment on this item. There was none.

A motion was made by Commissioner Scott Harrison, seconded by Commissioner Michael Orr to Defer Item 16 to the June 22, 2023, FMPC Meeting. The motion carried 8-0.

VESTED RIGHTS/SITE PLAN EXTENSION

17. Consideration Of Resolution 2023-23: A Resolution Amending The East Works District PUD Subdivision To Extend The Vested Rights, For The Property Located North Of Meridian Boulevard And West Of Carothers Parkway, Located at 9009 Carothers Parkway.

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

Attachments:
1. MAP East Works District PUD
2. 2023-23 RES Eastworks PUD Vesting Extension_Combined_Law approved
3. Approved Development Plan - East Works District PUD
4. ORIGINAL STAFF REPORT 7239 - East Works District PUD
5. Entitlement Extension Request - East Works District PUD

Staff Presentation: Chelsea Randolph. The request is to extend the vesting period for two years, from July 14, 2023, until July 14, 2025, to allow the applicant to secure any necessary permits and commence site preparation.

The development plan for the East Works District PUD was approved by BOMA on July 14, 2020. The plans included a mix of hotel, restaurant, retail, office, and multifamily uses. The project had seven Modifications of Standards, detailed in the staff report, and approved by BOMA. Buildings ranged from one to twelve stories, and a communal gathering space further emphasized the pedestrian-oriented design in addition to the smaller pockets of green space to the interior and around the perimeter of the property. Staff recommended approval, with conditions, of the Development Plan.

This plan is within the first three-year period and is vested until July 14, 2023. The applicant has recently submitted a site plan for the first section of the development, which was approved on the March 2023 Administrative Agenda. In addition, two site plans have been submitted to conduct offsite roadway improvements on Carothers Parkway at Mayfield Drive, which are currently under review by staff.

If the vesting period is not extended, the project entitlements would cease to exist, stop work orders would be issued, if applicable. A new development would need to be approved and would be reviewed against the current local development standards.

In reviewing the plan against the current City regulations, the current plan generally complies. The differences in today's Zoning Ordinance versus their vested Ordinance (12/30/2019) are minor and could be incorporated into the design without major changes to the plan. A new parkland agreement would need to be approved for any new plan, as well as a new traffic impact offset agreement. In the case of the latter, the traffic capacity in the area could have changed, impacting the level of service on adjacent roadways and consequently, the required offsite improvements.

Staff recommends that the Planning Commission recommend to the BOMA to approve Resolution 2023-23 if they determine that the continuation of vested rights is in the best interest of the community.

Chair Roger Lindsey asked if there was anyone from the public that wished to speak on this item. There were none.

Applicant. Dirk Melton. Mr. Melton stated that 100% of the plans and final pricing for the project are completed. Mr. Melton explained the project is ready for permitting and with approval of the vesting rights extension from the Board, the project is ready to move forward.

Chair Lindsey asked for a motion from the Board.

A motion was made by Commissioner Scott Harrison, seconded by Commissioner Nick Mann to Recommend Approval to the Board of Mayor and Aldermen Resolution 2023-23. The motion carried 8-0.

REZONINGS/DEVELOPMENT PLANS

18. Consideration Of Ordinance 2023-10, An Ordinance To Rezone 21.24 Acres From Planned (PD 11.35/12,320) District To Planned (PD 11.35/17,320) District For The Property Located South Of Oak Meadow Drive And East Of South Royal Oaks Boulevard. (Vintage At Watson Glen PUD Subdivision)

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

Attachments:
1. MAP Vintage at Watson Glen PUD Subdivision_UPDATED
2. ORD 2023-10 Vintage at Watson Glen PUD_Combined_Law approved (2)
3. 2023-03-02 Vintage at Watson Glen Rezoning

Staff Presentation: Chelsea Randolph. The development plan has been submitted concurrently and the Planned Development district is an appropriate base zone. Envision Franklin places this property in the Neighborhood Mixed Use Design Concept. The Neighborhood Mixed-Use Design Concept allows for institutional uses (clinic and rehabilitation center) as well as local commercial uses (indoor animal services, personal services, restaurant, retail, day care, and showroom).

Staff recommends that the Planning Commission recommend to the Board of Mayor and Aldermen to approve Ordinance 2023-10, an ordinance to rezone 21.24 acres from Planned (PD 11.35/12,320) District to Planned (PD 11.35/17,320) District (Vintage At Watson Glen PUD Subdivision).

Chair Roger Lindsey asked if there was anyone from the public that wished to speak on this item.

Rich Buckner, 411 Valleyview Drive. Mr. Buckner provided the Board with a signed petition. Mr. Buckner stated that he is president of the Franklin Alliance of HOA in Ward #3. Originally, the creators planned to develop the wooded site for a neighborhood restaurant. Now developers have said that there aren't any groups interested in the site for potential restaurants. Mr. Buckner stated that there are 600 homes within walking distance and 2500 homes within 2 miles of the

location. In closing, Mr. Buckner explained that the Franklin Alliance of HOA, Ward #3 is in support of restaurant offices located on the second floor, but not in support of the other suggested tenants for the property.

Michael Lerche, 413 Valley View Drive. Mr. Lerche stated that he agreed with everything Mr. Buckner had to say. The concerns stated by Mr. Lerche included approval of the additional 5,000 square feet. If negotiations for a restaurant cannot be secured, rezoning requests will be likely in the future. Mr. Lerche explained that he doesn't agree with approval of the additional 5,000 square feet because of precedence that would be set if, again, the area is requested to be rezoned. Mr. Lerche finished by stating that he would prefer not to go through this process again.

Chris Lockard, 312 Valley View. Mr. Lockard stated that he is the current HOA president of Creekstone and represents the neighborhood adjacent to the subject property. Mr. Lockard explained that they are in full support of a walkable family neighborhood restaurant along with the additional 5,000 square feet of office space to help attract a restaurant. The development appears to be changing the land use to include clinics, retail space, day cares and other commercial spaces that Creekstone along with the HOA Alliance for Ward #3 are opposed to.

Lee Anderson, 412 Chatsworth Court. Mr. Anderson stated that he is the past president of the Preserve at Forrest Crossing HOA and he represents 53 residences and their concerns over development of this property. The first concern Mr. Anderson discussed was the amount of money spent to adopt Envision Franklin as a guide for the future development of the city. Why spend this amount of money on a long-term plan if every time a developer requests a rezoning change because of one difficulty or another, it's granted? Secondly, with over 17,000 cars traveling along Royal Oaks, how hard are the developers searching for a potential restaurant tenant? Mr. Anderson explained that his neighbors are not opposed to the additional office space for the restaurant but are opposed to any other type of commercial use of the land.

Applicant: Greg Gamble. Mr. Gamble explained that currently there is a full-service restaurant and a quick-service local family restaurant interested in the property. The restaurant industry has changed in the last few years and the owners have spent two years seeking restauranters for the location. During this time, the owners were contacted by a veterinarian about an indoor animal clinic and a small rehab clinic which fall under the approvable uses for a PUD. Mr. Gamble noted that it is the desire of the owners to develop the area to be used for a full-service restaurant. With approval from FMPC and BOMA, the additional 5,000 square feet space will accommodate the full service and quick service restaurant. Mr. Gamble concluded by saying that additional uses could be a condition of approval which would require review and approval from the Planning Commission.

Chair Lindsey asked the Board for a motion.

A motion was made by Commissioner Ann Petersen, seconded by Commissioner Michael Orr, to recommend approval of the additional 5,000 square feet but not including the additional uses stated to the Board of Mayor and Aldermen.

Ms. Billingsly explained that this item only required approval or denial of the 5,000 additional square feet requested by the applicant.

Ms. Wright confirmed that the current item, Consideration of Ordinance 2023-10, includes the additional 5,000 square feet Planned (PD 11.35/12,320) District to Planned (PD 11.35/17,320) District and the next item on the agenda would include discussion of the additional uses of the property.

Commissioner Mann asked Mr. Gamble what exactly had been approved so far.

Mr. Gamble stated that the Quick Service restaurant was planned and approved.

Chair Lindsey asked Alderman Petersen what she would like her motion to be.

Alderman Petersen moved to recommend approval of the additional 5,000 square feet, seconded by Commissioner Orr.

There being no discussion, Chair Lindsey proceeded with a roll call vote.

The motion Passed 8-0.

19. Consideration Of Resolution 2023-17, A Resolution Approving A Revision To A Development Plan For Vintage At Watson Glen PUD Subdivision, For The Property Located South Of Oak Meadow Drive and East Of South Royal Oaks Boulevard.

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

Attachments:
1. MAP Vintage at Watson Glen PUD Subdivision_UPDATED
2. RES 2023-17 Vintage at Watson Glen PUD_Combined_Law approved (2)
3. CONDITIONS OF APPROVAL 8102 Vintage at Watson Glen PUD Subdivision, Development Plan, Revision 1
4. 1-5 Pages from 2023-03-02 Vintage at Watson Glen Development Plan, Revision 1 - Resubmittal
5. 6-9 Pages from 2023-03-02 Vintage at Watson Glen Development Plan, Revision 1 - Resubmittal-2

Staff Presentation: Chelsea Randolph. Vintage at Watson Glen's proposed revision consists of additional allowable uses as discussed and an additional 5,000 square feet of office space as a second story to an existing approved building. Envision Franklin places this property within the Neighborhood Mixed-Use Design Concept and, as stated for the rezoning, this design concept allows for institutional uses as well as local commercial uses. Staff has received and reviewed the parking analysis and the applicant has addressed how the proposed additional 5,000 square feet would be adequately parked.

Staff recommends that the Planning Commission recommend to the Board of Mayor and Aldermen to approve Resolution 2023-17, a Resolution approving a revision to a development plan for Vintage At Watson Glen PUD Subdivision, with conditions.

Chair Roger Lindsey asked if there was anyone from the public that wished to speak on this item.

Rich Buckner, 411 Valley View Drive. Mr. Buckner stated that he speaks against the additional uses proposed by the developer.

Lisa Smith, 437 Valley View Drive. Ms. Smith stated that she opposes the additional uses, as originally denied.

Calen Weiss, 201 Creekstone Boulevard. Mr. Weiss stated that his neighborhood would be most impacted by noise and traffic if the additional uses are approved by the Planning Commission. Mr. Weiss explained that the change would affect their quality of life. Mr. Weiss also noted that originally the developers presented one plan but in all actuality the plan appears to be something very different.

Chris Lockard, HOA Creekstone. Mr. Lockard stated that his neighborhood is opposed to the collective list of uses but could be open to other uses of the property.

Applicant: Greg Gamble. Mr. Gamble stated he would be happy to answer any questions.

Commissioner Mann stated that he believes the degree of uses are too extensive, but hopefully, the development will move forward with the restaurants.

Commissioner Orr stated that the selling point for this project was the development of a full-service restaurant.

A motion was made by Commissioner Nick Mann, seconded by Commissioner Michael Orr to Approve Resolution 2023-17. The motion Passed 7-1. (Commissioner Harrison voted no)

SITE PLANS, PRELIMINARY PLATS, AND FINAL PLATS

20. Carothers Crossing West PUD Subdivision, Final Plat, Revision 5 (Lot 4), Creating Two Non-Residential Lots, On 1.418 acres, Located At 5041 and 5043 Carothers Parkway. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

Attachments:
1. MAP Carothers Crossing West PUD Subdivision, Final Plat, Revision 5

2. CONDITIONS OF APPROVAL 8128 Carothers Crossing West PUD Subdivision, Final Plat, Revision 5, Lot 4
3. FINAL PLAT 8128 Carothers Crossing West PUD Subdivision, Final Plat, Revision 5, Lot 4

The item was Approved on Consent Agenda.

21. Franklin Grove Subdivision, Site Plan, Developing 1,536 Square Feet Of Institutional Space And Site Improvements, On 5.19 Acres, Located At 423 South Margin Street. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Joseph Bryan

Attachments:
1. MAP Franklin Grove Subdivision, Site Plan
2. 8122 Franklin Grove Sub SP_Conditions of Approval_01
3. ONE PAGE SITE PLAN FRANKLIN GROVE
4. 1-5 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL
5. 6-10 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-2
6. 11-15 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-3
7. 16-20 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-4
8. 21-25 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-5
9. 26-30 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-6
10. 31-35 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-7
11. 36-40 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-8
12. 41-45 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-9
13. 46-50 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-10
14. 51-55 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-11
15. 56-60 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-12
16. 61-65 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-13
17. 66-70 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-14
18. 71-75 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-15
19. 76-78 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-16
20. 79-81 Pages from 2023.04.06 FGEG FULL SITE PLAN RESUBMITTAL-17

The item was Approved on Consent Agenda.

22. Poteat Place North Subdivision, Preliminary Plat, Creating 3 Single Family Residential Lots And One Open Space Lot, On 2.17 Acres, Located At The Intersection Of Hillsboro Road And Poteat Place.

Sponsors: Emily Wright, Amy Diaz-Barriga, Joseph Bryan

Attachments:
1. MAP Poteat Place North Subdivision, Preliminary Plat
2. 8126 Poteat Place North Sub PP_Conditions of Approval_01
3. Poteat Place North Preliminary Plat 4-6-23

Staff Presentation: Amy Diaz-Barriga. The applicant is proposing to subdivide the property located at the northeast corner of Hillsboro Road and Poteat Place into three single-family residential lots and one open space lot. The property is zoned R-2 and each proposed lot meets the lot standards for the R-2 District, including a minimum of 15,000 square foot lot size.

Staff made a condition of approval to accurately reflect the FFO line on the preliminary plat. The submitted plans erroneously label the 500-year floodplain as the 100-year floodplain on the southwestern portion of the property. Neither the adopted FEMA flood maps nor the FEMA maps currently moving through the approval process show 100-year floodplain limits on this property.

Staff recommends approval with conditions of the Poteat Place North Subdivision Preliminary Plat. The conditions of approval are attached.

Chair Roger Lindsey asked if anyone from the public wished to speak on this item.

David Lawbaugh, 206 Revere Lane. Mr. Lawbaugh stated that he is the co-president of the Monticello HOA. Mr. Lawbaugh expressed concerns about the three lot sizes, the driveway access and the exterior designs of the home and how the homes will represent the Monticello neighborhood. Lawbaugh also noted his concern for the neighborhood property values and how the three smaller lots will affect home values.

Applicant: Jennifer Speich, Land Solutions Company, LLC. Ms. Speich stated that the lots are zoned R2 and meet the guidelines for lot sizing. Ms. Speich stated that she would be glad to answer any questions to clear up any concerns. Ms. Speich explained that they are requesting approval of a preliminary plat and, if approved, the next step would be submittal of the site plan which may answer Mr. Lawbaugh's questions.

Chair Lindsey asked the Board for a motion.

A motion was made by Commissioner Alma McLemore, seconded by Commissioner Scott Harrison to Approve with Conditions Item 22.

Commissioner Petersen asked what is the minimum lot size for R2?

Ms. Diaz-Barriga stated it is 15,000 square feet.

The motion carried 8-0.

23. Rolling Hills Community Church Subdivision, Final Plat, Creating 2 Nonresidential Lots And Dedicating Right-Of-Way, On 39.25 Acres, Located At 1810 Columbia Avenue. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Joseph Bryan

Attachments:
1. MAP Rolling Hills Community Church Subdivision, Final Plat
2. Final Plat Electronic Submittal 04-06-23 Revisions
3. 8142 Rolling Hills Comm Church Sub FP_Conditions of Approval_01

The item was Approved on Consent Agenda.

24. Southeast Municipal Complex Subdivision, Site Plan, Developing 16,845 Square Feet Of Recreational Space, On 173 Acres, Located East Of Interstate 65 And West Of Carothers Parkway. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

Attachments:
1. MAP Southeast Municipal Complex Subdivision, Site Plan
2. CONDITIONS OF APPROVAL 8134 Southeast Municipal Complex Subdivision, Site Plan
3. SITE LAYOUT ONE SHEET
4. 8134 Southeast Municipal Complex Subdivision, Site Plan, Part 1
5. 8134 Southeast Municipal Complex Subdivision, Site Plan, Part 2
6. 8134 Southeast Municipal Complex Subdivision, Site Plan, Part 3
7. 8134 Southeast Municipal Complex Subdivision, Site Plan, Part 4
8. 8134 Southeast Municipal Complex Subdivision, Site Plan, Part 5
9. 8134 Southeast Municipal Complex Subdivision, Site Plan, Part 6
10. 8134 Southeast Municipal Complex Subdivision, Site Plan, Part 7

The item was Approved on Consent Agenda.

25. Waters Edge PUD Subdivision, Final Plat, Section 4, Revision 3 (Lot 516), Creating 1 Open Space Lot And Dedicating Easements, On 4.06 Acres, Located West Of The Intersection Of South Carothers Parkway And Flowing Creek Drive. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

Attachments:
1. MAP Waters Edge PUD Subdivision, Section 4, Revision 3 Final Plat
2. ADVISORY CONDITIONS OF APPROVAL 8135 Waters Edge PUD Subdivision, Final Plat, Section 4, Revision 3
3. FINAL PLAT 8135 Waters Edge PUD Subdivision, Final Plat, Section 4, Revision 3

The item was Approved on Consent Agenda.

26. WCS Transportation Complex, Site Plan, Buildings F & C, Developing 4,624 Square Feet Of Institutional Space, On 15.07 Acres, Located At 1771 West Main Street. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Joseph Bryan

Attachments:
1. MAP WCS Transportation Complex, Site Plan
2. 8127 WCS Trans Complex SP_Conditions of Approval_01
3. 1-5 Pages from WCS Transportation - F and C Building - Site Plans
4. 6-10 Pages from WCS Transportation - F and C Building - Site Plans-2
5. 11-15 Pages from WCS Transportation - F and C Building - Site Plans-3
6. 16-21 Pages from WCS Transportation - F and C Building - Site Plans-4

The item was Approved on Consent Agenda.

27. Westhaven PUD Subdivision, Final Plat, Section Jewell 1, Creating 8 Single-Family Lots, 46 Townhome Lots, 6 Open Space Lots, And Dedicating Public Right-Of-Way And Easements, On 40 Acres, Located Near The Intersection Of Mack Hatcher Memorial Parkway And Highway 96. (CONSENT AGENDA)

Sponsors: Emily Wright, Amy Diaz-Barriga, Chelsea Randolph

Attachments:
1. MAP Westhaven PUD Subdivision, Final Plat
2. CONDITIONS OF APPROVAL 8136 Westhaven PUD Subdivision, Final Plat, Section Jewell 1
3. FINAL PLAT 8136 Westhaven PUD Subdivision, Final Plat, Section Jewell 1

The item was Approved on Consent Agenda.

STREET NAME CHANGE REQUESTS

28. Consideration Of Resolution 2023-13, A Resolution To Change The Street Name Of Sallie Lane To Sara Avalyn Berry Lane In The Berry Farms Subdivision In The City Of Franklin.

Sponsors: Shanna McCoy, Lori Jarosz

Attachments:
1. 2023-13 RES_Change Street Name in Berry Farms_Law approved
2. 501 Sallie Lane
3. 501 Sallie Lane 2

Staff Presentation: Shanna McCoy. On November 10th, 2022, staff was contacted by Sara Avalyn and Tim Swain requesting the street name of Sallie Lane be changed to Sara Avalyn Berry Lane in the Berry Farms Subdivision. Mrs. Swain, formerly Sara Avalyn Berry, was raised on 3rd Ave South, in the City of Franklin, Tennessee. In her early teens, the Berry family moved to what is now known as Berry Farms PUD Subdivision. Mrs. (Berry)Swain became the heir of the Berry Farms Historic Home at 244 Old Peytonsville Road and the 600 associated acres after the death of her father and brother, Tyler Berry, Jr. and Tyler Berry III.

In 2016, the street name of Sallie Lane was assigned during the site plan approval process for the Twice Daily convenience store. However, Twice Daily's is not addressed from Sallie Lane. There is only one property that will be impacted by the name change. Edley’s BBQ at 501 Salllie Lane, which is still under construction, will be the sole property impacted. The ownership of the property has provided a written agreement with the change as it would not have any financial impact on

the change. The Berry Farms Property Owner's Association has agreed to take on the financial responsibility for production and installation of the new street signage. The Swain's are responsible for the $220 charge for street name changes per the City of Franklin Municipal Code. There will be no financial impact on the City of Franklin.

The City of Franklin's Addressing Manual, Section 13 outlines the procedures for a street or subdivision name change. Upon application submittal, the request for name change is placed on the next available FMPC agenda. Upon approval by FMPC, the Building and Neighborhood Services Department shall notify all impacted property owners of the final name change and shall also notify the United States Postal Service, E-911, the Williamson County Register of Deeds and the Williamson County Elections Office.

Staff recommends that the Franklin Municipal Planning Commission approve Resolution 2023-13.

Chair Roger Lindsey asked if anyone from the public wished to speak on this item. There was none.

A motion was made by Commissioner Michael Orr, seconded by Commissioner Alma McLemore to Approve Item 28. The motion carried 8-0.

NON-AGENDA ITEMS

Chair Roger Lindsey asked if there were any non-agenda items to be presented. There were none.

ANY OTHER BUSINESS

Chair Roger Lindsey asked if there was any further business. There was none.

ADJOURN

A motion was made by Commissioner Scott Harrison, seconded by Commissioner Michael Orr to Adjourn. The motion carried 8-0.

There being no further business, the meeting adjourned at 08:04 PM.

_____ _____

Chair Date

City of Franklin

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

File #: 21-04661

DATE: May 9, 2023

TO: Franklin Municipal Planning Commission

FROM: 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)

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:

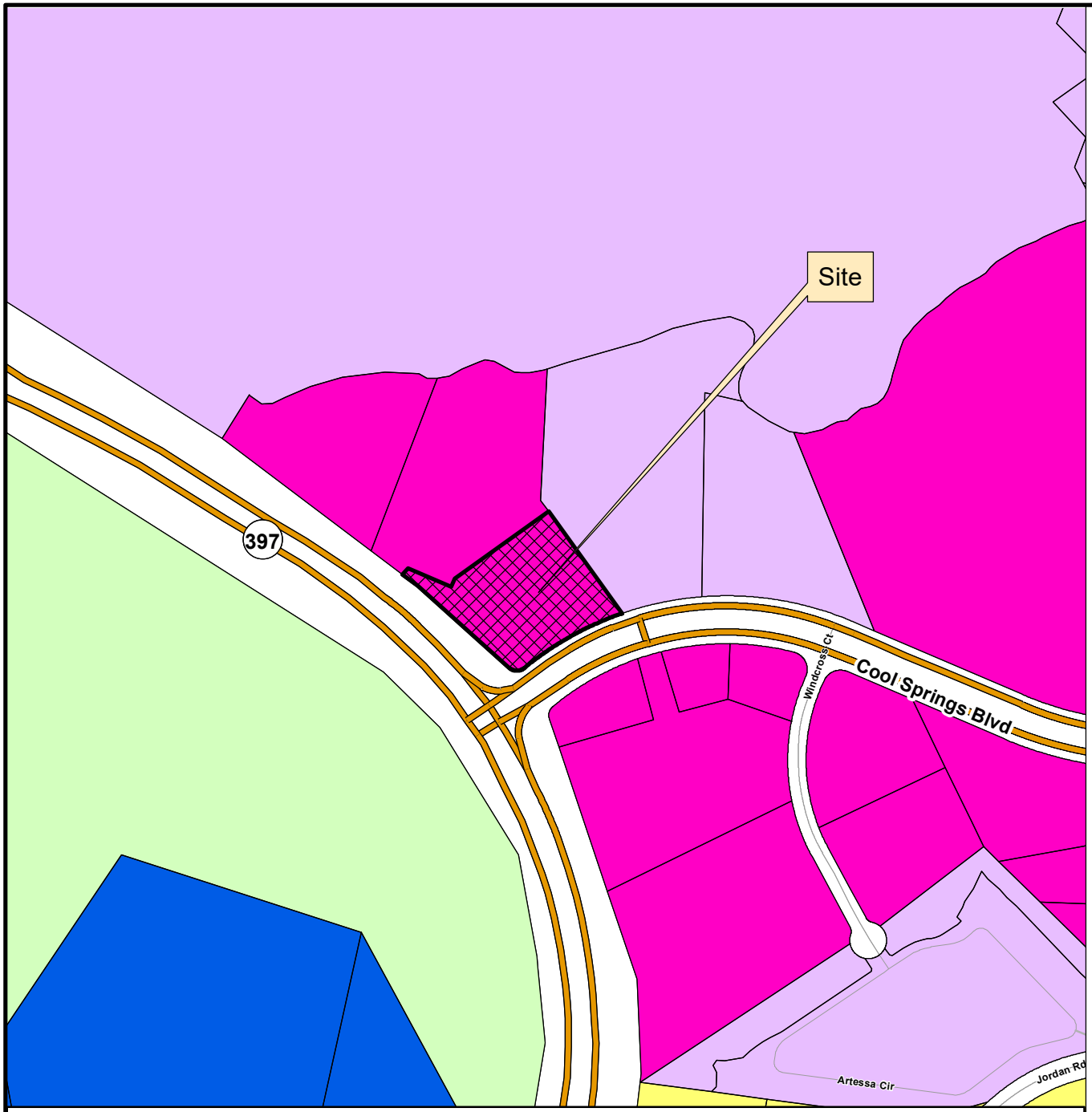
1. The City's project identification number shall be included on all correspondence with any City department relative to this project.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Staff recommends that the Planning Commission recommend to the Board of Mayor and Aldermen to disapprove Ordinance 2023-22.



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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N

0 250 500 1,000
Feet

HISTORIC FRANKLIN TENNESSEE

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.
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

GREGORY C. GAMBLE — REGISTERED — 3423 — LANDSCAPE ARCHITECT

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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ACREAGE OF ACCESS ESMT:	0.77 ACRES
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APPLICANT:	GAMBLE DESIGN COLLABORATIVE (GDC)
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PHONE:	615-975-5765
EMAIL:	GREG.GAMBLE@GDC-TN.COM
CONTACT NAME:	GREG GAMBLE, RLA
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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

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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

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 — LICENSED PROFESSIONAL ENGINEER — 109882 — STATE OF TENNESSEE
2023-05-04

No	REVISIONS	DATE	BY
1			
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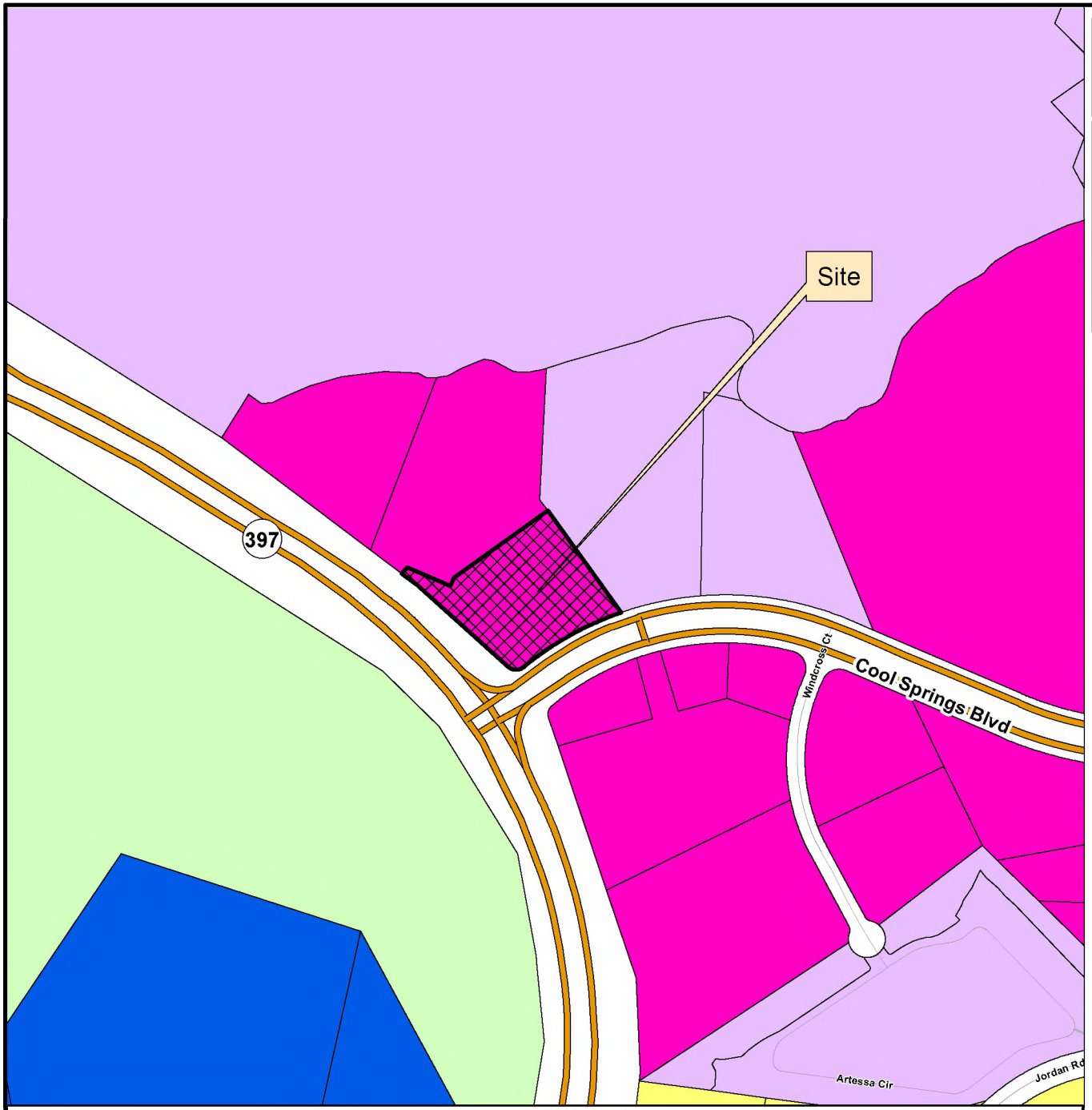
DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023
KIMLEY-HORN PROJECT NO.	118479000

OVERALL 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.
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

101 COOL SPRINGS BOULEVARD

PUD SUBDIVISION, REZONING

PLANNED DISTRICT
FRANKLIN, WILLIAMSON, TENNESSEE



VICINITY MAP
NTS

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.
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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.
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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

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

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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6. NO PROPOSED BUILDINGS IN THIS PROJECT FALL WITHIN THE 100 YEAR FLOODPLAIN, PER THE FEMA FIRM MAP NUMBER 47187C0204F, DATED SEPTEMBER 29, 2006

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 AGENT OF COMMERCE No. 130981 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

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

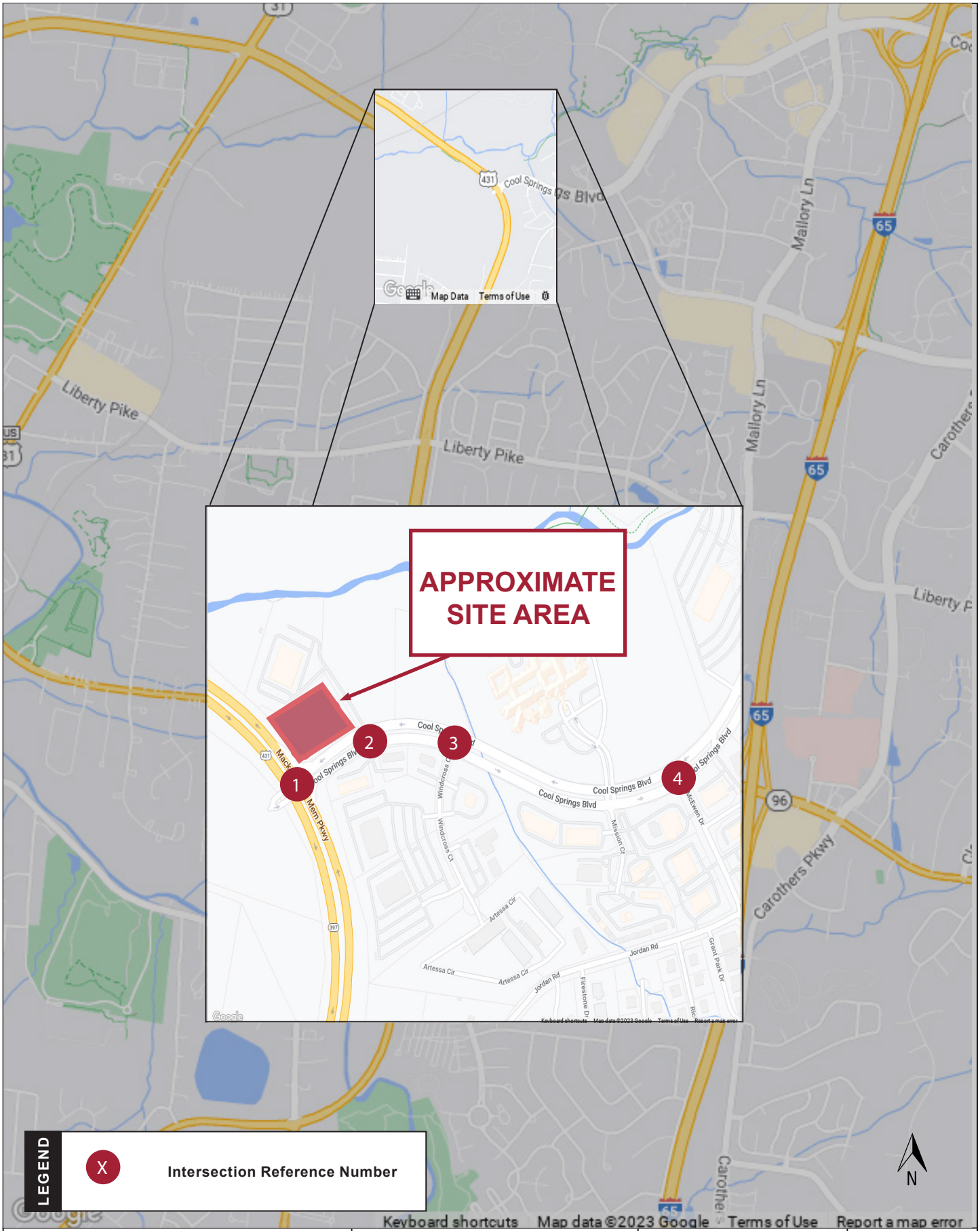
The proposed development will be served by two driveways:

- 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

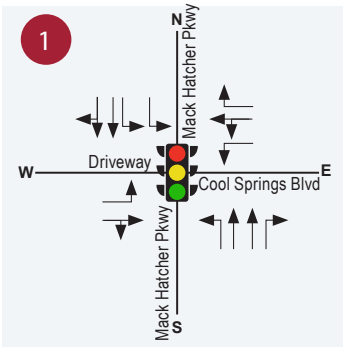
Vehicle peak hour turning movement counts (TMCs) were determined from multiple sources. New traffic counts were collected for the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1) on September 13, 2022. 2020 turning movement counts provided in the Cool Springs Transportation 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**.

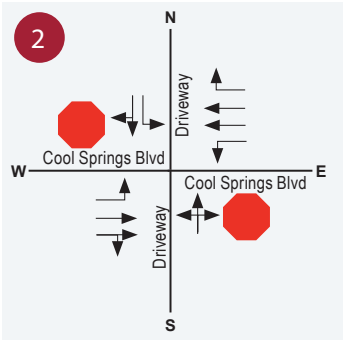
Table 2: Existing Turning Movement Count Sources

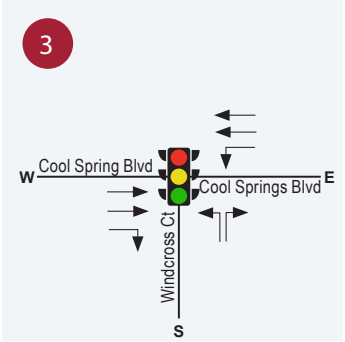
Intersection	Count Year	Count Source
1. Mack Hatcher Parkway at Cool Springs Boulevard	2022	Collected
2. Cool Springs Boulevard at Site Driveway	2022/2016	Balanced/ 201 CSB Joint TIS
3. Cool Springs Boulevard at Windcross Court	2020	Balanced/ 201 CSB Joint TIS
4. Cool Springs Boulevard at McEwen Drive	2020	CSTS Model

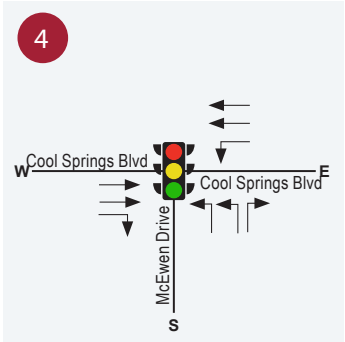
The Existing 2023 peak hour traffic volumes are shown in **Figure 4**. The 2022 collected traffic count data is provided in **Appendix B**.











LEGEND

- Existing Lanage
- Existing Traffic Signal
- Existing Stop Sign

N

Kimley»Horn	101 Cool Springs Boulevard TIS	Existing 2023 Intersection Geometry	Figure 3

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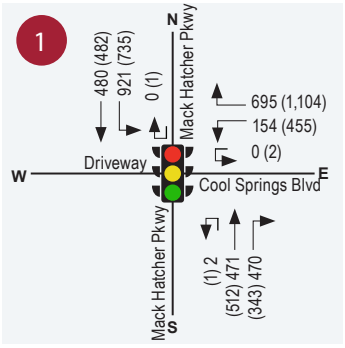

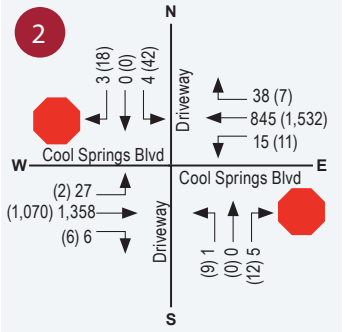

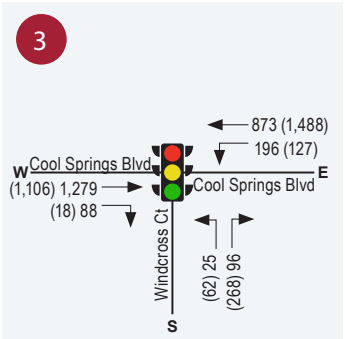

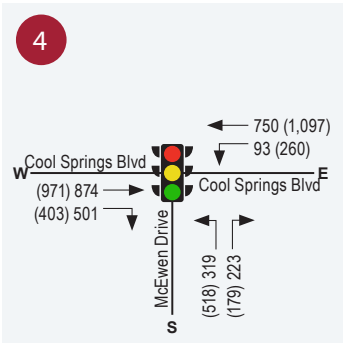

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

N

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

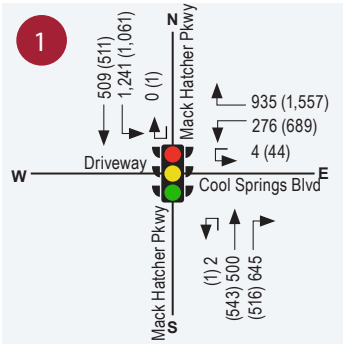
With the development of the projects listed in Table 4, the following improvements were assumed to be completed prior to the Year 2025 Build scenario, since these improvements are condition of approval for some of these development projects:

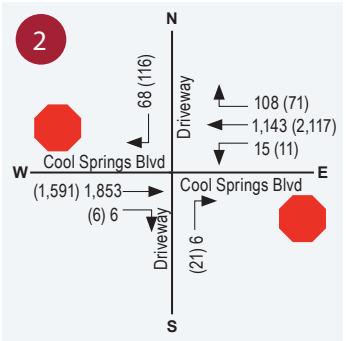
- Intersection 2: Cool Springs Boulevard at Site Driveway/Commercial Driveway
  - Convert the existing full-movement intersection to a right-in/right/out (RIRO) for the southbound approach (north leg)
  - Restripe the existing southbound left-turn lane as an additional southbound right-turn lane (north 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

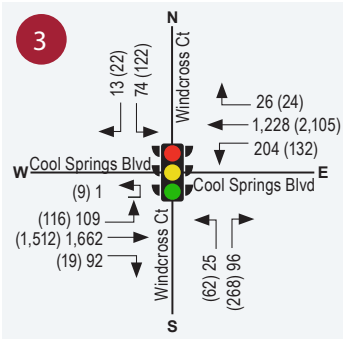
- Intersection 4: Cool Springs Boulevard at McEwen Drive
    - Construct the north leg of the intersection with one southbound left-turn lane, one southbound through lane, and one southbound right-turn lane
    - Provide a westbound right-turn lane
    - Provide an eastbound left-turn lane
    - Provide 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

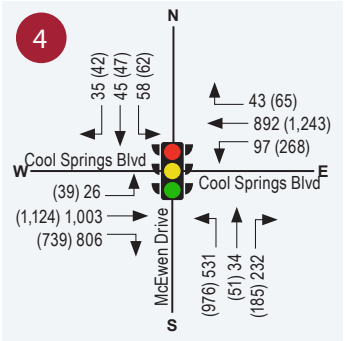
Figure 7 illustrates the intersection geometry assumed for the 2025 and 2030 No-Build conditions.











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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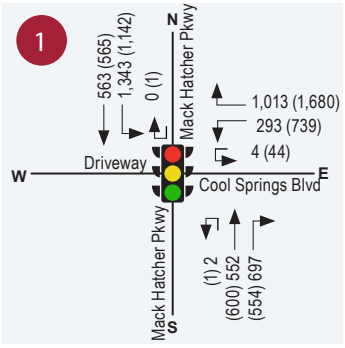

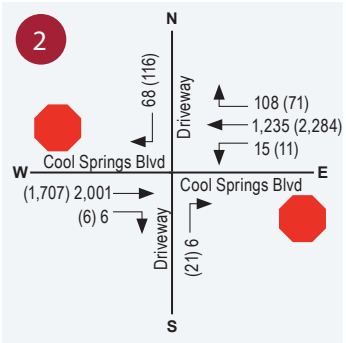

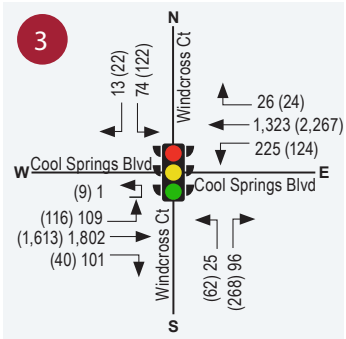

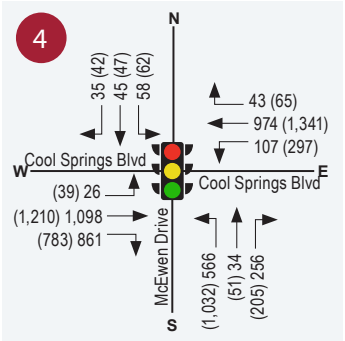

LEGEND

→	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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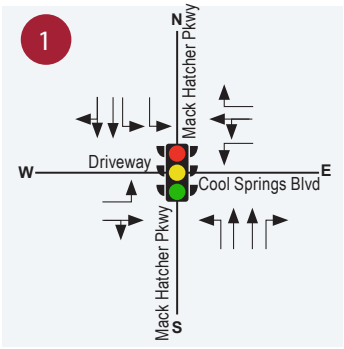

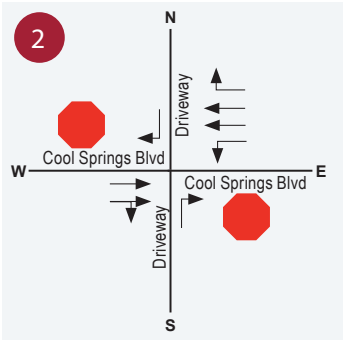

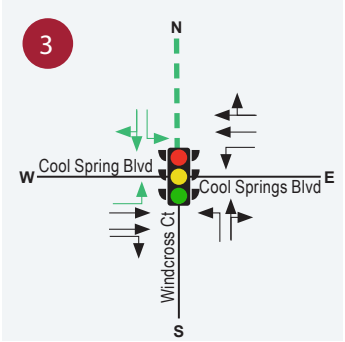

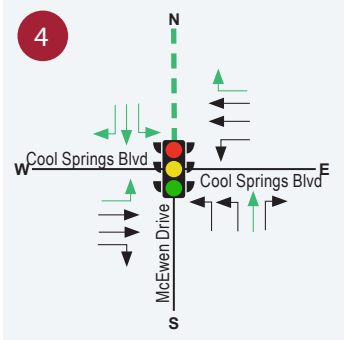





Kimley»Horn	101 Cool Springs Boulevard TIS	No-Build Intersection Geometry	Figure 7

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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.

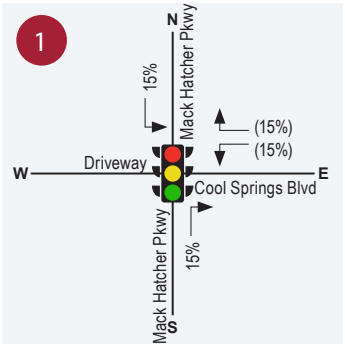
Table 5: Trip Generation								
ITE Code	Land Use	Density	Daily		AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit	Enter	Exit
220	Multifamily Housing (Low-Rise)	178 units	608	608	19	59	61	36
822	Strip Retail Plaza (<40ksf) (Proposed)	3,500 SF	189	189	8	6	19	18
Gross Trips			**797**	**797**	**27**	**65**	**80**	**54**
Reduction – Internal Capture			*-19*	*-19*	*0*	*0*	*-2*	*-2*
New Trips			**778**	**778**	**27**	**65**	**78**	**52**

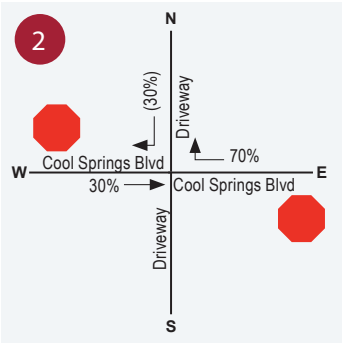
5.3 TRIP DISTRIBUTION AND ASSIGNMENT

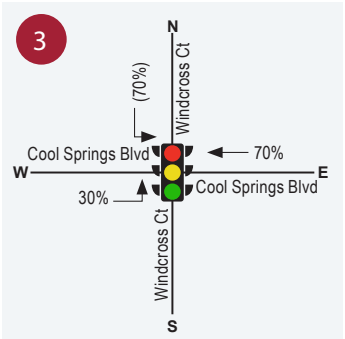
The directional distribution and assignment of new project trips was based on a review of land uses and population densities in the area and the existing peak hour turning movement counts. **Figure 8** illustrates the directional distribution and assignment of new project trips. **Figure 9** illustrates 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.

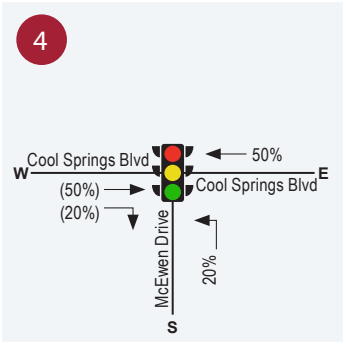
Appendix C provides intersection volume worksheets for all intersections and driveways within the study network.











LEGEND

→	Turning Movement	XX	% Entering Trips
	Existing Traffic Signal	(XX)	% Exiting Trips
	Existing Stop Sign		

N

Kimley»Horn	101 Cool Springs Boulevard TIS	Trip Distribution & Assignment	Figure 8

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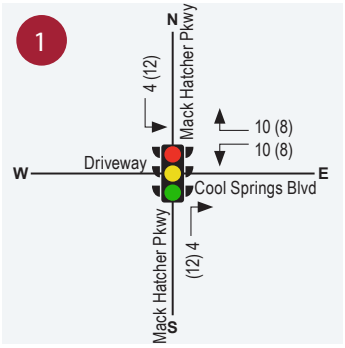

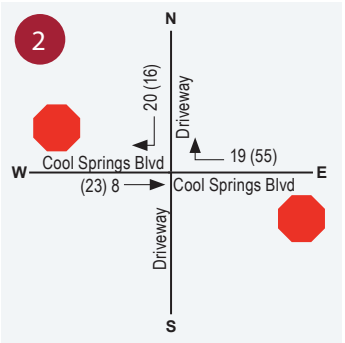

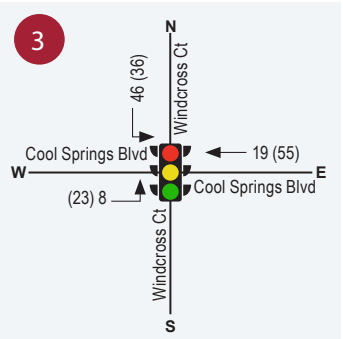

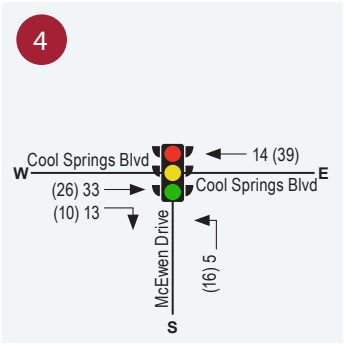

LEGEND

→	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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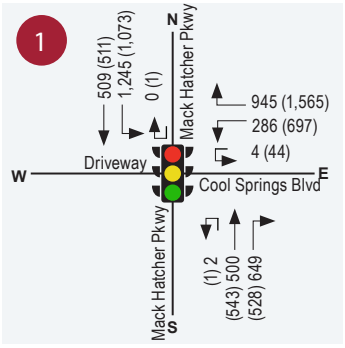

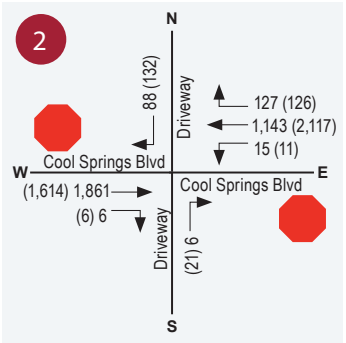

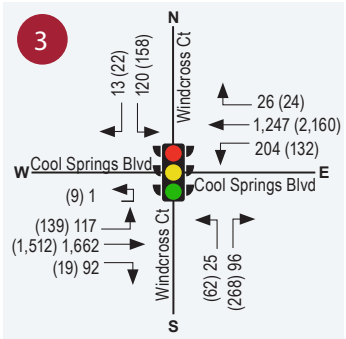

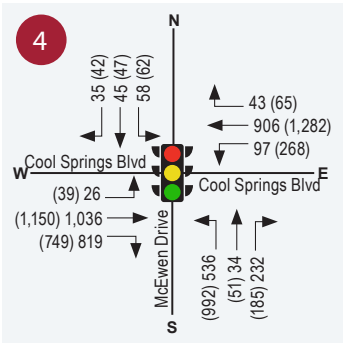

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

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Kimley»Horn	101 Cool Springs Boulevard TIS	2025 Build Traffic Volumes	Figure 10

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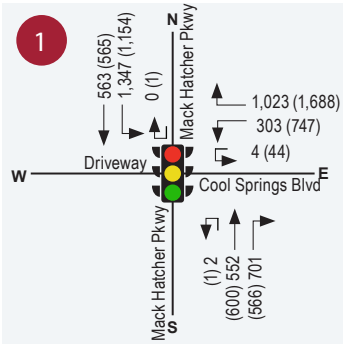

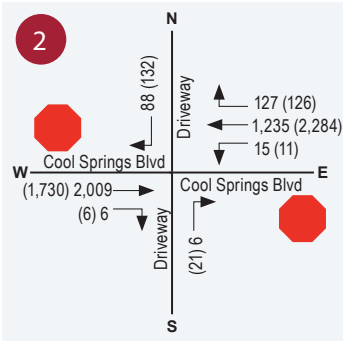

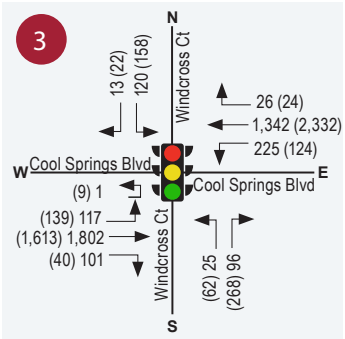

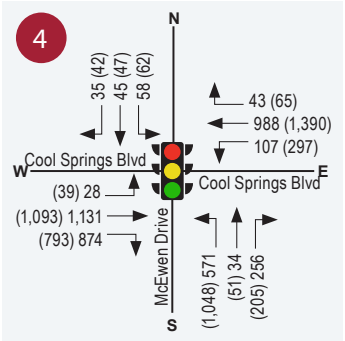

LEGEND

→	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

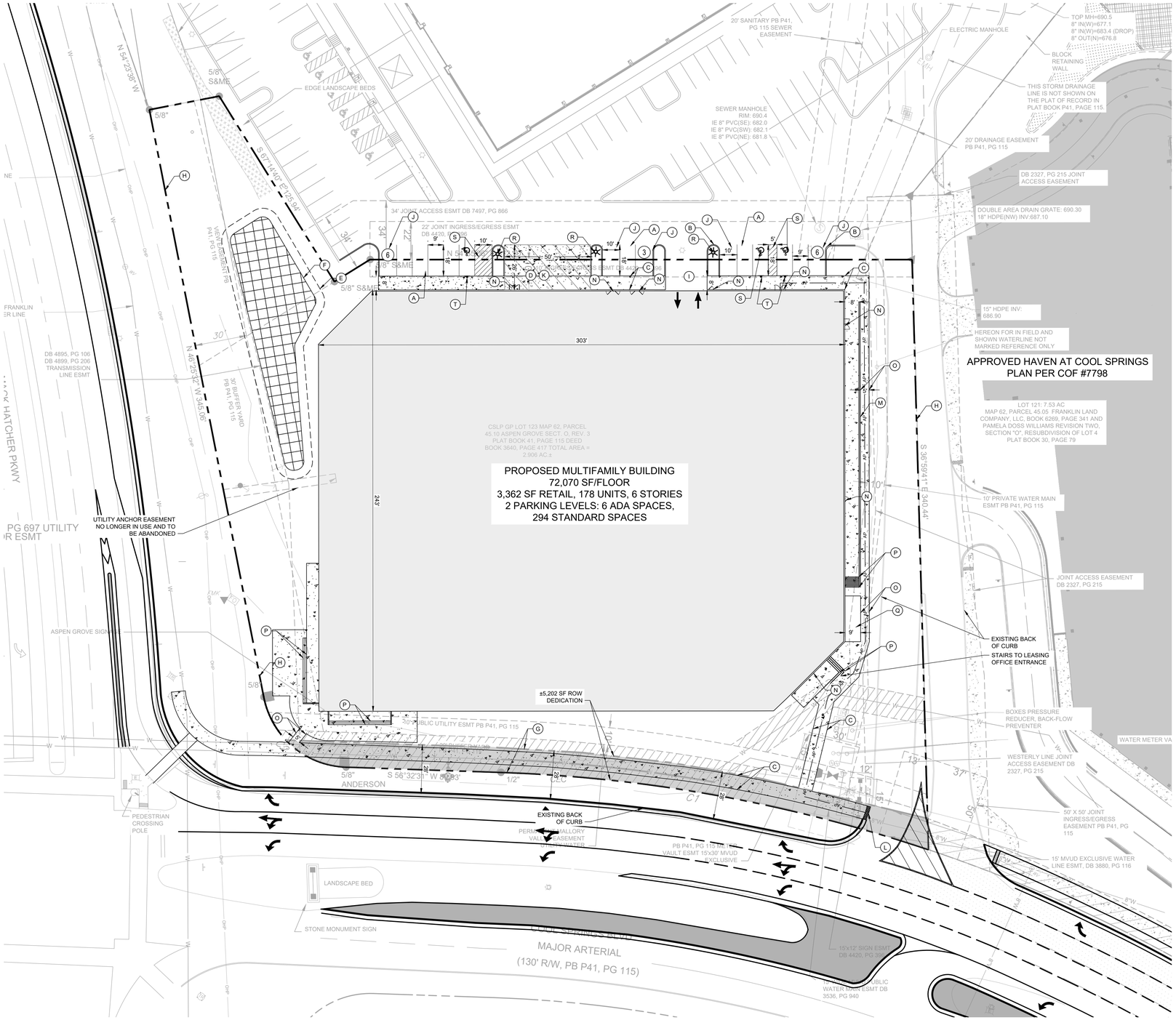
Based on the results of this traffic impact study, Kimley-Horn and Associates, Inc. recommends the following development improvements to serve the Projected 2025 Build traffic conditions (Note: this would be the improvements needed to serve the traffic associated with the *101 Cool Springs Boulevard* 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
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 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

EXISTING BACK OF CURB

2.5' CURB & GUTTER

ALL STRIPING AND TURN SYMBOLS TO BE REVISED

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

Franklin, TN

Click here for Map

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

Franklin, TN

Click here for Map

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*

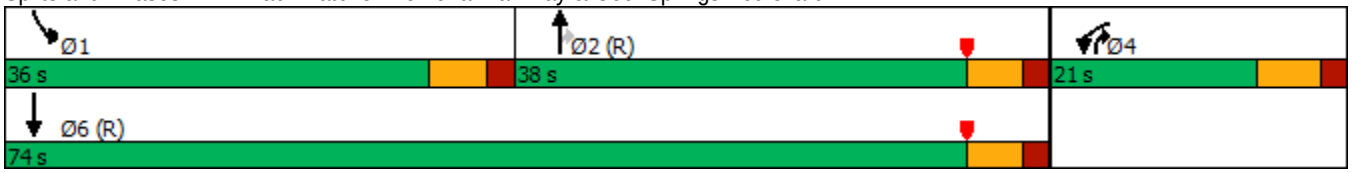
APPENDIX D

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	-

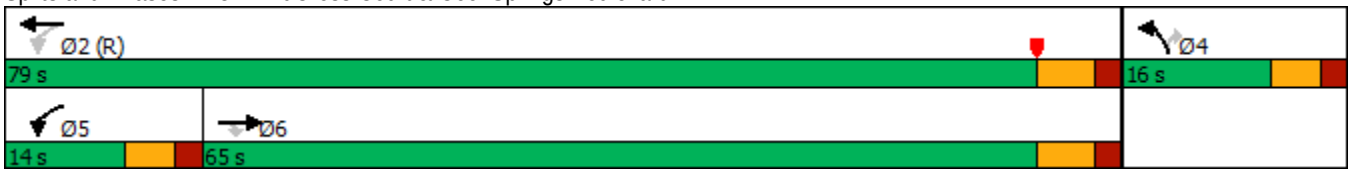
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	19.4	20.8
HCM LOS			C	C

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	

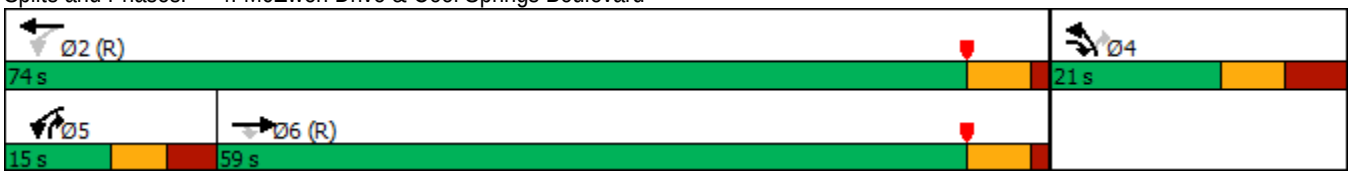
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		79.0		16.0	11.5	67.5
Change Period (Y+Rc), s		6.0		5.5	5.5	6.0
Max Green Setting (Gmax), s		73.0		10.5	8.5	59.0
Max Q Clear Time (g_c+I1), s		2.0		7.9	5.7	23.5
Green Ext Time (p_c), s		17.8		0.2	0.2	23.8

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	

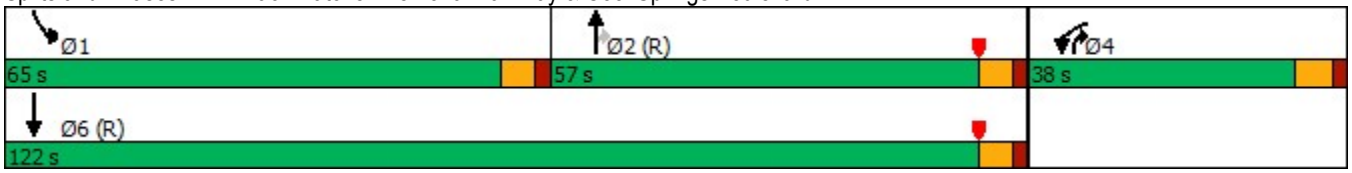
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		74.0		21.0	13.1	60.9
Change Period (Y+Rc), s		6.0		9.0	7.5	6.0
Max Green Setting (Gmax), s		68.0		12.0	7.5	53.0
Max Q Clear Time (g_c+I1), s		10.0		14.0	4.0	16.7
Green Ext Time (p_c), s		20.5		0.0	0.0	27.8

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

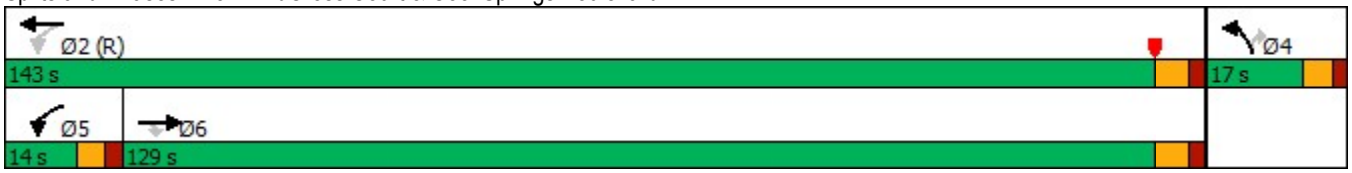
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	221	398	-	-	613	-	-	83	324
HCM Lane V/C Ratio	0.1	0.005	-	-	0.019	-	-	0.533	0.058
HCM Control Delay (s)	23.1	14.1	-	-	11	-	-	89.7	16.8
HCM Lane LOS	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	2.3	0.2

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

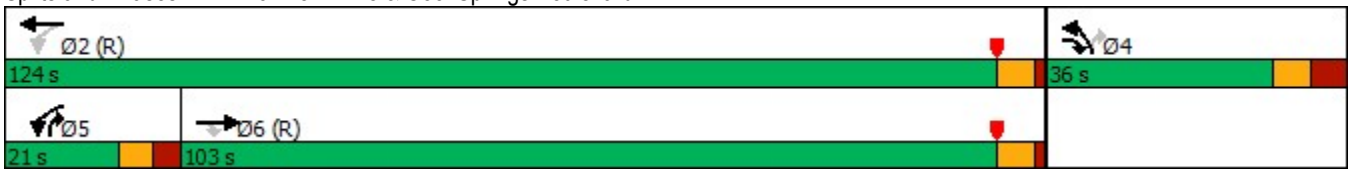
Notes

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

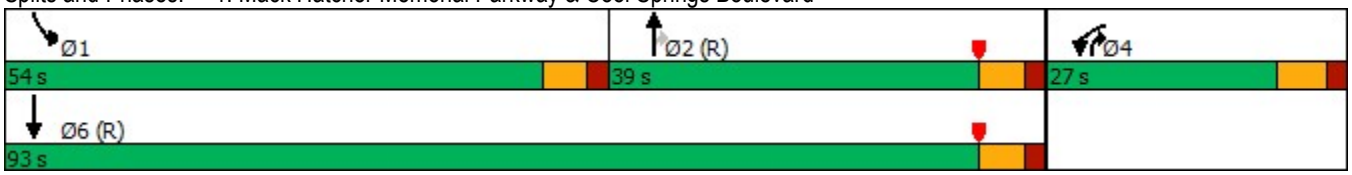
Notes

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	-	-	-	-	-	-	-	-	-	-	-	-

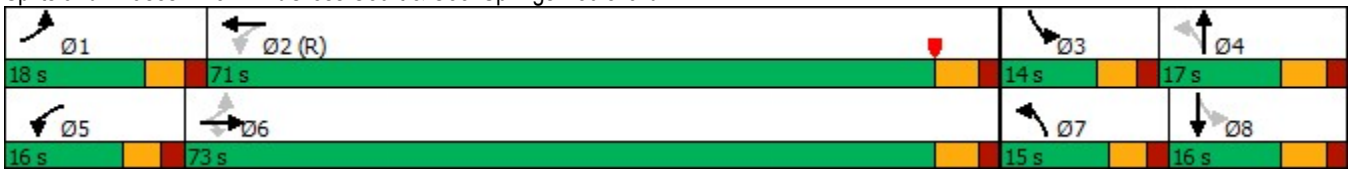
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	19.8	14.7
HCM LOS			C	B

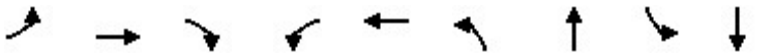
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	249	-	-	294	-	-	443
HCM Lane V/C Ratio	0.025	-	-	0.054	-	-	0.162
HCM Control Delay (s)	19.8	-	-	17.9	-	-	14.7
HCM Lane LOS	C	-	-	C	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.6

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	

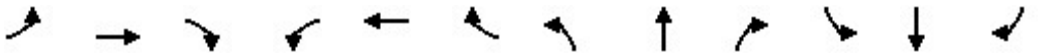
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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	

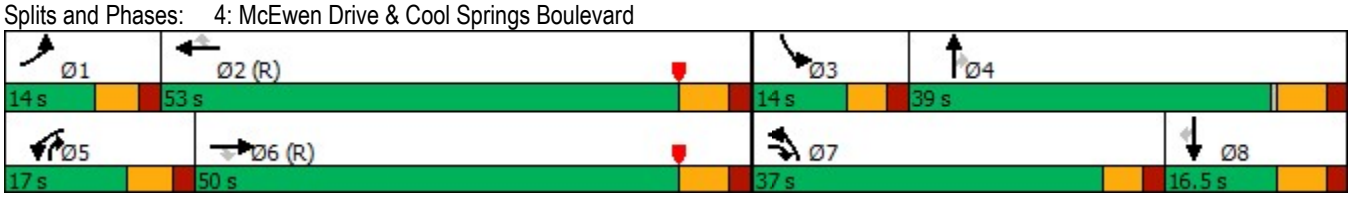
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	79.7	12.9	15.9	16.0	75.2	10.2	18.6
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.2	29.8	6.8	9.7	10.5	54.6	3.6	3.0
Green Ext Time (p_c), s	0.2	21.7	0.0	0.1	0.0	11.5	0.0	0.0

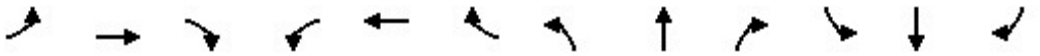
Intersection Summary	
HCM 6th Ctrl Delay	26.5
HCM 6th LOS	C

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	

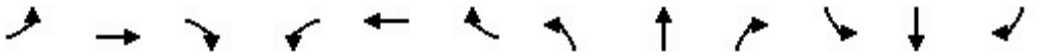
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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

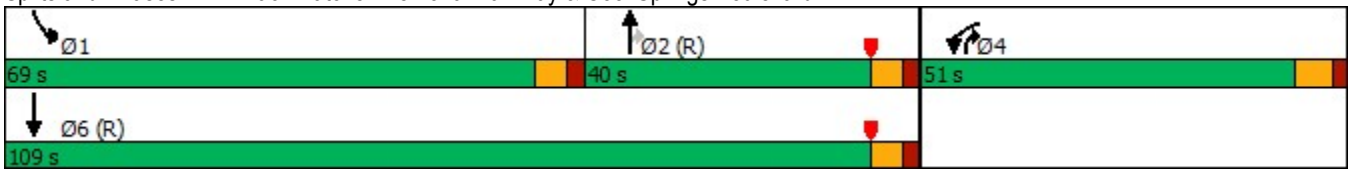
Notes

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	-	-	-	-	-	-	-	-	-	-	-	-

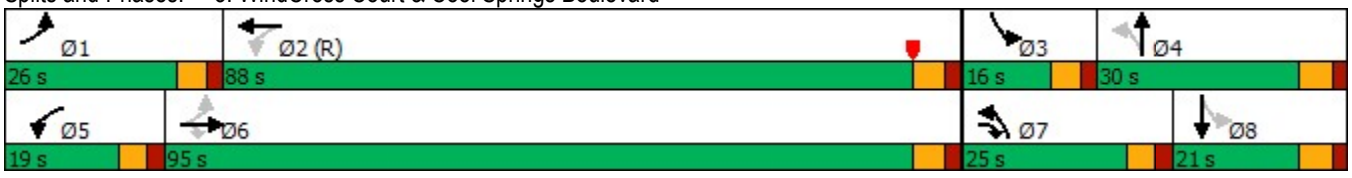
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	17.6	46.4
HCM LOS			C	E

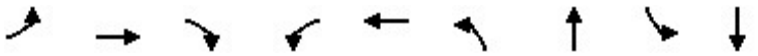
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	-	-	377	-	-	203
HCM Lane V/C Ratio	0.072	-	-	0.031	-	-	0.602
HCM Control Delay (s)	17.6	-	-	14.9	-	-	46.4
HCM Lane LOS	C	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	-	3.4

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	

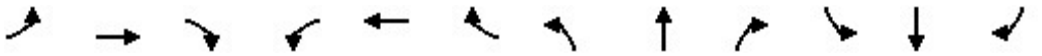
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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	

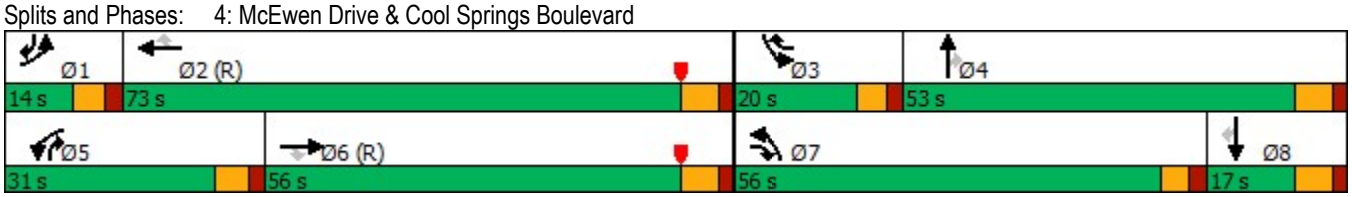
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	106.5	16.0	21.6	12.4	109.9	13.1	24.5
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	20.5	82.0	10.5	24.0	13.5	89.0	19.5	15.0
Max Q Clear Time (g_c+I1), s	10.0	102.5	12.5	14.9	6.7	50.2	7.3	4.2
Green Ext Time (p_c), s	0.4	0.0	0.0	0.7	0.3	29.1	0.2	0.1

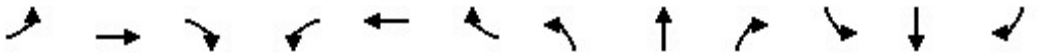
Intersection Summary	
HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

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	

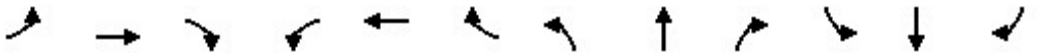
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

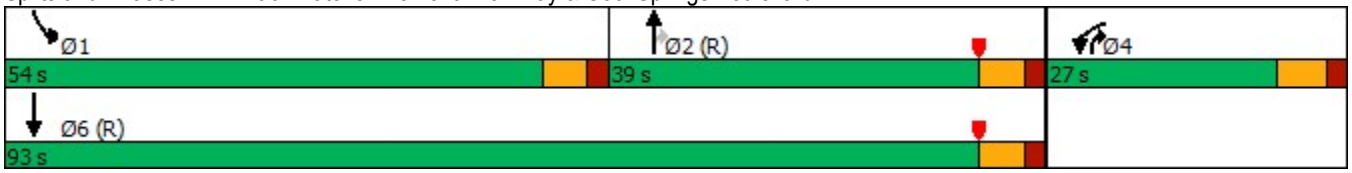
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	76.4	13.2	59.3	31.0	56.5	56.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	66.5	14.5	46.5	25.0	49.5	50.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	57.2	8.0	13.9	27.0	52.0	50.5	6.3
Green Ext 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	-	-	-	-	-	-	-	-	-	-	-	-

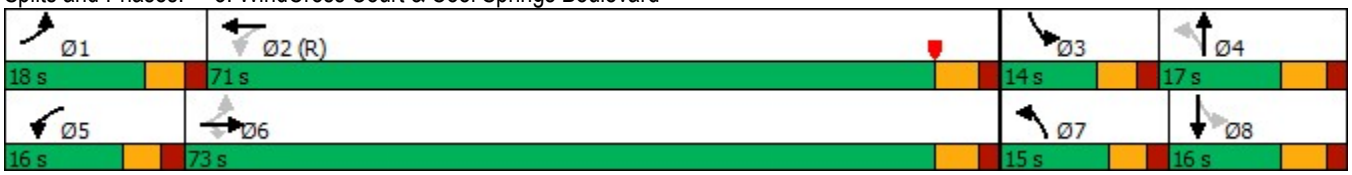
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	19.9	15.3
HCM LOS			C	C

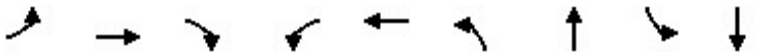
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	248	-	-	292	-	-	443
HCM Lane V/C Ratio	0.025	-	-	0.054	-	-	0.209
HCM Control Delay (s)	19.9	-	-	18	-	-	15.3
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.8

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	

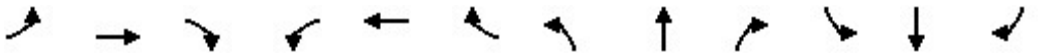
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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	

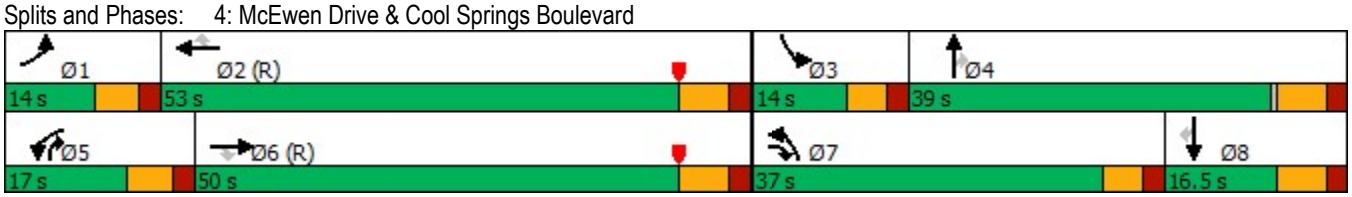
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	78.7	14.0	15.9	16.0	74.1	10.2	19.7
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.6	31.1	10.0	9.7	10.8	55.7	3.6	2.9
Green Ext Time (p_c), s	0.2	21.5	0.0	0.1	0.0	10.5	0.0	0.0

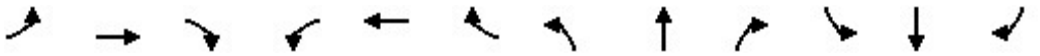
Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

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	

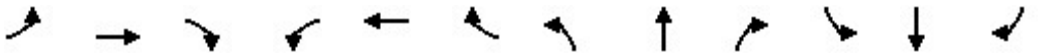
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

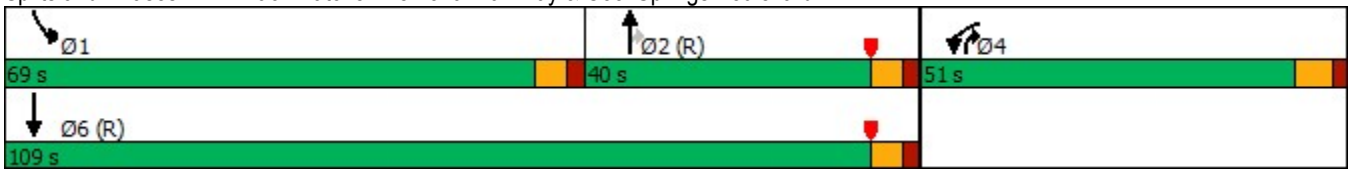
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	63.7	12.5	34.1	14.8	58.6	30.1	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	26.1	6.1	17.8	9.0	54.1	21.4	5.0
Green Ext Time (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	-	-	-	-	-	-	-	-	-	-	-	-

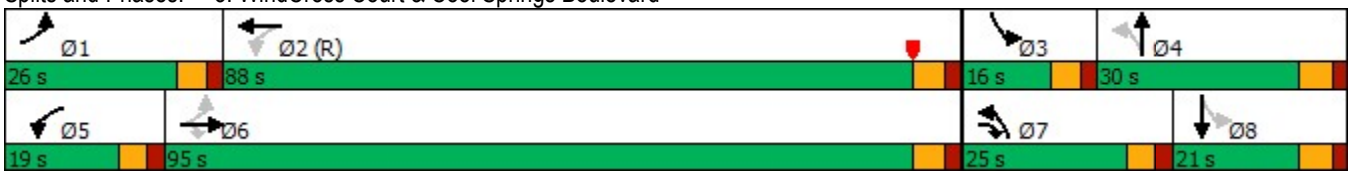
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	17.9	54.2
HCM LOS			C	F

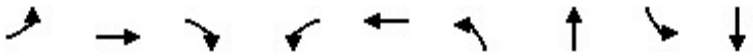
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	302	-	-	369	-	-	203
HCM Lane V/C Ratio	0.073	-	-	0.031	-	-	0.684
HCM Control Delay (s)	17.9	-	-	15.1	-	-	54.2
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	-	4.3

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	

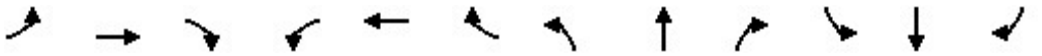
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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

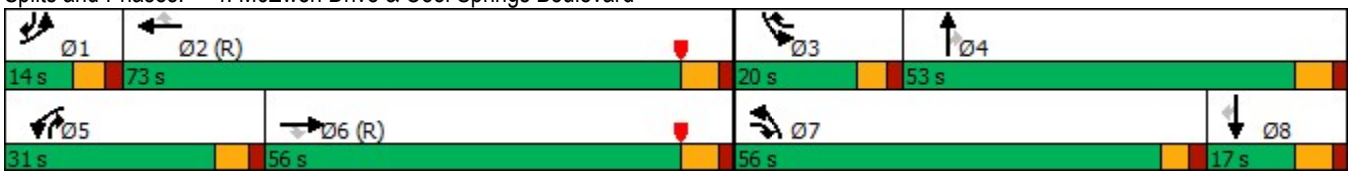
Notes

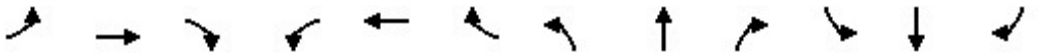
User approved ignoring U-Turning movement.

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	

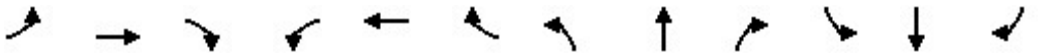
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

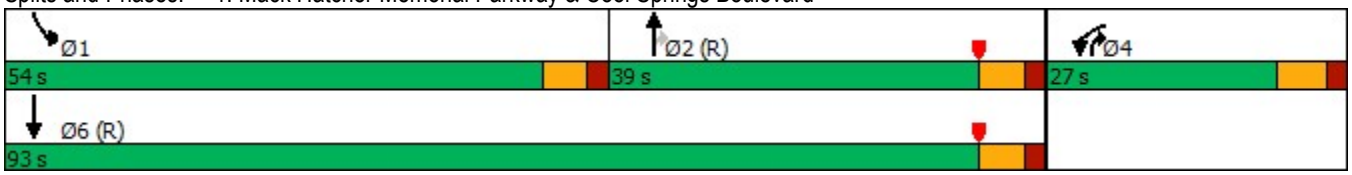
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	76.4	13.2	59.3	31.0	56.5	56.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	66.5	14.5	46.5	25.0	49.5	50.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	60.1	8.0	13.9	27.0	52.0	51.6	6.3
Green Ext 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	-	-	-	-	-	-	-	-	-	-	-	-

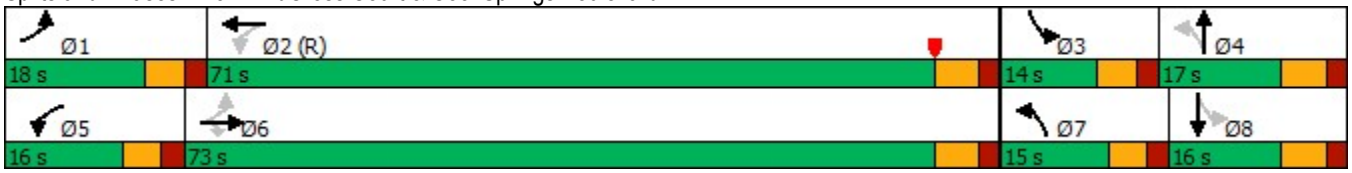
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	21.7	15.6
HCM LOS			C	C

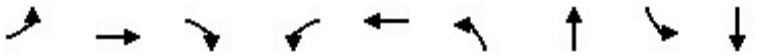
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	222	-	-	256	-	-	412
HCM Lane V/C Ratio	0.028	-	-	0.062	-	-	0.174
HCM Control Delay (s)	21.7	-	-	20	-	-	15.6
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.6

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	

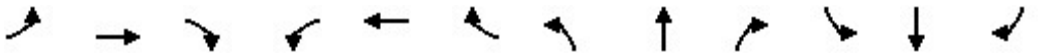
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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

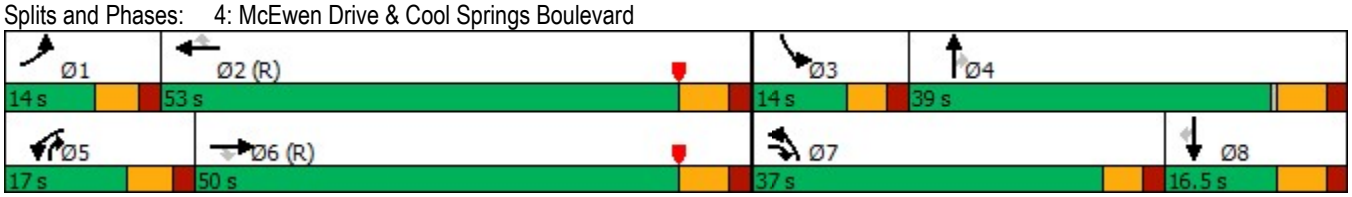
Notes

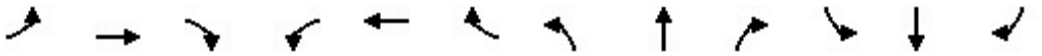
User approved ignoring U-Turning movement.

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	

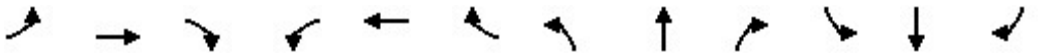
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

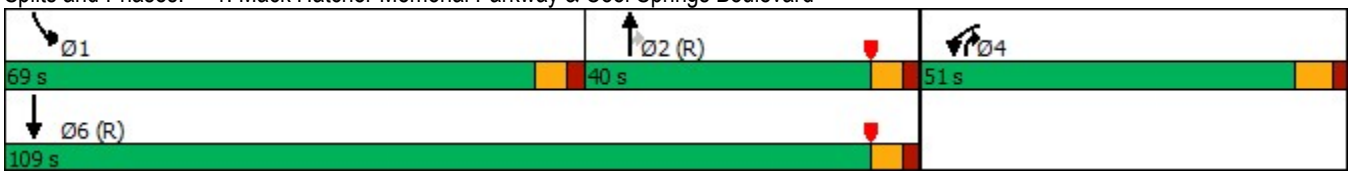
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	62.7	12.5	35.1	15.5	56.8	31.1	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	29.1	6.1	19.4	9.7	52.3	22.4	5.0
Green Ext Time (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	-	-	-	-	-	-	-	-	-	-	-	-

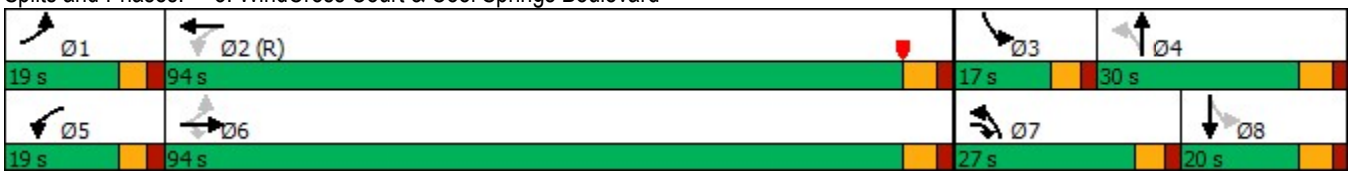
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	18.9	61.3
HCM LOS			C	F

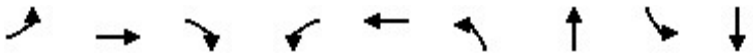
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	281	-	-	338	-	-	177
HCM Lane V/C Ratio	0.079	-	-	0.034	-	-	0.69
HCM Control Delay (s)	18.9	-	-	16	-	-	61.3
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	-	4.2

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	

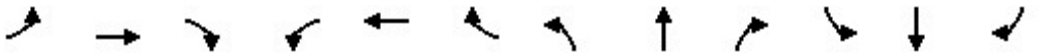
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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

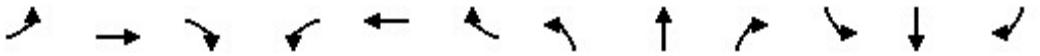
User approved ignoring U-Turning movement.

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	

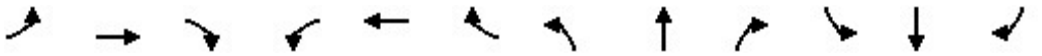
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

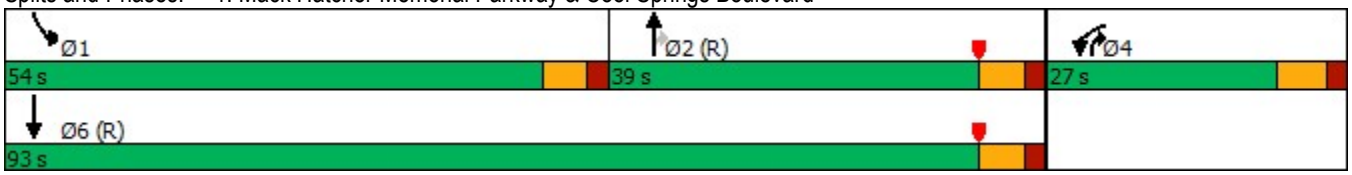
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	81.4	13.2	54.3	31.0	61.5	51.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	71.5	13.5	42.5	25.0	54.5	45.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	61.2	8.0	16.3	27.0	57.0	47.5	6.3
Green Ext 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	-	-	-	-	-	-	-	-	-	-	-	-

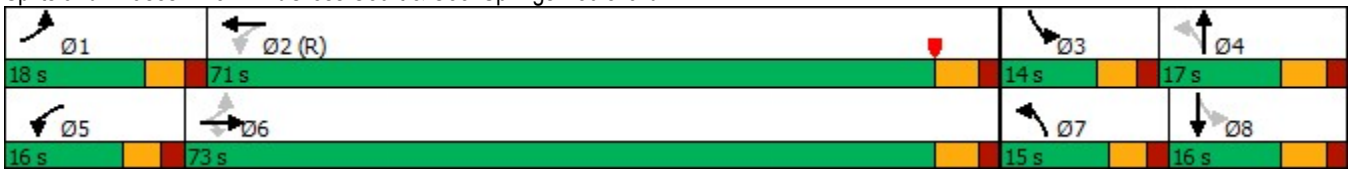
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	21.8	16.3
HCM LOS			C	C

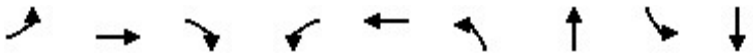
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	220	-	-	254	-	-	412
HCM Lane V/C Ratio	0.029	-	-	0.062	-	-	0.225
HCM Control Delay (s)	21.8	-	-	20.1	-	-	16.3
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.9

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	

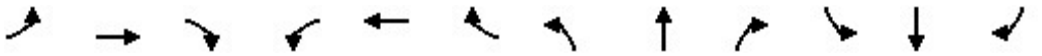
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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

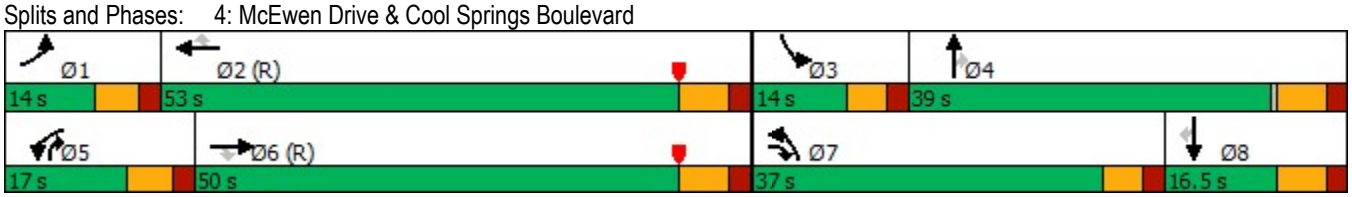
Notes

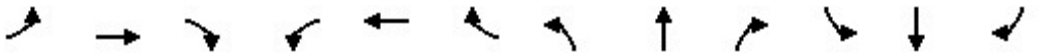
User approved ignoring U-Turning movement.

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	

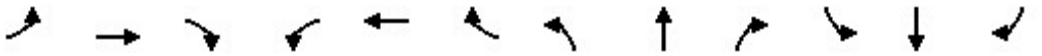
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

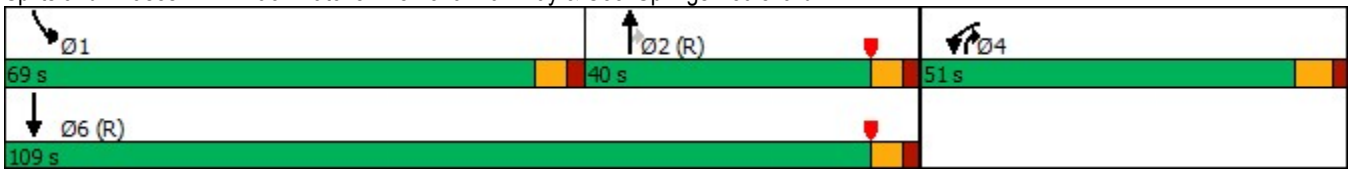
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	62.5	12.5	35.3	15.5	56.6	31.3	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	29.7	6.1	19.4	9.7	52.1	22.6	5.0
Green Ext Time (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	-	-	-	-	-	-	-	-	-	-	-	-

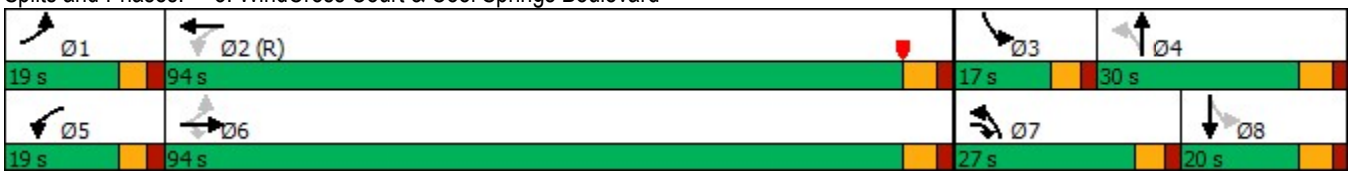
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	19.2	74.6
HCM LOS			C	F

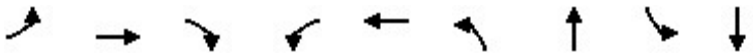
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	276	-	-	331	-	-	177
HCM Lane V/C Ratio	0.08	-	-	0.035	-	-	0.785
HCM Control Delay (s)	19.2	-	-	16.3	-	-	74.6
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	-	5.2

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	

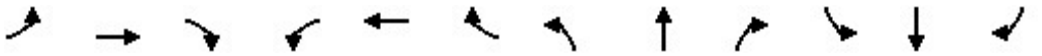
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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

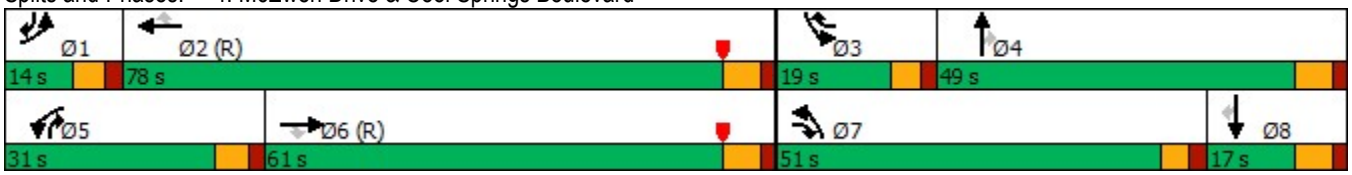
Notes

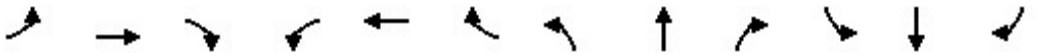
User approved ignoring U-Turning movement.

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	

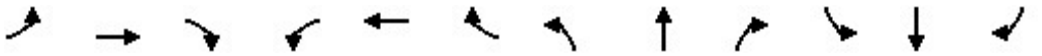
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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

File #: 21-04662

DATE: May 9, 2023

TO: Franklin Municipal Planning Commission

FROM: 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.

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:

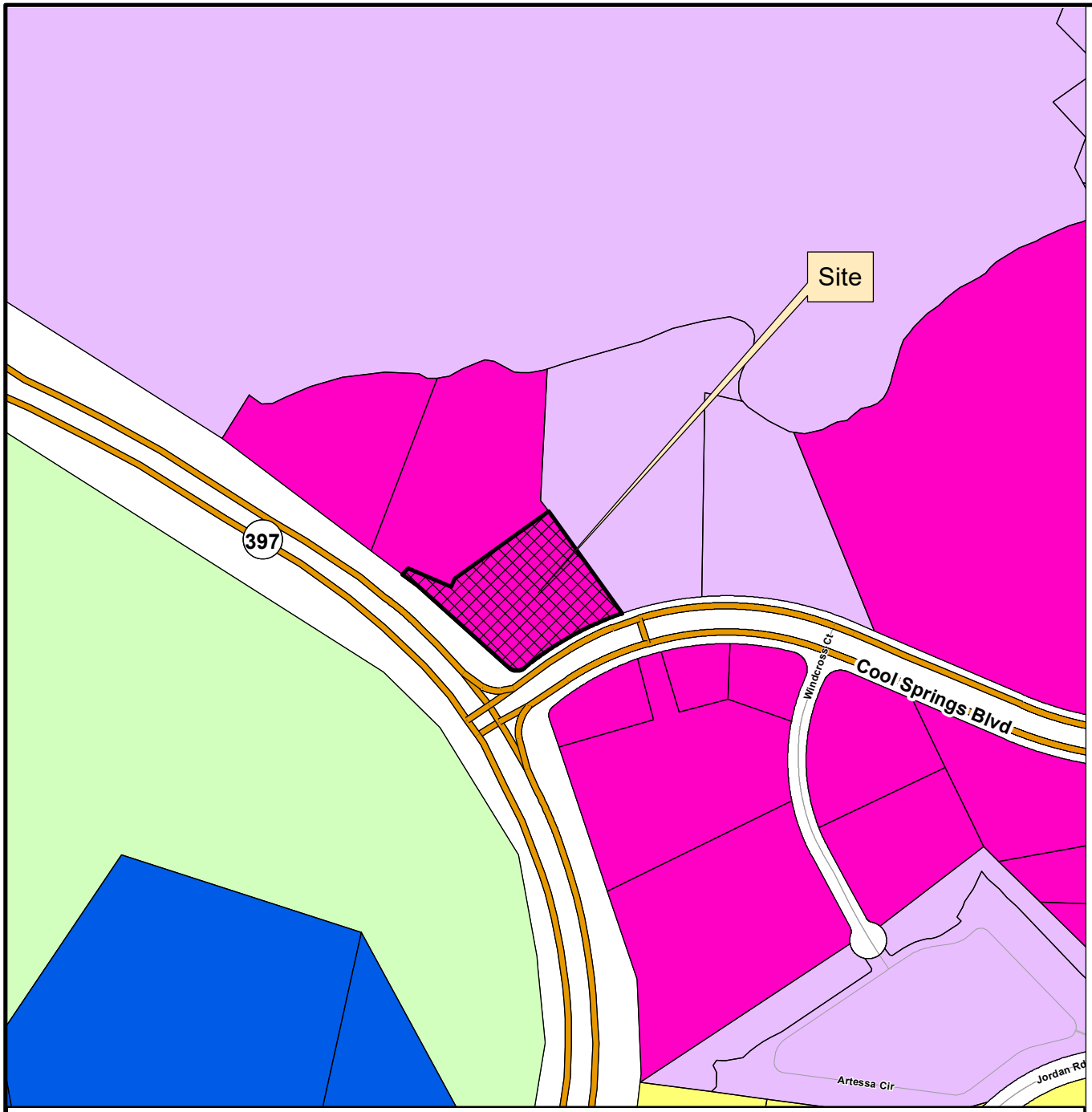
1. The applicant shall upload the corrected plan to the online plan review website (https://franklin.contractorsplanroom.com/secure/). All revisions to the approved plans shall be “clouded.” With the resubmittal, each condition of approval/open issue in the online plan review system shall contain a full 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:

Staff recommends that the Planning Commission recommend to the Board of Mayor and Aldermen to disapprove Resolution 2023-42.



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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HISTORIC FRANKLIN TENNESSEE

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 **Dr. Ken Moore**
City Administrator Mayor

Law Dept approved 05.18.23

Approved as to form by:

_____
Shauna R. Billingsley
City Attorney

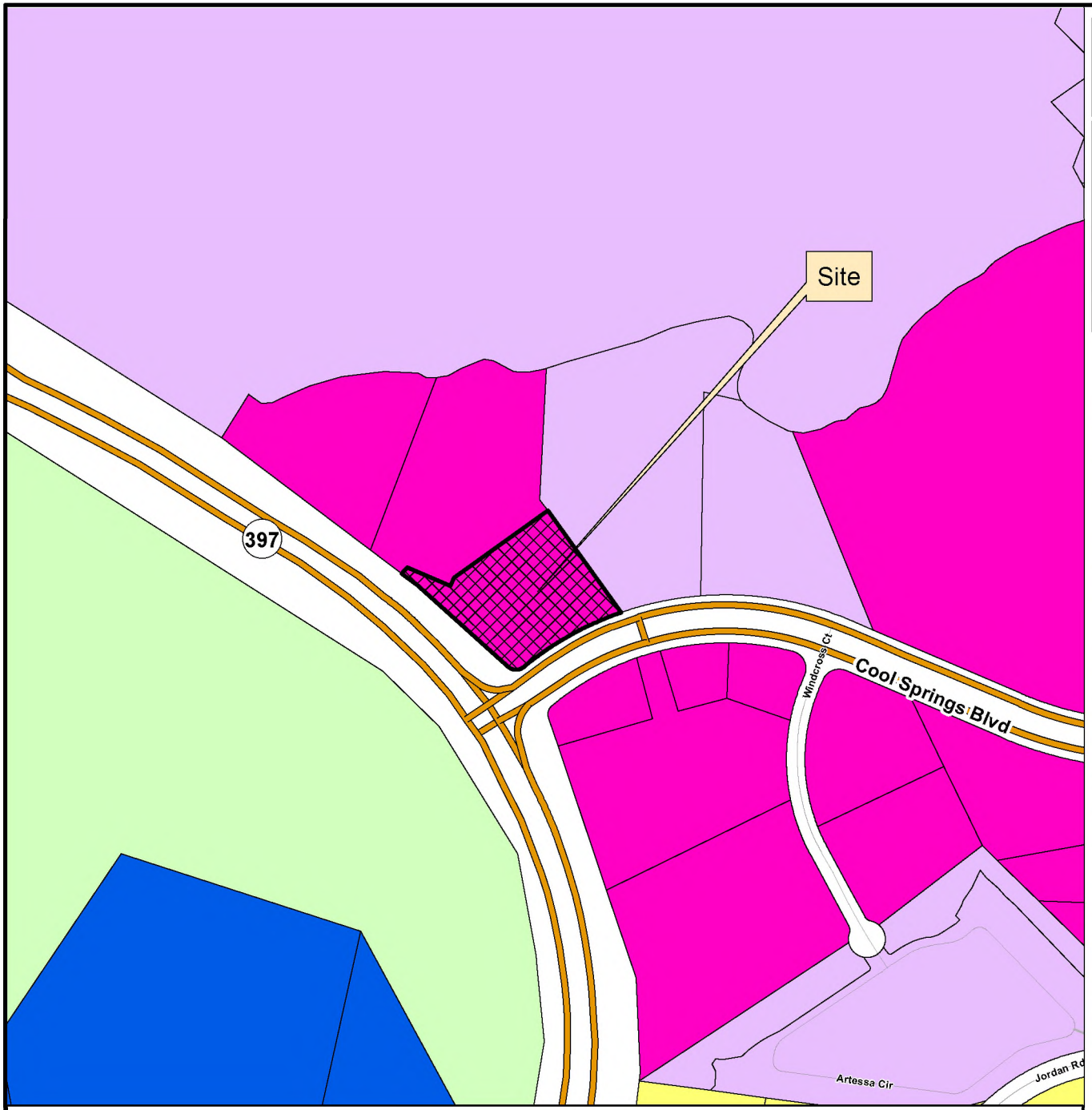
PREAPPLICATION CONFERENCE: _____

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

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- OR Office Residential District
- CI Civic Institutional District
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- 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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N

0 250 500 1,000
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
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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
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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)
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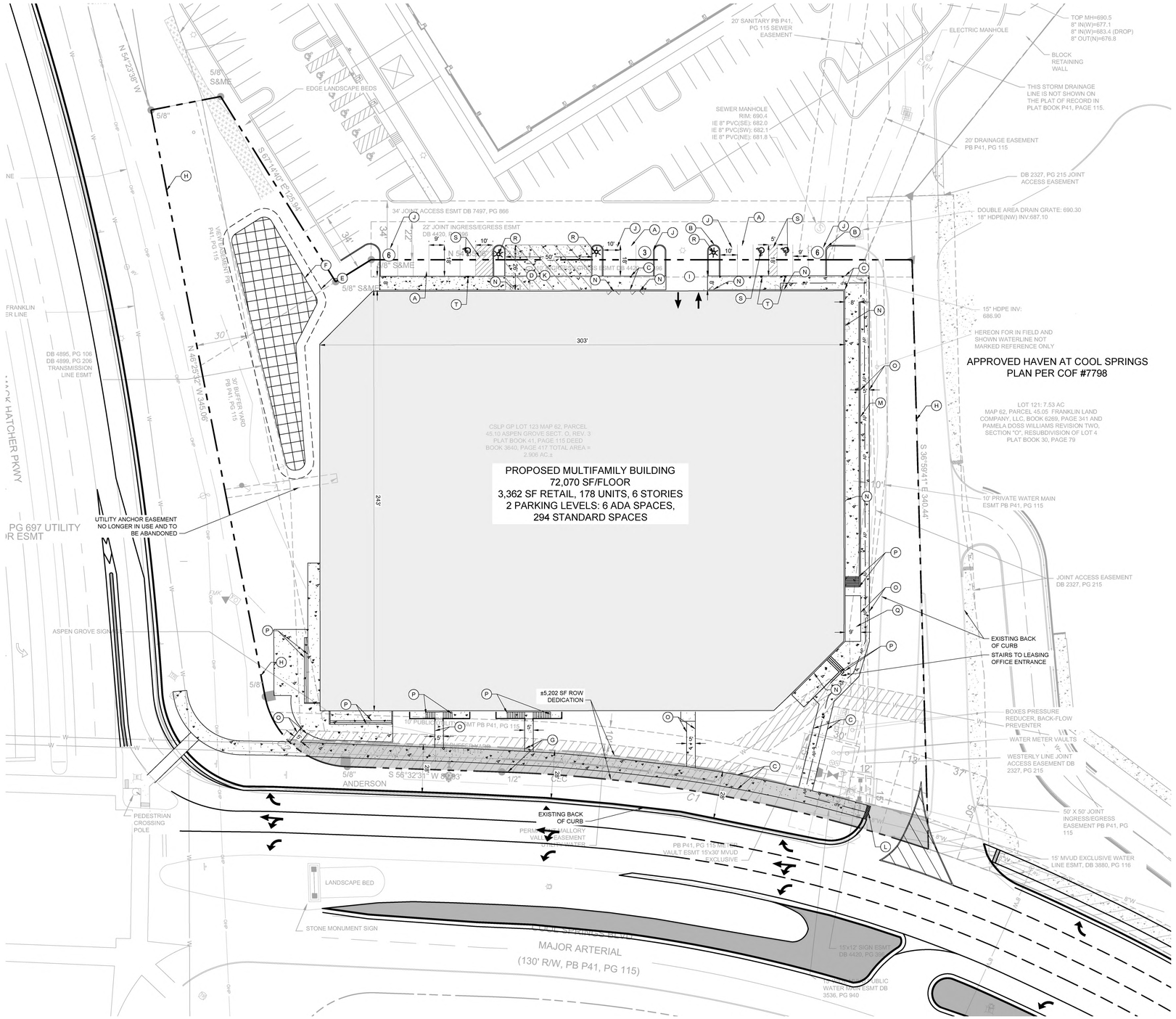
C2.0	OVERALL DEVELOPMENT PLAN
C2.1	DEVELOPMENT PLAN - OPEN SPACE
C3.0	OVERALL GRADING AND DRAINAGE PLAN
C4.1	ROW AND ACCESS - FIRE
C4.2	ROW AND ACCESS - SOLID WASTE
C5.0	OVERALL UTILITY PLAN
L1.0	TREE PRESERVATION PLAN
A1.0	ARCHITECTURE
A1.1	ARCHITECTURE
A1.2	ARCHITECTURE
A1.3	ARCHITECTURE
A1.4	ARCHITECTURE
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



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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 REGISTERED LANDSCAPE ARCHITECT 100282 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 SITE PLAN

SHEET NUMBER
C2.0

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.

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.*

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.

Engineering - OLD

General Issues

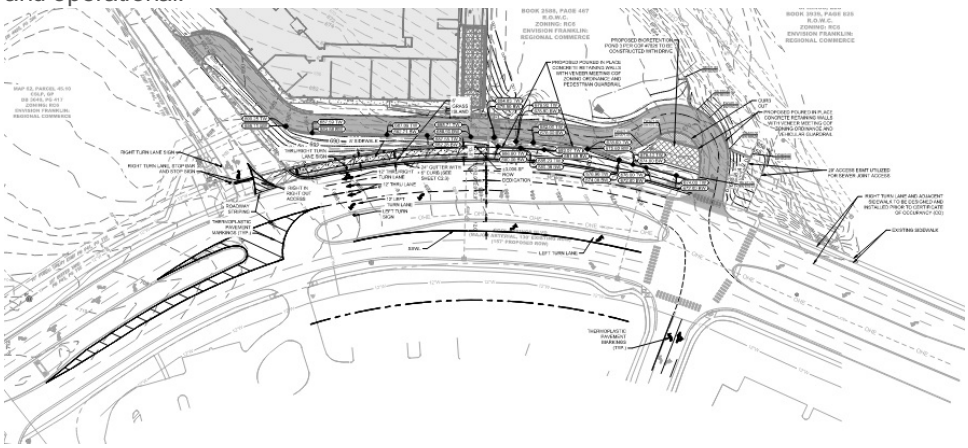
18. (OLD DEVEOPMENT PLAN CHECKLIST) H. Stormwater Management Plan

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

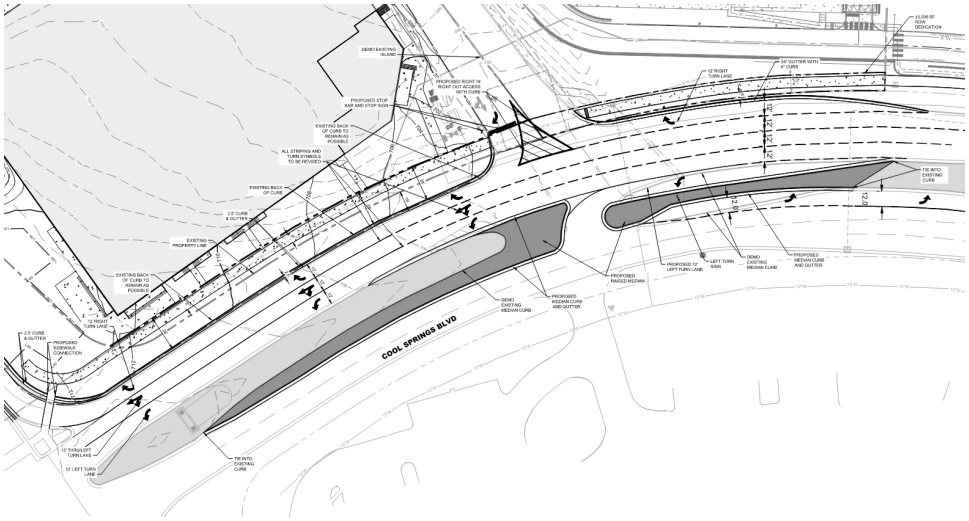
101 Cool Springs Traffic Memo - 11-18-2022.pdf

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
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VICINITY MAP
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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 — 5.4.23

PRE-APP: November 28, 2022
INITIAL SUBMITTAL: APRIL 10, 2023
RESUBMITTAL: MAY 4, 2023

GAMBLE DESIGN COLLABORATIVE

DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

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SITE DATA TABLE

PROJECT NAME:	101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
COF PROJECT #:	#157
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.
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

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 120881 STATE OF TENNESSEE
2023-05-04

No.	REVISIONS	DATE	BY
1			
2			
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7			
8			
9			
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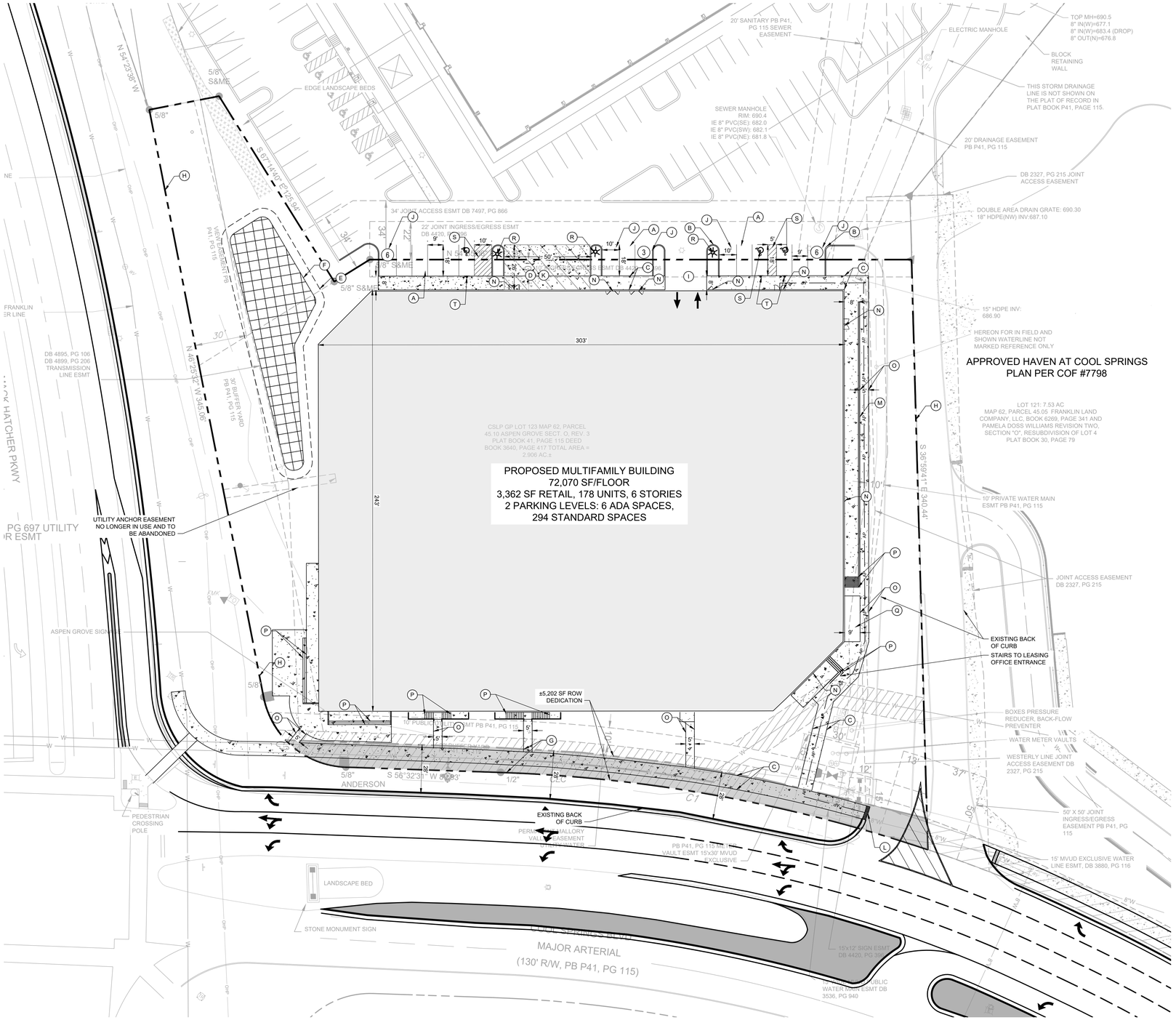
DESIGNED BY:	LJA
DRAWN BY:	SAS
CHECKED BY:	RLM
DATE:	5-4-2023
KIMLEY-HORN PROJECT NO.	118479000

OVERALL EXISTING CONDITIONS

SHEET NUMBER
C1.0



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STATE:	TENNESSEE
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PROPOSED ZONING:	PD-PLANNED DISTRICT (61.3 DUA/3,362 SF COMMERCIAL)
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DESIGN STANDARD:	REGIONAL COMMERCE
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ACREAGE OF ACCESS ESMT:	0.77 ACRES
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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
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PROPOSED MAX. BUILDING HEIGHT:	68' - 6" (SEE ARCH PLANS)
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NOTES:

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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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101 COOL SPRINGS BOULEVARD PUD SUBDIVISION
FRANKLIN, TENNESSEE

RYAN McMASTER LICENSED PROFESSIONAL ENGINEER 100882 STATE OF TENNESSEE 2023-05-04

No	REVISIONS	DATE	BY
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8			
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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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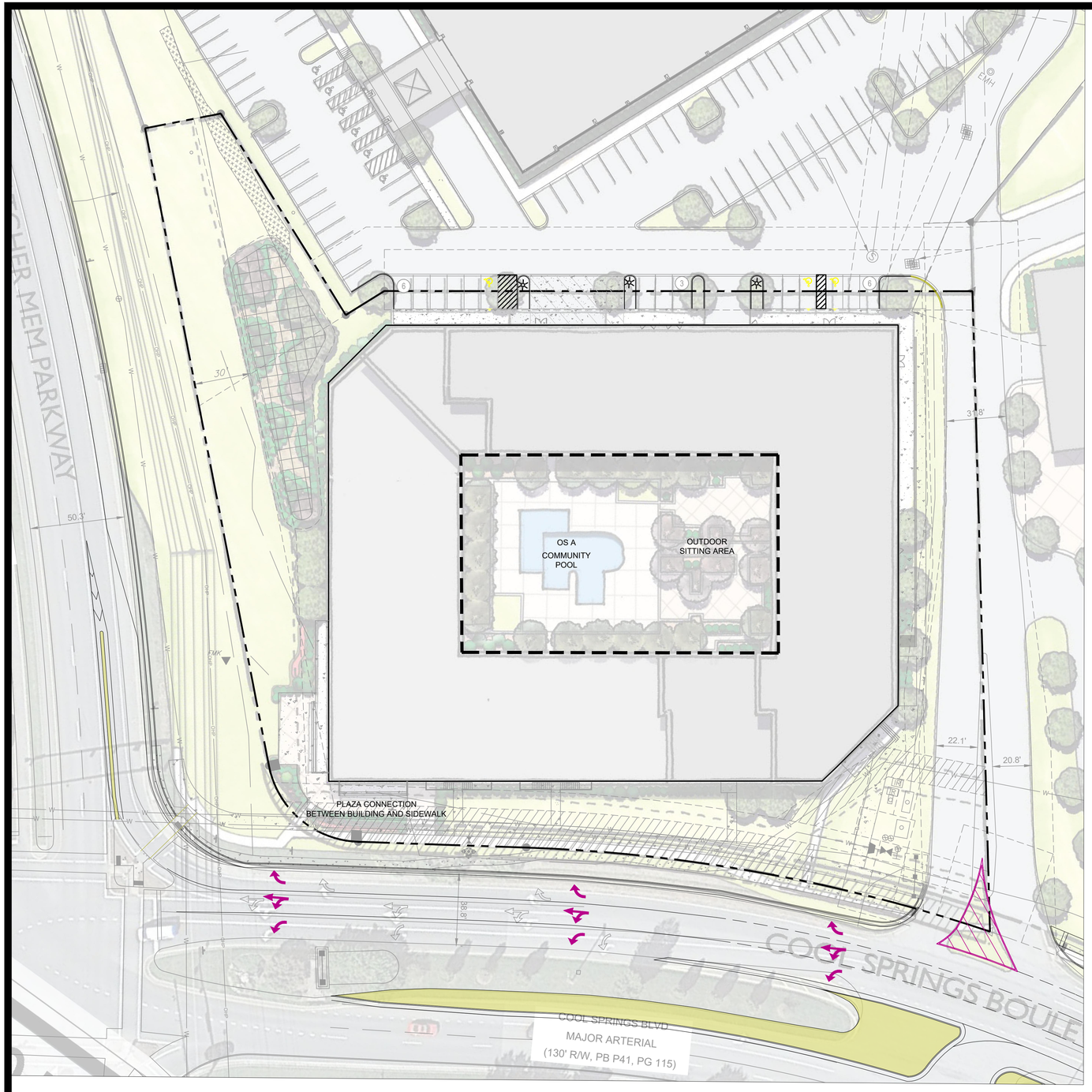

OPEN SPACE REQUIREMENT ZONING ORDINANCE

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
5423
LANDSCAPE ARCHITECT

DATE: APRIL 10, 2023

Revision Date
1 May 4, 2023
2
3
4

DEVELOPMENT PLAN
SHEET
C2.1
COF # 8157

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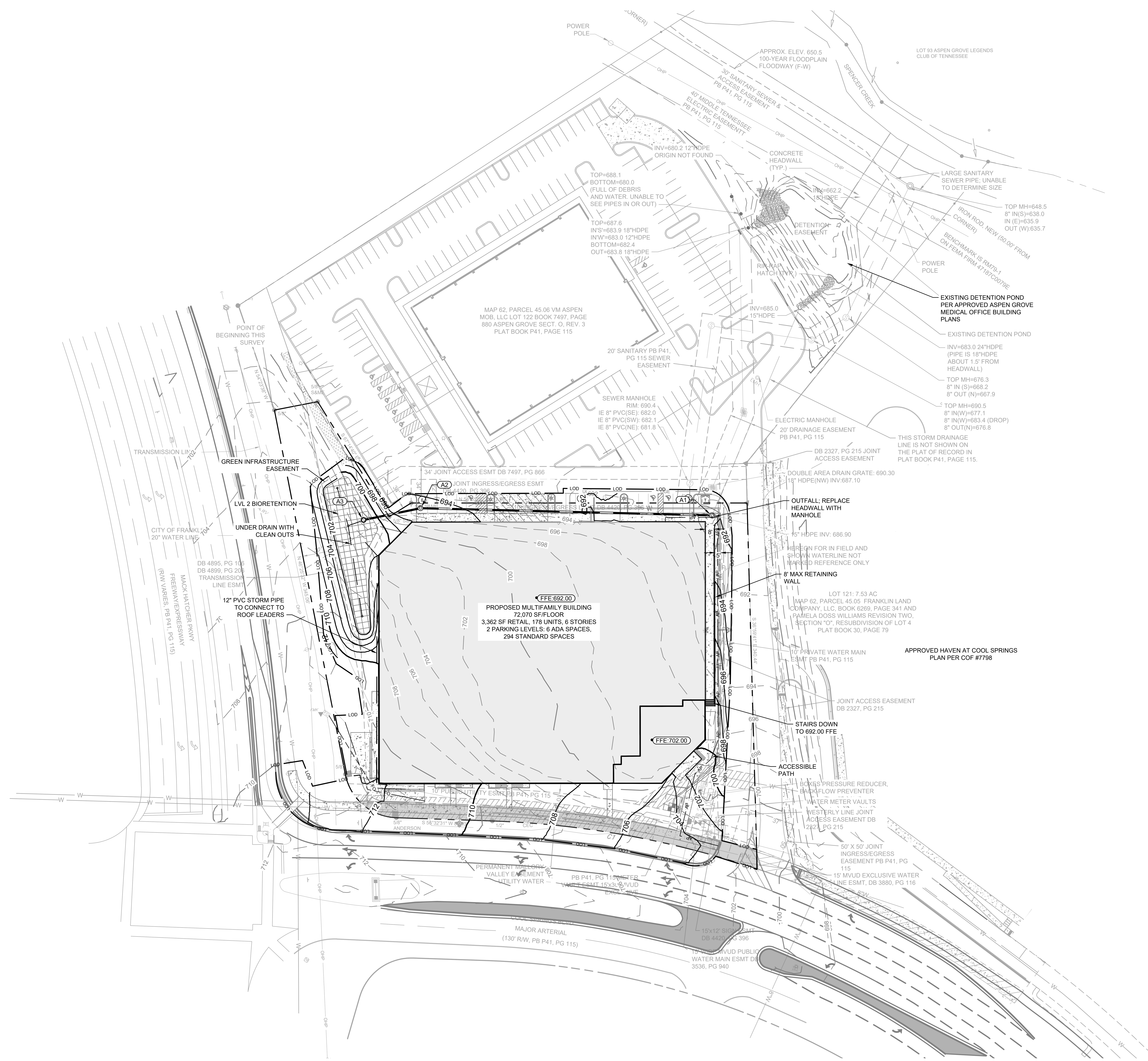

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PROPOSED MAX. BUILDING HEIGHT:	68' - 6" (SEE ARCH PLANS)
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COF GRADING & DRAINAGE GENERAL NOTES

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

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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
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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

COF #8157

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ROW & ACCESS GENERAL NOTES

1. PRIOR TO BEGINNING ANY CONSTRUCTION, THE DEVELOPER AND/OR CONTRACTOR, SHALL OBTAIN ALL NECESSARY PERMITS AS REQUIRED BY LAW. SUCH PERMITS MAY INCLUDE, BUT ARE NOT LIMITED TO, THOSE REQUIRED BY STATE OF TENNESSEE, WILLIAMSON COUNTY AND OTHER CITY OF FRANKLIN AGENCIES.
2. ALL OFF-SITE WORK WITHIN THE PUBLIC RIGHT-OFWAY 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.
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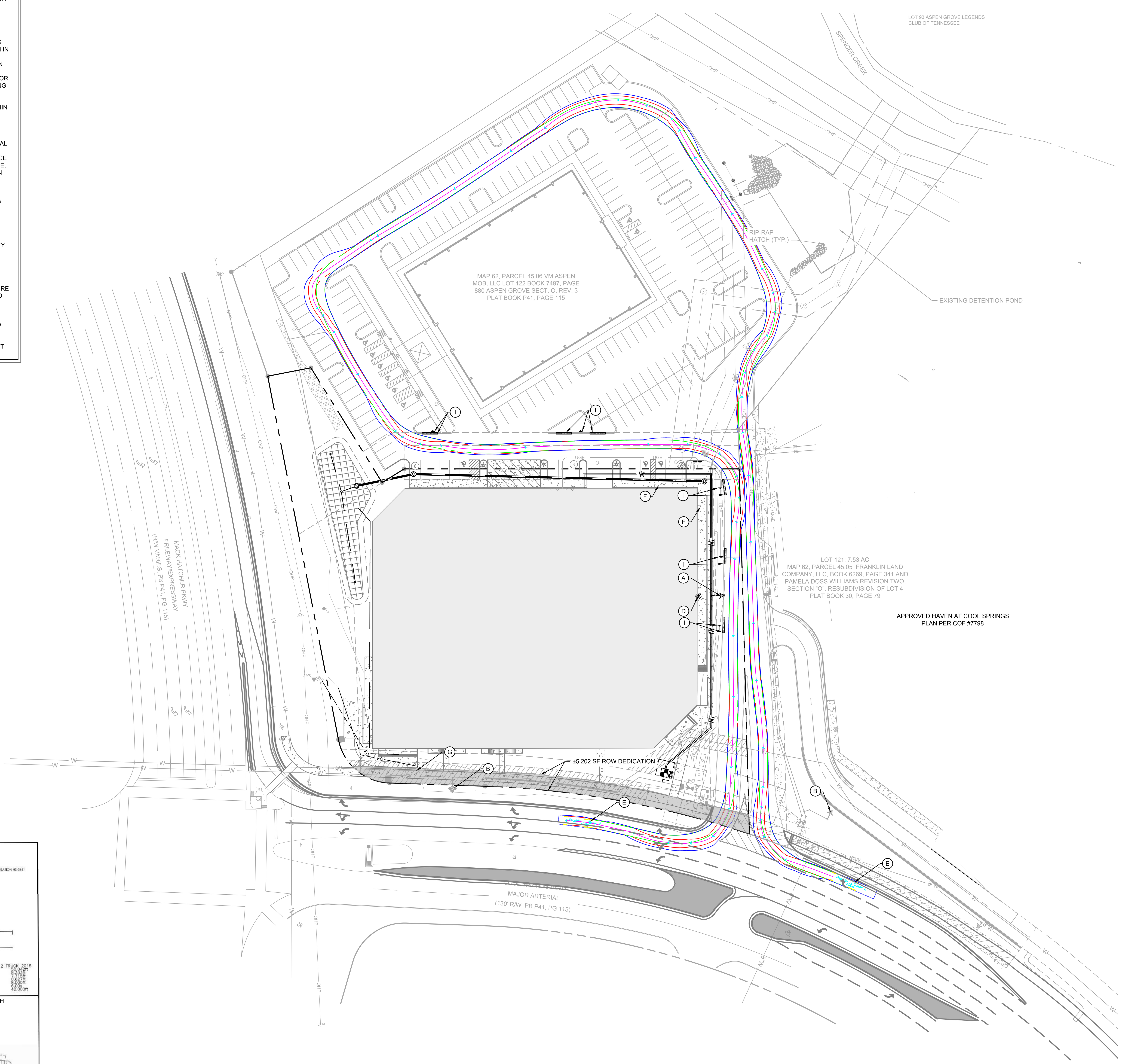

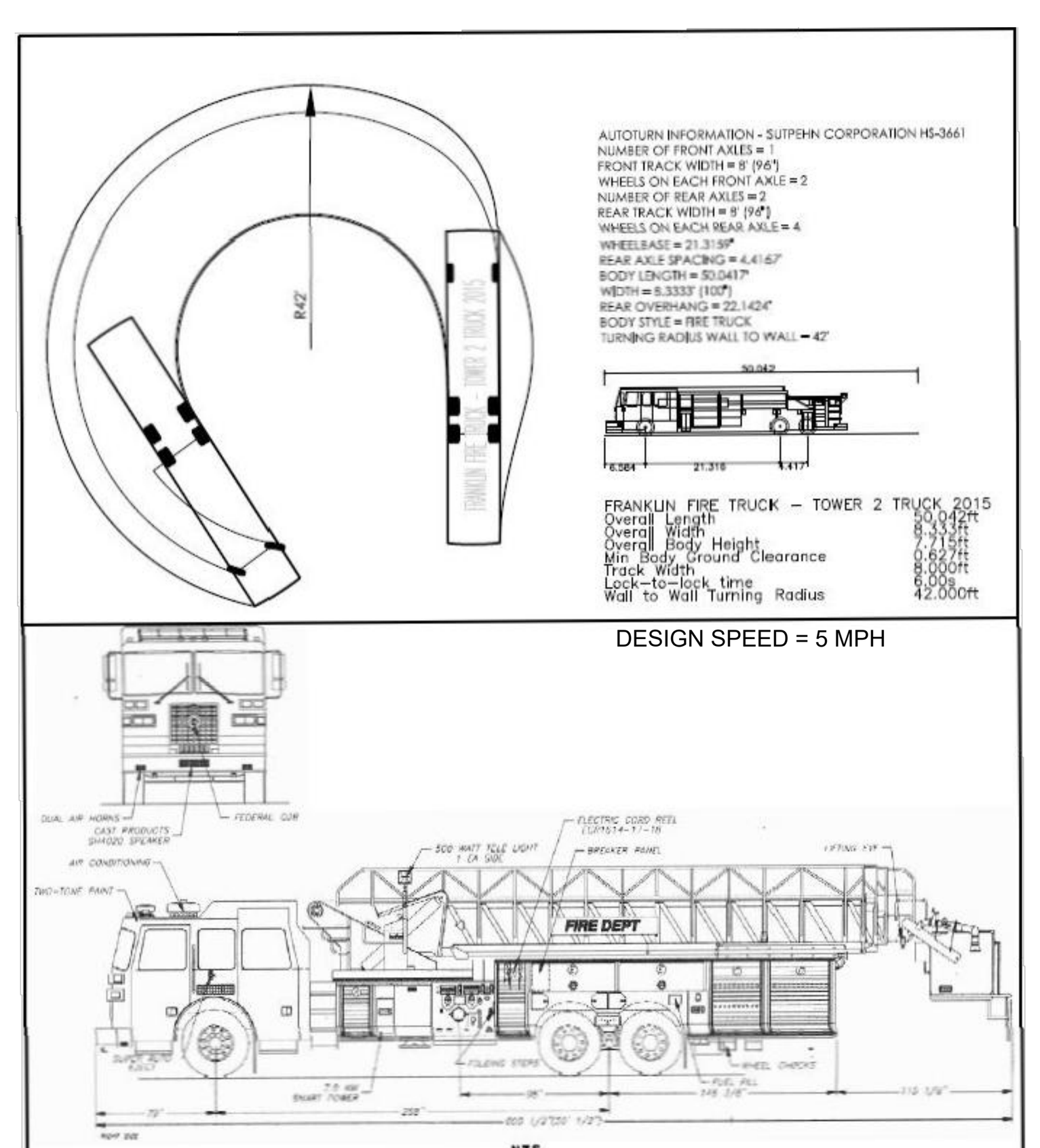

TOWER 2
AUTOTURN TRUCK

CITY OF FRANKLIN ENGINEERING
109 THIRD AVE SOUTH
FRANKLIN, TN 37064

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
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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
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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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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			
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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

ROW AND ACCESS-FIRE

SHEET NUMBER
C4.1

COF #8157

Drawing name: K:\FRA_LDEV\118479000 - Cool Springs Boulevard\4-CADD\PlanSheets\Development Plan\C4.1 ENLARGED ROW & ACCESS PLAN.dwg C4.1 ROW AND ACCESS- FIRE May 04, 2023 2:46pm by: Noah.Seethaler

ROW & ACCESS GENERAL NOTES

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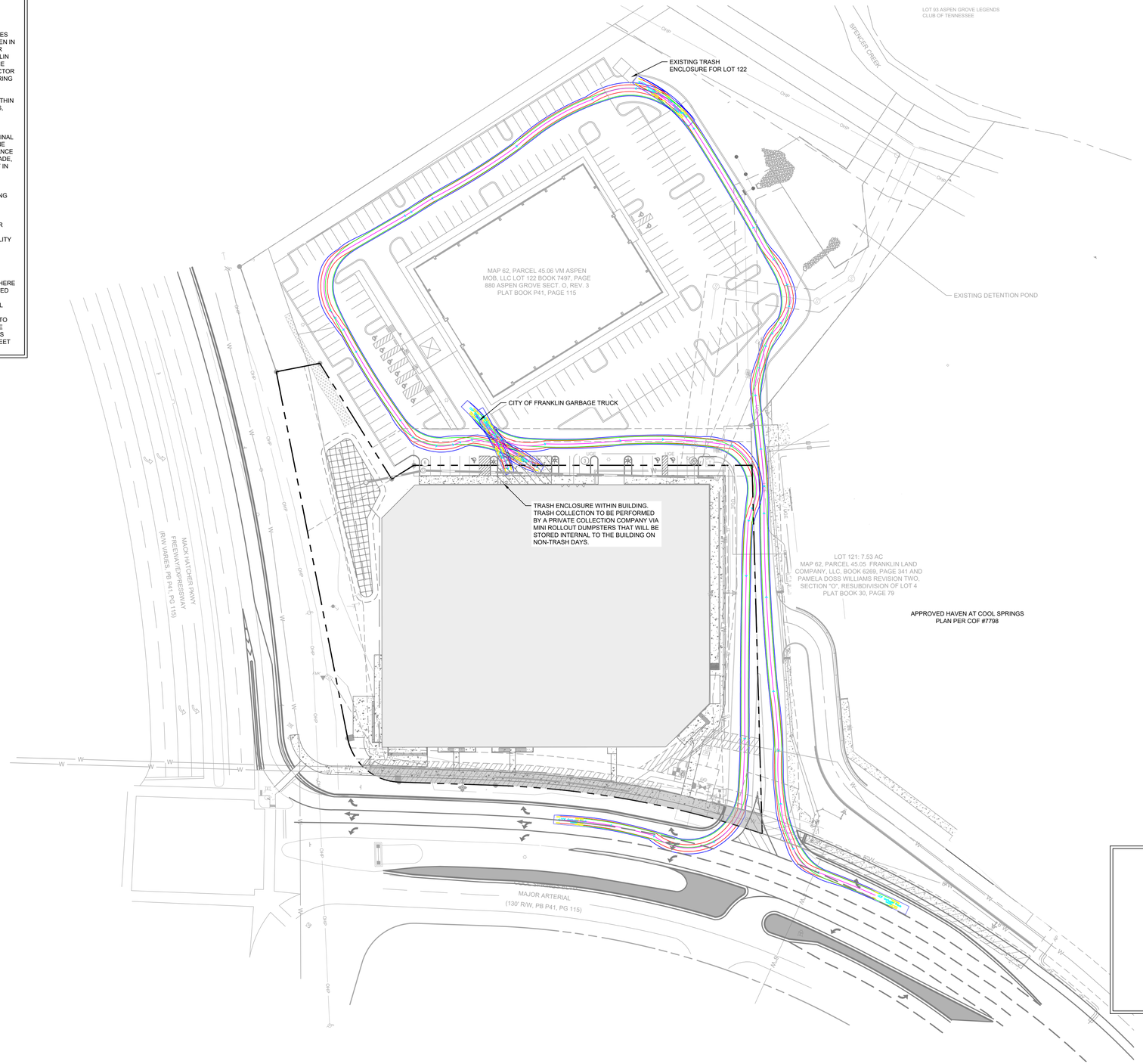

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BUILDING SQUARE FOOTAGE:	504,490 SF
STORIES:	6
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VEHICLE LEGEND

- VEHICLE FENDER PATH
- VEHICLE FRONT WHEEL PATH
- VEHICLE REAR WHEEL PATH

STATEMENT OF IMPACTS

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SITE LEGEND

- PROPOSED SANITARY SEWER PIPE
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- LIMITS OF DISTURBANCE
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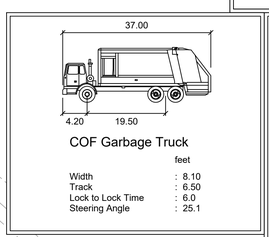

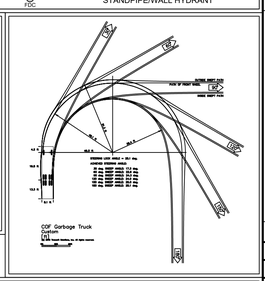

TRASH COLLECTION NOTE

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

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 COMMERCE No. 109982 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

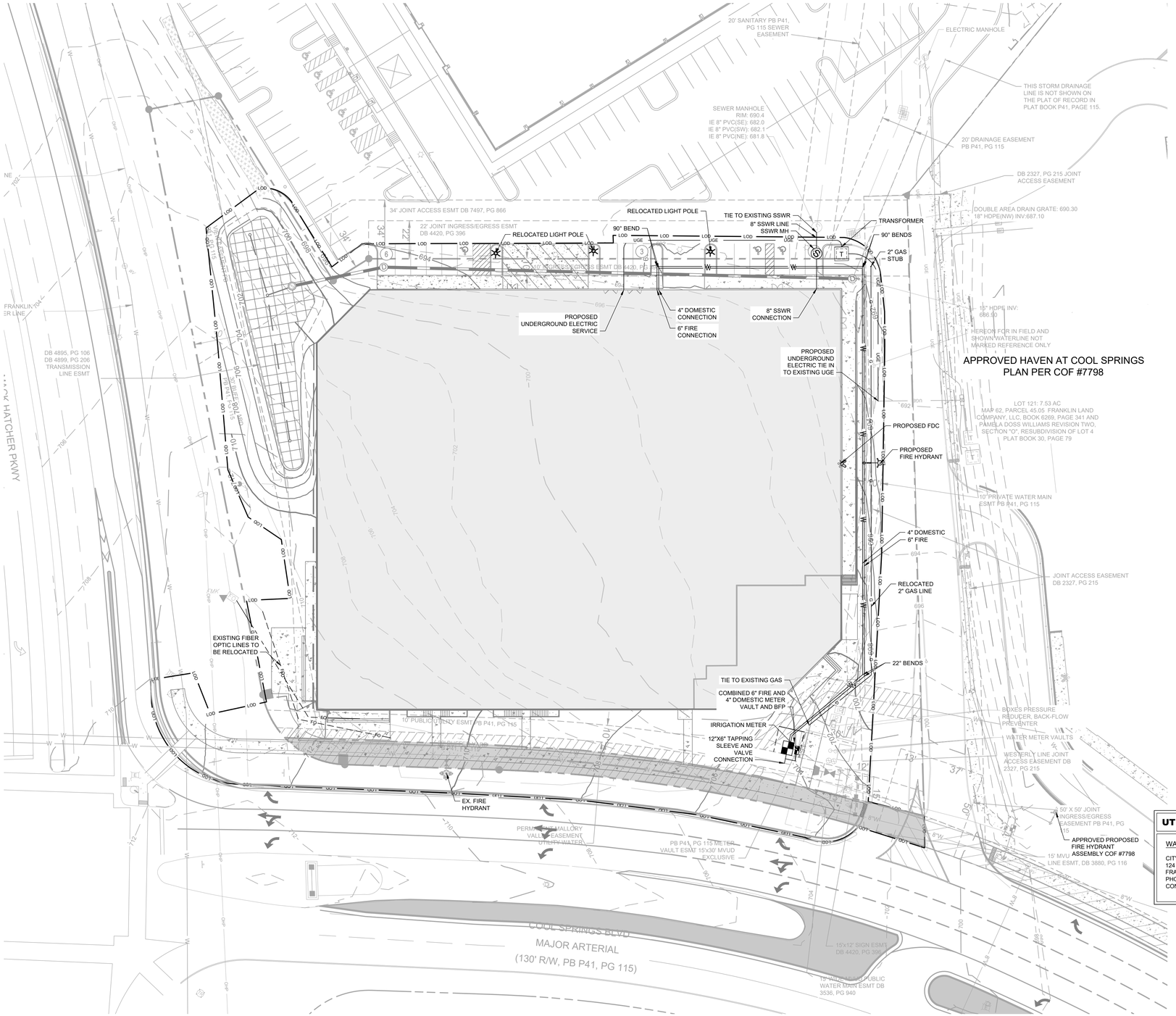
KIMLEY-HORN PROJECT NO. 118479000

ROW AND ACCESS- SOLID WASTE

SHEET NUMBER
C4.2

COF #8157

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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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

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 AGENT OF RECORD 10best 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 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
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

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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
△ _____
△ _____
△ _____
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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

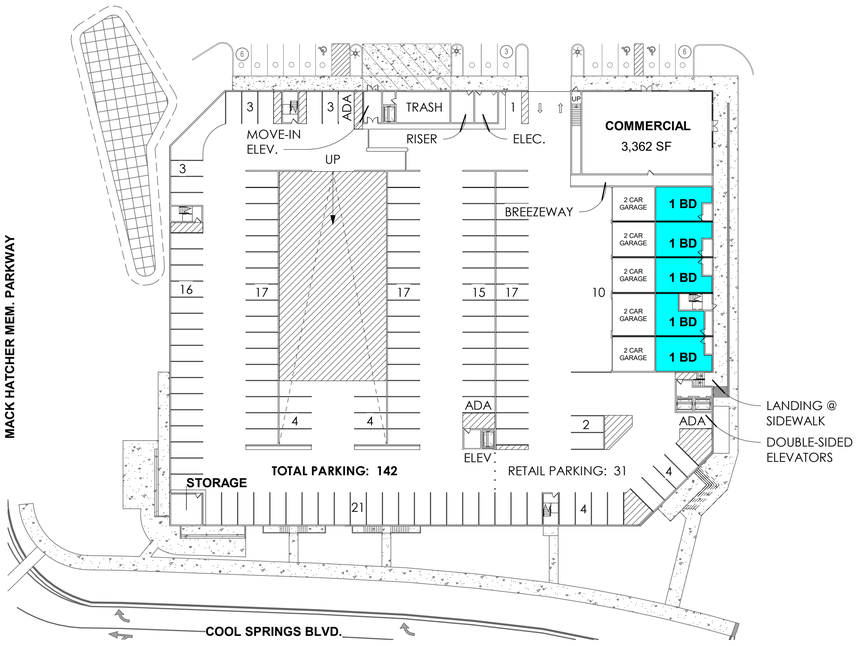
Revision Date

DEVELOPMENT PLAN

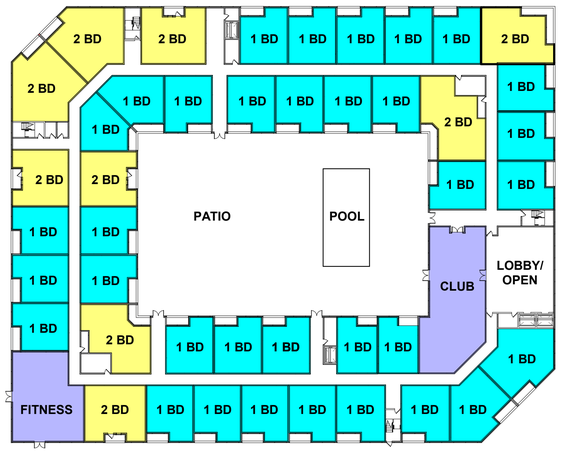
SHEET

A1.4

COF # XXXX



GARAGE LEVEL 1 (692'-0")
1" = 40'-0"



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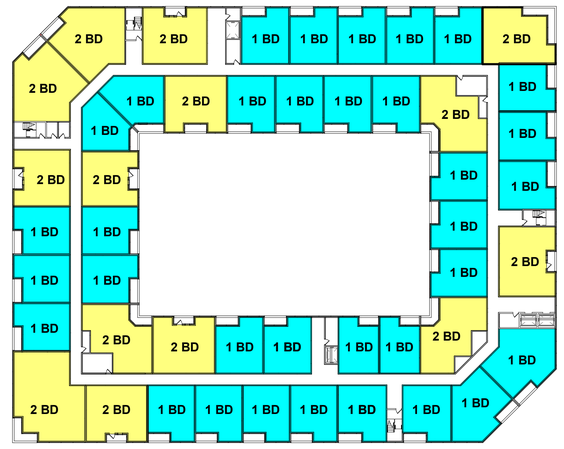

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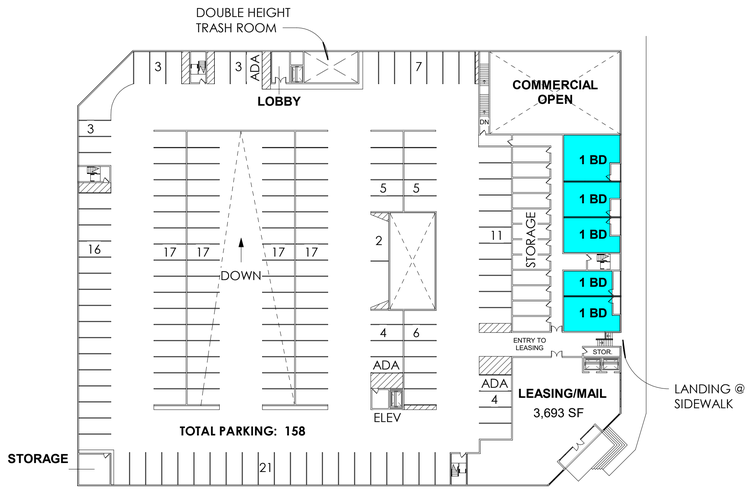

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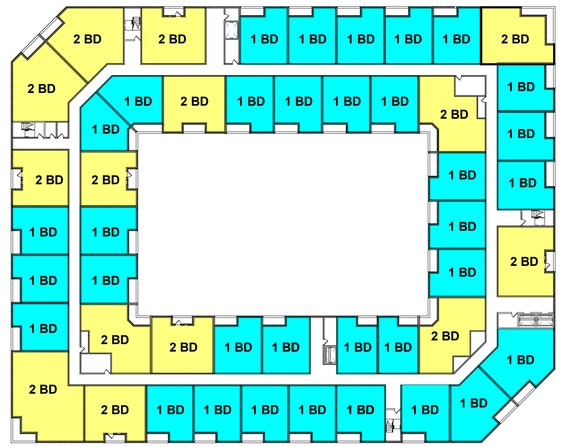

UNIT Level 2 (725'-0")
1" = 40'-0"



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
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△
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△

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

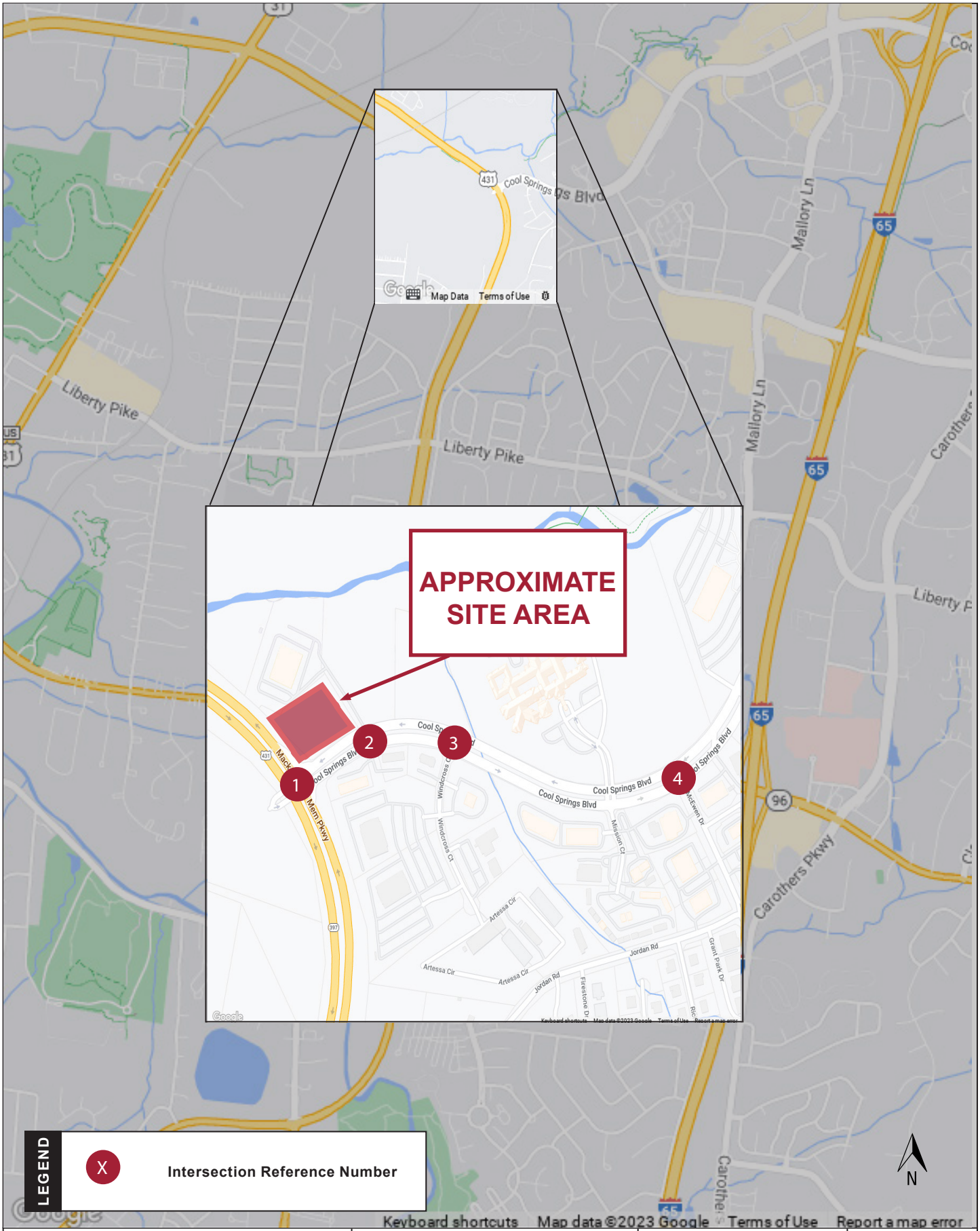
The proposed development will be served by two driveways:

- 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

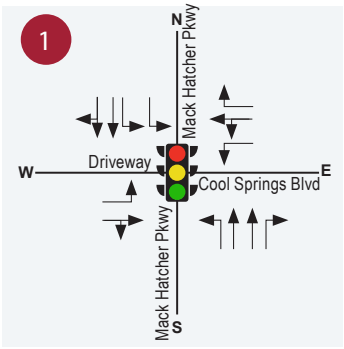
3.2 VEHICULAR VOLUMES

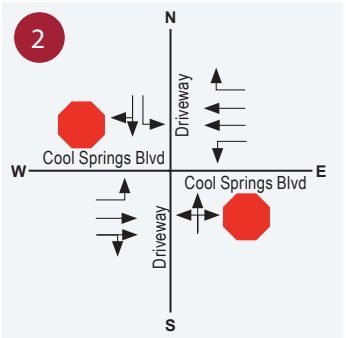
Vehicle peak hour turning movement counts (TMCs) were determined from multiple sources. New traffic counts were collected for the intersection of Mack Hatcher Parkway at Cool Springs Boulevard (Intersection 1) on September 13, 2022. 2020 turning movement counts provided in the Cool Springs Transportation 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**.

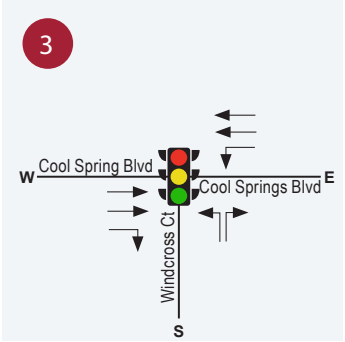
Table 2: Existing Turning Movement Count Sources		
Intersection	**Count Year**	**Count Source**
1. Mack Hatcher Parkway at Cool Springs Boulevard	2022	Collected
2. Cool Springs Boulevard at Site Driveway	2022/2016	Balanced/ 201 CSB Joint TIS
3. Cool Springs Boulevard at Windcross Court	2020	Balanced/ 201 CSB Joint TIS
4. Cool Springs Boulevard at McEwen Drive	2020	CSTS Model

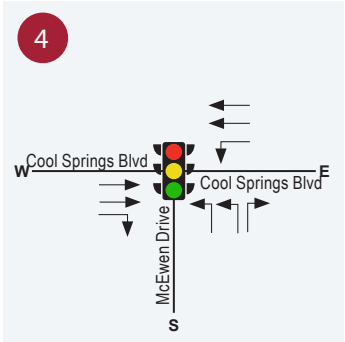
The Existing 2023 peak hour traffic volumes are shown in **Figure 4**. The 2022 collected traffic count data is provided in **Appendix B**.













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Kimley»Horn	101 Cool Springs Boulevard TIS	Existing 2023 Intersection Geometry	Figure 3

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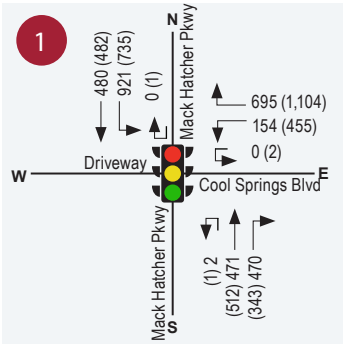

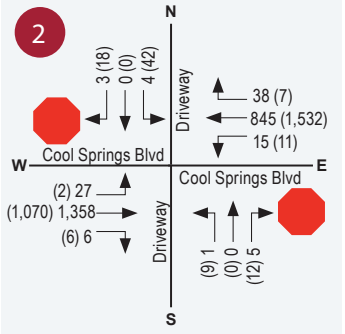

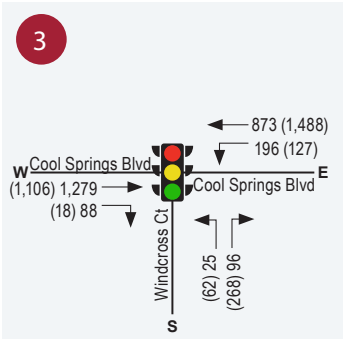

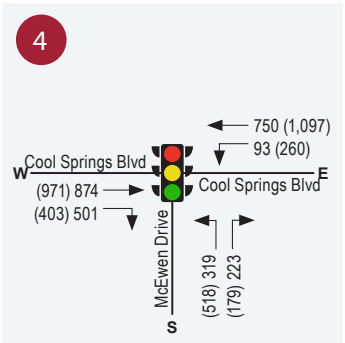

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

N

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

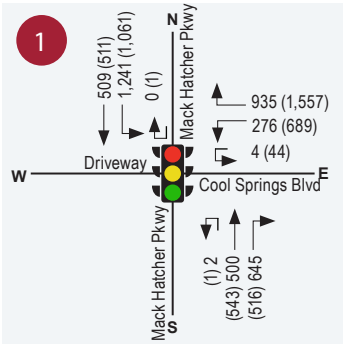
With the development of the projects listed in Table 4, the following improvements were assumed to be completed prior to the Year 2025 Build scenario, since these improvements are condition of approval for some of these development projects:

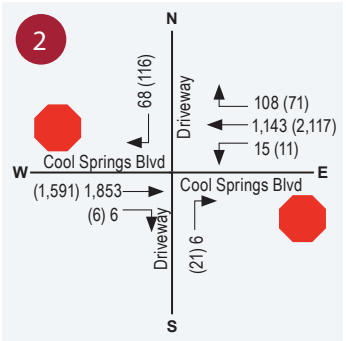
- Intersection 2: Cool Springs Boulevard at Site Driveway/Commercial Driveway
  - Convert the existing full-movement intersection to a right-in/right/out (RIRO) for the southbound approach (north leg)
  - Restripe the existing southbound left-turn lane as an additional southbound right-turn lane (north 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

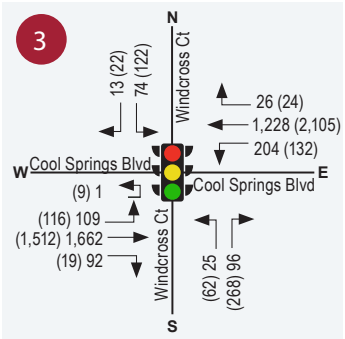
- Intersection 4: Cool Springs Boulevard at McEwen Drive
    - Construct the north leg of the intersection with one southbound left-turn lane, one southbound through lane, and one southbound right-turn lane
    - Provide a westbound right-turn lane
    - Provide an eastbound left-turn lane
    - Provide 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

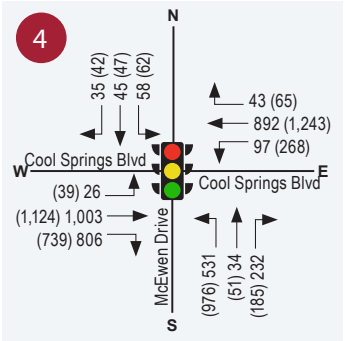
Figure 7 illustrates the intersection geometry assumed for the 2025 and 2030 No-Build conditions.











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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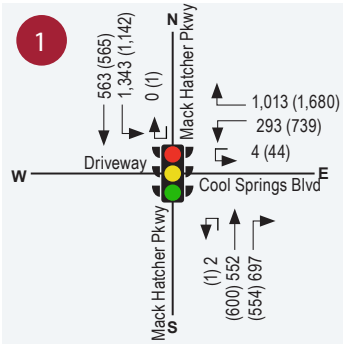

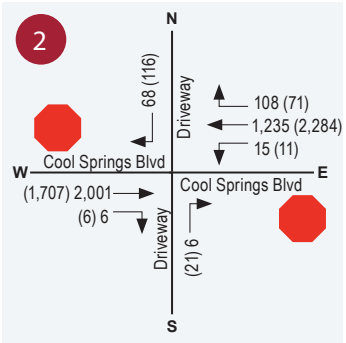

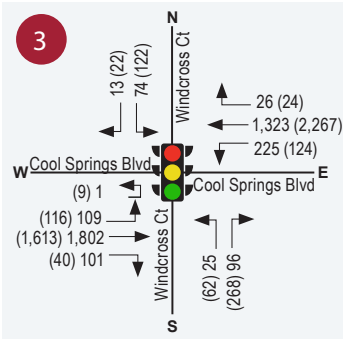

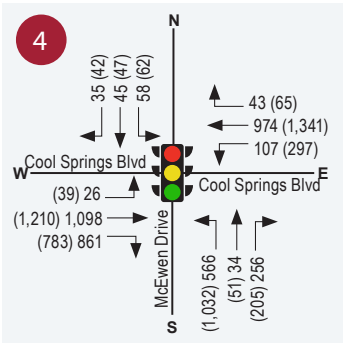

LEGEND

→	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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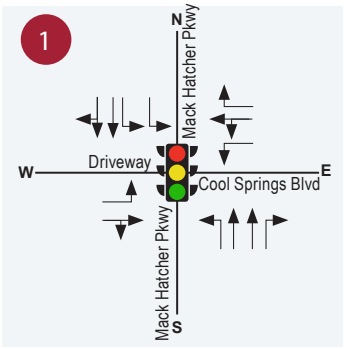

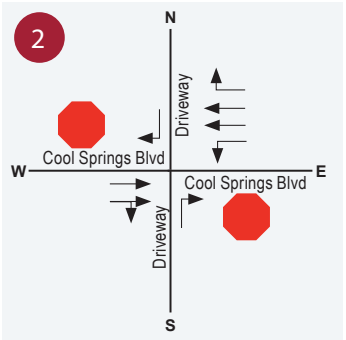

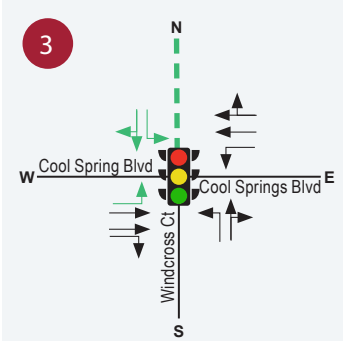

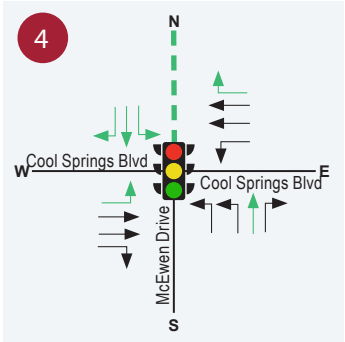



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Kimley»Horn	101 Cool Springs Boulevard TIS	No-Build Intersection Geometry	Figure 7

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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.

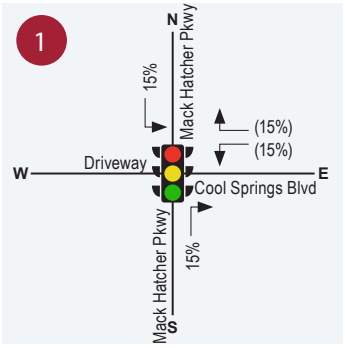
Table 5: Trip Generation								
ITE Code	Land Use	Density	Daily		AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit	Enter	Exit
220	Multifamily Housing (Low-Rise)	178 units	608	608	19	59	61	36
822	Strip Retail Plaza (<40ksf) (Proposed)	3,500 SF	189	189	8	6	19	18
Gross Trips			**797**	**797**	**27**	**65**	**80**	**54**
Reduction – Internal Capture			*-19*	*-19*	*0*	*0*	*-2*	*-2*
New Trips			**778**	**778**	**27**	**65**	**78**	**52**

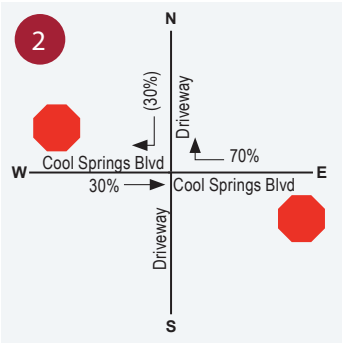
5.3 TRIP DISTRIBUTION AND ASSIGNMENT

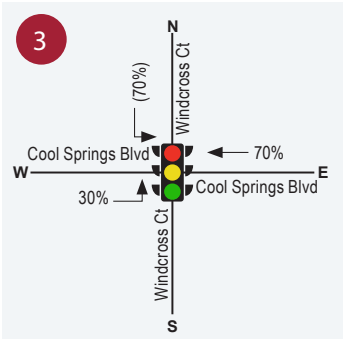
The directional distribution and assignment of new project trips was based on a review of land uses and population densities in the area and the existing peak hour turning movement counts. **Figure 8** illustrates the directional distribution and assignment of new project trips. **Figure 9** illustrates 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.

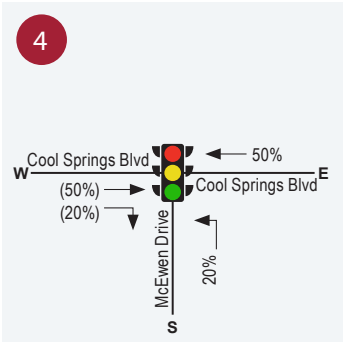
Appendix C provides intersection volume worksheets for all intersections and driveways within the study network.

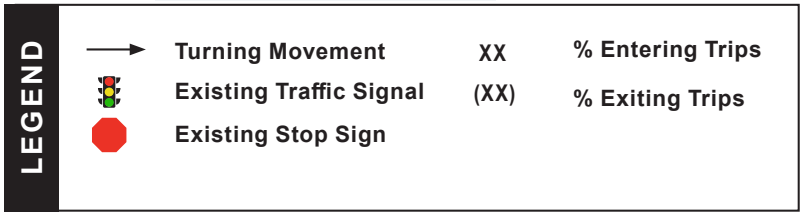














Kimley»Horn	101 Cool Springs Boulevard TIS	Trip Distribution & Assignment	Figure 8

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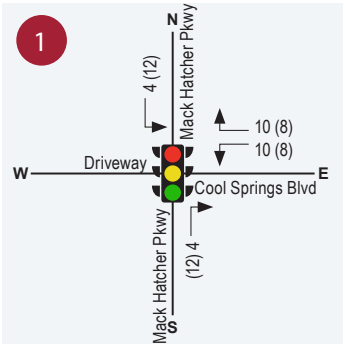

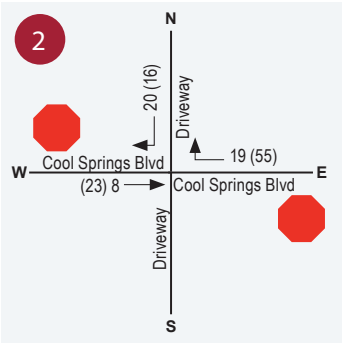

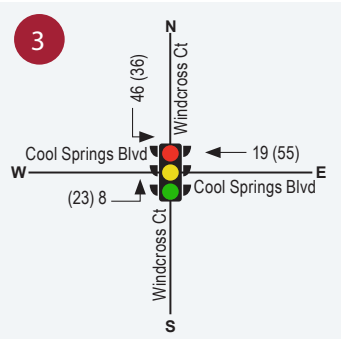

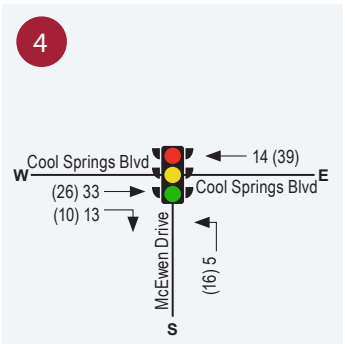

LEGEND

→	Turning Movement	XX	AM Peak Hour Project Trips
	Existing Traffic Signal	(XX)	PM Peak Hour Project Trips
	Existing Stop Sign		

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Kimley»Horn	101 Cool Springs Boulevard TIS	Project Trips	Figure 9

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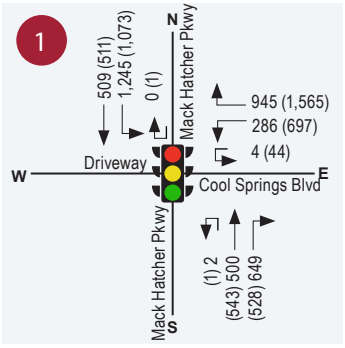

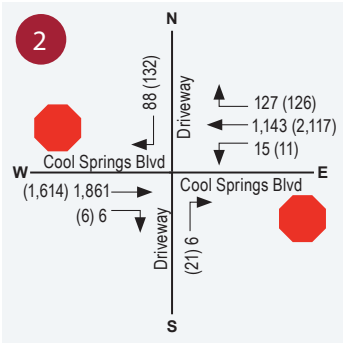

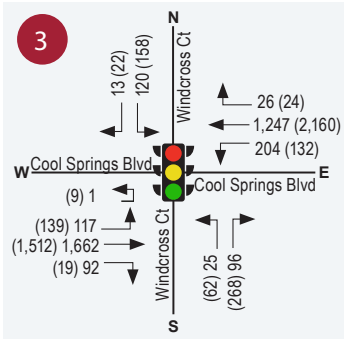

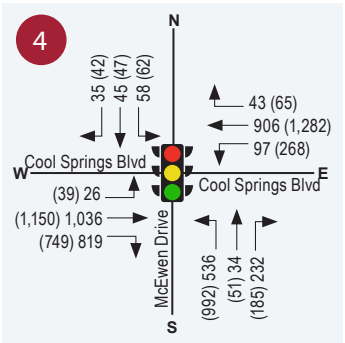

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

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Kimley»Horn	101 Cool Springs Boulevard TIS	2025 Build Traffic Volumes	Figure 10

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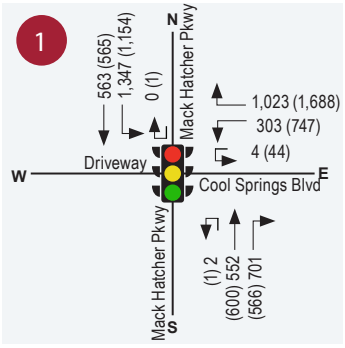

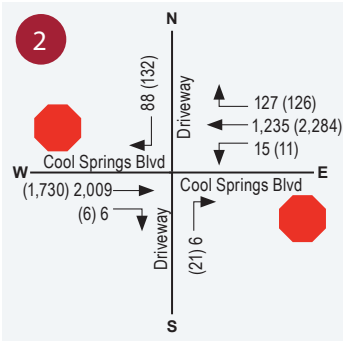

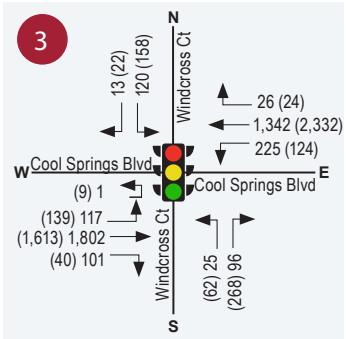

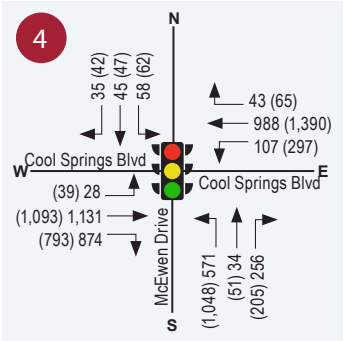

LEGEND

→	Turning Movement	XX	AM Peak Hour Traffic Volume
	Existing Traffic Signal	(XX)	PM Peak Hour Traffic Volume
	Existing Stop Sign		

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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

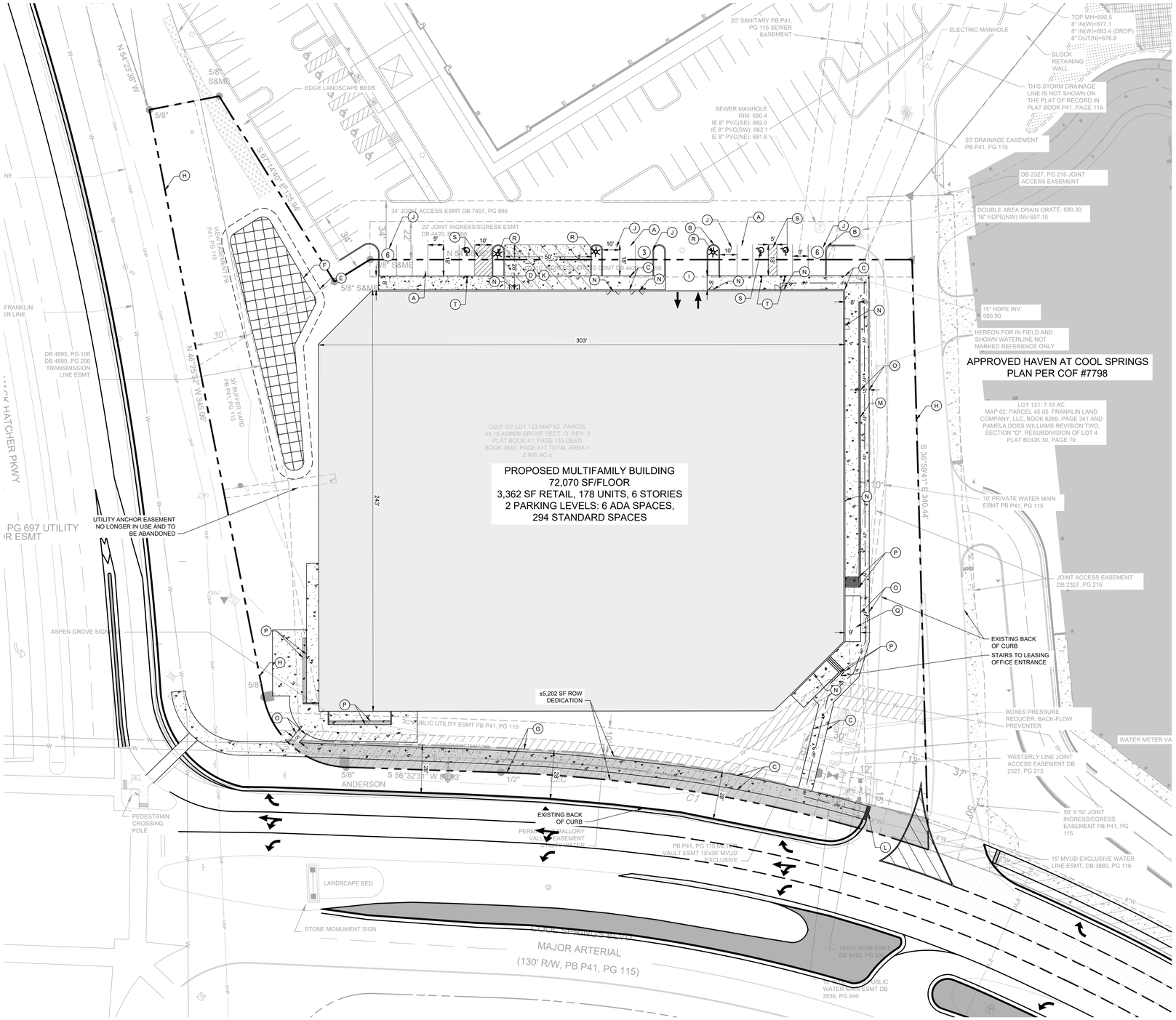
Based on the results of this traffic impact study, Kimley-Horn and Associates, Inc. recommends the following development improvements to serve the Projected 2025 Build traffic conditions (Note: this would be the improvements needed to serve the traffic associated with the *101 Cool Springs Boulevard* 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
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 ARCHITECTURE & ENGINEERING COMMERCE No. 109268 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 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

EXISTING BACK OF CURB

2.5' CURB & GUTTER

ALL STRIPING AND TURN SYMBOLS TO BE REVISED

PROPOSED STOP BAR AND STOP SIGN

DEMO EXISTING ISLAND

PROPOSED RIGHT IN RIGHT OUT ACCESS WITH CURB

TIE INTO EXISTING CURB

DEMO EXISTING MEDIAN CURB

PROPOSED MEDIAN CURB AND GUTTER

PROPOSED RAISED MEDIAN

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

TIE INTO EXISTING CURB

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

Franklin, TN

Click here for Map

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*

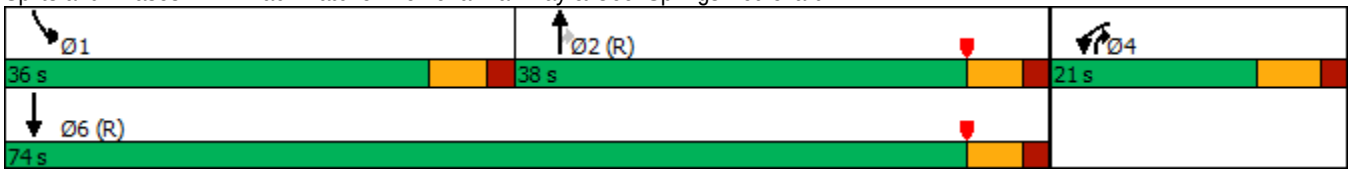
APPENDIX D

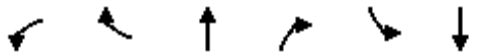
Synchro Reports

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	-

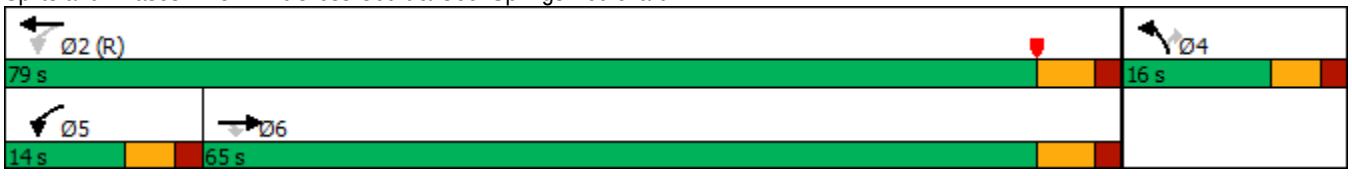
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	19.4	20.8
HCM LOS			C	C

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	

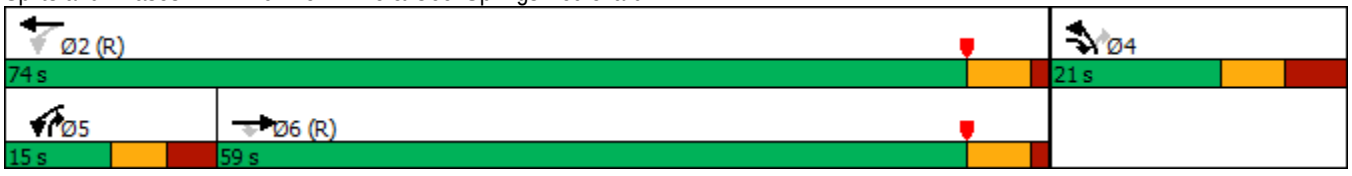
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		79.0		16.0	11.5	67.5
Change Period (Y+Rc), s		6.0		5.5	5.5	6.0
Max Green Setting (Gmax), s		73.0		10.5	8.5	59.0
Max Q Clear Time (g_c+I1), s		2.0		7.9	5.7	23.5
Green Ext Time (p_c), s		17.8		0.2	0.2	23.8

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	

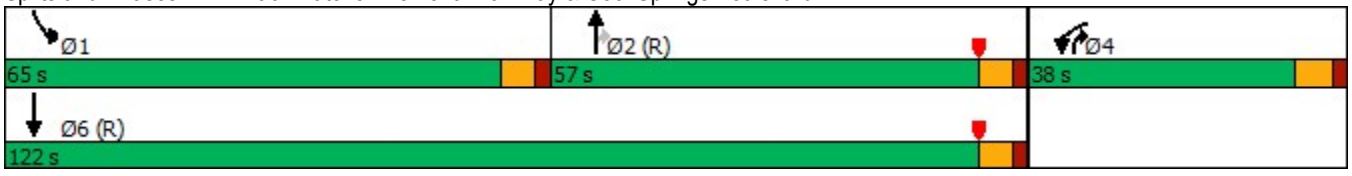
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		74.0		21.0	13.1	60.9
Change Period (Y+Rc), s		6.0		9.0	7.5	6.0
Max Green Setting (Gmax), s		68.0		12.0	7.5	53.0
Max Q Clear Time (g_c+I1), s		10.0		14.0	4.0	16.7
Green Ext Time (p_c), s		20.5		0.0	0.0	27.8

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

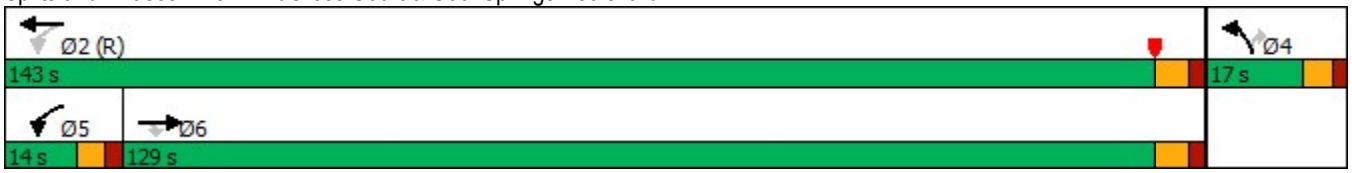
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	221	398	-	-	613	-	-	83	324
HCM Lane V/C Ratio	0.1	0.005	-	-	0.019	-	-	0.533	0.058
HCM Control Delay (s)	23.1	14.1	-	-	11	-	-	89.7	16.8
HCM Lane LOS	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	2.3	0.2

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

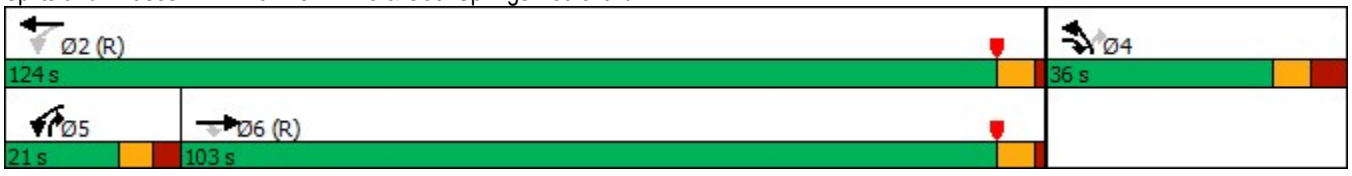
Notes

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

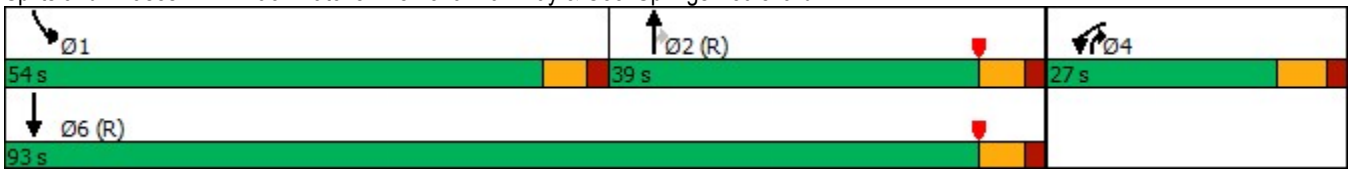
Notes

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	-	-	-	-	-	-	-	-	-	-	-	-

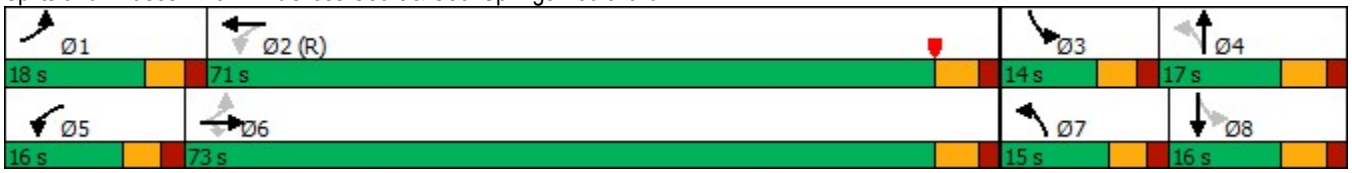
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	19.8	14.7
HCM LOS			C	B

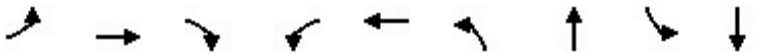
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	249	-	-	294	-	-	443
HCM Lane V/C Ratio	0.025	-	-	0.054	-	-	0.162
HCM Control Delay (s)	19.8	-	-	17.9	-	-	14.7
HCM Lane LOS	C	-	-	C	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.6

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	

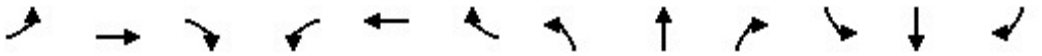
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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	

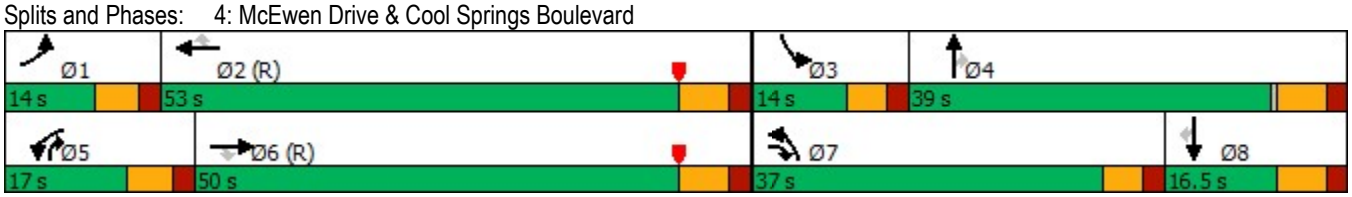
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	79.7	12.9	15.9	16.0	75.2	10.2	18.6
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.2	29.8	6.8	9.7	10.5	54.6	3.6	3.0
Green Ext Time (p_c), s	0.2	21.7	0.0	0.1	0.0	11.5	0.0	0.0

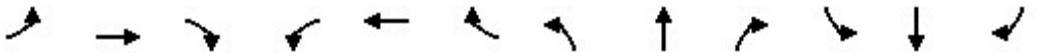
Intersection Summary	
HCM 6th Ctrl Delay	26.5
HCM 6th LOS	C

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	

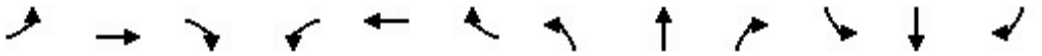
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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

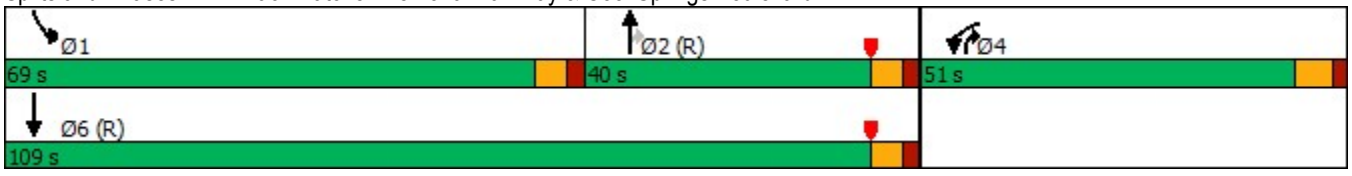
Notes

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	-	-	-	-	-	-	-	-	-	-	-	-

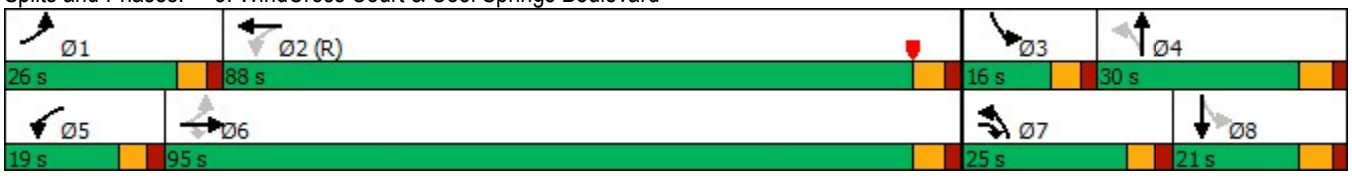
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	17.6	46.4
HCM LOS			C	E

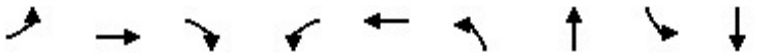
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	-	-	377	-	-	203
HCM Lane V/C Ratio	0.072	-	-	0.031	-	-	0.602
HCM Control Delay (s)	17.6	-	-	14.9	-	-	46.4
HCM Lane LOS	C	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	-	3.4

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	

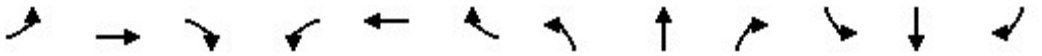
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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	

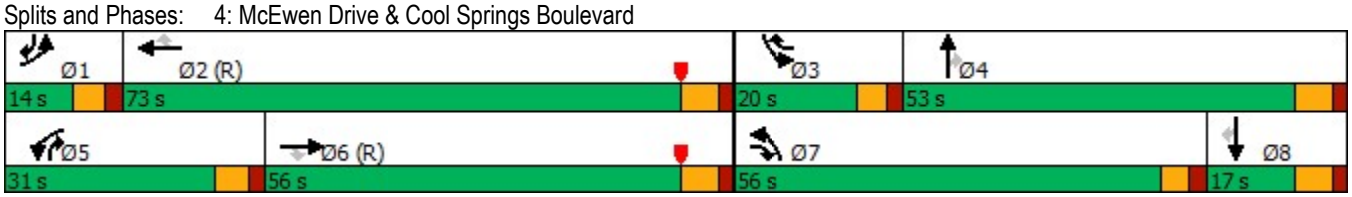
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	106.5	16.0	21.6	12.4	109.9	13.1	24.5
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	20.5	82.0	10.5	24.0	13.5	89.0	19.5	15.0
Max Q Clear Time (g_c+I1), s	10.0	102.5	12.5	14.9	6.7	50.2	7.3	4.2
Green Ext Time (p_c), s	0.4	0.0	0.0	0.7	0.3	29.1	0.2	0.1

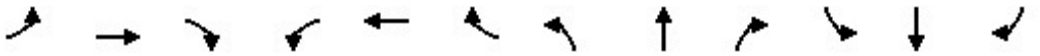
Intersection Summary	
HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

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	

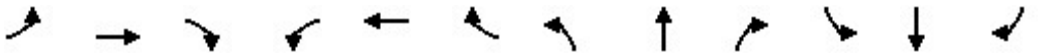
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

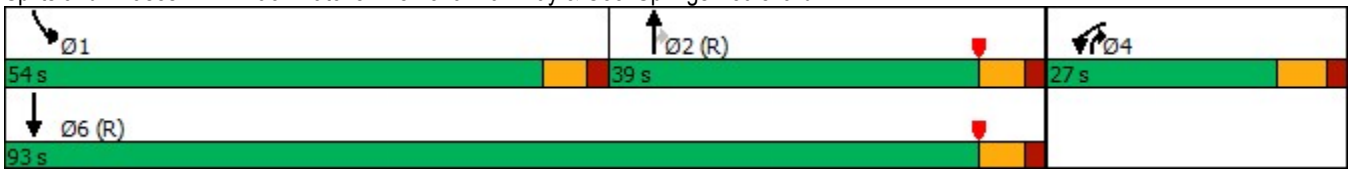
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	76.4	13.2	59.3	31.0	56.5	56.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	66.5	14.5	46.5	25.0	49.5	50.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	57.2	8.0	13.9	27.0	52.0	50.5	6.3
Green Ext 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	-	-	-	-	-	-	-	-	-	-	-	-

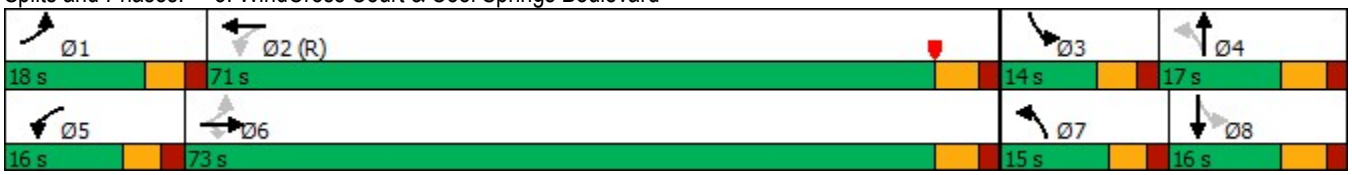
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	19.9	15.3
HCM LOS			C	C

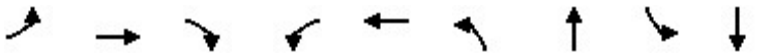
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	248	-	-	292	-	-	443
HCM Lane V/C Ratio	0.025	-	-	0.054	-	-	0.209
HCM Control Delay (s)	19.9	-	-	18	-	-	15.3
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.8

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	

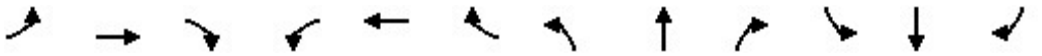
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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	

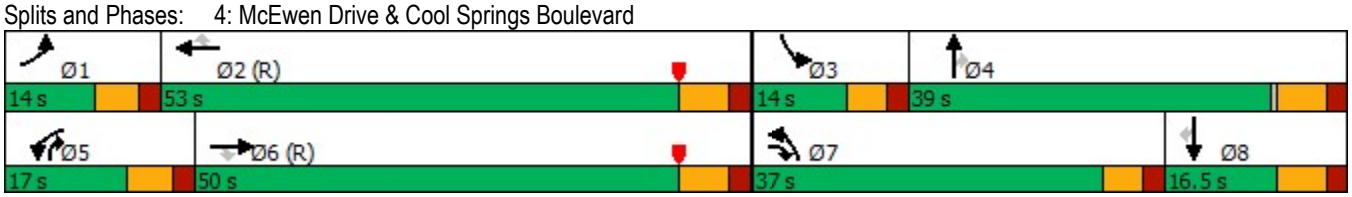
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	78.7	14.0	15.9	16.0	74.1	10.2	19.7
Change Period (Y+Rc), s	5.5	6.0	5.5	6.0	5.5	6.0	5.5	6.0
Max Green Setting (Gmax), s	12.5	65.0	8.5	11.0	10.5	67.0	9.5	10.0
Max Q Clear Time (g_c+I1), s	5.6	31.1	10.0	9.7	10.8	55.7	3.6	2.9
Green Ext Time (p_c), s	0.2	21.5	0.0	0.1	0.0	10.5	0.0	0.0

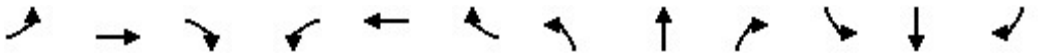
Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

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	

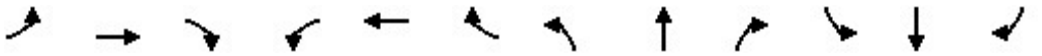
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

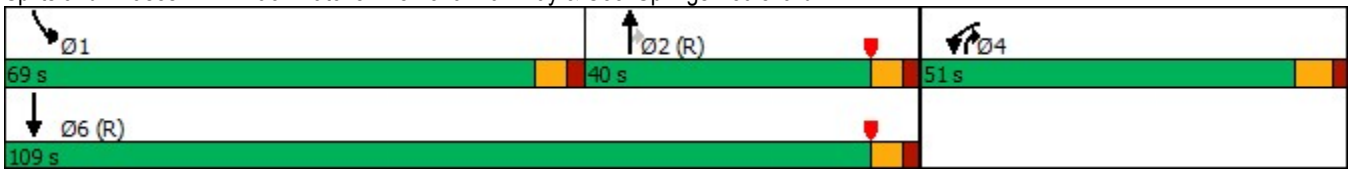
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	63.7	12.5	34.1	14.8	58.6	30.1	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	26.1	6.1	17.8	9.0	54.1	21.4	5.0
Green Ext Time (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	-	-	-	-	-	-	-	-	-	-	-	-

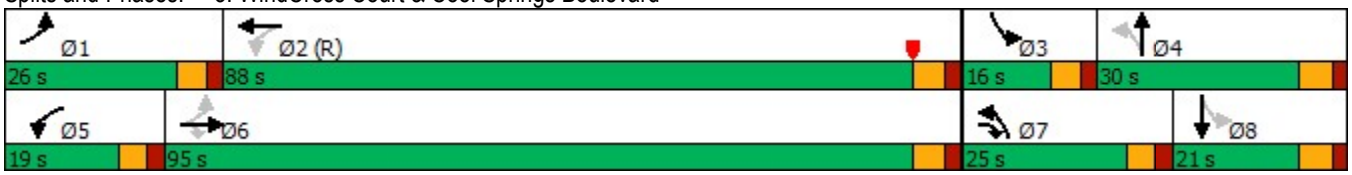
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	17.9	54.2
HCM LOS			C	F

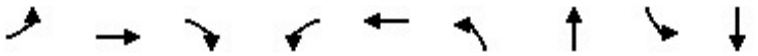
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	302	-	-	369	-	-	203
HCM Lane V/C Ratio	0.073	-	-	0.031	-	-	0.684
HCM Control Delay (s)	17.9	-	-	15.1	-	-	54.2
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	-	4.3

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	

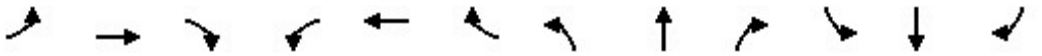
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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

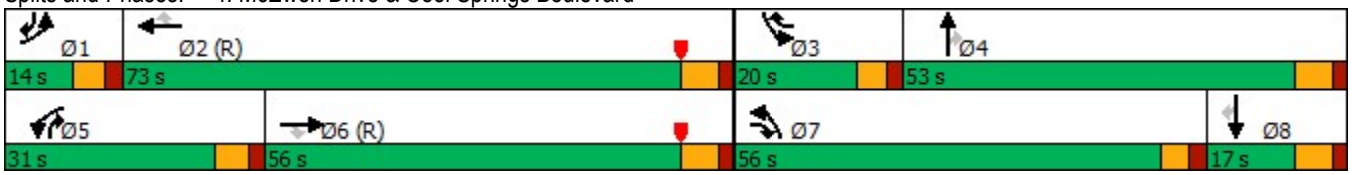
Notes

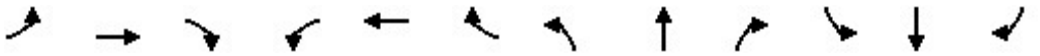
User approved ignoring U-Turning movement.

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	

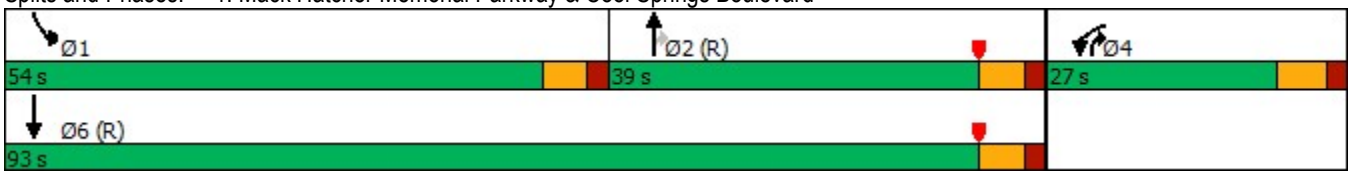
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	76.4	13.2	59.3	31.0	56.5	56.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	66.5	14.5	46.5	25.0	49.5	50.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	60.1	8.0	13.9	27.0	52.0	51.6	6.3
Green Ext 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	-	-	-	-	-	-	-	-	-	-	-	-

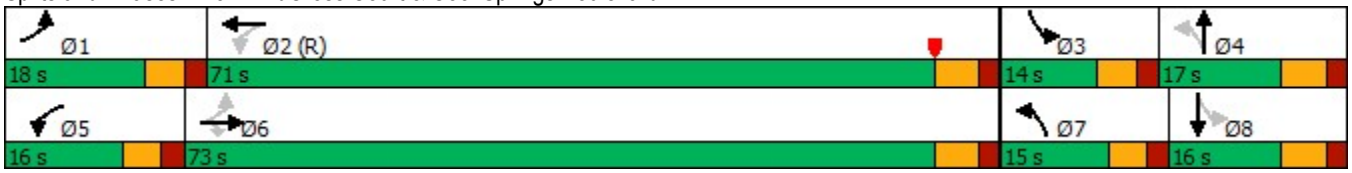
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	21.7	15.6
HCM LOS			C	C

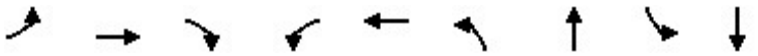
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	222	-	-	256	-	-	412
HCM Lane V/C Ratio	0.028	-	-	0.062	-	-	0.174
HCM Control Delay (s)	21.7	-	-	20	-	-	15.6
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.6

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	

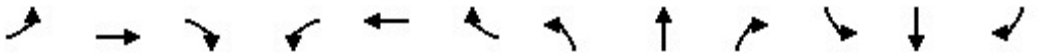
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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

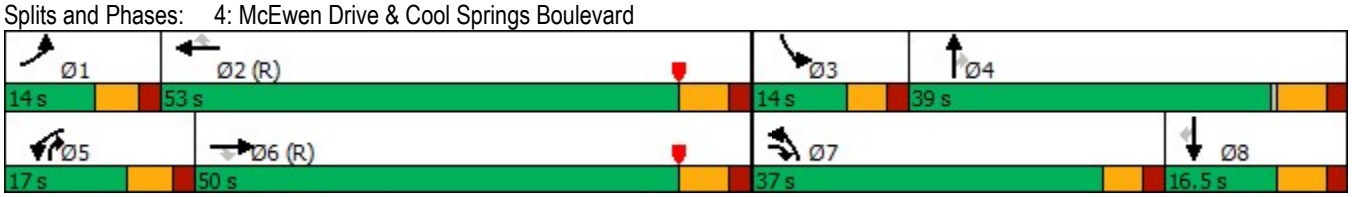
Notes

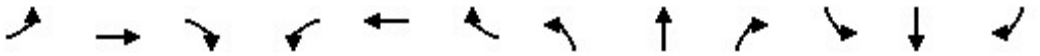
User approved ignoring U-Turning movement.

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	

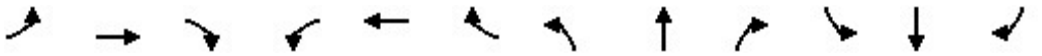
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

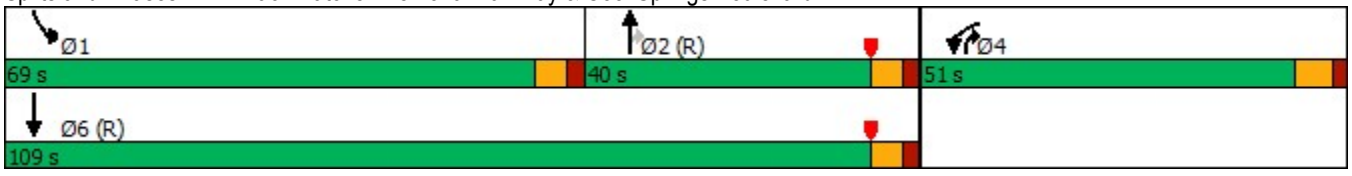
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	62.7	12.5	35.1	15.5	56.8	31.1	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	29.1	6.1	19.4	9.7	52.3	22.4	5.0
Green Ext Time (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	-	-	-	-	-	-	-	-	-	-	-	-

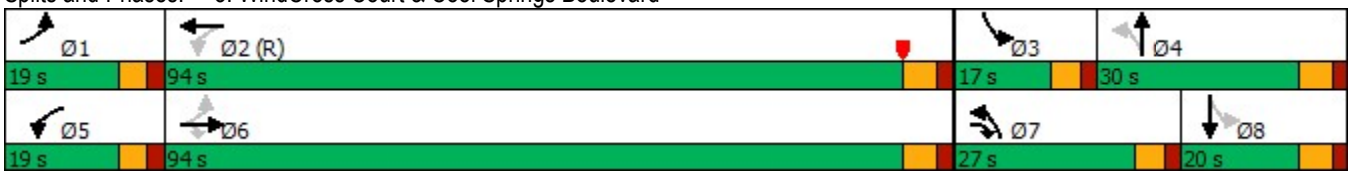
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	18.9	61.3
HCM LOS			C	F

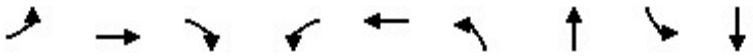
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	281	-	-	338	-	-	177
HCM Lane V/C Ratio	0.079	-	-	0.034	-	-	0.69
HCM Control Delay (s)	18.9	-	-	16	-	-	61.3
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	-	4.2

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	

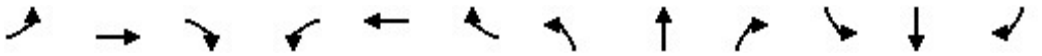
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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

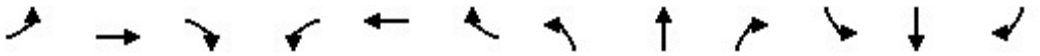
User approved ignoring U-Turning movement.

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	

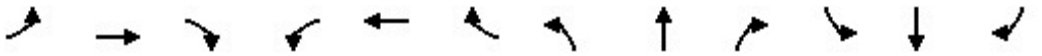
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

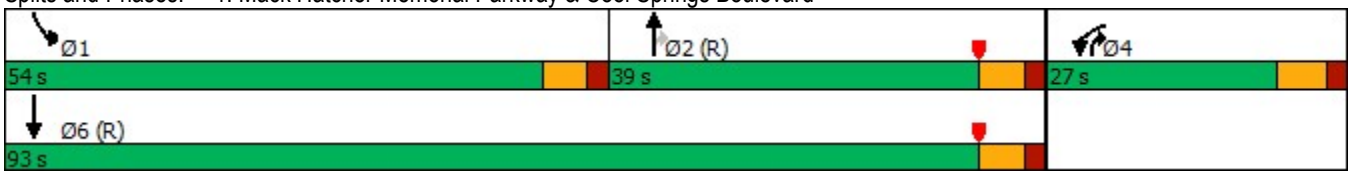
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	81.4	13.2	54.3	31.0	61.5	51.0	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	71.5	13.5	42.5	25.0	54.5	45.5	10.5
Max Q Clear Time (g_c+I1), s	5.7	61.2	8.0	16.3	27.0	57.0	47.5	6.3
Green Ext 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	-	-	-	-	-	-	-	-	-	-	-	-

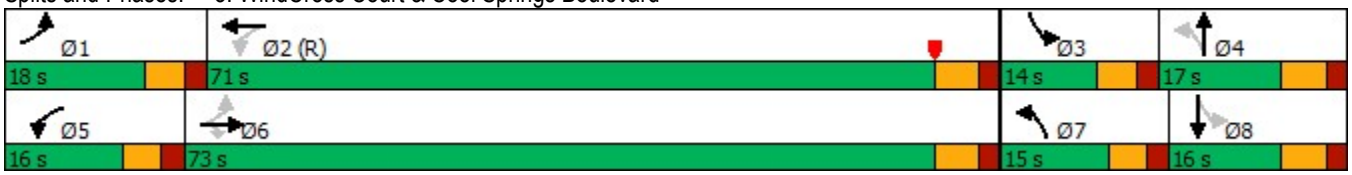
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	21.8	16.3
HCM LOS			C	C

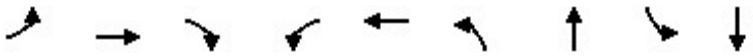
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	220	-	-	254	-	-	412
HCM Lane V/C Ratio	0.029	-	-	0.062	-	-	0.225
HCM Control Delay (s)	21.8	-	-	20.1	-	-	16.3
HCM Lane LOS	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-	0.9

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	

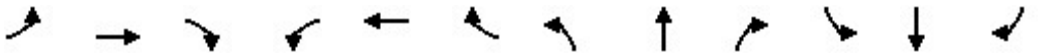
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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

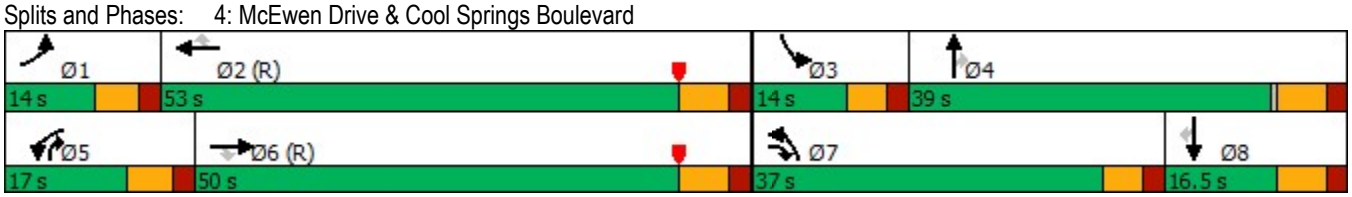
Notes

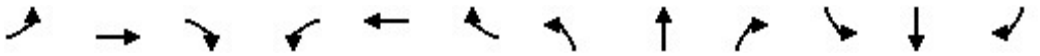
User approved ignoring U-Turning movement.

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	

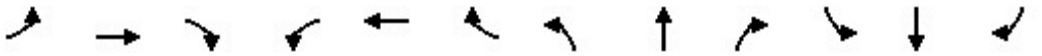
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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	

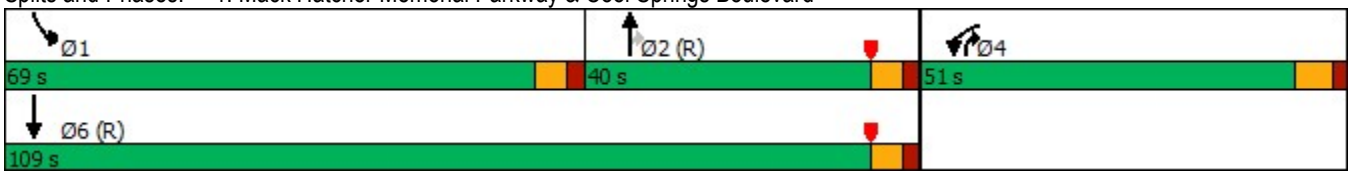
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	62.5	12.5	35.3	15.5	56.6	31.3	16.5
Change Period (Y+Rc), s	6.0	6.5	5.5	6.5	6.0	6.5	5.5	6.5
Max Green Setting (Gmax), s	8.0	46.5	8.5	32.5	11.0	43.5	31.5	10.0
Max Q Clear Time (g_c+I1), s	3.9	29.7	6.1	19.4	9.7	52.1	22.6	5.0
Green Ext Time (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	-	-	-	-	-	-	-	-	-	-	-	-

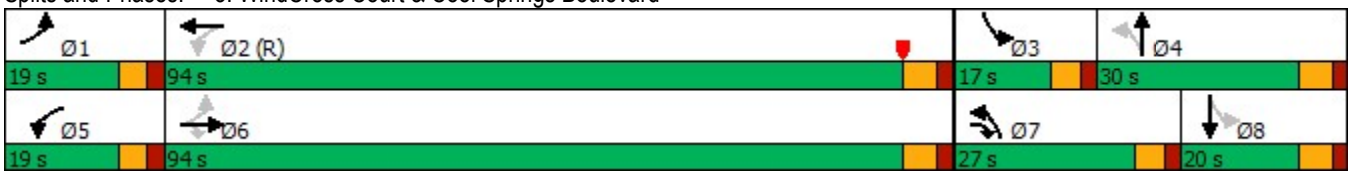
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	19.2	74.6
HCM LOS			C	F

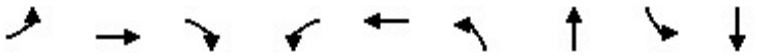
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	276	-	-	331	-	-	177
HCM Lane V/C Ratio	0.08	-	-	0.035	-	-	0.785
HCM Control Delay (s)	19.2	-	-	16.3	-	-	74.6
HCM Lane LOS	C	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	-	5.2

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	

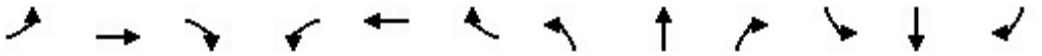
Splits and Phases: 3: WindCross Court & Cool Springs Boulevard





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

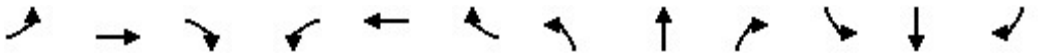
User approved ignoring U-Turning movement.

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	

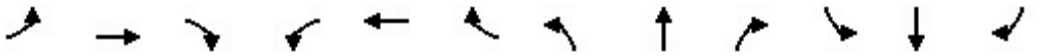
Splits and Phases: 4: McEwen Drive & Cool Springs Boulevard





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 #: 21-04663

DATE: May 9, 2023

TO: Franklin Municipal Planning Commission

FROM: Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development

SUBJECT:

Consideration Of Ordinance 2023-15, An Ordinance To Rezone 7.2 Acres From Residential 4 (R4) To Planned (PD 38.19/3,000) District For The Property Located East Of Franklin Road And South Of Liberty Pike, Located At 209 Old Liberty Pike (Middle Eight PUD Subdivision).

PURPOSE:

PROJECT INFORMATION
COF Project Number: 8155
Applicant: Gary Vogrin, Kiser + Vogrin Design
Owner: Amanda McKeehan

BACKGROUND/STAFF COMMENTS:
The applicant has submitted a rezoning request for the 7.2 acres located East Of Franklin Road And South Of Liberty Pike, located at 209 Old Liberty Pike. The applicant is requesting to rezone from R4 to Planned (PD 38.19/3,000) District to accommodate the proposed Middle Eight PUD Subdivision. The development has 275 residential units and 3,000 square feet of commercial space. Envision Franklin places this property in the Multifamily Design Concept, which states, "Multifamily residential includes apartments, condominiums, stacked flats, assisted living facilities, and is encouraged to be mixed with big houses, duplexes, townhouses, and other housing types. This allows for greater flexibility in form and scale to achieve active, cohesive, and vibrant neighborhoods." Primary uses include multifamily, with single-family and attached residential units as secondary uses.

There is a special consideration within the Multifamily Design Concept for properties south of Liberty Pike & west of Daniels Drive, east of the Truett House. The design team brought forth an Envision Franklin Plan Amendment to the Planning Commission on March 23, 2023, in which they proposed Special Consideration language specific to this site that allowed for the consideration of additional height when underground parking is provided, as well as a small amount of commercial space when it is a use that supports the surrounding community. The Planning Commission approved this requested amendment to Envision Franklin. The Planned District zoning district with proposed entitlements meets the recommendations of Envision Franklin.

PROCEDURAL REQUIREMENTS:

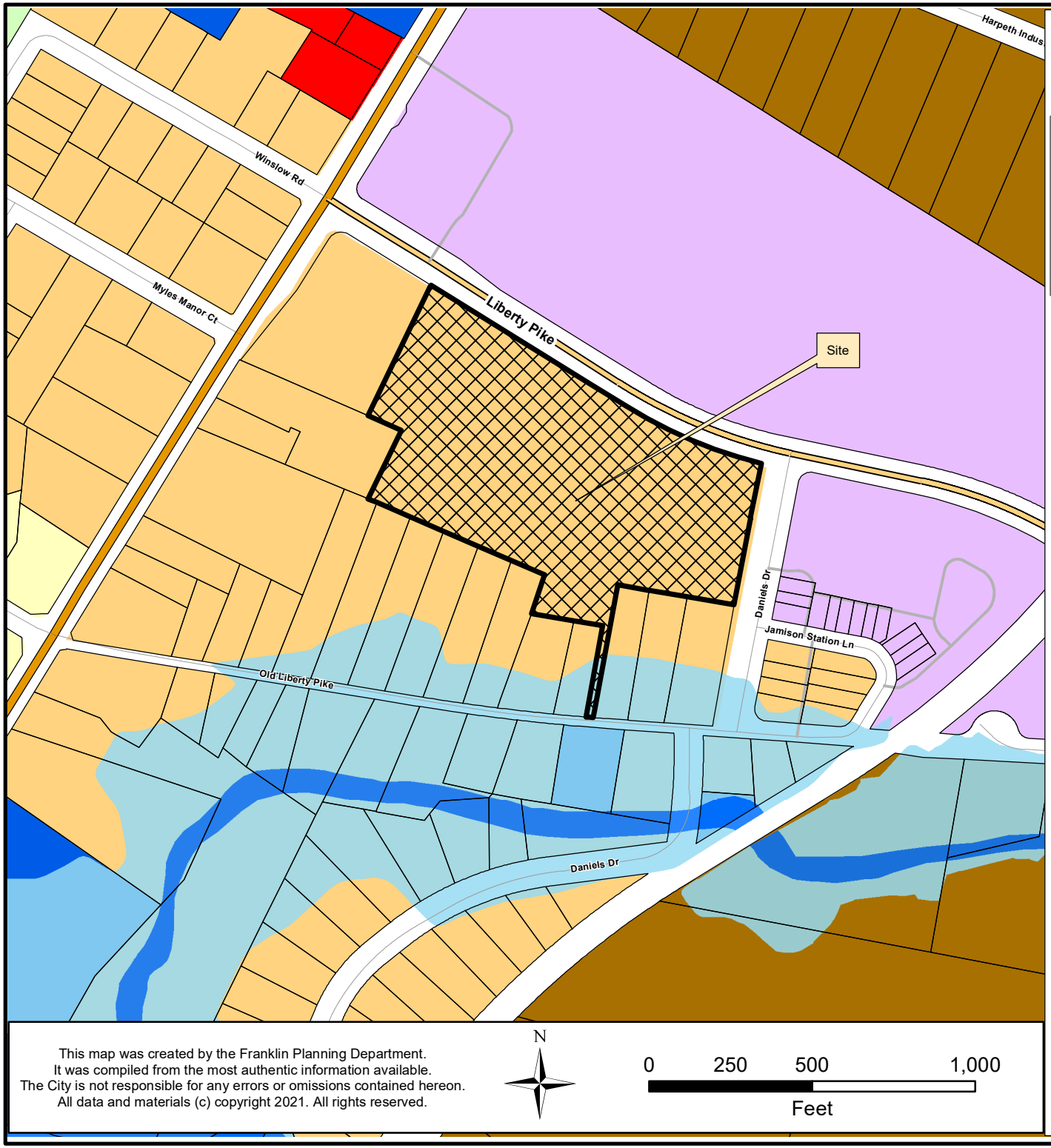
1. The City’s project identification number shall be included on all correspondence with any City department relative to this project.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Staff recommends that the Planning Commission recommend to the Board of Mayor and Aldermen to approve Ordinance 2023-15.



MIDDLE EIGHT PUD SUBDIVISION
ORDINANCE 2023-15
RESOLUTION 2023-30

Project Information
Existing Zoning: R4
Proposed Zoning: PD 38.19/3,000
Overlay Districts: HPO, CFO, FFO
Site Acreage: 7.2 acres
Proposed Number of Dwelling Units: 275
Proposed Nonresidential Square Footage: 3,000

Legend

- Middle Eight PUD
- Hillside/Hillcrest Overlay
- 500 Ft Buffer of Hillside
- Floodway Fringe Overlay
- Floodway Overlay
- 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

ORDINANCE 2023-15

AN ORDINANCE TO REZONE 7.2 ACRES FROM RESIDENTIAL 4 (R4) TO PLANNED (PD 38.19/3,000) DISTRICT FOR THE PROPERTY LOCATED EAST OF FRANKLIN ROAD AND SOUTH OF LIBERTY PIKE, LOCATED AT 209 OLD LIBERTY PIKE (MIDDLE EIGHT 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 38.19/3,000) 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 2023-30, 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 **Planned (PD)** District to **Planned (PD 38.19/3,000)** District:

PREMISES CONSIDERED

Map-Parcel	Acres
063M -A 4.00	7.2
Total	7.2

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/Recorder

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

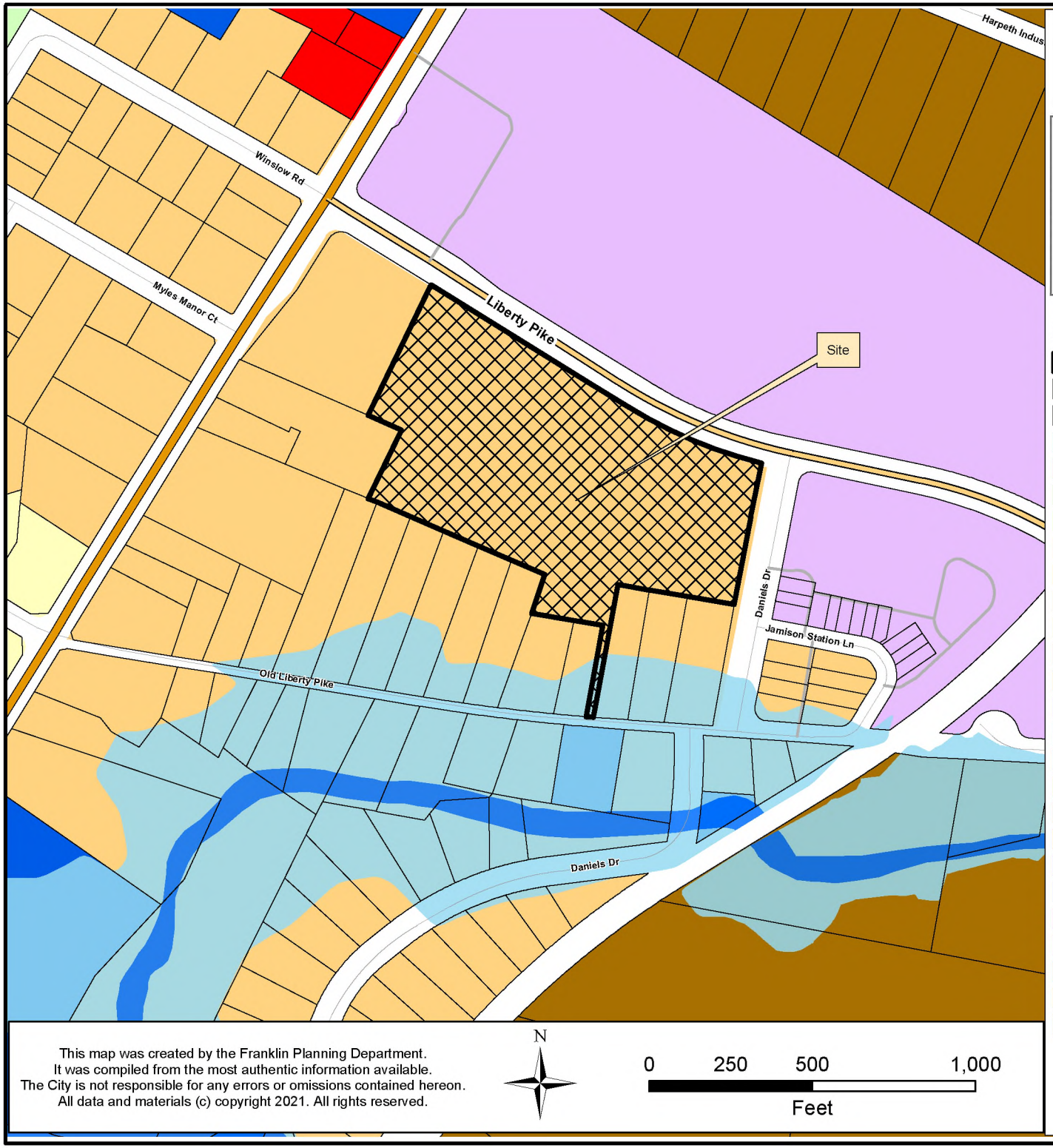
PLANNING COMMISSION RECOMMENDED: _____

PASSED FIRST READING: _____

PUBLIC HEARING HELD: _____

PASSED SECOND READING: _____

PASSED THIRD READING: _____



MIDDLE EIGHT PUD SUBDIVISION
ORDINANCE 2023-15
RESOLUTION 2023-30

Project Information
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Legend

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N

0 250 500 1,000
Feet

REZONING APPLICATION
THE MIDDLE EIGHT

209 OLD LIBERTY PIKE
TAX MAP 063M PARCEL 0400, GROUP A
COF PROJECT #8155
KVD PROJECT #21065
FRANKLIN, WILLIAMSON CO., TN

CLIENT/DEVELOPER
TRULAND
401 CHURCH STREET
FRANKLIN, TN 37064
CONTACT: AMANDA MCKEEHAN
INFO@TRULANDGROUP.COM

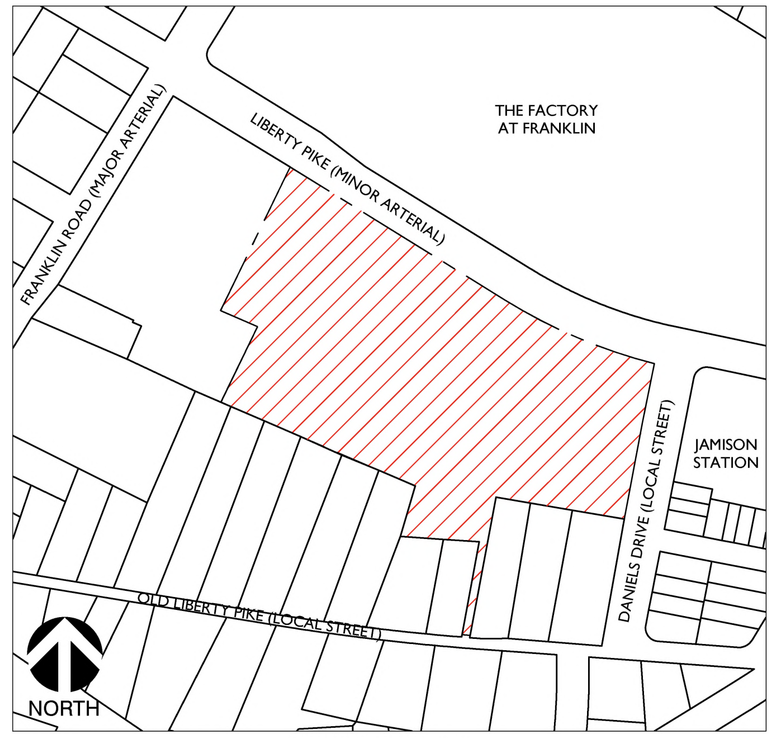
LANDSCAPE ARCHITECT / APPLICANT
KV+D KISER VOGRIN DESIGN
KISER + VOGRIN DESIGN
5005 MERIDIAN BLVD
SUITE 100
FRANKLIN, TN 37067
CONTACT: GARY VOGRIN
(615) 708-0567
GARY@KISERVOGRIN.COM

ARCHITECT
ANTUNOVICH ASSOCIATES
ANTUNOVICH ASSOCIATES.
224 WEST HURON STREET SUITE 7E
CHICAGO, IL 60654
CONTACT: JOSEPH ANTUNOVICH
(312) 266-1126
JANTUNOVICH@ANTUNOVICH.COM

TRAFFIC ENGINEER
KCI TECHNOLOGIES
KCI TECHNOLOGIES INC/
500 11TH AVENUE N
SUITE 290
NASHVILLE, TN 37203
CONTACT: BETH OSTROWSKI
(615)370-8410
BETH.OSTROWSKI@KCI.COM

BRANDING
streetsense.
STREET SENSE
641 S STREET NW
WASHINGTON, DC 20001
CONTACT: DONNA OETZEL
(202)415-0818
DOETZEL@STREETSENSE.COM

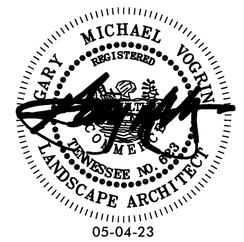
CIVIL ENGINEER
FULMER LUCAS
FULMER LUCAS
2002 RICHARD JONES ROAD SUITE B200
NASHVILLE, TN 37215
CONTACT: YATES BATEMAN
(214) 796-1771



SITE LOCATION MAP
1"=200'

SHEET INDEX	SHEET NUMBER	INITIAL SUBMITTAL	RE-SUBMITTAL	ONE STOP
COVER SHEET	C0.0	04-10-2023	05-04-2023	
REZONING PLAN	C1.0	04-10-2023	05-04-2023	

EXISTING ZONING: R4 | RESIDENTIAL 4 DISTRICT
PROPOSED ZONING: PD 38.19 / 3000 | PLANNED DISTRICT



05-04-23



KVD PROJECT# : 21065
COF PROJECT# : 8155
Sheet #:
C0.0
DATE: 05.04.2023

LEGEND

- IRON ROD (OLD)
- BENCHMARK
- CATCH BASIN
- FIRE HYDRANT
- SEWER MANHOLE
- EXISTING TREE
- WATER VALVE
- WATER METER
- IRON ROD (NEW)
- UTILITY POLE

SITE DATA CHART:

PROJECT NAME: THE MIDDLE EIGHT
COF PROJECT NUMBER: 8155
TAX MAP: 063M
GROUP: A
PARCELS: 04.00
ADDRESS: 209 OLD LIBERTY PIKE
CITY: FRANKLIN
COUNTY: WILLIAMSON
STATE: TENNESSEE
CIVIL DISTRICT: 10
PUD SITE ACREAGE: 7.2
PUD SITE SQUARE FOOTAGE: 313,632 SF
DESIGN CONCEPT: MF (MULTIFAMILY RESIDENTIAL)

REGULATIONS

BASE ZONING: R4 | RESIDENTIAL 4 DISTRICT
PROPOSED ZONING: PD (38.19 / 3000) | PLANNED DISTRICT
OVERLAY ZONING: CENTRAL FRANKLIN OVERLAY, HISTORIC PRESERVATION OVERLAY, & FLOOD FRINGE OVERLAY
BUILDING TYPES APPLIED: MULTIFAMILY RESIDENTIAL, SINGLE FAMILY RESIDENTIAL, TOWNHOME & DUPLEX UNITS
FRONTAGE TYPES APPLIED:
DUPLEX AND SINGLE FAMILY: YARD FRONTAGE
TOWNHOUSE AND MULTIFAMILY: URBAN FRONTAGE

KEVIN M MCKEEHAN
(AREA LOT 1 = 78,793 sq.ft. or 1.809 ACRES±)
ZONING: R-4 RESIDENTIAL

(NEW PARCEL 4.00)
(AREA LOT 2 = 313,359 sq.ft. or 7.194 ACRES±)

FRANKLIN ROAD
(U.S. HWY 31 STATE ROUTE 6 (PUBLIC ROW)

LIBERTY PIKE
MINOR ARTERIAL (ROW VARIES)

OLD LIBERTY PIKE
LOCAL STREET
(PUBLIC ROW VARIES)

DANIELS DRIVE
LOCAL STREET ROW VARIES)

HISTORIC PRESERVATION OVERLAY

APPROXIMATE LIMITS (FFO BOUNDARY)
100-YEAR FLOOD
(SEE NOTE No. 4)

ACCESS EASEMENT

CURVE 2: LENGTH: 302.89'
RADIUS: 989.93'
DELTA ANGLE: 17°31'52"
CHORD BEARING: S66°58'41"E
CHORD LENGTH: 301.71'

SURVEY INFO
PROVIDED BY: S&ME & CHASTAIN SKILLMAN
DATUM: TENNESSEE STATE PLANE (NAD83 & NAVD 88)

SCALE: 1" = 50'

FULMER LUCAS

KISER VOGRIN DESIGN
5005 MERIDIAN BLVD. SUITE 100
FRANKLIN, TN 37067
MAIN: 615.708.0567
WWW.KISERVOGRIN.COM

REZONING PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
COF PROJECT # 8155
FRANKLIN, WILLIAMSON COUNTY, TN

NO.	REVISIONS	DATE	BY

DESIGNED BY:	YB
DRAWN BY:	JM
CHECKED BY:	BD
DATE:	05/04/23

FILE PROJECT NO.
1060-15

DRAWING TITLE:

REZONING PLAN

SHEET NUMBER

C1.0

Thursday, May 4, 2023
10:00pm User: mgood
I:\1060_Clark Hyatt\15 - 228 Franklin Rd\Civil\Sheets\1060-15_Rezone Plan.dwg

REZONING APPLICATION
THE MIDDLE EIGHT

209 OLD LIBERTY PIKE
TAX MAP 063M PARCEL 0400, GROUP A
COF PROJECT #8155
KVD PROJECT #21065
FRANKLIN, WILLIAMSON CO., TN

CLIENT/DEVELOPER
TRULAND
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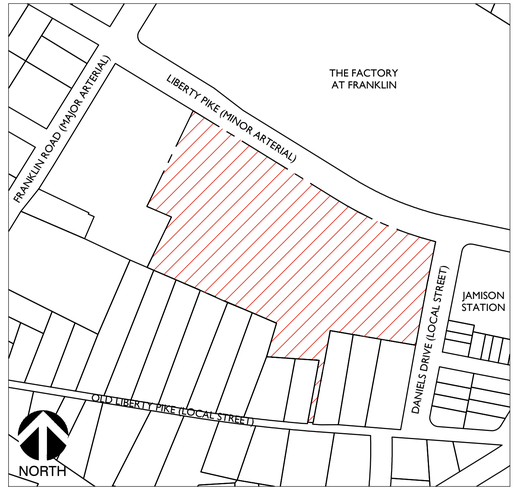
CONTACT: DONNA OETZEL
(202)415-0818
DOETZEL@STREETSENSE.COM

CIVIL ENGINEER
FULMER LUCAS
FULMER LUCAS
2002 RICHARD JONES ROAD SUITE B200
NASHVILLE, TN 37215
CONTACT: YATES BATEMAN
(214) 796-1771



SITE LOCATION MAP
1"=200'

SHEET INDEX	SHEET NUMBER	INITIAL SUBMITTAL	RE-SUBMITTAL	ONE STOP
COVER SHEET	C0.0	04-10-2023	05-04-2023	
REZONING PLAN	C1.0	04-10-2023	05-04-2023	

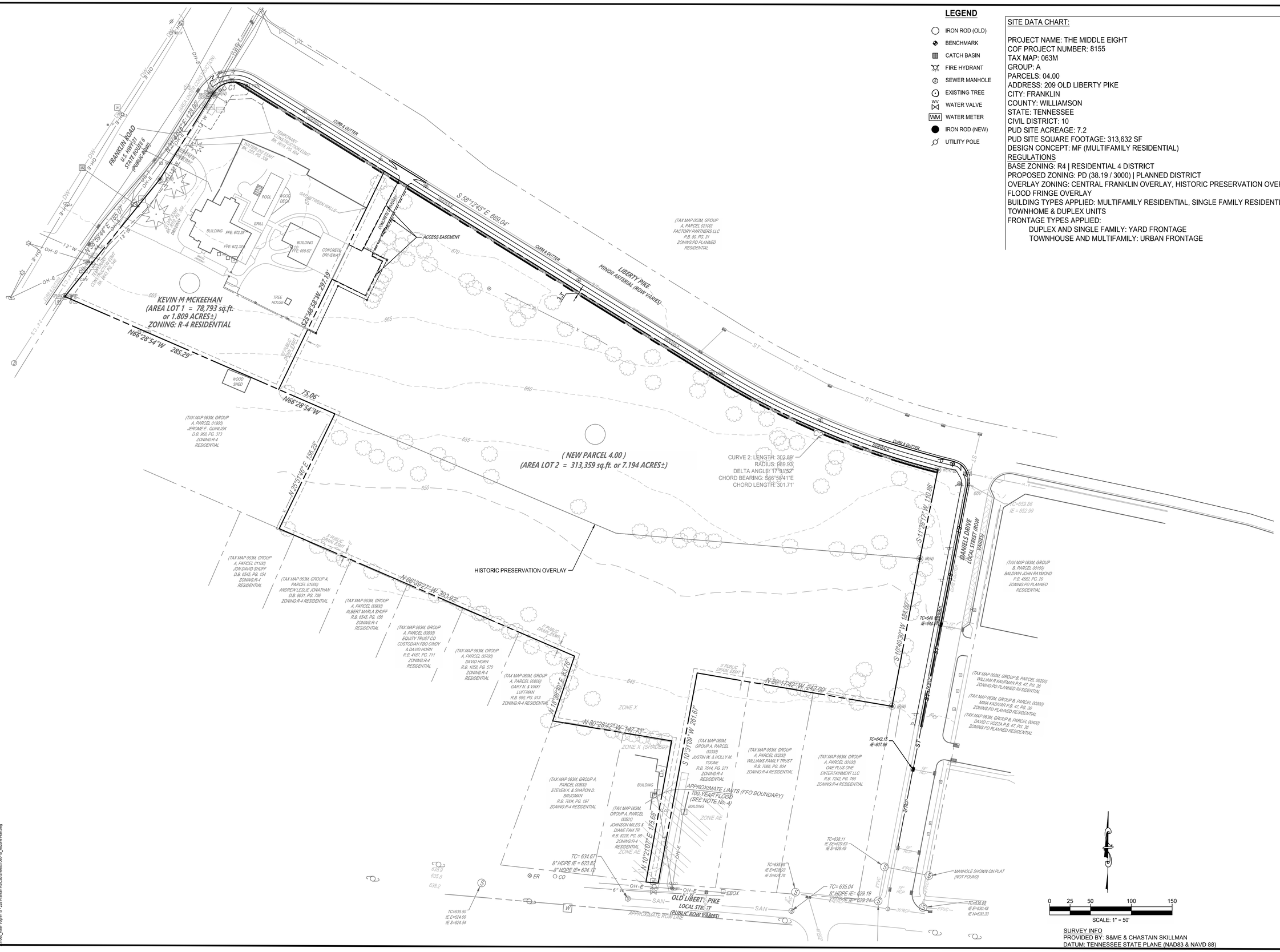
EXISTING ZONING: R4 | RESIDENTIAL 4 DISTRICT
PROPOSED ZONING: PD 38.19 / 3000 | PLANNED DISTRICT



05-04-23



KVD PROJECT# : 21065
COF PROJECT# : 8155
Sheet #:
C0.0
DATE: 05.04.2023



FULMER LUCAS

KV+D
KISER VOGRIN DESIGN
5005 MERIDIAN BLVD. SUITE 100
FRANKLIN, TN 37067
MAIN: 615.769.0567
WWW.KISERVOGRIN.COM

STATES PROFESSIONAL ENGINEER REGISTERED AGRICULTURE 115124 STATE OF TENNESSEE

REZONING PLAN

THE MIDDLE EIGHT

209 OLD LIBERTY PIKE
COF PROJECT # 8155
FRANKLIN, WILLIAMSON COUNTY, TN

NO.	REVISIONS	DATE	BY

DESIGNED BY:	YB
DRAWN BY:	JM
CHECKED BY:	BD
DATE:	05/04/23

FLE PROJECT NO.
1060-15

DRAWING TITLE:

REZONING PLAN

SHEET NUMBER

C1.0

Tuesday, May 4, 2023
K:\Projects\1060-15 - 228 Franklin Rd\Civil\Sheets\1060-15_Rezone Plan.dwg

From:	Lisa Alexander
To:	Planning Intake
Cc:	Tom Bell; Lisa Alexander; nickcampi@campidevelopment.com; Tiffany White; Crockett Lloyd; Lori Hennon-Bell; Scott Alexander; Michael Reinfeldt; DonnaDoss@comcast.net; pleb@bellsouth.net
Subject:	Stop the Middle Eight Membership Email Lists
Date:	Tuesday, May 23, 2023 12:47:53 PM
Attachments:	Harpeth Meadows Email Contact List.pages Middle Eight Email Contact List.pages

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Please find attached the contact lists for Stop the Middle Eight, the collective of neighbors opposed to the Height and Density of the Middle Eight project, with very real concerns about traffic, parking, site lines, and congestion (both on the sidewalks and on the roads). I am emailing these lists so that they may be included in the packet shared with BOMA and FMPC for this Thursday's meeting.

These lists are managed separately because originally, I only had the neighborhood list of 65 families and indiviuals, used to share information with my neighbors in the Harpeth Meadows neighborhood. The additional list of 96 names is from those in surrounding downtown neighborhoods who asked to be included in our bi-weekly updates on the Middle Eight project.

I'd appreciate it if you'd confirm the receipt of this email.

Lisa Alexander

Lisa Alexander
160 Lancaster Drive
magsalexander@msn.com

Middle Eight Email Contact List (95)

Aerdoff@gmail.com <Aerdoff@gmail.com>;
ajh354@cornell.edu <ajh354@cornell.edu>;
Allison Grainger <grainger0523@gmail.com>;
Allison@carpetlift101.com <Allison@carpetlift101.com>;
alwild@bellsouth.net <alwild@bellsouth.net>;
amkjk01@gmail.com <amkjk01@gmail.com>;
amy3wells@yahoo.com <amy3wells@yahoo.com>;
ashlynnpeters@gmail.com <ashlynnpeters@gmail.com>;
Aubin Diane & Ken <daubin@comcast.net>;
bartcunningham@outlook.com <bartcunningham@outlook.com>;
bestx4@comcast.net <bestx4@comcast.net>;
Billie Dooley <billiedooley@att.net>;
bobravener@gmail.com <bobravener@gmail.com>;
bonnie.williams07@comcast.net <bonnie.williams07@comcast.net>;
bowling.c114@gmail.com <bowling.c114@gmail.com>;
Brenda Ammons <brendasueammons@gmail.com>;
brigette3@hotmail.com <brigette3@hotmail.com>;
bshoffman67@gmail.com <bshoffman67@gmail.com>;
burketmark@gmail.com <burketmark@gmail.com>;
Caitlin Alexander <csalexanderr@gmail.com>;
cathyaburket@aol.com <cathyaburket@aol.com>;
chezrapier@gmail.com <chezrapier@gmail.com>;
cl@rahvalor.com <cl@rahvalor.com>;
DonnaDoss@comcast.net <DonnaDoss@comcast.net>;
dougdarby@comcast.net <dougdarby@comcast.net>;
dougkooy@gmail.com <dougkooy@gmail.com>;
ebacon224@gmail.com <ebacon224@gmail.com>;
eedaniels3@hottmail.com <eedaniels3@hottmail.com>;
elisabeth.h.lucas@gmail.com <elisabeth.h.lucas@gmail.com>;
fechermj@gmail.com <fechermj@gmail.com>;
fiveseashealth@gmail.com <fiveseashealth@gmail.com>;
greenwr7@gmail.com <greenwr7@gmail.com>;
hgardner@districtnashville.com <hgardner@districtnashville.com>;
Holly McCall <jhollymc@gmail.com>;
Hood Doug & Mary <3hoods@bellsouth.net>;
jalexander1010@gmail.com <jalexander1010@gmail.com>;

janell.m.poole@gmail.com <janell.m.poole@gmail.com>;
JeniBurnside@hotmail.com <JeniBurnside@hotmail.com>;
jenngeorge1@gmail.com <jenngeorge1@gmail.com>;
jennifer.marotta108@gmail.com <jennifer.marotta108@gmail.com>;
jesandynelson@gmail.com <jesandynelson@gmail.com>;
Jessica Sowell <jessica@tourproperties.com>;
Jessica Sperry <jessiesperry@comcast.net>;
jmozburn@bellsouth.net <jmozburn@bellsouth.net>;
joe_desantis1@yahoo.com <joe_desantis1@yahoo.com>;
judy_blair@hotmail.com <judy_blair@hotmail.com>;
julie@curriercrew.com <julie@curriercrew.com>;
junella.gideon@yahoo.com <junella.gideon@yahoo.com>;
karlalandrum@msn.com <karlalandrum@msn.com>;
KaufmanBill1850@comcast.net <KaufmanBill1850@comcast.net>;
kdrury@drurygroup.com <kdrury@drurygroup.com>;
kelseysasser@protonmail.com <kelseysasser@protonmail.com>;
Ken Robertson <cleanchoppers@msn.com>;
kendraajjackson@gmail.com <kendraajjackson@gmail.com>;
kooyterry@gmail.com <kooyterry@gmail.com>;
lgcstewart@hotmail.com <lgcstewart@hotmail.com>;
lgoodman50@frontier.com <lgoodman50@frontier.com>;
LisainFranklin@aol.com <LisainFranklin@aol.com>;
Lloyd Crockett <elpcrockett@gmail.com>;
losticado@gmail.com <losticado@gmail.com>;
Lynne Robertson <kenrob316@att.net>;
marcdriskill@comcast.net <marcdriskill@comcast.net>;
markbogard333@gmail.com <markbogard333@gmail.com>;
maromalley@fastmail.com <maromalley@fastmail.com>;
maryvirginia98@gmail.com <maryvirginia98@gmail.com>;
Maureen Kolton <makolton@icloud.com>;
mazzy_ads@yahoo.com <mazzy_ads@yahoo.com>;
melanie.stamant@gmail.com <melanie.stamant@gmail.com>;
Minakk5@gmail.com <Minakk5@gmail.com>;
MLGardner@comcast.net <MLGardner@comcast.net>;
morganpowell1222@gmail.com <morganpowell1222@gmail.com>;
mphistonc@gmail.com <mphistonc@gmail.com>;
Nancy Wild <nancywild@bellsouth.net>;
nicolerosecombs@gmail.com <nicolerosecombs@gmail.com>;

pam.lewis@plamedia.com <pam.lewis@plamedia.com>;
peggydriskill@comcast.net <peggydriskill@comcast.net>;
pleb@bellsouth.net <pleb@bellsouth.net>;
r2.lebovitz@gmail.com <r2.lebovitz@gmail.com>;
rachelcdaw@gmail.com <rachelcdaw@gmail.com>;
rcsimovich@gmail.com <rcsimovich@gmail.com>;
reinfeldtm@gmail.com <reinfeldtm@gmail.com>;
rjpohlman@yahoo.com <rjpohlman@yahoo.com>;
roger.shimoff@gmail.com <roger.shimoff@gmail.com>;
rws3825@mbnholdings.com <rws3825@mbnholdings.com>;
scott.scrip@gmail.com <scott.scrip@gmail.com>;
sstahler1@comcast.net <sstahler1@comcast.net>;
stacydesoto@gmail.com <stacydesoto@gmail.com>;
tb4jesus@verizon.net <tb4jesus@verizon.net>;
thetoonz@icloud.com <thetoonz@icloud.com>;
thomasmrinehart@gmail.com <thomasmrinehart@gmail.com
Wallace Gillespie <happylandings38@gmail.com>

Harpeth Meadows Email Contact List (65 emails)

Aaron Kirchner <aaron@kirchnerrealty.com>
Amanda Brown <amandasbrown123@gmail.com>
Angela Jones <angbjones44@yahoo.com>
badboymasterman@hotmail.com
Bill Rye & Patty <pattyrye@msn.com>
Bill Wise & Elaine <elainewiseMK@comcast.net>
Billie Dooley <billiedooley@att.net>
Bo Reynolds <boazreynolds@gmail.com>
Bob Plummer & Lynn <bobp2@bellsouth.net>
brown.will@gmail.com
bunnynoseBonnie@gmail.com
Carolyn & Mark Cloyd <carolyncloyd@gmail.com>
Crockett Lloyd <elpcrockett@gmail.com>
Dabney Mann <dabney.mann@gmail.com>
Dan Summers & Linda <desum@comcast.net>
Dave C <dpc1102@yahoo.com>
David Spaulding & Pam <tn3@comcast.net>
Diane & Steve Bledso <dianebledsoe@comcast.net>
dianelmackenzie@gmail.com
Doug Mann & Dabney <doug.mann@gmail.com>
Ed Ossi <eossiiii@comcast.net>
Elbert Cox & Deborah <elcox@aol.com>
Gillespie Penny & Wallace <pgillespie@comcast.net>
Harry Sargeant <HSargeantIV@me.com>
Holly McCall <jhollymc@gmail.com>
Hood Doug & Mary <3hoods@bellsouth.net>
Jdcrab1998@gmail.com
jfelber3@comcast.net
'Joann Dawson' <jdawson687@gmail.com>
jodie.wallace@comcast.net
John Atkerson <atkerson.john@gmail.com>
Jon Brooks <Jon.mgroupe@gmail.com>
joseph.johnreed@gmail.com
Joyce Green <greenhj@bellsouth.net>
Juli Oyer & Andy Fleenor <julio@wcs.edu>
Kristina Quick <kristina.quick@yahoo.com>

LaQuita Scaife <qspirit2@gmail.com>
Linda Dunn <147ldunn@bellsouth.net>
Lisa Alexander <magsalexander@msn.com>
Lisa@luxurytenn.com
Lori Hennon-Bell <lhennonbell@gmail.com>
Lynne Atkerson <lynne.atkerson@gmail.com>
Martin Dunn & Linda <cmartindunn@bellsouth.net>
Meyerhoff Melanie <melanie1017@gmail.com>
Mike & Connie Moser <moseroates50@yahoo.com>
mike.dunn@thedunnsonline.com
nickcampi@campidevelopment.com
Owen Rogers & Joyce <omegasales@mindspring.com>
phil.waynick@chadwellsupply.com
Piggott Tom <pigeaux@aol.com>
Randy Quick <kisquick@yahoo.com>
Reynolds Connie <ConniePeacockReynolds@gmail.com>
rfelber@wallerlaw.com
Rick Stults & Susan <stultsstudio@gmail.com>
RuthAnne Meinert <mruthannem@aol.com>
Sasser <sasserwoo@gmail.com>
scott alexander <scottdalex@msn.com>
Steve Crabtree <steve.crabtree@raymondjames.com>
Steve Peeler <steve.peeler@outlook.com>
Steve.bledsoe@comcast.net
themasterslovewell@gmail.com
Tom Bell <thomas.bell3684@gmail.com>
Wallace Chris <chrisdesk@comcast.net>
wcwhittington88@gmail.com
wkwise@comcast.net

From: Bryan Currier
To: Planning Intake
Subject: Comments on Middle Eight Development
Date: Wednesday, May 24, 2023 10:45:10 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

City of Franklin Planning Commission:

I have lived at 132 Old Liberty Pike for over 6 years with my wife, 4 children, and an odd mannered one-eyed dog. I love Franklin. I love our neighborhood. When we first saw this neighborhood, we marveled at how we could be close to downtown, to the historic homes, the factory, and still feel like we were part of the eclectic individual homes that define the character of Franklin.

The Middle Eight is the antithesis of this. At potentially the worst possible location.

There are a few “gateways” to our city. The part of town when you reach it, the feel changes. You’re coming into Franklin, and it’s something special. The corner of Franklin and Liberty Pike is one such gateway. You’re greeted by historic homes, sidewalks, the factory, and the iconic water tower. It speaks “this place is special”.

The development proposed would destroy that gateway. The focus would be on an apartment complex the height of which dwarfs nearby historic homes. Traffic for 400 additional vehicles rather than sidewalks. A development that is hated by its neighbors would replace the loved factory and water tower as the landmark of a city gateway.

Don’t let this happen. Don’t ignore the voices of neighbors asking you to keep your promises to preserve what makes this area of Franklin special. Walk up and down Franklin road and the side streets and count the “stop the middle 8” signs. Listen to your constituents. Franklin doesn’t need a massive complex here. The neighbors don’t want it here. And the special feel of our city will be degraded if you allow it here.

Respectfully Submitted,

Bryan Currier
132 Old Liberty Pike
Franklin, TN 37064

From: Steve Crabtree
To: Planning Intake
Subject: Middle 8
Date: Tuesday, May 16, 2023 3:43:18 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

As homeowners at 107 Lancaster Dr, we are very interested in any development in Downtown Franklin and specifically on the Franklin Road corridor.

We have been included on some of the Stop the Middle Eight emails in circulation and we wanted to make sure you realize that they did not speak for all of Lancaster.

The sidewalks on Franklin Road are working great and we are glad to have downtown linked to The Factory and Harlinsdale. The amount of foot traffic has picked up and is great for the future of businesses in our city. We want The Factory District to be a success and it will need people to support the business located in the area. The Middle Eight Project is an important part of this development.

We lived in the Harpeth Square Apartments for 8 months while our home was being completed. It is about the same density and on less land than the Middle Eight. We are so proud that project was approved and built in Franklin, and we feel The Middle Eight will make us just as proud.

Housing options are extremely limited, and we would like for recent graduates of BGA and Franklin HS to have options after returning from college to live in our city. The Middle Eight with its studio apartments will offer opportunities for them to consider.

We wanted to reach out to express our support of the Middle Eight and the proposed Factory District. As leaders of this great city, please consider what a blessing this can be for our future.

Thank you for your consideration.

Steve and Janet Crabtree

107 Lancaster Dr.

From: Letitia Fecher
To: Planning Intake
Subject: Middle 8 development
Date: Monday, May 22, 2023 10:22:25 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Hello,
Thank you for taking into consideration the opinions and questions from your neighbors of this development. I live across the street at 26 Daniels Dr. and would like my voice to matter as someone who already owns property and is invested in this community.

I understand the right to develop the property by the owners. I ask that you please take into consideration scaling back the project to include single family homes but not multi-family, more than two story, development. We all are aware that apartment buildings have been built all over Franklin and Cool Springs and I find it hard to believe that developers are doing this to meet housing demand. I would like to see more things for people to do - parks, walking paths and restaurants. Please do not develop another plot of land, the only green space across from the home that I own, into a multi-family development that only serves the purpose to maximize the investment of the owners and developers. I would like to see proof that the result of this project through digging, blasting and construction would not impact the structure and stability of my own home and property.

I ask only that you hear your neighbors and scale the project back to single family homes.

I look forward to hearing from you.

Regards,
Letitia Fecher

--

From:	Allison Grainger
To:	Planning Intake
Cc:	grainger0523@gmail.com; wgrainger@mac.com
Subject:	Middle Eight concerns
Date:	Thursday, May 18, 2023 11:03:08 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

William and Allison Grainger
138 Old Liberty Pike
Franklin TN 37064

We are opposed to the Middle Eight Development at this density, height and scope. Our main reasons are listed below:

Blasting for underground parking structure doing damage to surrounding homes, especially since ours is on “stilts”.

Flooding. I understand that the area slated for Middle Eight is not in a flood zone but with all the displacement and the parking underground structure it has to impact flooding. They wouldn’t even let us bring in dirt to level our back yard and you are building an entire community?

Traffic. It is bad now, adding 400-500 more vehicles to the small area? Even with more stop lights it will be horrible. Additionally, some cars use Old Liberty Pike as a cut-through now and SPEED down the street. We do not have sidewalks and many children and pets are endangered. We have asked for speed bumps but the city said they have a waiting list and “good luck”. The additional traffic will most likely cut thru our street and cause us more sound and physical endangerment.

Cell phone/WiFi issues. As it is currently, when there is any event downtown we lose service. Adding so many more people in this area will definitely be an issue.

Lack of privacy. I know the renderings make it look like there will be plenty of barriers between the new development and the current homes but I truly don’t believe it. Renderings are deceiving as we learned from Jamison Station.

We believe Middle Eight would be fine without the apartment buildings/underground parking.

Thank you for taking the time to consider our deep-felt concerns.

Sincerely,

Allison Grainger
615-957-0908

grainger0523@gmail.com

From:	Thomas Bell
To:	Planning Intake
Cc:	Joseph Bryan; Ken Moore; Emily Huffer
Subject:	HISTORIC PRESERVATION COMMISSION MEETING 5-8-2023 - middle eight project
Date:	Sunday, May 7, 2023 12:00:16 PM
Attachments:	smokestack.2.pdf

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

To whom it may concern:

Appreciate all you do for this great City!

I have attached a few items that depict the view scape within Franklin Road Historic District. To date the Middle Eight developers have not provided concerned residents (more than 50% of residential owners/renters within this district) with ample information, namely heights of buildings preliminarily approved by the commission. We need to meet and discuss the details of this approved project as our concerns are not being met with candor or details.

We are seeking:

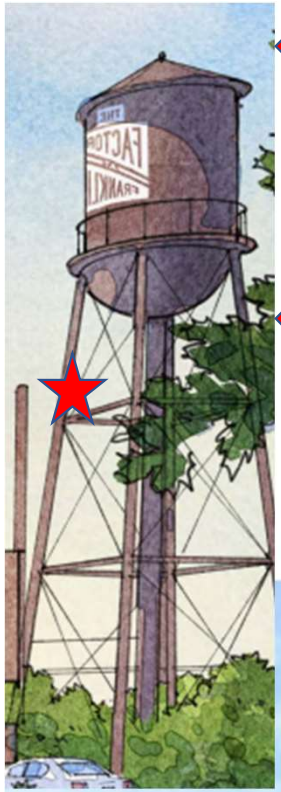
- Additional meetings with the City and the developers.
- Asking about the appeals process for the commission's preliminary approval considering the lack of details available to concerned residents (900+ signed up for email notifications)
- Understanding the archeological oversite that may be necessary during excavation of this prominent National Registered property?

Thank you for working to enlighten us as we seek to understand the process.

Best regards,
Tom Bell
177 Lancaster Drive
Franklin, TN
609-722-2211

Reality of the “view scape” from Old Liberty Pike

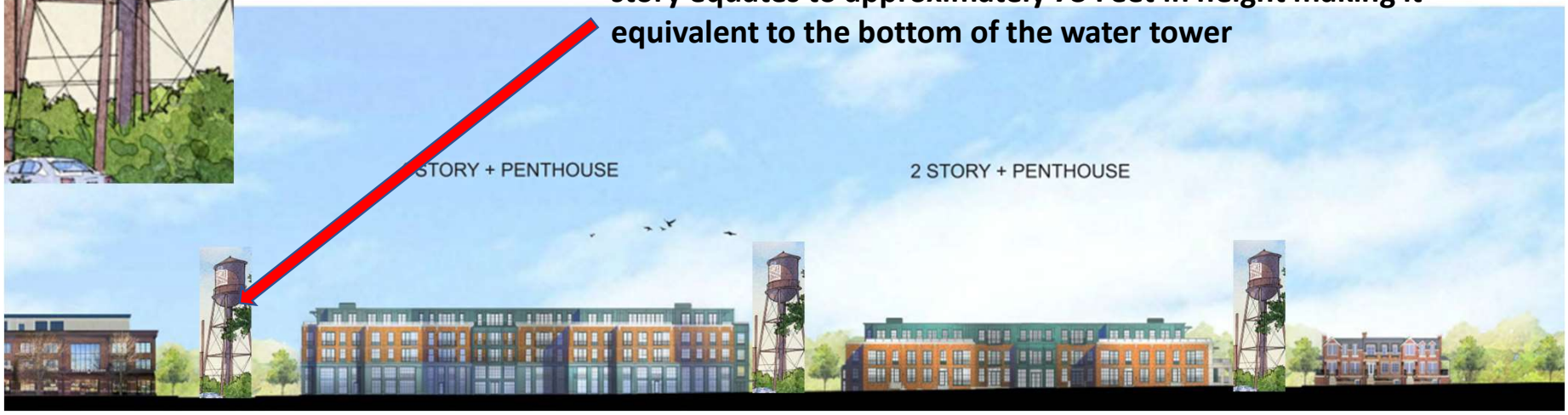




Tower Height: 110 Feet – Factory Smokestack ★ **similar height**

To Bottom of Water Tank approximately 73 Feet

5 Story Commercial/Residential Tower using 14.5 feet per story equates to approximately 73 Feet in height making it equivalent to the bottom of the water tower



From: Rob Soerens
To: Planning Intake
Subject: I support the Middle Eight Project
Date: Monday, May 22, 2023 4:13:04 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Writing to tell you I support the Middle Eight project. I hope you do too.

This is definitely the type of urbanism that we need to continue to grow Franklin.

Sincerely,

Rob Soerens
Westhaven

From: J. Douglas Lamb
To: Planning Intake
Subject: Middle Eight
Date: Monday, May 22, 2023 8:46:07 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Just want to go on record that we oppose the Middle Eight project as it currently is designed. We are not against development of the property but against the high density nature of the plan as submitted. Traffic is bad enough during market day but will be next to impossible if the project proceeds. Thanks in advance for considering our input.

The Lambs
117 Jamison Station Lane
Franklin

Sent from my iPad

From:	Lisa Alexander
To:	Ken Moore; Matt Brown; bev@aldermanburger.com; Patrick Baggett; Alderman Potts; Gabrielle Hanson; annpetersen@comcast.net; Clyde Barnhill; Brandy Blanton
Cc:	Planning Intake; Tom Bell
Subject:	Re: QUESTIONS RE: MIDDLE EIGHT PROJECT
Date:	Thursday, May 18, 2023 9:41:35 AM
Attachments:	QUESTIONS.2.DEVELOPER.5.17.23.pdf

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Good Morning Mayor and Aldermen,

Attached, please find the list of questions collected from the over 150 families represented by the Stop Middle Eight coalition.

Alderman Brown has kindly offered to share these with the developer on our behalf, so that they may be addressed in the Zoom meeting to be held on Monday, May 22nd at 5pm.

I am also copying planningintake@franklintn.gov so that our questions may be included in the documents presented to the FMPC.

Please take a moment to review the document and let me know if you have any questions.

Thank you,

Lisa Alexander
On Behalf of the Stop The Middle Eight Coalition

Lisa Alexander
615.200.2486
magsalexander@msn.com

From: Lisa Alexander
Sent: Thursday, May 18, 2023 9:38 AM
To: Ken Moore <ken.moore@franklintn.gov>; Matt.Brown@franklintn.gov <Matt.Brown@franklintn.gov>; bev@aldermanburger.com <bev@aldermanburger.com>; Patrick Baggett <patrick.baggett@franklintn.gov>; alderman.potts@franklintn.gov <alderman.potts@franklintn.gov>; Gabrielle Hanson <gabrielle.hanson@franklintn.gov>; annpetersen@comcast.net <annpetersen@comcast.net>; clyde.barnhill@franklintn.gov <clyde.barnhill@franklintn.gov>; brandy.blanton@franklintn.gov <brandy.blanton@franklintn.gov>
Cc: planningintake@franklintn.gov <planningintake@franklintn.gov>; Tom Bell <thomas.bell3684@gmail.com>
Subject: QUESTIONS RE: MIDDLE EIGHT PROJECT

Good Morning Mayor and Aldermen,

Attached, please find the list of questions collected from the over 150 families represented by the Stop Middle Eight coalition.

Alderman Brown has kindly offered to share these with the developer on our behalf, so that they may be addressed in the Zoom meeting to be held on Monday, May 22nd at 5pm.

I am also copying planningintake@franklintn.gov so that our questions may be included in the documents presented to the FMPC.

Please take a moment to review the document and let me know if you have any questions.

Thank you,

Lisa Alexander
On Behalf of the Stop The Middle Eight Coalition

Lisa Alexander
615.200.2486
magsalexander@msn.com

Questions from Stop Middle Eight Neighborhood Families

Size & Scope/Zoning:

1. What project names have been used seeking city approvals/concurrence besides Middle Eight, Properties of the South of Liberty Pike & West of Daniels Drive, East of the Truett House, etc.?
2. What was the original density of the Middle Eight, et.al, project?
3. What changed the calculus in more than tripling the density?
4. **The Franklin Road Historic District guidelines indicate:**
    - Historic buildings should be preserved, and the scenic view shed and defining topography and other landscape features around Harlinsdale Farm should be preserved;
    - Building height should be limited to one or two stories; How is a 5-6 story apartment building fitting of the historic district;
    - An uncongested gateway into downtown should be provided that emphasizes the historic character of the community;
    - The established rhythm and spacing of buildings relative to the established context of the immediate area should be maintained;
    - New construction should maintain a balance of buildings and roads and open space so as to continue to project an open, rural appearance; and
    - Any changes within the district should be designed to reflect and maintain the key characteristics of the established context.

    How does this project reflect this vision of this HZD, especially knowing that a 6-story building is being submitted for approval?

5. Do you consider a 6-story residential building, the tallest building in the Franklin Road Historic District in keeping with the historical appropriateness considering the current size and scale of surrounding buildings?
6. Have you visited this and surrounding neighborhood residents and properties seeking input, especially those voicing serious concerns?
7. Have you spent time at neighborhood homes directly impacted, in their living rooms, on their decks, on their properties understanding what the construction of a 6-story apartment building will do to their viewshed/view-scape?
8. Have you produced specific & detailed elevations as requested by BOMA during the Middle Eight meeting on April 27th? If yes, are they available for review by public?
9. Have city officials received all dimensions, including height (feet and inches) of proposed buildings?
10. Can you provide detailed architectural drawings for all buildings being proposed for public review?
11. Has any additional right-of-way been offered by Middle Eight development team that would change the current setbacks?

12. Do the architectural renderings accurately depict the smaller 2 high density buildings having ½ story (walk-ups) onto Liberty Pike which essentially represents another story, making it a 4-story building?
13. Do the architectural renderings accurately depict the large building to be a 2-story 6th floor where the parking garage is located making it essentially a 7 story building (split stairs for commercial/corporate space)?
14. Have you considered slowing this project down to better coordinate with the Envision Franklin document, establishment of the Factory District, and your rezoning requests, as recommended by the FMPC?
15. Have you considered changing the density and height to meet the current zoning for Residential/Commercial (same as Jamison Station)?
16. Why should this project be rezoned "Planned District" from R4 instead of Residential/Commercial?
17. As stated in the City of Franklin zoning ordinance Planned District should be used "SPARINGLY", why not zone this project the same as Jamison Station?
18. Currently we have 150+ concerned neighbors along with over 1,450 online signers of petition to Stop the Middle Eight project, do you believe this is "a small group of elderly neighbors" against this project, as once described by a development team member?
19. Is this a true statement made by your development team "you would make as much money building single family homes on this project and in fact, that that was the original plan"?
20. Are there any affordable housing units planned for this development?
21. Do you realize that this will set a precedent for future development at the gateway to Historic Franklin?
22. Why has this project been fast tracked with limited or muffled public comment and input?
23. Do you understand why neighbors do not feel there has been full transparency on this project?
24. Are your architectural renderings presented dimensionally accurate?
25. What are the actual heights (feet/inches) of all buildings as measured from the curb/sidewalks, including Daniels Drive (rear development property line), and the proposed Street "A"?
26. What are the actual measurements in height (feet and inches) from the following:
- Old Liberty Pike to the top of the 4-5-6 story structures
- Rear property line of Old Liberty Pike lots sharing the development property lines
- Jamison Station parking entrance located on Daniels Drive

27. Can you produce architectural renderings that are dimensionally accurate from these same locations, without the trees, so as to demonstrate an accurate depiction of the "viewshed"?
28. What is the current height (feet and inches) from sidewalk to the 4-5-6 story buildings as compared to the height of Jamison Station—as proposed prior to requested amendment to Envision Franklin Plan Resolution 2023-09 seeking special consideration for additional height and parking reductions?

29. How much additional height (feet and inches) will be added if the resolution is approved?

Flooding:

30. Where will the water be channeled/piped to in order to avoid flooding the homes located on Old Liberty Pike?
31. Can you provide for public review the Flood Mitigation Plan and water management/flooding engineering diagrams submitted to the city?
32. Have you viewed the photos of flooding of residences on Old Liberty Pike in March 2021?
33. Can you guarantee that the Middle Eight's flood mitigation plan and engineered water management solution will not contribute to more frequent and greater flooding events on Old Liberty Pike and Lancaster Drive?
34. As mentioned, the engineered flood mitigation involves piping; Where is that water going to be piped to and what is the capacity of those existent and proposed "pipes"?
35. Have you viewed pictures from the flood of March 2021 of residences on Lancaster Drive?
36. Can you guarantee that the piping of Middle Eight water drainage will not impact the severity of flooding of neighboring Lancaster Drive, as well as any downriver neighborhoods?
37. Can you explain the calculations of the impermeable coverage of the site, along with explanations of the pocket parks and common spaces, as it has been very confusing in past presentations (perhaps a matrix breaking it down into categories totaling the entire lot size)?
38. Does the Flood Mitigation Plan and engineered rainwater management solution submitted to the city account for all of the permeable coverage, and how does it accomplish that?
39. Was the new Franklin Road streetscape considered in this project for downriver flooding as it used to be that rainwater went into ditches, but now it goes into catch-basins that directly drain into the Harpeth River without visible stormwater cleaning, which may impact where Middle Eight piping releases water into?
40. What are the dimensions (including cubic capacity for water retention) of the flood retention basin referred to as green space & pocket park?
41. Will the floodplain mitigation plan and flood footprint be reviewed by FEMA considering the significant change of impervious coverage in this watershed?
42. Does FEMA have a say in the approval process?
43. Will the underground garage two stories down, become a stormwater pond?
44. In your flood mitigation plan do you consider upgrading the adjacent lower neighborhood including Daniels Drive's stormwater system as there are no pipes next to the site to carry stormwater to the river?
45. Is "Open space" the same as "green space" and will the 30% open space include ground floor non-pervious surfaces such as plazas, courts, and sidewalks which will contribute to increased run-off?

46. Do you have, and can you produce a ground surface elevation contour map?
47. What is the bedrock groundwater table elevation beneath this tract (relevant to the depth of the proposed underground garage)?
48. Have you reviewed and utilized NOAA & FEMA past flooding data to ensure the Middle Eight Flood Mitigation Plan takes into account their contributory impact on the Harpeth River?
49. Has an Environmental Impact assessment been requested or completed?

Traffic:

50. Is the current traffic study deficient considering the construction on Franklin Road for the past 3 years has altered actual counts?
51. Have you traveled Liberty Pike, Franklin Road, Eddy Lane, etc., during morning and evening peak hours?
52. If yes to question #51, your thoughts on the traffic experienced?
53. The traffic study does not adequately reflect the reality, especially during school drop-off/pick-up times?
54. Specifically, the Traffic Impact Study for The Middle 8 uses turning movement counts at the intersections on February 8, 2023, were there any adjustments made for the unusual circumstances that the streetscape construction on Franklin Road is causing drivers to avoid the area?
55. Do you think an updated traffic study is warranted once the construction of Franklin Road is completed and the Factory remodel/parking is finished?

Parking

56. Under the current plan, how many parking spaces does this project have?
57. How many parking spaces are required by code at the current density of the development as proposed (275 units)?
58. How many square feet will be commercial space?
59. What commercial space do you envision, i.e., restaurant, meeting/event space, gym, etc?
60. How many parking spaces are required for commercial space by code under existing submission?
61. How many parking spaces, both residential and commercial, are you short according to code, and what happens when your tenants exceed parking capacity—will they overflow and take the limited on-street parking needed by Daniels Drive owners?
62. What is the plan for overflow parking during events and Holidays considering the already very limited street parking for Daniels Drive residents?

Construction:

63. What precautions will be taken when blasting for underground parking structure, potentially damaging surrounding homes, especially those on raised foundations/stilts?

64. Will the removal of tons and tons of materials be diverted to Mack Hatcher to ensure the heavy vehicles do not traverse into downtown?

65. Homes and businesses within a 300-foot radius of the blasting area are required to be fully surveyed and insured by the blasting company, has that been planned for?

66. What is the funding source of the project, its financial strength, and is it in any way shape or form, impacted by the current and forecasted banking and/or lending crisis?

From: cabrubaker@aol.com
To: Planning Intake
Date: Monday, May 22, 2023 4:18:17 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Such a large project like the Middle Eight will have long lasting negative affects forever altering the character and charm of historical Franklin.

How has this project gotten this far in the planning stage? It is completely against the vision that the Franklin residents want and expect.

From: Cindy Scearce
To: Planning Intake
Subject: Middle 8 Development
Date: Friday, May 19, 2023 1:11:59 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

I would like to be at the meeting to express my concerns about the increased traffic and the strain on infrastructure this development will bring to the Eddy Lane/Liberty Pike area, but I will be attending my son's graduation along with many other Franklin residents at the time of this meeting.

It is difficult for me to understand why such a development would be permitted when the traffic at Highway 96 and Eddy Lane is continuous, backing up from downtown to Church of the City regularly at peak weekday times and backing up further during the many festivals and events occurring downtown on weekends.

With many more residents using these roads and increased traffic as The Factory is expanded and more highly utilized, I believe we will have a lot of congestion in this area.

Traffic is not my only concern. This area is very close to homes on Liberty Pike which are affordable, and I worry that this will signal developers that Franklin is a great place to begin throwing up multi-family dwellings that will scatter families who have stand-alone properties they are renting or buying. Liberty Pike could easily turn into row after row of apartments buildings, creating more stress, more opportunity for cramped living and a reduction in quality of life.

My third concern is for the impact of this development and others that may follow it on storm water drainage. The edge of my property, owned for many years with no flooding, is more and more prone to rising waters with more intense storms. Further development will no doubt raise the potential for actual flooding on my property which borders a stream that feeds into the Harpeth.

I ask that you seriously consider how this development will undermine the quality of life long-term residents of this area have enjoyed. I know we cannot stop progress, but you are our only hope of doing it right.

Please do not let this move forward. Your job is to represent the citizens of this community, and there are plenty of us who feel this is wrong for Franklin.

Cindy Scearce
308 Richmond Place

Sent from my iPhone

From: Maureen Kolton
To: Planning Intake
Subject: Middle 8 project concerns
Date: Tuesday, May 23, 2023 2:56:04 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

My name is Maureen Kolton and I live at 122 Old Liberty Pike. I want to reiterate my concern of this project once again. I was on another zoom call regarding the project yesterday and yes they answered all the questions sent them but the project, I believe, is still to dense for this area.

I am so afraid that this project will go forward as planned and my street will become a busy exit/entrance point for the 250+ units the are building with their 400+ cars. Even if they are spread out in all directions as they stated it is to many cars on our RESIDENTIAL street! They need to add traffic calming for Old Liberty Pile to this proposal. It is already a race track for cars without this massive development. And we don't need this street to become a busy thru point for the residents of the development.

Thank you
Maureen Kolton

Sent from my iPhone

From: Lynne McAlister
To: Planning Intake
Subject: Middle 8
Date: Monday, May 22, 2023 10:41:07 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Commissioners,

First thank you for your service to this community.

Second, as a resident of Downtown Franklin, 723 Fair Street, I'm wildly aware of the need of additional homes in Franklin at additional price points.

Third, I would like to echo the staff's recommendation of your support for the approval of Ordinance 2023-15. As this planned development is both in the spirit and directive of Envision Franklin. It also provides an opportunity for people to live in the new Factory District. I appreciate the fact that some units are designed for people whose income is in the $50k to $60k range. I'm delighted that the current plan not only allows but invites people who do not live in the development to enjoy the courtyard and green spaces as they walk to The Factory via the Middle 8. Furthermore, I'm grateful that this site has underground parking, an investment that few developers are willing to embrace.

I trust the process and HZC to make any necessary changes to maintain the high standards of our community.

Density in homes and additional parks, are in my humble opinion, the key to maintaining both our high quality homes and rolling hills. In short, given Franklin's current and anticipated growth, this is the right place and the right time for the Middle 8.

Once again, thank you for your service to Franklin!

Best,
Lynne

Lynne McAlister
M-919.449.4232

"There is only trying. The rest is not our business." - T.S. Eliot

From:	Lisa Alexander
To:	Matt Brown
Cc:	Planning Intake
Subject:	Middle Eight - Information
Date:	Wednesday, May 17, 2023 11:46:05 AM
Attachments:	petition_comments_05_16.numbers

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Good Morning Matt,

I was hoping to catch up with you in a phone call; if you get time, I'd appreciate a few minutes this week.

Tom and I have been collaborating on the list of questions to be submitted to the developer. I have reviewed the document, and know he will get them to you. I am also going to share them with the 150++ families we represent.

From the Mayor's comment, it was apparent that the city felt it was communicating effectively information about the Middle Eight project and that the BOMA was surprised by what they saw as a delayed negative reaction when we showed up in April. I think those of us who were caught unaware will, in the future, take care to stay updated by following the city on Facebook.

Neighbors outside the 50 feet notification area found out about this project from those who live along Franklin Road - and to us, it was all fresh information, hence our reaction. As we've stated, our goal is to "Stop" the Middle Eight **at this size and scope**, worried as we are about the height, density, traffic, potential flooding, and the overall size of this particular proposal. No one in our group of over 150 local families is against developing this site or denies the demand for more housing, but we all recognize we only have one chance to get it right.

In the meeting where Nick Campi and Scott Alexander met with Joey Bryant and other city staff members, one of the city officials recognized that because the developer had gone to the Historical Commission for variance approval before approval by the BOMA "it looked bad" (as reported by Scott). To those outside of the process, it looked like the city and developer were working together to push Middle Eight project through the application process. We've come to understand that without the HZ's approval this project wouldn't have gotten off the ground, hence the need to go to the commission first; but not having that information, it simply looked underhanded - and we all know that in an absence of information, perception is reality.

I have a petition with 1,468 signatures - since this was a local petition, a majority of those who signed are middle Tennessee residents, and I will be submitting those

signatures next week, so we can continue to collect them. People who have lived in this area a long time are passionate about Franklin. I know you are a more recent resident, but I am sure you have experienced this!

I am attaching the comments we have received so far, for your review.

As a neighborhood collective, Stop the Middle Eight wants to be a partner in this process. We hope to be invited in, both by the city and the developer, and by the champions of development on the north side of Franklin - you and Patrick.

As stakeholders in Franklin, we ask for a seat at the table.

Lisa

Lisa Alexander
615.200.2486
magsalexander@msn.com

From: Kim Merrilees
To: Planning Intake
Subject: Middle Eight
Date: Thursday, May 18, 2023 2:47:03 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Hello. I'm requesting for the benefit of everybody, including my mother JoAnn Dawson, that lives on Lancaster Dr to please stop the Middle Eight from happening. I grew up on Lancaster Dr and loved growing up in a small town in the 1980s. Franklin has more than outgrown the small town feel. There are plenty of places for people to live and this development is not necessary, maybe better suited for a few homes and not apartments and homes. We definitely don't need more traffic in that area as it is congested as it stands. Please reconsider building this area as it is currently planned. Thank you for your time and consideration.

Kim Merrilees
Ph 615-944-4980

Sent from my iPhone

From:	David Horn
To:	Planning Intake
Cc:	Matt Brown; Patrick Baggett; Ken Moore; ann.petersen@comcast.net; Brandy Blanton; "Cindy Horn (dcfhorn@yahoo.com)"
Subject:	Middle Eight adjacent land owner comment.
Date:	Monday, May 15, 2023 10:09:59 AM
Attachments:	image001.png

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Staff,

My wife and I own 131 Old Liberty Pike and 133 Old Liberty Pike.
Have owned both since roughly 1994.
Both were built before 1910 and are in keeping with Franklin older homes of this era.
Both have been substantially remodeled to retain historic character and we have no plans to sell either.

I am largely in favor of the Middle Eight project and the direction it is taking.

I noticed that the current landowner of the middle eight project is going to have a 75 foot naturalistic buffer between their residence and Middle Eight.
That sounds fabulous.
But I do not see a similar buffer for the 10 or so mostly long time landowners on the side of middle eight including my two properties.
Nor for the Jamison Station property.
I do see what appears to be a detention pond that will be on or near one of my neighbors properties?
It would be nice to see our properties treated in a similar manner to the developer, that is with our properties being provided a naturalistic buffer.
A buffer for all would be a welcome addition?

Thanks,

David Horn

2932 Foster Creighton Dr
Nashville, TN 37204
Mobile: 615-300-8262
Office: 615-312-0255
Fax: 615-467-0479

From:	Lisa Alexander
To:	Planning Intake
Cc:	Lisa Alexander; Scott Alexander
Subject:	Middle Eight Concerns and Questions - Please Rethink this Project!! For May 25
Date:	Thursday, May 18, 2023 12:07:31 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

As local residents whose neighborhood and neighbors have been affected by flood waters, we would like to say we are against the Middle Eight development at this Height, Size and Scope.

Among our concerns:

The Middle Eight has proposed an underground garage that will go two stories down - will the lowest floor be their stormwater pond? The adjacent lower neighborhood including Daniels Drive does not have a decent stormwater system as we speak; additionally, there are no pipes next to the site to carry stormwater to the river.

High density site development including buildings/parking garage slated for construction, will eat up the permeable soil on this parcel of land, increasing the chances of flooding for homes that sit along Old Liberty and Daniels Drive. Please be aware, the homes along Old Liberty sit at 26 feet below the construction site.

"Open space" isn't the same as "green space" and we fear that 30% open space will include ground floor non-pervious surfaces such as plazas, courts, and sidewalks which will increase run-off**.** Where will all this water go? Does it imperil the surrounding homes?

Lastly, Franklin Road has a new streetscape - it used to be that rainwater went into ditches, but now it goes into catch-basins that directly drain into the Harpeth River without visible stormwater cleaning. This past week it rained hard in a short downpour, and Franklin Road flooded in front of the BGA Lower School. Again - where will all the water go?

We are concerned that 270 residences will add 500 or more cars to an area already congested, and with little on-street parking.

We worry that the proposed height of the apartments will detract from the water tower at The Factory - and iconic symbol of Franklin.

We believe that this project is more suited to Nashville than to small-town, historic Franklin.

Scott and Lisa Alexander
160 Lancaster Drive

Lisa Alexander
magsalexander@msn.com

Scott Alexander

From: mina bez
To: Planning Intake
Subject: Middle eight project
Date: Tuesday, May 23, 2023 2:06:34 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

To whom it may concern,
I reside across from the proposed project, and I oppose to such project for many reasons. I understand that this project is profitable for the owners and the developers and whomever is involved in it but not profitable for rest of us. there are already multi family homes including apartments and townhomes within few feet of the project and we do not need anymore multi family homes and the ones specially with the pool.
If developers are insisting on the value of homes or properties going up and it's beneficial, I add to it that property value does increase overtime even without such project.
I moved from Green Hills to be close to downtown Franklin to deal with less traffic and a peace of mind; yet this project will add more traffic and less of peace of mind especially for those of us that live across from it. I already have to deal with long traffic on liberty parkway.
More importantly the impact on environment. Those trees, birds, and all the species that consider that space home, has there been any survey done to see how many different species live there; I assume the owners know there are cardinals, woodpeckers, American robins, etc. .
During the summer heat those trees provide a cooling breeze and definitely cool off the temperature.
This project will have negative impact where not only will increase traffic, noise, but also have an environment impact, reducing a number of species that consider that property home. I hope the owners will rethink this project and decide to keep it as it has been for as long as they can.
At what point this will stop with excessive project? Will the city approve all the projects? It needs be a stopped since we want these areas remain as small town.

Mina Kadivar
12 Daniels Dr.

From: Billie Dooley
To: Planning Intake
Subject: Neighborhood 8
Date: Monday, May 8, 2023 9:16:42 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

I live at 213 Franklin Road and I am somewhat familiar with the process required to get my home approved for changes to its exterior. Approval was exact to historical guidelines. From this experience, I do not understand the current commission's decision to approve the "8". A portion of the land is under designated historical guidelines. Isn't this deviation a fracture of the guidelines when other projects come before the board? Franklin is a beautiful AND historic town. Use the guidelines to her benefit.

Sent from my iPad

From: Doug Mann
To: Planning Intake
Subject: Opposition Middle 8
Date: Thursday, May 18, 2023 3:45:43 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

The following is the text of an opinion letter to the editor Williamson Herald of May 18th which expresses the feelings of many.
FYI over 1,500 people have signed an online opposition petition
PS ***Please acknowledge the receipt of this email...thanks***
Doug Mann a 49 year city/county tax payer @111 Lancaster Dr, Franklin, TN 37064

Letter to the Editor: Residents in Middle Eight area would like our voices of concern heard

To the Editor:

Why were we, the residents of Franklin Road, Old Liberty Pike, Liberty Pike, Daniels Drive, Lancaster and Myles Manor the last to know about the Middle Eight project? We who live on the above streets received notice of this development at the end of February after the Historical Zoning Commission had already approved it. After the approval, we received one letter regarding this project and were allowed to attend a Zoom meeting where very few of our questions were answered. Was this an oversight or was this on purpose? We think there needs to be better communication in our city.

Based on our review of the citizens' comments before the Historic Zoning Commission, it would appear that some of our citizens knew and approved of this project before we, the residents of the area even knew about it. Where is the breakdown in communication in our city? Whose responsibility is it to keep us informed? It seems that some of our aldermen knew about this project long before the neighborhood knew about it. Is this right?

Interestingly, we are now invited to another Zoom meeting sponsored by the developer, but no live meeting to answer our questions and concerns.

Our concerns are the horrific traffic 300-400 more cars will come to Liberty, Old

Liberty Pike and Franklin Road; the additional problem of flooding which will fall on Old Liberty and Daniels Drive with the loss of this 7-acre watershed since Old Liberty lies 26 feet below this huge project; massive underground parking for 400 cars which will require lots of underground blasting. These 7 acres are too small for 275 new residences, many of which are

going above the limit set by current zoning requirements.

Add to this the current plans for the expansion of The Factory with more events and venues, resulting in even more traffic and congestion.

This project is located in the Historic Zoning Overlay. If approved, these 7 acres will have the greatest density of any area in our historic downtown area.

Do we really want this as we look toward our future, Franklin?

Please note that we fully appreciate the need for Franklin to support and encourage affordable housing; however, we believe this could be done more productively in areas less expensive and less congested, not in the historic section of our city, only 4 blocks from the public square.

Lloyd and Elizabeth Crockett

Franklin

Name	City	State	Postal Code	Country	Commented Date	Comment
Jason Alexander	Franklin	TN	37064	US	2023-04-14	"As a Brentwood native, a Franklin resident, and active community participant I have already experienced a tripling of both my my morning and afternoon commutes only 8 miles down Franklin road. They are already delayed
Donald wleklinski	Terre Haute	IN	47803	US	2023-04-15	"Needs attention."
Sandy Kim	Louisville	KY	40204	US	2023-04-16	"It will be disastrous to commute, it's already congested as is currently with traffics on Franklin Rd and Liberty pike. Franklin city should not approve such a large project for the neighborhood, it will completely change the dy
Melissa Fiato	Littleton	MA	1460	US	2023-04-16	"Every town is being pushed to being over built and it still isn't enough. My thoughts are Enough is Enough. Maybe put the resources to planting more trees, saving farms and preserving the environment."
Melanie Amant				US	2023-04-17	"This development will likely affect the floodplain negatively. Properties within a few hundred yards are zoned AE by FEMA standards. Many of these flooded in March 2021. FEMA has not studied the downtown Franklin area
Kitty Cook	Franklin	TN	37064	US	2023-04-19	"We're losing Franklin..."
Tracy Blair	Franklin	TN	37067	US	2023-04-21	"Adding too many units in that area. Detrimental to traffic on Liberty and Franklin Pikes. Do not allow a variance to zoning. Let them build conforming to zoning for the property."
Janice Hulen				US	2023-04-21	"Our infrastructure cannot handle more apartments in this area."
Suzanne London				US	2023-04-23	"It will ruin our downtown Franklin. The beautiful green area that will be torn down for an apartment building is unnecessary. This is not an urban area or Cool Springs, it's historical. The traffic is already too congested."
Clara Lopez	Franklin	TN	37069	US	2023-04-23	"We don't need another new development. It will continue to destroy what makes Franklin so great. We need to keep our green spaces, and our infrastructure cannot handle this unnecessary growth."
Jamieson Douglas Lamb				US	2023-04-25	"The population density for the project is simply too high and is going to lead to large traffic issues."
Scott Scrip	Franklin	TN	37064	US	2023-04-25	"My family and I own a home on Daniels Drive and I believe there are significant environmental issues with this plan, in addition to other issues already outlined. Specifically, greater flooding and wildlife habitat neglect."
Meredith Dooley	Nashville	TN	37216	US	2023-04-25	"This all seems sneaky. No community involvement until this year. Do the aldermen that support this live anywhere near this area? Franklin Rd is already a nightmare for those that live within the block of this site. There is noth
Nicolas Ryan	Franklin	TN	37064	US	2023-04-25	"Nicolas Ryan"
Erin Myers	Nashville	TN	37211	US	2023-04-26	"I grew up in Franklin and have plans to move back in the next year. I still spend most of my time in Franklin and supporting this town that has always been such a gem. My family had lived here over 40 years. This project is
Adrienne Barclay	Nashville	TN	37214	US	2023-04-26	"I do not think we have the infrastructure to support this large of an addition to our community"
Sheila Hylton	Franklin	TN	37064	US	2023-04-26	"The project is too large for our neighborhood, and the increase of traffic cannot be supported with our existing infrastructure."
Dayton Hylton	Knoxville	TN	37849	US	2023-04-26	"This project is too large for their parcel of land, and it doesn't fit in our quaint community. Not to mention, the increase of traffic and the potential for water run off to our Old Liberty Pike neighbors."
Cindy Laverty	Franklin	TN	37064	US	2023-04-27	"Because government and corporate are greed are ruining our precious city. Enough."
Pat Rice	Franklin	TN	37069	US	2023-04-27	"Qui bono"
Pat Rice	Franklin	TN	37069	US	2023-04-27	"Qui bono"
Pat Rice	Franklin	TN	37069	US	2023-04-27	"Can't move now "
Tina Pike	Franklin	TN	37064	US	2023-04-27	"Reason for signingThe lack of adherence to the original Envision Franklin document is disheartening. Part of the plan was supposed to be a framework to preserve and protect the essence of Franklin. Instead, BOMA continu
Pat Rice	Franklin	TN	37069	US	2023-04-27	"To stop the greed of our local government b"
Dena Divito	Franklin	TN	37069	US	2023-04-27	"What made Franklin so special has almost disappeared! We must fight to preserve the remaining land !"
Kimberly Duello	Franklin	TN	37064	US	2023-04-27	"Our beloved, quaint Franklin is being turned into Nashville 2.0! Please please don't ruin our town!"
Brent Perry	Franklin		37064	US	2023-04-28	"I was born and raised in Franklin and This is the complete opposite of what Franklin needs or wants"
Hallie Mitchell	Nashville	TN	37203	US	2023-04-30	"This constant construction is ruining the beauty of our town. I can't imagine the impact that this is going to have on our already packed schools."
Amanda Paddock	Franklin	TN	37064	US	2023-04-30	"I'm a downtown Franklin resident, and I oppose this development. This will negatively impact the charm of our historic district and the impact from traffic alone would be horrific and unsustainable."
Sarah Jane Bowers	Franklin	TN	37064	US	2023-04-30	"Yet another development wolf disguised in sheep's clothing. Can you imagine the traffic problems this will cause?We don't want shiny, sleek, ultra-hip development in downtown Franklin. We want to see continued champior
Amy But	Atlanta	GA	30303	US	2023-04-30	"You're doing to others what you would not want for yourself. You have lost sight of what you are handing down to the next generation SO THAT You can make your name great (only in your own eyes however) This pleasant
Neal Thompson	Franklin	TN	37064	US	2023-05-01	"I want to keep Franklin Franklin. This doesn't fit."
Sarina Fordice	Brentwood	TN	37027	US	2023-05-01	"I am not completely against the plan, but would like to see things slow down and compromise on size/height of the multi density buildings . Don't turn historic Franklin into Cool Springs. Follow your guidelines for the historic
John Cerasuolo	Brentwood	TN	37027	US	2023-05-01	"Please scale this project"
Heather Black	Chicago	IL	60622	US	2023-05-01	"I moved to Franklin almost 5 years ago. The charm IS Franklin. This development plans turns Franklin into every other small city."
Judy Simon	Franklin	TN	37064	US	2023-05-03	"No one has even looked at the traffic on Eddy Lane. It a two lane road that is a short cut to 96. It has no traffic light turning on to Liberty Pike and cant add one because of the railroad track. The road is crumbling from the v
Christine George	Franklin	TN	37064	US	2023-05-03	"High density and traffic congestion"
Barb Mccoy	Danville	CA	94526	US	2023-05-03	"This is just what happened to beautiful CA now it's a pathetic mess ! I beg you not to do this to Lovely Franklin !"
Stephen Slish	Franklin	TN	37067	US	2023-05-04	"It looks like a nice development, nicer than the ones going up on Carothers, but that is just the wrong location for high density housing."
Nancy Smith	Brentwood	TN	37027	US	2023-05-04	"This is a beautiful historical town and does not have the room or road space for this type of development. Please vote against it."
Barbara Maier	Franklin	TN	37064	US	2023-05-04	"I want to keep Franklin the America's favorite small town."
Liza Gaston	Franklin	TN	37064	US	2023-05-04	"We do not need this type of house here in Historic Franklin. It is such a quaint little town and needs to stay this way. The demographics are not made for this type of housing and all the traffic."
Courtney Mayfield	Franklin	TN	37069	US	2023-05-04	"the charm and appeal of Franklin is lost when we destroy land and overfill it with new developments."
Jean Thmpson	Franklin	TN	37064	US	2023-05-05	"No way do I want this kind of density and traffic in this area that is already heavily traveled. The special town of Franklin is becoming mediocre in that housing development such as this is slowly becoming the norm. Please c
Shelby Hood	Franklin	TN	37064	US	2023-05-05	"People who were born and raised in Nashville (like myself) and Franklin have had ENOUGH with the growth and influx population. Stop the madness! NO more new construction/ residential projects! We DO NOT have the ro
Heidi Oldham	Franklin	TN	37064	US	2023-05-05	"Heidi Oldham"
Barbara Donner				US	2023-05-05	"We do not need more high density housing in this space.I am also concerned that the integrity and charm of Franklin will be destroyed in the not so distance future if these type of reversals are allowed!!"
Brenda knott	Fountain Valley	CA	92708	US	2023-05-05	"I moved away from high density housing. Crime rates rose, traffic rises, takes the beauty away from a quaint neighborhood. Put these type of housing developments more south where it's not already full and has a perfect ci
Kara Hall	Franklin	TN	37064	US	2023-05-05	"Vote out all these pro progress and fevelopers, they have RUINED Franklin for those who have lived here for our lives. It's greedy and selfish. All about making certain people RICHER. GO AWAY."
Jim Highfill	Hermitage	TN	37076	US	2023-05-05	"This development is not appropriate for the acreage where it will be located. The roads there cannot handle the traffic increase."
Linda Cunningham	Franklin	TN	37067	US	2023-05-05	"I say no. signed Linda Cunningham -"
D'Ann McAlister	Franklin	TN	37064	US	2023-05-05	"Right now, there are 423 job openings with Williamson County Schools. Teaching and paraprofessional positions at many schools went unfilled the entire school year. We do not need more high density developments. How a
Vicki Vogt	Franklin	TN	37064	US	2023-05-06	"I think the scope of this development is too dense and large for the space proposed. Honestly, less affordable housing is not realistic in downtown Franklin. Wait staff won't live in those efficiency apartments. Truth!"
Brandi Mccutchan	Paducah		42001	US	2023-05-07	"I think Franklin is big enough! Stop the Middle 8!"
Robert Clutsam	Antioch	TN	37013	US	2023-05-08	"Please stop the needless expansion and congestion of Franklin. This area of town has had road construction for several years. That construction is almost complete. Why would you allow another multi-year project to start ir
Carol Coker	Nashville	TN	37221	US	2023-05-09	"Though I technically have a Nashville zip code, we actually live in Williamson county and our kids attend Williamson county schools. We enjoy the pastoral scenery, and the green spaces while being not horribly far from ame
Lisa Alexander	Franklin	TN		US	2023-05-15	""
Jill Wilford	Franklin	TN	37064	US	2023-05-15	"I oppose the proposed changes"
Bob Mogan	Franklin	TN	37064	US	2023-05-16	"I sent an email to the Mayor concerning this maximize density/ maximize profitScheme"
Sandra Bougard	Huntington Beach	CA	92646	US	2023-05-17	"Opposed to high density plans that will increase traffic and reduce open green spaces."
John England	Franklin	TN	37067	US	2023-05-17	"Overcrowding"
Jill Cooke	Franklin	TN	37064	US	2023-05-17	"I don't want more homes, congestion and loss of Franklin charm!!!! I say No"
Doss Donna	Nashville	TN	37214	US	2023-05-17	"Donna Doss"
Doss Donna	Nashville	TN	37214	US	2023-05-17	"For all the reasons covered on the website…."
Laura Turner	Franklin	TN	37069	US	2023-05-17	"This is inappropriate development in an already congested area even though the road has been widened recently to accommodate current development. Changing the zoning from single family residential to high density/ int

From:	Lisa Alexander
To:	thomas.bell3684@gmail.com; Planning Intake
Cc:	"Lori Hennon-Bell"
Subject:	Re: Should our list of questions be a press release?
Date:	Wednesday, May 17, 2023 5:59:34 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

This is great!

Yes, please send it on to Matt - and tomorrow I'll share it with all our other outlets. I'll make sure to send it to the planningintake@franklintn.gov too, even though I think we should present the list formally Thursday night.

I say, Thursday night we do our best and then hit the bar!

Be good, stay sweet, and we will see you next week, ready for laughs and wine! Our love to you and the kids,

Lisa

Lisa Alexander
magsalexander@msn.com

From: thomas.bell3684@gmail.com <thomas.bell3684@gmail.com>
Sent: Wednesday, May 17, 2023 3:55 PM
To: 'Lisa Alexander' <magsalexander@msn.com>
Cc: 'Lori Hennon-Bell' <lhennonbell@gmail.com>
Subject: RE: Should our list of questions be a press release?

Lisa:

I have made the changes that Lori recommended as well as inserted a few additional items she recalled---in addition to Doug Mann's text to me this morning providing more clarity on his banking question. Do you want me to send the pdf directly to Matt Brown and have you send it out to all of the folks you mentioned in the city BOMA, FMPC, Media outlets, etc. etc.

When you post it and send it out to our group I am sure that several additional comments and questions will arise which we can assess to include?

It's all good---check this off the list!

We will get together upon your return and have some laughs and wine!!!!
Love to all,
T&L

From: Lisa Alexander <magsalexander@msn.com>
Sent: Wednesday, May 17, 2023 1:15 PM
To: Thomas J. Bell <tbell@sagacity-associates.com>; Tom Bell <thomas.bell3684@gmail.com>
Cc: Lori Hennon-Bell <lhennonbell@gmail.com>
Subject: Re: Should our list of questions be a press release?

Perfect!

Thanks, Tom :)

Lisa

Lisa Alexander
magsalexander@msn.com

From: Thomas J. Bell <tbell@sagacity-associates.com>
Sent: Wednesday, May 17, 2023 12:24 PM
To: Lisa Alexander <magsalexander@msn.com>; Tom Bell <thomas.bell3684@gmail.com>
Cc: Lori Hennon-Bell <lhennonbell@gmail.com>
Subject: RE: Should our list of questions be a press release?

OK making a few last minute tweaks to it as Lori had some changes for clarity and readability sake! I think Yes to everyone getting it as it shows their questions have been elevated....same with the News folks as how else do we hold them accountable at the city level!

I will send it to you once finished later this afternoon!

T

-----Original Message-----
From: Lisa Alexander <magsalexander@msn.com>
Sent: Wednesday, May 17, 2023 9:09 AM
To: Tom Bell <thomas.bell3684@gmail.com>
Cc: Lori Hennon-Bell <lhennonbell@gmail.com>
Subject: Should our list of questions be a press release?

Tom, Scott looked at it, thought it was great too, and suggested that we should use it as a press release?

My thought - It may be the only way we have to hold Gary accountable at the Zoom meeting. Of course, they don't have to answer anything.

Also, send the document to all the aldermen and Mayor? May I also share it in Thursdays email to

our 150++? If Nick adds it to the website, I can share a link to it on our social media.

Also, we need to email it to the planning intake email included in the public notice so that it becomes part of the public record.

I will submit updated signature lists and comments from the change.org website next week. Should I share those with Matt, prior?

Sorry for so many questions, but it's crunch time, and I'm nervous!!

Sent from my iPhone

From:	Lisa Alexander
To:	Planning Intake
Cc:	Scott Alexander; Lisa Alexander
Subject:	Stop the Middle Eight - water mitigation concerns
Date:	Thursday, May 18, 2023 1:32:45 PM
Attachments:	IMG_6179.png IMG_6180.png

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

These photos are from March of 2021, and the flooding that occurred on Lancaster Drive. Already the city sends stormwater into our upper field; what happens when the seven acres of Middle Eight is developed and all that open land becomes hardscape? Can the city guarantee our house, which did not flood in 2010 or 2021, will continue to be safe in similar sized weather events?

Scott and Lisa Alexander
160 Lancaster Drive

Lisa Alexander
magsalexander@msn.com









From: Jo Dawson
To: Planning Intake
Subject: Stop The Middle Eight !!
Date: Thursday, May 18, 2023 3:11:38 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

My name is Jo Ann Dawson. I live on Lancaster Dr. My children grew up in this neighborhood. They would have loved to buy a house in Franklin, but could not afford it. I agree that Franklin needs some affordable housing, however I know these homes will not be classified as “affordable “.
I am afraid of flooding, traffic , etc. I am especially sorry for the neighbors that live in Jamison Station and on Old Liberty and Daniels Drive.
Please reconsider what this will do to our quiet, little neighborhood.
Thank you,
Jo Ann Dawson
Lancaster Dr

From: Doug Mann
To: Planning Intake
Subject: Take another look Middle Eight
Date: Monday, May 22, 2023 12:00:41 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Dear City Planners

Would you please take another look at the Middle Eight project. Many Of us nearby residents as you know by now were not properly considered or notified in the original proposal of the project.
Certainly something could be proposed and built that would not be as densely populated by people and vehicles destroying the Old Liberty Pike and Daniels Drive neighborhoods.

The other situation is the real estate tax rate on the project including unleased apartments which is beyond your authority.

I am presently taxed at $1.61 per square foot per year on my home at 111 Lancaster Dr, Franklin, TN 37064 where I have resided for 49 years.

Thank you

Doug Mann
615.482.7645

From: Joshua Sadler
To: Planning Intake; Ken Moore
Subject: Thank you around the middle eight
Date: Tuesday, May 23, 2023 8:57:09 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Good morning, my name is Josh, and I wanted to reach out to thank you all for your consideration of and support for the middle eight development. I can't imagine the amount of hate mail/great mail you are receive, and you deserve our gratitude and commendation as well. Your commitment to creating affordable housing in Franklin, and making it an even more welcoming and beautiful town is refreshing and good for the community, whether all of its residents know that yet or not. To the argument that it runs counter to the spirit of Franklin, I would posit that it instead expands upon what is greatest about the city while improving upon the dynamics of this jewel that can yet benefit from a little "watering". If 271 families and individuals, many of whom already make contributions to the community, can gain access to actually live in and enjoy it, this is well-worth doing.

Thank you again!
Josh
615-973-7230

From: Michael Fecher
To: Planning Intake
Subject: The Middle Eight Development
Date: Monday, May 22, 2023 7:21:33 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

I live at 26 Daniels Drive about a block from the proposed Middle Eight development. My wife and I enjoy living within walking distance to downtown.
However we are very concerned about the impact this development will have on our neighborhood.
Our biggest concerns are the significant impact this development will have on an already troublesome traffic problem on Daniels, Old Liberty, Liberty Pike and Franklin Road.Next is the significant impact the development will have on water runoff or drainage into the floodplain on Old Liberty Pike.
Also, removing the historical designation of this property and allowing a 5 story building to be constructed on the site irretrievably changes the small town feel that Franklin is known for.
We ask that you vote against this proposed development and at least decrease the density and limit the height of buildings on the property.

Sincerely,
Michael Fecher

From: Michael Edwards
To: Planning Intake
Subject: The Middle Eight
Date: Wednesday, May 24, 2023 9:46:40 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

To the planning commission:
My wife and I live at 3:20 in Liberty Pike, across the street from the proposed development. We strongly oppose this development, because it represents a huge change in population density, destroys the residential field of a neighborhood already established, and will be disruptive and destructive to traffic flow. No provision is made for green space development around this proposed complex.

We are strongly in favor of developing the property, according to existing zoning guidelines for the city. We feel this would completely change the residential structure and peaceful presence found in most areas of the city. If you would be comfortable, shoving a similar building across the street from yourself, then I urge you to support it. 271 residences in a small 7 acre space is unacceptable.

MEE

From:	Tiffany White
To:	Planning Intake
Subject:	The Middle 8 Concerns from adjacent neighbor on Daniels Dr
Date:	Wednesday, May 24, 2023 10:46:27 AM
Attachments:	Flood Plain Map Old Liberty Pike.pdf Daniels Drive Parking Issues.docx Street View Buildings South of Liberty.docx Street View Buildings South of Liberty2.docx Multifamily Renderings from Back.docx

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Hello,

I own the home at 20 Daniels Drive. This is the corner row home directly behind the townhomes at Jamison Station. The project site for the Middle 8 is almost directly in front of my home and the back of the huge apartment buildings will be the view out my front windows if this project is constructed as currently planned. I am opposed to the Middle 8 project with the density and building height currently proposed. I'm not against all development. I want responsible development that is fitting of the area and this project is neither. When I purchased my home 10 years ago, I never imagined that a high-density multifamily building could be built across the street on property zoned for single family homes and located in the historic overlay.

I have been a Realtor in Franklin for 18 years. Prior to that, I worked for a traffic engineering company where I wrote traffic planning documents like Traffic Impact Studies, Major Thoroughfare Plans, Signal Warrant Studies and Parking Studies. I have the following concerns, questions and warnings regarding the Middle 8 project as it is currently presented with 275 residential units and buildings that are 5 or 6 stories tall:

PARKING

The only reserved parking for my house is in my garage off the alley. We do not have a driveway and cannot use the garage at Jamison Station. We do have limited parallel spaces on the street. I understand that the new Harpeth Square Apartment street parking has become competitive, and I fear the same here with the addition of 275 new residences plus guests.

I have looked over the Parking Study for the project. The study disregards the City of Franklin Parking Ordinance and sites national parking statistics from well respected resources. The resulting parking demand projected in the study was 22% lower than the city's requirements. This creates a lowest use scenario and is not likely to be reality. There is a reason the City's requirements are higher than national statistics. Williamson County is the most affluent county in the state. We are very attached to our personal vehicles and most residents have the financial ability to own a car. We already have parking issues on my street on Saturday

mornings especially. If there is not enough parking for The Factory and this new development does not build enough parking either, my neighbors and I will have no parking except our respective two-car garages. See attached collection of photos with vehicles parked along Daniels Drive.

TRAFFIC

I've looked over the traffic study for the project. The existing turning movement counts were collected on February 8, 2023. During that time, construction for the Franklin Road streetscape project was a mess and traffic had been combined into one lane each direction for several years. In particular, there was no separate left turn lane for southbound traffic on Franklin Road at Liberty Pike. This approach (and others) backed up significantly much of the day and many drivers have been avoiding this area. TDOT annual traffic counts for the 3 count stations closest to the project site have gone down in recent years even though we have experienced significant growth. The traffic projections used in the study are possibly inaccurate due to the lower traffic counts for the existing conditions. A new study or a modification should be prepared when the streetscape project is complete. I understand that the City approved use of these volumes but maybe they shouldn't have. Perhaps this is not the best, most responsible decision. I have attached an image of the annual TDOT traffic counts.

BUILDING HEIGHT

Envision Franklin says that the building height should transition down towards the Truett house. The proposed 5-6 story multifamily building would be taller than Jamison Station. Just because Jamison includes 4-story buildings doesn't mean that we should have more and taller, non-conforming buildings. This sets a very bad precedent. If the developer is allowed to build this development, it will not fit the character of the neighborhood and invade the lower sight lines we now enjoy.

Neighbors recently had the opportunity to see additional renderings of the project which show the multifamily buildings from the back. While Multifamily Building #1 is 3 stories in the front, it will appear as 5 stories in the back due to the downward slope of the land as you travel south. Similarly, Multifamily building #2 will be 5 stories in the front but 6 in the back. With the exception of the non-conforming condo buildings at Jamison Station, all buildings in the vicinity of the project site are a maximum of 2-3 stories. I've attached the renderings of the back and side of the multifamily buildings.

I ask that you to slow down and really consider the height and density of this project. Have you spent time in the adjacent neighborhoods? Do you know what the street view truly looks like currently and what a 6 story building will do to this area? The view from my living room and master bedroom will include this 6 level structure! This building may fit in Cool Springs but it is not the best, most appropriate development for the gateway to Historic Downtown Franklin. I have attached a collection of photos showing many current buildings south of

Liberty Pike.

DENSITY

Both my property and the project site are zoned R-4. My home is on 1/10 of an acre. If you apply this density to the project site the result would be about 72 residences. Also for comparison, Jamison Station includes just 44 residential units with townhomes and condos combined. I don't understand how representatives believe it is appropriate to change this site to allow 275 residential units or 3.8 times the density of our little row homes at The Cottages at Old Liberty.

FLOODING

Nearly every property on Old Liberty Pike is in the floodplain. I realize there are formulas and calculations for stormwater runoff. Can you assure my neighbors on Old Liberty that this huge project with a higher elevation than their homes will not cause even worse flooding? Many of these homes flooded as recently as March 2021. I've attached the FEMA flood plain map for the area.

Does a property's zoning not mean anything? Does the city code and the historic overlay mean nothing that they can so easily be drastically changed or disregarded? During the most recent Zoom meeting with the design team, they answered 65+ questions from concerned neighbors. It seems like the answer to many of the questions was basically that the City has approved this aspect of the project (or preliminarily approved). Why does it seem that typical city procedures have not been followed and this project was "fast tracked"? Why were the immediate neighbors to the development the last to know about it? Why were signs about the Rezoning Request and New Planned Unit Development not present at the property until May 18, 2023, after so many aspects of this development have been approved (or preliminarily approved) by the City?

The immediate neighbors to the project site DO NOT WANT THIS MONSTROUS DEVELOPMENT! We are the ones who will be most impacted by the traffic congestion (both vehicles and pedestrians), parking issues, even more significant flooding, noise and impeded view sheds. The Middle 8 needs to be modified to include less density. The maximum building heights should be less than Jamison Station and no variance should be allowed for the required parking. Imagine how easy it would be to carry a slimmed down version of this development through the approval process. This process is currently long and difficult because this development does not make sense for this area.

It's remarkable to have this 7.2 acre undeveloped tract so close to the Factory, Harlinsdale Farm and Downtown, but with that comes responsibility to steward the property in a proper way. There is only one opportunity to create the best design that will preserve the charm and character of Historic Franklin. Please take the time to make the right choices.

Sincerely,

Tiffany White
REALTOR, CRS, CLHMS
C: 615-260-5858 / O: 615-778-1818
E: TiffanyWhite@kw.com
IG: TiffanyWhiteRealtor



9175 Carothers Pkwy Ste 110
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Jamison
Station

TDOT AADT DATA

Station	31	87	32	
Route	Franklin Road	Franklin Road	Liberty Pike	
Location	North of Project Site; B/W Morningside Drive & Harlinsdale Court	West of Project Site; B/W Old Liberty Pike & 1st Avenue N	East of Project Site; B/W Daniels Drive & Eddy Lane	S C
County	Williamson	Williamson	Williamson	
2022	14,021	11,745	6,988	
2021	13,353	16,173	6,655	
2020	11,193	13,959	6,835	
2019	16,030	18,266	7,835	
2018	16,117	20,747	9,250	
2017	17,449	20,565	8,870	
2016	16,960	19,093	8,603	
2015	16,993	20,322	8,882	
2014	16,861	18,917	8,599	
2013	15,776	19,586	8,349	
2012	14,352	18,433	7,528	
2011	14,770	18,112	6,576	



THE PLAZA BETWEEN BUILDINGS NO. 1 AND 2

KV+D KISER VOGRIN DESIGN

TRULAND

ARCHITECTURAL RENDERINGS

THE MIDDLE EIGHT

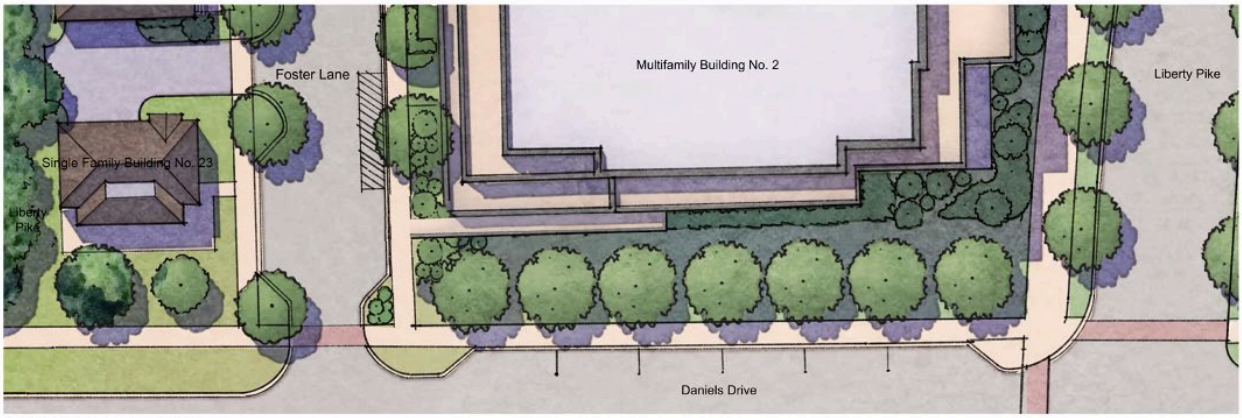
FRANKLIN, WILLIAMSON COUNTY, TN



MAY 22, 2023
PROJECT #21065



Elevation at Daniels Drive



Partial Plan at Daniels Drive

KV+D KISER VOGRIN DESIGN

TRULAND

ARCHITECTURAL ELEVATIONS

THE MIDDLE EIGHT

FRANKLIN, WILLIAMSON COUNTY, TN

MAY 22, 2023
PROJECT #21065

Street View of Buildings South of Liberty Pike



Looking West from back driveway to Jamison Station Townhomes – Cottages at Old Liberty on left



Looking South toward The Everly Apartments on Liberty Pike



Looking NE at back side of The Everly Apartments



Looking SE at Jamison Station at corner of Daniels Dr and Liberty Pike

Street View of Buildings South of Liberty Pike



Looking East from Daniels Drive at Jamison Station Townhomes and entrance to parking garage



Closer view looking East at Jamison Station from internal driveway



Looking South from The Factory Parking Lot at Jamison Station condo/retail buildings



Looking NW (from L to R) Jamison Station townhomes, garage and condo/retail buildings







CURRENT PARKING ISSUES - DANIELS DRIVE ON SATURDAY MORNINGS





Cars Parked in front of my house looking SB and NB on Daniels Drive Saturday, April 29 at 10:20 AM



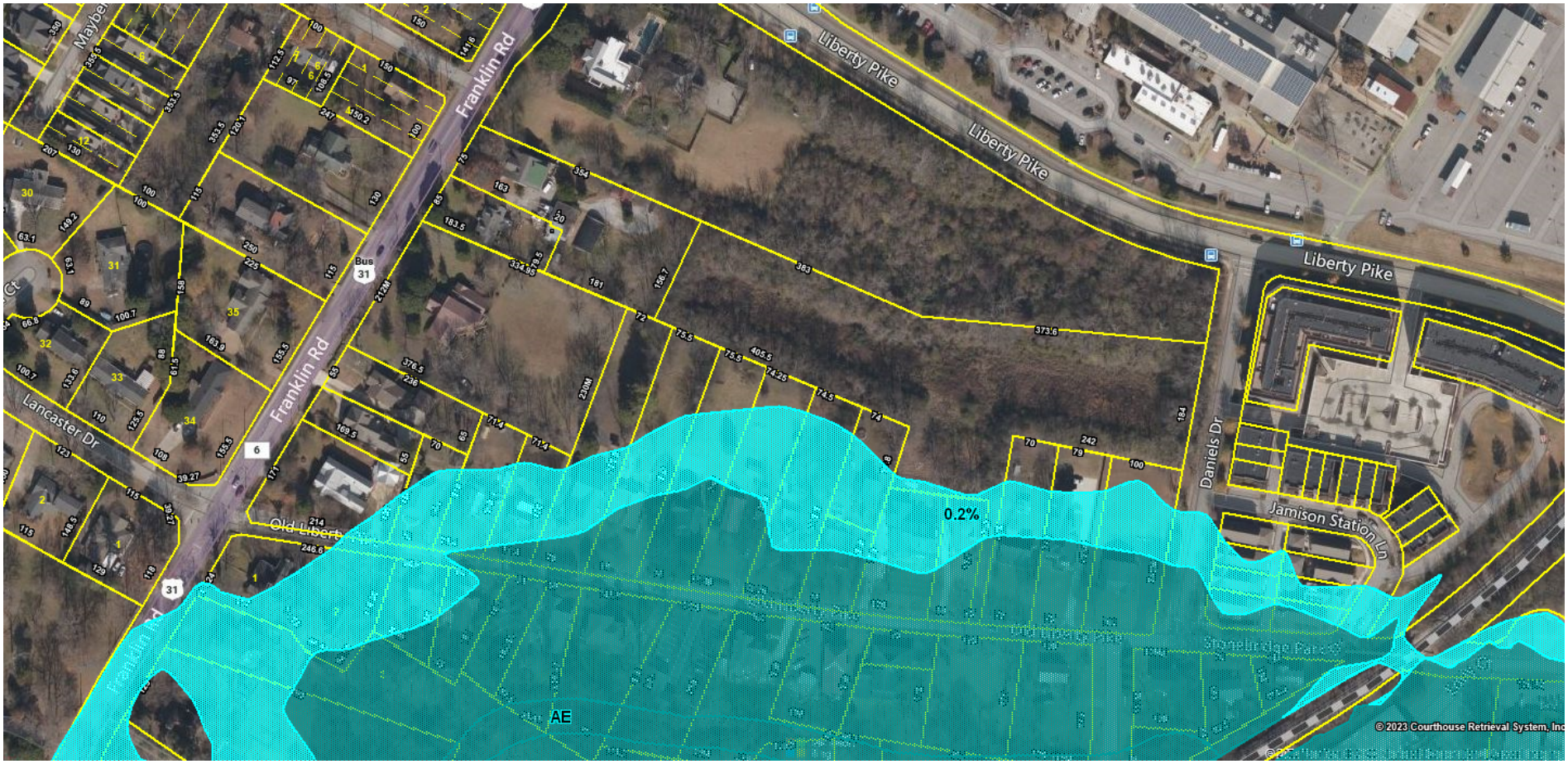


Cars Parked along Daniels Drive looking NB on Saturday, May 6 at 11:45 AM

Tiffany White
Keller Williams Realty
615-260-5858/615-778-1818
tiffanywhite@kw.com

MLS Tax Suite™
Powered by CRS Data

Map for Parcel Address: 20 Daniels Dr Franklin, TN 37064-2201 **Parcel ID:** 063M C 001.00 000



FEMA Flood Zones

- Effective High-Risk Areas (SFHA)
- Effective Moderate-Risk Areas
- Effective Undetermined-Risk Areas
- Preliminary High-Risk Areas (SFHA)
- Preliminary Moderate-Risk Areas
- Preliminary Undetermined-Risk Areas

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FEMA Flood Zones

Effective High-Risk Areas (SFHA)
Effective Moderate-Risk Areas
Effective Undetermined-Risk Areas
Preliminary High-Risk Areas (SFHA)
Preliminary Moderate-Risk Areas
Preliminary Undetermined-Risk Areas

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File #: 21-04664

DATE: May 9, 2023

TO: Franklin Municipal Planning Commission

FROM: Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development

SUBJECT:

Consideration Of Resolution 2023-30, A Resolution Approving A Development Plan For Middle Eight PUD Subdivision With 1 Modifications Of Development Standards (Parking), For The Property Located East Of Franklin Road And South Of Liberty Pike, Located At 209 Old Liberty Pike.

PURPOSE:

PROJECT INFORMATION
COF Project Number: 8154
Applicant: Gary Vogrin, Kiser + Vogrin Design
Owner: Amanda McKeehan

BACKGROUND/STAFF COMMENTS:
Staff have been meeting with the property owner about development on this site since July of 2022. We have given feedback on the design over the last year, to work towards a plan that meets all of the City's development standards. The design team has taken staff's guidance into consideration, and made many changes to the plan over the course of a year. In a few instances, the development team decided to pursue alternate standards prior to submitting this development plan.

Below, staff has outlined topics where concern has been voiced regarding the proposed development plan. In general, the plan proposes 254 multifamily dwelling units, 6 single family homes, 12 duplex dwelling units (6 structures), and 3 townhomes. Lastly, it does provide a small amount of retail (3,000 sq ft) in the form of a restaurant, as a use that can support the surrounding community.

Previous Approvals: On February 13, 2023, the development team presented their plan to the Historic Zoning Commission, and received a preliminary recommendation for approval on the height, scale, massing, and layout of the structures as it related to the limits of the Historic Preservation Overlay (HPO). It should be noted that the southern facades of the two multifamily buildings, and the single-family and duplex structures south of Foster Lane are outside of the HPO and are not a part of the Historic Zoning Commission's jurisdiction, so the HZC did not consider those facades or buildings in their recommendation.

The design team then brought forth an Envision Franklin Plan Amendment to the Planning

Commission on March 23, 2023, in which they proposed Special Consideration language specific to this site. The Planning Commission voted to approve the additional specifications.

Building Height: In reviewing the recommendations of Envision Franklin, staff finds that the proposed development plan complies with the Multifamily Residential Design Concept. It addresses the design guidelines of the general topics, including providing duplexes, townhomes, and single-family structures along the periphery of the proposed development, and providing a mix of public open spaces. It is also consistent with the language of the special consideration. It provides additional height by proposing underground parking. The height is shown in relation to Jamison Station in the Development Plan, but staff has found that varying technologies and estimating methodologies yield different heights of Jamison Station. The Design Team has consistently stated in previous meetings that the Middle Eight building closest to Jamison Station will be no taller than 2'-6" from Jamison Station's height. Therefore, in the absence of a detailed, surveyed measurement, staff has included a condition of approval that at time of site plan, the heights will be verified and that building plans will ensure that the new construction is no more than 2'-6", measuring from top of parapet to top of parapet. To further ensure that this height comparison is maintained, staff has also included a condition of approval that prior to above-ground construction commencing, an as-built survey will be completed to document the top of foundation elevation.

Staff would also like to note that while the Zoning Ordinance and Envision Franklin address transitions between buildings adjacent to new development, it does not speak to proper transitions within a proposed development. There is a three-story change between the north side and south side of Foster Lane, and a significant change in mass between the multifamily buildings and the single-family and duplex units.

Liberty Pike: In regards to other Envision Franklin updates being pursued separately from this development, the Liberty Pike Streetscape improvements are something being investigated through the Factory District Design Concept proposal with the Envision Franklin Update. The decision of whether or not to create a unique cross-section for Liberty Pike within the boundary of the Factory District has not yet been determined, nor has it been determined whether or not additional Right-Of-Way would be needed to achieve an updated cross section.The property owners have confirmed that they wish to include any streetscape elements into their proposal, once decided, and so staff has included a condition of approval (#41 Offsite Improvements) that requires the Middle Eight to incorporate Liberty Pike Streetscape elements into their plans during the site plan approval process.

Parking: Along with the documents just described, the Development Plan also generally conforms to all other regulatory development standard documents; in those instances where the plan currently does not fully comply, staff has provided a list of conditions of approval for the FMPC and BOMA to adopt as part of their vote. The plan does include a shared parking study, to justify the amount of parking provided on site. The plan provides each single-family, duplex, and townhome unit with a two-car garage. The additional third space required for the three-bedroom duplex and townhome units is provided through parallel (on-street) parking adjacent to the properties, along the south side of Foster Lane. Also, a parking study provided by the applicant shows how the difference in peak use time between the multifamily and restaurant uses can provide a parking reduction of 32 spaces. This reduction, along with the proposed reduced parking counts proposed in the Modification of Standards (MOS), account for the required parking for the multifamily and restaurant uses being met by the underground parking structure and the parallel (on-street) parking spaces along the north side of Foster Drive.

Citizen Concerns: It should be noted that citizens have voiced their concerns about this development at several recent public meetings, including Board of Mayor and Aldermen meetings, Planning Commission meetings, and Historic Zoning Commission meetings. Staff collects written

comments via email, and provides them to the FMPC and BOMA in one single PDF attached to this agenda item. Concerns that have been voiced in the past related to the scale and height of the proposed multifamily buildings and the additional traffic this amount of new units would generate, but others may be brought forward in the public hearings for this development plan.

MODIFICATIONS OF STANDARDS

The applicant is requesting one Modification of Standards, from Parking Table 10.6, specific to parking requirements for multifamily uses. The request includes a reduction for studio and 1-bedroom units from 1.5 spaces per unit to 1.02 spaces for unit, a reduction for 2-bedroom units from 2.5 spaces per unit to 1.89 spaces per unit, and a reduction for 3-bedroom units from 3.0 spaces per unit to 2.76 spaces per unit. This request, if granted, reduces the number of spaces provided for the multifamily use from 529 spaces to 407 spaces, for a reduction of 122 spaces. The applicant has cited nationally recognized Parking Study publications and used only factors that were applicable to our City when analyzing alternate standards. They also gathered parking utilization rates from seven existing multifamily developments in Franklin, to ensure that the national numbers were consistent with the local environment. Staff has verified the parking data from the national publications, and can support the reduction as proposed.

Staff recommends approval of MOS #1 (Parking).

PROCEDURAL REQUIREMENTS:

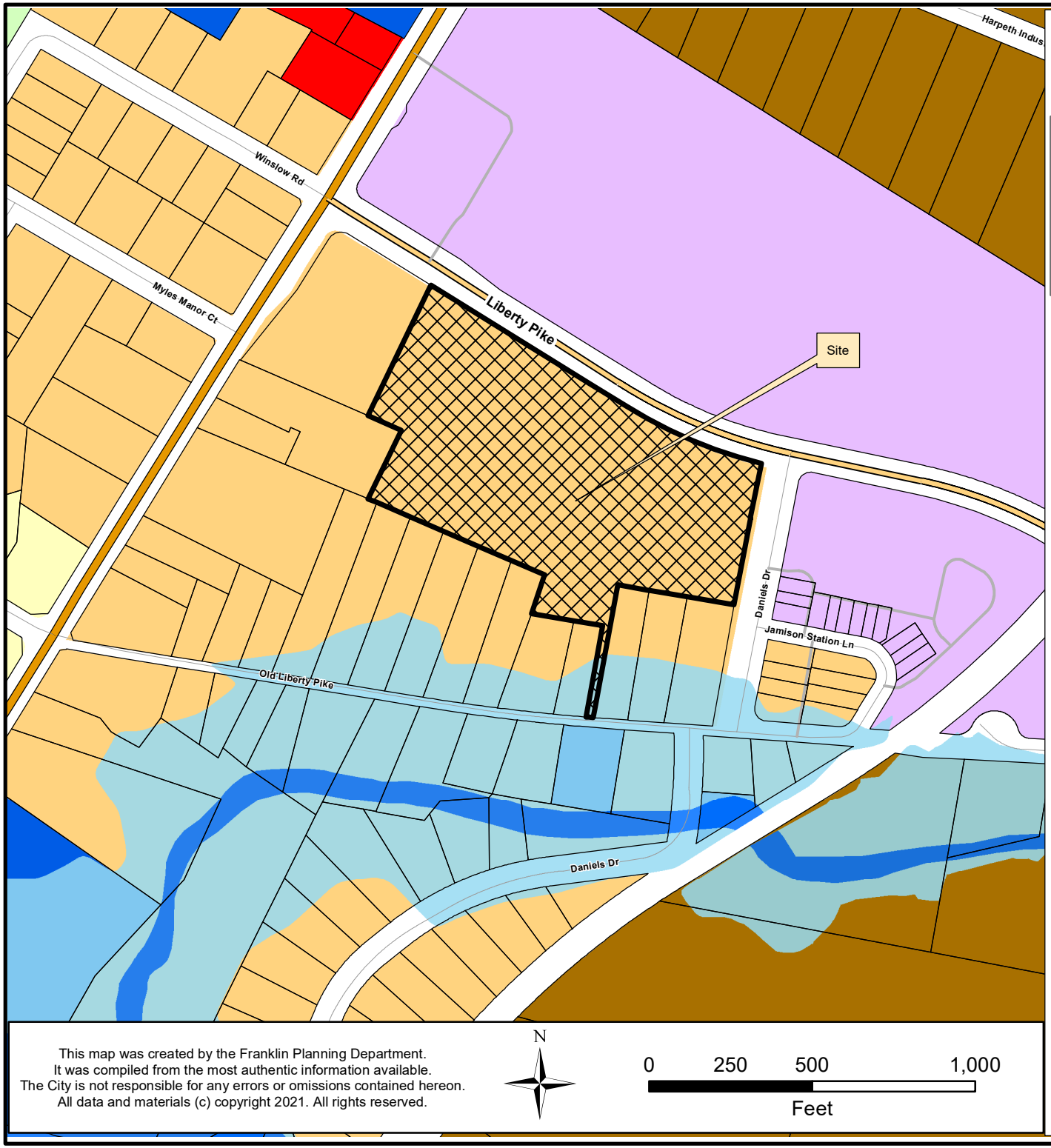
1. If the plan receives BOMA approval, the applicant shall upload the corrected plan to the online plan review website (https://franklin.contractorsplanroom.com/secure/). All revisions to the approved plans shall be “clouded.” With the resubmittal, each condition of approval/open issue in the online 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:

Staff recommends that the Planning Commission recommend to the Board of Mayor and Aldermen to approve Resolution 2023-30, with condtions.



MIDDLE EIGHT PUD SUBDIVISION
ORDINANCE 2023-15
RESOLUTION 2023-30

Project Information
Existing Zoning: R4
Proposed Zoning: PD 38.19/3,000
Overlay Districts: HPO, CFO, FFO
Site Acreage: 7.2 acres
Proposed Number of Dwelling Units: 275
Proposed Nonresidential Square Footage: 3,000

Legend

- Middle Eight PUD
- Hillside/Hillcrest Overlay
- 500 Ft Buffer of Hillside
- Floodway Fringe Overlay
- Floodway Overlay
- 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

COF no: 8154

CONDITIONS OF APPROVAL:

Open Issues: 22 These issues are currently being filtered

Addressing

General Issues

90. Addressing

lori.jarosz@franklintn.gov Addressing will be done at initial submittal of the site plan.

Engineering - Checklist

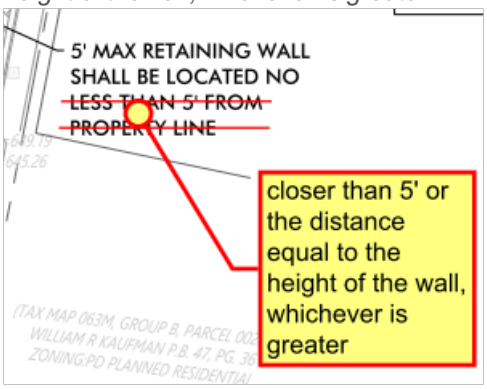
General Issues

26. Retaining Walls and Guardrails

joe.marlo@franklintn.gov ROW Abandonment removed, however the wall note now shown appears errant.

Applicant shall revise all locations (C2.0, C2.1, etc.) of the note below such that it reads:

5' max retaining wall shall be located no closer than 5' or the distance equal to the height of the wall, whichever is greater.



40. Development Plan

dustin.walcott@franklintn.gov *The following shall remain open as a Condition of Approval.*

Sight Distance Reviewat Site Plan:
Comprehensive reviewof intersection sight distance by City of Franklin Staff will occur at Site Plan. At Site Plan, the Applicant shall demonstrate that unobstructed lines of sight as prescribed by AASHTO "A Policy On Geometric Design of Highways and Streets" are provided at intersections both internal and external to the development . Buildings, parking, landscaping, and other visual obstructions shall be removed as necessary. Where roadway elements on the Development Plan cannot safely meet minimum intersection sight distance requirements, access restrictions on unsafe movements shall be provided or the intersecting roadway shall be modified to remove unsafe conditions at the expense of the developer.

Uncontrolled Pedestrian Crossings:
Approval of this Development Plan does not constitute approval of uncontrolled pedestrian crossings shown herein. Permissible uncontrolled pedestrian crossing locations shall be determined by City of Franklin Engineering Staff on a case-by-case basis at Site Plan.

Engineering - Development Plan Checklist

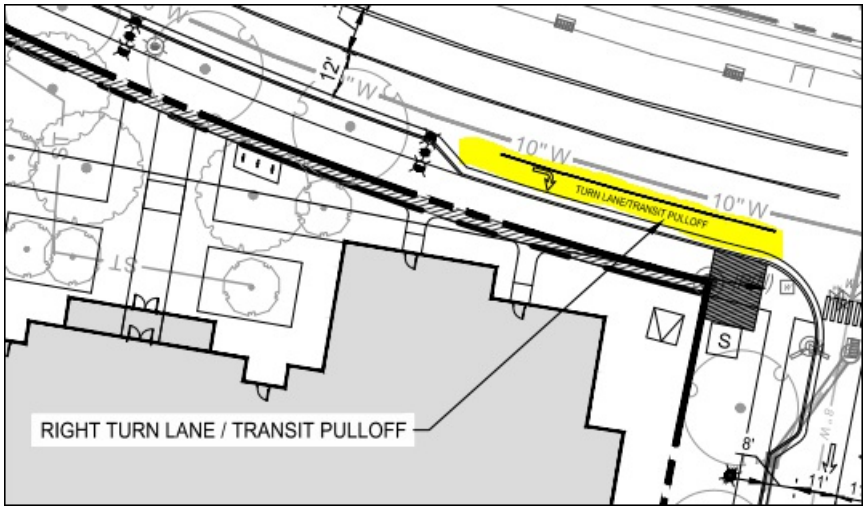
General Issues

39. Liberty Pike

joe.marlo@franklintn.gov *Comment partially addressed.*

Applicant shall provide the following regarding proposed improvements to Liberty Pike:

1. Dimension lane widths on plan (exclusive of gutter)
    1. Dimension the EB right turn lane at the intersection with Daniels Drive. Minimum lane width shall be 12 feet, exclusive of gutter. Revise drawings, including ROW Dedication, such that the full 12-foot width lane width is provided without reducing the width of the 12-foot multi-use sidewalk.



41. Offsite Improvements

jimmy.wiseman@franklintn.gov	The applicant has agreed and shall incorporate the pending Liberty Pike streetscape design into their site plan and post sureties up to $1.5 million for the cost of the improvements. No site plan will be approved until the Liberty Pike Streetscape design has been finalized and approved.

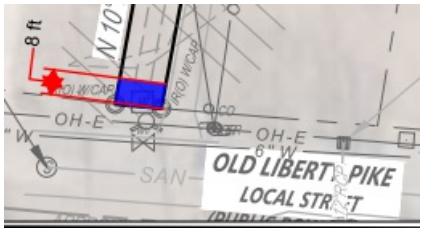
43. Sidewalk

joe.marlo@franklintn.gov

The sidewalk at Old Liberty Pike has been removed, however ROW Dedication is required along Old Liberty Pike (a local street) for future street improvements, including future sidewalk. 52'/2 (1/2 Required ROW) - 36'/2 (1/2 Present ROW) = 8 feet.

The following shall remain open as a Condition of Approval.

At Site Plan, Applicant shall show 8 feet of ROW Dedication along Old Liberty Pike.



45. Public Street Improvements

joe.marlo@franklintn.gov

Comment to remain open as a Condition of Approval.

Prior to the first issuance of a Certificate of Occupancy, the improvements shown for public streets shall be constructed by the developer and accepted by the City of Franklin.

47. Flood Routing

joe.marlo@franklintn.gov

Comment to remain open as a Condition of Approval.

At Site Plan, flood routing of stormwater features shall be directed back into the development (surface flowing into Foster Lane), and not directly towards downstream properties.

48. Downstream Stormwater Improvements

joe.marlo@franklintn.gov

The following shall remain open as a Condition of Approval.

At Site Plan, the Applicant shall provide analysis for offsite downstream structures receiving flow from site outfalls to the outfall at Liberty Creek. Should the analysis indicate that existing storm infrastructure capacity has insufficient capacity, the Applicant shall improve downstream stormwater infrastructure such that the required capacity is provided.

70. Daniels Drive

jimmy.wiseman@franklintn.gov *Comment to remain open as a Condition of Approval.*

At Site Plan, Applicant shall incorporate the following:

1. Existing inlet structure at existing radius return at the intersection of Daniels Drive and Liberty Pike shall be relocated to new gutter location.

2. A portion of the new storm infrastructure in Daniels Drive still appears to conflict with the revised location for the existing water line. Applicant shall provide required separation between water and storm.

7. Extend the center turn lane south through the intersection with Street A. 100' of northbound left storage is required at the Liberty Pike intersection per the TIA. Provide an appropriate bay taper where the 2-lane section transitions to a 3-lane section.

74. Flood Elevations

joe.marlo@franklintn.gov *Applicant has provided 100-year and 500-year flood elevations on C3.0, as well as the lowest level garage elevation of 640.1 (thank you).*

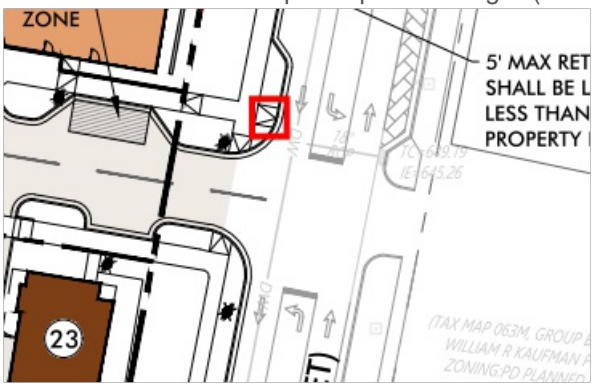
The following shall remain open as a Condition of Approval.

Prior to any issuance of a Building Permit for structures with underground garages, Applicant shall design structure such that the top of the lowest garage level or slab is no lower than elevation 640.10 MSL.

88. Pedestrian Crossing Location

joe.marlo@franklintn.gov *The following is a newcomment due to newinformation shown (pedestrian crossing added to development plans).*

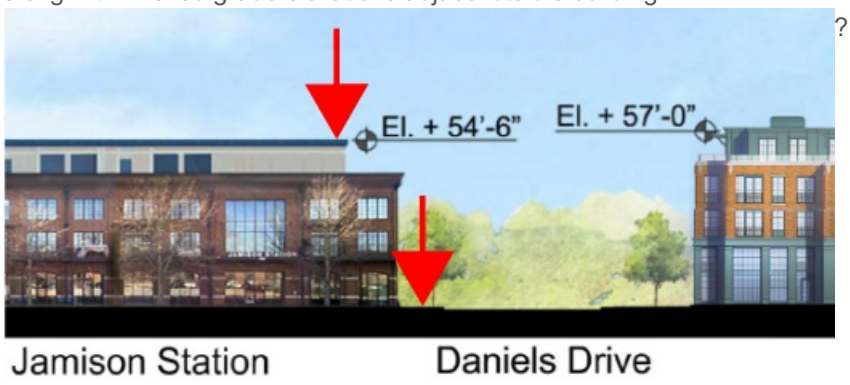
Applicant shall remove the curb ramp indicated below into Daniels Drive that has been added to the development plan drawings. (C2.0, C2.1, A1.0, A1.1, etc.)

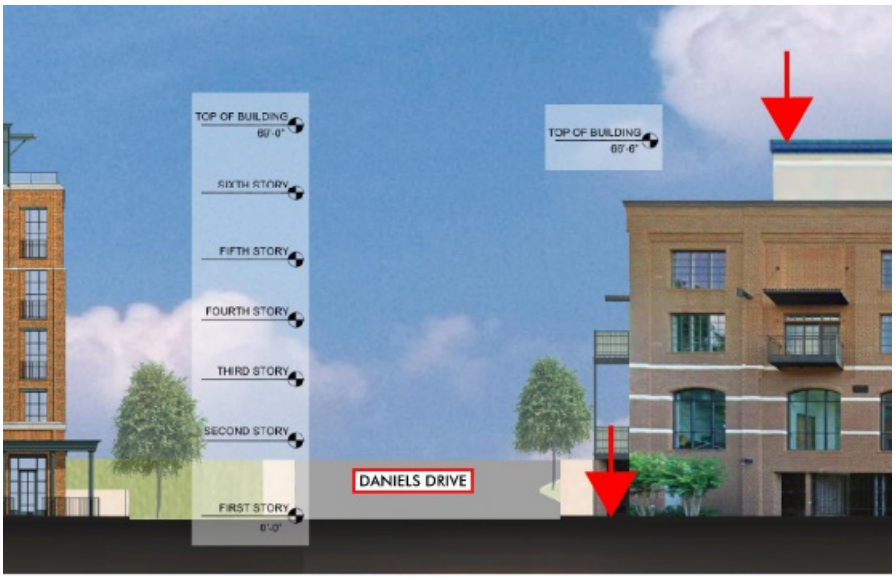


92. Building Elevation Survey Required

lance.fittro@franklintn.gov With the first site plan submittal for development of the subject property, the Applicant shall provide field-run survey information for the top of parapet elevation(s) of the Jamison Station building being used in height comparisons, along with finished grade elevations adjacent to the building.

?





Engineering - OLD

General Issues

1. (OLD DEVEOPMENT PLAN CHECKLIST) F. Development Plan

lance.fittro@franklintn.gov In the event that one or more of the requested Modifications of Standards are not approved, the shared parking analysis shall be updated to reflect the parking requirements ultimately approved for the development so that staff can verify sufficient parking is provided with each subsequent site plan.

72. (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.***

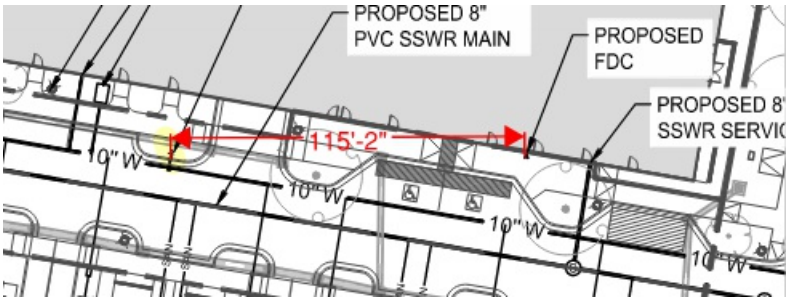
At the site plan stage, all roadway improvements shall be designed in accordance with the appropriate common standards as established by (A) the City of Franklin Transportation and Street Technical Standards, (B) the AASHTO Policy on Geometric Design of Highways and Streets, and (C) the Tennessee Department 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.

FIRE--Planning--DRT

General Issues

87. FDC

curt.edelmann@franklintn.gov When buildings have a standpipe, the FDC must be located within 100-feet of a hydrant. Please revise the plan accordingly.



Parks

General Issues

13. Parkland Impact Fee

kevinl@franklintn.gov Due to the development plan issues the new dates for the Parkland Agreement is Work Session 6-13-23 and 6-27-23 for BOMA.
[Edited By Kevin Lindsey]

Planning

General Issues

67. Elevations

amy.diaz-barriga@franklintn.gov **ADVISORY ONLY:**
Draft elevations are not being approved with the development plan. Detailed elevations must be provided at site plan stage and will be required to meet all regulations of the Zoning Ordinance. Some, but not all, elevations will also require a Certificate of Appropriateness prior to issuance of a building permit.

75. Historic Buffer: Open Space or easment

amy.diaz-barriga@franklintn.gov The applicant shall place a note on all sheets that identify the Naturalistic Screening Conservation Easement that it is the responsibility of the HOA for the Development, not the individual property owners.

91. Building Height in relation to Jamison Station

amy.diaz-barriga@franklintn.gov	In order to comply with Envision Franklin and the Preliminary Recommendation from Historic Zoning Commission, the development of Multifamily Building 2 will be limited to a height no more than 2'-6" taller than Jamison Station, measured from top of parapet to top of parapet, at both the northern and southern corners along Daniels Drive. At site plan, the height of Jamison Station will be confirmed. Prior to above-ground construction commencing, an as-built survey will be completed to document the top of foundation elevation, to document that the above-ground construction will be within 2'-6" of the confirmed Jamison Station height (top of parapet to top of parapet).

Planning (Landscape)

General Issues

50. Tree Save

jason.arnold@franklintn.gov Over laying the tree save and the proposed buildings, it looks like it will be extremely difficult to preserve all of the proposed tree save.

At site plan, applicant shall show how the trees and the canopy adjacent to the proposed buildings will be able to be preserved.



RESOLUTION 2023-30

A RESOLUTION APPROVING A DEVELOPMENT PLAN FOR MIDDLE EIGHT PUD SUBDIVISION WITH 1 MODIFICATIONS OF DEVELOPMENT STANDARDS (PARKING), FOR THE PROPERTY LOCATED EAST OF FRANKLIN ROAD AND SOUTH OF LIBERTY PIKE, LOCATED AT 209 OLD LIBERTY PIKE.

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 2023-15; 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
063M- A 4.00	7.2
Total	7.2

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 Middle Eight PUD are as follows:

Entitlements	Middle Eight PUD
Base Zone District	PD 38.19/3,000
Other Zoning Overlays	HPO, CFO
Number of Dwelling Units	275
Number of Nonresidential Square Footage	3,000
Number of Hotel Rooms	0
Open Space Requirements	15%
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 the following Modifications of Development Standards (MOS) were requested and acted upon by the Board of Mayor and Aldermen after review and recommendation by the Franklin Municipal Planning Commission:

MOS 1: **Request to modify minimum parking standards for multifamily to 1.02 spaces per studio unit, 1.02 spaces per 1-Bedroom unit, 1.89 spaces per 2-Bedroom unit, and 2.76 spaces per 3-Bedroom unit.** Approved: _____ Denied: _____	10.1.6 Minimum Parking 1.5 spaces for a studio 1.5 spaces for a 1-bedroom unit 2.5 spaces for a 2-bedroom unit 3 spaces for a 3+ bedroom unit *Staff recommended approval.*

SECTION VI. That this Resolution shall take effect from and after the passage of Ordinance 2023-15, 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:

Eric S. Stuckey
City Administrator

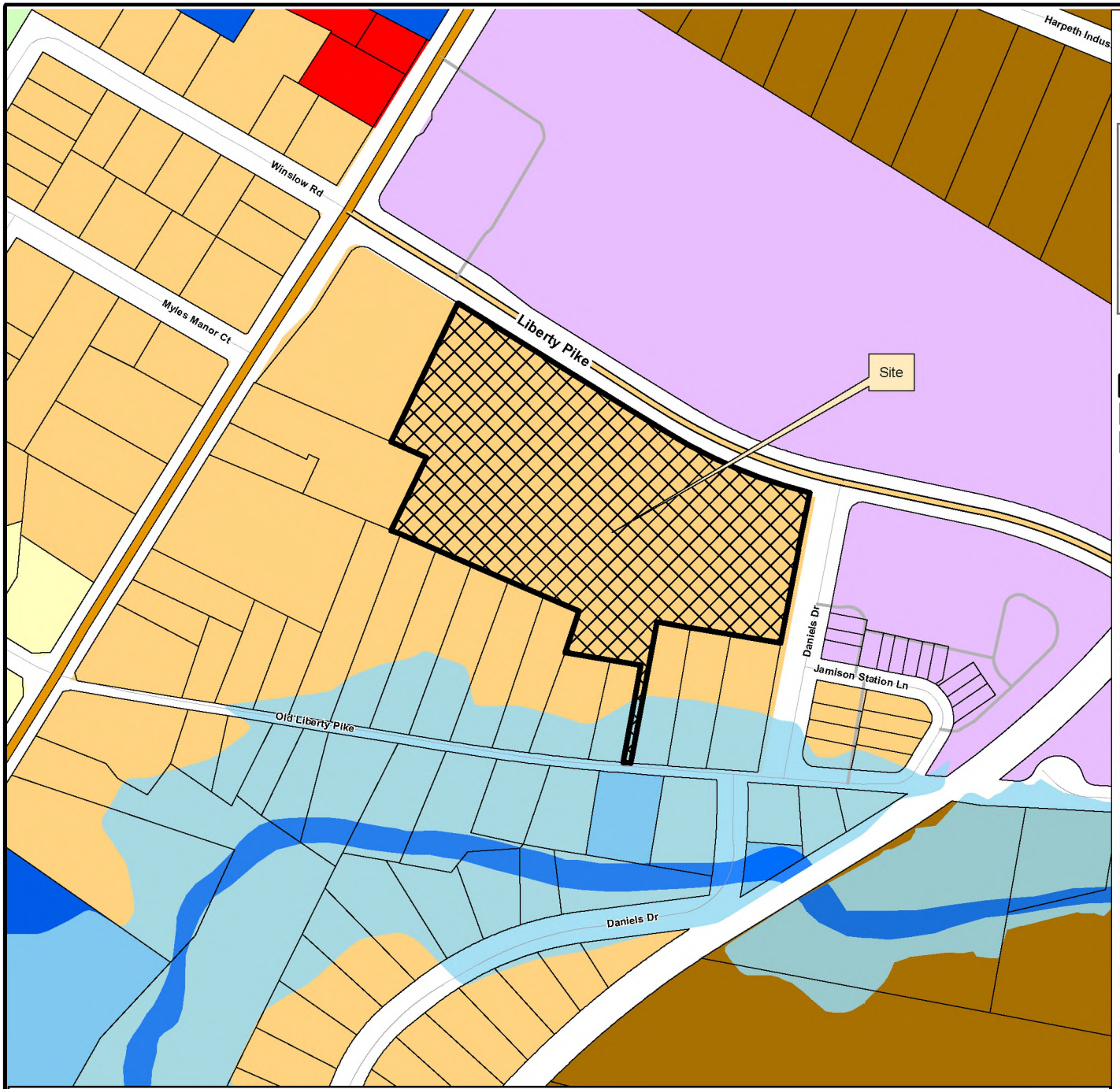
CITY OF FRANKLIN, TENNESSEE:

Dr. Ken Moore
Mayor

Approved as to Form By:

Shauna R. Billingsley
City Attorney

PREAPPLICATION CONFERENCE:	04/04/23
BOMA/FMPC JOINT CONCEPTUAL WORKSHOP:	04/27/23
NEIGHBORHOOD MEETING:	04/05/23
PLANNING COMMISSION RECOMMENDED APPROVAL:	
PUBLIC HEARING AND BOMA APPROVAL:	



MIDDLE EIGHT PUD SUBDIVISION
ORDINANCE 2023-15
RESOLUTION 2023-30

Project Information
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Feet

DEVELOPMENT PLAN
THE MIDDLE EIGHT
PUD SUBDIVISION

209 OLD LIBERTY PIKE
TAX MAP 063M PARCEL 0400, GROUP A

COF PROJECT # 8154
KVD PROJECT #21065
FRANKLIN, WILLIAMSON CO., TN

CLIENT/DEVELOPER
TRULAND
401 CHURCH STREET
FRANKLIN, TN 37064
CONTACT: AMANDA MCKEEHAN
INFO@TRULANDGROUP.COM

LANDSCAPE ARCHITECT / APPLICANT
KV+D KISER VOGRIN DESIGN
KISER + VOGRIN DESIGN
5005 MERIDIAN BLVD
SUITE 100
FRANKLIN, TN 37067
CONTACT: GARY VOGRIN
(615) 708-0567
GARY@KISERVOGRIN.COM

ARCHITECT
ANTUNOVICH ASSOCIATES
ARCHITECTURE PLANNING INTERIOR DESIGN
ANTUNOVICH ASSOCIATES.
224 WEST HURON STREET SUITE 7E
CHICAGO, IL 60654
CONTACT: JOSEPH ANTUNOVICH
(312) 266-1126
JANTUNOVICH@ANTUNOVICH.COM

TRAFFIC ENGINEER
KCI TECHNOLOGIES
KCI TECHNOLOGIES INC/
500 11TH AVENUE N
SUITE 290
NASHVILLE, TN 37203
CONTACT: BETH OSTROWSKI
(615)370-8410
BETH.OSTROWSKI@KCI.COM

BRANDING
streetsense.
STREET SENSE
641 S STREET NW
WASHINGTON, DC 20001
CONTACT: DONNA OETZEL
(202)415-0818
DOETZEL@STREETSENSE.COM

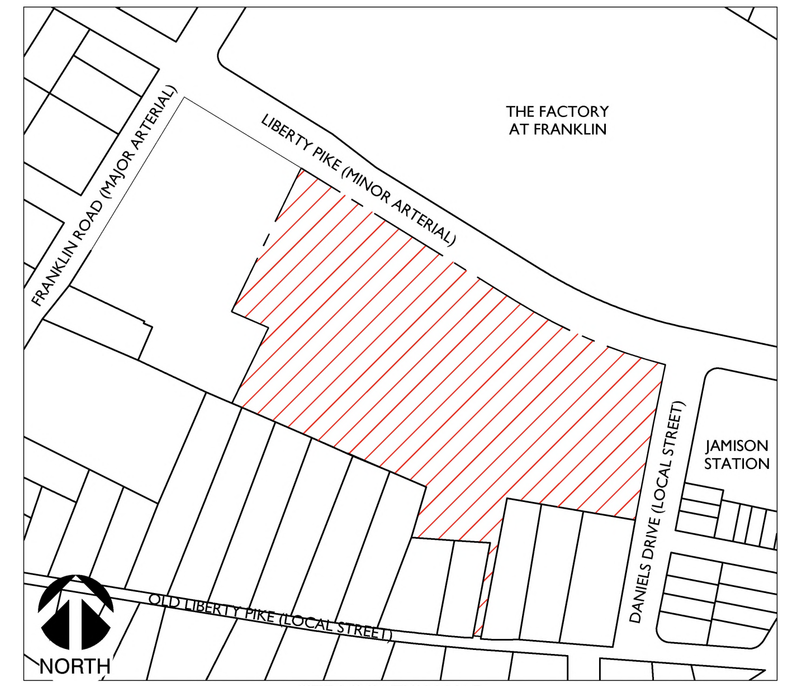
CIVIL ENGINEER
FULMER LUCAS
FULMER LUCAS
2002 RICHARD JONES ROAD SUITE B200
NASHVILLE, TN 37215
CONTACT: YATES BATEMAN
(214) 796-1771

GARY MICHAEL VOGRIN — REGISTERED — TENNESSEE — LANDSCAPE ARCHITECT
05-04-23

JOSEPH M. ANTUNOVICH — REGISTERED ARCHITECT — No. 107624 — STATE OF TENNESSEE
5/4/23

05/04/23

SHEET INDEX	SHEET NUMBER	PRE-APP SUBMITTAL	INITIAL SUBMITTAL	RE-SUBMITTAL	ONE STOP
COVER SHEET	C0.0	03-27-2023	04-10-2023	05-04-2023	
ILLUSTRATIVE MASTER PLAN	C0.1	03-27-2023	04-10-2023	05-04-2023	
EXISTING CONDITIONS PLAN	C1.0	03-27-2023	04-10-2023	05-04-2023	
DEVELOPMENT PLAN	C2.0	03-27-2023	04-10-2023	05-04-2023	
OPEN SPACE PLAN	C2.1	03-27-2023	04-10-2023	05-04-2023	
SITE GRADING & DRAINAGE PLAN	C3.0	03-27-2023	04-10-2023	05-04-2023	
ROW & ACCESS PLAN	C4.0	03-27-2023	04-10-2023	05-04-2023	
REFUSE COLLECTION PLAN	C4.1	03-27-2023	04-10-2023	05-04-2023	
FIRE ACCESS PLAN	C4.2	03-27-2023	04-10-2023	05-04-2023	
TIS & STREET SECTIONS	C4.3			05-04-2023	
SITE UTILITY PLAN	C5.0	03-27-2023	04-10-2023	05-04-2023	
OFFSITE SANITARY SEWER IMPROVEMENTS	C5.1	03-27-2023	04-10-2023	05-04-2023	
TREE PRESERVATION PLAN	L1.0	03-27-2023	04-10-2023	05-04-2023	
LOT DIAGRAMS	A1.0	03-27-2023	04-10-2023	05-04-2023	
SITE PARKING DATA	A1.1	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.2	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.3	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.4		04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.5		04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.6		04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.7		04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.8		04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.9		04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.0	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.1		04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.2	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.3	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.4	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.5	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.6	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.7	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.8	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.9	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.10	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.11	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.12	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.13	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.14	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.15	03-27-2023	04-10-2023	05-04-2023	



SITE LOCATION MAP
1"=200'

ENVISION FRANKLIN PLAN AMENDMENT:
ADDITIONAL HEIGHT MAY BE CONSIDERED WHEN UNDERGROUND PARKING IS PROVIDED. WITH ANY ADDITIONAL HEIGHT, THE STRUCTURE SHOULD BE SIMILAR TO, AND COMPATIBLE WITH ADJACENT MULTIFAMILY; HEIGHT SHOULD TRANSITION DOWN TOWARDS THE TRUETT HOUSE SO THAT EACH SIDE OF THE PARCEL IS CONTEXTUALLY APPROPRIATE WITH ADJACENT STRUCTURES. LIMITED RETAIL IS APPROPRIATE WHEN IT SUPPORTS THE COMMUNITY, NEIGHBORS, OR THE RESIDENTIAL EXPERIENCE.

THE MIDDLE EIGHT PARKING DATA*

Use	Parking Requirement (per COF Zoning Ordinance dated 01/01/2023)	Number of Employees on Largest Shift	Outdoor/Indoor Square Footage (SF)	Number of Units	Total Spaces Required per COF Zoning Ordinance dated 01/01/2023	Parking Requirement (per M.O.S. request)	Total Spaces Required per M.O.S. Request & Shared Parking*	Total Spaces Provided	
Duplex/Townhome/ Single-Family								Unit Garages	On-Street/ Parallel
3 Bed Dup & SF House	3			12	36		36	24	13
3 Bed TH	3			3	9		9	6	3
SF House	2			6	12		12	12	0
Total Dup/TH/SF				21	57		57	58	
Multifamily								Parking Garage	On-Street
Studio MF	1.5			30	45	1.02	31	367	20
1 Bed MF	1.5			96	144	1.02	98		
2 Bed MF	2.5			88	220	1.89	167		
3 Bed MF	3			40	120	2.76	111		
Total Multifamily				254	529		407	387	
Restaurant / Café								Parking Garage	On-Street
	7.5 spaces per 1,000 square feet of gross floor area of the building and any outdoor seating area + 0.75 space per employee on largest shift	4	4000		34		34	33	8
							Shared Parking Reduction -32		
Overall Total				275	620		466	486	

* Refer to the Parking Memo dated May 2023 prepared by KCI Technologies for shared parking supplemental data.



SITE DATA CHART:

PROJECT NAME: THE MIDDLE EIGHT
COF PROJECT NUMBER: 8154
TAX MAP: 063M
GROUP: A
PARCELS: 04.00
ADDRESS: 209 OLD LIBERTY PIKE
CITY: FRANKLIN
COUNTY: WILLIAMSON
STATE: TENNESSEE
CIVIL DISTRICT: 10
PUD SITE ACREAGE: 7.2
PUD SITE SQUARE FOOTAGE: 313,632 SF

REGULATIONS
BASE ZONING: R4 | RESIDENTIAL 4 DISTRICT
PROPOSED ZONING: PD 38.19/3000 | PLANNED DISTRICT OVERLAY
ZONING: CENTRAL FRANKLIN OVERLAY, HISTORIC PRESERVATION OVERLAY, & FLOOD FRINGE OVERLAY
BUILDING TYPES APPLIED: MULTIFAMILY RESIDENTIAL, SINGLE FAMILY RESIDENTIAL, TOWNHOUSE & DUPLEX UNITS
FRONTAGE TYPES APPLIED:
- DUPLEX AND SINGLE FAMILY: YARD FRONTAGE
- TOWNHOUSE AND MULTIFAMILY: URBAN FRONTAGE

SETBACKS
- TOWNHOUSE (BUILDING NO. 3, 4, 5)
  - FRONT: 10'
  - REAR: 13'
  - SIDE: 8' OR 75'
- DUPLEX
  - FRONT: 10'
  - REAR: 10', 12' OR 20' (SEE PLAN)
  - SIDE: 5-10' (SEE PLAN)
- SINGLE FAMILY
  - FRONT:6' OR 10' (SEE PLAN)
  - REAR:10', 12' OR 75' (SEE PLAN)
  - SIDE: SEE PLAN*
- MULTIFAMILY (BUILDINGS NO. 1 & 2):
  - FRONT YARD: 0' OR 10' (SEE PLAN)
  - SIDE YARD: 0'
  - REAR YARD: 0'

*SEE SHEET A1.0 FOR RESIDENTIAL LOT DIAGRAM

SITE DATA CHART CONT.:

DWELLING UNIT COUNT, BY TYPE:
A. MULTIFAMILY
- STUDIO: 30
- 1 BEDROOM: 96
- 2 BEDROOM: 88
- 3 BEDROOM: 40
- SUBTOTAL: 254

B. SINGLE FAMILY, TOWNHOUSE, DUPLEX UNITS
- 4 BEDROOM SINGLE FAMILY HOMES: 6
- 3 BEDROOM DUPLEXES: 12
- 3 BEDROOM TOWNHOUSES: 3
- SUBTOTAL: 21

TOTAL DWELLING UNITS: 275

BUILDING HEIGHTS:
- SINGLE FAMILY, DUPLEXES & TOWNHOUSE: 2-3 STORIES
- MULTIFAMILY: 1-6 STORIES

REQUIRED LANDSCAPE SURFACE AREA: 20% (62,726.40 SF)
PROPOSED LANDSCAPE SURFACE AREA: 30% (94,169.09 SF)
OPEN SPACE SF REQUIRED: 5% (15,681 SF)
NATURAL AREA SF REQUIRED: 10% (31,363 SF)
TOTAL OVERALL OPEN SPACE PROVIDED: 20.3% (63,800 SF)
TOTAL ACREAGE OF HEALTHY TREE CANOPY: 0.97 AC (42,337 SF)
TREE CANOPY TO BE RETAINED: 0.25 AC (11,008 SF)
PROPOSED TREE CANOPY RETENTION: 0.53 AC (23,011 SF)

PARKING REQUIRED PER COF Z.O.: 620
PARKING REQUIRED PER MOS: 498
PARKING REQUIRED PER THE MOS + SHARED PARKING: 466
PARKING PROVIDED: 486
REFER TO DETAILED PARKING DATA CHART ON A1.4 AND PARKING STUDY PROVIDED BY KCI DATED MAY 2023.
BICYCLE PARKING REQUIRED FOR MULTIFAMILY: 0.05 SPACE/BR = 22.35
BICYCLE PARKING PROVIDED: 23

HISTORIC RESOURCE TREATMENT: 75' NATURALISTIC BUFFER BETWEEN ALPHEUS TRUETT HOUSE AND SITE.

MODIFICATION OF STANDARDS REQUEST

THE APPLICANT REQUESTS A MODIFICATION OF STANDARDS REGARDING SECTION 10.1.6 MINIMUM PARKING WITHIN THE FRANKLIN ZONING ORDINANCE. THIS PROPOSED MODIFICATION OF STANDARDS REQUESTS A REDUCTION IN RESIDENTIAL PARKING MINIMUMS FOR THE MULTIFAMILY RESIDENTIAL. THE REDUCTION IS SUPPORTED BY THE PARKING ANALYSIS PROVIDED IN THE ATTACHED PARKING MEMO FROM KCI DATED MAY 2023. REFER TO THE CHART BELOW FOR REQUESTED REDUCTION IN PARKING RATES.

LAND USE		REQUIRED RATES (PER COF ZONING ORDINANCE DATED 01.01.2023	PROPOSED RATES
MULTI-FAMILY	STUDIO	1.5	1.02
	1-BEDROOM	1.5	1.02
	2-BEDROOM	2.5	1.89
	3-BEDROOM	3.0	2.76

LAND USE PLAN AMENDMENT:

LAND USE PLAN AMENDMENT REQUEST WAS APPROVED BY FRANKLIN MUNICIPAL PLANNING COMMISSION ON 03.23.23 BY A 7-0 UNANIMOUS VOTE

PARKLAND DEDICATION REQUIREMENTS:
275 UNITS x $4,304= $1,183,600 TO MEET THE ORDINANCE.

25% OF THE TOTAL AMOUNT OR $295,900 WILL BE DUE AT FINAL PLAT PLUS THE NUMBER OF DWELLINGS FOR THAT PHASE AT A RATE OF $3,228 PER UNIT.

THE 25% OR $295,900 WILL NOT BE REIMBURSABLE AND WILL REMAIN IN QUAD 1 FOR FUTURE PARKS.

THE 75% OR $887,700 IS POSSIBLE FOR REIMBURSEMENT WITH AN AGREEMENT AND EXHIBITS SHOWING IMPROVEMENTS.

THE DEVELOPER SHALL ENTER INTO A CONTRACT WITH THE CITY WHICH CONTAINS TERMS AND CONDITIONS RELATIVE TO THE PARKLAND IMPACT FEES REQUIRED TO BE PAID BY THE DEVELOPER AND/OR ANY OFF-SETS GRANTED FOR PARKLAND DEDICATION AND/OR CONSTRUCTION OF PARK IMPROVEMENTS AS MAY BE REQUESTED BY THE DEVELOPER. SUCH CONTRACT SHALL BE FINALIZED CONCURRENTLY WITH THE APPROVAL OF THE DEVELOPMENT PLAN OR SITE PLAN WHEN A DEVELOPMENT PLAN IS NOT REQUIRED. WHEN NEITHER A DEVELOPMENT PLAN OR SITE PLAN EXIST, THE CONTRACT SHALL BE APPROVED BY BOMA PRIOR TO THE ISSUANCE OF A BUILDING PERMIT AND SHALL CONTAIN FINANCIAL ASSURANCE TO THE CITY.

COMPREHENSIVE REVIEW OF 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.

VESTING DEVELOPMENT STANDARDS

DEVELOPMENT STANDARD	VERSION/DATE
ZONING ORDINANCE	01-01-2023
SUBDIVISION REGULATIONS	01-01-2022
HISTORIC DISTRICT DESIGN GUIDELINES	05-30-2022
TRANSPORTATION & STREET TECHNICAL STANDARDS	07-01-2021
STORMWATER BMP MANUAL	07-01-2021
TECHNICAL SPECIFICATIONS FOR UTILITY INSTALLATION	10-13-2020 OR NEWEST VERSION
MUNICIPAL CODE	VARIES - STANDARDS EFFECTIVE ON 12-12-2022 APPLY

KVD PROJECT# : 21065
COF PROJECT# : 8154
Sheet #:
C0.0
DATE: 05.04.2023



1 MULTIFAMILY
2 SINGLE FAMILY
3 DUPLEX
4 TOWNHOME
5 FIRST FLOOR RESTAURANT / CAFE
6 PARKING GARAGE ENTRANCE
7 52' PROPOSED RIGHT OF WAY
8 75' NATURALISTIC BUFFER
9 HISTORIC PRESERVATION OVERLAY DISTRICT
10 STORMWATER TREATMENT

NOTE: THIS PAGE PROVIDES A CONCEPTUAL ILLUSTRATIVE PLAN OF HOW THE SITE MAY BE DEVELOPED IN ACCORDANCE WITH THE PROJECT DEVELOPMENT PLAN. SPECIFIC PLANS WILL BE PROVIDED DURING THE SITE PLAN PHASE.

NORTH

0 30 60 90 feet
SCALE: 1"=30'

KV+D
KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Phone: 615.599.2827
www.kiservogrin.com

GARY MICHAEL VOGRIN
REGISTERED
TENNESSEE
LANDSCAPE ARCHITECT
05-04-23

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY: GV
DRAWN BY: GV2
CHECKED BY: KR
DATE: 04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:
ILLUSTRATIVE MASTER PLAN

SHEET NUMBER
C0.1

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GRADING & DRAINAGE DATA CHART:

1. SITE AREA: 7.19 AC
2. EXISTING IMPERVIOUS AREA: 0.14 AC
3. EXISTING RV VALUE: 0.108
4. PEAK FLOW RUNOFF
   - 4.1. 2 YEAR: 13.15 CFS
   - 4.2. 5 YEAR: 22.05 CFS
   - 4.3. 10 YEAR: 28.30 CFS
   - 4.4. 25 YEAR: 36.49 CFS
   - 4.5. 50 YEAR: 42.67 CFS
   - 4.6. 100 YEAR: 48.82 CFS

LEGEND

- IRON ROD (OLD)
- BENCHMARK
- CATCH BASIN
- FIRE HYDRANT
- SEWER MANHOLE
- EXISTING TREE
- WATER VALVE
- WATER METER
- IRON ROD (NEW)
- UTILITY POLE

SLOPE ANALYSIS LEGEND

- 20% OR GREATER SLOPES
- 14% TO 19% SLOPES

SITE DATA CHART:

PROJECT NAME: THE MIDDLE EIGHT
COF PROJECT NUMBER: 8154
TAX MAP: 063M
GROUP: A
PARCELS: 04.00
ADDRESS: 209 OLD LIBERTY PIKE
CITY: FRANKLIN
COUNTY: WILLIAMSON
STATE: TENNESSEE
CIVIL DISTRICT: 10
PUD SITE ACREAGE: 7.2
PUD SITE SQUARE FOOTAGE: 313,632 SF

REGULATIONS
BASE ZONING: R4 | RESIDENTIAL 4 DISTRICT
PROPOSED ZONING: PD (38.19 / 3000) | PLANNED DISTRICT
OVERLAY ZONING: CENTRAL FRANKLIN OVERLAY, HISTORIC PRESERVATION OVERLAY, & FLOOD FRINGE OVERLAY
BUILDING TYPES APPLIED: MULTIFAMILY RESIDENTIAL, SINGLE FAMILY RESIDENTIAL, TOWNHOME & DUPLEX UNITS
FRONTAGE TYPES APPLIED:
DUPLEX AND SINGLE FAMILY: YARD FRONTAGE
TOWNHOUSE AND MULTIFAMILY: URBAN FRONTAGE

STORMWATER NARRATIVE

ALL STORMWATER CURRENTLY FLOWS TO THE EXISTING OUTFALL AT THE SOUTHEASTERN CORNER OF THE PROPOSED DEVELOPMENT (OUTFALL #1), WHICH DISCHARGES TO LIBERTY CREEK AND EVENTUALLY TO THE HARPETH RIVER, APPROXIMATELY 850 LF DOWNSTREAM.

STORMWATER QUALITY FOR THE PROPOSED PROJECT WILL BE PROVIDED BY UTILIZING LOW IMPACT DEVELOPMENT (LID) METHODS DESCRIBED IN THE CITY OF FRANKLIN BMP MANUAL, INCLUDING BIORETENTION, AND PERVIOUS PAVEMENT. THESE GREEN INFRASTRUCTURE PRACTICES WILL SATISFY THE CITY REQUIREMENTS CONCERNING STORMWATER QUALITY REQUIREMENTS AS LAID OUT IN THE BMP MANUAL.

STORMWATER QUANTITY FOR THE PROPOSED PROJECT MAY BE PARTIALLY PROVIDED BY UTILIZING BIORETENTION AND PERVIOUS PAVEMENT. THESE GREEN INFRASTRUCTURE PRACTICES WILL DECREASE THE RUNOFF LEAVING THE SITE TO MEET THE CITY REQUIREMENTS CONCERNING PEAK RUNOFF CONTROL.

0 25 50 100 150
SCALE: 1" = 50'

SURVEY INFO
PROVIDED BY: S&ME & CHASTAIN SKILLMAN
DATUM: TENNESSEE STATE PLANE (NAD83 & NAVD 88)

FULMER LUCAS
KVD KISER VOGRIN DESIGN
5005 MERIDIAN BLVD, SUITE 100
FRANKLIN, TN 37067
MAIN: 615.708.0567
WWW.KISERVOGRIN.COM

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/2023	JYB

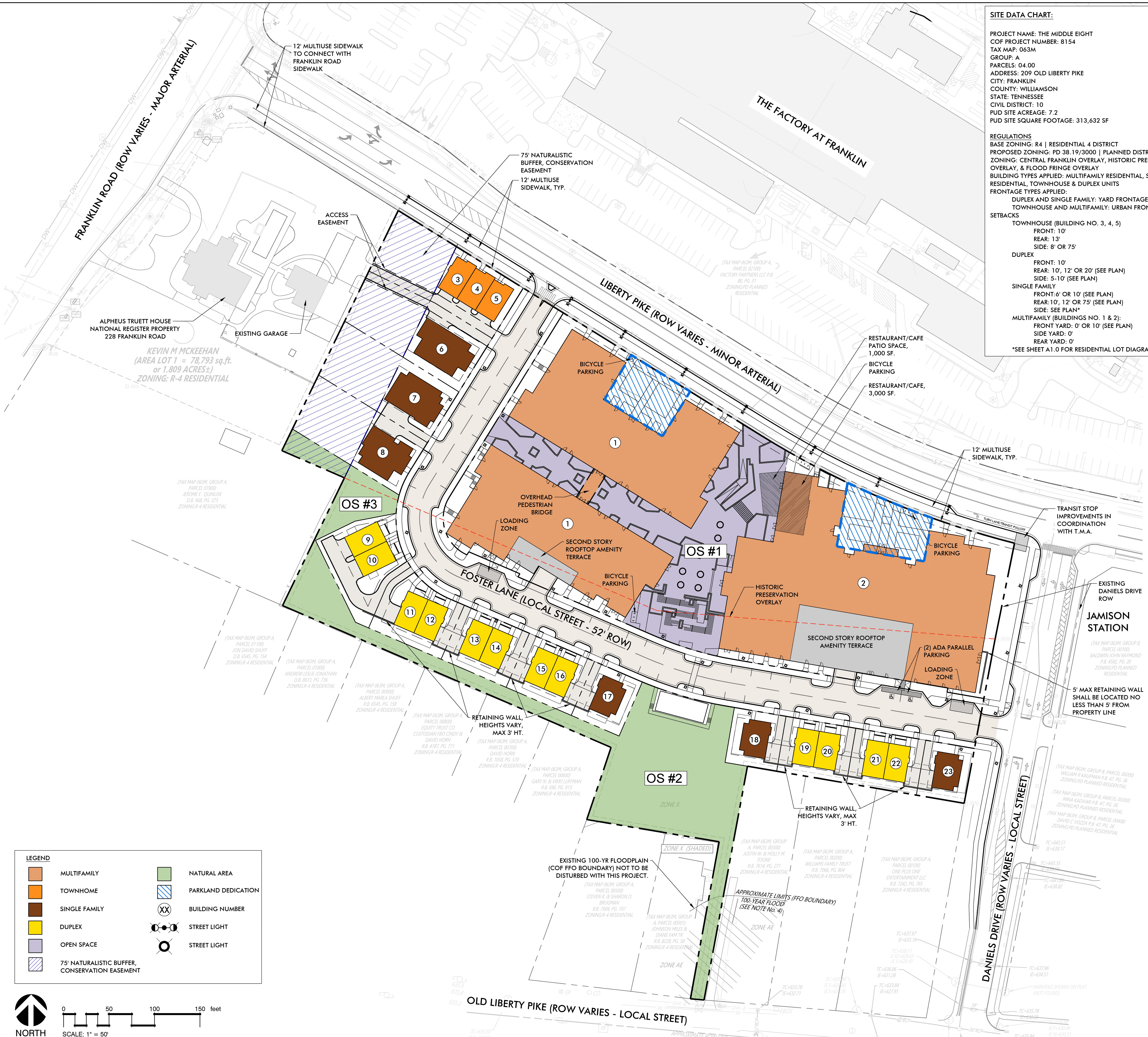
DESIGNED BY: YB
DRAWN BY: JM
CHECKED BY: BD
DATE: 04/10/23

FILE PROJECT NO.
1060-15

DRAWING TITLE:
EXISTING CONDITIONS PLAN

SHEET NUMBER
C1.0

Thursday, May 4, 2023
T:\1060_Site Mgmt\03 - 2DB Franklin Rd\Cad\Sheets\1060-15_Existing Conditions Plan.dwg



SITE DATA CHART:

PROJECT NAME: THE MIDDLE EIGHT
COF PROJECT NUMBER: 8154
TAX MAP: 063M
GROUP: A
PARCELS: 04.00
ADDRESS: 209 OLD LIBERTY PIKE
CITY: FRANKLIN
COUNTY: WILLIAMSON
STATE: TENNESSEE
CIVIL DISTRICT: 10
PUD SITE ACREAGE: 7.2
PUD SITE SQUARE FOOTAGE: 313,632 SF

REGULATIONS
BASE ZONING: R4 | RESIDENTIAL 4 DISTRICT
PROPOSED ZONING: PD 38.19/3000 | PLANNED DISTRICT OVERLAY
ZONING: CENTRAL FRANKLIN OVERLAY, HISTORIC PRESERVATION OVERLAY, & FLOOD FRINGE OVERLAY
BUILDING TYPES APPLIED: MULTIFAMILY RESIDENTIAL, SINGLE FAMILY RESIDENTIAL, TOWNHOUSE & DUPLEX UNITS
FRONTAGE TYPES APPLIED:
DUPLEX AND SINGLE FAMILY: YARD FRONTAGE
TOWNHOUSE AND MULTIFAMILY: URBAN FRONTAGE
SETBACKS
TOWNHOUSE (BUILDING NO. 3, 4, 5)
FRONT: 10'
REAR: 13'
SIDE: 8' OR 75'
DUPLEX
FRONT: 10'
REAR: 10', 12' OR 20' (SEE PLAN)
SIDE: 5-10' (SEE PLAN)
SINGLE FAMILY
FRONT:6' OR 10' (SEE PLAN)
REAR:10', 12' OR 75' (SEE PLAN)
SIDE: SEE PLAN*
MULTIFAMILY (BUILDINGS NO. 1 & 2):
FRONT YARD: 0' OR 10' (SEE PLAN)
SIDE YARD: 0'
REAR YARD: 0'
*SEE SHEET A1.0 FOR RESIDENTIAL LOT DIAGRAM

SITE DATA CHART CONT.:

DWELLING UNIT COUNT, BY TYPE:
A. MULTIFAMILY
STUDIO: 30
1 BEDROOM: 96
2 BEDROOM: 88
3 BEDROOM: 40
SUBTOTAL: 254
B. SINGLE FAMILY, TOWNHOUSE, DUPLEX UNITS
4 BEDROOM SINGLE FAMILY HOMES: 6
3 BEDROOM DUPLEXES: 12
3 BEDROOM TOWNHOUSES: 3
SUBTOTAL: 21
TOTAL DWELLING UNITS: 275

BUILDING HEIGHTS:
- SINGLE FAMILY, DUPLEXES & TOWNHOUSE: 2-3 STORIES
- MULTIFAMILY: 1-6 STORIES

REQUIRED LANDSCAPE SURFACE AREA: 20% (62,726.40 SF)
PROPOSED LANDSCAPE SURFACE AREA: 30% (94,169.09 SF)
OPEN SPACE SF REQUIRED: 5% (15,681 SF)
NATURAL AREA SF REQUIRED: 10% (31,363 SF)
TOTAL OVERALL OPEN SPACE PROVIDED: 20.3% (63,800 SF)
TOTAL ACREAGE OF HEALTHY TREE CANOPY: 0.97 AC (42,337 SF)
TREE CANOPY TO BE RETAINED: 0.25 AC (11,008 SF)
PROPOSED TREE CANOPY RETENTION: 0.53 AC (23,011 SF)

PARKING REQUIRED PER COF Z.O.: 620
PARKING REQUIRED PER MOS: 498
PARKING REQUIRED PER THE MOS + SHARED PARKING: 466
PARKING PROVIDED: 486
REFER TO DETAILED PARKING DATA CHART ON A1.4 AND PARKING STUDY PROVIDED BY KCI DATED MAY 2023.
BICYCLE PARKING REQUIRED FOR MULTIFAMILY: 0.05 SPACE/BR = 22.35
BICYCLE PARKING PROVIDED: 23

HISTORIC RESOURCE TREATMENT: 75' NATURALISTIC BUFFER BETWEEN ALPHEUS TRUETT HOUSE AND SITE.

THE MIDDLE EIGHT - OPEN SPACE REQUIREMENT CHART

SITE ACREAGE: 7.2 AC (313,632 SF)
MINIMUM 5% OPEN SPACE ACREAGE REQUIRED: 0.36 AC(15,681.60 SF)
ADDITIONAL 10% FOR NATURAL AREA: 0.72 AC (31,363.20 SF)

OPEN SPACE PROVIDED

KEY	AREA OF OPEN SPACE SF	HARDSCAPE AREA SF	HARDSCAPE AREA%	STORMWATER FEATURE INCLUDED? Y/N
OS #1 (PLAZA)	28,000	22,400	80%	N
OS #2 (NATURAL AREA)	30,800	N/A	N/A	Y
OS #3 (NATURAL AREA)	5,000	N/A	N/A	N
TOTAL PROVIDED	63,800.00	22,400.00		

OPEN SPACE PROVIDED:0.64 AC (28,000 SF)
NATURAL OPEN SPACE PROVIDED: 0.82 AC (35,800 SF)
TOTAL OVERALL OPEN SPACE PROVIDED: 1.46 AC (63,800 SF)

NOTE: EACH OPEN SPACE AREA SHALL BE DESIGNED IN FURTHER DETAIL IN A WAY THAT MEETS OR EXCEEDS THE STANDARDS OF ITS DESIGNATED OPEN SPACE TYPE STATED IN CHAPTER 11 OF THE FRANKLIN ZONING ORDINANCE DATED 01-01-2023.

REFER TO C2.1 FOR OPEN SPACE PLAN.

THE MIDDLE EIGHT - BUILDING DATA CHART

BUILDING NO.	BUILDING TYPE	RESIDENTIAL (DU)	BUILDING STORIES	ASSOCIATED GARAGE PARKING	ON STREET/PARALLEL PARKING
1-2	MULTIFAMILY	254	1-6	400	28
3-5	TOWNHOME	3	2-3	6*	3
6-8 , 17-18 , 23	SINGLE FAMILY	6	2-3	12*	0
9-16 , 19-22	DUPLEX	12	2-3	24*	13
TOTAL	-	275	-	486 PARKING SPACES	
DENSITY	-	38.20 DU/A	-	-	

*FOR THESE USES, THE GARAGE PARKING IS LOCATED WITHIN THEIR INDIVIDUAL LOTS.

IMPACT STATEMENT

GRADING/SW PLAN
THE PROPOSED DEVELOPMENT WILL CONSIST OF 275 TOTAL RESIDENCES. THESE PROPOSED RESIDENCES WILL REQUIRE POLICE, FIRE AND SOLID WASTE SERVICES. IT IS ALSO ANTICIPATED THAT RESIDENTS WILL UTILIZE PUBLIC RECREATIONAL FACILITIES. IMPACT TO SURROUNDING DRAINAGE FACILITIES IS ANTICIPATED TO BE MINIMAL AS THE PROPOSED DEVELOPMENT WILL SATISFY THE CITY REQUIREMENTS FOR STORMWATER QUALITY AND QUANTITY.

ROW/ACCESS PLAN
A TRAFFIC IMPACT STUDY WILL BE PRODUCED BY KCI BASED ON TRAFFIC COUNTS COLLECTED ON A TYPICAL WEEKDAY WHEN SCHOOLS WERE IN SESSION.

UTILITY PLAN
THE DEMAND OF THE PROPOSED DEVELOPMENT CAN BE ADEQUATELY ACCOMMODATED BY THE EXISTING INFRASTRUCTURE, AND THE PROJECT IS NOT ANTICIPATED TO HAVE A NEGATIVE EFFECT ON THE UTILITIES OR OTHER USERS THEREOF. THE PROJECT WILL USE CITY OF FRANKLIN DOMESTIC, FIRE AND IRRIGATION WATER SERVICE, AS WELL AS SANITARY SEWER SERVICE PROVIDED BY CITY OF FRANKLIN.

GENERAL NOTES:
1. THE WEST BUILDING OF THE MIDDLE EIGHT IS ONE RESIDENTIAL BUILDING ACCORDING TO THE 2018 INTERNATIONAL BUILDING CODE, ADOPTED BY THE CITY OF FRANKLIN. THE RELEVANT SECTIONS FOR THIS DETERMINATION ARE SECTION 202, SECTION 310.4, SECTION 503.1.2, AND SECTION 506.2.3.
2. DUE TO TOPOGRAPHY ISSUES ALONG DANIEL'S DRIVE, DWELLING UNITS ARE UP TO 10' LOWER THAN DANIEL'S DRIVE DUE TO EXISTING ROAD GRADE. PER THE ZONING ORDINANCE SECTION 6.7, THIS IS CONSIDERED AN EXISTING CONSTRAINT TO ALLOW FOR ACCESS FROM UNITS TO A PUBLIC STREET.
3. NOTE THAT ALL REQUIRED PARKING FOR TOWNHOMES, DUPLEXES, AND SINGLE FAMILY LOTS WILL BE MET, INCLUDING PARALLEL PARKING FRONTING THE OUTER LOOP OF FOSTER LANE. PARALLEL PARKING ALONG THE INNER LOOP OF FOSTER LANE SHALL SUPPLEMENT PARKING REQUIREMENTS FOR THE MULTIFAMILY AND RESTAURANT/CAFE USES.

ENVISION FRANKLIN DESCRIPTION: THIS DEVELOPMENT PROVIDES A MIX OF RESIDENTIAL BUILDINGS CONSISTENT WITH ENVISION FRANKLIN.

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY: GV
DRAWN BY: GV2
CHECKED BY: KR
DATE: 04/10/23
KVD PROJECT NO. 21065
DRAWING TITLE: DEVELOPMENT PLAN
SHEET NUMBER C2.0

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

GARY MICHAEL VOGRIN REGISTERED LANDSCAPE ARCHITECT TENNESSEE NO. 823
05-04-23

KV+D KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: 615.708.0567
www.kiservogrin.com

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Jamison Station | Daniels Drive | Multifamily Building No. 2 - 288' | Multifamily Building No. 1 - 234' | Foster Lane Townhomes - 72' Building No. 3-5 | 75' Buffer

Liberty Pike Elevation Looking South



Partial Street Plan

All building elevations and exterior materials are preliminary and subject to change.

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224 West Hutson Street Suite 7E
Chicago, Illinois 60654
Main: (312.266.1126
www.antunovich.com

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5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615) 807-7777
www.kiservogrin.com

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5/4/23

DEVELOPMENT PLAN
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209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
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DESIGNED BY: GV
DRAWN BY: GV2
CHECKED BY: KR
DATE: 04/10/23

KVD PROJECT NO. 21065

DRAWING TITLE: ARCHITECTURAL ELEVATIONS

SHEET NUMBER A1.2

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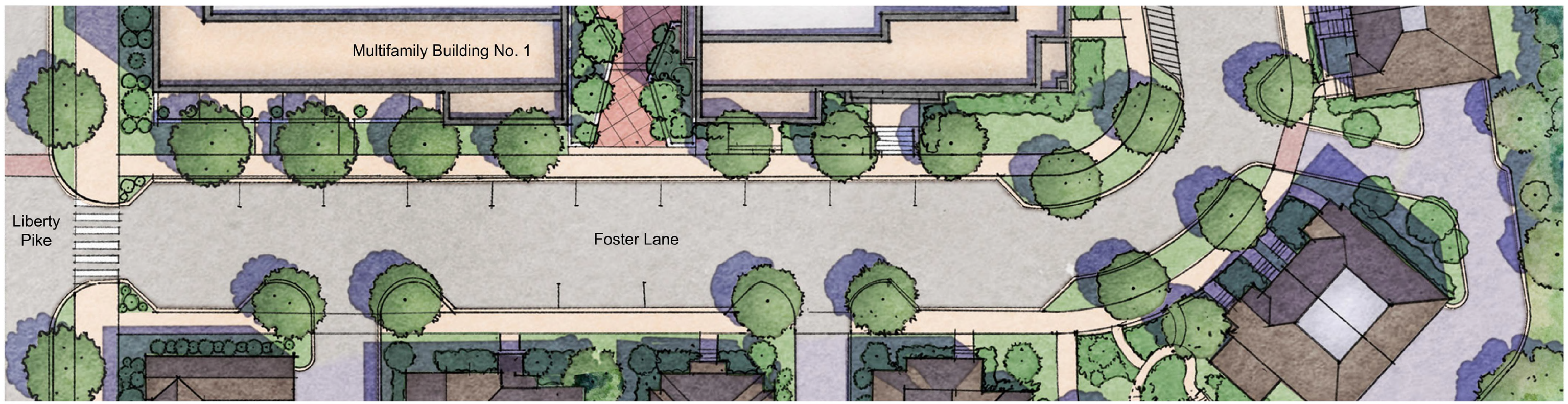
Site Section Looking East at Foster Lane



Partial Foster Lane Plan

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Main: (312.266.1126
www.antunovich.com

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KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615.807.2557
www.kiservogrin.com

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REGISTERED ARCHITECT
No. 107035
STATE OF TENNESSEE

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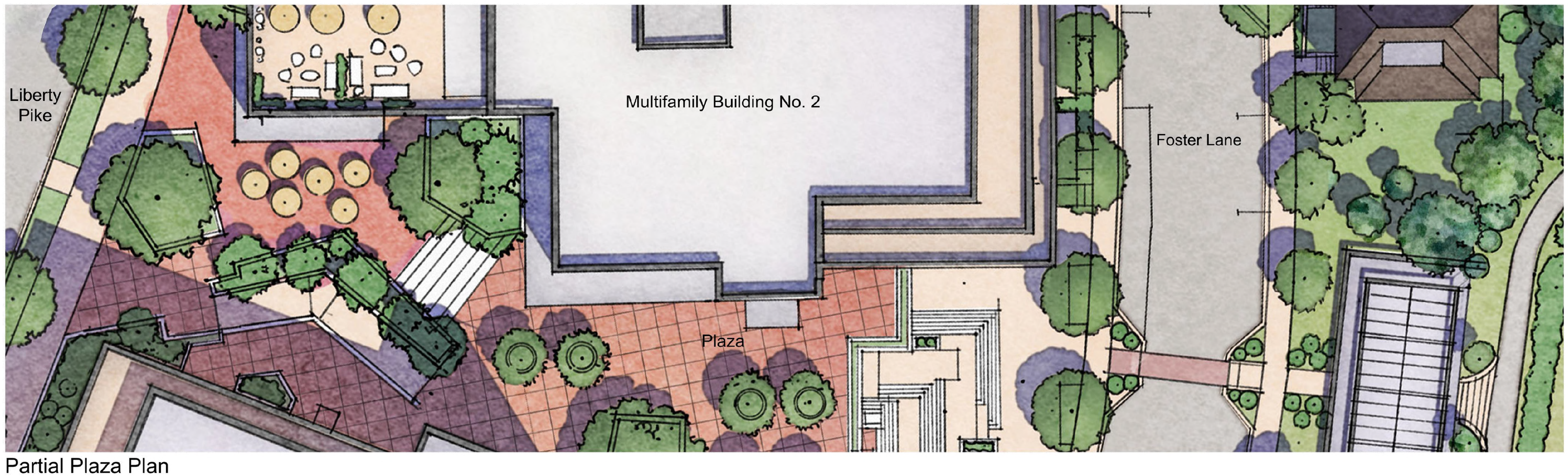
Site Section Looking East at Plaza



Partial Plaza Plan

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Chicago, IL 60654
Main: (312.266.1126
www.antunovich.com

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5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615.708.0567
www.kiservogrin.com

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REGISTERED ARCHITECT
No. 107035
STATE OF TENNESSEE
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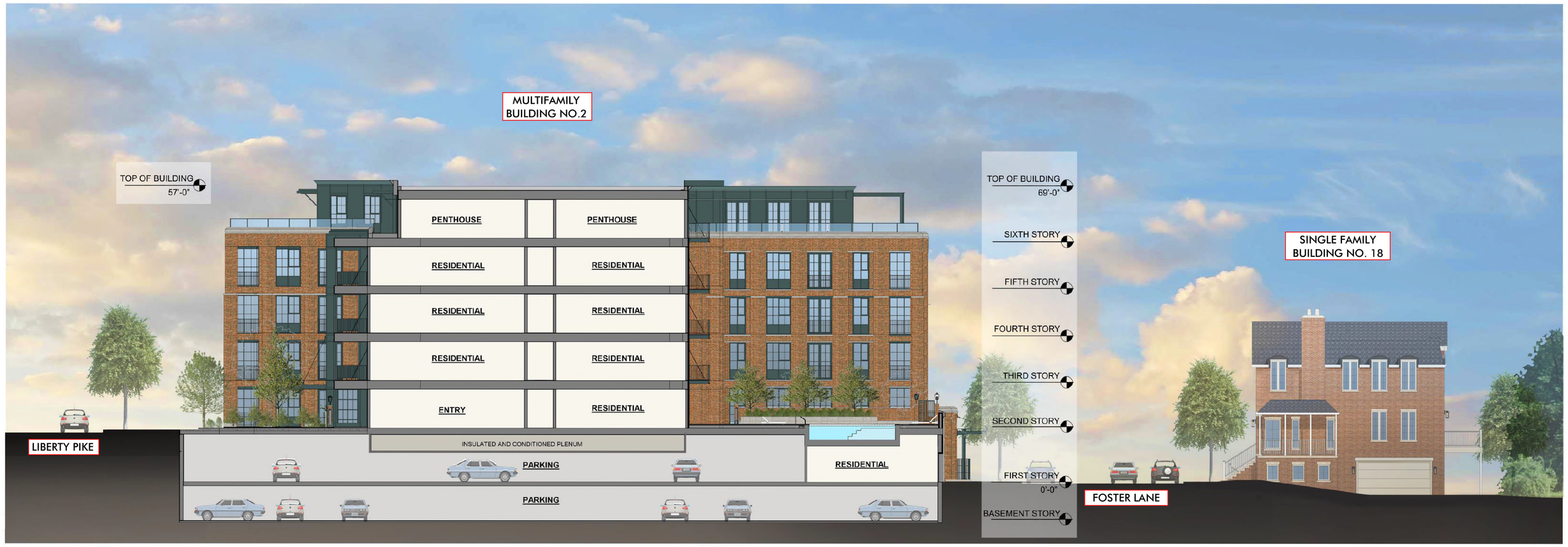
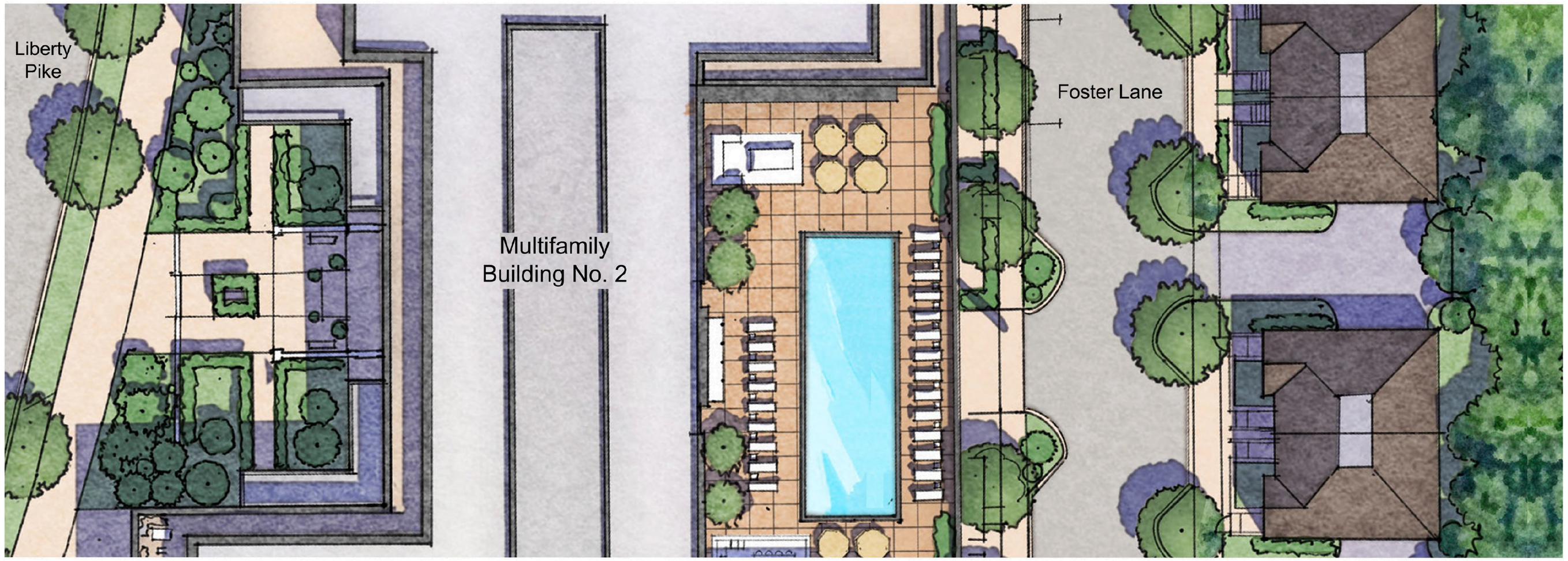


Site Section through Multifamily Building No. 2



Partial Plan of Multifamily Building No. 2

All building elevations and exterior materials are preliminary and subject to change.

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ARCHITECTURE PLANNING INTERIOR DESIGN
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Chicago, Illinois 60654
Main: (312.266.1126
www.antunovich.com

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5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615.656.4127
www.kiservogrin.com

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North-South Site Section looking East



Partial Site Plan

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Chicago, Illinois 60654
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5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615) 656-4477
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REGISTERED ARCHITECT
No. 107854
STATE OF TENNESSEE
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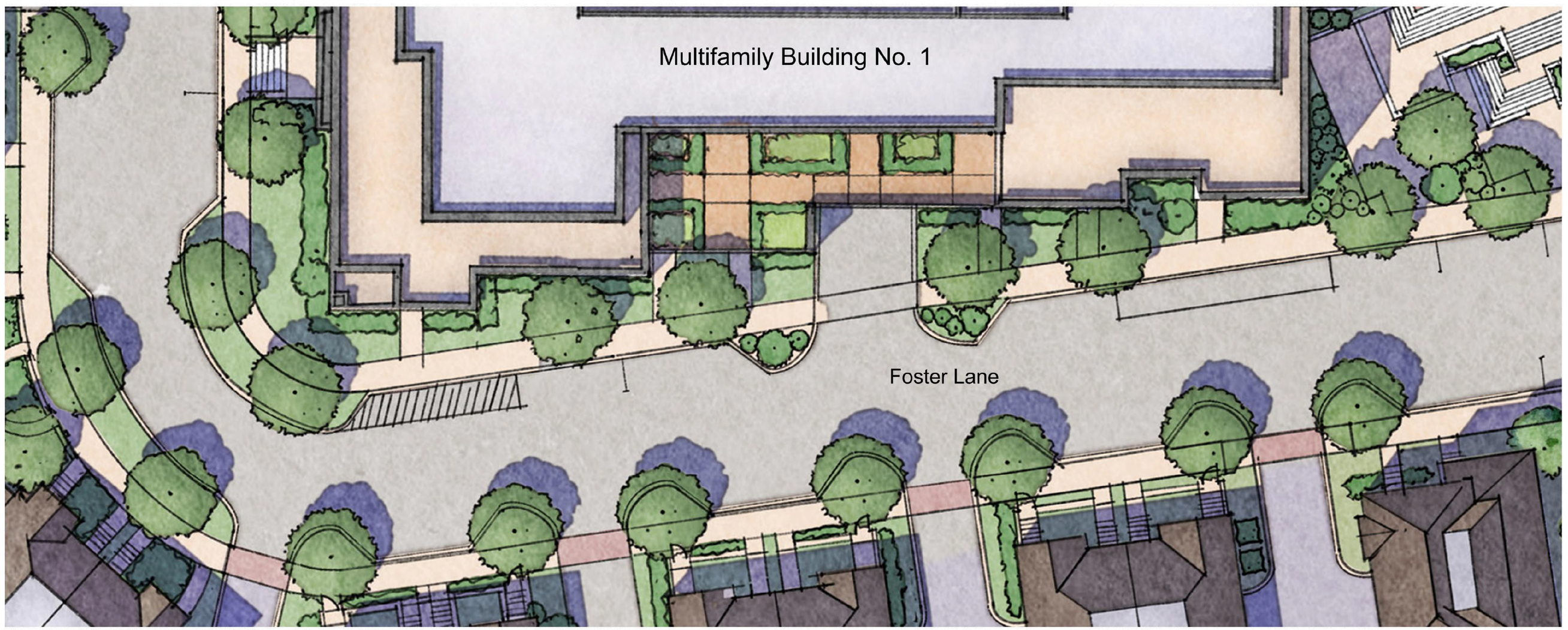
South Elevation of Multifamily Building No. 1



Partial Multifamily Building No. 1 Plan

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Chicago, IL 60654
Main: (313.266.1126
www.antunovich.com

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5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615) 656-4447
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REGISTERED ARCHITECT
No. 107004
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South Elevation of Multifamily Building No. 2



Partial Multifamily Building No. 2 Plan

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Chicago, IL 60654
Main: (312.266.1126
www.antunovich.com

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KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615) 790-5757
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REGISTERED ARCHITECT
No. 107004
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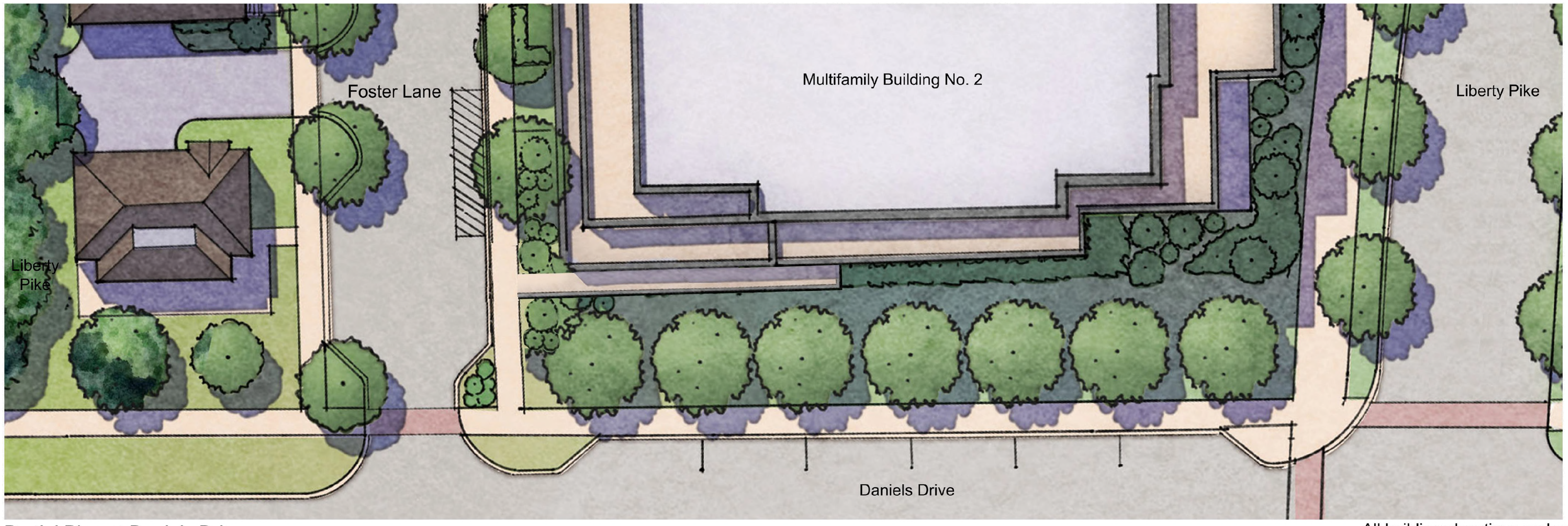
Elevation at Daniels Drive



Partial Plan at Daniels Drive

All building elevations and exterior materials are preliminary and subject to change.

DUE TO TOPOGRAPHY ISSUES ALONG DANIELS DRIVE, DWELLING UNITS ARE UP TO 10' LOWER THAN DANIELS DRIVE DUE TO EXISTING ROAD GRADE. PER THE ZONING ORDINANCE SECTION 6.7, THIS IS CONSIDERED EXISTING CONSTRAINT TO ALLOW FOR ACCESS FROM UNITS TO A PUBLIC STREET.

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Chicago, IL 60654
Main: (313.266.1126
www.antunovich.com

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5005 Meridian Blvd. Ste. 100
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Main: (615) 656-4827
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JOSEPH M. ANTUNOVICH
REGISTERED ARCHITECT
No. 107054
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BIRDS EYE VIEW



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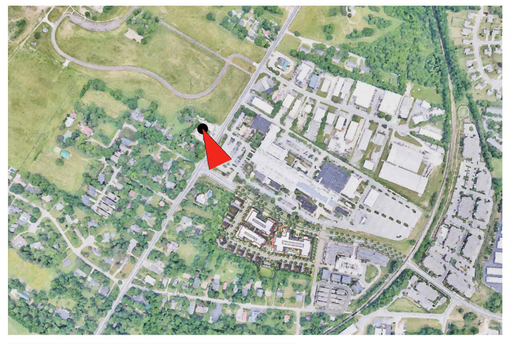
ENLARGED BIRDS EYE VIEW



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TOWNHOMES ON LIBERTY PIKE



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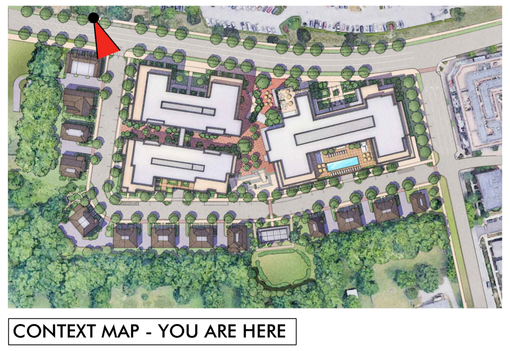
FOSTER LANE VIEW



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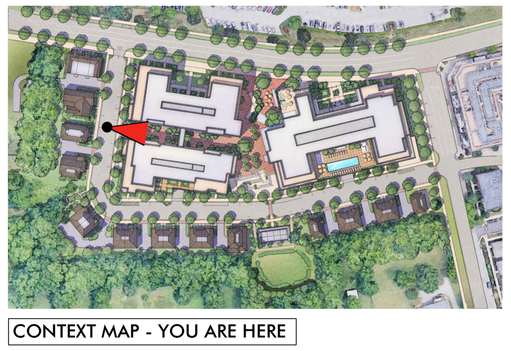
BUILDING NO. 1 RESIDENTIAL PLAZA



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THE PLAZA BETWEEN BUILDINGS NO. 1 AND 2



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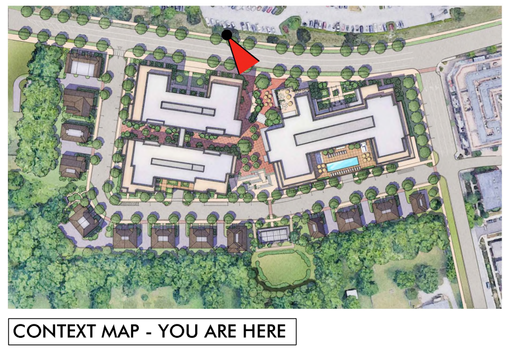
THE PLAZA BETWEEN BUILDING NO. 1 AND 2 ACROSS LIBERTY PIKE



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Franklin, TN 37067
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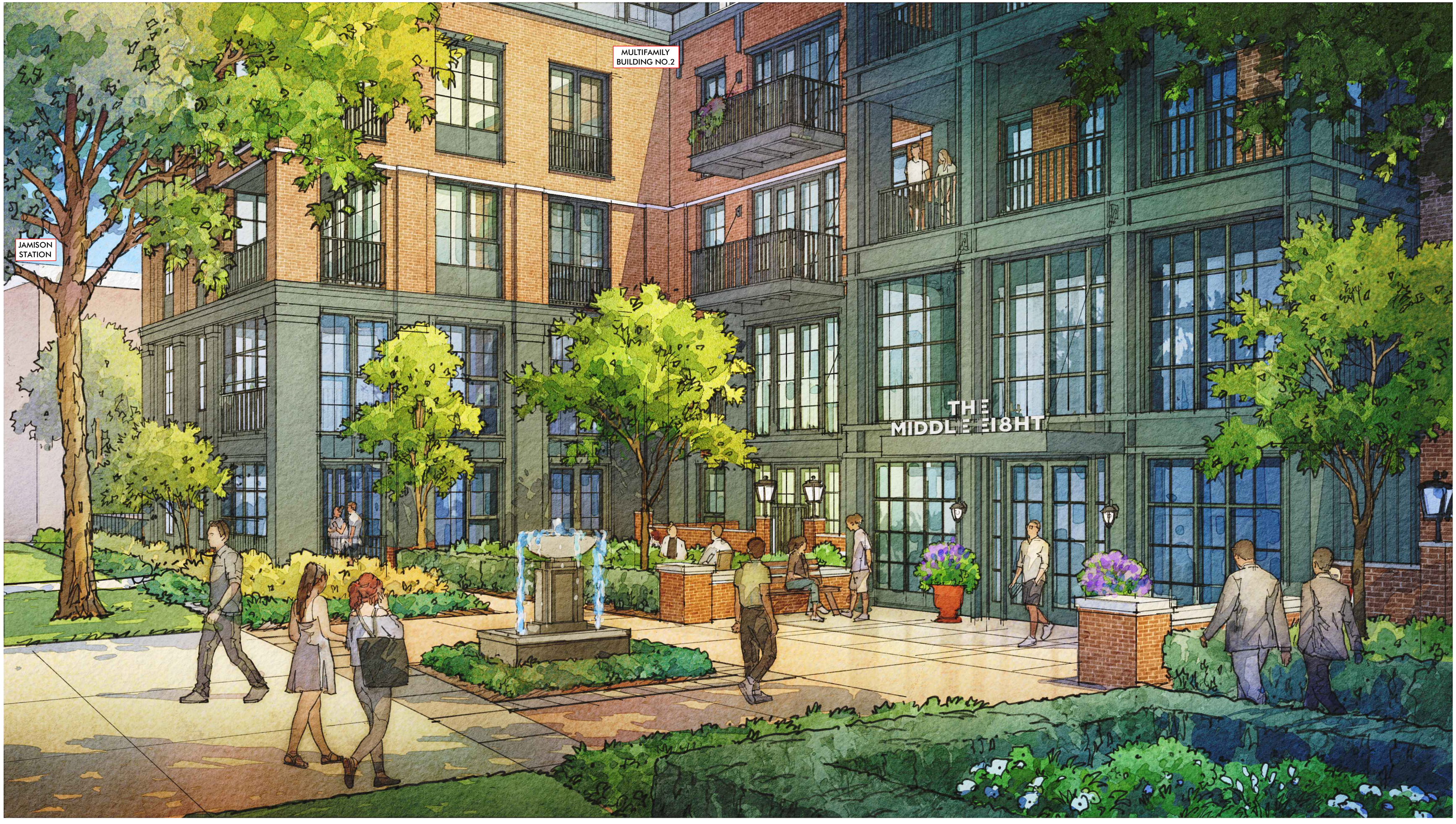
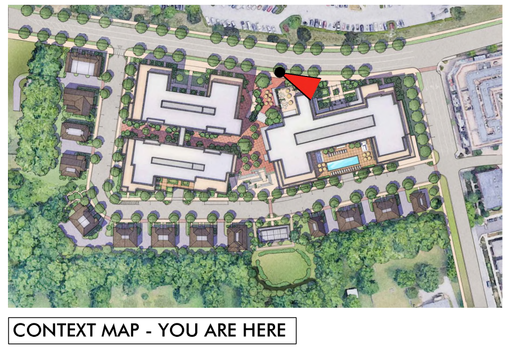


THE COURTYARD OF BUILDING NO. 2



CONTEXT MAP - YOU ARE HERE

KV+D
KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: 615.656.4447
www.kiservogrin.com

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY:	GV
DRAWN BY:	GV2
CHECKED BY:	KR
DATE:	04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:
ARCHITECTURAL RENDERINGS

SHEET NUMBER
A2.7

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THE COURTYARD OF BUILDING NO. 2 FROM ACROSS LIBERTY PIKE



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DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

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DESIGNED BY:	GV
DRAWN BY:	GV2
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KVD PROJECT NO.
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THE PLAZA BETWEEN BUILDINGS NO. 1 AND 2



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DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

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DATE:	04/10/23

KVD PROJECT NO.
21065

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FOSTER LANE VIEWING WEST



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All building elevations and exterior materials are preliminary and subject to change.

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DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY:	GV
DRAWN BY:	GV2
CHECKED BY:	KR
DATE:	04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:
ARCHITECTURAL RENDERINGS

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SIGHTLINE VIEW BEFORE / AFTER AT LIBERTY PIKE FROM FRANKLIN ROAD



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DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 81154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY:	GV
DRAWN BY:	GV2
CHECKED BY:	KR
DATE:	04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:
ARCHITECTURAL RENDERINGS

SHEET NUMBER
A2.11

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SIGHTLINE VIEW BEFORE / AFTER AT LIBERTY PIKE FROM RAILROAD



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DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY:	GV
DRAWN BY:	GV2
CHECKED BY:	KR
DATE:	04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:
ARCHITECTURAL RENDERINGS

SHEET NUMBER
A2.12

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POCKET PARK BETWEEN BUILDINGS NO. 8 AND 9



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Main: 615.905.4567
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DEVELOPMENT PLAN
THE MIDDLE EIGHT

209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY:	GV
DRAWN BY:	GV2
CHECKED BY:	KR
DATE:	04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:

ARCHITECTURAL RENDERINGS

SHEET NUMBER

A2.13

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THE GREENHOUSE PARK



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Franklin, TN 37067
615.656.4447
www.kiservogrin.com

DEVELOPMENT PLAN
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209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY:	GV
DRAWN BY:	GV2
CHECKED BY:	KR
DATE:	04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:
ARCHITECTURAL RENDERINGS

SHEET NUMBER
A2.14

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PARKING GARAGE INTERIOR LOBBY

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KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
615.599.2274
www.kiservogrin.com

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY:	GV
DRAWN BY:	GV2
CHECKED BY:	KR
DATE:	04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:
ARCHITECTURAL RENDERINGS

SHEET NUMBER
A2.15

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DEVELOPMENT PLAN
THE MIDDLE EIGHT
PUD SUBDIVISION

209 OLD LIBERTY PIKE
TAX MAP 063M PARCEL 0400, GROUP A

COF PROJECT # 8154
KVD PROJECT #21065
FRANKLIN, WILLIAMSON CO., TN

CLIENT/DEVELOPER
TRULAND
401 CHURCH STREET
FRANKLIN, TN 37064
CONTACT: AMANDA MCKEEHAN
INFO@TRULANDGROUP.COM

LANDSCAPE ARCHITECT / APPLICANT
KV+D KISER VOGRIN DESIGN
KISER + VOGRIN DESIGN
5005 MERIDIAN BLVD
SUITE 100
FRANKLIN, TN 37067
CONTACT: GARY VOGRIN
(615) 708-0567
GARY@KISERVOGRIN.COM

ARCHITECT
ANTUNOVICH ASSOCIATES
ANTUNOVICH ASSOCIATES.
224 WEST HURON STREET SUITE 7E
CHICAGO, IL 60654
CONTACT: JOSEPH ANTUNOVICH
(312) 266-1126
JANTUNOVICH@ANTUNOVICH.COM

TRAFFIC ENGINEER
KCI TECHNOLOGIES
KCI TECHNOLOGIES INC/
500 11TH AVENUE N
SUITE 290
NASHVILLE, TN 37203
CONTACT: BETH OSTROWSKI
(615)370-8410
BETH.OSTROWSKI@KCI.COM

BRANDING
streetsense.
STREET SENSE
641 S STREET NW
WASHINGTON, DC 20001
CONTACT: DONNA OETZEL
(202)415-0818
DOETZEL@STREETSENSE.COM

CIVIL ENGINEER
FULMER LUCAS
FULMER LUCAS
2002 RICHARD JONES ROAD SUITE B200
NASHVILLE, TN 37215
CONTACT: YATES BATEMAN
(214) 796-1771

GARY MICHAEL VOGRIN REGISTERED LANDSCAPE ARCHITECT TENNESSEE NO. 623
05-04-23

JOSEPH M. ANTUNOVICH REGISTERED ARCHITECT No. 107034 STATE OF TENNESSEE
5/4/23

YATES BATEMAN REGISTERED ENGINEER No. 121934 STATE OF TENNESSEE
05/04/23

SHEET INDEX	SHEET NUMBER	PRE-APP SUBMITTAL	INITIAL SUBMITTAL	RE-SUBMITTAL	ONE STOP
COVER SHEET	C0.0	03-27-2023	04-10-2023	05-04-2023	
ILLUSTRATIVE MASTER PLAN	C0.1	03-27-2023	04-10-2023	05-04-2023	
EXISTING CONDITIONS PLAN	C1.0	03-27-2023	04-10-2023	05-04-2023	
DEVELOPMENT PLAN	C2.0	03-27-2023	04-10-2023	05-04-2023	
OPEN SPACE PLAN	C2.1	03-27-2023	04-10-2023	05-04-2023	
SITE GRADING & DRAINAGE PLAN	C3.0	03-27-2023	04-10-2023	05-04-2023	
ROW & ACCESS PLAN	C4.0	03-27-2023	04-10-2023	05-04-2023	
REFUSE COLLECTION PLAN	C4.1	03-27-2023	04-10-2023	05-04-2023	
FIRE ACCESS PLAN	C4.2	03-27-2023	04-10-2023	05-04-2023	
TIS & STREET SECTIONS	C4.3			05-04-2023	
SITE UTILITY PLAN	C5.0	03-27-2023	04-10-2023	05-04-2023	
OFFSITE SANITARY SEWER IMPROVEMENTS	C5.1	03-27-2023	04-10-2023	05-04-2023	
TREE PRESERVATION PLAN	L1.0	03-27-2023	04-10-2023	05-04-2023	
LOT DIAGRAMS	A1.0	03-27-2023	04-10-2023	05-04-2023	
SITE PARKING DATA	A1.1	03-27-2023	04-10-2023	05-04-2023	
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ARCHITECTURAL ELEVATIONS	A1.3	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.4		04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.5		04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.6		04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.7		04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.8		04-10-2023	05-04-2023	
ARCHITECTURAL ELEVATIONS	A1.9		04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.0	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.1		04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.2	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.3	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.4	03-27-2023	04-10-2023	05-04-2023	
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ARCHITECTURAL RENDERINGS	A2.7	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.8	03-27-2023	04-10-2023	05-04-2023	
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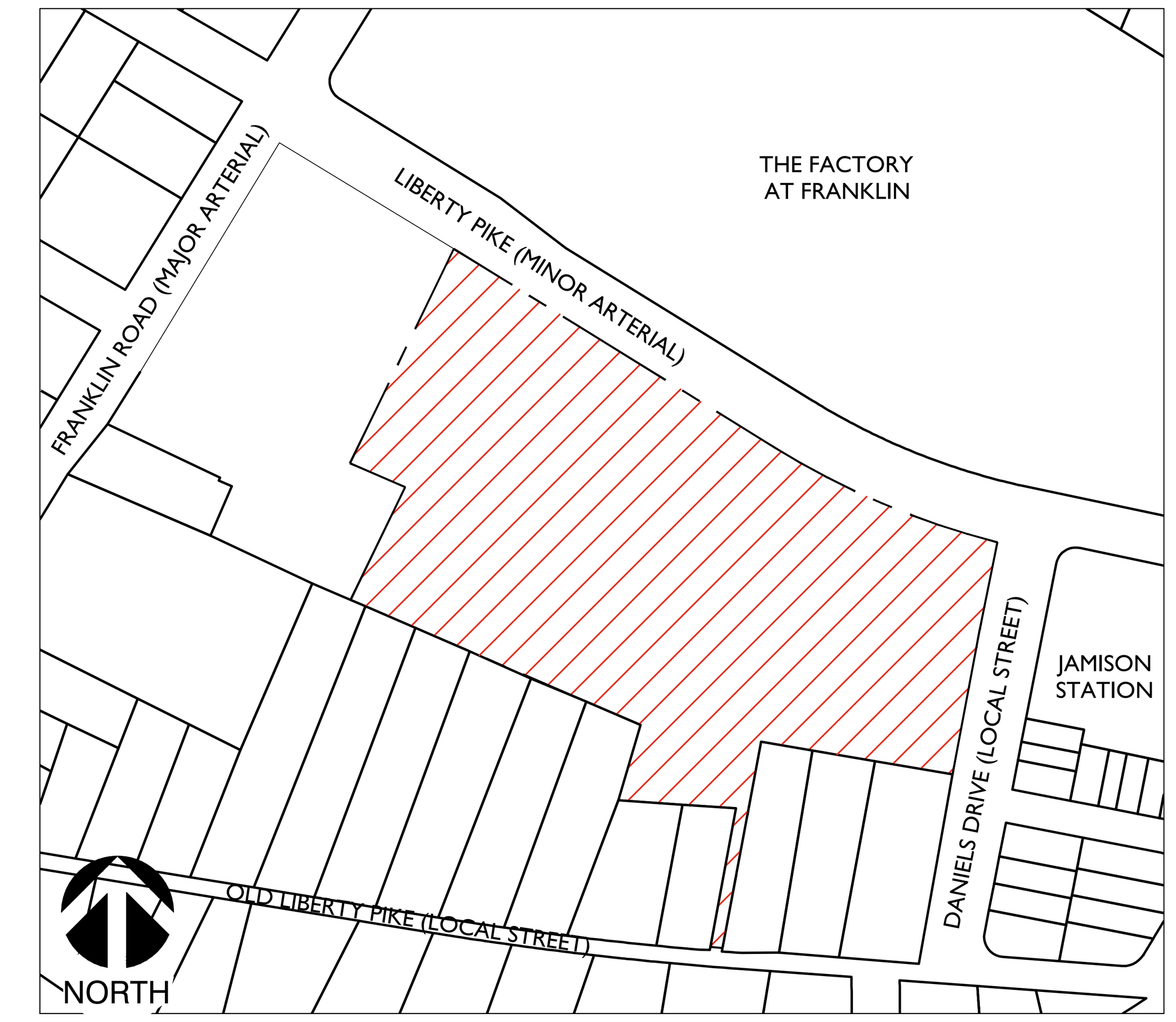
ARCHITECTURAL RENDERINGS	A2.13	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.14	03-27-2023	04-10-2023	05-04-2023	
ARCHITECTURAL RENDERINGS	A2.15	03-27-2023	04-10-2023	05-04-2023	



SITE LOCATION MAP
1"=200'

ENVISION FRANKLIN PLAN AMENDMENT:
ADDITIONAL HEIGHT MAY BE CONSIDERED WHEN UNDERGROUND PARKING IS PROVIDED. WITH ANY ADDITIONAL HEIGHT, THE STRUCTURE SHOULD BE SIMILAR TO, AND COMPATIBLE WITH ADJACENT MULTIFAMILY; HEIGHT SHOULD TRANSITION DOWN TOWARDS THE TRUETT HOUSE SO THAT EACH SIDE OF THE PARCEL IS CONTEXTUALLY APPROPRIATE WITH ADJACENT STRUCTURES. LIMITED RETAIL IS APPROPRIATE WHEN IT SUPPORTS THE COMMUNITY, NEIGHBORS, OR THE RESIDENTIAL EXPERIENCE.

THE MIDDLE EIGHT PARKING DATA*

Use	Parking Requirement (per COF Zoning Ordinance dated 01/01/2023)	Number of Employees on Largest Shift	Outdoor/Indoor Square Footage (SF)	Number of Units	Total Spaces Required per COF Zoning Ordinance dated 01/01/2023	Parking Requirement (per M.O.S. request)	Total Spaces Required per M.O.S. Request & Shared Parking*	Total Spaces Provided	
Duplex/Townhome/ Single-Family								Unit Garages	On-Street/ Parallel
3 Bed Dup & SF House	3			12	36		36	24	13
3 Bed TH	3			3	9		9	6	3
SF House	2			6	12		12	12	0
Total Dup/TH/SF				21	57		57	58	
Multifamily								Parking Garage	On-Street
Studio MF	1.5			30	45	1.02	31	367	20
1 Bed MF	1.5			96	144	1.02	98		
2 Bed MF	2.5			88	220	1.89	167		
3 Bed MF	3			40	120	2.76	111		
Total Multifamily				254	529		407	387	
Restaurant / Café								Parking Garage	On-Street
	7.5 spaces per 1,000 square feet of gross floor area of the building and any outdoor seating area + 0.75 space per employee on largest shift	4	4000		34		34	33	8
							Shared Parking Reduction -32		
Overall Total				275	620		466	486	

* Refer to the Parking Memo dated May 2023 prepared by KCI Technologies for shared parking supplemental data.



SITE DATA CHART:

PROJECT NAME: THE MIDDLE EIGHT
COF PROJECT NUMBER: 8154
TAX MAP: 063M
GROUP: A
PARCELS: 04.00
ADDRESS: 209 OLD LIBERTY PIKE
CITY: FRANKLIN
COUNTY: WILLIAMSON
STATE: TENNESSEE
CIVIL DISTRICT: 10
PUD SITE ACREAGE: 7.2
PUD SITE SQUARE FOOTAGE: 313,632 SF

REGULATIONS
BASE ZONING: R4 | RESIDENTIAL 4 DISTRICT
PROPOSED ZONING: PD 38.19/3000 | PLANNED DISTRICT OVERLAY
ZONING: CENTRAL FRANKLIN OVERLAY, HISTORIC PRESERVATION OVERLAY, & FLOOD FRINGE OVERLAY
BUILDING TYPES APPLIED: MULTIFAMILY RESIDENTIAL, SINGLE FAMILY RESIDENTIAL, TOWNHOUSE & DUPLEX UNITS
FRONTAGE TYPES APPLIED:
- DUPLEX AND SINGLE FAMILY: YARD FRONTAGE
- TOWNHOUSE AND MULTIFAMILY: URBAN FRONTAGE

SETBACKS
- TOWNHOUSE (BUILDING NO. 3, 4, 5)
  - FRONT: 10'
  - REAR: 13'
  - SIDE: 8' OR 75'
- DUPLEX
  - FRONT: 10'
  - REAR: 10', 12' OR 20' (SEE PLAN)
  - SIDE: 5-10' (SEE PLAN)
- SINGLE FAMILY
  - FRONT:6' OR 10' (SEE PLAN)
  - REAR:10', 12' OR 75' (SEE PLAN)
  - SIDE: SEE PLAN*
- MULTIFAMILY (BUILDINGS NO. 1 & 2):
  - FRONT YARD: 0' OR 10' (SEE PLAN)
  - SIDE YARD: 0'
  - REAR YARD: 0'
- *SEE SHEET A1.0 FOR RESIDENTIAL LOT DIAGRAM

SITE DATA CHART CONT.:

DWELLING UNIT COUNT, BY TYPE:
A. MULTIFAMILY
- STUDIO: 30
- 1 BEDROOM: 96
- 2 BEDROOM: 88
- 3 BEDROOM: 40
- SUBTOTAL: 254

B. SINGLE FAMILY, TOWNHOUSE, DUPLEX UNITS
- 4 BEDROOM SINGLE FAMILY HOMES: 6
- 3 BEDROOM DUPLEXES: 12
- 3 BEDROOM TOWNHOUSES: 3
- SUBTOTAL: 21

TOTAL DWELLING UNITS: 275

BUILDING HEIGHTS:
- SINGLE FAMILY, DUPLEXES & TOWNHOUSE: 2-3 STORIES
- MULTIFAMILY: 1-6 STORIES

REQUIRED LANDSCAPE SURFACE AREA: 20% (62,726.40 SF)
PROPOSED LANDSCAPE SURFACE AREA: 30% (94,169.09 SF)
OPEN SPACE SF REQUIRED: 5% (15,681 SF)
NATURAL AREA SF REQUIRED: 10% (31,363 SF)
TOTAL OVERALL OPEN SPACE PROVIDED: 20.3% (63,800 SF)
TOTAL ACREAGE OF HEALTHY TREE CANOPY: 0.97 AC (42,337 SF)
TREE CANOPY TO BE RETAINED: 0.25 AC (11,008 SF)
PROPOSED TREE CANOPY RETENTION: 0.53 AC (23,011 SF)

PARKING REQUIRED PER COF Z.O.: 620
PARKING REQUIRED PER MOS: 498
PARKING REQUIRED PER THE MOS + SHARED PARKING: 466
PARKING PROVIDED: 486
REFER TO DETAILED PARKING DATA CHART ON A1.4 AND PARKING STUDY PROVIDED BY KCI DATED MAY 2023.
BICYCLE PARKING REQUIRED FOR MULTIFAMILY: 0.05 SPACE/BR = 22.35
BICYCLE PARKING PROVIDED: 23

HISTORIC RESOURCE TREATMENT: 75' NATURALISTIC BUFFER BETWEEN ALPHEUS TRUETT HOUSE AND SITE.

MODIFICATION OF STANDARDS REQUEST

THE APPLICANT REQUESTS A MODIFICATION OF STANDARDS REGARDING SECTION 10.1.6 MINIMUM PARKING WITHIN THE FRANKLIN ZONING ORDINANCE. THIS PROPOSED MODIFICATION OF STANDARDS REQUESTS A REDUCTION IN RESIDENTIAL PARKING MINIMUMS FOR THE MULTIFAMILY RESIDENTIAL. THE REDUCTION IS SUPPORTED BY THE PARKING ANALYSIS PROVIDED IN THE ATTACHED PARKING MEMO FROM KCI DATED MAY 2023. REFER TO THE CHART BELOW FOR REQUESTED REDUCTION IN PARKING RATES.

LAND USE		REQUIRED RATES (PER COF ZONING ORDINANCE DATED 01.01.2023	PROPOSED RATES
MULTI-FAMILY	STUDIO	1.5	1.02
	1-BEDROOM	1.5	1.02
	2-BEDROOM	2.5	1.89
	3-BEDROOM	3.0	2.76

LAND USE PLAN AMENDMENT:

LAND USE PLAN AMENDMENT REQUEST WAS APPROVED BY FRANKLIN MUNICIPAL PLANNING COMMISSION ON 03.23.23 BY A 7-0 UNANIMOUS VOTE

PARKLAND DEDICATION REQUIREMENTS:
275 UNITS x $4,304= $1,183,600 TO MEET THE ORDINANCE.

25% OF THE TOTAL AMOUNT OR $295,900 WILL BE DUE AT FINAL PLAT PLUS THE NUMBER OF DWELLINGS FOR THAT PHASE AT A RATE OF $3,228 PER UNIT.

THE 25% OR $295,900 WILL NOT BE REIMBURSABLE AND WILL REMAIN IN QUAD 1 FOR FUTURE PARKS.

THE 75% OR $887,700 IS POSSIBLE FOR REIMBURSEMENT WITH AN AGREEMENT AND EXHIBITS SHOWING IMPROVEMENTS.

THE DEVELOPER SHALL ENTER INTO A CONTRACT WITH THE CITY WHICH CONTAINS TERMS AND CONDITIONS RELATIVE TO THE PARKLAND IMPACT FEES REQUIRED TO BE PAID BY THE DEVELOPER AND/OR ANY OFF-SETS GRANTED FOR PARKLAND DEDICATION AND/OR CONSTRUCTION OF PARK IMPROVEMENTS AS MAY BE REQUESTED BY THE DEVELOPER. SUCH CONTRACT SHALL BE FINALIZED CONCURRENTLY WITH THE APPROVAL OF THE DEVELOPMENT PLAN OR SITE PLAN WHEN A DEVELOPMENT PLAN IS NOT REQUIRED. WHEN NEITHER A DEVELOPMENT PLAN OR SITE PLAN EXIST, THE CONTRACT SHALL BE APPROVED BY BOMA PRIOR TO THE ISSUANCE OF A BUILDING PERMIT AND SHALL CONTAIN FINANCIAL ASSURANCE TO THE CITY.

COMPREHENSIVE REVIEW OF 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.

VESTING DEVELOPMENT STANDARDS

DEVELOPMENT STANDARD	VERSION/DATE
ZONING ORDINANCE	01-01-2023
SUBDIVISION REGULATIONS	01-01-2022
HISTORIC DISTRICT DESIGN GUIDELINES	05-30-2022
TRANSPORTATION & STREET TECHNICAL STANDARDS	07-01-2021
STORMWATER BMP MANUAL	07-01-2021
TECHNICAL SPECIFICATIONS FOR UTILITY INSTALLATION	10-13-2020 OR NEWEST VERSION
MUNICIPAL CODE	VARIES - STANDARDS EFFECTIVE ON 12-12-2022 APPLY

KVD PROJECT# : 21065
COF PROJECT# : 8154
Sheet #:
C0.0
DATE: 05.04.2023



1 MULTIFAMILY

2 SINGLE FAMILY

3 DUPLEX

4 TOWNHOME

5 FIRST FLOOR RESTAURANT / CAFE

6 PARKING GARAGE ENTRANCE

7 52' PROPOSED RIGHT OF WAY

8 75' NATURALISTIC BUFFER

9 HISTORIC PRESERVATION OVERLAY DISTRICT

10 STORMWATER TREATMENT

NOTE: THIS PAGE PROVIDES A CONCEPTUAL ILLUSTRATIVE PLAN OF HOW THE SITE MAY BE DEVELOPED IN ACCORDANCE WITH THE PROJECT DEVELOPMENT PLAN. SPECIFIC PLANS WILL BE PROVIDED DURING THE SITE PLAN PHASE.

NORTH

0 30 60 90 feet

SCALE: 1"=30'

KV+D
KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: 615.807.2807
www.kiservogrin.com

GARY MICHAEL VOGRIN
REGISTERED
TENNESSEE
LANDSCAPE ARCHITECT
05-04-23

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY:	GV
DRAWN BY:	GV2
CHECKED BY:	KR
DATE:	04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:

ILLUSTRATIVE MASTER PLAN

SHEET NUMBER

C0.1

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GRADING & DRAINAGE DATA CHART:

1. SITE AREA: 7.19 AC
2. EXISTING IMPERVIOUS AREA: 0.14 AC
3. EXISTING RV VALUE: 0.108
4. PEAK FLOW RUNOFF
   - 4.1. 2 YEAR: 13.15 CFS
   - 4.2. 5 YEAR: 22.05 CFS
   - 4.3. 10 YEAR: 28.30 CFS
   - 4.4. 25 YEAR: 36.49 CFS
   - 4.5. 50 YEAR: 42.67 CFS
   - 4.6. 100 YEAR: 48.82 CFS

LEGEND

- IRON ROD (OLD)
- BENCHMARK
- CATCH BASIN
- FIRE HYDRANT
- SEWER MANHOLE
- EXISTING TREE
- WATER VALVE
- WATER METER
- IRON ROD (NEW)
- UTILITY POLE

SLOPE ANALYSIS LEGEND

- 20% OR GREATER SLOPES
- 14% TO 19% SLOPES

SITE DATA CHART:

PROJECT NAME: THE MIDDLE EIGHT
COF PROJECT NUMBER: 8154
TAX MAP: 063M
GROUP: A
PARCELS: 04.00
ADDRESS: 209 OLD LIBERTY PIKE
CITY: FRANKLIN
COUNTY: WILLIAMSON
STATE: TENNESSEE
CIVIL DISTRICT: 10
PUD SITE ACREAGE: 7.2
PUD SITE SQUARE FOOTAGE: 313,632 SF

REGULATIONS
BASE ZONING: R4 | RESIDENTIAL 4 DISTRICT
PROPOSED ZONING: PD (38.19 / 3000) | PLANNED DISTRICT
OVERLAY ZONING: CENTRAL FRANKLIN OVERLAY, HISTORIC PRESERVATION OVERLAY, & FLOOD FRINGE OVERLAY
BUILDING TYPES APPLIED: MULTIFAMILY RESIDENTIAL, SINGLE FAMILY RESIDENTIAL, TOWNHOME & DUPLEX UNITS
FRONTAGE TYPES APPLIED:
DUPLEX AND SINGLE FAMILY: YARD FRONTAGE
TOWNHOUSE AND MULTIFAMILY: URBAN FRONTAGE

STORMWATER NARRATIVE

ALL STORMWATER CURRENTLY FLOWS TO THE EXISTING OUTFALL AT THE SOUTHEASTERN CORNER OF THE PROPOSED DEVELOPMENT (OUTFALL #1), WHICH DISCHARGES TO LIBERTY CREEK AND EVENTUALLY TO THE HARPETH RIVER, APPROXIMATELY 850 LF DOWNSTREAM.

STORMWATER QUALITY FOR THE PROPOSED PROJECT WILL BE PROVIDED BY UTILIZING LOW IMPACT DEVELOPMENT (LID) METHODS DESCRIBED IN THE CITY OF FRANKLIN BMP MANUAL, INCLUDING BIORETENTION, AND PERVIOUS PAVEMENT. THESE GREEN INFRASTRUCTURE PRACTICES WILL SATISFY THE CITY REQUIREMENTS CONCERNING STORMWATER QUALITY REQUIREMENTS AS LAID OUT IN THE BMP MANUAL.

STORMWATER QUANTITY FOR THE PROPOSED PROJECT MAY BE PARTIALLY PROVIDED BY UTILIZING BIORETENTION AND PERVIOUS PAVEMENT. THESE GREEN INFRASTRUCTURE PRACTICES WILL DECREASE THE RUNOFF LEAVING THE SITE TO MEET THE CITY REQUIREMENTS CONCERNING PEAK RUNOFF CONTROL.

0 25 50 100 150
SCALE: 1" = 50'

SURVEY INFO
PROVIDED BY: S&ME & CHASTAIN SKILLMAN
DATUM: TENNESSEE STATE PLANE (NAD83 & NAVD 88)

FULMER LUCAS

KVD
KISER VOGRIN DESIGN
5005 MERIDIAN BLVD. SUITE 100
FRANKLIN, TN 37067
MAIN: 615.769.0567
WWW.KISERVOGRIN.COM

JAMES KISER VOGRIN — LICENSED PROFESSIONAL ENGINEER — AGRICULTURE — No. 121924 — STATE OF TENNESSEE

DEVELOPMENT PLAN

THE MIDDLE EIGHT

209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

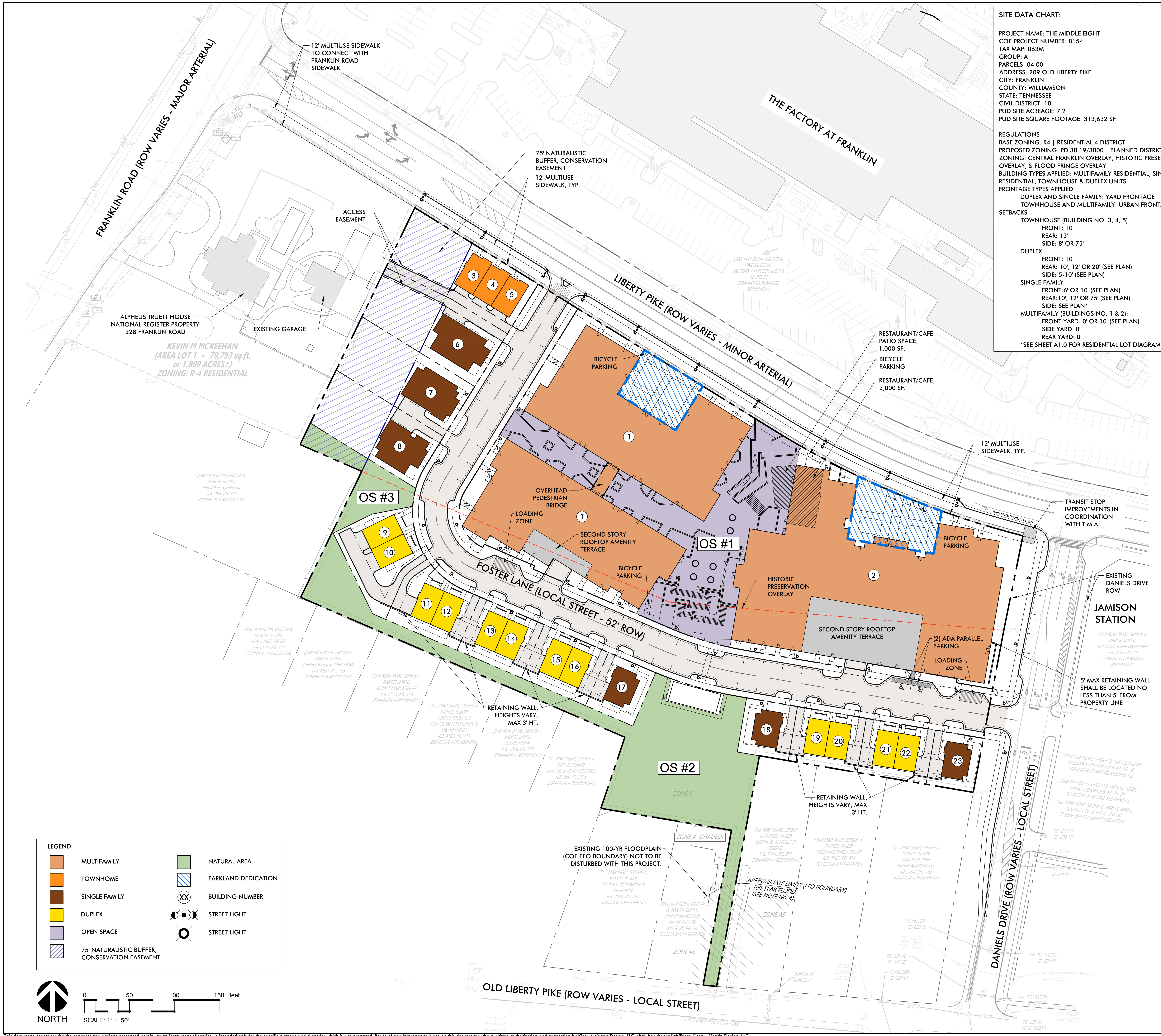
NO.	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/2023	JYB

DESIGNED BY: YB
DRAWN BY: JM
CHECKED BY: BD
DATE: 04/10/23

FLE PROJECT NO.
1060-15

DRAWING TITLE:
EXISTING CONDITIONS PLAN

SHEET NUMBER
C1.0



SITE DATA CHART:

PROJECT NAME: THE MIDDLE EIGHT
COF PROJECT NUMBER: 8154
TAX MAP: 063M
GROUP: A
PARCELS: 04.00
ADDRESS: 209 OLD LIBERTY PIKE
CITY: FRANKLIN
COUNTY: WILLIAMSON
STATE: TENNESSEE
CIVIL DISTRICT: 10
PUD SITE ACREAGE: 7.2
PUD SITE SQUARE FOOTAGE: 313,632 SF

REGULATIONS
BASE ZONING: R4 | RESIDENTIAL 4 DISTRICT
PROPOSED ZONING: PD 38.19/3000 | PLANNED DISTRICT OVERLAY
ZONING: CENTRAL FRANKLIN OVERLAY, HISTORIC PRESERVATION OVERLAY, & FLOOD FRINGE OVERLAY
BUILDING TYPES APPLIED: MULTIFAMILY RESIDENTIAL, SINGLE FAMILY RESIDENTIAL, TOWNHOUSE & DUPLEX UNITS
FRONTAGE TYPES APPLIED:
- DUPLEX AND SINGLE FAMILY: YARD FRONTAGE
- TOWNHOUSE AND MULTIFAMILY: URBAN FRONTAGE

SETBACKS
- TOWNHOUSE (BUILDING NO. 3, 4, 5)
  - FRONT: 10'
  - REAR: 13'
  - SIDE: 8' OR 75'
- DUPLEX
  - FRONT: 10'
  - REAR: 10', 12' OR 20' (SEE PLAN)
  - SIDE: 5-10' (SEE PLAN)
- SINGLE FAMILY
  - FRONT:6' OR 10' (SEE PLAN)
  - REAR:10', 12' OR 75' (SEE PLAN)
  - SIDE: SEE PLAN*
- MULTIFAMILY (BUILDINGS NO. 1 & 2):
  - FRONT YARD: 0' OR 10' (SEE PLAN)
  - SIDE YARD: 0'
  - REAR YARD: 0'

*SEE SHEET A1.0 FOR RESIDENTIAL LOT DIAGRAM

SITE DATA CHART CONT.:

DWELLING UNIT COUNT, BY TYPE:

A. MULTIFAMILY
- STUDIO: 30
- 1 BEDROOM: 96
- 2 BEDROOM: 88
- 3 BEDROOM: 40
- SUBTOTAL: 254

B. SINGLE FAMILY, TOWNHOUSE, DUPLEX UNITS
- 4 BEDROOM SINGLE FAMILY HOMES: 6
- 3 BEDROOM DUPLEXES: 12
- 3 BEDROOM TOWNHOUSES: 3
- SUBTOTAL: 21

TOTAL DWELLING UNITS: 275

BUILDING HEIGHTS:
- SINGLE FAMILY, DUPLEXES & TOWNHOUSE: 2-3 STORIES
- MULTIFAMILY: 1-6 STORIES

REQUIRED LANDSCAPE SURFACE AREA: 20% (62,726.40 SF)
PROPOSED LANDSCAPE SURFACE AREA: 30% (94,169.09 SF)
OPEN SPACE SF REQUIRED: 5% (15,681 SF)
NATURAL AREA SF REQUIRED: 10% (31,363 SF)
TOTAL OVERALL OPEN SPACE PROVIDED: 20.3% (63,800 SF)
TOTAL ACREAGE OF HEALTHY TREE CANOPY: 0.97 AC (42,337 SF)
TREE CANOPY TO BE RETAINED: 0.25 AC (11,008 SF)
PROPOSED TREE CANOPY RETENTION: 0.53 AC (23,011 SF)

PARKING REQUIRED PER COF Z.O.: 620
PARKING REQUIRED PER MOS: 498
PARKING REQUIRED PER THE MOS + SHARED PARKING: 466
PARKING PROVIDED: 486
REFER TO DETAILED PARKING DATA CHART ON A1.4 AND PARKING STUDY PROVIDED BY KCI DATED MAY 2023.
BICYCLE PARKING REQUIRED FOR MULTIFAMILY: 0.05 SPACE/BR = 22.35
BICYCLE PARKING PROVIDED: 23

HISTORIC RESOURCE TREATMENT: 75' NATURALISTIC BUFFER BETWEEN ALPHEUS TRUETT HOUSE AND SITE.

THE MIDDLE EIGHT - OPEN SPACE REQUIREMENT CHART

SITE ACREAGE: 7.2 AC (313,632 SF)
MINIMUM 5% OPEN SPACE ACREAGE REQUIRED: 0.36 AC(15,681.60 SF)
ADDITIONAL 10% FOR NATURAL AREA: 0.72 AC (31,363.20 SF)

OPEN SPACE PROVIDED

KEY	AREA OF OPEN SPACE SF	HARDSCAPE AREA SF	HARDSCAPE AREA%	STORMWATER FEATURE INCLUDED? Y/N
OS #1 (PLAZA)	28,000	22,400	80%	N
OS #2 (NATURAL AREA)	30,800	N/A	N/A	Y
OS #3 (NATURAL AREA)	5,000	N/A	N/A	N
TOTAL PROVIDED	63,800.00	22,400.00		

OPEN SPACE PROVIDED:0.64 AC (28,000 SF)
NATURAL OPEN SPACE PROVIDED: 0.82 AC (35,800 SF)
TOTAL OVERALL OPEN SPACE PROVIDED: 1.46 AC (63,800 SF)

NOTE: EACH OPEN SPACE AREA SHALL BE DESIGNED IN FURTHER DETAIL IN A WAY THAT MEETS OR EXCEEDS THE STANDARDS OF ITS DESIGNATED OPEN SPACE TYPE STATED IN CHAPTER 11 OF THE FRANKLIN ZONING ORDINANCE DATED 01-01-2023.

REFER TO C2.1 FOR OPEN SPACE PLAN.

THE MIDDLE EIGHT - BUILDING DATA CHART

BUILDING NO.	BUILDING TYPE	RESIDENTIAL (DU)	BUILDING STORIES	ASSOCIATED GARAGE PARKING	ON STREET/PARALLEL PARKING
1-2	MULTIFAMILY	254	1-6	400	28
3-5	TOWNHOME	3	2-3	6*	3
6-8 , 17-18 , 23	SINGLE FAMILY	6	2-3	12*	0
9-16 , 19-22	DUPLEX	12	2-3	24*	13
TOTAL	-	275	-	486 PARKING SPACES	
DENSITY	-	38.20 DU/A	-	-	

*FOR THESE USES, THE GARAGE PARKING IS LOCATED WITHIN THEIR INDIVIDUAL LOTS.

IMPACT STATEMENT

GRADING/SW PLAN
THE PROPOSED DEVELOPMENT WILL CONSIST OF 275 TOTAL RESIDENCES. THESE PROPOSED RESIDENCES WILL REQUIRE POLICE, FIRE AND SOLID WASTE SERVICES. IT IS ALSO ANTICIPATED THAT RESIDENTS WILL UTILIZE PUBLIC RECREATIONAL FACILITIES. IMPACT TO SURROUNDING DRAINAGE FACILITIES IS ANTICIPATED TO BE MINIMAL AS THE PROPOSED DEVELOPMENT WILL SATISFY THE CITY REQUIREMENTS FOR STORMWATER QUALITY AND QUANTITY.

ROW/ACCESS PLAN
A TRAFFIC IMPACT STUDY WILL BE PRODUCED BY KCI BASED ON TRAFFIC COUNTS COLLECTED ON A TYPICAL WEEKDAY WHEN SCHOOLS WERE IN SESSION.

UTILITY PLAN
THE DEMAND OF THE PROPOSED DEVELOPMENT CAN BE ADEQUATELY ACCOMMODATED BY THE EXISTING INFRASTRUCTURE, AND THE PROJECT IS NOT ANTICIPATED TO HAVE A NEGATIVE EFFECT ON THE UTILITIES OR OTHER USERS THEREOF. THE PROJECT WILL USE CITY OF FRANKLIN DOMESTIC, FIRE AND IRRIGATION WATER SERVICE, AS WELL AS SANITARY SEWER SERVICE PROVIDED BY CITY OF FRANKLIN.

GENERAL NOTES:
1. THE WEST BUILDING OF THE MIDDLE EIGHT IS ONE RESIDENTIAL BUILDING ACCORDING TO THE 2018 INTERNATIONAL BUILDING CODE, ADOPTED BY THE CITY OF FRANKLIN. THE RELEVANT SECTIONS FOR THIS DETERMINATION ARE SECTION 202, SECTION 310.4, SECTION 503.1.2, AND SECTION 506.2.3.
2. DUE TO TOPOGRAPHY ISSUES ALONG DANIEL'S DRIVE, DWELLING UNITS ARE UP TO 10' LOWER THAN DANIEL'S DRIVE DUE TO EXISTING ROAD GRADE. PER THE ZONING ORDINANCE SECTION 6.7, THIS IS CONSIDERED AN EXISTING CONSTRAINT TO ALLOW FOR ACCESS FROM UNITS TO A PUBLIC STREET.
3. NOTE THAT ALL REQUIRED PARKING FOR TOWNHOMES, DUPLEXES, AND SINGLE FAMILY LOTS WILL BE MET, INCLUDING PARALLEL PARKING FRONTING THE OUTER LOOP OF FOSTER LANE. PARALLEL PARKING ALONG THE INNER LOOP OF FOSTER LANE SHALL SUPPLEMENT PARKING REQUIREMENTS FOR THE MULTIFAMILY AND RESTAURANT/CAFE USES.

ENVISION FRANKLIN DESCRIPTION: THIS DEVELOPMENT PROVIDES A MIX OF RESIDENTIAL BUILDINGS CONSISTENT WITH ENVISION FRANKLIN.

5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: 615.708.0567
www.kiservogrin.com
KV+D
KISER VOGRIN DESIGN

GARY MICHAEL VOGRIN REGISTERED LANDSCAPE ARCHITECT TENNESSEE NO. 623
05-04-23

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY:	GV
DRAWN BY:	GV2
CHECKED BY:	KR
DATE:	04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:
DEVELOPMENT PLAN

SHEET NUMBER
C2.0

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THE MIDDLE EIGHT - OPEN SPACE REQUIREMENT CHART

SITE ACREAGE: 7.2 AC (313,632 SF)
MINIMUM 5% OPEN SPACE ACREAGE REQUIRED: 0.36 AC(15,681.60 SF)
ADDITIONAL 10% FOR NATURAL AREA: 0.72 AC (31,363.20 SF)

OPEN SPACE PROVIDED

KEY	AREA OF OPEN SPACE SF	HARDSCAPE AREA SF	HARDSCAPE AREA%	STORMWATER FEATURE INCLUDED? Y/N
OS #1 (PLAZA)	28,000	22,400	80%	N
OS #2 (NATURAL AREA)	30,800	N/A	N/A	Y
OS #3 (NATURAL AREA)	5,000	N/A	N/A	N
TOTAL PROVIDED	63,800.00	22,400.00		

OPEN SPACE PROVIDED:0.64 AC (28,000 SF)
NATURAL OPEN SPACE PROVIDED: 0.82 AC (35,800 SF)
TOTAL OVERALL OPEN SPACE PROVIDED: 1.46 AC (63,800 SF)

NOTE: EACH OPEN SPACE AREA SHALL BE DESIGNED IN FURTHER DETAIL IN A WAY THAT MEETS OR EXCEEDS THE STANDARDS OF ITS DESIGNATED OPEN SPACE TYPE STATED IN CHAPTER 11 OF THE FRANKLIN ZONING ORDINANCE DATED 01-01-2023.

OS #1 | PLAZA - 28,000 SF		REQUIRED
LANDSCAPE	CANOPY TREES	8
	UNDERSTORY TREES	16
HARDSCAPE	IMPERVIOUS SURFACE	50% - 80%
FEATURES (FOUR OF THE FEATURES IS REQUIRED)	SEATING ELEMENTS	-
	SPECIALIZED OR DECORATIVE HARDSCAPE	-
	PEDESTRIAN-SCALE LIGHTING BEYOND THAT REQUIRED TO ILLUMINATE PUBLIC RIGHT-OF-WAY	-
	ARCADES, CANOPIES, AWNINGS, OR OVERHANGS TO SHIELD PEDESTRIANS	-
	FURNISHINGS, SUCH AS PLANTERS, WASTE RECEPTACLES, BICYCLE RACKS, DRINKING FOUNTAINS, OR TRANSIT SHELTERS	-
	FOUNTAINS, SCULPTURES, OR ART	-

OS # 2 | NATURAL AREA - 30,800 SF		REQUIRED
LANDSCAPE	CANOPY TREES	13
	UNDERSTORY TREES	25
FEATURES (FOUR OF THE FEATURES ARE REQUIRED)	SEATING ELEMENTS	-
	CANOPIES OR GAZEBOS TO SHIELD PEDESTRIANS	-
	FURNISHINGS, SUCH AS PLANTERS, WASTE RECEPTACLES, BICYCLE RACKS, DRINKING FOUNTAINS, OR TRANSIT SHELTERS	-
	FOUNTAINS, SCULPTURES, OR ART	-
	PLAYGROUNDS	-
NOTE	STORMWATER MANAGEMENT FEATURES MAY OCCUPY UP TO 40%	

OS # 3 | NATURAL AREA - 5,000 SF		REQUIRED
LANDSCAPE	CANOPY TREES	2
	UNDERSTORY TREES	4
FEATURES (FOUR OF THE FEATURES ARE REQUIRED)	SEATING ELEMENTS	-
	CANOPIES OR GAZEBOS TO SHIELD PEDESTRIANS	-
	FURNISHINGS, SUCH AS PLANTERS, WASTE RECEPTACLES, BICYCLE RACKS, DRINKING FOUNTAINS, OR TRANSIT SHELTERS	-
	FOUNTAINS, SCULPTURES, OR ART	-
	PLAYGROUNDS	-
NOTE	STORMWATER MANAGEMENT FEATURES MAY OCCUPY UP TO 40%	

LEGEND

- MULTIFAMILY
- TOWNHOME
- SINGLE FAMILY
- DUPLEX
- OPEN SPACE
- 75' NATURALISTIC BUFFER, CONSERVATION EASEMENT
- NATURAL AREA
- PARKLAND DEDICATION
- XX BUILDING NUMBER
- STREET LIGHT
- STREET LIGHT

NORTH

0 50 100 150 feet

SCALE: 1" = 50'

5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: 615.599.2313
www.kiser-vogrin.com

KV+D
KISER VOGRIN DESIGN

GARY MICHAEL VOGRIN
REGISTERED
TENNESSEE
LANDSCAPE ARCHITECT
05-04-23

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY: GV
DRAWN BY: GV2
CHECKED BY: KR
DATE: 04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:

OPEN SPACE PLAN

SHEET NUMBER

C2.1

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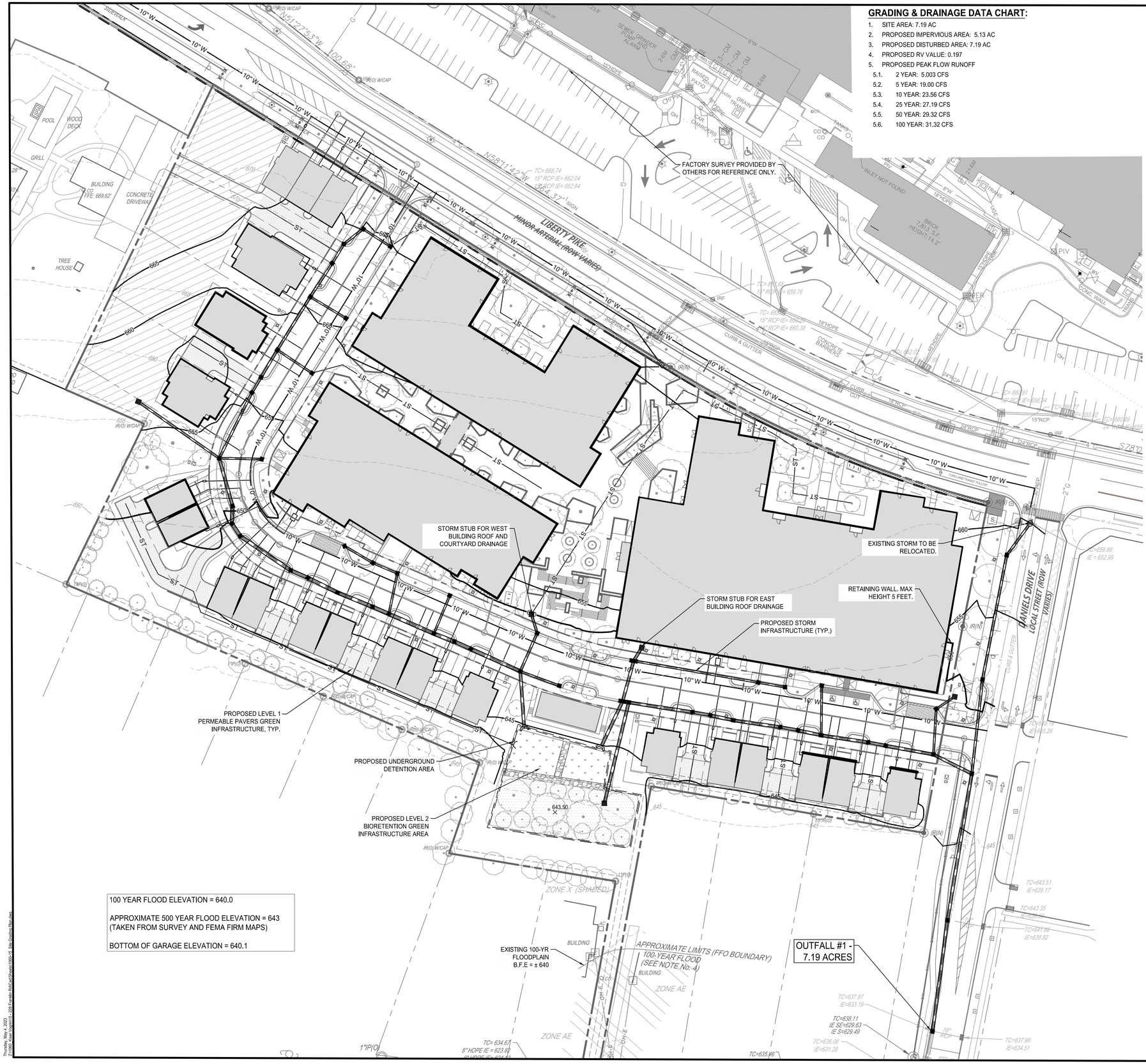


GRADING & DRAINAGE DATA CHART:

1. SITE AREA: 7.19 AC
2. PROPOSED IMPERVIOUS AREA: 5.13 AC
3. PROPOSED DISTURBED AREA: 7.19 AC
4. PROPOSED RV VALUE: 0.197
5. PROPOSED PEAK FLOW RUNOFF
   - 5.1. 2 YEAR: 5.003 CFS
   - 5.2. 5 YEAR: 19.00 CFS
   - 5.3. 10 YEAR: 23.56 CFS
   - 5.4. 25 YEAR: 27.19 CFS
   - 5.5. 50 YEAR: 29.32 CFS
   - 5.6. 100 YEAR: 31.32 CFS

STORMWATER NARRATIVE

ALL STORMWATER CURRENTLY FLOWS TO THE EXISTING OUTFALL AT THE SOUTHEASTERN CORNER OF THE PROPOSED DEVELOPMENT (OUTFALL #1), WHICH DISCHARGES TO LIBERTY CREEK AND EVENTUALLY TO THE HARPETH RIVER, APPROXIMATELY 850 LF DOWNSTREAM.

STORMWATER QUALITY FOR THE PROPOSED PROJECT WILL BE PROVIDED BY UTILIZING LOW IMPACT DEVELOPMENT (LID) METHODS DESCRIBED IN THE CITY OF FRANKLIN BMP MANUAL, INCLUDING BIORETENTION, AND PERVIOUS PAVEMENT. THESE GREEN INFRASTRUCTURE PRACTICES WILL SATISFY THE CITY REQUIREMENTS CONCERNING STORMWATER QUALITY REQUIREMENTS AS LAID OUT IN THE BMP MANUAL.

STORMWATER QUANTITY FOR THE PROPOSED PROJECT MAY BE PARTIALLY PROVIDED BY UTILIZING BIORETENTION AND PERVIOUS PAVEMENT. THESE GREEN INFRASTRUCTURE PRACTICES WILL DECREASE THE RUNOFF LEAVING THE SITE TO MEET THE CITY REQUIREMENTS CONCERNING PEAK RUNOFF CONTROL.

IMPACT STATEMENT:

THE PROPOSED DEVELOPMENT WILL CONSIST OF 275 TOTAL RESIDENCES. THESE PROPOSED RESIDENCES WILL REQUIRE POLICE, FIRE AND SOLID WASTE SERVICES. IT IS ALSO ANTICIPATED THAT RESIDENTS WILL UTILIZE PUBLIC RECREATIONAL FACILITIES. IMPACT TO SURROUNDING DRAINAGE FACILITIES IS ANTICIPATED TO BE MINIMAL AS THE PROPOSED DEVELOPMENT WILL SATISFY THE CITY REQUIREMENTS FOR STORMWATER QUALITY AND QUANTITY.

CITY OF FRANKLIN 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.

FLOODPLAIN NOTE

THE PROPERTY SHOWN HEREON IS PARTIALLY LOCATED IN A FLOOD HAZARD ZONE "AE" (AREAS DETERMINED TO BE WITHIN THE 100 YEAR FLOODPLAIN AND/OR FLOODWAY) ACCORDING TO F.I.R.M. MAP "WILLIAMSON COUNTY, TENNESSEE AND INCORPORATED AREAS" PANEL 211 OF 485, MAP NUMBER 47187C0211G. MAP REVISED ON DECEMBER 22, 2016 ACCORDING TO THE FIRM MAP.

PRE/POST DEVELOPMENT PEAK FLOWS (OUTFALL #1)

	PRE-DEV TOTAL	POST DEV TOTAL
2-YR	13.15 CFS	5.003 CFS
5-YR	22.05 CFS	19.00 CFS
10-YR	28.30 CFS	23.56 CFS
25-YR	36.49 CFS	27.19 CFS
50-YR	42.67 CFS	29.32 CFS
100-YR	48.82 CFS	31.32 CFS

0 20 40 80 120

SCALE: 1" = 40'

SURVEY INFO
PROVIDED BY: S&ME & CHASTAIN SKILLMAN
DATUM: TENNESSEE STATE PLANE (NAD83 & NAVD 88)

FULMER LUCAS
KISER YOGRIN DESIGN
5005 MERIDIAN BLVD. SUITE 100
FRANKLIN, TN 37067
MAIN: 615.708.0567
WWW.KISERYOGRIN.COM

DEVELOPMENT PLAN

THE MIDDLE EIGHT

209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/2023	JYB

DESIGNED BY: YB
DRAWN BY: JM
CHECKED BY: BD
DATE: 04/10/23

FLE PROJECT NO. 1060-15

DRAWING TITLE:

SITE GRADING & DRAINAGE PLAN

SHEET NUMBER

C3.0

Thursday, May 4, 2023
P:\1060 Kiser\Vision\1-4 229 Franklin Pike\Sheets\1060-15 Site Grading Plan.dwg

ROADWAY NETWORK NARRATIVE:

THE PROJECT WILL INCLUDE A PUBLIC ROADWAY (FOSTER LANE) WITH MAIN ACCESS TO LIBERTY PIKE ON THE NORTH SIDE AND DANIELS DRIVE ON THE EAST SIDE. PER THE CONNECT FRANKLIN PLANNING DOCUMENT, 3'-4' OF ROW DEDICATION IS REQUIRED WITH THIS PLAN BEYOND THE SOUTHERN ROW BOUNDARY OF LIBERTY PIKE.

IMPACT STATEMENT:

A TRAFFIC IMPACT STUDY HAS BEEN COMPLETED BY KCI BASED ON TRAFFIC COUNTS COLLECTED ON A TYPICAL WEEKDAY WHEN SCHOOLS WERE IN SESSION. THIS REPORT HAS BEEN REVIEWED BY COF AND ALL RECOMMENDATIONS ARE INCLUDED ON THIS SHEET AS WELL AS SHEET C4.3.

CITY OF FRANKLIN ROW & ACCESS GENERAL NOTES

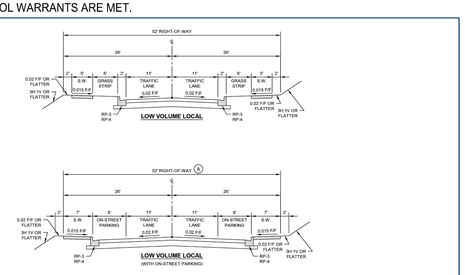
1. PRIOR TO BEGINNING ANY CONSTRUCTION, THE DEVELOPER AND/OR CONTRACTOR, SHALL OBTAIN ALL NECESSARY PERMITS AS REQUIRED BY LAW. SUCH PERMITS MAY INCLUDE, BUT ARE NOT LIMITED TO, THOSE REQUIRED BY STATE OF TENNESSEE, WILLIAMSON COUNTY AND OTHER CITY OF FRANKLIN AGENCIES.
2. ALL OFF-SITE WORK WITHIN THE 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.
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.
4. 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.
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.
6. ALL TEMPORARY STRIPING SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," PUBLISHED BY TDOT, THE LATEST REVISION EXCEPT AS HEREIN AMENDED. WHEN APPROVED, TEMPORARY STRIPING SHALL BE REQUIRED PRIOR TO THE OPENING OF A STREET FOR TRAVEL WHERE PAVEMENT AND/OR PERMANENT STRIPING CANNOT BE COMPLETED DUE TO WEATHER AND/OR TIME CONSTRAINTS.
7. THERMOPLASTIC PAVEMENT MARKINGS SHOULD BE USED ON ALL PUBLIC AND PRIVATE CITY STREET PROJECTS. THERMOPLASTIC TRAFFIC STRIPING AND PAVEMENT MARKINGS SHALL CONFORM TO SECTION 716.03 "THERMOPLASTIC PAVEMENT MARKINGS", OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS (TDOT), AND TO THE CITY OF FRANKLIN TRANSPORTATION & STREET TECHNICAL STANDARDS.

STREET LIGHT NOTE:

STREET LIGHTS SHALL HAVE A LED LIGHT SOURCE.

ADDITIONAL TIS RECOMMENDATIONS:

- AS PART OF THE CONSTRUCTION OF THE PROJECT, ALL INTERNAL AND EXTERNAL DRIVEWAY CONNECTIONS SHOULD BE DESIGNED SUCH THAT THE DEPARTURE SIGHT TRIANGLES, AS SPECIFIED BY AASHTO, WILL BE CLEAR OF ALL SIGHT OBSTRUCTIONS, INCLUDING LANDSCAPING, EXISTING VEGETATION, MONUMENT SIGNS/WALLS, FENCES, ETC.
- FINAL DESIGN OF INTERNAL ROADWAYS AND PARKING SHOULD MEET ALL CITY OF FRANKLIN'S STANDARDS AND THE LATEST VERSION OF "A POLICY OF GEOMETRIC DESIGN OF HIGHWAY AND STREETS" PUBLISHED BY AASHTO. ANY PARKING LOTS AND STREETS ASSOCIATED WITH THE DEVELOPMENT SHOULD ENSURE THAT PASSENGER CARS AND EMERGENCY VEHICLES ARE CAPABLE OF MAKING ALL TURNING MOVEMENTS. INTERNAL INTERSECTIONS SHOULD BE TWO-WAY STOP-CONTROLLED UNLESS ALL-WAY STOP CONTROL WARRANTS ARE MET.



DESIGN NOTES
A. ADDITIONAL RIGHT-OF-WAY OR PUBLIC ACCESS EASEMENT WIDTH SHALL BE PROVIDED AS NEEDED TO ACCOMMODATE ACCESSIBLE ON-STREET PARKING.

LOW VOLUME LOCAL STREET SECTIONS — DWG. NO. TS-6
CITY OF FRANKLIN — NOT TO SCALE — CITY ENGINEER: — DATE: 7/1/2021

FOSTER LANE PROPOSED STREET SECTION

SCALE: 1" = 40'

0 65.6168 131.2336 262.4672 393.7007
GRAPHIC SCALE

SURVEY INFO
PROVIDED BY: S&ME & CHASTAIN SKILLMAN
DATUM: TENNESSEE STATE PLANE (NAD83 & NAVD 88)

FULMER LUCAS

KV+D
KISER VOGRIN DESIGN
5005 MERIDIAN BLVD. SUITE 100
FRANKLIN, TN 37067
MAIN: 615.769.0567
WWW.KISERVOGRIN.COM

TENNESSEE LICENSED PROFESSIONAL ENGINEER — AGRICULTURE — No. 121924 — STATE OF TENNESSEE

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE:	BY
1	COF RESUBMITTAL	05/04/2023	JYB

DESIGNED BY: YB
DRAWN BY: JM
CHECKED BY: BD
DATE: 04/10/23

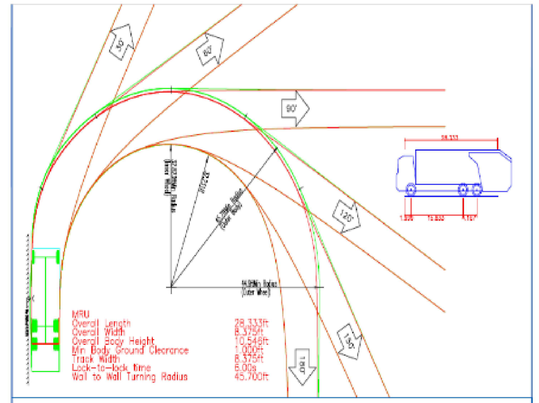
FILE PROJECT NO. 1060-15

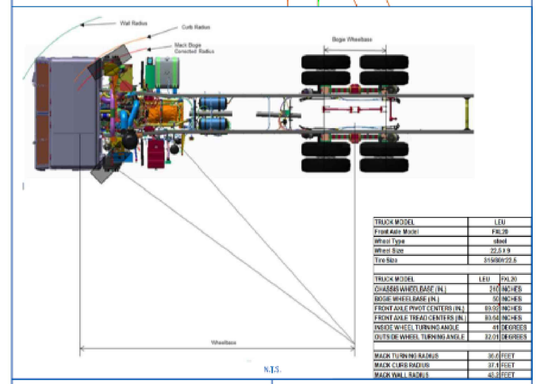
DRAWING TITLE: ROW & ACCESS PLAN

SHEET NUMBER C4.0

Thursday, May 4, 2023
21060_Kiser Vogrin\15 - 209 Franklin Rd\Civil\Sheets\1060-15_Site Layout Plan.dwg







TRUCK MODEL	LEU
Front Axle Model	FXL20
Wheel Type	steel
Wheel Size	22.5 X 9
Tire Size	315/80R22.5

TRUCK MODEL	LEU	FXL20
CHASSIS WHEELBASE (IN.)		210 INCHES
BOGIE WHEELBASE (IN.)		50 INCHES
FRONT AXLE PIVOT CENTERS (IN.)		69.92 INCHES
FRONT AXLE TREAD CENTERS (IN.)		80.64 INCHES
INSIDE WHEEL TURNING ANGLE		41 DEGREES
OUTSIDE WHEEL TURNING ANGLE		32.01 DEGREES
MACK TURNING RADIUS		36.6 FEET
MACK CURB RADIUS		37.4 FEET
MACK WALL RADIUS		43.2 FEET

Mack MRU Tandem Axle
Front Loader
TITLE

CITY OF FRANKLIN ENGINEERING
109 THIRD AVE SOUTH
FRANKLIN, TN 37064

TRASH COLLECTIONAPPARATUS SPECIFICATIONS

- OVERALL LENGTH = 28.333'
- OVERALL WIDTH = 8,375'
- OVERALL BODY HEIGHT = 10.546'
- MIN BODY GROUND CLEARANCE = 1'
- TRACK WIDTH = 8,375'
- LOCK-TO-LOCK TIME = 6.00 SECONDS
- WALL TO WALL TURNING RADIUS = 45.7'
- FRONT AXLE MODEL = FXL20
- WHEEL TYPE = STEEL
- WHEEL SIZE = 22.5X9
- CHASSIS WHEELBASE (IN) = 210"
- BOGIE WHEELBASE (IN.) = 50"
- FRONT AXLE PIVOT CENTERS (IN). = 69.92"
- FRONT AXLE TREAD CENTERS (IN). = 80.64"
- INSIDE WHEEL TURNING ANGLE = 41°
- OUTSIDE WHEEL TURNING ANGLE = 32.01°
- BACK TURNING RADIUS = 36.6'
- MACK CURB RADIUS = 37.1'
- MACK WALL RADIUS = 43.2'

0 20 40 80 120
SCALE: 1" = 40'

SURVEY INFO
PROVIDED BY: S&ME & CHASTAIN SKILLMAN
DATUM: TENNESSEE STATE PLANE (NAD83 & NAVD 88)

FULMER LUCAS
KVD KISER VOGRIN DESIGN
5005 MERIDIAN BLVD. SUITE 100
FRANKLIN, TN 37067
MAIN: 615.769.0567
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DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/2023	JYB

DESIGNED BY:	YB
DRAWN BY:	JM
CHECKED BY:	BD
DATE:	04/10/23

FLE PROJECT NO.
1060-15

DRAWING TITLE:
REFUSE COLLECTION PLAN

SHEET NUMBER
C4.1

Thursday, May 4, 2023
Z:\1060_Kise Vogrin\15 - 528 Franklin Rd\Civil\Sheet\1060x15_Refuse Collection Plan.dwg

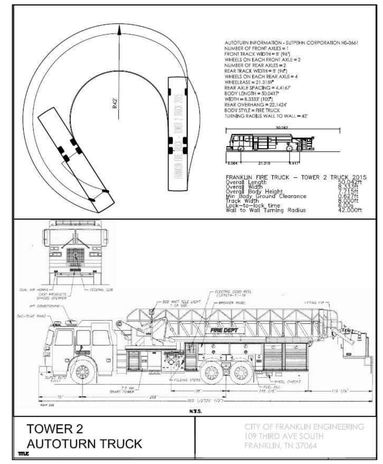


LEGEND

- VEHICLE PATH
- TIRES
- VEHICLE BODY

APPARATUS SPECIFICATIONS

- NUMBER OF FRONT AXLES =1
- FRONT TRACK WIDTH = 8'
- WHEELS ON EACH FRONT AXLE = 2
- NUMBER OF REAR AXLES = 2
- REAR TRUCK WIDTH= 8'
- WHEEL BASE = 21.316' (FRONT AXLE TO FRONT REAR AXLE)
- REAR AXLE SPACING = 4.417'
- BODY LENGTH = 50.0417
- WIDTH = 8.333'
- REAR OVERHANG = 22.1424'
- BODY STYLE = FIRE TRUCK
- TURNING RADIUS WALL TO WALL = 42'
- GROSS VEHICLE WEIGHT: 67,000 LB
- TRAVEL PATH DESIGN SPEED: 5 MPH



TOWER 2
AUTOTURN TRUCK

CITY OF FRANKLIN ENGINEERING
109 THIRD AVE SOUTH
FRANKLIN, TN 37064

COF FIRE TRUCK APPARATUS
(DESIGN SPEED MAX 5 MPH)

0 20 40 80 120

SCALE: 1" = 40'

SURVEY INFO
PROVIDED BY: S&ME & CHASTAIN SKILLMAN
DATUM: TENNESSEE STATE PLANE (NAD83 & NAVD 88)

FULMER LUCAS

KISER YOGRIN DESIGN
5005 MERIDIAN BLVD. SUITE 100
FRANKLIN, TN 37067
MAIN: 615.769.0567
WWW.KISERYOGRIN.COM

JAMES BRADLEY DAVIS
REGISTERED
LANDSCAPE ARCHITECT
AGRICULTURE
No. 101094
STATE OF TENNESSEE

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/2023	JYB

DESIGNED BY: YB
DRAWN BY: JM
CHECKED BY: BD
DATE: 04/10/23

FLE PROJECT NO.
1060-15

DRAWING TITLE:
FIRE ACCESS PLAN

SHEET NUMBER
C4.2

Thursday, May 4, 2023
Z:\1060_Kiser Yogrin\1-2\3 Franklin ReSubSheets\1060x15_Fire Access Plan.dwg

7. RECOMMENDATIONS

The analyses presented in this study indicate that the impacts of the proposed project on the existing street network will be manageable by providing the recommendations below. The recommendations are as follows:

Liberty Pike and Foster Lane

- The northbound approach of Foster Lane should be stop-controlled, and a stop bar and R1-1 'Stop' sign should be installed on the egress approach.
- The northbound approach of Foster Lane should be restricted to right-in/right-out only.
  - In conjunction with The Middle Eight development, a median is proposed on Liberty Pike that will restrict access into Foster Lane. Should the median not be constructed, then an island should be designed and constructed to fully restrict left-turn movements.
- Foster Lane should be designed to include sufficient width for one entering lane and one exiting lane.

Daniels Drive and Foster Lane

- The eastbound approach of Foster Lane should be stop-controlled, and a stop bar and R1-1 'Stop' sign should be installed on the egress approach.
- Foster Lane should be designed to include sufficient width for one entering lane and a minimum one exiting lane.

Liberty Pike and Daniels Drive/Factory Access

- Widen the northbound approach from one lane for all turning movements to one left-turn lane with approximately 100 feet of storage and a shared through/right-turn lane.
- A traffic signal is not warranted under projected conditions based on the trips generated by The Middle Eight development. As the Factory site to the north develops, however, the intersection should be monitored for the need to provide a traffic signal.
  - Additional mitigations such as all-way stop control or a roundabout were taken into consideration; however, all-way stop control did not improve operations for all approaches. Additionally, the roundabout is not recommended due to limited right-of-way along Liberty Pike.

Signal Timing Optimization and Coordination

- Signal timings at all the signalized study intersections along Franklin Road should be optimized upon completion of the development. Additionally, the traffic signals along Franklin Road are running free during construction on Franklin Road. Signal timing coordination should be considered to improve traffic operations.

Travel Demand Management

- It is recommended that the development provide residents extensive information about area transit service including routes, nearby stops, and schedules. This information may be provided by an informational kiosk, maps, or posters at prominent locations.
- Parking/storage options should be provided for bicycles on-site.

Pedestrian, Bicycle, and Transit Infrastructure

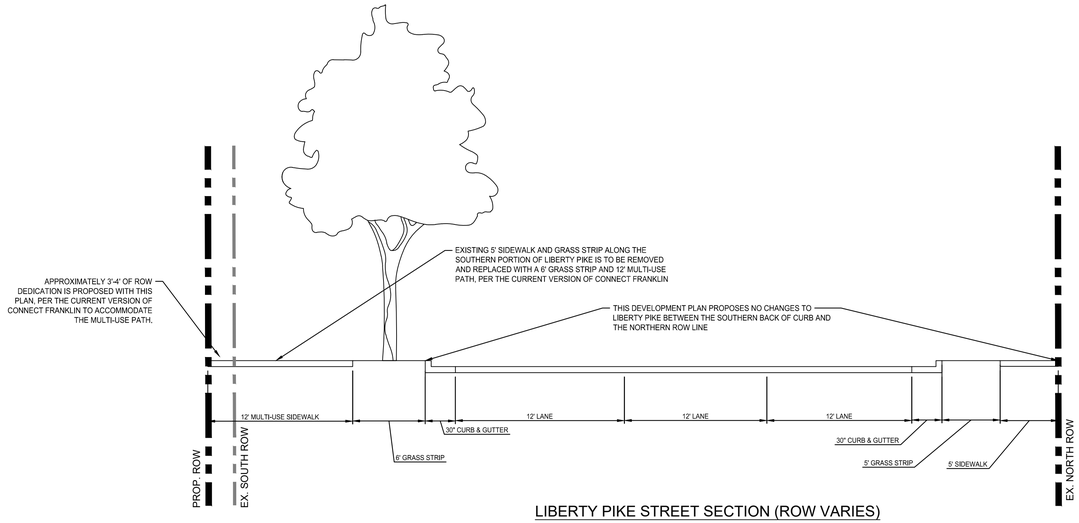
- Provide and/or improve crosswalks, detectable warning mats, and curb ramps at the intersections along the frontage of the project site.

Additional Recommendations

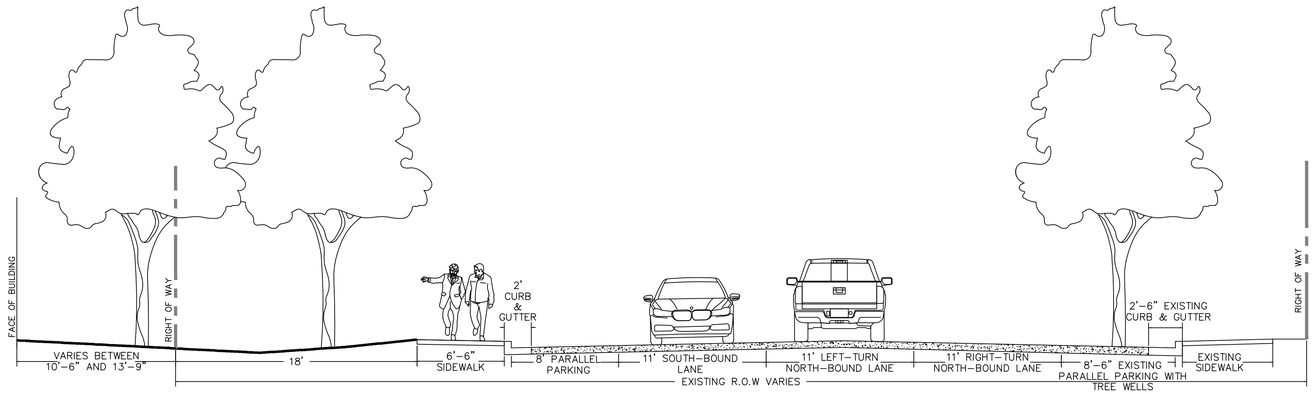
- As part of the construction of the project, all internal and external driveway connections should be designed such that the departure sight triangles, as specified by AASHTO, will be clear of all sight obstructions, including landscaping, existing vegetation, monument signs/walls, fences, etc.
- Final design of internal roadways and parking should meet all City of Franklin's standards and the latest version of "A Policy of Geometric Design of Highways and Streets" published by AASHTO. Any parking lots and streets associated with the development should ensure that passenger cars and emergency vehicles are capable of making all turning movements. Internal intersections should be two-way stop-controlled unless all-way stop control warrants are met.

In summary, based on the analyses conducted, no further recommendations are presented for the proposed The Middle Eight development.

TIS RECOMMENDATIONS TAKEN FROM KCI TRAFFIC IMPACT STUDY DATED 04/27/2023.



LIBERTY PIKE STREET SECTION (ROW VARIES)



DANIELS DRIVE PROPOSED STREET SECTION

SURVEY INFO
PROVIDED BY: S&ME & CHASTAIN SKILLMAN
DATUM: TENNESSEE STATE PLANE (NAD83 & NAVD 88)

FULMER LUCAS
KISER VOGRIN DESIGN
5005 MERIDIAN BLVD. SUITE 100
FRANKLIN, TN 37067
MAIN: 615.769.0567
WWW.KISERVOGRIN.COM

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/2023	JYB

DESIGNED BY: YB
DRAWN BY: JM
CHECKED BY: BD
DATE: 04/10/23

FLE PROJECT NO.
1060-15

DRAWING TITLE:
TIS & STREET SECTIONS

SHEET NUMBER
C4.3

Thursday, May 4, 2023
Z:\1060_Kiser Vogrin\4 - 228 Franklin Rd\Civil\Sheets\1060-15_Site Layout Plan.dwg

COF FIRE HYDRANT FLOW DATA:

FLOWING HYDRANT H108 321 (LIBERTY PIKE & DANIELS DRIVE)
STATIC - 85 PSI
FLOW (PITOT) - 37 PSI

MONITORING HYDRANT H108 327 (DANIELS DRIVE & JAMISON STATION LANE)
STATIC - 91 PSI
RESIDUAL - 79 PSI

FLOW @ 20 PSI = 1556 GPM
PERFORMED BY DAVID LINDSEY OF ALLSTAR FIRE PROTECTION INC. ON 1/17/2023

LEGEND

- DW — DOMESTIC WATER SERVICE
- G — GAS SERVICE
- SAN — SANITARY SEWER SERVICE
- OH-E — OVERHEAD ELECTRIC SERVICE
- OH-T — OVERHEAD TELEPHONE SERVICE
- UD — PERVIOUS PAVEMENT UNDERDRAIN
- RD — ROOF DRAIN TRUNK LINE
- STORM PIPE (SEE PLANS FOR MATERIAL).
- 562 — EXISTING CONTOUR
- 562 — PROPOSED CONTOUR
- DRIVEWAY CENTERLINE
- PROPERTY LINE
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- CURB INLET
- CATCH BASIN
- NYLOPLAST DRAIN BASIN
- XXX.XX / XXX.XX — TOP OF CURB SPOT ELEVATION / BOTTOM OF CURB SPOT ELEVATION
- ELECTRIC/COMMUNICATION POLE
- TW:XXX.XX / BW:XXX.XX — RETAINING WALL TOP OF WALL / FINISHED GRADE AT BOTTOM OF WALL

UTILITY DEPTH NOTE:

ALL PUBLIC UTILITIES (WATER,SEWER, STORM) TO COMPLY WITH CITY OF FRANKLIN MINIMUM DEPTH AND MAXIMUM DEPTH SPECIFICATIONS.

MILL AND OVERLAY NOTE:

PER COF REQUIREMENTS, CONTRACTOR TO ASSUME MILL AND OVERLAY OF FULL LANE WIDTH FOR ANY PUBLIC ROW PAVEMENT THAT IS DISTURBED FOR UTILITY INSTALL OR OTHER CONSTRUCTION OPERATIONS.

WEST BUILDING NOTE:

THE WEST BUILDING OF THE MIDDLE EIGHT IS ONE RESIDENTIAL BUILDING ACCORDING TO THE 2018 INTERNATIONAL BUILDING CODE, ADOPTED BY THE CITY OF FRANKLIN. THE RELEVANT SECTIONS FOR THIS DETERMINATION ARE SECTION 202, SECTION 310.4, SECTION 503.1.2, AND SECTION 506.2.3.

UTILITY NETWORK NARRATIVE:

THE PROPOSED PROJECT WILL UTILIZE EXISTING UTILITIES ADJACENT TO THE SITE TO PROVIDE WATER, SANITARY SEWER, ELECTRIC, GAS AND COMMUNICATION WITH MAIN EXTENSIONS THROUGHOUT THE PUBLIC ROADS WITHIN THE DEVELOPMENT. ADDITIONAL FIRE HYDRANTS ARE TO BE INSTALLED TO PROVIDE ADEQUATE FIRE PROTECTION HOSE COVERAGE. COF WILL SERVE THE SITE.

IMPACT STATEMENT:

THE DEMAND OF THE PROPOSED DEVELOPMENT CAN BE ADEQUATELY ACCOMMODATED BY THE EXISTING INFRASTRUCTURE, AND THE PROJECT IS NOT ANTICIPATED TO HAVE A NEGATIVE EFFECT ON THE UTILITIES OR OTHER USERS THEREOF. THE PROJECT WILL USE CITY OF FRANKLIN DOMESTIC, FIRE AND IRRIGATION WATER SERVICE, AS WELL AS SANITARY SEWER SERVICE PROVIDED BY CITY OF FRANKLIN.

UTILITY CONTACTS:

COF WATER MANAGEMENT INSPECTIONS
CITY OF FRANKLIN SEWER AND WATER
124 LUMBER DRIVE
FRANKLIN, TN 37064
CONTACT: BEN MCNEIL
BEN.MCNEIL@FRANKLINTN.GOV
615-794-4554

GAS SERVICE
ATMOS ENERGY
220 NOAH DRIVE
FRANKLIN, TN 37064
CONTACT: RON MYATT
RON.MYATT@ATMOSENERGY.COM
615-566-3073

COMMUNICATION SERVICE
COMCAST
660 MAINSTREAM DRIVE
NASHVILLE, TN 37228
CONTACT: MARLON FRIZZELL
MARLON_FRIZZELL@CABLE.COMCAST.COM
615-244-7462X1115647

ELECTRIC SERVICE
MIDDLE TN ELECTRIC MEMBERSHIP CORP.
2156 EDWARD CURD LANE
FRANKLIN, TN 37067
CONTACT: BRADLEY BRANDON
BRADLEY.BRANDON@MTEMC.COM
615-595-4683

COMMUNICATION SERVICE
AT&T
500 LIBERTY PIKE
FRANKLIN, TN 37064
CONTACT: DAVID TUTTEROW
DT8243@ATT.COM
615-595-7816

CITY OF FRANKLIN WATER & SEWER GENERAL 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 PRE- CONSTRUCTION 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 WATER MANAGEMENT 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 PLAN DATA CHART

FACILITY TYPE: SINGLE FAMILY - 21 HOMES
MULTIFAMILY - 254 TOTAL UNITS
126 - 1 BEDROOM OR STUDIO
88 - 2 BEDROOM
40 - 3 BEDROOM
3,000 SF RESTAURANT

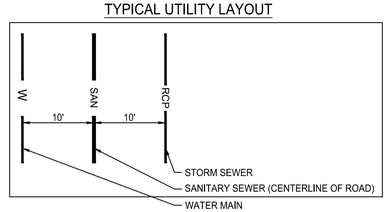
UNIT FLOW (GPD): 250 GPD FOR 1 BEDROOM
300 GPD FOR 2 BEDROOM
350 GPD FOR 3 BEDROOM, SINGLE FAMILY, DUPLEXES, & TOWNHOMES.
35 GPD / SEAT (RESTAURANT)

NUMBER OF UNITS: 232.4 UNITS OF FLOW (350 GPD/UNIT)

TOTAL FLOW: 81,350 GPD

**WATER/SEWER CAPACITY REQUEST HAS BEEN SUBMITTED TO COF AS OF 02/16/2023

TYPICAL UTILITY LAYOUT



0 25 50 100 150
SCALE: 1" = 50'

SURVEY INFO
PROVIDED BY: S&ME & CHASTAIN SKILLMAN
DATUM: TENNESSEE STATE PLANE (NAD83 & NAVD 88)

FULMER LUCAS

KV+D
KISER VOGRIN DESIGN
5005 MERIDIAN BLVD. SUITE 100
FRANKLIN, TN 37067
MAIN: 615.769.0567
WWW.KISERVOGRIN.COM

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/2023	JYB

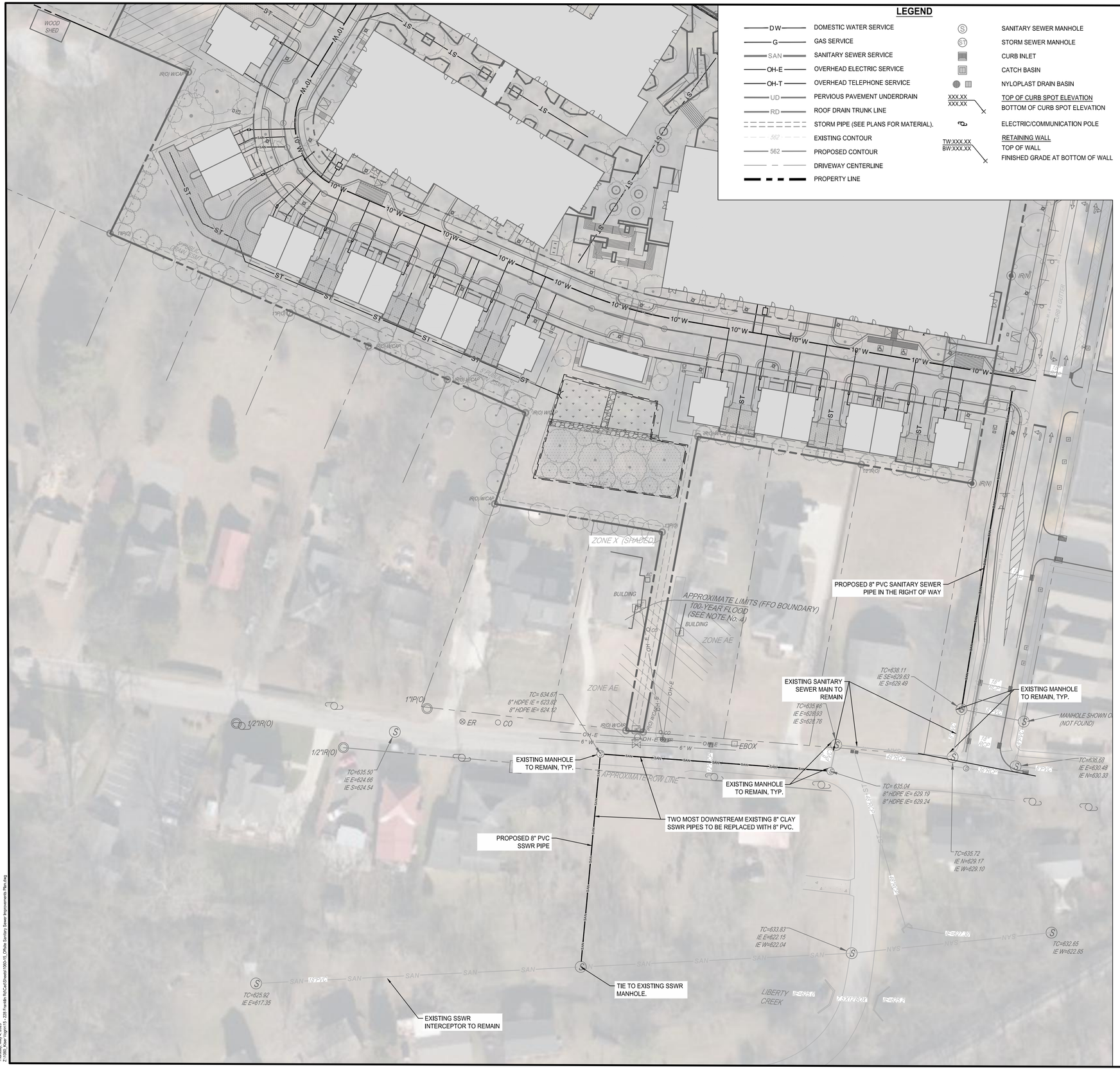
DESIGNED BY: YB
DRAWN BY: JM
CHECKED BY: BD
DATE: 04/10/23

FLE PROJECT NO.
1060-15

DRAWING TITLE:
SITE UTILITY PLAN

SHEET NUMBER
C5.0

Thursday, May 4, 2023
21:1000_Kiser Vogrin Fr - 225 Franklin Rd\Cad\Sheets\1060-15_Site Utility Plan.dwg



LEGEND

- DW — DOMESTIC WATER SERVICE
- G — GAS SERVICE
- SAN — SANITARY SEWER SERVICE
- OH-E — OVERHEAD ELECTRIC SERVICE
- OH-T — OVERHEAD TELEPHONE SERVICE
- UD — PERVIOUS PAVEMENT UNDERDRAIN
- RD — ROOF DRAIN TRUNK LINE
- STORM PIPE (SEE PLANS FOR MATERIAL).
- 582 — EXISTING CONTOUR
- 562 — PROPOSED CONTOUR
- DRIVEWAY CENTERLINE
- PROPERTY LINE
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- CURB INLET
- CATCH BASIN
- NYLOPLAST DRAIN BASIN
- XXX.XX / XXX.XX — TOP OF CURB SPOT ELEVATION / BOTTOM OF CURB SPOT ELEVATION
- ELECTRIC/COMMUNICATION POLE
- TW:XXX.XX / BW:XXX.XX — RETAINING WALL TOP OF WALL / FINISHED GRADE AT BOTTOM OF WALL

CITY OF FRANKLIN WATER & SEWER GENERAL 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 PRE- CONSTRUCTION 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 WATER MANAGEMENT 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.

MILL AND OVERLAY NOTE:
PER COF REQUIREMENTS, CONTRACTOR TO ASSUME MILL AND OVERLAY OF FULL LANE WIDTH FOR ANY PUBLIC ROW PAVEMENT THAT IS DISTURBED FOR UTILITY INSTALLATION OR OTHER CONSTRUCTION OPERATIONS.

OFFSITE SANITARY SEWER NOTE:
OFFSITE IMPROVEMENTS SHOWN ON THIS PLAN ARE PRELIMINARY BASED ON FEEDBACK FROM BEN MCNEIL AT COF WATER MANAGEMENT DEPARTMENT. FINAL LAYOUT AND EXTENTS OF OFFSITE SANITARY SEWER IMPROVEMENTS TO BE FULLY DEFINED AT SITE PLAN STAGE.

UTILITY CONTACT:
CITY OF FRANKLIN WATER DEPARTMENT
124 LUMBER DRIVE
FRANKLIN, TN 37064
615-794-4554
ATTN: UTILITY INSPECTOR

0 20 40 80 120
SCALE: 1" = 40'

SURVEY INFO
PROVIDED BY: S&ME & CHASTAIN SKILLMAN
DATUM: TENNESSEE STATE PLANE (NAD83 & NAVD 88)

FULMER LUCAS
KVD
KISER VOGRIN DESIGN
5005 MERIDIAN BLVD. SUITE 100
FRANKLIN, TN 37067
MAIN: 615.769.0567
WWW.KISERVOGRIN.COM

DEVELOPMENT PLAN

THE MIDDLE EIGHT

209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO.	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/2023	JYB

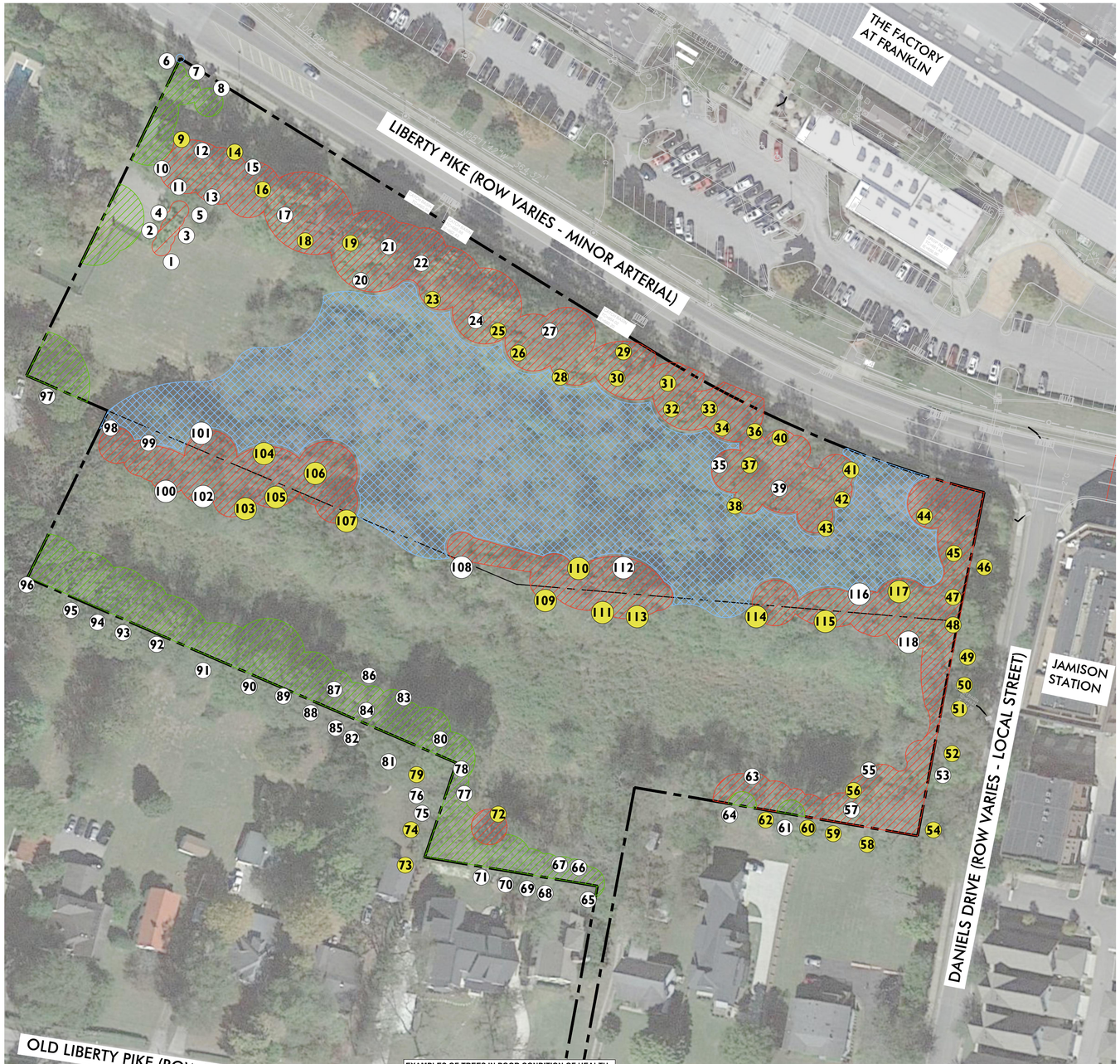
DESIGNED BY: YB
DRAWN BY: JM
CHECKED BY: BD
DATE: 04/10/23

FLE PROJECT NO.
1060-15

DRAWING TITLE:
OFFSITE SANITARY SEWER IMPROVEMENTS

SHEET NUMBER
C5.1

Thursday, May 4, 2023
2:17:00pm User: Vogrin15 - 209 Franklin R:\Civil\Sheets\1000 s Offsite Sanitary Sewer Improvements Plan.dwg



GENERAL NOTE:
* BASE OF TREE LOCATED OFF SITE

THE MIDDLE EIGHT - TREE CHART

TREE NO.	TREE DBH (INCHES)	TREE SPECIES	TREE HEALTH	SPECIMEN TREE	TREES TO REMAIN	TREES TO BE REMOVED
1	8	GINKGO	GOOD	NO		X
2	8	GINKGO	GOOD	NO		X
3	8	GINKGO	GOOD	NO		X
4	8	GINKGO	GOOD	NO		X
5	8	GINKGO	GOOD	NO		X
6*	12	POPLAR*	GOOD	NO	X	
7	12	SYCAMORE	GOOD	NO	X	
8	12	SYCAMORE	GOOD	NO	X	
9	24	HACKBERRY	POOR	YES		X
10	18	HACKBERRY	GOOD	NO		X
11	15	POPLAR	GOOD	NO		X
12	10	BOX ELDER	GOOD	NO		X
13	10	BOX ELDER	GOOD	NO		X
14	26	HACKBERRY	POOR	YES		X
15	24	HACKBERRY	GOOD	YES		X
16	24	HACKBERRY	POOR	YES		X
17	48	HACKBERRY	GOOD	YES		X
18	48	BLACK CHERRY	POOR	YES		X
19	36	HACKBERRY	POOR	YES		X
20	18	HACKBERRY	GOOD	NO		X
21	36	BLACK CHERRY	GOOD	YES		X
22	18	BLACK CHERRY	GOOD	NO		X
23	18	HACKBERRY	POOR	NO		X
24	36	OAK	GOOD	YES		X
25	32	OAK	POOR	YES		X
26	32	HACKBERRY	POOR	YES		X
27	18	HACKBERRY	GOOD	NO		X
28	12	OAK	POOR	NO		X
29	12	HACKBERRY	POOR	NO		X
30	24	BLACK CHERRY	POOR	YES		X
31	24	POPLAR	POOR	YES		X
32	24	POPLAR	POOR	YES		X
33	12	(TRIPLE) OAK	POOR	NO		X
34	15	OAK	POOR	NO		X
35	12	BLACK CHERRY	POOR	NO		X
36	15	BLACK CHERRY	POOR	NO		X
37	10	HACKBERRY	POOR	NO		X
38	18	BLACK CHERRY	POOR	NO		X
39	20	SILK TREE	GOOD	NO		X
40	20	ELM	POOR	NO		X
41	36	OAK*	POOR	YES		X
42	40	BLACK CHERRY	POOR	YES		X
43	36	HACKBERRY*	POOR	YES		X
44	20	BLACK CHERRY*	POOR	NO		X
45	18	HACKBERRY	POOR	YES		X
46	30	HACKBERRY*	POOR	YES		X
47*	24	HACKBERRY	POOR	YES		X
48*	18	HACKBERRY	POOR	NO		X
49	42	BLACK CHERRY	POOR	YES		X
50	24	HACKBERRY*	POOR	YES		X
51	42	ELM*	POOR	YES		X
52	30	BLACK CHERRY	POOR	YES		X
53	24	HACKBERRY*	GOOD	YES		X
54*	36	BLACK CHERRY	POOR	YES		X
55	18	HACKBERRY	GOOD	NO	X	
56	20	HACKBERRY	POOR	NO		X
57	8	HACKBERRY*	GOOD	NO	X	
58*	20	HACKBERRY*	POOR	NO	X	
59*	14	BLACK CHERRY	POOR	NO		X
60	14	HACKBERRY	POOR	NO	X	
61	14	HACKBERRY*	GOOD	NO	X	
62*	20	HACKBERRY	POOR	NO	X	
63	8	HACKBERRY	GOOD	NO		X
64	12	HACKBERRY*	GOOD	NO	X	
65*	18	HACKBERRY	GOOD	NO		X
66*	18	ELM	GOOD	NO	X	
67*	18	ELM*	GOOD	NO	X	
68	12	HACKBERRY*	GOOD	NO	X	
69	12	HACKBERRY*	GOOD	NO	X	
70	12	HACKBERRY	GOOD	NO	X	
71*	28	HICKORY*	GOOD	YES	X	
72	12	ELM	POOR	NO		X
73*	24	BLACK CHERRY*	POOR	YES	X	
74*	8	HACKBERRY	POOR	NO	X	
75	8	HACKBERRY*	GOOD	NO	X	
76*	10	HACKBERRY	GOOD	NO	X	
77	12	HACKBERRY*	GOOD	NO	X	
78	10	HACKBERRY	GOOD	NO	X	
79*	24	BLACK CHERRY*	POOR	YES	X	
80	18	HACKBERRY	GOOD	NO	X	
81*	18	HACKBERRY*	GOOD	NO	X	
82	8	HACKBERRY*	GOOD	NO	X	
83	12	HACKBERRY	GOOD	NO	X	
84	10	HACKBERRY	GOOD	NO	X	
85	10	HACKBERRY*	GOOD	NO	X	
86	18	HACKBERRY*	GOOD	NO	X	
87	8	ELM	GOOD	NO	X	
88	18	HACKBERRY	GOOD	NO	X	
89	18	HACKBERRY	GOOD	NO	X	
90	42	HACKBERRY	GOOD	YES	X	
91*	15	HACKBERRY*	GOOD	NO	X	
92	15	HACKBERRY	GOOD	NO	X	
93	12	(DOUBLE) HACKBERRY*	GOOD	NO	X	
94	15	HACKBERRY*	GOOD	NO	X	
95	24	WALNUT*	GOOD	YES	X	
96	18	WALNUT	GOOD	NO	X	
97*	30	HACKBERRY	GOOD	YES	X	
98	15	(DOUBLE) HACKBERRY	GOOD	NO		X
99	15	BLACK CHERRY	GOOD	NO		X
100	12	BOX ELDER	GOOD	NO		X
101	18	HACKBERRY	GOOD	NO		X
102	15	HACKBERRY	GOOD	NO		X
103	42	BLACK CHERRY	POOR	YES		X
104	15	HACKBERRY	POOR	NO		X
105	15	HACKBERRY	POOR	NO		X
106	30	DOUBLE (BLACK CHERRY)	POOR	YES		X
107	15	BOX ELDER	POOR	NO		X
108	18	HACKBERRY	GOOD	NO		X
109	24	HACKBERRY	POOR	YES		X
110	36	HACKBERRY	POOR	YES		X
111	24	BLACK CHERRY	POOR	YES		X
112	15	BOX ELDER	GOOD	NO		X
113	18	HACKBERRY	POOR	NO		X
114	60	WHITE OAK	POOR	YES		X
115	24	BLACK CHERRY	POOR	YES		X
116	15	BOX ELDER	GOOD	NO		X
117	24	BLACK CHERRY	POOR	YES		X
118	36	HACKBERRY	GOOD	YES		X

LANDSCAPE DATA

SITE ACREAGE:	7.2 AC (313,632 SF)
SITE ZONING DISTRICT AND APPLICABLE OVERLAYS:	BASE ZONING: R4 RESIDENTIAL 4 DISTRICT PROPOSED ZONING: PD4 38.20/3000 | PLANNED DEVELOPMENT OVERLAY ZONING: CENTRAL FRANKLIN OVERLAY, HISTORIC PRESERVATION OVERLAY, & FLOOD FRINGE OVERLAY
MINIMUM REQUIRED LANDSCAPE SURFACE AREA (RATIO & ACREAGE):	20% (62,726.40 SF)
PROVIDED LANDSCAPE SURFACE AREA (RATIO & ACREAGE):	30% (94,169.09 SF)
PERCENTAGE & ACREAGE OF EXISTING HEALTHY CANOPY COVER:	13.5% (42,337 SF)
MINIMUM PERCENTAGE & ACREAGE OF RETAINED CANOPY COVER:	26% (11,008 SF)
PERCENTAGE & ACREAGE OF RETAINED HEALTHY CANOPY COVER PROVIDED:	54.4% (23,011 SF)
NUMBER & DBH OF SPECIMEN TREES REMOVED:	35 (REFER TO TREE CHART FOR HEALTH)
PROPOSED TREE SAVE AREA:	0.53 AC (23,011 SF)

TREE PROTECTION NOTE:

ALL TREE PROTECTION FENCING SHALL BE IN PLACE PRIOR TO THE ISSUANCE OF A GRADING OR LAND DISTURBANCE PERMIT AND SHALL BE MAINTAINED IN GOOD WORKING ORDER UNTIL ALL CONSTRUCTION ACTIVITY IS COMPLETED. NO DISTURBANCE IS PERMITTED IN A TREE PRESERVATION AREA. ANY REQUIRED EROSION CONTROL MEASURES SHALL BE PLACED OUTSIDE OF ANY TREE PROTECTION FENCING.

KEY

- APPROXIMATE EXISTING TREE CANOPY TO BE RETAINED ± 0.53 AC (± 23,011 SF)
- PROPOSED EXISTING TREE CANOPY TO BE REMOVED ± 0.44 AC (± 19,326 SF)
- SUCCESSIONAL GROWTH AREA TO BE REMOVED ± 1.77 AC (± 77,158 SF)
- XX GOOD HEALTH TREE
- XX POOR HEALTH TREE

GOOGLE EARTH PRO AERIAL PHOTO: 10/2021

GENERAL NOTE:
EXISTING TREES IN POOR CONDITION OF HEALTH.

EXAMPLES OF TREES IN POOR CONDITION OF HEALTH:



NORTH

0 50 100 150 feet

SCALE: 1" = 50'

KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: 615.708.0567
www.kiservogrin.com

GARY MICHAEL VOGRIN
REGISTERED
TENNESSEE LANDSCAPE ARCHITECT
05-04-23

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY: GV
DRAWN BY: GV2
CHECKED BY: KR
DATE: 04/10/23

KVD PROJECT NO. 21065

DRAWING TITLE:
TREE PRESERVATION PLAN

SHEET NUMBER
L1.0

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ALPHEUS TRUETT HOUSE
NATIONAL REGISTER PROPERTY
228 FRANKLIN ROAD

ACCESS EASEMENT

75' NATURALISTIC BUFFER,CONSERVATION EASEMENT, SIDE YARD SETBACK

12' MULTIUSE SIDEWALK, TYP.

EXISTING GARAGE

LIBERTY PIKE (ROW VARIES - MINOR ARTERIAL)

10' FRONT YARD SETBACK, TYP.

75' NATURALISTIC BUFFER, CONSERVATION EASEMENT, REAR SETBACK (TYP.)

FOSTER LANE (LOCAL STREET - 52' ROW)

THE FACTORY AT FRANKLIN

(TAX MAP 063M, GROUP A, PARCEL 02300)
FACTORY PARTNERS LLC
P.B. 77, PG. 31
ZONING:PD PLANNED RESIDENTIAL

SECOND STORY ROOFTOP AMENITY TERRACE

TRANSIT STOP IMPROVEMENTS IN COORDINATION WITH T.M.A.

TURN LANE/TRANSIT PULLOFF

EXISTING DANIELS DRIVE ROW

JAMISON STATION

DANIELS DRIVE (ROW VARIES - LOCAL STREET)

(TAX MAP 063M, GROUP A, PARCEL 01100)
JON DAVID SHUFF
D.B. 6545, PG. 154
ZONING:R-4
RESIDENTIAL

(TAX MAP 063M, GROUP A, PARCEL 01000)
ANDREW LESLIE JONATHAN
D.B. 8631, PG. 736
ZONING:R-4 RESIDENTIAL

(TAX MAP 063M, GROUP A, PARCEL 00900)
ALBERT MARLA SHUFF
R.B. 6545, PG. 158
ZONING:R-4
RESIDENTIAL

(TAX MAP 063M, GROUP A, PARCEL 00800)
EQUITY TRUST CO
CUSTODIAN FBO CINDY & DAVID HORN
R.B. 4187, PG. 711
ZONING:R-4
RESIDENTIAL

(TAX MAP 063M, GROUP A, PARCEL 00700)
DAVID HORN
R.B. 1058, PG. 570
ZONING:R-4
RESIDENTIAL

(TAX MAP 063M, GROUP A, PARCEL 00600)
GARY N. & VIKKI LUFFMAN
R.B. 690, PG. 913
ZONING:R-4 RESIDENTIAL

ZONE X

SETBACKS
- TOWNHOMES (BUILDING NO. 3, 4, 5)
  - FRONT: 10'
  - REAR: 13'
  - SIDE: 8' OR 75'
- DUPLEX
  - FRONT: 10'
  - REAR: 10', 12' OR 20' (SEE PLAN)
  - SIDE: 5-10' (SEE PLAN)
- SINGLE FAMILY
  - FRONT:6' OR 10' (SEE PLAN)
  - REAR:10', 12' OR 75' (SEE PLAN)
  - SIDE: SEE PLAN*
- MULTIFAMILY
  - FRONT: 0' OR 10' (SEE PLAN)
  - REAR: 0'
  - SIDE:0'

LEGEND
- MULTIFAMILY
- TOWNHOMES
- SINGLE FAMILY
- DUPLEX
- (XX) BUILDING NUMBER

NORTH

0 30 60 90 feet

SCALE: 1" = 30'

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KV+D
KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Office: 615.599.2827
www.kiservogrin.com

GARY MICHAEL VOGRIN
REGISTERED
TENNESSEE ARCHITECT
LANDSCAPE ARCHITECT
05-04-23

DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY: GV
DRAWN BY: GV2
CHECKED BY: KR
DATE: 04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:
RESIDENTIAL LOT DIAGRAMS

SHEET NUMBER
A1.0

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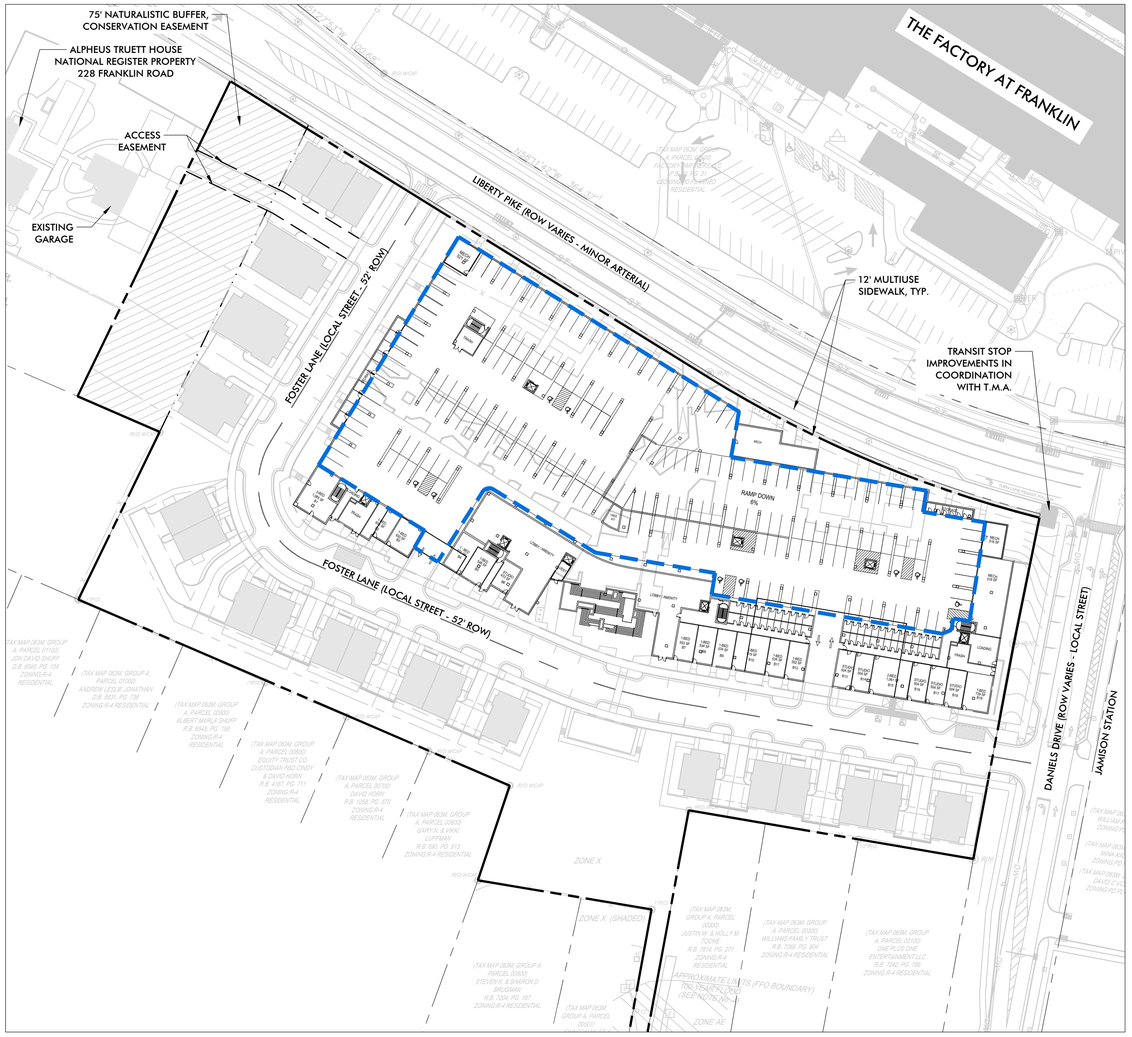
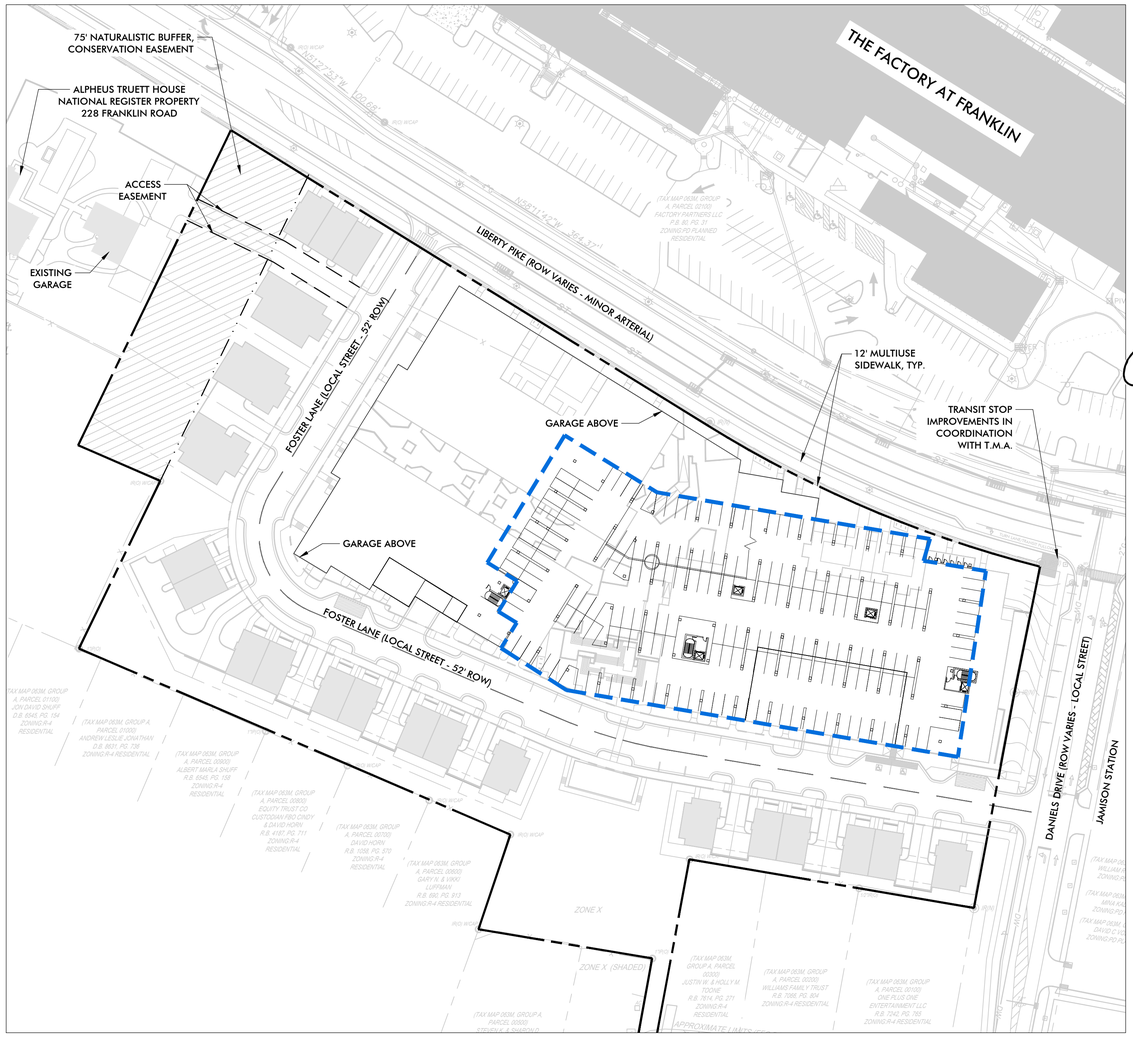


UNDERGROUND PARKING P1



UNDERGROUND PARKING P2

THE MIDDLE EIGHT PARKING DATA*

Use	Parking Requirement (per COF Zoning Ordinance dated 01/01/2023)	Number of Employees on Largest Shift	Outdoor/Indoor Square Footage (SF)	Number of Units	Total Spaces Required per COF Zoning Ordinance dated 01/01/2023	Parking Requirement (per M.O.S. request)	Total Spaces Required per M.O.S. Request & Shared Parking*	Total Spaces Provided	
Duplex/Townhome/ Single-Family								Unit Garages	On-Street/ Parallel
3 Bed Dup & SF House	3			12	36		36	24	13
3 Bed TH	3			3	9		9	6	3
SF House	2			6	12		12	12	0
Total Dup/TH/SF				21	57		57	58	
Multifamily								Parking Garage	On-Street
Studio MF	1.5			30	45	1.02	31	367	20
1 Bed MF	1.5			96	144	1.02	98		
2 Bed MF	2.5			88	220	1.89	167		
3 Bed MF	3			40	120	2.76	111		
Total Multifamily				254	529		407	387	
Restaurant / Café								Parking Garage	On-Street
	7.5 spaces per 1,000 square feet of gross floor area of the building and any outdoor seating area + 0.75 space per employee on largest shift	4	4000		34		34	33	8
							Shared Parking Reduction -32		
Overall Total				275	620		466	486	

* Refer to the Parking Memo dated May 2023 prepared by KCI Technologies for shared parking supplemental data.

MODIFICATION OF STANDARDS REQUEST

THE APPLICANT REQUESTS A MODIFICATION OF STANDARDS REGARDING SECTION 10.1.6 MINIMUM PARKING WITHIN THE FRANKLIN ZONING ORDINANCE. THIS PROPOSED MODIFICATION OF STANDARDS REQUESTS A REDUCTION IN RESIDENTIAL PARKING MINIMUMS FOR THE MULTIFAMILY RESIDENTIAL. THE REDUCTION IS SUPPORTED BY THE PARKING ANALYSIS PROVIDED IN THE ATTACHED PARKING MEMO FROM KCI DATED MAY 2023. REFER TO THE CHART BELOW FOR REQUESTED REDUCTION IN PARKING RATES.

LAND USE		REQUIRED RATES (PER COF ZONING ORDINANCE DATED 01.01.2023	PROPOSED RATES
MULTI-FAMILY	STUDIO	1.5	1.02
	1-BEDROOM	1.5	1.02
	2-BEDROOM	2.5	1.89
	3-BEDROOM	3.0	2.76

NORTH

0 60 120 180 feet

SCALE: 1" = 60'

ANTUNOVICH ASSOCIATES
ARCHITECTURE, PLANNING, INTERIOR DESIGN
224 West Huron Street Suite 7E
Chicago, IL 60654
Main: 312.787.1776
www.antunovich.com

KV+D
KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: 615.708.0567
www.kiservogrin.com

JOSEPH M. ANTUNOVICH
REGISTERED ARCHITECT
No. 107036
STATE OF TENNESSEE
5/4/23

DEVELOPMENT PLAN
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209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO:	REVISIONS	DATE	BY
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DESIGNED BY: GV
DRAWN BY: GV2
CHECKED BY: KR
DATE: 04/10/23

KVD PROJECT NO. 21065

DRAWING TITLE: SITE PARKING DATA

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Jamison Station | Daniels Drive | Multifamily Building No. 2 - 288' | Multifamily Building No. 1 - 234' | Foster Lane Townhomes - 72' Building No. 3-5 | 75' Buffer

Liberty Pike Elevation Looking South



Partial Street Plan

All building elevations and exterior materials are preliminary and subject to change.

NOTE: THIS PAGE PROVIDES A CONCEPTUAL SECTION AND ILLUSTRATIVE PLAN OF HOW THE SITE MAY BE DEVELOPED IN ACCORDANCE WITH THE PROJECT DEVELOPMENT PLAN. SPECIFIC PLANS WILL BE PROVIDED DURING THE SITE PLAN PHASE.

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224 West Hutson Street Suite 7E
Chicago, Illinois 60654
Main: (312.266.1126
www.antunovich.com

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9005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615) 807-7777
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DRAWING TITLE: ARCHITECTURAL ELEVATIONS

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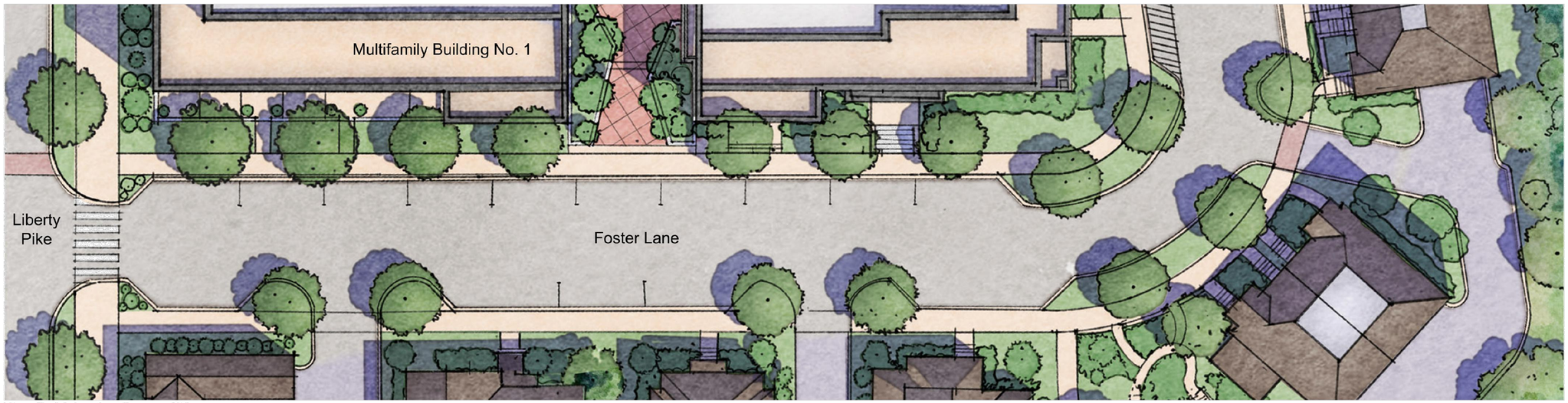
Site Section Looking East at Foster Lane



Partial Foster Lane Plan

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Chicago, IL 60654
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5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615.807.2557
www.kiservogrin.com

JOSEPH M. ANTUNOVICH
REGISTERED ARCHITECT
No. 107035
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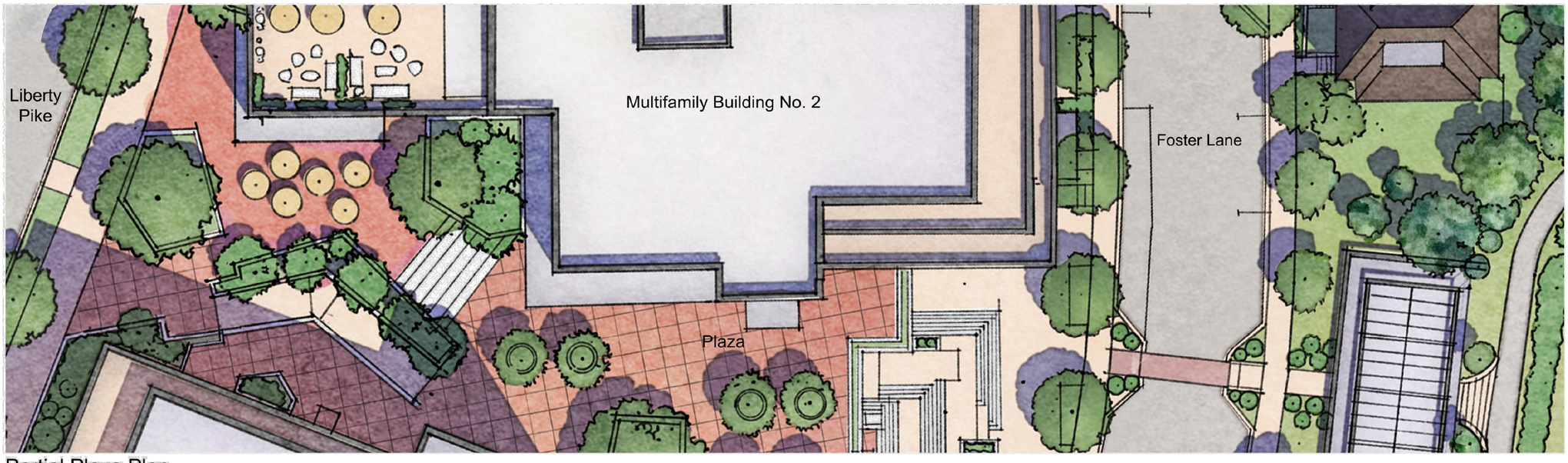
Site Section Looking East at Plaza



Partial Plaza Plan

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Chicago, IL 60654
Main: (312.266.1126
www.antunovich.com

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5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615.708.0567
www.kiservogrin.com

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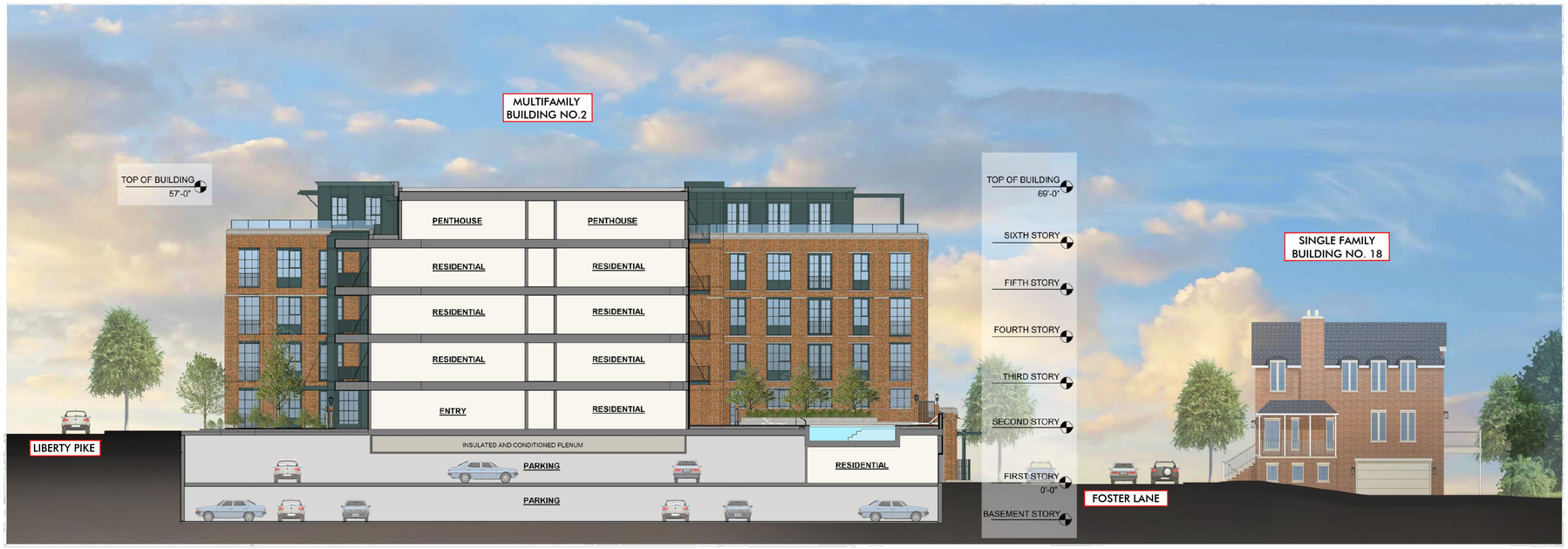
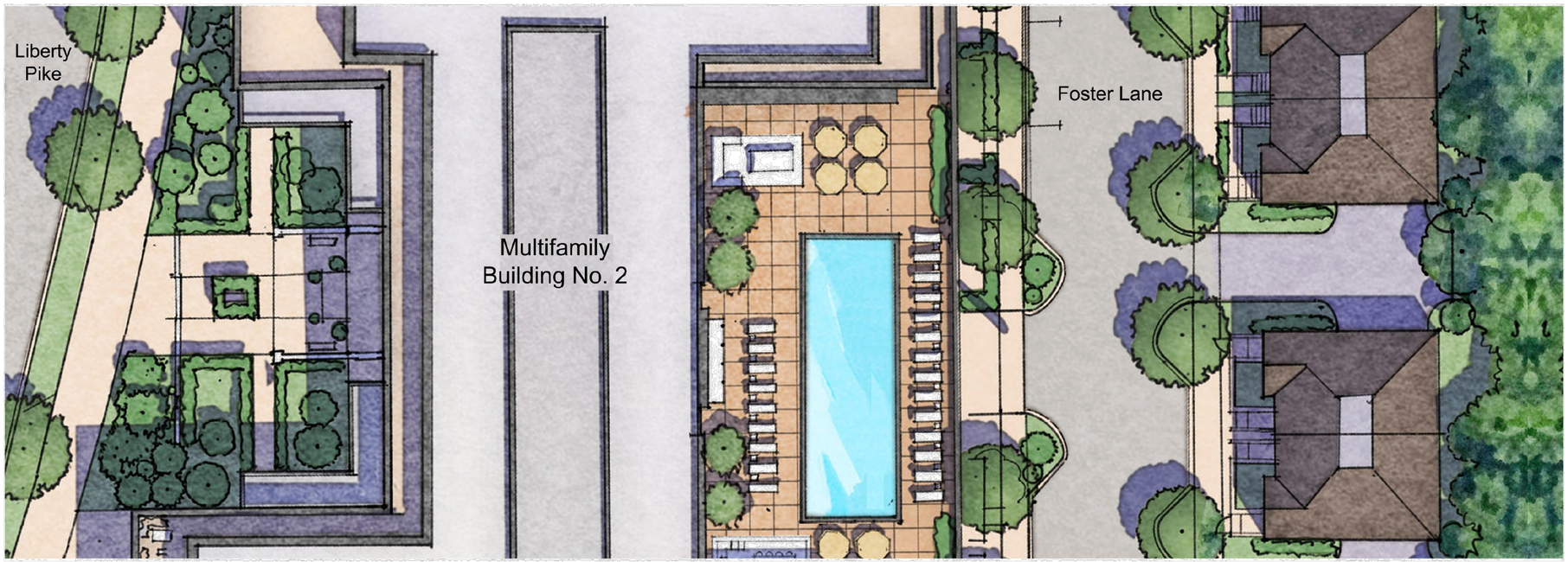


Site Section through Multifamily Building No. 2



Partial Plan of Multifamily Building No. 2

All building elevations and exterior materials are preliminary and subject to change.

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Main: (312.266.1126
www.antunovich.com

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KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615) 807-2577
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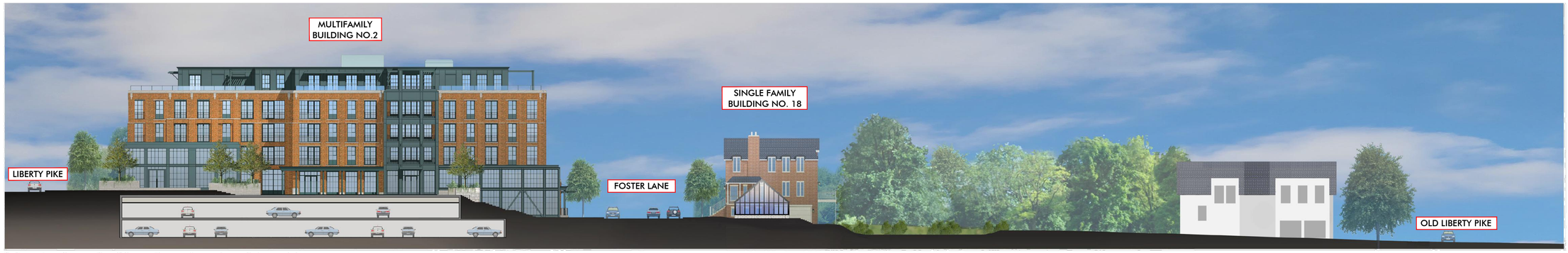

North-South Site Section looking East



Partial Site Plan

All building elevations and exterior materials are preliminary and subject to change.

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ARCHITECTURE PLANNING INTERIOR DESIGN
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Chicago, IL 60654
Main: (312) 266-1126
www.antunovich.com

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KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615) 807-4777
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REGISTERED ARCHITECT
No. 107054
STATE OF TENNESSEE
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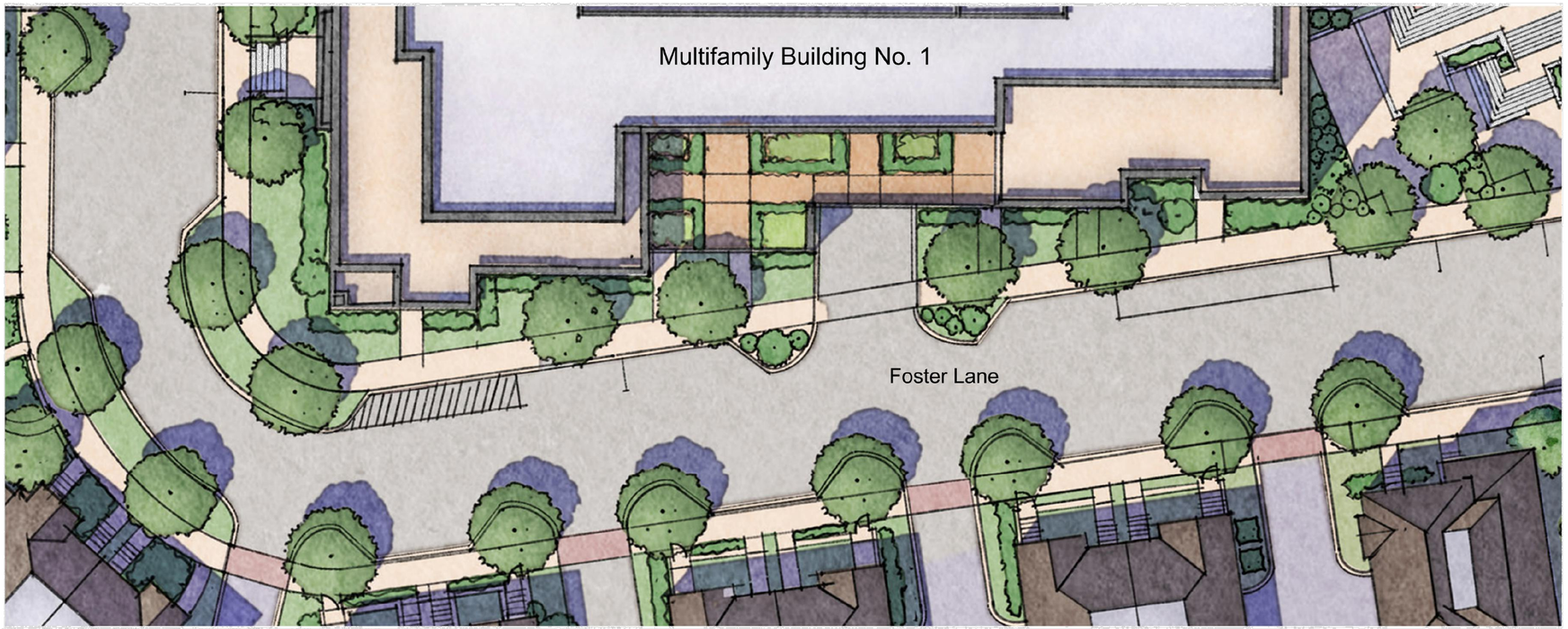
South Elevation of Multifamily Building No. 1



Partial Multifamily Building No. 1 Plan

All building elevations and exterior materials are preliminary and subject to change.

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224 West Huron Street Suite 7E
Chicago, IL 60654
Main: (313.266.1126
www.antunovich.com

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5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615) 656-4447
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JOSEPH M. ANTUNOVICH
REGISTERED ARCHITECT
No. 107054
STATE OF TENNESSEE
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South Elevation of Multifamily Building No. 2



Partial Multifamily Building No. 2 Plan

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www.antunovich.com

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ARCHITECTURE PLANNING INTERIOR DESIGN

5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615) 599-2274
www.kiservogrin.com

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REGISTERED ARCHITECT
No. 107004
STATE OF TENNESSEE

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DEVELOPMENT PLAN
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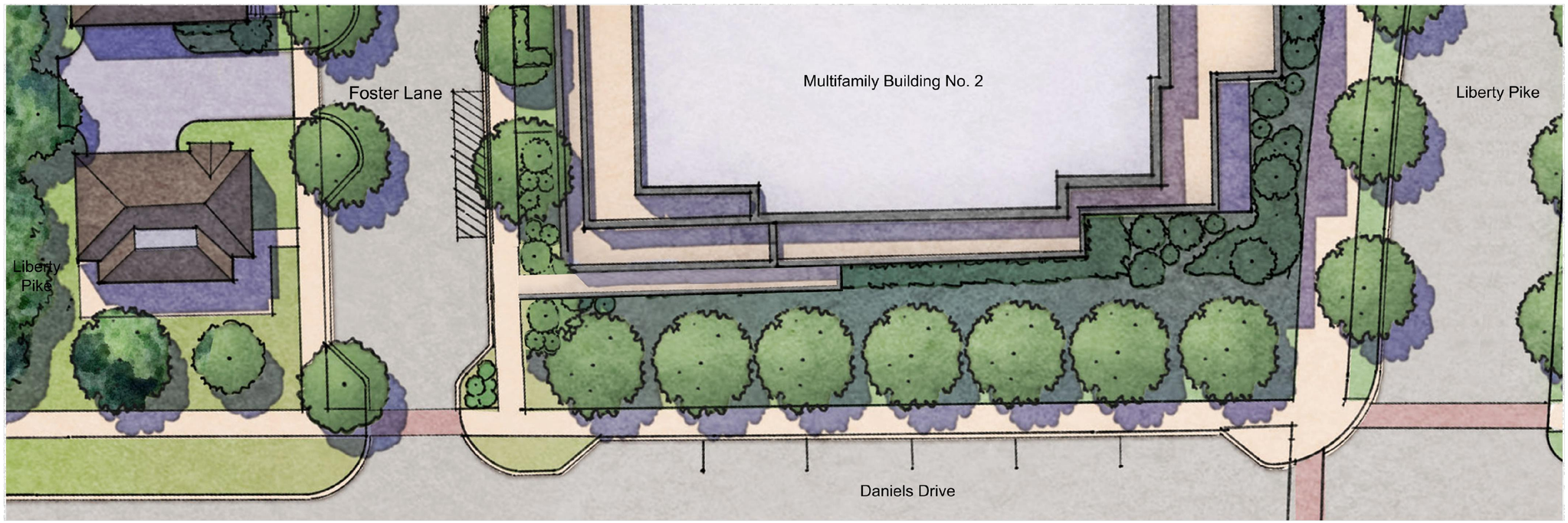
Elevation at Daniels Drive



Partial Plan at Daniels Drive

All building elevations and exterior materials are preliminary and subject to change.

DUE TO TOPOGRAPHY ISSUES ALONG DANIELS DRIVE, DWELLING UNITS ARE UP TO 10' LOWER THAN DANIELS DRIVE DUE TO EXISTING ROAD GRADE. PER THE ZONING ORDINANCE SECTION 6.7, THIS IS CONSIDERED EXISTING CONSTRAINT TO ALLOW FOR ACCESS FROM UNITS TO A PUBLIC STREET.

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Main: (313.266.1126
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KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste. 100
Franklin, TN 37067
Main: (615) 538-1507
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REGISTERED ARCHITECT
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BIRDS EYE VIEW



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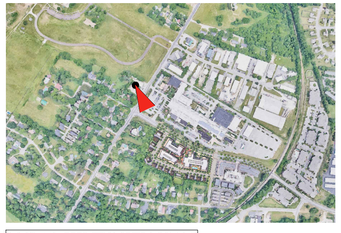
ENLARGED BIRDS EYE VIEW



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TOWNHOMES ON LIBERTY PIKE



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FOSTER LANE VIEW



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BUILDING NO. 1 RESIDENTIAL PLAZA



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Franklin, TN 37067
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THE PLAZA BETWEEN BUILDINGS NO. 1 AND 2



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THE PLAZA BETWEEN BUILDING NO. 1 AND 2 ACROSS LIBERTY PIKE



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DEVELOPMENT PLAN
THE MIDDLE EIGHT
209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

NO.	REVISIONS	DATE	BY
1	COF RESUBMITTAL	05/04/23	KR

DESIGNED BY:	GV
DRAWN BY:	GV2
CHECKED BY:	KR
DATE:	04/10/23

KVD PROJECT NO.
21065

DRAWING TITLE:

ARCHITECTURAL
RENDERINGS

SHEET NUMBER

A2.6

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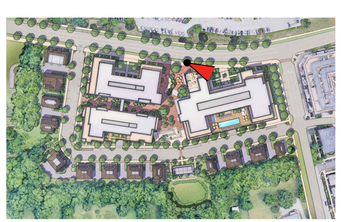
THE COURTYARD OF BUILDING NO. 2



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FRANKLIN PROJECT # 81154
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THE PLAZA BETWEEN BUILDINGS NO. 1 AND 2



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FOSTER LANE VIEWING WEST



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SIGHTLINE VIEW BEFORE / AFTER AT LIBERTY PIKE FROM FRANKLIN ROAD



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209 OLD LIBERTY PIKE
FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

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SIGHTLINE VIEW BEFORE / AFTER AT LIBERTY PIKE FROM RAILROAD



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POCKET PARK BETWEEN BUILDINGS NO. 8 AND 9



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FRANKLIN PROJECT # 8154
FRANKLIN, WILLIAMSON COUNTY, TN

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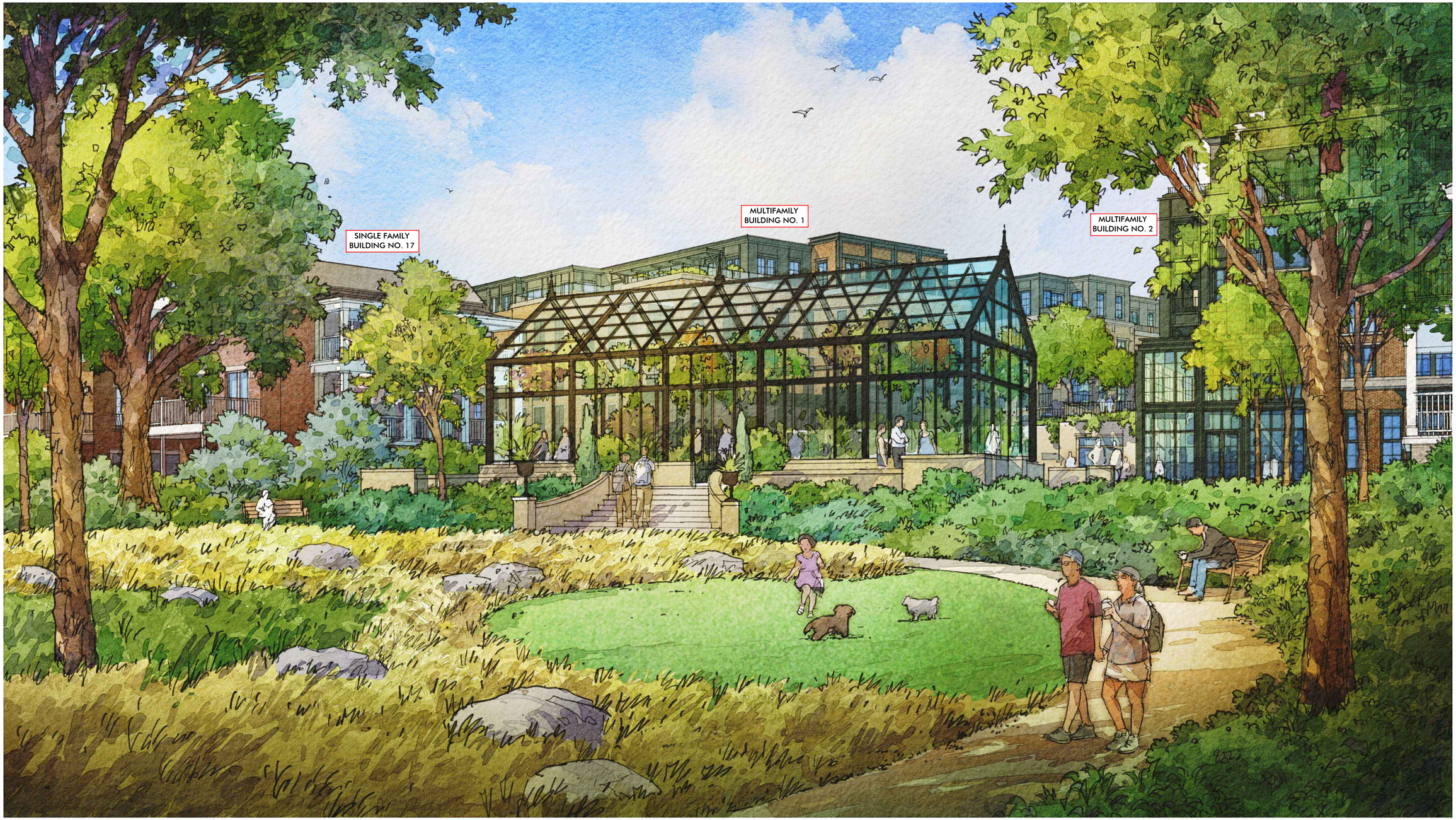

THE GREENHOUSE PARK



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PARKING GARAGE INTERIOR LOBBY

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FRANKLIN, WILLIAMSON COUNTY, TN

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MAY 2023

PARKING STUDY

THE MIDDLE EIGHT
FRANKLIN, TENNESSEE

PREPARED FOR:
TRULAND DEVELOPMENT COMPANY

500 11TH AVENUE NORTH, SUITE 290
NASHVILLE, TENNESSEE 37203

PARKING STUDY
THE MIDDLE EIGHT
FRANKLIN, TENNESSEE

PREPARED FOR:

TRULAND DEVELOPMENT COMPANY



PREPARED BY:

KCI TECHNOLOGIES, INC

500 11th Avenue North, Suite 290
Nashville, TN 37203
615.370.8410 office 615.370.8455 fax
www.kci.com

1. INTRODUCTION AND PROJECT DESCRIPTION

The purpose of this study is to complete an analysis to determine the minimum number of parking spaces required to accommodate the combined land uses associated with the proposed Middle Eight development. According to the developer, The Middle Eight development will include 6 single-family houses, 3 single-family townhomes, 12 single-family duplexes, 254 multi-family units, 3,000 square feet of indoor cafe space, and 1,000 square feet of outdoor cafe patio space.

The purpose of this study is to determine the projected parking demand of the individual and combined land uses proposed for The Middle Eight development. Since the proposed development will include a mix of land uses, the peak parking demand for each land use will occur at varying times. Parking demand rate information and shared parking information from Franklin's *Zoning Ordinance* as well as typical parking patterns and data presented in *Parking Generation Manual*, 5th Edition, published by the Institute of Transportation Engineers (ITE) and *Shared Parking*, 3rd Edition, published by the Urban Land Institute (ULI) were utilized to determine the peak parking demand of the site.

2. PARKING ANALYSIS

2.1 Zoning Ordinance Requirements

Franklin's *Zoning Ordinance* contains parking space requirements for specific land uses that do not account for parking demand or shared parking that may occur on parcels with a mix of land uses. This ordinance was reviewed to determine the parking that would be required for the proposed land uses if no adjustments for parking demand or shared parking were considered.

Table 1 shows the proposed land uses and densities for The Middle Eight development, the parking rates contained in Franklin's *Zoning Ordinance*, and the number of parking spaces required per the code with no adjustments for shared parking.

TABLE 1. PARKING BASED ON FRANKLIN'S ZONING ORDINANCE WITH INDIVIDUAL LAND USES

LAND USE		QUANTITY	REQUIREMENT	SPACES REQUIRED
Single-Family Home		6 units	2 per unit	12
Townhomes	3-Bedroom	3 units	3 per unit	9
Duplexes	3-Bedroom	12 units	3 per unit	36
Multi-Family	Studio	30 units	1.5 per unit	45
	1-Bedroom	96 units	1.5 per unit	144
	2-Bedroom	88 units	2.5 per unit	220
	3-Bedroom	40 units	3 per unit	120
Restaurants, Inside and Outside Seating		3,000 s.f. (indoor)	7.5 spaces per 1,000 square feet of gross floor area of the building and any outdoor seating area + 0.75 space per employee on largest shift	23
		1,000 s.f. (outdoor)		8
		4 employees		3
Total Number of Spaces Required				**620**

As shown in Table 1, based on the parking rates without considering parking demand or shared parking, the development would require a total of 620 parking spaces.

Generally, the procedure outlined above is followed when determining parking needs for developments within the City of Franklin. However, this procedure does not take into account the parking demand for the proposed development. Additionally, for sites with a mixture of land uses, this procedure typically overestimates the parking demand. The overall peak parking demand for a mixed-use site can be significantly less than

the sum of the peak parking demands of the individual uses since different types of uses have different peak parking demand characteristics. Therefore, the total number of parking spaces mentioned above is considered an overestimation of the actual parking demand for the combined land uses.

2.2 Parking Demand Analysis

Parking Generation Manual, 5th Edition, was used to estimate the parking demand associated with the multi-family portion of The Middle Eight development. According to ITE's *Parking Generation Manual*, the 85th percentile parking demand for mid-rise, multi-family developments is approximately 0.87 parking spaces per bedroom. Therefore, the parking demand for studio and 1-Bedroom units are 0.87 spaces per unit, the parking demand for 2-Bedroom units is 1.74, and the parking demand for 3-Bedroom units is 2.61. Additionally, per ULI's *Shared Parking*, a ratio of 0.15 spaces per unit was added to account for visitor parking. Table 2 shows the proposed parking for The Middle Eight development using the proposed parking rates as presented above.

TABLE 2. REQUIRED PARKING BASED ON PROPOSED RATES WITH INDIVIDUAL LAND USES

LAND USE		QUANTITY	PROPOSED RATES	SPACES REQUIRED
Single-Family Home		6 units	2 per unit	12
Townhomes	3-Bedroom	3 units	3 per unit	9
Duplexes	3-Bedroom	12 units	3 per unit	36
Multi-Family	Studio	30 units	1.02 per unit	31
	1-Bedroom	96 units	1.02 per unit	98
	2-Bedroom	88 units	1.89 per unit	167
	3-Bedroom	40 units	2.76 per unit	111
Restaurants, Inside and Outside Seating		3,000 s.f. (indoor)	7.5 spaces per 1,000 square feet of gross floor area of the building and any outdoor seating area + 0.75 space per employee on largest shift	23
		1,000 s.f. (outdoor)		8
		4 employees		3
Total Number of Spaces Required				**498**

As shown in Table 2, based on the proposed parking rates without considering shared parking, the development would require a total of 498 parking spaces.

2.3 Shared Parking Analysis

Shared Parking, 3rd Edition, includes extensive research that quantifies how shared parking within mixed-use developments results in a lower parking demand than the sum of the parking needed for the individual uses. This reduction is due in part to fluctuations in the parking demand throughout the day, week, and year. The peak demand for each land use does not necessarily occur at the same time. Also, shared trips between the different land uses within a mixed-use site result in fewer parking spaces required for shared trips.

In order to determine the number of parking spaces that are needed to serve the multi-family and restaurant portions of The Middle Eight development, a shared parking analysis was conducted for the combined land uses. The single-family units were excluded from the shared parking analysis. The parking demand rates for each month of the year were identified per land use. The month with the peak parking demand was then determined. Next, the hourly parking demand rates for a typical weekday and a weekend were identified for each of the proposed land uses. The monthly parking demand factor and the hourly parking demand factor were applied to the base parking rates for each land use in order to determine the number of parking spaces that are required for each use on an hourly basis. Finally, the hourly parking demands for the individual uses were added together to determine the total parking demand per hour for the site. This procedure was followed to determine the weekday peak parking demand and the weekend peak parking demand. The analysis is described further below.

Monthly Parking Demand Factors

Studies have shown that the parking demand for a given land use will typically vary from month to month. Therefore, the monthly parking demands for the land uses within The Middle Eight development were evaluated to determine the peak monthly variations.

For each of the land uses, the monthly parking demand factors were taken from *Shared Parking*. These factors were then applied to the base parking rates to determine the monthly parking demand for each land use. For each month, the parking demands for the proposed uses were summed to identify the month with the highest parking demand. Table 3 shows the monthly parking demand factors per ULI's *Shared Parking*. The peak month is expected to be May.

TABLE 3. MONTHLY PARKING DEMAND FACTORS BY LAND USE

MONTH	MULTI-FAMILY	RESTAURANT	
		CUSTOMER	EMPLOYEE
January	1.00	0.85	0.96
February	1.00	0.85	0.96
March	1.00	0.97	1.00
April	1.00	0.95	1.00
May	1.00	0.99	1.00
June	1.00	0.98	1.00
July	0.95	1.00	1.00
August	0.95	1.00	1.00
September	1.00	0.93	1.00
October	1.00	0.96	1.00
November	1.00	0.92	1.00
December	1.00	0.96	1.00

Hourly Parking Demand

Similar to the monthly parking demand factors, studies have shown that the parking demand for a given land use will typically change from hour to hour. Therefore, the hourly parking demands for each of the proposed land uses were evaluated to determine the peak hour variations. Table 4 depicts the hourly parking demand factors per ULI's *Shared Parking*. The peak hour is expected to be 12:00 AM on weekdays and 12:00 AM on weekends.

TABLE 4. HOURLY PARKING DEMAND FACTORS BY LAND USE

TIME	WEEKDAY			WEEKEND		
	MULTI-FAMILY	RESTAURANT		MULTI-FAMILY	RESTAURANT	
		CUSTOMER	EMPLOYEE		CUSTOMER	EMPLOYEE
6 AM	0.95	0.05	0.20	1.00	0.05	0.15
7 AM	0.80	0.10	0.20	0.95	0.10	0.20
8 AM	0.67	0.20	0.30	0.88	0.20	0.30
9 AM	0.55	0.30	0.40	0.80	0.30	0.40
10 AM	0.50	0.55	0.75	0.75	0.55	0.75
11 AM	0.45	0.85	1.00	0.70	0.85	1.00
12 PM	0.40	1.00	1.00	0.68	1.00	1.00
1 PM	0.40	1.00	1.00	0.65	1.00	1.00
2 PM	0.40	0.90	0.95	0.65	0.90	0.95
3 PM	0.40	0.60	0.70	0.68	0.60	0.70
4 PM	0.45	0.55	0.60	0.71	0.55	0.60
5 PM	0.50	0.60	0.70	0.74	0.60	0.70
6 PM	0.60	0.85	0.90	0.77	0.85	0.90
7 PM	0.70	0.80	0.90	0.80	0.80	0.90
8 PM	0.80	0.50	0.60	0.83	0.50	0.60
9 PM	0.85	0.30	0.40	0.86	0.30	0.40
10 PM	0.95	0.20	0.30	0.89	0.20	0.30
11 PM	0.97	0.10	0.20	0.92	0.10	0.20
12 AM	1.00	0.05	0.20	1.00	0.05	0.20

Non-Captive Parking Factors

Studies have shown that developments containing multiple land uses will typically have a reduction in customer parking needs due to customers parking and visiting more than one use. The term "captive market" is used to describe someone already present in the area that will visit another site. For example, a resident parked at an apartment building is likely to visit an on-site restaurant for lunch, which will reduce the parking demand for the restaurant. This is considered a simultaneous trip; and therefore, results in the reduction for shared parking. It should be noted that captive parking reductions could apply to the restaurant parking that accounts for residents that live in the building that will patron the restaurant space as these residents would already be parked on site and would not generate the need for an additional parking space. However, in order to be conservative, non-captive parking reductions were not applied.

Mode Adjustment Factors

The mode adjustment factor is the percentage of visitors that drive to the project site rather than use an alternative means of transportation such as riding public transportation, taking a taxi or ride-share, riding a bicycle, or walking. In order to be conservative, no adjustments were made to account for mode adjustments.

Peak Parking Demand

For each of the proposed land uses, the proposed parking rates described in Section 2.2 – Parking Demand Analysis were multiplied by the peak monthly parking demand factor, the hourly parking demand factor, the non-captive parking factor, and the mode adjustment factor to determine the hourly parking demand for each land use. The peak parking demand for each of the land uses were then summed to determine the total hourly parking demands for the development. Table 5 presents the results of the shared parking analysis for the multi-family and restaurant portions of The Middle Eight development.

TABLE 5. SHARED PARKING MODEL – PROJECTED PARKING DEMAND

PEAK PARKING DEMAND	
WEEKDAY	**WEEKEND**
12:00 AM May	12:00 AM May
409 spaces	409 spaces

As shown in Table 5, with the proposed land uses for The Middle Eight development, there will be potential for shared parking between multi-family and restaurant land uses. Using ULI's *Shared Parking* methodology, the shared parking analysis indicates the peak parking demand of the multi-family and restaurant portions of the development is 409 parking spaces. ULI's shared parking worksheets are included in Appendix A.

Table 6 presents the required multi-family and restaurant parking that will be required once shared parking is taken into consideration. As shown in Table 6, shared parking between the multi-family and restaurant portions of the development results in a reduction of 32 parking spaces as compared to the proposed parking rates.

TABLE 6. REQUIRED PARKING FOR MULTI-FAMILY AND RESTAURANT WITH SHARED PARKING

LAND USE		QUANTITY	PROPOSED RATES	SPACES REQUIRED
Multi-Family	Studio	30 units	1.02 per unit	31
	1-Bedroom	96 units	1.02 per unit	98
	2-Bedroom	88 units	1.89 per unit	167
	3-Bedroom	40 units	2.76 per unit	111
Restaurants, Inside and Outside Seating		3,000 s.f. (indoor)	7.5 spaces per 1,000 square feet of gross floor area of the building and any outdoor seating area + 0.75 space per employee on largest shift	23
		1,000 s.f. (outdoor)		8
		4 employees		3
Multi-Family and Retail Spaces without Shared Parking				**441**
Multi-Family and Retail Spaces with Shared Parking				**409**
Shared Parking Reduction				**32**

2.4 Comparison to Similar Developments within Franklin

Parking rates and utilizations were gathered from seven existing multi-family developments in Franklin that are similar to the proposed development. Specifically, KCI Technologies counted the number of parking spaces that were used for each of the developments from 11:00 PM – 1:00 AM on a typical weekday in April 2023 when local schools were in session. From these counts, the peak parking demand for each site was determined. Table 7 presents the number of units, the current occupancy, number of parking spaces provided, parking ratio per unit, peak parking demand, and peak parking utilization rate for each of the sites that were evaluated. It should be noted that the parking ratio of 1.56 for The Middle Eight only includes parking spaces within the planned parking garage and does not include the on-street parking spaces.

TABLE 7. PARKING RATE AND UTILIZATION COMPARISON

PROPERTY	TOTAL UNITS	UNIT OCCUPANCY	RESIDENT PARKING SPACES PROVIDED	PARKING RATIO PER TOTAL UNITS	PEAK PARKING		
					DEMAND	UTILIZATION	DEMAND PER OCCUPIED UNIT
Harpeth Square[1]	150	99%	151	1.01	87	58%	0.59
The Everly at Historic Franklin	218	93%	322	1.48	191	59%	0.94
McEwen Northside Apartments	340	96%	376	1.10	270	73%	0.83
Paxton Cool Springs	328	95%	548	1.67	364	66%	1.17
Cadence Cool Springs	252	93%	399	1.58	302	76%	1.29
MAA Cool Springs	428	95%	807	1.89	507	63%	1.25
Retreat at Iron Horse	270	93%	454	1.68	294	65%	1.17
The Middle Eight	254	--	400	1.57	--	--	1.57

1 – This is a shared garage with both gated, residential parking and non-gated, valet, office, hotel, and retail parking. There were 109 vehicles parked in the non-gated, valet, office, hotel, and retail parking. These vehicles were not included in the demand count above since it could not be verified whether they were residential, office, hotel, or retail parking.

As shown in Table 7, the parking supply ratios vary from 1.01 to 1.89 across the studied sites. All of the properties reported that they had had no complaints regarding the parking. Additionally, the observed peak parking demand for each site was less than 80%, and the peak demand per occupied unit was less than 1.30 parking spaces per unit. The Middle Eight development is planning to provide 1.57 parking spaces per unit within the parking garage. Additional on-street parking spaces will be provided along Foster Lane that can also be utilized. Therefore, the proposed parking ratio for The Middle Eight should be sufficient for the parking demand and follows comparable properties in the area.

3. PARKING PLAN

The current site plan includes 400 garage parking spaces via the primary parking garage, 44 on-street parking spaces located along Foster Lane, and 42 garage parking spaces via the 2-car garages planned for each of the single-family units. This is a total of 486 parking spaces for the total site.

Within the garage, gates will be utilized to separate 367 parking spaces that will be reserved for residential parking only. The remaining 33 parking spaces within the garage and 28 on-street parking spaces will be shared parking for visitors and restaurant patrons.

Visitors and restaurant patrons visiting the project site will be able to park in the ungated parking spaces located within the parking garage or in the on-street parking spaces located along Foster Lane. Within the garage, patrons and visitors will be able to take an elevator up to the lobby/restaurant space. In addition to the elevator within the parking garage, the middle of the project site is planned to include plenty of open and walkable area including a stair feature through the middle of the project site and sidewalks are planned along the outside perimeter of the project site. Visitors and restaurant patrons can utilize these features to walk through or around the project site to access the public facilities.

4. CONCLUSIONS & RECOMMENDATIONS

Using Franklin's *Zoning Ordinance* without taking into consideration parking demand and shared parking between land uses determined that the development would require a total of 620 parking spaces. However, the development is proposing a Modification of Standards (MOS) for the multi-family parking rates as well as an Alternative Parking Plan to account for shared parking between the multi-family portion and the cafe portion of the development. Table 8 presents the parking rates based on Franklin's *Zoning Ordinance* as well as the proposed parking rates based on ITE's *Parking Generation Manual* and ULI's *Shared Parking*.

TABLE 8. REQUIRED AND PROPOSED PARKING RATES

LAND USE		REQUIRED RATES	PROPOSED RATES
Multi-Family	Studio	1.5 per unit	1.02 per unit
	1 Bedroom	1.5 per unit	1.02 per unit
	2 Bedroom	2.5 per unit	1.89 per unit
	3 Bedroom	3 per unit	2.76 per unit

Table 9 presents the required parking based on the proposed parking rates and the shared parking methodology as presented in Section 2.3 of this report.

TABLE 9. REQUIRED PARKING BASED ON PROPOSED RATES AND SHARED PARKING

LAND USE		QUANTITY	PROPOSED RATES	SPACES REQUIRED
Single-Family Home		6 units	2 per unit	12
Townhomes	3-Bedroom	3 units	3 per unit	9
Duplexes	3-Bedroom	12 units	3 per unit	36
Multi-Family	Studio	30 units	1.02 per unit	31
	1-Bedroom	96 units	1.02 per unit	98
	2-Bedroom	88 units	1.89 per unit	167
	3-Bedroom	40 units	2.76 per unit	111
Restaurants, Inside and Outside Seating		3,000 s.f. (indoor)	7.5 spaces per 1,000 square feet of gross floor area of the building and any outdoor seating area + 0.75 space per employee on largest shift	23
		1,000 s.f. (outdoor)		8
		4 employees		3
Subtotal Number of Spaces Required				**498**
Shared Parking Reduction				*-32*
Total Number of Spaces Required				**466**

As seen in Table 9, the proposed parking rates and shared parking reduces the total number of parking spaces needed for the site to 466. This results in a reduction of 154 parking spaces or 25% as compared to the base parking rates contained in Franklin's *Zoning Ordinance*.

The current site plan shows 400 garage parking spaces via the primary parking garage, 44 on-street parking spaces located along Foster Lane, and 42 garage parking spaces via the 2-car garages planned for each of the single-family units. This is a total of 486 parking spaces for the project site. Table 10 presents the proposed parking allocation by land use and parking type.

TABLE 10. PROVIDED PARKING ALLOCATION BY LAND USE AND PARKING TYPE

PARKING TYPE	LAND USE	SPACES PROVIDED
Parking Garage	Multi-Family Resident Only	367
	Shared Visitor and Cafe	33
On-Street	Single-Family/Townhomes/Duplexes Resident Only	16
	Shared Visitor and Cafe	28
Two-Car Garage	Single-Family/Townhomes/Duplexes Resident Only	42
Total Number of Spaces Provided by the Development		**486**

Additionally, parking utilization rates were gathered from seven existing multi-family developments in Franklin that are similar to the proposed development. All of these developments are currently 93%-99% occupied with utilization rates that range from 58% to 76%. Additionally, the observed peak demand per occupied unit was less than 1.30 parking spaces per unit. The Middle Eight development is planning to provide 1.57 parking spaces per unit within the parking garage. Therefore, the proposed parking ratio for The Middle Eight should be sufficient for the parking demand and follows comparable properties in the area.

APPENDIX A – ULI'S SHARED PARKING WORKSHEET

Shared Parking Demand Summary																			
Peak Month: MAY -- Peak Period: 12 AM, WEEKEND																			
Land Use	Project Data		Weekday					Weekend					Weekday			Weekend			
	Quantity	Unit	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Peak Hr Adj 12 AM	Peak Mo Adj May	Estimated Parking Demand	Peak Hr Adj 12 AM	Peak Mo Adj May	Estimated Parking Demand
Retail																			
Food and Beverage																			
Fast Casual/Fast Food	4,000	sf GLA	7.50	100%	100%	7.50	ksf GLA	7.50	100%	100%	7.50	ksf GLA	5%	99%	1	5%	99%	1
Employee			0.75	100%	100%	0.75		0.75	100%	100%	0.75		20%	100%	1	20%	100%	1
Entertainment and Institutions																			
Hotel and Residential																			
Residential, Suburban																0%			
Studio Efficiency	30	units	1.02	100%	100%	1.02	unit	1.02	100%	100%	1.02	unit	100%	100%	31	100%	100%	31
1 Bedroom	96	units	1.02	100%	100%	1.02	unit	1.02	100%	100%	1.02	unit	100%	100%	98	100%	100%	98
2 Bedrooms	88	units	1.89	100%	100%	1.89	unit	1.89	100%	100%	1.89	unit	100%	100%	167	100%	100%	167
3+ Bedrooms	40	units	2.76	100%	100%	2.76	unit	2.76	100%	100%	2.76	unit	100%	100%	111	100%	100%	111
Reserved	91%	res spaces	0.00	100%	100%	0.00	unit	0.00	100%	100%	0.00	unit	100%	100%	-	100%	100%	-
Visitor	254	units	0.00	100%	100%	0.00	unit	0.00	100%	100%	0.00	unit	50%	100%	-	50%	100%	-
Office																			
Additional Land Uses																			
													Customer/Visitor		1	Customer		1
													Employee/Resident		408	Employee/Resident		408
													Reserved		-	Reserved		-
													Total		409	Total		409

From:	Lisa Alexander
To:	Planning Intake
Cc:	Tom Bell; Lisa Alexander; nickcampi@campidevelopment.com; Tiffany White; Crockett Lloyd; Lori Hennon-Bell; Scott Alexander; Michael Reinfeldt; DonnaDoss@comcast.net; pleb@bellsouth.net
Subject:	Stop the Middle Eight Membership Email Lists
Date:	Tuesday, May 23, 2023 12:47:53 PM
Attachments:	Harpeth Meadows Email Contact List.pages Middle Eight Email Contact List.pages

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Please find attached the contact lists for Stop the Middle Eight, the collective of neighbors opposed to the Height and Density of the Middle Eight project, with very real concerns about traffic, parking, site lines, and congestion (both on the sidewalks and on the roads). I am emailing these lists so that they may be included in the packet shared with BOMA and FMPC for this Thursday's meeting.

These lists are managed separately because originally, I only had the neighborhood list of 65 families and indiviuals, used to share information with my neighbors in the Harpeth Meadows neighborhood. The additional list of 96 names is from those in surrounding downtown neighborhoods who asked to be included in our bi-weekly updates on the Middle Eight project.

I'd appreciate it if you'd confirm the receipt of this email.

Lisa Alexander

Lisa Alexander
160 Lancaster Drive
magsalexander@msn.com

Middle Eight Email Contact List (95)

Aerdoff@gmail.com <Aerdoff@gmail.com>;
ajh354@cornell.edu <ajh354@cornell.edu>;
Allison Grainger <grainger0523@gmail.com>;
Allison@carpetlift101.com <Allison@carpetlift101.com>;
alwild@bellsouth.net <alwild@bellsouth.net>;
amkjk01@gmail.com <amkjk01@gmail.com>;
amy3wells@yahoo.com <amy3wells@yahoo.com>;
ashlynnpeters@gmail.com <ashlynnpeters@gmail.com>;
Aubin Diane & Ken <daubin@comcast.net>;
bartcunningham@outlook.com <bartcunningham@outlook.com>;
bestx4@comcast.net <bestx4@comcast.net>;
Billie Dooley <billiedooley@att.net>;
bobravener@gmail.com <bobravener@gmail.com>;
bonnie.williams07@comcast.net <bonnie.williams07@comcast.net>;
bowling.c114@gmail.com <bowling.c114@gmail.com>;
Brenda Ammons <brendasueammons@gmail.com>;
brigette3@hotmail.com <brigette3@hotmail.com>;
bshoffman67@gmail.com <bshoffman67@gmail.com>;
burketmark@gmail.com <burketmark@gmail.com>;
Caitlin Alexander <csalexanderr@gmail.com>;
cathyaburket@aol.com <cathyaburket@aol.com>;
chezrapier@gmail.com <chezrapier@gmail.com>;
cl@rahvalor.com <cl@rahvalor.com>;
DonnaDoss@comcast.net <DonnaDoss@comcast.net>;
dougdarby@comcast.net <dougdarby@comcast.net>;
dougkooy@gmail.com <dougkooy@gmail.com>;
ebacon224@gmail.com <ebacon224@gmail.com>;
eedaniels3@hottmail.com <eedaniels3@hottmail.com>;
elisabeth.h.lucas@gmail.com <elisabeth.h.lucas@gmail.com>;
fechermj@gmail.com <fechermj@gmail.com>;
fiveseashealth@gmail.com <fiveseashealth@gmail.com>;
greenwr7@gmail.com <greenwr7@gmail.com>;
hgardner@districtnashville.com <hgardner@districtnashville.com>;
Holly McCall <jhollymc@gmail.com>;
Hood Doug & Mary <3hoods@bellsouth.net>;
jalexander1010@gmail.com <jalexander1010@gmail.com>;

janell.m.poole@gmail.com <janell.m.poole@gmail.com>;
JeniBurnside@hotmail.com <JeniBurnside@hotmail.com>;
jenngeorge1@gmail.com <jenngeorge1@gmail.com>;
jennifer.marotta108@gmail.com <jennifer.marotta108@gmail.com>;
jesandynelson@gmail.com <jesandynelson@gmail.com>;
Jessica Sowell <jessica@tourproperties.com>;
Jessica Sperry <jessiesperry@comcast.net>;
jmozburn@bellsouth.net <jmozburn@bellsouth.net>;
joe_desantis1@yahoo.com <joe_desantis1@yahoo.com>;
judy_blair@hotmail.com <judy_blair@hotmail.com>;
julie@curriercrew.com <julie@curriercrew.com>;
junella.gideon@yahoo.com <junella.gideon@yahoo.com>;
karlalandrum@msn.com <karlalandrum@msn.com>;
KaufmanBill1850@comcast.net <KaufmanBill1850@comcast.net>;
kdrury@drurygroup.com <kdrury@drurygroup.com>;
kelseysasser@protonmail.com <kelseysasser@protonmail.com>;
Ken Robertson <cleanchoppers@msn.com>;
kendraajjackson@gmail.com <kendraajjackson@gmail.com>;
kooyterry@gmail.com <kooyterry@gmail.com>;
lgcstewart@hotmail.com <lgcstewart@hotmail.com>;
lgoodman50@frontier.com <lgoodman50@frontier.com>;
LisainFranklin@aol.com <LisainFranklin@aol.com>;
Lloyd Crockett <elpcrockett@gmail.com>;
losticado@gmail.com <losticado@gmail.com>;
Lynne Robertson <kenrob316@att.net>;
marcdriskill@comcast.net <marcdriskill@comcast.net>;
markbogard333@gmail.com <markbogard333@gmail.com>;
maromalley@fastmail.com <maromalley@fastmail.com>;
maryvirginia98@gmail.com <maryvirginia98@gmail.com>;
Maureen Kolton <makolton@icloud.com>;
mazzy_ads@yahoo.com <mazzy_ads@yahoo.com>;
melanie.stamant@gmail.com <melanie.stamant@gmail.com>;
Minakk5@gmail.com <Minakk5@gmail.com>;
MLGardner@comcast.net <MLGardner@comcast.net>;
morganpowell1222@gmail.com <morganpowell1222@gmail.com>;
mphistonc@gmail.com <mphistonc@gmail.com>;
Nancy Wild <nancywild@bellsouth.net>;
nicolerosecombs@gmail.com <nicolerosecombs@gmail.com>;

pam.lewis@plamedia.com <pam.lewis@plamedia.com>;
peggydriskill@comcast.net <peggydriskill@comcast.net>;
pleb@bellsouth.net <pleb@bellsouth.net>;
r2.lebovitz@gmail.com <r2.lebovitz@gmail.com>;
rachelcdaw@gmail.com <rachelcdaw@gmail.com>;
rcsimovich@gmail.com <rcsimovich@gmail.com>;
reinfeldtm@gmail.com <reinfeldtm@gmail.com>;
rjpohlman@yahoo.com <rjpohlman@yahoo.com>;
roger.shimoff@gmail.com <roger.shimoff@gmail.com>;
rws3825@mbnholdings.com <rws3825@mbnholdings.com>;
scott.scrip@gmail.com <scott.scrip@gmail.com>;
sstahler1@comcast.net <sstahler1@comcast.net>;
stacydesoto@gmail.com <stacydesoto@gmail.com>;
tb4jesus@verizon.net <tb4jesus@verizon.net>;
thetoonz@icloud.com <thetoonz@icloud.com>;
thomasmrinehart@gmail.com <thomasmrinehart@gmail.com
Wallace Gillespie <happylandings38@gmail.com>

Harpeth Meadows Email Contact List (65 emails)

Aaron Kirchner <aaron@kirchnerrealty.com>
Amanda Brown <amandasbrown123@gmail.com>
Angela Jones <angbjones44@yahoo.com>
badboymasterman@hotmail.com
Bill Rye & Patty <pattyrye@msn.com>
Bill Wise & Elaine <elainewiseMK@comcast.net>
Billie Dooley <billiedooley@att.net>
Bo Reynolds <boazreynolds@gmail.com>
Bob Plummer & Lynn <bobp2@bellsouth.net>
brown.will@gmail.com
bunnynoseBonnie@gmail.com
Carolyn & Mark Cloyd <carolyncloyd@gmail.com>
Crockett Lloyd <elpcrockett@gmail.com>
Dabney Mann <dabney.mann@gmail.com>
Dan Summers & Linda <desum@comcast.net>
Dave C <dpc1102@yahoo.com>
David Spaulding & Pam <tn3@comcast.net>
Diane & Steve Bledso <dianebledsoe@comcast.net>
dianelmackenzie@gmail.com
Doug Mann & Dabney <doug.mann@gmail.com>
Ed Ossi <eossiiii@comcast.net>
Elbert Cox & Deborah <elcox@aol.com>
Gillespie Penny & Wallace <pgillespie@comcast.net>
Harry Sargeant <HSargeantIV@me.com>
Holly McCall <jhollymc@gmail.com>
Hood Doug & Mary <3hoods@bellsouth.net>
Jdcrab1998@gmail.com
jfelber3@comcast.net
'Joann Dawson' <jdawson687@gmail.com>
jodie.wallace@comcast.net
John Atkerson <atkerson.john@gmail.com>
Jon Brooks <Jon.mgroupe@gmail.com>
joseph.johnreed@gmail.com
Joyce Green <greenhj@bellsouth.net>
Juli Oyer & Andy Fleenor <julio@wcs.edu>
Kristina Quick <kristina.quick@yahoo.com>

LaQuita Scaife <qspirit2@gmail.com>
Linda Dunn <147ldunn@bellsouth.net>
Lisa Alexander <magsalexander@msn.com>
Lisa@luxurytenn.com
Lori Hennon-Bell <lhennonbell@gmail.com>
Lynne Atkerson <lynne.atkerson@gmail.com>
Martin Dunn & Linda <cmartindunn@bellsouth.net>
Meyerhoff Melanie <melanie1017@gmail.com>
Mike & Connie Moser <moseroates50@yahoo.com>
mike.dunn@thedunnsonline.com
nickcampi@campidevelopment.com
Owen Rogers & Joyce <omegasales@mindspring.com>
phil.waynick@chadwellsupply.com
Piggott Tom <pigeaux@aol.com>
Randy Quick <kisquick@yahoo.com>
Reynolds Connie <ConniePeacockReynolds@gmail.com>
rfelber@wallerlaw.com
Rick Stults & Susan <stultsstudio@gmail.com>
RuthAnne Meinert <mruthannem@aol.com>
Sasser <sasserwoo@gmail.com>
scott alexander <scottdalex@msn.com>
Steve Crabtree <steve.crabtree@raymondjames.com>
Steve Peeler <steve.peeler@outlook.com>
Steve.bledsoe@comcast.net
themasterslovewell@gmail.com
Tom Bell <thomas.bell3684@gmail.com>
Wallace Chris <chrisdesk@comcast.net>
wcwhittington88@gmail.com
wkwise@comcast.net

From: Bryan Currier
To: Planning Intake
Subject: Comments on Middle Eight Development
Date: Wednesday, May 24, 2023 10:45:10 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

City of Franklin Planning Commission:

I have lived at 132 Old Liberty Pike for over 6 years with my wife, 4 children, and an odd mannered one-eyed dog. I love Franklin. I love our neighborhood. When we first saw this neighborhood, we marveled at how we could be close to downtown, to the historic homes, the factory, and still feel like we were part of the eclectic individual homes that define the character of Franklin.

The Middle Eight is the antithesis of this. At potentially the worst possible location.

There are a few “gateways” to our city. The part of town when you reach it, the feel changes. You’re coming into Franklin, and it’s something special. The corner of Franklin and Liberty Pike is one such gateway. You’re greeted by historic homes, sidewalks, the factory, and the iconic water tower. It speaks “this place is special”.

The development proposed would destroy that gateway. The focus would be on an apartment complex the height of which dwarfs nearby historic homes. Traffic for 400 additional vehicles rather than sidewalks. A development that is hated by its neighbors would replace the loved factory and water tower as the landmark of a city gateway.

Don’t let this happen. Don’t ignore the voices of neighbors asking you to keep your promises to preserve what makes this area of Franklin special. Walk up and down Franklin road and the side streets and count the “stop the middle 8” signs. Listen to your constituents. Franklin doesn’t need a massive complex here. The neighbors don’t want it here. And the special feel of our city will be degraded if you allow it here.

Respectfully Submitted,

Bryan Currier
132 Old Liberty Pike
Franklin, TN 37064

From: Steve Crabtree
To: Planning Intake
Subject: Middle 8
Date: Tuesday, May 16, 2023 3:43:18 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

As homeowners at 107 Lancaster Dr, we are very interested in any development in Downtown Franklin and specifically on the Franklin Road corridor.

We have been included on some of the Stop the Middle Eight emails in circulation and we wanted to make sure you realize that they did not speak for all of Lancaster.

The sidewalks on Franklin Road are working great and we are glad to have downtown linked to The Factory and Harlinsdale. The amount of foot traffic has picked up and is great for the future of businesses in our city. We want The Factory District to be a success and it will need people to support the business located in the area. The Middle Eight Project is an important part of this development.

We lived in the Harpeth Square Apartments for 8 months while our home was being completed. It is about the same density and on less land than the Middle Eight. We are so proud that project was approved and built in Franklin, and we feel The Middle Eight will make us just as proud.

Housing options are extremely limited, and we would like for recent graduates of BGA and Franklin HS to have options after returning from college to live in our city. The Middle Eight with its studio apartments will offer opportunities for them to consider.

We wanted to reach out to express our support of the Middle Eight and the proposed Factory District. As leaders of this great city, please consider what a blessing this can be for our future.

Thank you for your consideration.

Steve and Janet Crabtree

107 Lancaster Dr.

From: Letitia Fecher
To: Planning Intake
Subject: Middle 8 development
Date: Monday, May 22, 2023 10:22:25 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Hello,
Thank you for taking into consideration the opinions and questions from your neighbors of this development. I live across the street at 26 Daniels Dr. and would like my voice to matter as someone who already owns property and is invested in this community.

I understand the right to develop the property by the owners. I ask that you please take into consideration scaling back the project to include single family homes but not multi-family, more than two story, development. We all are aware that apartment buildings have been built all over Franklin and Cool Springs and I find it hard to believe that developers are doing this to meet housing demand. I would like to see more things for people to do - parks, walking paths and restaurants. Please do not develop another plot of land, the only green space across from the home that I own, into a multi-family development that only serves the purpose to maximize the investment of the owners and developers. I would like to see proof that the result of this project through digging, blasting and construction would not impact the structure and stability of my own home and property.

I ask only that you hear your neighbors and scale the project back to single family homes.

I look forward to hearing from you.

Regards,
Letitia Fecher

--

From:	Allison Grainger
To:	Planning Intake
Cc:	grainger0523@gmail.com; wgrainger@mac.com
Subject:	Middle Eight concerns
Date:	Thursday, May 18, 2023 11:03:08 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

William and Allison Grainger
138 Old Liberty Pike
Franklin TN 37064

We are opposed to the Middle Eight Development at this density, height and scope. Our main reasons are listed below:

Blasting for underground parking structure doing damage to surrounding homes, especially since ours is on “stilts”.

Flooding. I understand that the area slated for Middle Eight is not in a flood zone but with all the displacement and the parking underground structure it has to impact flooding. They wouldn’t even let us bring in dirt to level our back yard and you are building an entire community?

Traffic. It is bad now, adding 400-500 more vehicles to the small area? Even with more stop lights it will be horrible. Additionally, some cars use Old Liberty Pike as a cut-through now and SPEED down the street. We do not have sidewalks and many children and pets are endangered. We have asked for speed bumps but the city said they have a waiting list and “good luck”. The additional traffic will most likely cut thru our street and cause us more sound and physical endangerment.

Cell phone/WiFi issues. As it is currently, when there is any event downtown we lose service. Adding so many more people in this area will definitely be an issue.

Lack of privacy. I know the renderings make it look like there will be plenty of barriers between the new development and the current homes but I truly don’t believe it. Renderings are deceiving as we learned from Jamison Station.

We believe Middle Eight would be fine without the apartment buildings/underground parking.

Thank you for taking the time to consider our deep-felt concerns.

Sincerely,

Allison Grainger
615-957-0908

grainger0523@gmail.com

From:	Thomas Bell
To:	Planning Intake
Cc:	Joseph Bryan; Ken Moore; Emily Huffer
Subject:	HISTORIC PRESERVATION COMMISSION MEETING 5-8-2023 - middle eight project
Date:	Sunday, May 7, 2023 12:00:16 PM
Attachments:	smokestack.2.pdf

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

To whom it may concern:

Appreciate all you do for this great City!

I have attached a few items that depict the view scape within Franklin Road Historic District. To date the Middle Eight developers have not provided concerned residents (more than 50% of residential owners/renters within this district) with ample information, namely heights of buildings preliminarily approved by the commission. We need to meet and discuss the details of this approved project as our concerns are not being met with candor or details.

We are seeking:

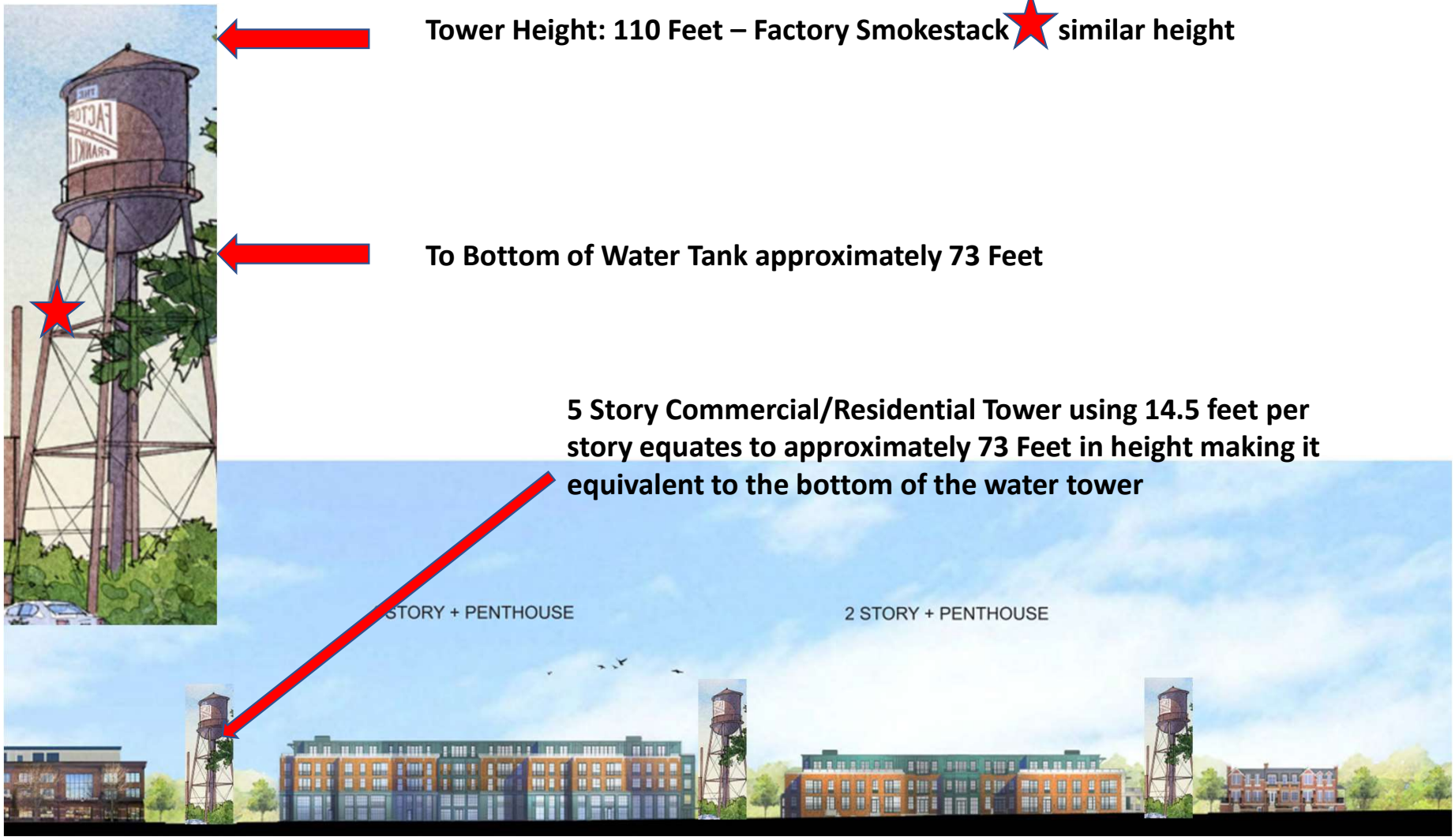
- Additional meetings with the City and the developers.
- Asking about the appeals process for the commission's preliminary approval considering the lack of details available to concerned residents (900+ signed up for email notifications)
- Understanding the archeological oversite that may be necessary during excavation of this prominent National Registered property?

Thank you for working to enlighten us as we seek to understand the process.

Best regards,
Tom Bell
177 Lancaster Drive
Franklin, TN
609-722-2211

Reality of the “view scape” from Old Liberty Pike




Tower Height: 110 Feet – Factory Smokestack similar height
To Bottom of Water Tank approximately 73 Feet
5 Story Commercial/Residential Tower using 14.5 feet per story equates to approximately 73 Feet in height making it equivalent to the bottom of the water tower
STORY + PENTHOUSE
2 STORY + PENTHOUSE

From: Rob Soerens
To: Planning Intake
Subject: I support the Middle Eight Project
Date: Monday, May 22, 2023 4:13:04 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Writing to tell you I support the Middle Eight project. I hope you do too.

This is definitely the type of urbanism that we need to continue to grow Franklin.

Sincerely,

Rob Soerens
Westhaven

From: J. Douglas Lamb
To: Planning Intake
Subject: Middle Eight
Date: Monday, May 22, 2023 8:46:07 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Just want to go on record that we oppose the Middle Eight project as it currently is designed. We are not against development of the property but against the high density nature of the plan as submitted. Traffic is bad enough during market day but will be next to impossible if the project proceeds. Thanks in advance for considering our input.

The Lambs
117 Jamison Station Lane
Franklin

Sent from my iPad

From:	Lisa Alexander
To:	Ken Moore; Matt Brown; bev@aldermanburger.com; Patrick Baggett; Alderman Potts; Gabrielle Hanson; annpetersen@comcast.net; Clyde Barnhill; Brandy Blanton
Cc:	Planning Intake; Tom Bell
Subject:	Re: QUESTIONS RE: MIDDLE EIGHT PROJECT
Date:	Thursday, May 18, 2023 9:41:35 AM
Attachments:	QUESTIONS.2.DEVELOPER.5.17.23.pdf

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Good Morning Mayor and Aldermen,

Attached, please find the list of questions collected from the over 150 families represented by the Stop Middle Eight coalition.

Alderman Brown has kindly offered to share these with the developer on our behalf, so that they may be addressed in the Zoom meeting to be held on Monday, May 22nd at 5pm.

I am also copying planningintake@franklintn.gov so that our questions may be included in the documents presented to the FMPC.

Please take a moment to review the document and let me know if you have any questions.

Thank you,

Lisa Alexander
On Behalf of the Stop The Middle Eight Coalition

Lisa Alexander
615.200.2486
magsalexander@msn.com

From: Lisa Alexander
Sent: Thursday, May 18, 2023 9:38 AM
To: Ken Moore <ken.moore@franklintn.gov>; Matt.Brown@franklintn.gov <Matt.Brown@franklintn.gov>; bev@aldermanburger.com <bev@aldermanburger.com>; Patrick Baggett <patrick.baggett@franklintn.gov>; alderman.potts@franklintn.gov <alderman.potts@franklintn.gov>; Gabrielle Hanson <gabrielle.hanson@franklintn.gov>; annpetersen@comcast.net <annpetersen@comcast.net>; clyde.barnhill@franklintn.gov <clyde.barnhill@franklintn.gov>; brandy.blanton@franklintn.gov <brandy.blanton@franklintn.gov>
Cc: planningintake@franklintn.gov <planningintake@franklintn.gov>; Tom Bell <thomas.bell3684@gmail.com>
Subject: QUESTIONS RE: MIDDLE EIGHT PROJECT

Good Morning Mayor and Aldermen,

Attached, please find the list of questions collected from the over 150 families represented by the Stop Middle Eight coalition.

Alderman Brown has kindly offered to share these with the developer on our behalf, so that they may be addressed in the Zoom meeting to be held on Monday, May 22nd at 5pm.

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Please take a moment to review the document and let me know if you have any questions.

Thank you,

Lisa Alexander
On Behalf of the Stop The Middle Eight Coalition

Lisa Alexander
615.200.2486
magsalexander@msn.com

Questions from Stop Middle Eight Neighborhood Families

Size & Scope/Zoning:

1. What project names have been used seeking city approvals/concurrence besides Middle Eight, Properties of the South of Liberty Pike & West of Daniels Drive, East of the Truett House, etc.?
2. What was the original density of the Middle Eight, et.al, project?
3. What changed the calculus in more than tripling the density?
4. **The Franklin Road Historic District guidelines indicate:**
    - Historic buildings should be preserved, and the scenic view shed and defining topography and other landscape features around Harlinsdale Farm should be preserved;
    - Building height should be limited to one or two stories; How is a 5-6 story apartment building fitting of the historic district;
    - An uncongested gateway into downtown should be provided that emphasizes the historic character of the community;
    - The established rhythm and spacing of buildings relative to the established context of the immediate area should be maintained;
    - New construction should maintain a balance of buildings and roads and open space so as to continue to project an open, rural appearance; and
    - Any changes within the district should be designed to reflect and maintain the key characteristics of the established context.

    How does this project reflect this vision of this HZD, especially knowing that a 6-story building is being submitted for approval?

5. Do you consider a 6-story residential building, the tallest building in the Franklin Road Historic District in keeping with the historical appropriateness considering the current size and scale of surrounding buildings?
6. Have you visited this and surrounding neighborhood residents and properties seeking input, especially those voicing serious concerns?
7. Have you spent time at neighborhood homes directly impacted, in their living rooms, on their decks, on their properties understanding what the construction of a 6-story apartment building will do to their viewshed/view-scape?
8. Have you produced specific & detailed elevations as requested by BOMA during the Middle Eight meeting on April 27th? If yes, are they available for review by public?
9. Have city officials received all dimensions, including height (feet and inches) of proposed buildings?
10. Can you provide detailed architectural drawings for all buildings being proposed for public review?
11. Has any additional right-of-way been offered by Middle Eight development team that would change the current setbacks?

12. Do the architectural renderings accurately depict the smaller 2 high density buildings having ½ story (walk-ups) onto Liberty Pike which essentially represents another story, making it a 4-story building?
13. Do the architectural renderings accurately depict the large building to be a 2-story 6th floor where the parking garage is located making it essentially a 7 story building (split stairs for commercial/corporate space)?
14. Have you considered slowing this project down to better coordinate with the Envision Franklin document, establishment of the Factory District, and your rezoning requests, as recommended by the FMPC?
15. Have you considered changing the density and height to meet the current zoning for Residential/Commercial (same as Jamison Station)?
16. Why should this project be rezoned "Planned District" from R4 instead of Residential/Commercial?
17. As stated in the City of Franklin zoning ordinance Planned District should be used "SPARINGLY", why not zone this project the same as Jamison Station?
18. Currently we have 150+ concerned neighbors along with over 1,450 online signers of petition to Stop the Middle Eight project, do you believe this is "a small group of elderly neighbors" against this project, as once described by a development team member?
19. Is this a true statement made by your development team "you would make as much money building single family homes on this project and in fact, that that was the original plan"?
20. Are there any affordable housing units planned for this development?
21. Do you realize that this will set a precedent for future development at the gateway to Historic Franklin?
22. Why has this project been fast tracked with limited or muffled public comment and input?
23. Do you understand why neighbors do not feel there has been full transparency on this project?
24. Are your architectural renderings presented dimensionally accurate?
25. What are the actual heights (feet/inches) of all buildings as measured from the curb/sidewalks, including Daniels Drive (rear development property line), and the proposed Street "A"?
26. What are the actual measurements in height (feet and inches) from the following:
- Old Liberty Pike to the top of the 4-5-6 story structures
- Rear property line of Old Liberty Pike lots sharing the development property lines
- Jamison Station parking entrance located on Daniels Drive

27. Can you produce architectural renderings that are dimensionally accurate from these same locations, without the trees, so as to demonstrate an accurate depiction of the "viewshed"?
28. What is the current height (feet and inches) from sidewalk to the 4-5-6 story buildings as compared to the height of Jamison Station—as proposed prior to requested amendment to Envision Franklin Plan Resolution 2023-09 seeking special consideration for additional height and parking reductions?

29. How much additional height (feet and inches) will be added if the resolution is approved?

Flooding:

30. Where will the water be channeled/piped to in order to avoid flooding the homes located on Old Liberty Pike?
31. Can you provide for public review the Flood Mitigation Plan and water management/flooding engineering diagrams submitted to the city?
32. Have you viewed the photos of flooding of residences on Old Liberty Pike in March 2021?
33. Can you guarantee that the Middle Eight's flood mitigation plan and engineered water management solution will not contribute to more frequent and greater flooding events on Old Liberty Pike and Lancaster Drive?
34. As mentioned, the engineered flood mitigation involves piping; Where is that water going to be piped to and what is the capacity of those existent and proposed "pipes"?
35. Have you viewed pictures from the flood of March 2021 of residences on Lancaster Drive?
36. Can you guarantee that the piping of Middle Eight water drainage will not impact the severity of flooding of neighboring Lancaster Drive, as well as any downriver neighborhoods?
37. Can you explain the calculations of the impermeable coverage of the site, along with explanations of the pocket parks and common spaces, as it has been very confusing in past presentations (perhaps a matrix breaking it down into categories totaling the entire lot size)?
38. Does the Flood Mitigation Plan and engineered rainwater management solution submitted to the city account for all of the permeable coverage, and how does it accomplish that?
39. Was the new Franklin Road streetscape considered in this project for downriver flooding as it used to be that rainwater went into ditches, but now it goes into catch-basins that directly drain into the Harpeth River without visible stormwater cleaning, which may impact where Middle Eight piping releases water into?
40. What are the dimensions (including cubic capacity for water retention) of the flood retention basin referred to as green space & pocket park?
41. Will the floodplain mitigation plan and flood footprint be reviewed by FEMA considering the significant change of impervious coverage in this watershed?
42. Does FEMA have a say in the approval process?
43. Will the underground garage two stories down, become a stormwater pond?
44. In your flood mitigation plan do you consider upgrading the adjacent lower neighborhood including Daniels Drive's stormwater system as there are no pipes next to the site to carry stormwater to the river?
45. Is "Open space" the same as "green space" and will the 30% open space include ground floor non-pervious surfaces such as plazas, courts, and sidewalks which will contribute to increased run-off?

46. Do you have, and can you produce a ground surface elevation contour map?
47. What is the bedrock groundwater table elevation beneath this tract (relevant to the depth of the proposed underground garage)?
48. Have you reviewed and utilized NOAA & FEMA past flooding data to ensure the Middle Eight Flood Mitigation Plan takes into account their contributory impact on the Harpeth River?
49. Has an Environmental Impact assessment been requested or completed?

Traffic:

50. Is the current traffic study deficient considering the construction on Franklin Road for the past 3 years has altered actual counts?
51. Have you traveled Liberty Pike, Franklin Road, Eddy Lane, etc., during morning and evening peak hours?
52. If yes to question #51, your thoughts on the traffic experienced?
53. The traffic study does not adequately reflect the reality, especially during school drop-off/pick-up times?
54. Specifically, the Traffic Impact Study for The Middle 8 uses turning movement counts at the intersections on February 8, 2023, were there any adjustments made for the unusual circumstances that the streetscape construction on Franklin Road is causing drivers to avoid the area?
55. Do you think an updated traffic study is warranted once the construction of Franklin Road is completed and the Factory remodel/parking is finished?

Parking

56. Under the current plan, how many parking spaces does this project have?
57. How many parking spaces are required by code at the current density of the development as proposed (275 units)?
58. How many square feet will be commercial space?
59. What commercial space do you envision, i.e., restaurant, meeting/event space, gym, etc?
60. How many parking spaces are required for commercial space by code under existing submission?
61. How many parking spaces, both residential and commercial, are you short according to code, and what happens when your tenants exceed parking capacity—will they overflow and take the limited on-street parking needed by Daniels Drive owners?
62. What is the plan for overflow parking during events and Holidays considering the already very limited street parking for Daniels Drive residents?

Construction:

63. What precautions will be taken when blasting for underground parking structure, potentially damaging surrounding homes, especially those on raised foundations/stilts?

64. Will the removal of tons and tons of materials be diverted to Mack Hatcher to ensure the heavy vehicles do not traverse into downtown?

65. Homes and businesses within a 300-foot radius of the blasting area are required to be fully surveyed and insured by the blasting company, has that been planned for?

66. What is the funding source of the project, its financial strength, and is it in any way shape or form, impacted by the current and forecasted banking and/or lending crisis?

From: cabrubaker@aol.com
To: Planning Intake
Date: Monday, May 22, 2023 4:18:17 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Such a large project like the Middle Eight will have long lasting negative affects forever altering the character and charm of historical Franklin.

How has this project gotten this far in the planning stage? It is completely against the vision that the Franklin residents want and expect.

From: Cindy Scearce
To: Planning Intake
Subject: Middle 8 Development
Date: Friday, May 19, 2023 1:11:59 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

I would like to be at the meeting to express my concerns about the increased traffic and the strain on infrastructure this development will bring to the Eddy Lane/Liberty Pike area, but I will be attending my son's graduation along with many other Franklin residents at the time of this meeting.

It is difficult for me to understand why such a development would be permitted when the traffic at Highway 96 and Eddy Lane is continuous, backing up from downtown to Church of the City regularly at peak weekday times and backing up further during the many festivals and events occurring downtown on weekends.

With many more residents using these roads and increased traffic as The Factory is expanded and more highly utilized, I believe we will have a lot of congestion in this area.

Traffic is not my only concern. This area is very close to homes on Liberty Pike which are affordable, and I worry that this will signal developers that Franklin is a great place to begin throwing up multi-family dwellings that will scatter families who have stand-alone properties they are renting or buying. Liberty Pike could easily turn into row after row of apartments buildings, creating more stress, more opportunity for cramped living and a reduction in quality of life.

My third concern is for the impact of this development and others that may follow it on storm water drainage. The edge of my property, owned for many years with no flooding, is more and more prone to rising waters with more intense storms. Further development will no doubt raise the potential for actual flooding on my property which borders a stream that feeds into the Harpeth.

I ask that you seriously consider how this development will undermine the quality of life long-term residents of this area have enjoyed. I know we cannot stop progress, but you are our only hope of doing it right.

Please do not let this move forward. Your job is to represent the citizens of this community, and there are plenty of us who feel this is wrong for Franklin.

Cindy Scearce
308 Richmond Place

Sent from my iPhone

From: Maureen Kolton
To: Planning Intake
Subject: Middle 8 project concerns
Date: Tuesday, May 23, 2023 2:56:04 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

My name is Maureen Kolton and I live at 122 Old Liberty Pike. I want to reiterate my concern of this project once again. I was on another zoom call regarding the project yesterday and yes they answered all the questions sent them but the project, I believe, is still to dense for this area.

I am so afraid that this project will go forward as planned and my street will become a busy exit/entrance point for the 250+ units the are building with their 400+ cars. Even if they are spread out in all directions as they stated it is to many cars on our RESIDENTIAL street! They need to add traffic calming for Old Liberty Pile to this proposal. It is already a race track for cars without this massive development. And we don't need this street to become a busy thru point for the residents of the development.

Thank you
Maureen Kolton

Sent from my iPhone

From: Lynne McAlister
To: Planning Intake
Subject: Middle 8
Date: Monday, May 22, 2023 10:41:07 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Commissioners,

First thank you for your service to this community.

Second, as a resident of Downtown Franklin, 723 Fair Street, I'm wildly aware of the need of additional homes in Franklin at additional price points.

Third, I would like to echo the staff's recommendation of your support for the approval of Ordinance 2023-15. As this planned development is both in the spirit and directive of Envision Franklin. It also provides an opportunity for people to live in the new Factory District. I appreciate the fact that some units are designed for people whose income is in the $50k to $60k range. I'm delighted that the current plan not only allows but invites people who do not live in the development to enjoy the courtyard and green spaces as they walk to The Factory via the Middle 8. Furthermore, I'm grateful that this site has underground parking, an investment that few developers are willing to embrace.

I trust the process and HZC to make any necessary changes to maintain the high standards of our community.

Density in homes and additional parks, are in my humble opinion, the key to maintaining both our high quality homes and rolling hills. In short, given Franklin's current and anticipated growth, this is the right place and the right time for the Middle 8.

Once again, thank you for your service to Franklin!

Best,
Lynne

Lynne McAlister
M-919.449.4232

"There is only trying. The rest is not our business." - T.S. Eliot

From:	Lisa Alexander
To:	Matt Brown
Cc:	Planning Intake
Subject:	Middle Eight - Information
Date:	Wednesday, May 17, 2023 11:46:05 AM
Attachments:	petition_comments_05_16.numbers

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Good Morning Matt,

I was hoping to catch up with you in a phone call; if you get time, I'd appreciate a few minutes this week.

Tom and I have been collaborating on the list of questions to be submitted to the developer. I have reviewed the document, and know he will get them to you. I am also going to share them with the 150++ families we represent.

From the Mayor's comment, it was apparent that the city felt it was communicating effectively information about the Middle Eight project and that the BOMA was surprised by what they saw as a delayed negative reaction when we showed up in April. I think those of us who were caught unaware will, in the future, take care to stay updated by following the city on Facebook.

Neighbors outside the 50 feet notification area found out about this project from those who live along Franklin Road - and to us, it was all fresh information, hence our reaction. As we've stated, our goal is to "Stop" the Middle Eight **at this size and scope**, worried as we are about the height, density, traffic, potential flooding, and the overall size of this particular proposal. No one in our group of over 150 local families is against developing this site or denies the demand for more housing, but we all recognize we only have one chance to get it right.

In the meeting where Nick Campi and Scott Alexander met with Joey Bryant and other city staff members, one of the city officials recognized that because the developer had gone to the Historical Commission for variance approval before approval by the BOMA "it looked bad" (as reported by Scott). To those outside of the process, it looked like the city and developer were working together to push Middle Eight project through the application process. We've come to understand that without the HZ's approval this project wouldn't have gotten off the ground, hence the need to go to the commission first; but not having that information, it simply looked underhanded - and we all know that in an absence of information, perception is reality.

I have a petition with 1,468 signatures - since this was a local petition, a majority of those who signed are middle Tennessee residents, and I will be submitting those

signatures next week, so we can continue to collect them. People who have lived in this area a long time are passionate about Franklin. I know you are a more recent resident, but I am sure you have experienced this!

I am attaching the comments we have received so far, for your review.

As a neighborhood collective, Stop the Middle Eight wants to be a partner in this process. We hope to be invited in, both by the city and the developer, and by the champions of development on the north side of Franklin - you and Patrick.

As stakeholders in Franklin, we ask for a seat at the table.

Lisa

Lisa Alexander
615.200.2486
magsalexander@msn.com

From: Kim Merrilees
To: Planning Intake
Subject: Middle Eight
Date: Thursday, May 18, 2023 2:47:03 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Hello. I'm requesting for the benefit of everybody, including my mother JoAnn Dawson, that lives on Lancaster Dr to please stop the Middle Eight from happening. I grew up on Lancaster Dr and loved growing up in a small town in the 1980s. Franklin has more than outgrown the small town feel. There are plenty of places for people to live and this development is not necessary, maybe better suited for a few homes and not apartments and homes. We definitely don't need more traffic in that area as it is congested as it stands. Please reconsider building this area as it is currently planned. Thank you for your time and consideration.

Kim Merrilees
Ph 615-944-4980

Sent from my iPhone

From:	David Horn
To:	Planning Intake
Cc:	Matt Brown; Patrick Baggett; Ken Moore; ann.petersen@comcast.net; Brandy Blanton; "Cindy Horn (dcfhorn@yahoo.com)"
Subject:	Middle Eight adjacent land owner comment.
Date:	Monday, May 15, 2023 10:09:59 AM
Attachments:	image001.png

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Staff,

My wife and I own 131 Old Liberty Pike and 133 Old Liberty Pike.
Have owned both since roughly 1994.
Both were built before 1910 and are in keeping with Franklin older homes of this era.
Both have been substantially remodeled to retain historic character and we have no plans to sell either.

I am largely in favor of the Middle Eight project and the direction it is taking.

I noticed that the current landowner of the middle eight project is going to have a 75 foot naturalistic buffer between their residence and Middle Eight.
That sounds fabulous.
But I do not see a similar buffer for the 10 or so mostly long time landowners on the side of middle eight including my two properties.
Nor for the Jamison Station property.
I do see what appears to be a detention pond that will be on or near one of my neighbors properties?
It would be nice to see our properties treated in a similar manner to the developer, that is with our properties being provided a naturalistic buffer.
A buffer for all would be a welcome addition?

Thanks,

David Horn

2932 Foster Creighton Dr
Nashville, TN 37204
Mobile: 615-300-8262
Office: 615-312-0255
Fax: 615-467-0479

From:	Lisa Alexander
To:	Planning Intake
Cc:	Lisa Alexander; Scott Alexander
Subject:	Middle Eight Concerns and Questions - Please Rethink this Project!! For May 25
Date:	Thursday, May 18, 2023 12:07:31 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

As local residents whose neighborhood and neighbors have been affected by flood waters, we would like to say we are against the Middle Eight development at this Height, Size and Scope.

Among our concerns:

The Middle Eight has proposed an underground garage that will go two stories down - will the lowest floor be their stormwater pond? The adjacent lower neighborhood including Daniels Drive does not have a decent stormwater system as we speak; additionally, there are no pipes next to the site to carry stormwater to the river.

High density site development including buildings/parking garage slated for construction, will eat up the permeable soil on this parcel of land, increasing the chances of flooding for homes that sit along Old Liberty and Daniels Drive. Please be aware, the homes along Old Liberty sit at 26 feet below the construction site.

"Open space" isn't the same as "green space" and we fear that 30% open space will include ground floor non-pervious surfaces such as plazas, courts, and sidewalks which will increase run-off**.** Where will all this water go? Does it imperil the surrounding homes?

Lastly, Franklin Road has a new streetscape - it used to be that rainwater went into ditches, but now it goes into catch-basins that directly drain into the Harpeth River without visible stormwater cleaning. This past week it rained hard in a short downpour, and Franklin Road flooded in front of the BGA Lower School. Again - where will all the water go?

We are concerned that 270 residences will add 500 or more cars to an area already congested, and with little on-street parking.

We worry that the proposed height of the apartments will detract from the water tower at The Factory - and iconic symbol of Franklin.

We believe that this project is more suited to Nashville than to small-town, historic Franklin.

Scott and Lisa Alexander
160 Lancaster Drive

Lisa Alexander
magsalexander@msn.com

Scott Alexander

From: mina bez
To: Planning Intake
Subject: Middle eight project
Date: Tuesday, May 23, 2023 2:06:34 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

To whom it may concern,
I reside across from the proposed project, and I oppose to such project for many reasons. I understand that this project is profitable for the owners and the developers and whomever is involved in it but not profitable for rest of us. there are already multi family homes including apartments and townhomes within few feet of the project and we do not need anymore multi family homes and the ones specially with the pool.
If developers are insisting on the value of homes or properties going up and it's beneficial, I add to it that property value does increase overtime even without such project.
I moved from Green Hills to be close to downtown Franklin to deal with less traffic and a peace of mind; yet this project will add more traffic and less of peace of mind especially for those of us that live across from it. I already have to deal with long traffic on liberty parkway.
More importantly the impact on environment. Those trees, birds, and all the species that consider that space home, has there been any survey done to see how many different species live there; I assume the owners know there are cardinals, woodpeckers, American robins, etc. .
During the summer heat those trees provide a cooling breeze and definitely cool off the temperature.
This project will have negative impact where not only will increase traffic, noise, but also have an environment impact, reducing a number of species that consider that property home. I hope the owners will rethink this project and decide to keep it as it has been for as long as they can.
At what point this will stop with excessive project? Will the city approve all the projects? It needs be a stopped since we want these areas remain as small town.

Mina Kadivar
12 Daniels Dr.

From: Billie Dooley
To: Planning Intake
Subject: Neighborhood 8
Date: Monday, May 8, 2023 9:16:42 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

I live at 213 Franklin Road and I am somewhat familiar with the process required to get my home approved for changes to its exterior. Approval was exact to historical guidelines. From this experience, I do not understand the current commission's decision to approve the "8". A portion of the land is under designated historical guidelines. Isn't this deviation a fracture of the guidelines when other projects come before the board? Franklin is a beautiful AND historic town. Use the guidelines to her benefit.

Sent from my iPad

From: Doug Mann
To: Planning Intake
Subject: Opposition Middle 8
Date: Thursday, May 18, 2023 3:45:43 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

The following is the text of an opinion letter to the editor Williamson Herald of May 18th which expresses the feelings of many.
FYI over 1,500 people have signed an online opposition petition
PS ***Please acknowledge the receipt of this email...thanks***
Doug Mann a 49 year city/county tax payer @111 Lancaster Dr, Franklin, TN 37064

Letter to the Editor: Residents in Middle Eight area would like our voices of concern heard

To the Editor:

Why were we, the residents of Franklin Road, Old Liberty Pike, Liberty Pike, Daniels Drive, Lancaster and Myles Manor the last to know about the Middle Eight project? We who live on the above streets received notice of this development at the end of February after the Historical Zoning Commission had already approved it. After the approval, we received one letter regarding this project and were allowed to attend a Zoom meeting where very few of our questions were answered. Was this an oversight or was this on purpose? We think there needs to be better communication in our city.

Based on our review of the citizens' comments before the Historic Zoning Commission, it would appear that some of our citizens knew and approved of this project before we, the residents of the area even knew about it. Where is the breakdown in communication in our city? Whose responsibility is it to keep us informed? It seems that some of our aldermen knew about this project long before the neighborhood knew about it. Is this right?

Interestingly, we are now invited to another Zoom meeting sponsored by the developer, but no live meeting to answer our questions and concerns.

Our concerns are the horrific traffic 300-400 more cars will come to Liberty, Old

Liberty Pike and Franklin Road; the additional problem of flooding which will fall on Old Liberty and Daniels Drive with the loss of this 7-acre watershed since Old Liberty lies 26 feet below this huge project; massive underground parking for 400 cars which will require lots of underground blasting. These 7 acres are too small for 275 new residences, many of which are

going above the limit set by current zoning requirements.

Add to this the current plans for the expansion of The Factory with more events and venues, resulting in even more traffic and congestion.

This project is located in the Historic Zoning Overlay. If approved, these 7 acres will have the greatest density of any area in our historic downtown area.

Do we really want this as we look toward our future, Franklin?

Please note that we fully appreciate the need for Franklin to support and encourage affordable housing; however, we believe this could be done more productively in areas less expensive and less congested, not in the historic section of our city, only 4 blocks from the public square.

Lloyd and Elizabeth Crockett

Franklin

petition_comments_jobs_35982986_20230523185712

Name	City	State	Postal Code	Country	Commented Date	Comment
Jason Alexander	Franklin	TN	37064	US	2023-04-14	"As a Brentwood native, a Franklin resident, and active community participant I have already experienced a tripling of both my my morning and afternoon commutes only 8 miles down Franklin road. They are already delayed
Donald wleklinski	Terre Haute	IN	47803	US	2023-04-15	"Needs attention."
Sandy Kim	Louisville	KY	40204	US	2023-04-16	"It will be disastrous to commute, it's already congested as is currently with traffics on Franklin Rd and Liberty pike. Franklin city should not approve such a large project for the neighborhood, it will completely change the dy
Melissa Fiato	Littleton	MA	1460	US	2023-04-16	"Every town is being pushed to being over built and it still isn't enough. My thoughts are Enough is Enough. Maybe put the resources to planting more trees, saving farms and preserving the environment."
Melanie Amant				US	2023-04-17	"This development will likely affect the floodplain negatively. Properties within a few hundred yards are zoned AE by FEMA standards. Many of these flooded in March 2021. FEMA has not studied the downtown Franklin area
Kitty Cook	Franklin	TN	37064	US	2023-04-19	"We're losing Franklin..."
Tracy Blair	Franklin	TN	37067	US	2023-04-21	"Adding too many units in that area. Detrimental to traffic on Liberty and Franklin Pikes. Do not allow a variance to zoning. Let them build conforming to zoning for the property."
Janice Hulen				US	2023-04-21	"Our infrastructure cannot handle more apartments in this area."
Suzanne London				US	2023-04-23	"It will ruin our downtown Franklin. The beautiful green area that will be torn down for an apartment building is unnecessary. This is not an urban area or Cool Springs, it's historical. The traffic is already too congested."
Clara Lopez	Franklin	TN	37069	US	2023-04-23	"We don't need another new development. It will continue to destroy what makes Franklin so great. We need to keep our green spaces, and our infrastructure cannot handle this unnecessary growth."
Jamieson Douglas Lamb				US	2023-04-25	"The population density for the project is simply too high and is going to lead to large traffic issues."
Scott Scrip	Franklin	TN	37064	US	2023-04-25	"My family and I own a home on Daniels Drive and I believe there are significant environmental issues with this plan, in addition to other issues already outlined. Specifically, greater flooding and wildlife habitat neglect."
Meredith Dooley	Nashville	TN	37216	US	2023-04-25	"This all seems sneaky. No community involvement until this year. Do the aldermen that support this live anywhere near this area? Franklin Rd is already a nightmare for those that live within the block of this site. There is noth
Nicolas Ryan	Franklin	TN	37064	US	2023-04-25	"Nicolas Ryan"
Erin Myers	Nashville	TN	37211	US	2023-04-26	"I grew up in Franklin and have plans to move back in the next year. I still spend most of my time in Franklin and supporting this town that has always been such a gem. My family had lived here over 40 years. This project is
Adrienne Barclay	Nashville	TN	37214	US	2023-04-26	"I do not think we have the infrastructure to support this large of an addition to our community"
Sheila Hylton	Franklin	TN	37064	US	2023-04-26	"The project is too large for our neighborhood, and the increase of traffic cannot be supported with our existing infrastructure."
Dayton Hylton	Knoxville	TN	37849	US	2023-04-26	"This project is too large for their parcel of land, and it doesn't fit in our quaint community. Not to mention, the increase of traffic and the potential for water run off to our Old Liberty Pike neighbors."
Cindy Laverty	Franklin	TN	37064	US	2023-04-27	"Because government and corporate are greed are ruining our precious city. Enough."
Pat Rice	Franklin	TN	37069	US	2023-04-27	"Qui bono"
Pat Rice	Franklin	TN	37069	US	2023-04-27	"Qui bono"
Pat Rice	Franklin	TN	37069	US	2023-04-27	"Can't move now "
Tina Pike	Franklin	TN	37064	US	2023-04-27	"Reason for signingThe lack of adherence to the original Envision Franklin document is disheartening. Part of the plan was supposed to be a framework to preserve and protect the essence of Franklin. Instead, BOMA continu
Pat Rice	Franklin	TN	37069	US	2023-04-27	"To stop the greed of our local government b"
Dena Divito	Franklin	TN	37069	US	2023-04-27	"What made Franklin so special has almost disappeared! We must fight to preserve the remaining land !"
Kimberly Duello	Franklin	TN	37064	US	2023-04-27	"Our beloved, quaint Franklin is being turned into Nashville 2.0! Please please don't ruin our town!"
Brent Perry	Franklin		37064	US	2023-04-28	"I was born and raised in Franklin and This is the complete opposite of what Franklin needs or wants"
Hallie Mitchell	Nashville	TN	37203	US	2023-04-30	"This constant construction is ruining the beauty of our town. I can't imagine the impact that this is going to have on our already packed schools."
Amanda Paddock	Franklin	TN	37064	US	2023-04-30	"I'm a downtown Franklin resident, and I oppose this development. This will negatively impact the charm of our historic district and the impact from traffic alone would be horrific and unsustainable."
Sarah Jane Bowers	Franklin	TN	37064	US	2023-04-30	"Yet another development wolf disguised in sheep's clothing. Can you imagine the traffic problems this will cause?We don't want shiny, sleek, ultra-hip development in downtown Franklin. We want to see continued champior
Amy But	Atlanta	GA	30303	US	2023-04-30	"You're doing to others what you would not want for yourself. You have lost sight of what you are handing down to the next generation SO THAT You can make your name great (only in your own eyes however) This pleasant
Neal Thompson	Franklin	TN	37064	US	2023-05-01	"I want to keep Franklin Franklin. This doesn't fit."
Sarina Fordice	Brentwood	TN	37027	US	2023-05-01	"I am not completely against the plan, but would like to see things slow down and compromise on size/height of the multi density buildings . Don't turn historic Franklin into Cool Springs. Follow your guidelines for the historic
John Cerasuolo	Brentwood	TN	37027	US	2023-05-01	"Please scale this project"
Heather Black	Chicago	IL	60622	US	2023-05-01	"I moved to Franklin almost 5 years ago. The charm IS Franklin. This development plans turns Franklin into every other small city."
Judy Simon	Franklin	TN	37064	US	2023-05-03	"No one has even looked at the traffic on Eddy Lane. It a two lane road that is a short cut to 96. It has no traffic light turning on to Liberty Pike and cant add one because of the railroad track. The road is crumbling from the v
Christine George	Franklin	TN	37064	US	2023-05-03	"High density and traffic congestion"
Barb Mccoy	Danville	CA	94526	US	2023-05-03	"This is just what happened to beautiful CA now it's a pathetic mess ! I beg you not to do this to Lovely Franklin !"
Stephen Slish	Franklin	TN	37067	US	2023-05-04	"It looks like a nice development, nicer than the ones going up on Carothers, but that is just the wrong location for high density housing."
Nancy Smith	Brentwood	TN	37027	US	2023-05-04	"This is a beautiful historical town and does not have the room or road space for this type of development. Please vote against it."
Barbara Maier	Franklin	TN	37064	US	2023-05-04	"I want to keep Franklin the America's favorite small town."
Liza Gaston	Franklin	TN	37064	US	2023-05-04	"We do not need this type of house here in Historic Franklin. It is such a quaint little town and needs to stay this way. The demographics are not made for this type of housing and all the traffic."
Courtney Mayfield	Franklin	TN	37069	US	2023-05-04	"the charm and appeal of Franklin is lost when we destroy land and overfill it with new developments."
Jean Thmpson	Franklin	TN	37064	US	2023-05-05	"No way do I want this kind of density and traffic in this area that is already heavily traveled. The special town of Franklin is becoming mediocre in that housing development such as this is slowly becoming the norm. Please c
Shelby Hood	Franklin	TN	37064	US	2023-05-05	"People who were born and raised in Nashville (like myself) and Franklin have had ENOUGH with the growth and influx population. Stop the madness! NO more new construction/ residential projects! We DO NOT have the ro
Heidi Oldham	Franklin	TN	37064	US	2023-05-05	"Heidi Oldham"
Barbara Donner				US	2023-05-05	"We do not need more high density housing in this space.I am also concerned that the integrity and charm of Franklin will be destroyed in the not so distance future if these type of reversals are allowed!!"
Brenda knott	Fountain Valley	CA	92708	US	2023-05-05	"I moved away from high density housing. Crime rates rose, traffic rises, takes the beauty away from a quaint neighborhood. Put these type of housing developments more south where it's not already full and has a perfect ci
Kara Hall	Franklin	TN	37064	US	2023-05-05	"Vote out all these pro progress and fevelopers, they have RUINED Franklin for those who have lived here for our lives. It's greedy and selfish. All about making certain people RICHER. GO AWAY."
Jim Highfill	Hermitage	TN	37076	US	2023-05-05	"This development is not appropriate for the acreage where it will be located. The roads there cannot handle the traffic increase."
Linda Cunningham	Franklin	TN	37067	US	2023-05-05	"I say no. signed Linda Cunningham -"
D'Ann McAlister	Franklin	TN	37064	US	2023-05-05	"Right now, there are 423 job openings with Williamson County Schools. Teaching and paraprofessional positions at many schools went unfilled the entire school year. We do not need more high density developments. How a
Vicki Vogt	Franklin	TN	37064	US	2023-05-06	"I think the scope of this development is too dense and large for the space proposed. Honestly, less affordable housing is not realistic in downtown Franklin. Wait staff won't live in those efficiency apartments. Truth!"
Brandi Mccutchan	Paducah		42001	US	2023-05-07	"I think Franklin is big enough! Stop the Middle 8!"
Robert Clutsam	Antioch	TN	37013	US	2023-05-08	"Please stop the needless expansion and congestion of Franklin. This area of town has had road construction for several years. That construction is almost complete. Why would you allow another multi-year project to start ir
Carol Coker	Nashville	TN	37221	US	2023-05-09	"Though I technically have a Nashville zip code, we actually live in Williamson county and our kids attend Williamson county schools. We enjoy the pastoral scenery, and the green spaces while being not horribly far from ame
Lisa Alexander	Franklin	TN		US	2023-05-15	""
Jill Wilford	Franklin	TN	37064	US	2023-05-15	"I oppose the proposed changes"
Bob Mogan	Franklin	TN	37064	US	2023-05-16	"I sent an email to the Mayor concerning this maximize density/ maximize profitScheme"
Sandra Bougard	Huntington Beach	CA	92646	US	2023-05-17	"Opposed to high density plans that will increase traffic and reduce open green spaces."
John England	Franklin	TN	37067	US	2023-05-17	"Overcrowding"
Jill Cooke	Franklin	TN	37064	US	2023-05-17	"I don't want more homes, congestion and loss of Franklin charm!!!! I say No"
Doss Donna	Nashville	TN	37214	US	2023-05-17	"Donna Doss"
Doss Donna	Nashville	TN	37214	US	2023-05-17	"For all the reasons covered on the website…."
Laura Turner	Franklin	TN	37069	US	2023-05-17	"This is inappropriate development in an already congested area even though the road has been widened recently to accommodate current development. Changing the zoning from single family residential to high density/ int

From: Lisa Alexander
To: thomas.bell3684@gmail.com; Planning Intake
Cc: "Lori Hennon-Bell"
Subject: Re: Should our list of questions be a press release?
Date: Wednesday, May 17, 2023 5:59:34 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

This is great!

Yes, please send it on to Matt - and tomorrow I'll share it with all our other outlets. I'll make sure to send it to the planningintake@franklintn.gov too, even though I think we should present the list formally Thursday night.

I say, Thursday night we do our best and then hit the bar!

Be good, stay sweet, and we will see you next week, ready for laughs and wine! Our love to you and the kids,

Lisa

Lisa Alexander
magsalexander@msn.com

From: thomas.bell3684@gmail.com <thomas.bell3684@gmail.com>
Sent: Wednesday, May 17, 2023 3:55 PM
To: 'Lisa Alexander' <magsalexander@msn.com>
Cc: 'Lori Hennon-Bell' <lhennonbell@gmail.com>
Subject: RE: Should our list of questions be a press release?

Lisa:

I have made the changes that Lori recommended as well as inserted a few additional items she recalled---in addition to Doug Mann's text to me this morning providing more clarity on his banking question. Do you want me to send the pdf directly to Matt Brown and have you send it out to all of the folks you mentioned in the city BOMA, FMPC, Media outlets, etc. etc.

When you post it and send it out to our group I am sure that several additional comments and questions will arise which we can assess to include?

It's all good---check this off the list!

We will get together upon your return and have some laughs and wine!!!!
Love to all,
T&L

From: Lisa Alexander <magsalexander@msn.com>
Sent: Wednesday, May 17, 2023 1:15 PM
To: Thomas J. Bell <tbell@sagacity-associates.com>; Tom Bell <thomas.bell3684@gmail.com>
Cc: Lori Hennon-Bell <lhennonbell@gmail.com>
Subject: Re: Should our list of questions be a press release?

Perfect!

Thanks, Tom :)

Lisa

Lisa Alexander
magsalexander@msn.com

From: Thomas J. Bell <tbell@sagacity-associates.com>
Sent: Wednesday, May 17, 2023 12:24 PM
To: Lisa Alexander <magsalexander@msn.com>; Tom Bell <thomas.bell3684@gmail.com>
Cc: Lori Hennon-Bell <lhennonbell@gmail.com>
Subject: RE: Should our list of questions be a press release?

OK making a few last minute tweaks to it as Lori had some changes for clarity and readability sake! I think Yes to everyone getting it as it shows their questions have been elevated....same with the News folks as how else do we hold them accountable at the city level!

I will send it to you once finished later this afternoon!

T

-----Original Message-----
From: Lisa Alexander <magsalexander@msn.com>
Sent: Wednesday, May 17, 2023 9:09 AM
To: Tom Bell <thomas.bell3684@gmail.com>
Cc: Lori Hennon-Bell <lhennonbell@gmail.com>
Subject: Should our list of questions be a press release?

Tom, Scott looked at it, thought it was great too, and suggested that we should use it as a press release?

My thought - It may be the only way we have to hold Gary accountable at the Zoom meeting. Of course, they don't have to answer anything.

Also, send the document to all the aldermen and Mayor? May I also share it in Thursdays email to

our 150++? If Nick adds it to the website, I can share a link to it on our social media.

Also, we need to email it to the planning intake email included in the public notice so that it becomes part of the public record.

I will submit updated signature lists and comments from the change.org website next week. Should I share those with Matt, prior?

Sorry for so many questions, but it's crunch time, and I'm nervous!!

Sent from my iPhone

From:	Lisa Alexander
To:	Planning Intake
Cc:	Scott Alexander; Lisa Alexander
Subject:	Stop the Middle Eight - water mitigation concerns
Date:	Thursday, May 18, 2023 1:32:45 PM
Attachments:	IMG_6179.png IMG_6180.png

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

These photos are from March of 2021, and the flooding that occurred on Lancaster Drive. Already the city sends stormwater into our upper field; what happens when the seven acres of Middle Eight is developed and all that open land becomes hardscape? Can the city guarantee our house, which did not flood in 2010 or 2021, will continue to be safe in similar sized weather events?

Scott and Lisa Alexander
160 Lancaster Drive

Lisa Alexander
magsalexander@msn.com









From: Jo Dawson
To: Planning Intake
Subject: Stop The Middle Eight !!
Date: Thursday, May 18, 2023 3:11:38 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

My name is Jo Ann Dawson. I live on Lancaster Dr. My children grew up in this neighborhood. They would have loved to buy a house in Franklin, but could not afford it. I agree that Franklin needs some affordable housing, however I know these homes will not be classified as “affordable “.
I am afraid of flooding, traffic , etc. I am especially sorry for the neighbors that live in Jamison Station and on Old Liberty and Daniels Drive.
Please reconsider what this will do to our quiet, little neighborhood.
Thank you,
Jo Ann Dawson
Lancaster Dr

From: Doug Mann
To: Planning Intake
Subject: Take another look Middle Eight
Date: Monday, May 22, 2023 12:00:41 PM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Dear City Planners

Would you please take another look at the Middle Eight project. Many Of us nearby residents as you know by now were not properly considered or notified in the original proposal of the project.
Certainly something could be proposed and built that would not be as densely populated by people and vehicles destroying the Old Liberty Pike and Daniels Drive neighborhoods.

The other situation is the real estate tax rate on the project including unleased apartments which is beyond your authority.

I am presently taxed at $1.61 per square foot per year on my home at 111 Lancaster Dr, Franklin, TN 37064 where I have resided for 49 years.

Thank you

Doug Mann
615.482.7645

From: Joshua Sadler
To: Planning Intake; Ken Moore
Subject: Thank you around the middle eight
Date: Tuesday, May 23, 2023 8:57:09 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Good morning, my name is Josh, and I wanted to reach out to thank you all for your consideration of and support for the middle eight development. I can't imagine the amount of hate mail/great mail you are receive, and you deserve our gratitude and commendation as well. Your commitment to creating affordable housing in Franklin, and making it an even more welcoming and beautiful town is refreshing and good for the community, whether all of its residents know that yet or not. To the argument that it runs counter to the spirit of Franklin, I would posit that it instead expands upon what is greatest about the city while improving upon the dynamics of this jewel that can yet benefit from a little "watering". If 271 families and individuals, many of whom already make contributions to the community, can gain access to actually live in and enjoy it, this is well-worth doing.

Thank you again!
Josh
615-973-7230

From: Michael Fecher
To: Planning Intake
Subject: The Middle Eight Development
Date: Monday, May 22, 2023 7:21:33 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

I live at 26 Daniels Drive about a block from the proposed Middle Eight development. My wife and I enjoy living within walking distance to downtown.
However we are very concerned about the impact this development will have on our neighborhood.
Our biggest concerns are the significant impact this development will have on an already troublesome traffic problem on Daniels, Old Liberty, Liberty Pike and Franklin Road.Next is the significant impact the development will have on water runoff or drainage into the floodplain on Old Liberty Pike.
Also, removing the historical designation of this property and allowing a 5 story building to be constructed on the site irretrievably changes the small town feel that Franklin is known for.
We ask that you vote against this proposed development and at least decrease the density and limit the height of buildings on the property.

Sincerely,
Michael Fecher

From: Michael Edwards
To: Planning Intake
Subject: The Middle Eight
Date: Wednesday, May 24, 2023 9:46:40 AM

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

To the planning commission:
My wife and I live at 3:20 in Liberty Pike, across the street from the proposed development. We strongly oppose this development, because it represents a huge change in population density, destroys the residential field of a neighborhood already established, and will be disruptive and destructive to traffic flow. No provision is made for green space development around this proposed complex.

We are strongly in favor of developing the property, according to existing zoning guidelines for the city. We feel this would completely change the residential structure and peaceful presence found in most areas of the city. If you would be comfortable, shoving a similar building across the street from yourself, then I urge you to support it. 271 residences in a small 7 acre space is unacceptable.

MEE

From: Tiffany White
To: Planning Intake
Subject: The Middle 8 Concerns from adjacent neighbor on Daniels Dr
Date: Wednesday, May 24, 2023 10:46:27 AM
Attachments: Flood Plain Map Old Liberty Pike.pdf
Daniels Drive Parking Issues.docx
Street View Buildings South of Liberty.docx
Street View Buildings South of Liberty2.docx
Multifamily Renderings from Back.docx

ATTENTION COF staff: This email originated from outside the City of Franklin. Please use discretion when clicking on attachments & links from unknown senders or suspicious emails.

Hello,

I own the home at 20 Daniels Drive. This is the corner row home directly behind the townhomes at Jamison Station. The project site for the Middle 8 is almost directly in front of my home and the back of the huge apartment buildings will be the view out my front windows if this project is constructed as currently planned. I am opposed to the Middle 8 project with the density and building height currently proposed. I'm not against all development. I want responsible development that is fitting of the area and this project is neither. When I purchased my home 10 years ago, I never imagined that a high-density multifamily building could be built across the street on property zoned for single family homes and located in the historic overlay.

I have been a Realtor in Franklin for 18 years. Prior to that, I worked for a traffic engineering company where I wrote traffic planning documents like Traffic Impact Studies, Major Thoroughfare Plans, Signal Warrant Studies and Parking Studies. I have the following concerns, questions and warnings regarding the Middle 8 project as it is currently presented with 275 residential units and buildings that are 5 or 6 stories tall:

PARKING

The only reserved parking for my house is in my garage off the alley. We do not have a driveway and cannot use the garage at Jamison Station. We do have limited parallel spaces on the street. I understand that the new Harpeth Square Apartment street parking has become competitive, and I fear the same here with the addition of 275 new residences plus guests.

I have looked over the Parking Study for the project. The study disregards the City of Franklin Parking Ordinance and sites national parking statistics from well respected resources. The resulting parking demand projected in the study was 22% lower than the city's requirements. This creates a lowest use scenario and is not likely to be reality. There is a reason the City's requirements are higher than national statistics. Williamson County is the most affluent county in the state. We are very attached to our personal vehicles and most residents have the financial ability to own a car. We already have parking issues on my street on Saturday

mornings especially. If there is not enough parking for The Factory and this new development does not build enough parking either, my neighbors and I will have no parking except our respective two-car garages. See attached collection of photos with vehicles parked along Daniels Drive.

TRAFFIC

I've looked over the traffic study for the project. The existing turning movement counts were collected on February 8, 2023. During that time, construction for the Franklin Road streetscape project was a mess and traffic had been combined into one lane each direction for several years. In particular, there was no separate left turn lane for southbound traffic on Franklin Road at Liberty Pike. This approach (and others) backed up significantly much of the day and many drivers have been avoiding this area. TDOT annual traffic counts for the 3 count stations closest to the project site have gone down in recent years even though we have experienced significant growth. The traffic projections used in the study are possibly inaccurate due to the lower traffic counts for the existing conditions. A new study or a modification should be prepared when the streetscape project is complete. I understand that the City approved use of these volumes but maybe they shouldn't have. Perhaps this is not the best, most responsible decision. I have attached an image of the annual TDOT traffic counts.

BUILDING HEIGHT

Envision Franklin says that the building height should transition down towards the Truett house. The proposed 5-6 story multifamily building would be taller than Jamison Station. Just because Jamison includes 4-story buildings doesn't mean that we should have more and taller, non-conforming buildings. This sets a very bad precedent. If the developer is allowed to build this development, it will not fit the character of the neighborhood and invade the lower sight lines we now enjoy.

Neighbors recently had the opportunity to see additional renderings of the project which show the multifamily buildings from the back. While Multifamily Building #1 is 3 stories in the front, it will appear as 5 stories in the back due to the downward slope of the land as you travel south. Similarly, Multifamily building #2 will be 5 stories in the front but 6 in the back. With the exception of the non-conforming condo buildings at Jamison Station, all buildings in the vicinity of the project site are a maximum of 2-3 stories. I've attached the renderings of the back and side of the multifamily buildings.

I ask that you to slow down and really consider the height and density of this project. Have you spent time in the adjacent neighborhoods? Do you know what the street view truly looks like currently and what a 6 story building will do to this area? The view from my living room and master bedroom will include this 6 level structure! This building may fit in Cool Springs but it is not the best, most appropriate development for the gateway to Historic Downtown Franklin. I have attached a collection of photos showing many current buildings south of

Liberty Pike.

DENSITY

Both my property and the project site are zoned R-4. My home is on 1/10 of an acre. If you apply this density to the project site the result would be about 72 residences. Also for comparison, Jamison Station includes just 44 residential units with townhomes and condos combined. I don't understand how representatives believe it is appropriate to change this site to allow 275 residential units or 3.8 times the density of our little row homes at The Cottages at Old Liberty.

FLOODING

Nearly every property on Old Liberty Pike is in the floodplain. I realize there are formulas and calculations for stormwater runoff. Can you assure my neighbors on Old Liberty that this huge project with a higher elevation than their homes will not cause even worse flooding? Many of these homes flooded as recently as March 2021. I've attached the FEMA flood plain map for the area.

Does a property's zoning not mean anything? Does the city code and the historic overlay mean nothing that they can so easily be drastically changed or disregarded? During the most recent Zoom meeting with the design team, they answered 65+ questions from concerned neighbors. It seems like the answer to many of the questions was basically that the City has approved this aspect of the project (or preliminarily approved). Why does it seem that typical city procedures have not been followed and this project was "fast tracked"? Why were the immediate neighbors to the development the last to know about it? Why were signs about the Rezoning Request and New Planned Unit Development not present at the property until May 18, 2023, after so many aspects of this development have been approved (or preliminarily approved) by the City?

The immediate neighbors to the project site DO NOT WANT THIS MONSTROUS DEVELOPMENT! We are the ones who will be most impacted by the traffic congestion (both vehicles and pedestrians), parking issues, even more significant flooding, noise and impeded view sheds. The Middle 8 needs to be modified to include less density. The maximum building heights should be less than Jamison Station and no variance should be allowed for the required parking. Imagine how easy it would be to carry a slimmed down version of this development through the approval process. This process is currently long and difficult because this development does not make sense for this area.

It's remarkable to have this 7.2 acre undeveloped tract so close to the Factory, Harlinsdale Farm and Downtown, but with that comes responsibility to steward the property in a proper way. There is only one opportunity to create the best design that will preserve the charm and character of Historic Franklin. Please take the time to make the right choices.

Sincerely,

Tiffany White
REALTOR, CRS, CLHMS
C: 615-260-5858 / O: 615-778-1818
E: TiffanyWhite@kw.com
IG: TiffanyWhiteRealtor



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Jamison
Station

TDOT AADT DATA

Station	31	87	32	
Route	Franklin Road	Franklin Road	Liberty Pike	
Location	North of Project Site; B/W Morningside Drive & Harlinsdale Court	West of Project Site; B/W Old Liberty Pike & 1st Avenue N	East of Project Site; B/W Daniels Drive & Eddy Lane	S C
County	Williamson	Williamson	Williamson	
2022	14,021	11,745	6,988	
2021	13,353	16,173	6,655	
2020	11,193	13,959	6,835	
2019	16,030	18,266	7,835	
2018	16,117	20,747	9,250	
2017	17,449	20,565	8,870	
2016	16,960	19,093	8,603	
2015	16,993	20,322	8,882	
2014	16,861	18,917	8,599	
2013	15,776	19,586	8,349	
2012	14,352	18,433	7,528	
2011	14,770	18,112	6,576	



THE PLAZA BETWEEN BUILDINGS NO. 1 AND 2

KV+D KISER VOGRIN DESIGN

TRULAND

ARCHITECTURAL RENDERINGS

THE MIDDLE EIGHT

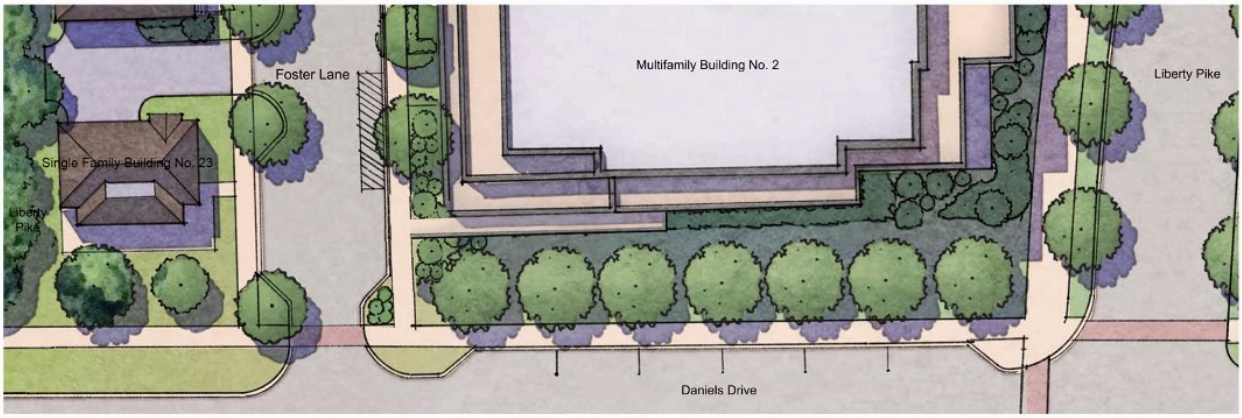
FRANKLIN, WILLIAMSON COUNTY, TN



MAY 22, 2023
PROJECT #21065



Elevation at Daniels Drive



Partial Plan at Daniels Drive

KV+D KISER VOGRIN DESIGN

TRULAND

ARCHITECTURAL ELEVATIONS

THE MIDDLE EIGHT

FRANKLIN, WILLIAMSON COUNTY, TN

MAY 22, 2023
PROJECT #21065

Street View of Buildings South of Liberty Pike



Looking West from back driveway to Jamison Station Townhomes – Cottages at Old Liberty on left



Looking South toward The Everly Apartments on Liberty Pike



Looking NE at back side of The Everly Apartments



Looking SE at Jamison Station at corner of Daniels Dr and Liberty Pike

Street View of Buildings South of Liberty Pike



Looking East from Daniels Drive at Jamison Station Townhomes and entrance to parking garage



Closer view looking East at Jamison Station from internal driveway



Looking South from The Factory Parking Lot at Jamison Station condo/retail buildings



Looking NW (from L to R) Jamison Station townhomes, garage and condo/retail buildings







CURRENT PARKING ISSUES - DANIELS DRIVE ON SATURDAY MORNINGS





Cars Parked in front of my house looking SB and NB on Daniels Drive Saturday, April 29 at 10:20 AM



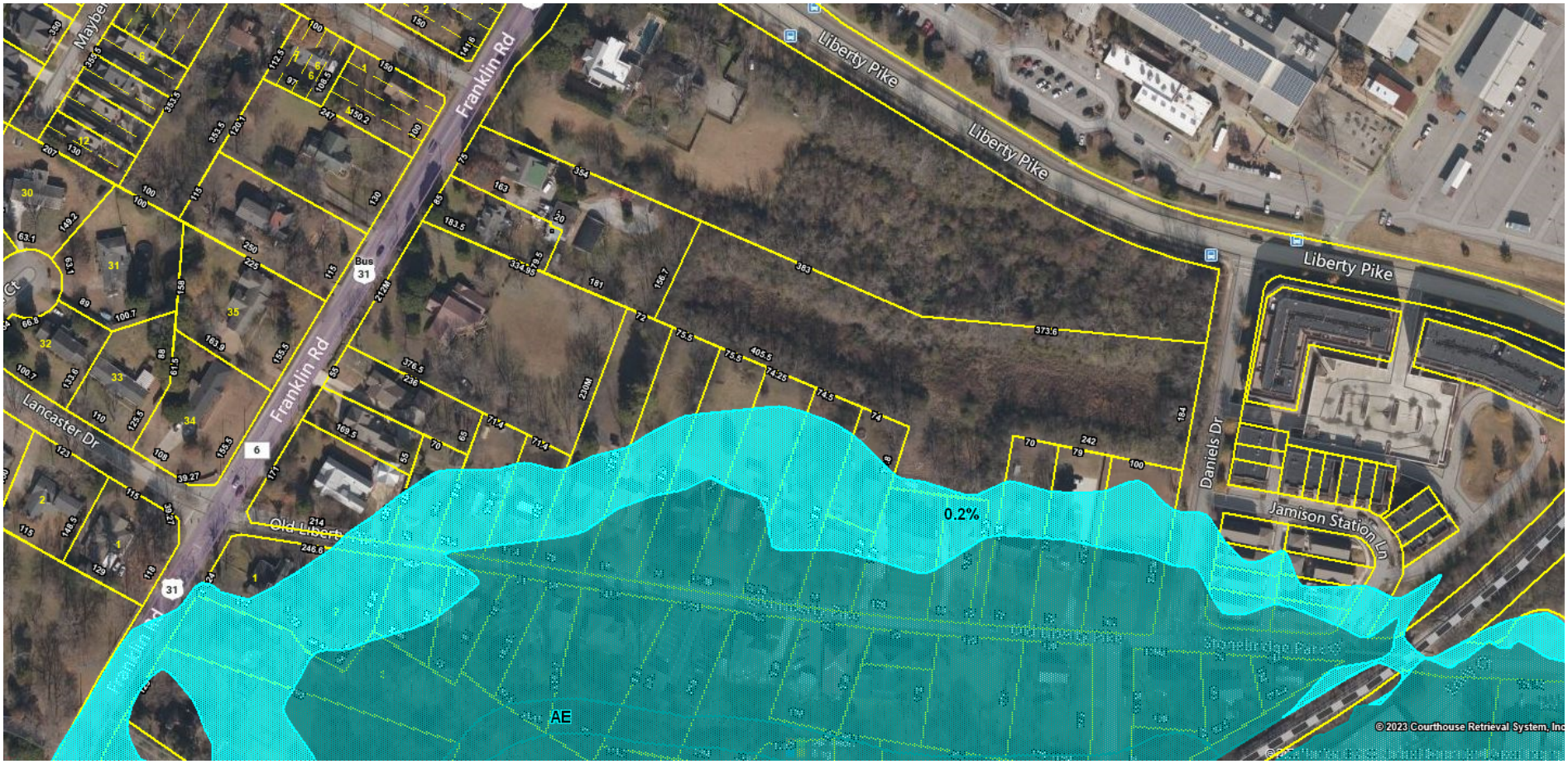


Cars Parked along Daniels Drive looking NB on Saturday, May 6 at 11:45 AM

Tiffany White
Keller Williams Realty
615-260-5858/615-778-1818
tiffanywhite@kw.com

MLS Tax Suite™
Powered by CRS Data

Map for Parcel Address: 20 Daniels Dr Franklin, TN 37064-2201 **Parcel ID:** 063M C 001.00 000



FEMA Flood Zones

- Effective High-Risk Areas (SFHA)
- Effective Moderate-Risk Areas
- Effective Undetermined-Risk Areas
- Preliminary High-Risk Areas (SFHA)
- Preliminary Moderate-Risk Areas
- Preliminary Undetermined-Risk Areas

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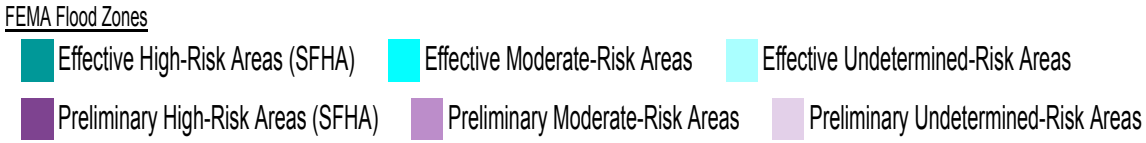

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Information Deemed Reliable But Not Guaranteed.

City of Franklin

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

File #: 21-03803

DATE: February 7, 2023

TO: Franklin Municipal Planning Commission

FROM: Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development
Chelsea Randolph, Principal Planner

SUBJECT:

Cool Springs East Subdivision, Site Plan, Section 33, Revision 2, Lot 685 (Comtide Unified Development), Constructing 10,092 Square Feet Of Commercial Building, On 2.65 Acres, Located North Of Market Exchange Court And East Of Comtide Court, At 201 Comtide Court. (CONSENT AGENDA)

PURPOSE:

PROJECT INFORMATION
COF Project Number: 8162
Applicant: Christopher Wood, Kiser Vogrin Design, LLC
Owner: NIcholas Benrndt, TT of H Cool Springs, Inc.

BACKGROUND/STAFF COMMENTS:
The purpose of this site plan is to add a 10,092 square foot addition to the existing 11,597 square foot car dealership. The property is 2.65 acres and is zoned Regional Commerce 6 (RC6) District. The proposed development meets the City's current development standards. There will be access to the site from Comtide Court. The proposed site plan is being placed on this agenda in accordance with Chapter 20.12.2 C, which states that site plans shall be submitted for approval by the FMPC if the application includes one of many criteria listed, including a Unified Site Plan. This application is a revision to a unified site plan approved in July 2004.

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. Once the corrected site plan has been approved, one (1) full-size and one (1) half-sized copy of the final approved landscape plans shall be submitted to the Department of Building and Neighborhood Services for future landscape inspection purposes.
3. Once the project has obtained Site Plan approval, the applicant will be notified by COF

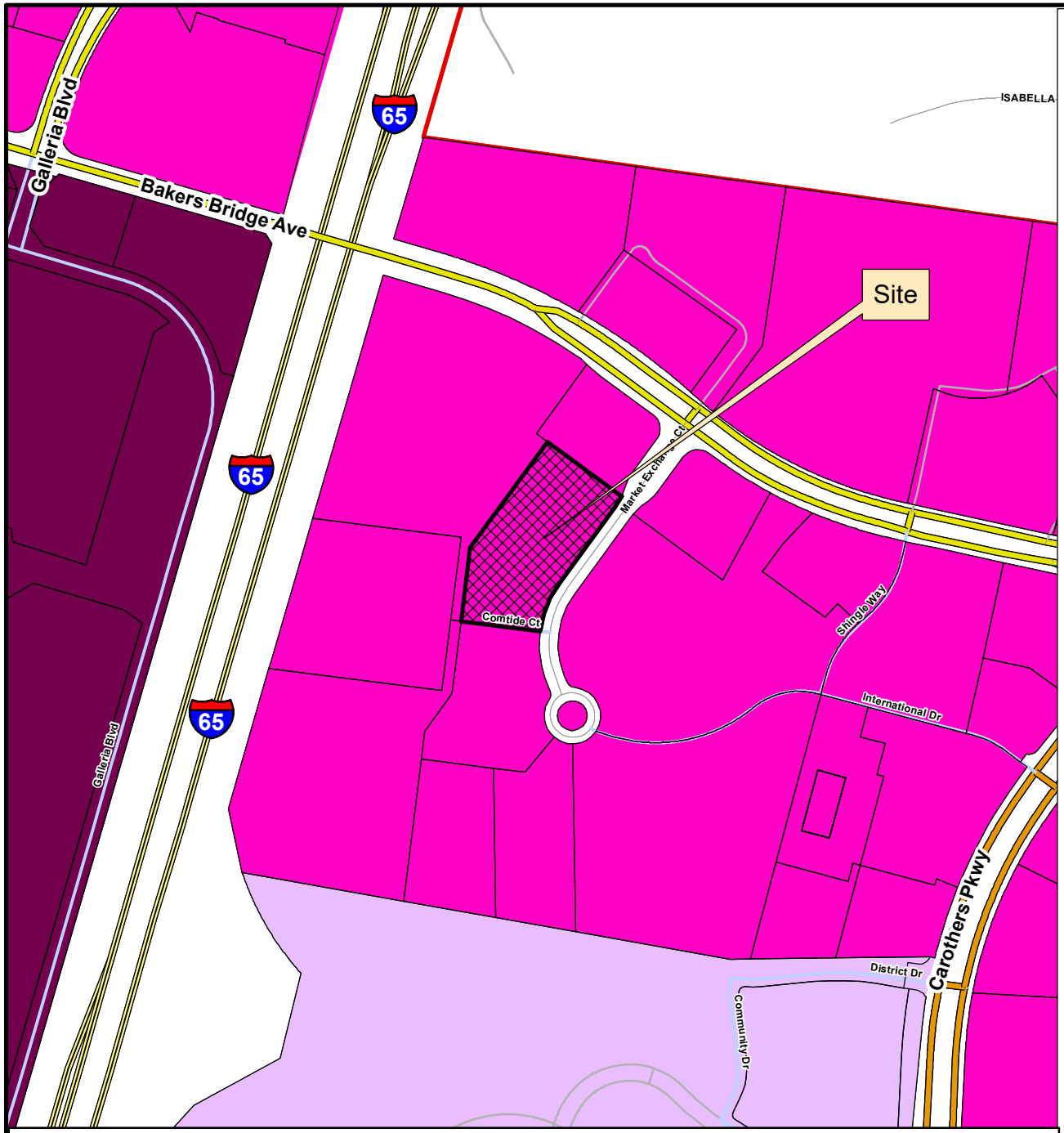
Engineering Department with instructions regarding the status of their digitally stamped construction plans.
4. The applicant shall upload complete building plans, including the approved, revised site plans, to the City's IDT site for Building and Neighborhood Services Department review and approval prior to the issuance of a building permit.
5. Prior to the start of any excavation work, the developer and/or contractor shall notify AT&T and Comcast.
6. The City’s project identification number shall be included in all correspondence with any City department relative to this project.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Staff recommends that the Franklin Municipal Planning Commission approve, with conditions, Cool Springs East Subdivision, Site Plan, Section 33, Revision 2, Lot 685 (Comtide Unified Development) . The conditions of approval are attached.



COOL SPRINGS EAST SUBDIVISION, SECTION 33, LOT 685
SITE PLAN, REVISION 2

Project Information
Existing Zoning: RC-6 Regional Commerce 6
Overlay Districts: None
Site Acreage: 2.65 acres
Proposed Number of Dwelling Units: 0
Proposed Nonresidential Square Footage: 21,689 SF

Legend

- Cool Springs East Subdivision, Section33
- 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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N

0 250 500 1,000
Feet

HISTORIC FRANKLIN TENNESSEE

COF no: 8162

CONDITIONS OF APPROVAL:

Open Issues: 16 These issues are currently being filtered

Engineering - Checklist

General Issues

38. Final Plat

dustin.walcott@franklintn.gov *As final plats followthe FMPC reviewcycle, the Applicant is encouraged to start the final plat process as soon as possible.*

*Comment to remain open as a Condition of Approval, but **does not hinder approval of the Site Plan.***

Prior to issuance of a Building Permit, a revised final plat shall be approved and recorded to dedicate right-of-way, modify/abandon existing easements on the property and create new easements as necessary for the proposed site development. The final plat shall reference the Instrument Number where the Long Term Maintenance Plan (LTMP) agreement and attachments are recorded.

46. Easements

dustin.walcott@franklintn.gov Comment not fully addressed.

- Exclusive Green Infrastructure Easements (GIE) around all Green Infrastructure BMPs (pervious pavement, bioretention, bioretention forebays, water quality swale, etc.) Easements shall extend a minimum of 5 feet beyond the top of berm elevation.
  - Please label all GIE's as an Exclusive Green Infrastructure Easement. You must use the work EXCLUSIVE.
  - All bio retention forebay's shall be included in an Exclusive Green Infrastructure Easement.
- Cross Access Easements over internal vehicular circulation from adjacent properties to connection with external streets or drives.
  - Please provide dimensioning of the CAE

Easements shall be recorded by a revised final plat prior to issuance of a Building Permit.

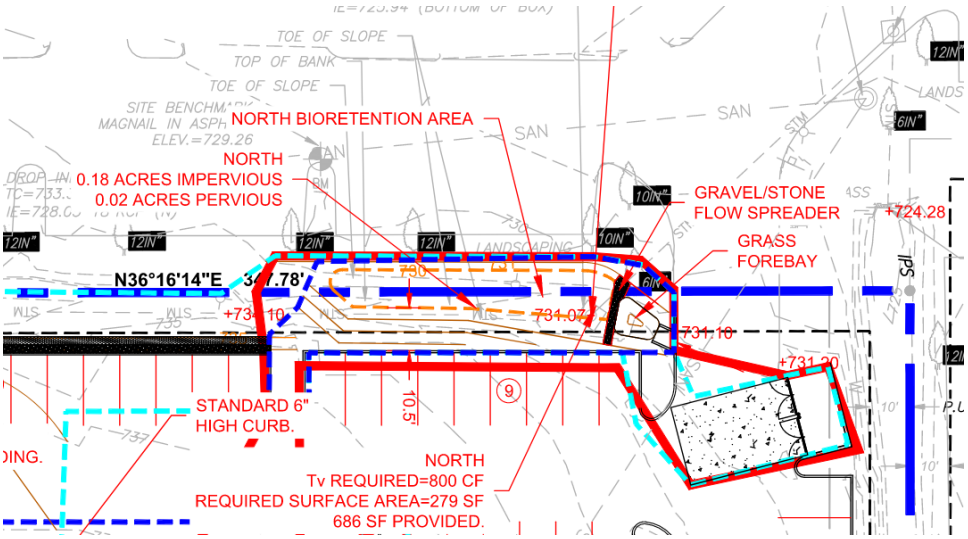
Engineering - OLD

General Issues

40. (OLD SITE PLAN CHEKLIST) B. General Information

dustin.walcott@franklintn.gov *Comment to remain open as a condition of approval, but **does not hinder approval of the Site Plan.***

All necessary permissions for the proposed off-site work shall be obtained prior to issuance of the grading permit..



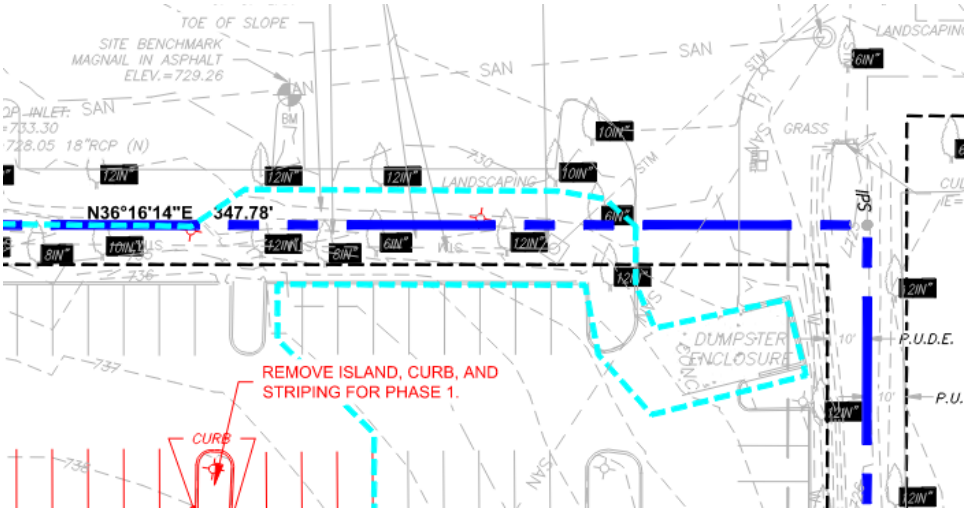
Engineering - Site Plan Checklist

General Issues

42. K. Overall Utility Plan

dustin.walcott@franklintn.gov Comment not adequately addressed.

The applicant shall note on the Demolition sheet that the light that currently sits in the proposed Exclusive Green Infrastructure Easement shall be removed and/or relocated.



?The applicant shall also show existing and proposed utilities, service lines and appurtenances on the storm water management sheets.

44. LTMP and LTMA

dustin.walcott@franklintn.gov This comment serves as a note that the LTMP will not be reviewed until the plans have final, stamped City approval. Therefore, this comment will remain open as a reminder to **update the plan sheets in the LTMP with the revised sheets as applicable** for each submittal until the final review round and plans are approved.

62. V. Site Permits

amanda.ray@franklintn.gov **FOR INFORMATION ONLY:**

The **Site Permit Application Packet** will be uploaded to the document manager upon approval of the plans. For your site this includes:

- Permit Checklist
- Fee Worksheet
- Stormwater/Grading Permit
- Utility Permit
- Permit Instructions

SUBMITTAL INSTRUCTIONS:

- Complete the permit application. Incomplete applications will not be processed.
  - Completed permit applications should be emailed to: amanda.ray@franklintn.gov.

FEES: Fees are listed on the FEE WORKSHEET (included in the Permit Application Packet).

OPTIONS FOR PAYING PERMIT FEES ARE AS FOLLOWS:

- **OVER THE PHONE**: Pay by credit card by calling the Building & Neighborhood Services Dept (BNS): (615-794-7012).
  - Provide the Permit Tech the Project COF # and list of fees you want to pay. You will find these fees listed on the Fee Worksheet.
- **IN PERSON/BY MAIL:** Pay by check or with credit card by visiting the Building & Neighborhood Services Dept (BNS) in City Hall, Suite 110.
  - Complete the Contact Info on the Fee Worksheet and give to BNS permit tech. You can pay with a credit card or check.
  - IF MAILING a check payment:
    - Complete the Contact Info on the Fee Worksheet and make sure the check references the COF#. Mail the check together with the Fee Worksheet to:

City of Franklin – Building & Neighborhood Services
109 3rd Avenue South, Suite 110
Franklin, TN 37065

Any questions regarding the Site Permitting process can be directed to amanda.ray@franklintn.gov

FOR FUTURE REFERENCE:

If SP Amend or Plan Revision is submitted after LTMP is recorded, a LTMP revision may be required. Therefore, **if required,** the applicant shall have 30 days from date of revised plan approval to submit an approved, signed and notarized revised LTMP and pay the $100 electronic recording fee or enforcement actions per FMC23-111 shall be issued.

- Upon approval of plans applicant shall email a LTMP justification to Jeff Willoughby and Amanda Ray of any changes in this SP Amend or Plan Revision to the stormwater BMPs, riparian buffers or stormwater infrastructure compared to the recorded LTMP. *It is recommended to include a statement in the SP Amend letter regarding this comparison.*
- If it is decided that a revised LTMP is required applicant shall email Jeff Willoughby a revised LTMP document, following all instruction outlined in the standard LTMP Comment.
- Once the revised LTMP is approved applicant shall follow provided directions to submit the original, signed & notarized LTMP package and pay recording fee.

MTEMC

Cool Springs East Subdivision, Sec. 33, Rev 2, Lot 685 - Comtide Unified Development Resubmittal 23-05-04.pdf

58. Existing UG facilities

ehale@mtemc.com	MTE has existing UG facilities in this area. Contact MTE engineering for relocation plans.

Performance Agreement and Surety

General Issues

52. Engineering Sureties

kevin.long@franklintn.gov

Applicant shall post sureties in the following amounts:	
I. City Water:	$ -
II. City Sewer:	$ -
III. Public Sidewalk:	$ -
IV. City Streets:	$ -
V. Private Streets (Including Shared Access):	**$118,000**
VI. Street Access	$ -
VII. Temporary Turnarounds	$ -
VIII. Traffic Signals:	$ -
IX. ITS Elements:	$ -
X. Stormwater Drainage:	$ -
XI. Green Infrastructure:	**$18,000**

NOTE: Performance Calculations - Sureties are calculated from the Site Plan and approved during the Site Plan approval process. Sureties shall be posted prior to obtaining a building permit. Where a building permit is not expected, sureties shall be posted prior to obtaining a grading permit. If a Final Plat is approved at any time during the development process, all sureties will be transferred to said plat as a Condition of Approval. Sureties posted should include Public Infrastructure, Erosion Control, Street Access, and all necessary repairs for work completed within the public right-of-way. ***Any driveway or related encroachment on City of Franklin right-of-way, including the modification, revision, or change in use of any existing driveway facilities, shall require a Street Access Surety.*** *A 10% contingency is applied to each surety category. EPSC is based on a flat $7,500 per acre of disturbed area and is distributed proportionally across all surety categories.*

Line Items (For Reference Only:)		
6" MAIN	735	LF
FIRE HYDRANT	2	EA
SHARED ACCESS DRIVE	1272	SY
CONCRETE DRIVEWAY - COMMERCIAL	954	SF
SIGNS/STRIPING/ETC	0.05	OF TOTAL
GRASS CHANNEL	192	SY
WATER QUALITY SWALE	86	SY

59. Performance Agreement

melodie.brady@franklintn.gov	***Advisory Comment:***

Performance Agreement

In order to get the Performance Agreement ready, the following information is needed:

1) Will the sureties be posted with a letter of credit or cash/cashier's check?

2) What is the name of the company that is to be on the performance agreement?

3) What type of company? Example: a Tennessee LLC, a Georgia Corporation, etc

4) What is the mailing address for that company?

Please contact Melodie Brady at 615-550-6736 or melodie.brady@franklintn.gov with any questions.

60. Surety Requirement

melodie.brady@franklintn.gov ***Advisory Comment:***

Surety Requirement

Cash / cashier's check

If using cash or cashier's check to post sureties, the check is to be made out to City of Franklin. Check must be brought to _____, and the City cannot accept a check until the performance agreement has been signed and accepted. If a performance agreement has not yet been accepted at time of check delivery, check will be returned.

If using a letter of credit to post sureties, ensure that the letter of credit includes the following:

1. A clause that states the letter of credit renews automatically;
2. A statement that a minimum of sixty (60) days notice shall be sent from the issuing bank to the City by a receipted means, should the bank elect not to renew the letter of credit;
3. Proof of issuance by a financial institution located in the United States, organized and operating under the laws of the State of Tennessee or the United States, whose deposits are insured by either the Federal Deposit Insurance Corporation (FDIC) or the National Credit Union Administration (NCUA);
4. Identification of a presentation location within the physical limits of Williamson and/or Davidson County (or as permitted in the Performance Agreements section of the Zoning Ordinance) with the statement that documents calling for payment may be made at said location.
5. The following statement shall be included verbatim "This letter of credit may be called upon certification by an official of the City of Franklin that ABC Company (correct company that is also on the Performance Agreement) has failed to complete and/or maintain the public improvements for XXXX (complete name of this project), as outlined in the executed performance agreement dated XXXX (date the performance agreement is signed and notarized)."

Please contact Melodie Brady at 615-550-6736 or melodie.brady@franklintn.gov with any questions.

61. Landscape

jason.arnold@franklintn.gov Landscape surety $28,000

Stormwater

General Issues

13. Drainage

ellen.moore@franklintn.gov Applicant shall add a note to the drainage plan stating that any drainage issues noted during the construction by the site inspector at the curb cuts or swale between this property and Wild Ginger shall be fixed before drainage or green infrastructure sureties can be released.

18. SWPPP & NOI (NPDES)

Doug.Noonan@franklintn.gov	QLP fee of $250.00 is due prior to permitting. This comment shall remain open as a reminder to applicant/staff. • Checks shall be made out to City of Franklin, submitted to the City of Franklin Engineering Department, and reference the COF# & QLP-NOI fee. • Fee may be paid over the phone with a credit card by calling our BNS Department (615-794-7012).

48. Bioretention

ellen.moore@franklintn.gov	Applicant shall call out stone sizes for all pretreatment. Velocity dissipation is needed at all inlets into the forebays. The flow spreader detail on C3.05 shall be removed.

51. Bioretention

jeff.willoughby@franklintn.gov	These bioretentions/water quality swale are quite linear. I would check with the civil engineer to confirm flow rates to ensure mulch ground cover is adequate.

COOL SPRINGS EAST SUBDIVISION, SITE PLAN, SECTION 33, REVISION 2, LOT 685 (COMTIDE UNIFIED DEVELOPMENT)

201 COMTIDE COURT (LOT 685 RENOVATIONS)
TAX MAP 053, PARCEL 122.20
FRANKLIN, TENNESSEE
COF #8162

OWNER

TT OF H Cool Springs, Inc
505 S. Flagler Drive, Suite 1400
West Palm Beach, FL 33401
Contact: Nicolas J. Benrndt
561.613.1183

LANDSCAPE ARCHITECT / APPLICANT

KV+D
KISER VOGRIN DESIGN

Kiser+Vogrin Design
5005 Meridian Blvd
Suite 100
Franklin, TN 37067
Contact: Christopher Wood
615.719.1943
chris@kiservogrin.com

CIVIL ENGINEER

ON SITE
CIVIL GROUP
980 BIRMINGHAM RD, SUITE 501-340, MILTON, GA 30004
PH: (678) 615-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

OnSite Civil Group
980 Birmingham Rd Suite 501-340
Milton, GA 30004
Contact: Jarrett Senkbeil, PE
678.615.3347
jarrett@onsitecivil.com
www.onsitecivil.com

SURVEYOR

TWM
CONSULTING ENGINEERING
GEOSPATIAL SERVICES

TWM
504 Autumn Springs Ct., Ste. B-14
Franklin, TN, 37067
Contact: Roger Harrah
615.814.7414
rharrah@twm-inc.com

ARCHITECT

PENNEY DESIGN GROUP
ARCHITECTURE | PLANNING | INTERIORS

PENNEY DESIGN GROUP
8120 Woodmont Avenue
Suite 750
Bethesda, MD 20814
Contact: Jonathan Penney
301.979.7600
www.penneydesigngroup.com

SHEET INDEX:

		Pre-App Submittal	Initial Submittal	Resubmittal	One Stop Submittal
CVR	COVER SHEET	03-27-2023	04-10-2023	05-04-2023	
C1.0	EXISTING CONDITIONS	03-27-2023	04-10-2023	05-04-2023	
C1.01	DEMOLITION PLAN PHASE 1	03-27-2023	04-10-2023	05-04-2023	
C1.02	DEMOLITION PLAN FINAL PHASE		04-10-2023	05-04-2023	
C2.0	SITE PLAN PHASE 1	03-27-2023	04-10-2023	05-04-2023	
C2.1	SITE PLAN FINAL PHASE		04-10-2023	05-04-2023	
C2.01	SITE PLAN DETAILS	03-27-2023	04-10-2023	05-04-2023	
C3.0	GRADING AND DRAINAGE PLAN	03-27-2023	04-10-2023	05-04-2023	
C3.01	WEST STORMWATER TREATMENT	03-27-2023	04-10-2023	05-04-2023	
C3.02	NORTH STORMWATER TREATMENT	03-27-2023	04-10-2023	05-04-2023	
C3.03	EAST STORMWATER TREATMENT	03-27-2023	04-10-2023	05-04-2023	
C3.1	INITIAL EPSC/PRE-CONSTRUCTION PLAN	03-27-2023	04-10-2023	05-04-2023	
C3.2	INTERIM EPSC/PRE-CONSTRUCTION PLAN	03-27-2023	04-10-2023	05-04-2023	
C3.3	FINAL EPSC/PRE-CONSTRUCTION PLAN	03-27-2023	04-10-2023	05-04-2023	
C3.4	EPSC DETAILS	03-27-2023	04-10-2023	05-04-2023	
C3.5	EPSC DETAILS	03-27-2023	04-10-2023	05-04-2023	
C4.0	ROW AND ACCESS PLAN	03-27-2023	04-10-2023	05-04-2023	
C5.0	UTILITY PLAN	03-27-2023	04-10-2023	05-04-2023	
C5.1	UTILITY DETAILS	03-27-2023	04-10-2023	05-04-2023	
C5.2	UTILITY DETAILS	03-27-2023	04-10-2023	05-04-2023	
C5.3	UTILITY DETAILS	03-27-2023	04-10-2023	05-04-2023	
C5.4	UTILITY DETAILS	03-27-2023	04-10-2023	05-04-2023	
C6.0	EMERGENCY MANAGEMENT PLAN	03-27-2023	04-10-2023	05-04-2023	
C6.01	FRONT END LOADER TURNING TEMPLATE	03-27-2023	04-10-2023	05-04-2023	
L1.0	TREE PRESERVATION PLAN	03-27-2023	04-10-2023	05-04-2023	
L4.0	LANDSCAPE PLAN	03-27-2023	04-10-2023	05-04-2023	
L4.1	LANDSCAPE PLAN	03-27-2023	04-10-2023	05-04-2023	
L4.2	ENLARGED LANDSCAPE PLAN	03-27-2023	04-10-2023	05-04-2023	
L5.1	HARDSCAPE DETAILS	03-27-2023	04-10-2023	05-04-2023	
L6.1	LANDSCAPE NOTES	03-27-2023	04-10-2023	05-04-2023	
L6.2	LANDSCAPE DETAILS	03-27-2023	04-10-2023	05-04-2023	
EL-1	BUILDING ELEVATIONS	03-27-2023	04-10-2023	05-04-2023	
EL-2	BUILDING ELEVATIONS	03-27-2023	04-10-2023	05-04-2023	
PSD-1	DUMPSTER ENCLOSURE DETAILS	03-27-2023	04-10-2023	05-04-2023	
PP-1	PHOTOMETRIC PLAN	03-27-2023	04-10-2023	05-04-2023	

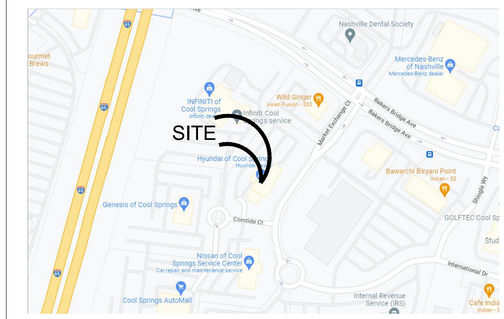
SITE DATA

PROJECT NAME: GENESIS COOL SPRINGS
PROJECT NUMBER: 8162
ADDRESS: 201 COMTIDE COURT
CITY: FRANKLIN
COUNTY: WILLIAMSON
STATE: TENNESSEE
CIVIL DISTRICT: 9
MAP, PARCEL NUMBERS: MAP 053, PARCEL 122.20
(PLAT BOOK 41, PAGE 26)
SUBDIVISION: REVISION ONE COOL SPRINGS EAST SUBDIVISION
SITE ACREAGE: +/- 2.65 AC
SITE SQUARE FOOTAGE: +/- 115,266 SF
VESTING: N/A

REGULATIONS:
BASE ZONING: REGIONAL COMMERCE 6
EXISTING ZONING: RC6
PROPOSED ZONING: RC6
OVERLAYS: N/A
BUILDING TYPES APPLIED: COMMERCIAL/MIXED USE BUILDING
FRONTAGE TYPES APPLIED: LANDSCAPE
LOT WIDTH: 247.87
SETBACKS -
FRONT YARD: 5-30'
SIDE YARD: 15'
REAR YARD: 25'
DWELLING UNIT COUNT: N/A
COMMERCIAL SF BY USE: 21,689 SF
HOTEL KEYS: N/A
EXISTING BUILDING HEIGHT: 1 STORY - 20'-11"
PROPOSED BUILDING HEIGHT: 1 STORY - 28'-2"
EXISTING BUILDING AREA THAT GETS REMOVED:1,613 SF.
EXISTING BUILDING AREA THAT REMAINS:11,597 SF.
NEW BUILDING AREA ADDED:10,092 SF.
TOTAL BUILDING AT END OF CONSTRUCTION: 11,597+10,092=21,689 SF
MINIMUM LANDSCAPE SURFACE AREA: 15% - 0.396 AC
OPEN SPACE SF REQUIRED: 5% - 0.13 AC (+/- 5,750 SF)
TREE CANOPY RETENTION ACREAGE:
REQUIRED: 14% - .07 ACRES
PROVIDED: 11.3% - 0.06 AC
MINIMUM PARKING
REQUIRED: 58 (4: HC PARKING STALLS) 2 SPACES/1,000 SF + 1 PER SERVICE BAY)
PARKING PROVIDED: 87 (58 REGULAR PARKING + 29 INVENTORY PARKING SPACES)
HISTORIC RESOURCE: N/A

BICYCLE PARKING:
REQUIREMENT :1 SPACE PER 20 VEHICLE SPACES
VEHICLE SPACES: 87
BICYCLE PARKING REQUIRED: 5 SPACES
BICYCLE PARKING PROVIDED: 7 SPACES

PROJECT TO BE CONSTRUCTED IN A SINGLE PHASE WITH AN APPROXIMATE COMMENCEMENT OF WINTER OF 2022 TO SPRING OF 2024



SITE VICINITY MAP (NTS)

VESTING DEVELOPMENT STANDARDS
PRE-APPLICATION SUBMITTAL DATE: 03/24/2023

DEVELOPMENT STANDARD	VERSION/DATE
ZONING ORDINANCE	1/1/2023
SUBDIVISION REGULATIONS	1/1/2022
TRANSPORTATION & STREET TECHNICAL STANDARDS	7/1/2022
STORMWATER BMP MANUAL	7/1/2021
TECHNICAL SPECIFICATIONS FOR UTILITY INSTALLATION	10/13/2020
MUNICIPAL CODE	12/22/2022

KVD PROJECT# : 22049
COF # : 8162
Sheet #:
CVR
DATE: 05-04-2023

LEGEND

- Stamped "TWM INC" Iron Pin Set (IPS) With Cap
- Property Corner Found As Noted
- Found Concrete Monument
- GV — Gas Valve
- Light Pole
- E — Electrical Splice Box
- Utility Stub-out
- ICV — Irrigation Control Valve
- BM — Site Benchmark
- WM — Water Meter
- Storm Inlet
- BM — Site Benchmark
- WM — Water Meter
- FH — Fire Hydrant
- Sanitary Sewer Manhole
- STM — Storm Sewer Manhole
- Storm Inlet
- HAND — Communication Handhole
- TELE — Telephone Pedestal
- Storm Area Drain
- Sign
- PIV — Post Indicator Valve
- Lamp Pole
- WV — Water Valve

- PG — Page
- PB — Plat Book
- P.VMT. — Pavement
- R.O.W.C. — Register's Office for Williamson County
- Existing Fenceline
- Boundary Line
- Adjoiner Lot Line
- Centerline of Road
- Easement Line (as noted)
- Easement Line (as noted)
- Existing Contour Minor
- Existing Contour Major
- G — Gas Line
- UE — Underground Electric Line
- SAN — Sanitary Sewer Pipe
- STM — Storm Sewer Pipe
- W — Water Line
- Asphalt
- Ingress, Egress Easement

TT OF NASHVILLE PROPERTY LLC TAX MAP 53
PARCEL 122.20
D.B. 5641–PG. 464

LOT 684

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP
53 PARCEL 122.21
D.B. 5322–PG.622

LOT 687

REVISION 1 – COOL SPRINGS EAST SUBDIVISION
– SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

SURVEY NOTE:
EXISTING CONDITIONS BASED OF A GROUND RUN TOPOGRAPHIC SURVEY PREPARED BY TWM, DATED 8-3-22 . THE BASIS OF BEARING FOR THIS SURVEY IS TENNESSEE COORDINATE SYSTEM OF 1983. THE VERTICAL DATUM IS NAVD88. ONSITE CIVIL GROUP LLC TAKES NO LIABILITY FOR THE ACCURACY OF THIS SURVEY. CONTRACTORS AND SUB-CONTRACTORS A RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.

PROPERTY LINE

N36°16'14"E 347.78'

NT12°37'E 197.32'

N62°47'25"W 211.50'

S53°39'39"E 242.97'

S36°47'55"W 247.87'

DISTURBED AREA=1.21 ACRES

ZONED RC6
(REGIONAL COMMERCE 6 DISTRICT)

FINISH FLOOR ELEVATIONS:
(A)740.02
(B)740.06
(C)740.10
(D)740.08
(E)740.01

EXISTING HYUNDAI AUTOMOBILE DEALERSHIP

EXISTING OWS (TO BE REMOVED)

COMTIDE COURT
(PRIVATE)

MARKET EXCHANGE COURT
(LOCAL) (50' R.O.W.
– P.B. P41, PG. 26)

LC=137.74', R=275.00'
ARC=139.22'
CH=S21° 47' 44"W

LC=36.25', R=200.00'
ARC=36.30'
CH=S31° 05' 59"W

TT OF MZ COOL SPRINGS PROP LLC TAX
MAP 53 PARCEL 122.24
D.B. 5322–PG. 566

LOT 682

REVISION 1 – COOL SPRINGS EAST
SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC
TAX MAP 53 PARCEL 122.21
D.B.5322–PG. 622

TT OF NASHVILLE
PROPERTY LLC
TAX MAP 53
PARCEL 122.20
D.B. 5641–PG.464

LOT 684

REVISION 1 – COOL
SPRINGS EAST SUBDIVISION
– SECTION 33
RESUBDIVISION OF LOTS
682–689
P.B. 41 – PG. 26

SPECIAL UTILITY NOTE:

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9. Minimum Building Setbacks as shown per Final Plat. Contractor to verify prior to construction.

October 9, 2022

RE: Comtide Court Redevelopment (the "Project")

To whom it may concern,

Please let this letter serve as authorization, that **TT of INF Cool Springs Prop LLC and TT of Nashville Property LLC**, LLC hereby authorizes **TT of HY Cool Springs LLC (Proposed Genesis)** access to its property for the purposes of inspection, survey, and development associated with the foregoing redevelopment Project. Should you have any questions regarding the foregoing please do not hesitate to contact me directly.

Very truly yours,

TT of INF Cool Springs Prop LLC
TT of Nashville Property LLC

By:_____
John J. Kendrick III, Esq.
Assistant General Counsel

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 591-340, MILTON, GA 30004
PHONE: 678-605-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL
REGISTERED ENGINEER
LICENSE
AGRICULTURE
COMMERCE
No. 124450
STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

EXISTING CONDITIONS

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 1.0

LEGEND

- Stamped "TWM INC" Iron Pin Set (IPS) With Cap
- Property Corner Found As Noted
- Found Concrete Monument
- GV — Gas Valve
- Light Pole
- E — Electrical Splice Box
- Utility Stub-out
- ICV — Irrigation Control Valve
- BM — Site Benchmark
- WM — Water Meter
- Storm Inlet
- BM — Site Benchmark
- WM — Water Meter
- Fire Hydrant
- Sanitary Sewer Manhole
- STM — Storm Sewer Manhole
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- HAND — Communication Handhole
- TELE — Telephone Pedestal
- Storm Area Drain
- Sign
- PIV — Post Indicator Valve
- Lamp Pole
- WV — Water Valve

- PG — Page
- PB — Plat Book
- P.VMT. — Pavement
- R.O.W.C. — Register's Office for Williamson County
- Existing Fenceline
- Boundary Line
- Adjoiner Lot Line
- Centerline of Road
- Easement Line (as noted)
- Easement Line (as noted)
- Existing Contour Minor
- Existing Contour Major
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TT OF NASHVILLE PROPERTY LLC TAX MAP 53
PARCEL 122.20
D.B. 5641–PG. 464

LOT 684

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RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP
53 PARCEL 122.21
D.B. 5322–PG.622

LOT 687

REVISION 1 – COOL SPRINGS EAST SUBDIVISION
– SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF NASHVILLE PROPERTY LLC TAX MAP 53 PARCEL 122.20 D.B. 5641–PG.464

LOT 684

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TT OF MZ COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.24 D.B. 5322–PG. 566

LOT 682

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TT OF INF COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.21 D.B.5322–PG. 622

MARKET EXCHANGE COURT (LOCAL) (50' R.O.W. – P.B. P41, PG. 26)

COMTIDE COURT (PRIVATE)

PROPERTY LINE

N36°16'14"E 347.78'

NT12°37'E 197.32'

N82°47'59"W 217.50'

S53°39'39"E 242.97'

S36°47'55"W 347.87'

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ARC=139.22'
CH=S21° 47' 44"W

LC=36.25', R=200.00'
ARC=36.30'
CH=S31° 05' 59"W

REMOVE ISLAND, CURB, AND STRIPING FOR PHASE 1.

COORDINATE WITH ARCHITECTURAL (REF) PLANS ON DEMOLITION AND ADDITIONS INSIDE THE BUILDING.

EXISTING OWS (TO BE REMOVED)

REMOVE EXISTING OWS FOR PHASE 1 CONSTRUCTION AND REROUTE PER C601.

REMOVE ISLAND, CURB, AND STRIPING FOR PHASE 1.

FINISH FLOOR ELEVATIONS:
(A)740.02
(B)740.06
(C)740.10
(D)740.08
(E)740.01

EXISTING HYUNDAI AUTOMOBILE DEALERSHIP

EXISTING SIDEWALK

ELECTRICAL EQUIPMENT

DUMPSTER ENCLOSURE

P.U.D.E.

60' INGRESS/EGRESS & P.U.D.E. ESMT.

5' ACCESS ESMT.

M.V.U.D. ESMT. BK. 3515, PG. 92

PRIVATE WATERLINE EASEMENT

WATERLINE SHOWN PER P.B. P41, PG26 (NOT FIELD LOCATED)

SSMH: TC=737.65 IE=724.77 8"VCP (N) IE=726.43 8"VCP (E) IE=726.33 8"PVC (S) IE=724.79 6"PVC (W)

SSMH: TC=731.74 IE=720.88 10"VCP (N) IE=720.99 8"PVC (S) IE=720.94 6"PVC (W)

SSMH: TC=728.64 IE=719.29 10"VCP (N) IE=719.29 8"VCP (SW) IE=719.29 8"VCP (SE)

DROP INLET: TC=731.07 IE=725.94 (BOTTOM OF BOX)

DROP INLET: TC=727.47 IE=722.57 30"RCP (E) IE=722.57 30"RCP (W) IE=722.87 12"PVC (S)

DROP INLET: TC=733.30 IE=728.05 18"RCP (N)

SITE BENCHMARK MAGNAIL IN ASPHALT ELEV.=729.26

CULVERT HEAD WALL: IE=724.28 30"RCP (W)

CULVERT HEAD WALL: IE=727.60 30"RCP (E)

FOUND 5/8" REBAR CAPPED "RAGAN SMITH & ASSOCIATES

DROP INLET: TC=732.98 IE=728.48 30"RCP

DROP INLET: TC=733.65 IE=728.45 30"RCP

FOUND MAG NAIL IN CONC.

SSMH: TC=744.71 (INVERTS INACCESSIBLE)

FOUND 1/2" REBAR CAPPED "RAGAN SMITH & ASSOCIATES

SET MAG NAIL W/WASHER STAMPED TWM–INC

EDGE OF PAVEMENT

FACE OF CURB

BACK OF CURB

FOUND 1/2" REBAR CAPPED "RAGAN SMITH & ASSOCIATES

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JARRETT M. SENKBEIL
REGISTERED ENGINEER
LICENSE
No. 124430
STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENTSIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

DEMOLITION PLAN
PHASE 1

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 1.01

LEGEND

- Stamped "TWM INC" Iron Pin Set (IPS) With Cap
- Property Corner Found As Noted
- Found Concrete Monument
- GV — Gas Valve
- Light Pole
- E — Electrical Splice Box
- Utility Stub-out
- ICV — Irrigation Control Valve
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- TELE — Telephone Pedestal
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- Easement Line (as noted)
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TT OF NASHVILLE PROPERTY LLC TAX MAP 53
PARCEL 122.20
D.B. 5641–PG. 464

LOT 684

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RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP
53 PARCEL 122.21
D.B. 5322–PG.622

LOT 687

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– SECTION 33
RESUBDIVISION OF LOTS 682–689
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NT12°37'E 197.32'

S53°39'39"E 242.97'

S36°47'55"W 247.87'

DISTURBED AREA=1.21 ACRES

REMOVE EXISTING SIDEWALK, PARKING SPACES, AND IMPERVIOUS SURFACE.

NEW LANDSCAPE ISLAND FOR PHASE 1.

AREA TO BE MILLED AND REPAVED. NO DISTURBANCE PROPOSED IN THIS AREA.

REMOVE ISLAND AND CURB.

EXISTING SIDEWALK

FINISH FLOOR ELEVATIONS:
(A)740.02
(B)740.06
(C)740.10
(D)740.08
(E)740.01

PHASE 1 BLDG. CONSTRUCTION. (COORDINATE DIMENSIONS WITH ARCHITECTURAL.)

192.1'

8'10"

BUILDING OVERHANG

GATE POST

GATE MOTOR

UPLIGHT

DUMPSTER ENCLOSURE

EXISTING SIDEWALK

EXISTING SIDEWALK

EXISTING SIGN TO BE REMOVED.

LC=137.74', R=275.00'
ARC=139.22'
CH=S21° 47' 44"W

LC=36.25', R=200.00'
ARC=36.30'
CH=S31° 05' 59"W

MARKET EXCHANGE COURT
(LOCAL) (50' R.O.W.
– P.B. P41, PG. 26)

COMTIDE COURT
(PRIVATE)

N62°47'25"W 211.39'

INFINITI

P.U.D.E.

LANDSCAPING

GRASS

TOE OF SLOPE

TOP OF BANK

RET. WALL

HANDRAIL

CONC./ROCK SIGN PAD

WATERLINE SHOWN PER P.B. P41, PG26 (NOT FIELD LOCATED)

SSMH: TC=737.65 IE=724.77 8"VCP (N) IE=726.43 8"VCP (E) IE=726.33 8"PVC (S) IE=724.79 6"PVC (W)

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SET MAG NAIL W/WASHER STAMPED TWM–INC

M.V.U.D. ESMT. BK. 3515, PG. 92

M.V.U.D. ESMT. BK. 3515, PG. 92

40' INGRESS/EGRESS & P.U.D.E. ESMT.

60' INGRESS/EGRESS & P.U.D.E. ESMT.

5' ACCESS ESMT.

PRIVATE WATERLINE EASEMENT

WATERLINE TYPICAL

WATERLINE SHOWN PER P.B. P41, PG26 (NOT FIELD LOCATED)

CENTERLINE

PAINT WIDTH

R.O.W. WIDTH

EDGE OF PAVEMENT

FACE OF CURB

BACK OF CURB

TT OF MZ COOL SPRINGS PROP LLC TAX
MAP 53 PARCEL 122.24
D.B. 5322–PG. 566

LOT 682

REVISION 1 – COOL SPRINGS EAST
SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
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TT OF INF COOL SPRINGS PROP LLC
TAX MAP 53 PARCEL 122.21
D.B.5322–PG. 622

TT OF NASHVILLE
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TAX MAP 53
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– SECTION 33
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WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL
REGISTERED ENGINEER
LICENSE
No. 124450
STATE OF TENNESSEE

REVISIONS		
No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

DEMOLITION PLAN
FINAL PHASE

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 1.02

SITE PLAN NOTES:

1. PARKING REQUIREMENTS:

   PARKING REQUIRED PER COF VEHICLE SALES AND RENTAL: (2 SPACES PER 1,000 SF + 1 SPACE PER SERVICE BAY.)
   BUILDING = 21,689 SF / 1,000 = 21.7 * 2 = 44 PARKING SPACES + 14 SERVICE BAYS = 58 PARKING SPACES.

87 TOTAL PARKING SPACES PROVIDED>58 PARKING SPACES REQUIRED (4 ADA PARKING SPACES REQUIRED).

NOTE:
PERFORMANCE CALCULATIONS - SURETIES ARE CALCULATED FROM THE SITE PLAN AND APPROVED DURING THE SITE PLAN APPROVAL PROCESS. SURETIES SHALL BE POSTED PRIOR TO OBTAINING A BUILDING PERMIT. WHERE A BUILDING PERMIT IS NOT EXPECTED, SURETIES SHALL BE POSTED PRIOR TO OBTAINING A GRADING PERMIT. IF A FINAL PLAT IS APPROVED AT ANY TIME DURING THE DEVELOPMENT PROCESS, ALL SURETIES WILL BE TRANSFERRED TO SAID PLAT AS A CONDITION OF APPROVAL. SURETIES POSTED SHOULD INCLUDE PUBLIC INFRASTRUCTURE, EROSION CONTROL, STREET ACCESS, AND ALL NECESSARY REPAIRS FOR WORK COMPLETED WITHIN THE PUBLIC RIGHT-OF-WAY, ANY DRIVEWAY OR RELATED ENCROACHMENT ON CITY OF FRANKLIN RIGHT-OF-WAY, INCLUDING THE MODIFICATION, REVISION, OR CHANGE IN USE OF ANY EXISTING DRIVEWAY FACILITIES, SHALL REQUIRE A STREET ACCESS SURETY. A 10% CONTINGENCY IS APPLIED TO EACH SURETY CATEGORY. EPSC IS BASED ON A FLAT $7,500 PER ACRE OF DISTURBED AREA AND IS DISTRIBUTED PROPORTIONALLY ACROSS ALL SURETY CATEGORIES.

ADVISORY NOTES:
1. SIGNAGE IS NOT REVIEWED OR APPROVED WITH THE SITE PLAN. THIS IS A SEPARATE SUBMITTAL AND APPROVAL PROCESS.
2. STAFF NOTICES THAT THE AREA IS STILL LABELED "SERVICE". BE ADVISED THAT SHOULD DOORS BE INSTALLED IN THE FUTURE, A NOTICE OF VIOLATION WILL BE ISSUED AS IT WOULD NOT BE COMPLIANT WITH THE REQUIREMENTS OF THE ZONING ORDINANCE.

TT OF NASHVILLE PROPERTY LLC TAX MAP 53
PARCEL 122.20
D.B. 5641–PG. 464

LOT 684

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.21
D.B. 5322–PG.622

LOT 687

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

PROPERTY LINE

P.U.D.E.

N36°16'14"E 347.78'

N7°12'37"E 197.32'

N82°47'23"W 217.50'

S53°39'39"E 242.97'

S36°17'55"W 247.87'

LC=137.74', R=275.00'
ARC=139.22'
CH=S21° 47' 44"W

LC=36.25', R=200.00'
ARC=36.30'
CH=S31° 05' 59"W

NEW LANDSCAPE ISLAND FOR PHASE 1.

PHASE 1 BLDG. CONSTRUCTION. (COORDINATE DIMENSIONS WITH ARCHITECTURAL.)

EXISTING STRUCTURE

PROPOSED ADDITION PHASE 1

FINISH FLOOR ELEVATIONS:
(A)740.02
(B)740.06
(C)740.08
(D)740.08
(E)740.01

NO CROSS ACCESS TO BE PROVIDED DUE TO REQUIRED SLOPES AND STORMWATER FLOW.

CROSS ACCESS SHALL BE PROVIDED IF/WHEN THE ADJACENT SITE IS REDEVELOPED. CURRENTLY EXISTING SLOPES DO NOT ALLOW FOR PRACTICABLE ACCESS CONSTRUCTION TO PROPERTY LINE. IF THE 5 PROPOSED PARKING SPACES ARE DELETED DUE TO THE REQUIRED CROSS-ACCESS, PARKING REQUIREMENTS ARE STILL BEING MET FOR THE DEVELOPMENT.

TT OF MZ COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.24
D.B. 5322–PG. 566

LOT 682

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.21
D.B.5322–PG. 622

TT OF NASHVILLE PROPERTY LLC TAX MAP 53 PARCEL 122.20
D.B. 5641–PG.464

LOT 684

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

MARKET EXCHANGE COURT
(LOCAL) (50' R.O.W.
– P.B. P41, PG. 26)

COMTIDE COURT
(PRIVATE)

NISSAN

INFINITI

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 501-340, MILTON, GA 30004
PHONE: 678-905-3347
WWW.ONSITECIVIL.COM
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JARRETT M. SENKBEIL
REGISTERED ENGINEER
STATE OF TENNESSEE
LICENSE
No. 124450
PROFESSIONAL ENGINEER
STATE OF TENNESSEE

REVISIONS

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COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

SITE PLAN
PHASE 1

DATE:	5-4-23
PROJECT:	22-030

SHEET: C 2.0

SITE PLAN NOTES:

1. PARKING REQUIREMENTS:

   PARKING REQUIRED PER COF VEHICLE SALES AND RENTAL: (2 SPACES PER 1,000 SF + 1 SPACE PER SERVICE BAY.)
   BUILDING = 21,689 SF / 1,000 = 21.7 * 2 = 44 PARKING SPACES + 14 SERVICE BAYS = 58 PARKING SPACES.

87 TOTAL PARKING SPACES PROVIDED>58 PARKING SPACES REQUIRED (4 ADA PARKING SPACES REQUIRED).

IF 5 PARKING SPACES ARE REMOVED DUE TO THE CROSS ACCESS REQUIREMENT, 82 PARKING SPACES WILL BE PROVIDED AND ONLY 58 PARKING SPACES ARE REQUIRED.

NOTE:
PERFORMANCE CALCULATIONS - SURETIES ARE CALCULATED FROM THE SITE PLAN AND APPROVED DURING THE SITE PLAN APPROVAL PROCESS. SURETIES SHALL BE POSTED PRIOR TO OBTAINING A BUILDING PERMIT. WHERE A BUILDING PERMIT IS NOT EXPECTED, SURETIES SHALL BE POSTED PRIOR TO OBTAINING A GRADING PERMIT. IF A FINAL PLAT IS APPROVED AT ANY TIME DURING THE DEVELOPMENT PROCESS, ALL SURETIES WILL BE TRANSFERRED TO SAID PLAT AS A CONDITION OF APPROVAL. SURETIES POSTED SHOULD INCLUDE PUBLIC INFRASTRUCTURE, EROSION CONTROL, STREET ACCESS, AND ALL NECESSARY REPAIRS FOR WORK COMPLETED WITHIN THE PUBLIC RIGHT-OF-WAY. ANY DRIVEWAY OR RELATED ENCROACHMENT ON CITY OF FRANKLIN RIGHT-OF-WAY, INCLUDING THE MODIFICATION, REVISION, OR CHANGE IN USE OF ANY EXISTING DRIVEWAY FACILITIES, SHALL REQUIRE A STREET ACCESS SURETY. A 10% CONTINGENCY IS APPLIED TO EACH SURETY CATEGORY. EPSC IS BASED ON A FLAT $7,500 PER ACRE OF DISTURBED AREA AND IS DISTRIBUTED PROPORTIONALLY ACROSS ALL SURETY CATEGORIES.

ADVISORY NOTES:
1. SIGNAGE IS NOT REVIEWED OR APPROVED WITH THE SITE PLAN. THIS IS A SEPARATE SUBMITTAL AND APPROVAL PROCESS.
2. STAFF NOTICES THAT THE AREA IS STILL LABELED "SERVICE". BE ADVISED THAT SHOULD DOORS BE INSTALLED IN THE FUTURE, A NOTICE OF VIOLATION WILL BE ISSUED AS IT WOULD NOT BE COMPLIANT WITH THE REQUIREMENTS OF THE ZONING ORDINANCE.

TT OF NASHVILLE PROPERTY LLC TAX MAP 53 PARCEL 122.20 D.B. 5641–PG. 464

LOT 684

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33 RESUBDIVISION OF LOTS 682–689 P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.21 D.B. 5322–PG.622

LOT 687

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33 RESUBDIVISION OF LOTS 682–689 P.B. 41 – PG. 26

TT OF MZ COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.24 D.B. 5322–PG. 566

LOT 682

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33 RESUBDIVISION OF LOTS 682–689 P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.21 D.B.5322–PG. 622

MARKET EXCHANGE COURT (LOCAL) (50' R.O.W. – P.B. P41, PG. 26)

COMTIDE COURT (PRIVATE)

INFINITI

NISSAN

RECON

PROPERTY LINE

GREEN INFRASTRUCTURE EASEMENT (GIE)

CROSS ACCESS EASEMENT

P.U.D.E.

WATER QUALITY SWALE

BIORETENTION AREA

KEY-PAD

SIGN TO BE PLACED ON THE BLDG. STATING "NO PARKING"

13 CUSTOMER PARKING

TOTAL PARKING 87

RIBBON CURB TO ALLOW STORMWATER TO FLOW OVER PRETREATMENT AND INTO THE WATER QUALITY SWALE.

HEAVY DUTY CONCRETE

NEW LANDSCAPE ISLAND FOR PHASE 1.

PROPOSED ADDITION PHASE 2

PROPOSED ADDITION PHASE 1

EXISTING STRUCTURE

PHASE 1 BLDG. CONSTRUCTION. (COORDINATE DIMENSIONS WITH ARCHITECTURAL.)

FRONT OF PROPOSED BLDG.

AREA TO BE MILLED AND REPAVED WITH NEW CONCRETE. BASE TO REMAIN IN PLACE.

EXISTING 6" SANITARY SEWER LINE.

DUMPSTER ENCLOSURE

6" HIGH CURB TO ROUTE WATER TO FLUME AND INTO FOREBAY.

CLEANOUT SHALL BE INSTALLED ON THE EXISTING SS LINE WHEN IT CROSSES THE PROPERTY LINE.

5' WIDE PUBLIC ACCESS EASEMENT (PAE)

60' INGRESS/EGRESS & P.U.D.E. ESMT.

PRIVATE WATERLINE EASEMENT

CROSS ACCESS SHALL BE PROVIDED IF/WHEN THE ADJACENT SITE IS REDEVELOPED. CURRENTLY EXISTING SLOPES DO NOT ALLOW FOR PRACTICABLE ACCESS CONSTRUCTION TO PROPERTY LINE. IF THE 5 PROPOSED PARKING SPACES ARE DELETED DUE TO THE REQUIRED CROSS-ACCESS, PARKING REQUIREMENTS ARE STILL BEING MET FOR THE DEVELOPMENT.

GREEN INFRASTRUCTURE EASEMENT (GIE) EASEMENTS SHALL EXTEND A MINIMUM OF 5' BEYOND TOP OF BERM ELEVATION.

SIGNAGE IS APPROVED BY A SEPARATE PROCESS. ALL SIGNS ARE NOT APPROVED AS PART OF THE REVIEW OF THIS SITE PLAN.

PUDE ALONG THE EAST PROPERTY LINE SHALL BE REVISED TO A PUDAE, DUE TO SIDEWALK INCLUDED IN THIS EXISTING EASEMENT.

NO CROSS ACCESS TO BE PROVIDED DUE TO REQUIRED SLOPES AND STORMWATER FLOW.

DISTURBED AREA=1.21 ACRES

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 501-340, MILTON, GA 30004
PHONE: 678-905-3347
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JARRETT M. SENKBEIL — REGISTERED ENGINEER — AGRICULTURE — DATE: 5/5/23 — LICENSE No. 124455 — STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
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(GENISIS)
595 SOUTH FLAGER DRIVE
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COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

SITE PLAN
FINAL PHASE

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 2.1

TOPGARD Concrete Bollard Caps
Set it and forget it

TOPGARD Pipe Bollard Caps

Professional results at a lower cost than traditional hand finishing.

TopGard pipe bollard caps provide a class A form finish in a fraction of the time it takes to finish a pipe bollard by traditional hand-forming methods. With as much as 90% labor savings and no punch list, TopGard is a product made by contractors for contractors.



Before and After TopGard

TOPGARD concrete pipe bollard caps provide a superior *and* low cost alternative to traditional bollard hand finishing:

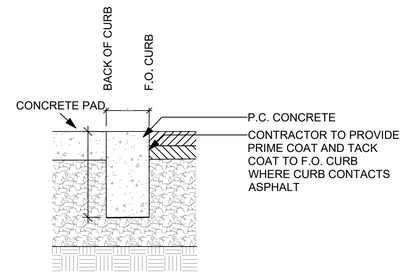
- Class A form finish
- Proprietary 5000 psi concrete reinforced with micro fibers
- Available in 4", 6", 8", and 12" sizes
- Patent pending wet-set design
- Up to 90% labor savings
- Overall savings of 10%+ vs. traditional methods
- Install in as little as 10 seconds
- No finisher needed

- No punch list
- Can also be retrofitted to existing bollards to eliminate the mistakes left behind by traditional methods

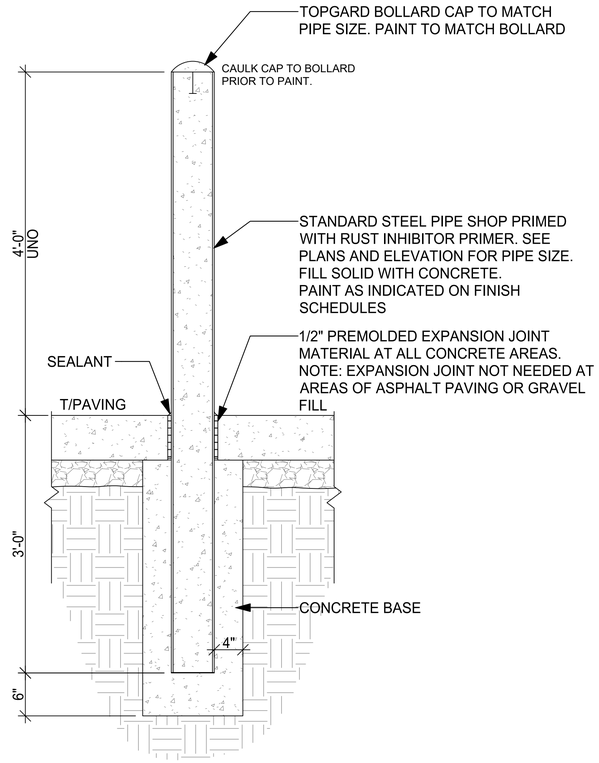
The TopGard pipe bollard cap is comprised of a proprietary 5000 psi concrete reinforced with micro fibers. This proprietary mix provides a finish unachievable by any traditional method. By utilizing the patent pending wet set design the Top Gard cap can be installed in as little as 10 seconds.

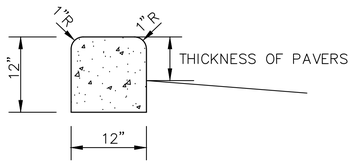
The TopGard cap can also be retrofitted to existing pipe bollards to eliminate the mistakes left behind by traditional methods.

Available for 4", 6", 8" and 12" diameter pipe bollards.



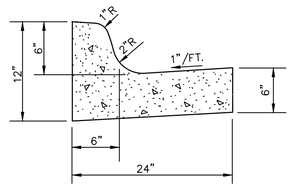
RIBBON CURB (CB-3)





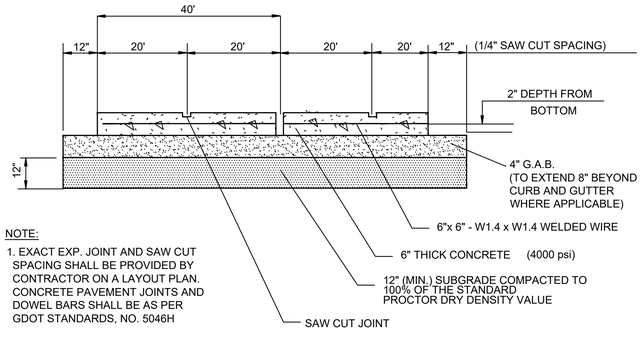
CONCRETE RIBBON CURB

NOT TO SCALE



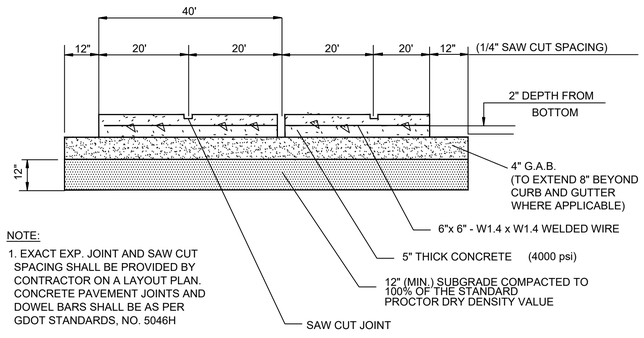
CONCRETE CURB AND GUTTER

NOT TO SCALE



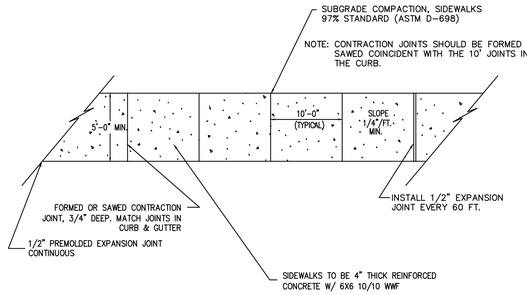
HEAVY DUTYCONCRETE PAVEMENT SECTION

NOT TO SCALE



CONCRETE PAVEMENT SECTION

NOT TO SCALE



PRIVATE PROPERTY SIDEWALK

NOT TO SCALE

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 501-340, MILTON, GA 30004
PHONE: 678-905-5347
WWW.ONSITECIVIL.COM
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JARRETT M. SENKBEIL
REGISTERED ENGINEER
STATE OF GEORGIA
CERTIFICATE
No. 124450
STATE OF TENNESSEE

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COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

SITE PLAN DETAILS

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 2.01

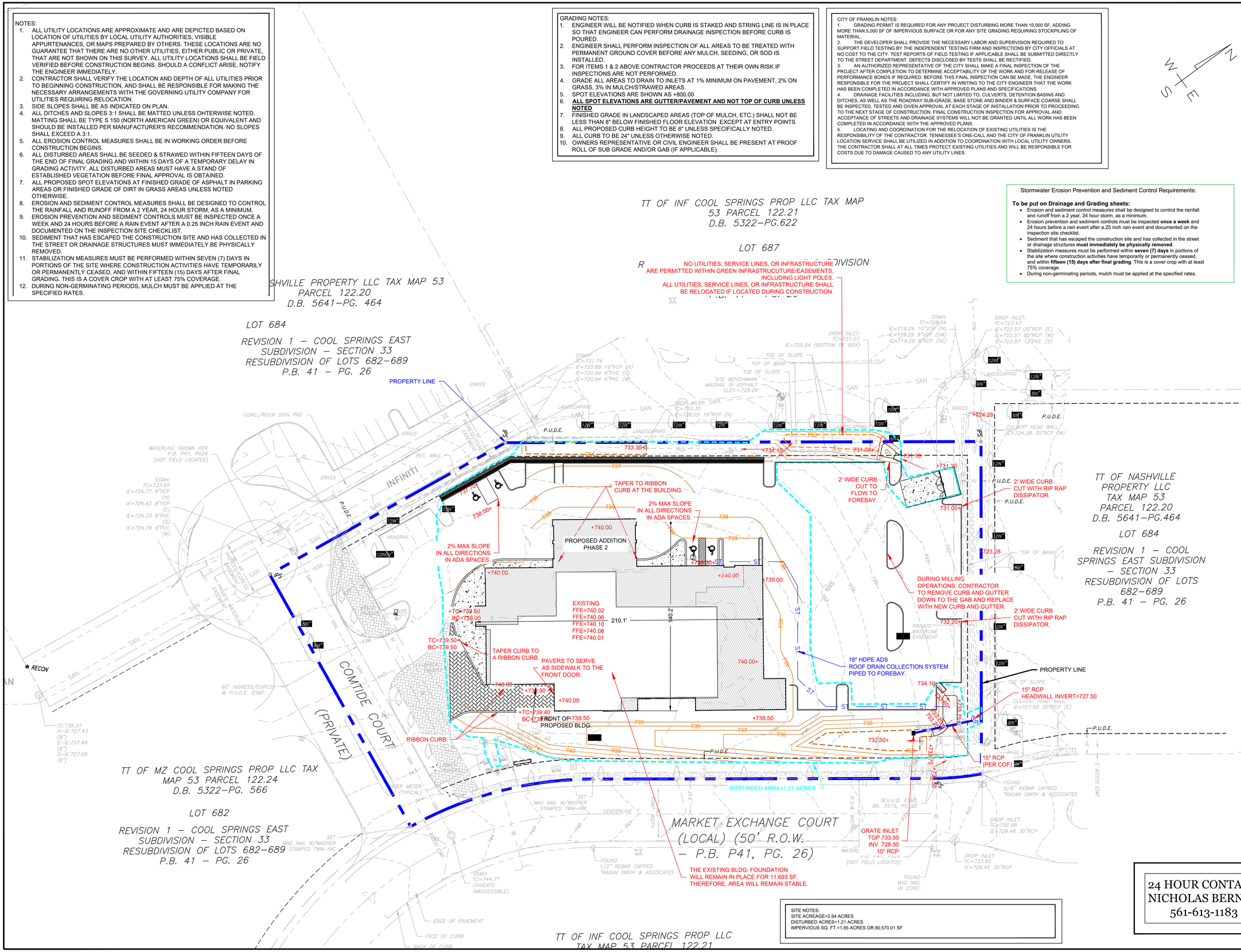
NOTES:
1. ALL UTILITY LOCATIONS ARE APPROXIMATE AND ARE DEPICTED BASED ON LOCATION OF UTILITIES BY LOCAL UTILITY AUTHORITIES, VISIBLE APPURTENANCES, OR MAPS PREPARED BY OTHERS. THESE LOCATIONS ARE NO GUARANTEE THAT THERE ARE NO OTHER UTILITIES, EITHER PUBLIC OR PRIVATE, THAT ARE NOT SHOWN ON THIS SURVEY. ALL UTILITY LOCATIONS SHALL BE FIELD VERIFIED BEFORE CONSTRUCTION BEGINS. SHOULD A CONFLICT ARISE, NOTIFY THE ENGINEER IMMEDIATELY.
2. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR MAKING THE NECESSARY ARRANGEMENTS WITH THE GOVERNING UTILITY COMPANY FOR UTILITIES REQUIRING RELOCATION.
3. SIDE SLOPES SHALL BE AS INDICATED ON PLAN.
4. ALL DITCHES AND SLOPES 3:1 SHALL BE MATTED UNLESS OHTERWISE NOTED. MATTING SHALL BE TYPE S 150 (NORTH AMERICAN GREEN) OR EQUIVALENT AND SHOULD BE INSTALLED PER MANUFACTURER'S RECOMMENDATION. NO SLOPES SHALL EXCEED A 3:1.
5. ALL EROSION CONTROL MEASURES SHALL BE IN WORKING ORDER BEFORE CONSTRUCTION BEGINS.
6. ALL DISTURBED AREAS SHALL BE SEEDED & STRAWED WITHIN FIFTEEN DAYS OF THE END OF FINAL GRADING AND WITHIN 15 DAYS OF A TEMPORARY DELAY IN GRADING ACTIVITY. ALL DISTURBED AREAS MUST HAVE A STAND OF ESTABLISHED VEGETATION BEFORE FINAL APPROVAL IS OBTAINED.
7. ALL PROPOSED SPOT ELEVATIONS AT FINISHED GRADE OF ASPHALT IN PARKING AREAS OR FINISHED GRADE OF DIRT IN GRASS AREAS UNLESS NOTED OTHERWISE.
8. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE DESIGNED TO CONTROL THE RAINFALL AND RUNOFF FROM A 2 YEAR, 24 HOUR STORM, AS A MINIMUM.
9. EROSION PREVENTION AND SEDIMENT CONTROLS MUST BE INSPECTED ONCE A WEEK AND 24 HOURS BEFORE A RAIN EVENT AFTER A 0.25 INCH RAIN EVENT AND DOCUMENTED ON THE INSPECTION SITE CHECKLIST.
10. SEDIMENT THAT HAS ESCAPED THE CONSTRUCTION SITE AND HAS COLLECTED IN THE STREET OR DRAINAGE STRUCTURES MUST IMMEDIATELY BE PHYSICALLY REMOVED.
11. STABILIZATION MEASURES MUST BE PERFORMED WITHIN SEVEN (7) DAYS IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, AND WITHIN FIFTEEN (15) DAYS AFTER FINAL GRADING. THIS IS A COVER CROP WITH AT LEAST 75% COVERAGE.
12. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES.

GRADING NOTES:
1. ENGINEER WILL BE NOTIFIED WHEN CURB IS STAKED AND STRING LINE IS IN PLACE SO THAT ENGINEER CAN PERFORM DRAINAGE INSPECTION BEFORE CURB IS POURED.
2. ENGINEER SHALL PERFORM INSPECTION OF ALL AREAS TO BE TREATED WITH PERMANENT GROUND COVER BEFORE ANY MULCH, SEEDING, OR SOD IS INSTALLED.
3. FOR ITEMS 1 & 2 ABOVE CONTRACTOR PROCEEDS AT THEIR OWN RISK IF INSPECTIONS ARE NOT PERFORMED.
4. GRADE ALL AREAS TO DRAIN TO INLETS AT 1% MINIMUM ON PAVEMENT, 2% ON GRASS, 3% IN MULCH/STRAWED AREAS.
5. SPOT ELEVATIONS ARE SHOWN AS +800.00
6. **ALL SPOT ELEVATIONS ARE GUTTER/PAVEMENT AND NOT TOP OF CURB UNLESS NOTED**
7. FINISHED GRADE IN LANDSCAPED AREAS (TOP OF MULCH, ETC.) SHALL NOT BE LESS THAN 8" BELOW FINISHED FLOOR ELEVATION EXCEPT AT ENTRY POINTS
8. ALL PROPOSED CURB HEIGHT TO BE 6" UNLESS SPECIFICALLY NOTED.
9. ALL CURB TO BE 24" UNLESS OTHERWISE NOTED.
10. OWNERS REPRESENTATIVE OR CIVIL ENGINEER SHALL BE PRESENT AT PROOF ROLL OF SUB GRADE AND/OR GAB (IF APPLICABLE).

CITY OF FRANKLIN 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.

Stormwater Erosion Prevention and Sediment Control Requirements:

To be put on Drainage and Grading sheets:
- Erosion and sediment control measures shall be designed to control the rainfall and runoff from a 2 year, 24 hour storm, as a minimum.
- Erosion prevention and sediment controls must be inspected **once a week** and 24 hours before a rain event after a.25 inch rain event and documented on the inspection site checklist.
- Sediment that has escaped the construction site and has collected in the street or drainage structures **must immediately be physically removed**.
- Stabilization measures must be performed within **seven (7) days** in portions of the site where construction activities have temporarily or permanently ceased, and within **fifteen (15) days after final grading**. This is a cover crop with at least 75% coverage.
- During non-germinating periods, mulch must be applied at the specified rates.



SITE NOTES:
SITE ACREAGE=2.64 ACRES
DISTURBED ACRES=1.21 ACRES
IMPERVIOUS SQ. FT.=1.85 ACRES OR 80,570.01 SF

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 591-349, MILTON, GA 30004
PHONE: 678-665-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL
REGISTERED ENGINEER
STATE OF TENNESSEE
No. 124450

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

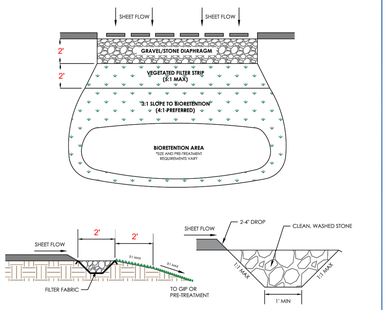
GRADING AND DRAINAGE PLAN

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 3.0

WEST STORMWATER TREATMENT:

1. STORMWATER QUALITY SWALES LEVEL 2 PRETREATMENT-SURFACE DRAINAGE WITH GRAVEL/STONE DIAPHRAGM/VEGETATED FILTER STRIP.



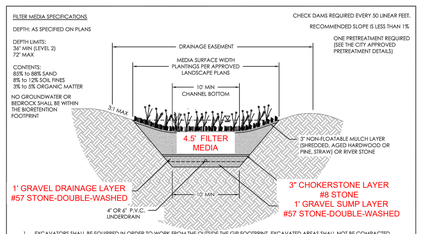
A GRAVEL DIAPHRAGM LOCATED AT THE EDGE OF THE PAVEMENT SHOULD BE ORIENTED PERPENDICULAR TO THE FLOW PATH TO PRE-TREAT LATERAL RUNOFF, AND SHALL RUN ALONG THE SAME CONTOUR AT THE TOP OF THE FILTER STRIP. A LAYER OF FILTER FABRIC SHOULD BE PLACED BETWEEN THE GRAVEL AND THE UNDERLYING SOIL TRENCH. IF THE CONTRIBUTING DRAINAGE AREA IS STEEP (6% OR GREATER), LARGER STONE SHOULD BE USED.

GRAVEL/STONE DIAPHRAGM NOTES:

1. A LAYER OF FILTER FABRIC SHALL BE PLACED BETWEEN THE GRAVEL AND THE UNDERLYING SOIL TRENCH
2. STONE SHALL BE SIZED ACCORDING TO THE EXPECTED RATE OF DISCHARGE

N.T.S.

Pre-Treatment (sheet flow) GRAVEL/STONE DIAPHRAGM (TITLE)	CITY OF FRANKLIN ENGINEERING 109 THIRD AVE SOUTH FRANKLIN, TN 37064	
PRE-02 (DWG.NO.)	DIRECTOR OF ENGINEERING	04/30/2021 (DATE)
07/01/2021 (EFFECTIVE DATE)	STORMWATER COORDINATOR	04/30/2021 (DATE)



1. EXCAVATORS SHALL BE EQUIPPED IN ORDER TO WORK FROM THE OUTSIDE THE GIP FOOTPRINT. EXCAVATED AREAS SHALL NOT BE COMPACTED OR LOADED IN ANY WAY AS TO CAUSE SOIL COMPACTION.
2. DURING EXCAVATION, MOIST CONDITIONS MAY CAUSE FINES TO CLOG THE NATIVE SOIL SURFACE OF THE FACILITY. IF THE NATIVE SOIL HAS BEEN EXPOSED TO RAINFALL OR IF SMEARING OCCURS, HAND RAKE THE SURFACE TO A DEPTH OF 3" TO RESTORE INFILTRATION CAPACITY.
3. DURING CONSTRUCTION PHASE, CONTRACTOR SHALL DIVERT RUNOFF FLOW AROUND THE GIP AREAS TO ENSURE SEDIMENT DOES NOT ENTER.
4. RECYCLED MATERIAL IS NOT AN APPROVED FOR USE IN GIP FACILITIES.
5. UTILITIES, INCLUDING IRRIGATION ARE PROHIBITED WITHIN THE GIP FOOTPRINT.

CONSTRUCTION SEQUENCING:

1. CONSTRUCT STORMWATER RUNOFF DIVERSIONS.
2. EXCAVATE GIP AREAS.
3. SCARIFY SUBGRADE BY RIPPING THE BOTTOM SOILS TO A DEPTH OF 12 INCHES PRIOR TO STONE PLACEMENT.
4. SCHEDULE GIP INSPECTION WITH CITY STORMWATER INSPECTOR AT (615) 791-3218.
5. INSTALL PERMEABLE GEOTEXTILE FABRIC.
6. INSTALL STONE LAYER, UNDERDRAIN PIPES, CONNECT TO OUTLET STRUCTURE.
7. SCHEDULE GIP INSPECTION WITH CITY STORMWATER INSPECTOR AT (615) 791-3218.
8. INSTALL ADDITIONAL STONE ON AND FLAG THE UNDERDRAIN (3 FT EACH SIDE).
9. A SMALL BOBCAT LOADER MAY TO BE USED FOR PLACEMENT OF ADDITIONAL SECTIONS AVOIDING THE UNDERDRAIN PIPE INSTALLATIONS.
10. DELIVER AND STORE SOIL MEDIA ON PLASTIC SHEETING WITH APPROPRIATE EROSION CONTROL MEASURES.
11. SCHEDULE GIP INSPECTION WITH CITY STORMWATER INSPECTOR AT (615) 791-3218.
12. ALLOW 48 HOURS SETTLEMENT. DO NOT COMPACT WITH EQUIPMENT.
13. ADD ADDITIONAL MEDIA AS NEEDED TO ACHIEVE THE DESIGN ELEVATIONS.
14. INSTALL VEGETATION, AND WATER ACCORDINGLY. PERMANENT IRRIGATION IS PROHIBITED IN GIP.
15. INSTALL SPECIFIED GROUNDCOVER.
16. FLAG LIMITS OF GIP FOR SURVEY LOCATE AND SHOW ON AS-BUILT PLANS.

N.T.S.

WATER QUALITY SWALE LEVEL 2 (TITLE)	CITY OF FRANKLIN ENGINEERING 109 THIRD AVE SOUTH FRANKLIN, TN 37064	
GIP-05 (02) (DWG.NO.)	DIRECTOR OF ENGINEERING	04/30/2021 (DATE)
07/01/2021 (EFFECTIVE DATE)	STORMWATER COORDINATOR	04/30/2021 (DATE)

TT OF INF COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.21 D.B. 5322–PG.622

LOT 687

R ...DIVISION

NO UTILITIES, SERVICE LINES, OR INFRASTRUCTURE ARE PERMITTED WITHIN GREEN INFRASTRUCUTURE/EASEMENTS, INCLUDING LIGHT POLES. ALL UTILITIES, SERVICE LINES, OR INFRASTRUCTURE SHALL BE RELOCATED IF LOCATED DURING CONSTRUCTION.

TT OF NASHVILLE PROPERTY LLC TAX MAP 53 PARCEL 122.20 D.B. 5641–PG. 464

LOT 684

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33 RESUBDIVISION OF LOTS 682–689 P.B. 41 – PG. 26

WEST Tv REQUIRED=1,249 CF REQUIRED SURFACE AREA=454 SF 776 SF PROVIDED.

WEST WATER QUALITY SWALE AREA

WEST 0.32 ACRES IMPERVIOUS 0.06 ACRES PERVIOUS

RAISE EXISTING INLET TOP TO 734.30 GROUND ELEVATION=733.30

PRETREATMENT GRAVEL/STONE DIAPHRAGM.

PROPERTY LINE

N36°16'14"E 347.78'

N17°23'17"E 197.32'

TAPER TO RIBBON CURB AT THE BUILDING.

2% MAX SLOPE IN ALL DIRECTIONS IN ADA SPACES.

PROPOSED ADDITION PHASE 2

NEW LANDSCAPE ISLAND FOR PHASE 1.

EXISTING FFE=740.02 FFE=740.06 FFE=740.10 FFE=740.08 FFE=740.01

210.1'

140.2'

PHASE 1 BLDG. CONSTRUCTION. (COORDINATE DIMENSIONS WITH ARCHITECTURAL.)

TAPER CURB TO A RIBBON CURB.

PAVERS TO SERVE AS SIDEWALK TO THE FRONT DOOR.

FRONT OF PROPOSED BLDG.

RIBBON CURB.

N83°47'23"W 211.30'

COMTIDE COURT (PRIVATE)

S36°47'56"W 247.87'

DISTURBED AREA=1.21 ACRES

LC=137.74', R=275.00' ARC=139.22' CH=S21° 47' 44"W

THE EXISTING BLDG. FOUNDATION WILL REMAIN IN PLACE FOR 11,693 SF. THEREFORE, AREA WILL REMAIN STABLE.

2' WIDE CURB CUT TO FLOW TO FOREBAY.

2' WIDE CURB CUT WITH RIP RAP DISSIPATOR.

DURING MILLING OPERATIONS, CONTRACTOR TO REMOVE CURB AND GUTTER DOWN TO THE GAB AND REPLACE WITH NEW CURB AND GUTTER.

18" HDPE ADS ROOF DRAIN COLLECTION SYSTEM PIPED TO FOREBAY.

15" RCP HEADWALL INVERT=727.50

15" RCP (PER COF)

LC=36.25', R=200.00' ARC=36.30' S31° 05' 59"W

GRATE INLET TOP 733.50 INV. 728.50 15" RCP

MARKET EXCHANGE COURT (LOCAL) (50' R.O.W. – P.B. P41, PG. 26)

TT OF NASHVILLE PROPERTY LLC TAX MAP 53 PARCEL 122.20 D.B. 5641–PG.464

LOT 684

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33 RESUBDIVISION OF LOTS 682–689 P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.24 D.B. 5322–PG. 566

LOT 682

...1 – COOL SPRINGS EAST ...VISION – SECTION 33 ...VISION OF LOTS 682–689 ...B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.21 D.B.5322–PG. 622

Treatment Volume (SD-1) (West)

The Water Quality Volume (WQv) was calculated as follows: WQv = 1.1*Rv*A/12, where Rv= 0.05 + 0.009(I) where I = percent of impervious cover (%)

Tv= 1,249 CF., which corresponds to a pond elevation of

Required Surface Area= 454 SF

776 SF PROVIDED

	DEPTH		
GRAVEL #57	0.4	2	0.8
CHOKER #8	0.4	0.25	0.1
SOIL MEDIA	0.25	4.5	1.125
SURFACE LAYER	0		0
SURFACE STORAGE	1	1	1
Equivalent Storage Depth			3.025

24 HOUR CONTACT: NICHOLAS BERNDT 561-613-1183

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JARRETT M. SENKBEIL REGISTERED ENGINEER STATE OF TENNESSEE LICENSE NO. 124450

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33; REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

WEST STORMWATER TREATMENT

DATE: 5-4-23

PROJECT: 22-030

SHEET: C 3.01

NORTH STORMWATER TREATMENT:

1. BIORETENTION LEVEL 2
   PRETREATMENT-CELL/FOREBAY

TT OF INF COOL SPRINGS PROP LLC TAX MAP
53 PARCEL 122.21
D.B. 5322–PG.622

LOT 687

REVISION 1 – COOL SPRINGS EAST SUBDIVISION
– SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

Treatment Volume (East) (Bioretention)

The Water Quality Volume (WQv) was calculated as follows: WQv = 1.25*Rv*A/12, where Rv= 0.05 + 0.009(I)
where I = percent of impervious cover (%)

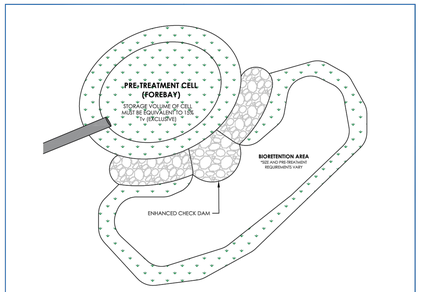
Tv= 1,845 CF., which corresponds to a pond elevation of

Required Surface
Area= 644 SF
976 SF PROVIDED

Forebay for outfall

15% Tv	2,794 CF
15% Tv=	419
Provided	446 CF

		DEPTH	
GRAVEL #57	0.4	2	0.8
CHOKER #8	0.4	0.25	0.1
BIORETENTION MEC	0.25	5	1.25
SURFACE LAYER	0		0
SURFACE STORAGE	1	1	1
	Equivalent Storage Depth		3.15

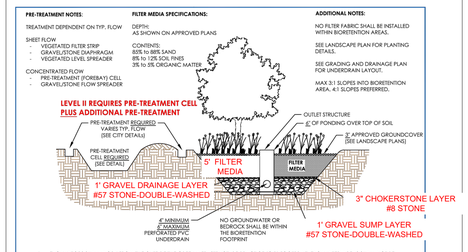


PRE-TREATMENT CELL NOTES:
1. LEVEL II REQUIRES PRE-TREATMENT CELL PLUS ADDITIONAL TREATMENT
2. FOREBAY STORAGE VOLUME = 15% OF TREATMENT VOLUME (Tv) (EXCLUSIVE)
3. DISSIPATION REQUIRED FOR EXPECTED RATES OF DISCHARGE
4. PRE-TREATMENT CELL MUST NOT INTERFERE WITH REQUIRED PONDING IN BIORETENTION AREAS
5. PRE-TREATMENT CELLS DO NOT REQUIRE UNDERLYING FILTER MEDIA



N.T.S.

TITLE: Pre-Treatment (concentrated flow) PRE-TREATMENT CELL/FOREBAY	CITY OF FRANKLIN ENGINEERING 109 THIRD AVE SOUTH FRANKLIN, TN 37064	
DWG.NO.: PRE-04	DIRECTOR OF ENGINEERING	DATE: 04/30/2021
EFFECTIVE DATE: 07/01/2021	STORMWATER COORDINATOR	DATE: 04/30/2021

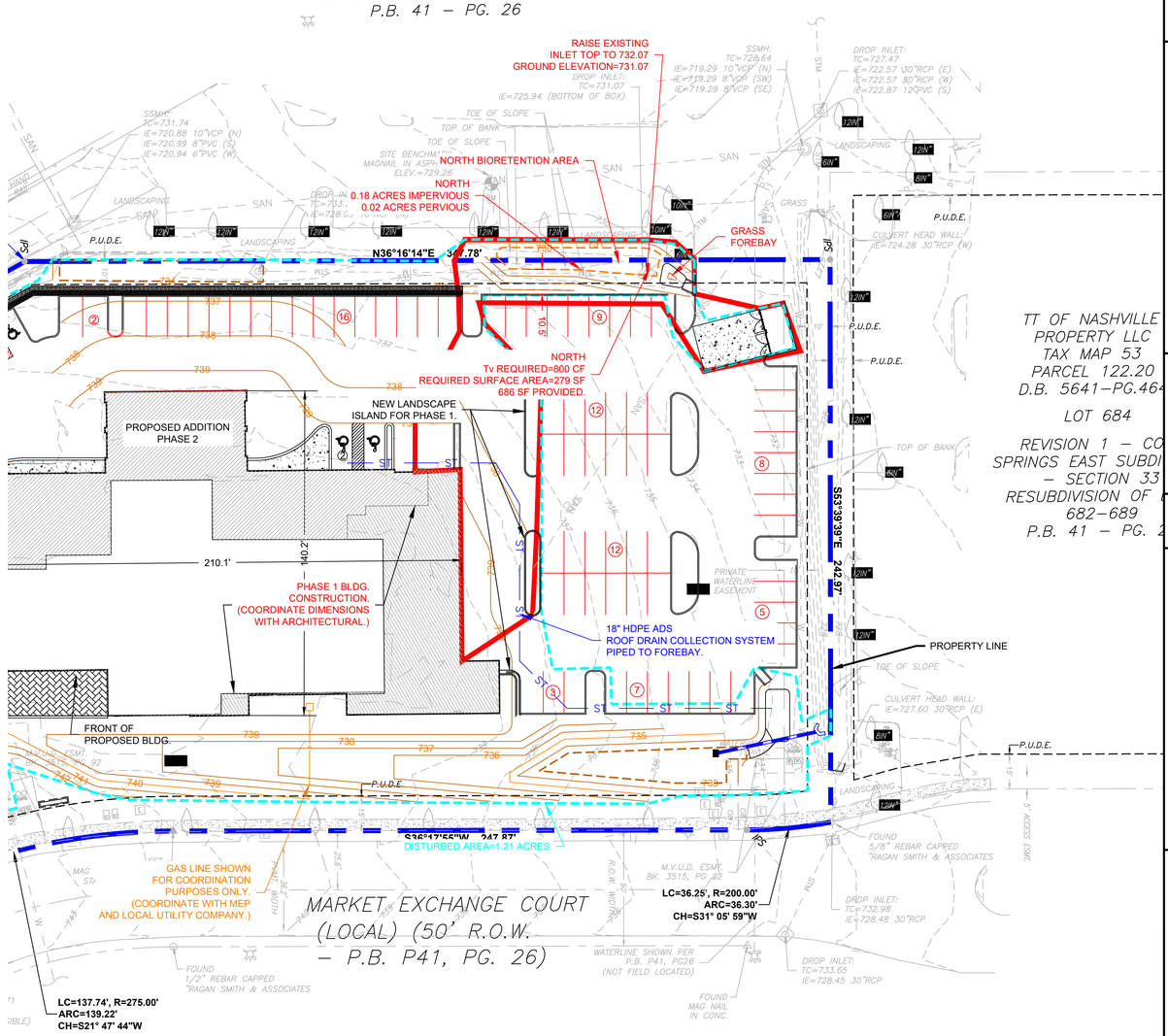


1. EXCAVATORS SHALL WORK FROM THE OUTSIDE THE GREEN INFRASTRUCTURE PRACTICE (GIP) FOOTPRINT. EXCAVATED AREAS SHALL NOT BE COMPACTED OR LOADED IN ANY WAY AS TO CAUSE SOIL COMPACTION.
2. DURING EXCAVATION, MOIST CONDITIONS MAY CAUSE FINES TO CLOG THE NATIVE SOIL SURFACE OF THE FACILITY. IF THE NATIVE SOIL HAS BEEN EXPOSED TO RAINFALL OR IF SMEARING OCCURS, HAND RAKE OR SCARIFY THE SURFACE TO A DEPTH OF 12" TO RESTORE INFILTRATION CAPACITY.
3. DURING CONSTRUCTION PHASE, CONTRACTOR SHALL DIVERT RUNOFF FLOW AROUND THE GIP AREAS TO ENSURE SEDIMENT DOES NOT ENTER.
4. RECYCLED MATERIAL IS NOT APPROVED FOR USE IN GIP FACILITIES.
5. UTILITIES AND IRRIGATION ARE PROHIBITED WITHIN THE GIP FOOTPRINT.
6. WATER QUALITY SIGNS SHALL BE INSTALLED IN ALL WATER QUALITY AREAS.

CONSTRUCTION SEQUENCING:
1. CONSTRUCT STORMWATER RUNOFF DIVERSIONS.
2. EXCAVATE GIP AREAS.
3. SCARIFY SUBGRADE BY RIPPING THE BOTTOM SOILS TO A DEPTH OF 12" PRIOR TO STONE PLACEMENT.
4. SCHEDULE GIP INSPECTION WITH CITY STORMWATER INSPECTOR AT **(615) 791-3218.**
5. INSTALL STONE SUBBASE AND UNDERDRAINS. CONNECT UNDERDRAIN TO OUTLET STRUCTURE.
6. SCHEDULE GIP INSPECTION WITH CITY STORMWATER INSPECTOR AT **(615) 791-3218.**
7. INSTALL ADDITIONAL STONE ON AND FLAG THE UNDERDRAIN (3' EACH SIDE).
8. A SMALL SKID STEER LOADER MAY TO BE USED FOR PLACEMENT OF ADDITIONAL SECTIONS AVOIDING THE UNDERDRAIN PIPE INSTALLATIONS.
9. DELIVER AND STORE SOIL MEDIA ON PLASTIC SHEETING WITH APPROPRIATE EROSION CONTROL MEASURES.
10. SCHEDULE GIP INSPECTION WITH CITY STORMWATER INSPECTOR AT **(615) 791-3218.**
11. ALLOW 48 HOURS SETTLEMENT. DO NOT COMPACT WITH EQUIPMENT.
12. ADD ADDITIONAL MEDIA AS NEEDED TO ACHIEVE THE DESIGN ELEVATIONS.
13. INSTALL VEGETATION, AND WATER ACCORDINGLY. PERMANENT IRRIGATION IS PROHIBITED IN GIP.
14. INSTALL SPECIFIED GROUNDCOVER.
15. FLAG LIMITS OF GIP FOR SURVEY LOCATE AND SHOW ON AS-BUILT PLANS.

N.T.S.

TITLE: BIORETENTION LEVEL 2	CITY OF FRANKLIN ENGINEERING 109 THIRD AVE SOUTH FRANKLIN, TN 37064	
DWG.NO.: GIP-01 (02)	DIRECTOR OF ENGINEERING	DATE: 04/30/2021
EFFECTIVE DATE: 07/01/2021	STORMWATER COORDINATOR	DATE: 04/30/2021



TT OF INF COOL SPRINGS PROP LLC
TAX MAP 53 PARCEL 122.21
D.B.5322–PG. 622

TT OF NASHVILLE PROPERTY LLC
TAX MAP 53
PARCEL 122.20
D.B. 5641–PG.464

LOT 684

REVISION 1 – CO
SPRINGS EAST SUBDI
– SECTION 33
RESUBDIVISION OF
682–689
P.B. 41 – PG. 2

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 591-340, MILTON, GA 30004
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JARRETT M. SENKBEIL
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 124455
STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
595 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

NORTH STORMWATER TREATMENT

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 3.02

EAST STORMWATER TREATMENT:

1. BIORETENTION LEVEL 2
   PRETREATMENT-CELL/FOREBAY
   PRETREATMENT-GRAVEL/STONE FLOW SPREADER

Treatment Volume (North) (Bioretention)

The Water Quality Volume (WQv) was calculated as follows: WQv = 1.25*Rv*A/12, where Rv= 0.05 + 0.009(I) where I = percent of impervious cover (%)

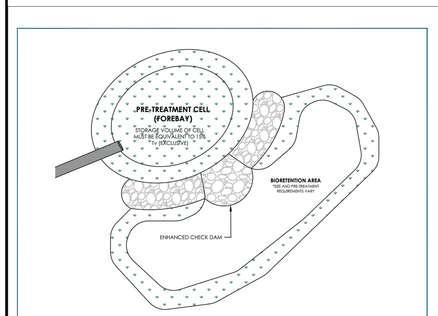
Tv= 800 CF., which corresponds to a pond elevation of

Required Surface Area= 279 SF
686 SF PROVIDED

Forebay for outfall

15% Tv	800 CF
15% Tv=	120
Provided	160 CF

	DEPTH		
GRAVEL #57	0.4	2	0.8
CHOKER #8	0.4	0.25	0.1
BIORETENTION MEC	0.25	5	1.25
SURFACE LAYER	0		0
SURFACE STORAGE	1	1	1
	Equivalent Storage Depth		3.15

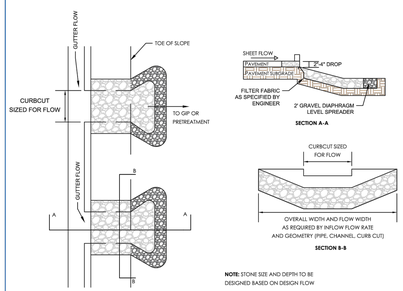


PRE-TREATMENT CELL NOTES:
1. LEVEL II REQUIRES PRE-TREATMENT CELL PLUS ADDITIONAL TREATMENT
2. FOREBAY STORAGE VOLUME = 15% OF TREATMENT VOLUME (Tv) (EXCLUSIVE)
3. DISSIPATION REQUIRED FOR EXPECTED RATES OF DISCHARGE
4. PRE-TREATMENT CELL MUST NOT INTERFERE WITH REQUIRED PONDING IN BIORETENTION AREAS
5. PRE-TREATMENT CELLS DO NOT REQUIRE UNDERLYING FILTER MEDIA



N.T.S.

Pre-Treatment (concentrated flow) PRE-TREATMENT CELL/FOREBAY (TITLE)	CITY OF FRANKLIN ENGINEERING 109 THIRD AVE SOUTH FRANKLIN, TN 37064	
PRE-04 (DWG.NO.)	DIRECTOR OF ENGINEERING	04/30/2021 (DATE)
07/01/2021 (EFFECTIVE DATE)	STORMWATER COORDINATOR	04/30/2021 (DATE)



NOTE: STONE SIZE AND DEPTH TO BE DESIGNED BASED ON DESIGN FLOW

THE GRAVEL FLOW SPREADER IS LOCATED AT CURB CUTS, DOWNSPOUTS, OR OTHER CONCENTRATED INFLOW POINTS, AND SHALL HAVE A 2" - 4" ELEVATION DROP FROM A HARD-EDGED SURFACE INTO A GRAVEL OR STONE DIAPHRAGM. THE GRAVEL SHOULD EXTEND THE ENTIRE WIDTH OF THE OPENING AND CREATE A LEVEL STONE WEIR AT THE BOTTOM OR TREATMENT ELEVATION OF THE BASIN. CONSTRUCTION INSPECTION IS CRITICAL TO OBTAIN ADEQUATE SPOT ELEVATIONS, TO ENSURE THE GRAVEL FLOW SPREADER LIP IS LEVEL, KEYED INTO EXISTING CONTOURS, AND CONSTRUCTED TO THE CORRECT DESIGN ELEVATION.

N.T.S.

Pre-Treatment (concentrated flow) GRAVEL/STONE FLOW SPREADER (TITLE)	CITY OF FRANKLIN ENGINEERING 109 THIRD AVE SOUTH FRANKLIN, TN 37064	
PRE-06 (DWG.NO.)	DIRECTOR OF ENGINEERING	04/30/2021 (DATE)
07/01/2021 (EFFECTIVE DATE)	STORMWATER COORDINATOR	04/30/2021 (DATE)

PRE-TREATMENT NOTES:
TREATMENT DEPENDENT ON TYP. FLOW
SHEET FLOW
- VEGETATED FILTER STRIP
- GRAVELSTONE DIAPHRAGM
- VEGETATED LEVEL SPREADER

CONCENTRATED FLOW
- PRE-TREATMENT (FOREBAY) CELL
- GRAVELSTONE FLOW SPREADER

FILTER MEDIA SPECIFICATIONS:
DEPTH:
AS SHOWN ON APPROVED PLANS

CONTENTS:
85% to 88% SAND
8% to 12% SOIL FINES
3% to 5% ORGANIC MATTER

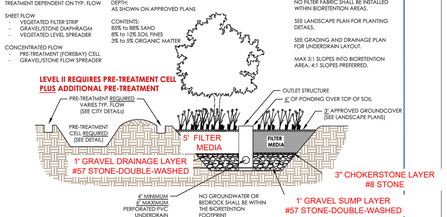
ADDITIONAL NOTES:
NO FILTER FABRIC SHALL BE INSTALLED WITHIN BIORETENTION AREAS.

SEE LANDSCAPE PLAN FOR PLANTING DETAILS.

SEE GRADING AND DRAINAGE PLAN FOR UNDERDRAIN LAYOUT.

MAX 3:1 SLOPES INTO BIORETENTION AREA. 4:1 SLOPES PREFERRED.

LEVEL II REQUIRES PRE-TREATMENT CELL PLUS ADDITIONAL PRE-TREATMENT

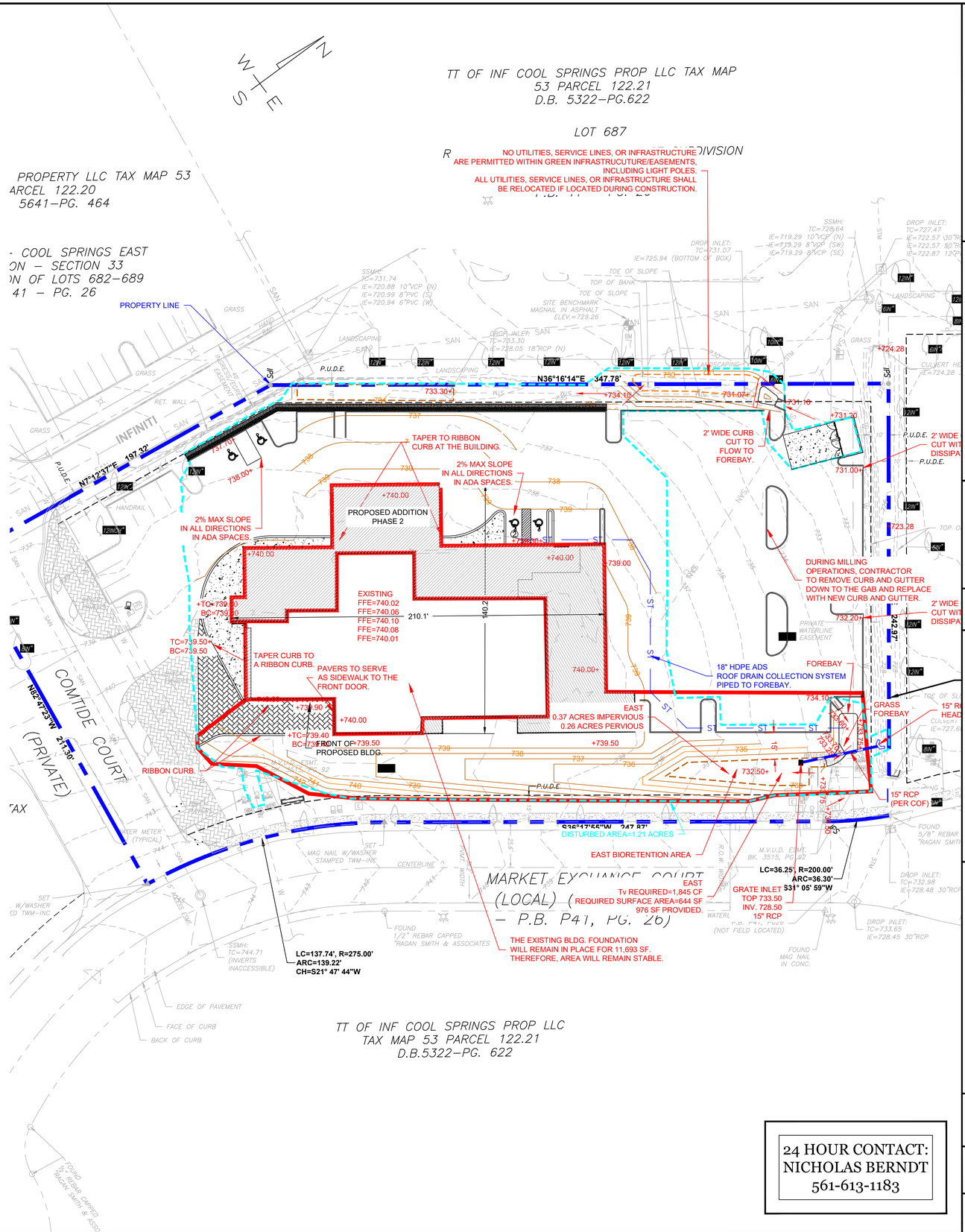


1. EXCAVATORS SHALL WORK FROM THE OUTSIDE THE GREEN INFRASTRUCTURE PRACTICE (GIP) FOOTPRINT. EXCAVATED AREAS SHALL NOT BE COMPACTED OR LOADED IN ANY WAY AS TO CAUSE SOIL COMPACTION.
2. DURING EXCAVATION, MOIST CONDITIONS MAY CAUSE FINES TO CLOG THE NATIVE SOIL SURFACE OF THE FACILITY. IF THE NATIVE SOIL HAS BEEN EXPOSED TO RAINFALL OR IF SMEARING OCCURS, HAND RAKE OR SCARIFY THE SURFACE TO A DEPTH OF 12" TO RESTORE INFILTRATION CAPACITY.
3. DURING CONSTRUCTION PHASE, CONTRACTOR SHALL DIVERT RUNOFF FLOW AROUND THE GIP AREAS TO ENSURE SEDIMENT DOES NOT ENTER.
4. RECYCLED MATERIAL IS NOT APPROVED FOR USE IN GIP FACILITIES.
5. UTILITIES AND IRRIGATION ARE PROHIBITED WITHIN THE GIP FOOTPRINT.
6. WATER QUALITY SIGNS SHALL BE INSTALLED IN ALL WATER QUALITY AREAS.

CONSTRUCTION SEQUENCING:
1. CONSTRUCT STORMWATER RUNOFF DIVERSIONS.
2. EXCAVATE GIP AREAS.
3. SCARIFY SUBGRADE BY RIPPING THE BOTTOM SOILS TO A DEPTH OF 12" PRIOR TO STONE PLACEMENT.
4. SCHEDULE GIP INSPECTION WITH CITY STORMWATER INSPECTOR AT **(615) 791-3218.**
5. INSTALL STONE SUBBASE AND UNDERDRAINS. CONNECT UNDERDRAIN TO OUTLET STRUCTURE.
6. SCHEDULE GIP INSPECTION WITH CITY STORMWATER INSPECTOR AT **(615) 791-3218.**
7. INSTALL ADDITIONAL STONE ON AND FLAG THE UNDERDRAIN (3' EACH SIDE).
8. A SMALL SIZED STEER LOADER MAY TO BE USED FOR PLACEMENT OF ADDITIONAL SECTIONS AVOIDING THE UNDERDRAIN PIPE INSTALLATIONS.
9. DELIVER AND STORE SOIL MEDIA ON PLASTIC SHEETING WITH APPROPRIATE EROSION CONTROL MEASURES.
10. SCHEDULE GIP INSPECTION WITH CITY STORMWATER INSPECTOR AT **(615) 791-3218.**
11. ALLOW 48 HOURS SETTLEMENT. DO NOT COMPACT WITH EQUIPMENT.
12. ADD ADDITIONAL MEDIA AS NEEDED TO ACHIEVE THE DESIGN ELEVATIONS.
13. INSTALL VEGETATION, AND WATER ACCORDINGLY. PERMANENT IRRIGATION IS PROHIBITED IN GIP.
14. INSTALL SPECIFIED GROUNDCOVER.
15. FLAG LIMITS OF GIP FOR SURVEY LOCATE AND SHOW ON AS-BUILT PLANS.

N.T.S.

BIORETENTION LEVEL 2 (TITLE)	CITY OF FRANKLIN ENGINEERING 109 THIRD AVE SOUTH FRANKLIN, TN 37064	
GIP-01 (02) (DWG.NO.)	DIRECTOR OF ENGINEERING	04/30/2021 (DATE)
07/01/2021 (EFFECTIVE DATE)	STORMWATER COORDINATOR	04/30/2021 (DATE)



24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 501-340, MILTON, GA 30004
PHONE: 678-605-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL — REGISTERED ENGINEER — AGRICULTURE — STATE OF TENNESSEE — No. 124430

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENTSIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

EAST STORMWATER TREATMENT

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 3.03

CONSTRUCTION SEQUENCE OF EPSC MEASURES

A. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
B. INSTALL SILT FENCE ON THE SITE (CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL SILT FENCE).
C. PREPARE TEMPORARY PARKING AND STORAGE AREA.
D. HALT ALL ACTIVITIES AND OBTAIN ANY AND ALL REQUIRED INITIAL BMP INSPECTIONS BEFORE PROCEEDING WITH CONSTRUCTION.
E. BEGIN GRADING THE SITE.
F. START CONSTRUCTION OF THE BUILDING PAD AND ACCESSORY STRUCTURES.
G. TEMPORARILY SEED, THROUGHOUT CONSTRUCTIONS, DENUDED AREAS THAT WILL BE INACTIVE FOR 14 DAYS OR MORE.
H. INSTALL BUILDING AND ACCESSORY STRUCTURES.
I. INSTALL PIPING, UTILITIES, UNDERDRAINS, STORM SEWERS, CURBS AND GUTTERS.
J. INSTALL INLET PROTECTION AT ALL STORM SEWER STRUCTURES AS EACH INLET STRUCTURE IS INSTALLED.
K. PERMANENTLY STABILIZE AREAS TO BE VEGETATED AS THEY ARE BROUGHT TO FINAL GRADE.
L. PREPARE SITE FOR PAVING.
M. PAVE SITE.
N. INSTALL APPROPRIATE INLET PROTECTION DEVICES FOR PAVED AREAS AS WORK PROGRESSES.
O. COMPLETE GRADING AND INSTALL PERMANENT STABILIZATION OVER ALL AREAS.
P. OBTAIN CONCURRENCE FROM THE OWNER/DEVELOPER'S DESIGNATED REPRESENTATIVE (AS APPROPRIATE) THAT THE SITE HAS BEEN FULLY STABILIZED.
Q. REMOVE ALL REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES.
R. STABILIZE ANY AREAS DISTURBED BY THE REMOVAL OF BMP'S.
S. OBTAIN ANY AND ALL REQUIRED FINAL BMP INSPECTIONS.

GENERAL SITE NOTES:

1. ALL BEST MANAGMENT PRACTICES ARE TO BE IN ACCORDANCE WITH THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOK.
2. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES PRIOR TO OR CONCONCURRENT WITH LAND DISTURBING ACTIVITIES.
3. EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE. ADDTIONAL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTION.
4. SEDIMENT STORAGE MAINTENANCE INDICATORS MUST BE INSTALLED IN SEDIMENT STORAGE STRUCTURES, AS REQUIRED, INDICATING THE ½ FULL VOLUME.
5. MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT, SHALL BE AT ALL TIMES THE RESPONSIBILITY OF THE PROPERTY OWNER/CONTRACTOR.
6. WASHOUT OF CONCRETE DRUM AT CONSTRUCTION SITE IS PROHIBITED AND NOT ALLOWED IN WASH AREAS.

TOTAL SITE AREA=2.64 ACRES
TOTAL DISTURBED AREA=1.21 ACRES

1. EPSC GENERAL NOTES
SEDIMENT SHALL BE REMOVED FROM SILT FENCE WHEN REACHES 1/3 THE HEIGHT OF THE FENCE; SEDIMENT SHALL BE REMOVED FROM ALL OTHER EPSC MEASURES AND CONTROL AS RECOMMENDED IN THE TNEPSC HANDBOOK, AND MUST BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
2. EPSCS SHALL BE IMPLEMENTED BEFORE EARTH MOVING BEGINS.
3. AREAS WHERE CONSTRUCTION HAS TEMPORARILY/PERMANENTLY CEASED SHALL BE STABILIZED WITHIN 15 DAYS (7 DAYS FOR ≥35% SLOPES)
4. INSPECTIONS OF OUTFALLS/EPSC MEASURES SHALL BE CONDUCTED AT LEAST TWICE WEEKLY AND AT LEAST 72 HOURS APART
5. VEGETATION, EPSCS & OTHER PROTECTIVE MEASURES SHALL BE REPAIRED, REPLACED, OR MODIFIED WITHIN 7 DAYS OF BEING NOTIFIED OF AN ISSUE
6. CONSTRUCTION SHALL BE PHASED FOR ACTIVITIES THAT WILL DISTURB >50 ACRES.
7. EPSCS SHALL BE DESIGNED TO CONTROL THE RAINFALL AND RUNOFF FROM A 2-YEAR, 24-HOUR RETURN INTERVAL STORM; BE DESIGNED TO CONTROL THE RAINFALL AND RUNOFF FROM A 5-YEAR, 24-HOUR RETURN INTERVAL STORM.
8. TEMPORARY SEDIMENT BASIN(S) SHALL BE PROVIDED FOR ON-SITE OUTFALLS THAT RECEIVE DRAINAGE FROM ≥10 ACRES; ≥5 ACRES FOR SITES THAT DISCHARGE TO IMPAIRED OR EXCEPTIONAL TN WATERS.
9. GREEN INFRASTRUCTURE BMPS SHALL BE PROTECTED DURING SITE WORK, WITH SILT FENCE, TO PREVENT SEDIMENTATION AND COMPACTION.

SURVEY NOTE:
EXISTING CONDITIONS BASED OF A GROUND RUN TOPOGRAPHIC SURVEY PREPARED BY TWM, DATED 8-3-22 . THE BASIS OF BEARING FOR THIS SURVEY IS TENNESEE COORDINATE SYSTEM OF 1983. THE VERTICAL DATUM IS NAVD88. ONSITE CIVIL GROUP LLC TAKES NO LIABILITY FOR THE ACCURACY OF THIS SURVEY. CONTRACTORS AND SUB-CONTRACTORS A RESPONSIBLE FOR VERIFICATION OF FIELD CONDITIONS.

EROSION NOTE:
EPSC MEASURES SHALL BE PROVIDED AROUND THE BUILDINGS, ALONG SIDEWALKS, AND/OR BEHIND CURBS TO PREVENT SEDIMENT FROM MIGRATING/DISCHARGING ONTO PAVED SURFACES.

EROSION CONTROL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Co	CONSTRUCTION EXIT			A crushed stone pad located at the construction site exit to provide a place for removing mud from tires thereby protecting public streets.
SB	SEDIMENT BARRIER			A barrier to prevent sediment from leaving the construction site. It may be sandbags, bales of straw or hay, brush, logs and poles, gravel, or a silt fence.
IP	INLET PROTECTION			An area created riprap, hardware cloth, or another means and methods around a storm drain drop inlet. The area will be stabilized on completion of construction activities.
TS	DISTURBED AREA STABILIZATION (WITH TEMP SEEDING)		TS	Establishing a temporary vegetative cover with fast growing seedings on disturbed areas.
PS	DISTURBED AREA STABILIZATION (WITH PERM SEEDING)		PS	Establishing a permanent vegetative cover such as trees, shrubs, vines, grasses, or legumes on disturbed areas.
SOD	DISTURBED AREA STABILIZATION (SODDING)		SOD	A permanent vegetative cover using sods on highly erodable or critically eroded lands.
DC	DUST CONTROL ON DISTURBED AREAS		DC	Controlling surface and air movement of dust on construction site, roadways and similar sites.
ECB	EROSION CONTROL BLANKET/MATTING		ECB	A protective covering used to prevent erosion and establish temporary or permanent vegetation on steep slopes, shore lines, or channels.

EROSION AND SEDIMENT CONTROL

TO MINIMIZE THE RISK OF SOIL EROSION AND SEDIMENT LOSS FROM THE CONSTRUCTION PROJECT, THE SITE CONTRACTOR SHALL INSTALL AND MAINTAIN BOTH TEMPORARY AND PERMANENT MANAGEMENT PRACTICES, UTILIZE PROPER TECHNIQUES, AND PHASE THE CONSTRUCTION TO PREVENT THE LOSS OF SEDIMENT FROM THE CONSTRUCTION SITE. THE STEPS BELOW ARE NOT INTENDED AS A COMPREHENSIVE LIST OF EVENTS AND THE CONTRACTOR SHALL USE THEIR DISCRETION TO BEST DETERMINE THE SEQUENCE OF CONSTRUCTION. IT IS IMPERATIVE THAT ALL EROSION CONTROL MEASURES BE INSTALLED CORRECTLY AND IN A TIMELY MANNER TO BE EFFECTIVE.

PRE-CONSTRUCTION.

THE SITE CONTRACTOR SHALL INSTALL THE PERIMETER CONTROL DEVICES IMMEDIATELY AFTER MOBILIZATION AND PRIOR TO ANY SOIL-DISTURBING ACTIVITIES ON THE PROJECT. AT A MINIMUM, THE PERIMETER SILT FENCE, CONSTRUCTION ENTRANCE, AND INLET PROTECTION DEVICES FOR THE EXISTING STORM SEWER INLETS SHALL BE INSTALLED.

EROSION CONTROL NOTES:

1. THE TOTAL DISTURBED AREA OF THE PROJECT AS SHOWN IS 1.21 ACRES, THEREFORE NPDES PERMIT WILL BE REQUIRED.
2. ALL SILT FENCE SHALL BE INSTALLED PRIOR TO THE START OF GRADING OPERATIONS.
3. CONTRACTOR SHALL MAINTAIN ALL EROSION AND SEDIMENT CONTROL BARRIERS DURING CONSTRUCTION
4. CONTRACTOR SHALL PROVIDE A TEMPORARY GRAVEL DRIVE FOR ALL CONSTRUCTION ACCESS ONTO EXISTING PAVED ROADS.
5. CONTRACTOR SHALL REMOVE ALL SEDIMENT CONTROL BARRIERS AT THE COMPLETION OF CONSTRUCTION.
6. EARTH CONTAINMENT BERM TO BE LOCATED ALONG PERIMETER OF ALL AREAS OF FUEL STORAGE AND HANDLING.
7. ANY MODIFICATION OF THE STORM WATER POLLUTION PLAN FOR CONSTRUCTION SEQUENCING SHALL REQUIRE ADHERENCE TO THE EPA NPDES GENERAL PERMIT GUIDELINE.
8. ALL WASH WATER SHALL BE DISPOSED OF IN A MANNER THAT PREVENTS CONTACT BETWEEN WAH WATER POLLUTANTS AND STORM RUNOFF DISCHARGED FROM THE SITE.
9. OIL AND GREASE ABSORBING MATERIAL SHALL BE READILY AVAILABLE ON-SITE AND SHALL BE PROMPTLY USED TO CONTAIN AND CLEAN UP ALL FUEL AND CHEMICAL SPILLS OR LEAKS.
10. DUST CONTROL SHALL BE ACCOMPLISHED BY WATERING DRY EXPOSED AREAS ON A REGULAR BASIS.
11. DISTURBED AREAS OF THE SITE WHERE CONSTRUCTION HAS TEMPORARILY CEASED FOR 21 DAYS SHALL BE TEMPORARILY SEEDED AND WATERED.
12. DISTURBED AREAS OF THE SITE WHERE CONSTRUCTION HAS PERMANENTLY CEASED FOR AT LEAST 21 DAYS SHALL BE SEEDED AND WATERED.
13. VEHICLES EXITING THE CONSTRUCTION SITE SHALL NOT TRACK MATERIAL ONTO THE ADJACENT STREETS.
14. ALL MATERIALS SPILLED, WASHED OR TRACKED ONTO ADJACENT ROADWAYS BY CONSTRUCTION VEHICLES SHALL BE CLEANED OR REMOVED IMMEDIATELY.
15. SILT FENCES SHALL BE PLACED AROUND ANY STOCKPILED MATERIALS.
16. CONTRACTOR SHALL REMOVE ALL ACCUMULATED SILT IN ANY STORM SEWER INLETS AND PIPES WITHIN 48 HOURS.
17. ADDITIONAL EROSION CONTROL MEASURES MAY BE IMPLEMENTED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
18. ALL TEMPORARY EROSION CONTROL DEVICES SHALL BE REMOVED AND PROPERLY DISPOSED OF OFF-SITE WITHIN 30 DAYS OF STABILIZATION OF ALL SURFACES.
19. THE CONTRACTOR SHALL ASSUME LIABILITY FOR DAMAGE OF ADJACENT PROPERTIES AND ADJACENT ROW RESULTING FROM FAILURE TO FULLY IMPLEMENT AND EXECUTE ALL EROSION CONTROL PROCEDURES SHOWN AND NOTED IN THESE PLANS.
20. THE CONTRACTOR SHALL PERFORM ALL REQUIRED INSPECTIONS OF STORM WATER CONTROLS AND PRACTICES.
21. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR COMPLIANCE WITH ALL EPA STORM WATER REQUIREMENTS FOR ALL DIRT AND ROCK IMPORTED AND EXPORTED FROM THE SITE.

NASHVILLE PROPERTY LLC TAX MAP 53
PARCEL 122.20
D.B. 5641–PG. 464

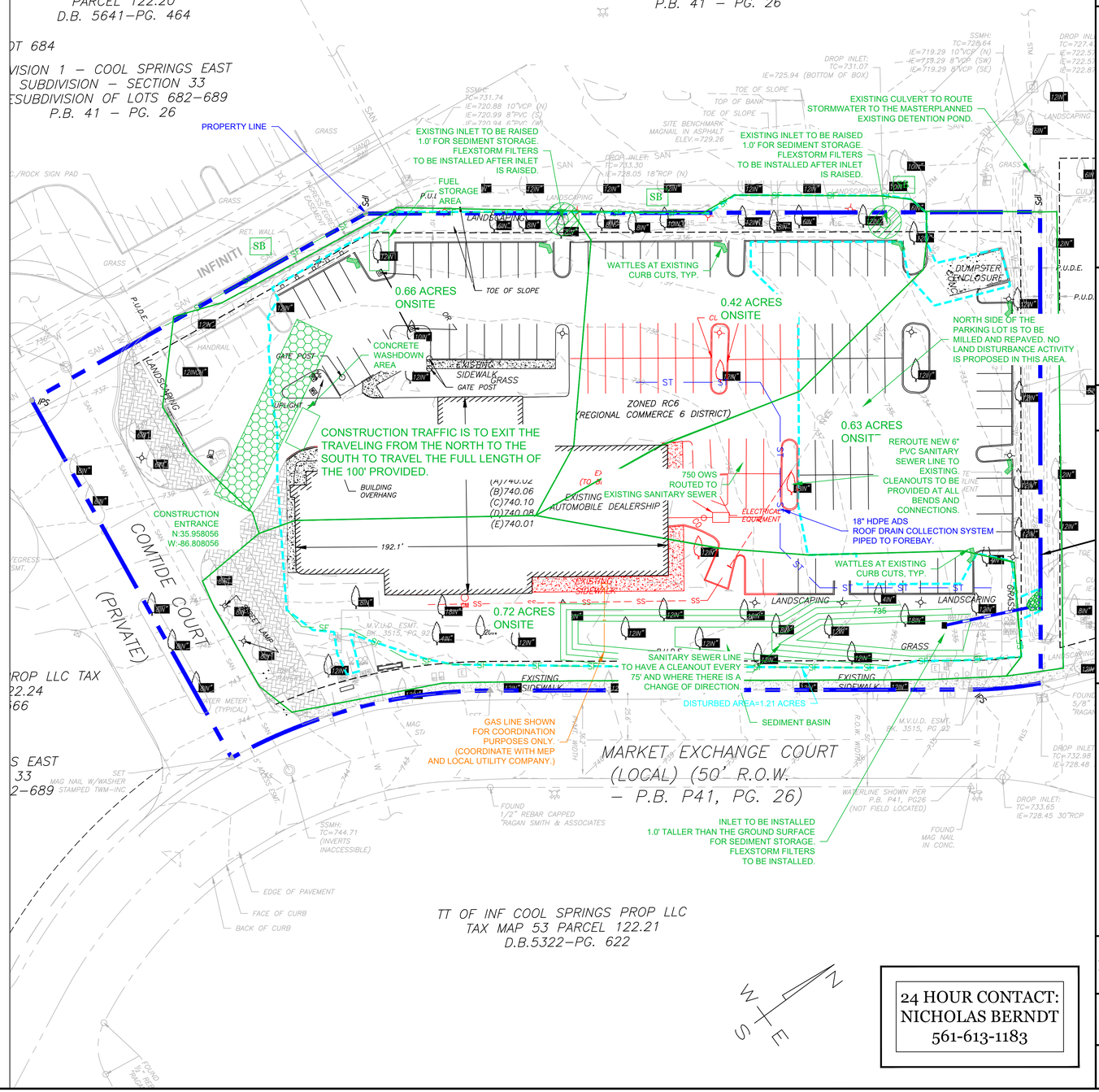
OT 684

VISION 1 – COOL SPRINGS EAST
SUBDIVISION – SECTION 33
ESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP
53 PARCEL 122.21
D.B. 5322–PG.622

LOT 687

REVISION 1 – COOL SPRINGS EAST SUBDIVISION
– SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26



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JARRETT M. SENKBEIL
REGISTERED ENGINEER
AGRICULTURE
POWELL
No. 124450
STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33; REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

INITIAL EPSC/
PRE-CONSTRUCTION
PLAN

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 3.1

Temporary Stabilization & Permanent Stabilization

- Straw mulch must be applied at 3.0 tons per acre.
- Straw mulch with mulch control netting or erosion control blankets must be installed on all slopes 3:1 and steeper."
- Straw mulch shall be applied in long strands, not chopped or finely broken.
- Excavated topsoil to be reused must be stockpiled and encircled with silt fencing. Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2:1 or flatter. Stockpiles which have not been used for 14 calendar days shall be stabilized through the application of sod, seed and anchored straw mulch, or other approved stabilization measures.
- Off-site spoil or borrow areas must have approved sediment control plans.
- A 25 foot undisturbed **streamside buffer** zone will be left from top of bank on both sides for the entire length of streams that TDEC determines to be a perennial or intermittent stream. The streamside buffer shall be fenced off where there is no encroachment. Buffer means a vegetated area, including trees and shrubs that exists or is established to protect a stream system, lake, or reservoir area. This buffer also applies to other sensitive areas such as springs, wetlands and sinkholes. TDEC requires a 60 foot construction buffer on some streams.
- An orange construction fence is required to designate the buffer area before clearing or tree removal has begun.
- This streamside buffer will be left in undisturbed or enhanced (when required by the city) and will be part of open space and recognized on covenants with restrictions of how it is to be maintained by homeowner association or nonresidential property owner. If more than regular maintenance is ever needed, i.e. removal of small brush or trees that have fallen, a landscape plan and a tree cutting permit is required.

- All sediment basins, trap embankments, swales, perimeter dikes, and permanent slopes steeper or equal to 3:1 shall be stabilized with sod, seed and anchored straw mulch or other approved stabilization measures, within seven (7) calendar days of establishment. All areas disturbed outside of the perimeter sediment control system must be minimized and stabilized immediately. Maintenance must be performed as necessary to ensure continued stabilization. Restabilization or overseeding will be required, if necessary.
- Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to eliminate the potential for accelerated erosion and/or sediment pollution.
- Construct and stabilize **Sediment Pond and conveyances first. Stabilize means**:
  a.) a uniform (e. g,, evenly distributed, without large bare areas) perennial vegetative cover with a density of a minimum of **75 percent of the native background vegetative cover** for the area established on all unpaved areas and areas not covered by permanent structures, or
  b.) equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextile) have been employed with a density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding and other movements.
- If there is a gravel envelope in front of the outlet orifice, it will be removed as soon as the site is stabilized and before bonds are released.
- Include a forebay in any detention pond to facilitate easier maintenance.
- With earthen walls, place an antiseep collar (or collars) around the outlet pipe.

Sediment Fence
Sediment fences or other sediment barriers, has been installed properly along topographical contours downslope of the area to be disturbed prior to any grading, clearing and/or any other construction activity.
Sediment Fences:
Use principally in areas where sheet flow occurs.
Install along a level contour, so water does not pond more than 1.5 feet (0.5 m) at any point.
The maximum slope perpendicular to the fence line should be 1:1. No more than 0.25 acre (0.1 ha) per 100 ft. (31.4 m), or 0.5 cfs (1.4 x 10-2 m3/s) of concentrated flow should drain to any point along the silt fence.
Turn ends of fence uphill to prevent scour from wash around. Intermittently, turn fence uphill.
Provide area behind the fence for runoff to pond and sediment to settle (Approx. 1200 sq. ft. (111.5 m2) per acre (0.4 ha) draining to the silt fence).
Select filter fabric that retains 85% of the soil, by weight, based on sieve analysis, but is not finer than an equivalent opening size of 70.

- **Straw/Hay Bales (ARE NOT RECOMMENDED)** Silt fences, sand bag barriers, and rock filters (especially continuous berms) are preferred over straw/hay bales because sediment removal efficiencies, durability, and maintenance requirements are far less desirable in straw/hay bales.
- **Inlet Protection**: Where applicable, inlet protections for nearby storm sewer curb and drop inlets have been installed.
- **Identify Storm drain Protection**: Where applicable, protections for nearby **storm sewer curb** and **drop inlets** have been installed.
  Sand bag barrier: Used to create a small sediment trap upstream of inlets on sloped, paved streets.
  Excavated Drop Inlet Sediment Trap: An excavated area around the inlet to trap.
  Gutterbuddy type protection: Used to create a small water ponding area to settle sediment out before water enters storm drain.

  (excerpt from Franklin Best Management Practice Manual)
  Sediment Fences:
  Use principally in areas where sheet flow occurs.
  _Install along a level contour, so water does not pond more than 1.5 feet (0.5 m) at any point.
  _The maximum slope perpendicular to the fence line should be 1:1.
  _No more than 0.25 acre (0.1 ha) per 100 ft. (31.4 m), or 0.5 cfs (1.4 x 10-2 m3/s) of concentrated flow should drain to any point along the silt fence.
  _Turn ends of fence uphill to prevent scour from wash around.
  _Provide area behind the fence for runoff to pond and sediment to settle (Approx. 1200 sq. ft. (111.5 m2) per acre (0.4 ha) draining to the silt fence).
  _Select filter fabric that retains 85% of the soil, by weight, based on sieve analysis, but is not finer than an equivalent opening size of 70.
- Sediment must be removed from sediment barriers, ponds and other sediment controls when design capacity had been reduced by 33%. All EP&SC devices are to remain in place until the site has been stabilized and a good stand of grass has been established.
- **When a <u>sediment fence's</u> capacity has been reduced 33%, it shall be replaced.**
- Erosions prevention and sediment control devices, EP&SC, shall be maintained throughout the construction period; generally considered to be through the completion of restoration. A copy of your EP&SC plan along with an inspection checklist and Stormwater Permit, if applicable, must be at the project site at all times. The inspection checklist shall have a record of dates EP&SC devices are inspected and any correction action taken or major observations.
- Excavated topsoil to be reused must be stockpiled and encircled with silt fencing.
- **Construction Entrance:** This site shall contain a **temporary stone construction entrance** that conforms to the City of Franklin's Stormwater Ordinance and Best Management Practice Manual. It must be installed within 24 hours of grading or the permit will be revoked. The use of filter cloth beneath construction entrance is required. Stones should be 3 inch crushed, washed, and well graded rock to at least a 6-inch (15.2) deep and shall be kept clean by adding stone as needed. It shall be 20 feet wide. **See detail TCP-03 for specific construction entrance details.** See http://www.franklin-gov.com/engineering/STORMWATER/bmp/tcp/tcp-03.pdf

- A qualified person who has taken an approved erosion and sedimentation course must inspect BMPs.
- Where applicable, inlet protections for nearby storm sewer curb and drop inlets have been installed.
- Where applicable, existing vegetation and Buffer will be maintained and temporary cover crops will be used.
- Sediment that has escaped the construction site and has collected in the street or drainage structures must immediately be physically removed.
- Building and waste materials, and non-storm water discharges, such as concrete, paint washwater, or machinery leakage or spillage must be managed to prevent them from entering the stormwater system, ground water or nearby water body.
- EP&SC and stormwater controls shall be installed and maintained according to Franklin's BMP Manual. You can find a copy of it at: http://www.franklin-gov.com/engineering/STORMWATER/index.htm
- Stormwater detention/retention and sediment ponds will be installed at the beginning of the project.
- Large construction sites shall be built in phases.
- Stormwater detention/retention and sediment ponds will be installed at the beginning of the project.

Dewatering: Sediment trap/basin dewatering for cleanout or repair may only be done with the City of Franklin inspector's permission. The inspector must approve the dewatering method for each application. The following methods may be considered:
A. Pump discharge may be directed to another on-site sediment trap or basin, provided it is of sufficient volume and the pump intake is floated to prevent agitation or suction of deposited sediments; or
B. the pump intake may utilize a Removable Pumping Station and must discharge into an undisturbed area through a non-erosive outlet; or
C. the pump intake may be floated and discharge into a Dirt Bag (12 oz. nonwoven fabric), or approved equivalent, located in an undisturbed buffer area.
D. All pumping of sediment laden water shall be through a sediment control BMP, such as a pumped water filter bag or equivalent sediment removal facility, over undisturbed vegetated areas.
• Any request for changes to the approved sediment control plan or sequence of construction must be submitted to the Sediment Control Inspector and approved before implementing changes. Major changes will require a plan revision.
• The Permittee shall protect all points of construction ingress and egress to prevent the deposition of materials onto traversed public thoroughfare(s). All materials deposited onto public thoroughfare(s) shall be removed immediately.
• Obtaining of any permits is the responsibility of the stormwater management permit holder or developer.
• Permittees shall maintain a rain gauge and daily rainfall records at the site, or use a reference site for a record of daily amount of precipitation.

STORMWATER PONDS AND WATER QUALITY MAINTENANCE NOTES

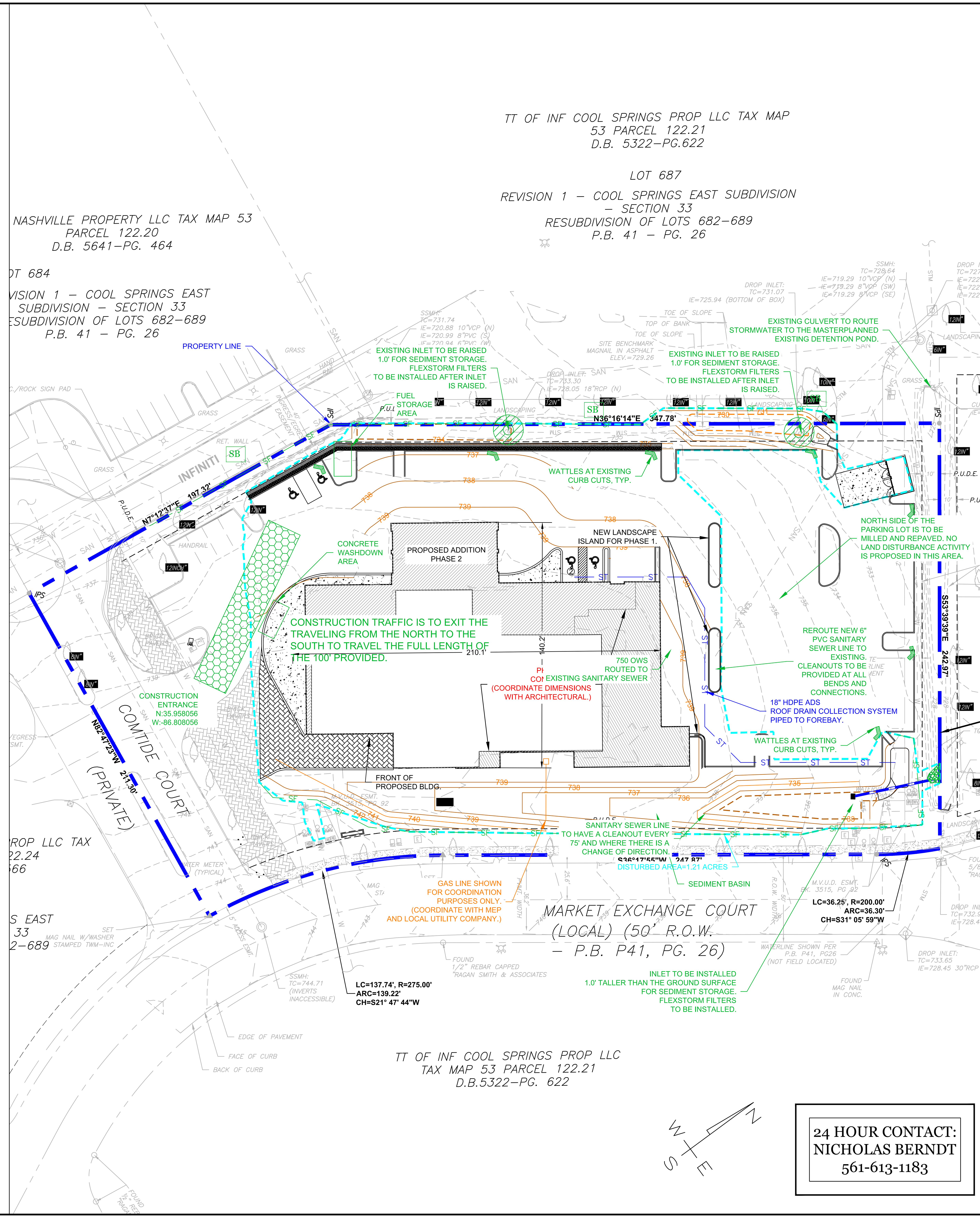
- Check outlet regularly for clogging and remove any debris.
- Check banks and bottom surface of basin for erosion and correct as necessary.
- Check at least annually and after each extreme storm event, the facility should be cleaned of accumulated debris. The banks of surface ponds should be checked and areas of erosion repaired. Remove nuisance wetland species and take appropriate measures to control mosquitoes.
- This maintenance typically includes sediment, floatable, and debris removal from inlets, outlets and skimmers
- Pond vegetation needs to be trimmed or harvested as appropriate, grassy areas frequently mowed.
- The outlet structure filter shall be checked regularly for clogging and shall be cleaned and repaired as necessary.
- Remove sediment when accumulation reached 6 inches, or if re-suspension is observed or probable. Sediment may be permitted to accumulate deeper than 6 inches if there is a permanent marker indicating depth where sediment needs to be removed, and that mark has not been met.
- Some sediment may contain contaminants or which the Tennessee Department of Environment and Conservation (TDEC) requires special disposal procedure. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then TDEC should be consulted and their disposal recommendations followed. The TDEC Division of Water Pollution Control should be contacted at (615) 532-0625. Generally, special attention or sampling should be given to sediment accumulated in facilities serving industrial, manufacturing or heavy commercial sites, fueling cents or automotive maintenance areas, large parking areas, ir other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.

Some sediment collected my be innocuous (free of pollutants) and can be used as fill material, cover or land spreading. It is important that this material not be placed in any way that will promote or allow re-suspension in storm runoff.

ENHANCED SWALE INSPECTION AND MAINTENANCE NOTES

Activity	Schedule
□ For dry swales, mow grass to maintain a height of 4 to 6 inches. Remove grass clippings.	As needed (frequent/seasonally)
□ Inspect grass along side slopes for erosion and formation of rills or gullies and correct.	Annually (Semi-annually the first year)
□ Remove trash and debris accumulated in the inflow forebay.	
□ Inspect and correct erosion problems in the sand/soil bed of dry swales.	
□ Based on inspection, plant an alternative grass species if the original grass cover has not been successfully established.	
□ Replant wetland species (for wet swale) if not sufficiently established.	
□ Inspect pea gravel diaphragm for clogging and correct the problem.	
□ Roto-till or cultivate the surface of the sand/soil bed of dry swales if the swale does not draw down within 48 hours.	As needed
□ Remove sediment build-up within the bottom of the swale once it has accumulated to 25% of the original design volume.	

Stormwater Infrastructure "As builts": Franklin Code Section 16-706 (2)(gg): As new development construction is completed, an **"as-built"** plan, certified by a licensed professional engineer, must be submitted upon completion of the stormwater management facilities included in the approved construction plans The licensed professional shall certify that: the facilities have been constructed as shown on the "asbuilt" plan, and facilities meet the approved stormwater management plan and specifications, or achieve the function for which they were designed. Coordinate data shall be presented in the State of Tennessee Plane system with the North American Datum 1983 (NAD83) and North American Vertical Datum (NAVD) of 1988.
Electronic and 2 paper copies (per city requirements) are required.
(See web site http://www.franklin-gov.com/pdf/asbuiltrequirements.)



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WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL REGISTERED ENGINEER STATE OF TENNESSEE No. 124450

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

INTERIM EPSC/ PRE-CONSTRUCTION PLAN

DATE: 5-4-23
PROJECT: 22-030
SHEET: C 3.2

TT OF NASHVILLE PROPERTY LLC TAX MAP 53
PARCEL 122.20
D.B. 5641–PG. 464

LOT 684

REVISION 1 – COOL SPRINGS EAST
SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP
53 PARCEL 122.21
D.B. 5322–PG.622

LOT 687

REVISION 1 – COOL SPRINGS EAST SUBDIVISION
– SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

PROPERTY LINE

GRAVEL/STONE DIAPHRAGM W/VEGETATED FILTER STRIP. STONE SIZE=6" DIAMETER CLEAN, WASHED STONE.

STORMWATER QUALITY SWALE LEVEL 2.

GRAVEL FOREBAY W/ ENHANCED CHECK DAM. BIORETENTION AREA LEVEL 2 (SEE LANDSCAPE FOR PLANTING MATERIAL)

N36°16'14"E 347.78'

OUTFALL NO. 1.

OUTFALL NO. 2

INSTALL 1' DIAMETER RIP RAP AT OUTFALL LOCATION.

TT OF NASHVILLE PROPERTY LLC TAX MAP 53 PARCEL 122.20 D.B. 5641–PG.464

LOT 684

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33 RESUBDIVISION OF LOTS 682–689 P.B. 41 – PG. 26

INFINITI

N7°12'37"E 197.32'

NISSAN

RECON

PROPOSED ADDITION PHASE 2

NEW LANDSCAPE ISLAND FOR PHASE 1.

210.1'

140.2'

PROPOSED CONCRETE PAD (COORDINATE DIMENSIONS WITH ARCHITECTURAL.)

750 OWS ROUTED TO EXISTING SANITARY SEWER

REROUTE NEW 6" PVC SANITARY SEWER LINE TO EXISTING. CLEANOUTS TO BE PROVIDED AT ALL BENDS AND CONNECTIONS.

18" HDPE ADS ROOF DRAIN COLLECTION SYSTEM PIPED TO FOREBAY.

S53°39'39"E 242.97'

SLOPE SHALL NOT BE DISTURBED.

INSTALL 1' DIAMETER RIP RAP AT OUTFALL LOCATION.

PROPERTY LINE

INSTALL 1' DIAMETER RIP RAP AT OUTFALL LOCATION.

FRONT OF PROPOSED BLDG.

SANITARY SEWER LINE TO HAVE A CLEANOUT EVERY 75' AND WHERE THERE IS A CHANGE OF DIRECTION.

S36°47'55"W 247.87'

DISTURBED AREA=1.21 ACRES

GAS LINE SHOWN FOR COORDINATION PURPOSES ONLY. (COORDINATE WITH MEP AND LOCAL UTILITY COMPANY.)

COMTIDE COURT (PRIVATE)

N82°47'23"W 211.36'

LC=137.74', R=275.00'
ARC=139.22'
CH=S21° 47' 44"W

MARKET EXCHANGE COURT
(LOCAL) (50' R.O.W.
– P.B. P41, PG. 26)

LC=36.25', R=200.00'
ARC=36.30'
CH=S31° 05' 59"W

GRAVEL FOREBAY W/ ENHANCED CHECK DAM. BIORETENTION AREA LEVEL 2. (SEE LANDSCAPE FOR PLANTING MATERIAL)

TT OF MZ COOL SPRINGS PROP LLC TAX
MAP 53 PARCEL 122.24
D.B. 5322–PG. 566

LOT 682

REVISION 1 – COOL SPRINGS EAST
SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC
TAX MAP 53 PARCEL 122.21
D.B.5322–PG. 622

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 591-340, MILTON, GA 30004
PHONE: 678-605-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL
REGISTERED ENGINEER
LICENSE
AGRICULTURE
CERTIFICATE
No. 124430
STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

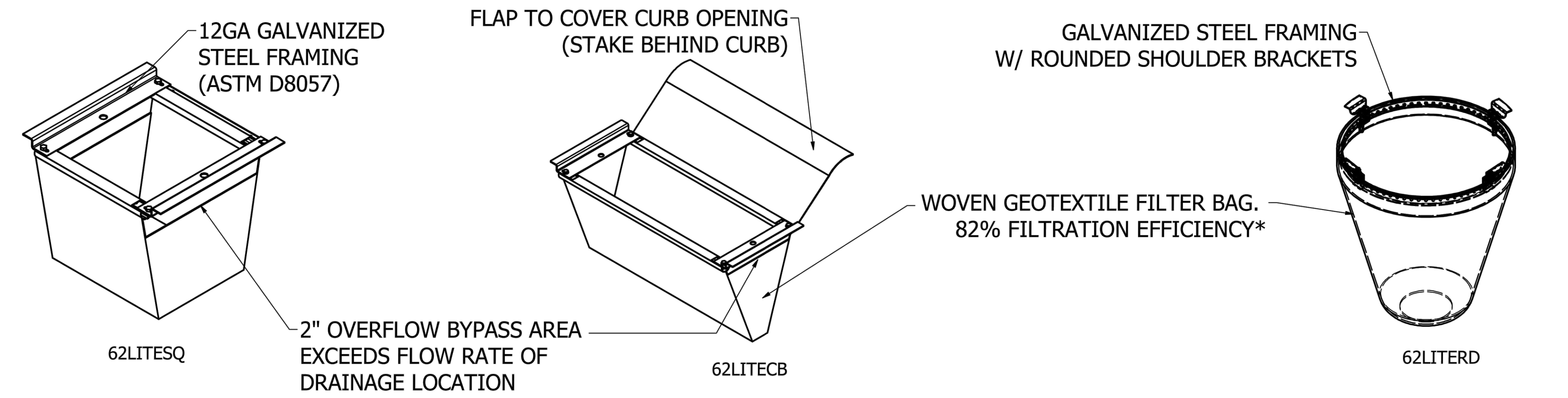
CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

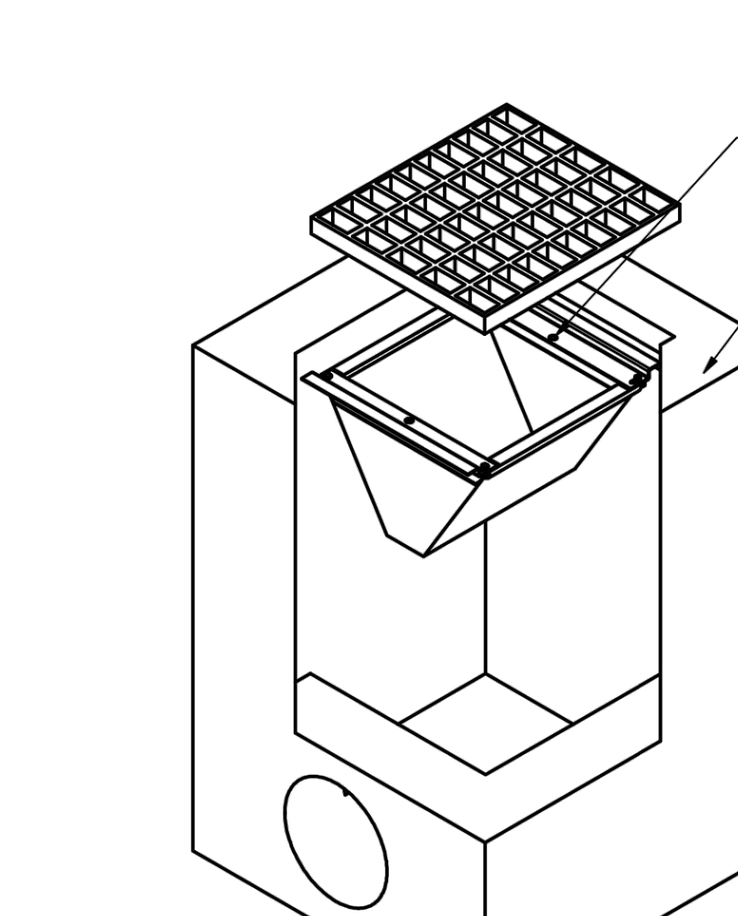
COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

FINAL EPSC/
WATER QUALITY
PLAN

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 3.3





ADS INLET FILTERS GENERIC LITE SUBMITTAL		
P/N	INLET STYLE	OPENING SIZE
62LITESQ	SQUARE (SQ)	Up to 36" X 24 Opening or 120" Perimeter
62LITECB	CURB BOX (CB)	Up to 36" X 24 Opening or 120" Perimeter
62LITERD	ROUND (RD)	Up to 30" Diameter Opening

FX FABRIC SPECIFICATIONS: 82%* FILTRATION EFFICIENCY

PROPERTY	TEST METHOD	ENGLISH	METRIC
MECHANICAL			
TENSILE STRENGTH	ASTM D4632	350 x 225 Lbs	1557 x 1001 N
ELONGATION	ASTM D4632	20% x 15%	20% x 15%
CBR PUNCTURE	ASTM D6241	1000 Lbs	4448 N
TRAPEZOIDAL TEAR	ASTM D4533	110 x 75 Lbs	489 x 334 N
ENDURANCE			
UV RESISTANCE % RETAINED AT 500 HRS	ASTM D4355	90%	90%
HYDRAULIC			
APPARENT OPENING SIZE (AOS)	ASTM D4751	20 US STD SIEVE	0.850 mm
PERCENT OPEN AREA (POA)	CW-02215 Mod[1]	17 %	17 %
PERMITTIVITY	ASTM D4491	1.5 sec^{-1}	1.5 sec^{-1}
WATER FLOW RATE	ASTM D4491	200 gal/min/ft^2	8145 l/min/m^2

*Filtration Efficiency Per TRI Environmental ASTM D 7351
**Meets ASTM D8057 Standard Specifications for Inlet Filters with a Rigid Frame

INSTALLATION INSTRUCTIONS
1. Remove grate from the drainage structure.
2. Clean stone and dirt from ledge/lip of the drainage structure.
3. Place Flexstorm filter frame in the clear opening such that the hangers rest firmly on the ledge/lip of the structure.
4. Replace the grate and confirm it is not elevated more than 1/8", the thickness of the steel hangers.

DRAWN TLANGEL 10/26/2020 | CHECKED | QA | MFG | APPROVED

ADS INLET FILTERS
TITLE: GENERIC LITE SUBMITTAL
SIZE C | DWG NO | REV
SCALE 1 / 8 | SHEET 1 OF 1

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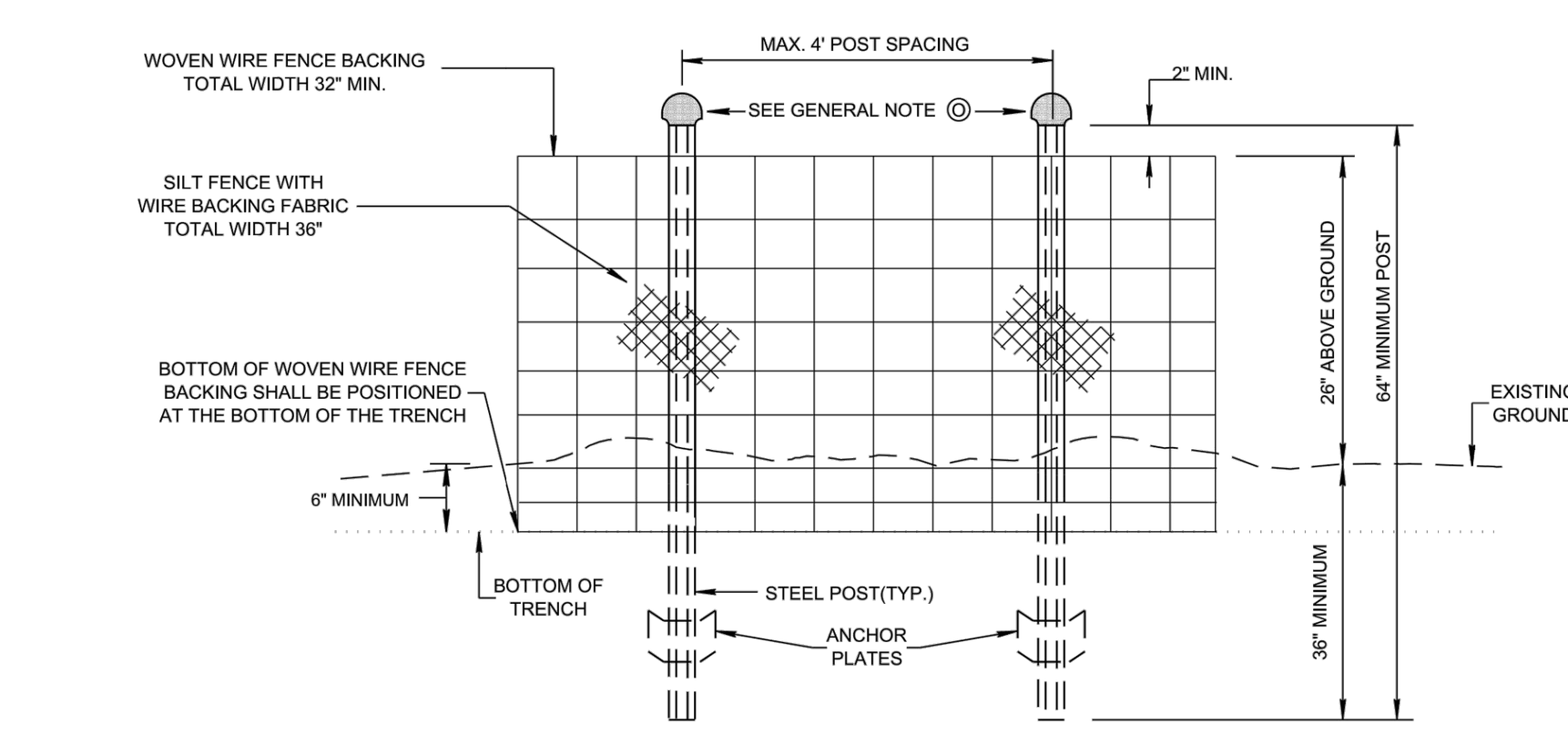
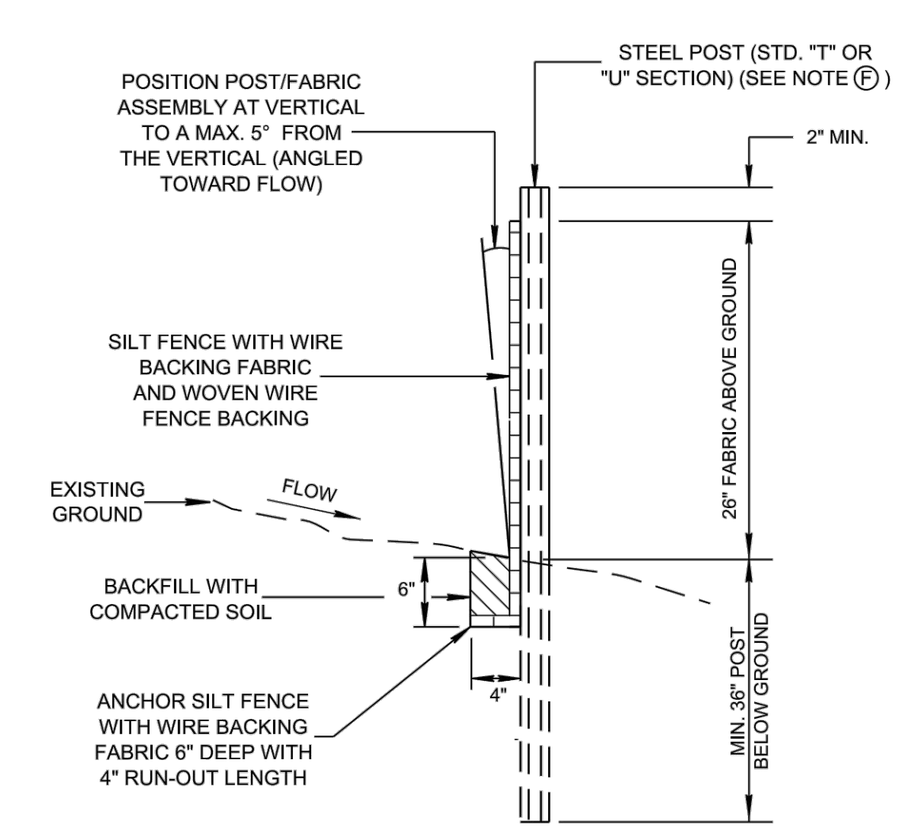
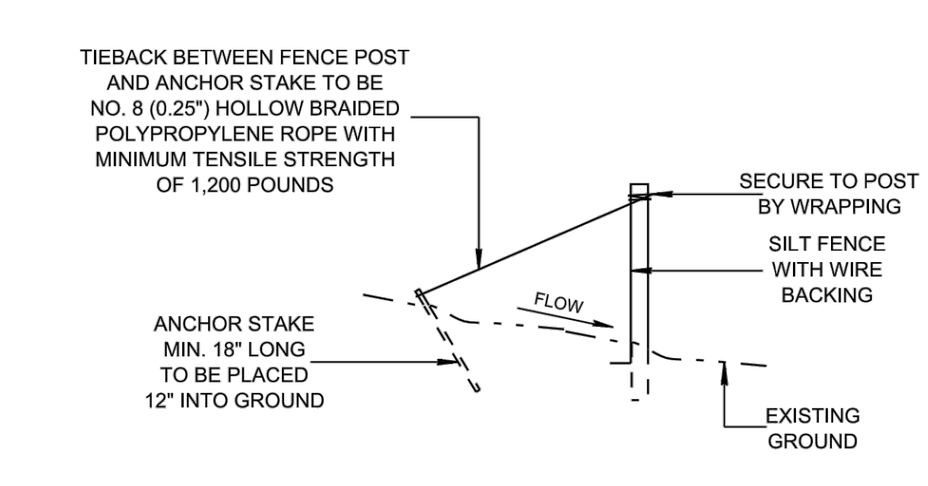


ELEVATION VIEW



SECTIONAL VIEW



SILT FENCE TIEBACK

(WHEN REQUIRED BY THE ENGINEER OR NOTED IN THE PLANS. COST TO BE INCLUDED IN THE ITEMS FOR SILT FENCE WITH WIRE BACKING)

SILT FENCE WITH WIRE BACKING FABRIC SPECIFICATIONS	
FABRIC PROPERTY AND TEST METHODS	REQUIRED PHYSICAL PROPERTIES (MARV VALUES OF TEST DATA)
GEOTEXTILE FABRIC TYPE	WOVEN MONOFILAMENT
APPARENT OPENING SIZE (ASTM D4751)	# 70 TO # 100 STANDARD SIEVE
WATER FLUX (ASTM D4491)	≥ 18 GPM/FT^2
TENSILE STRENGTH (ASTM D4632)	≥ 310 LB. (WARP DIRECTION) X 200 LB. (FILL DIRECTION)
ULTRAVIOLET STABILITY (AFTER 500 HRS PER ASTM D4355)	≥ 90%
BURST STRENGTH (ASTM D3786)	≥ 400 PSI
PUNCTURE STRENGTH (ASTM D4833)	≥ 105 LB.
TRAPEZOIDAL TEAR (ASTM D4533)	≥ 100 LB. (WARP DIRECTION) X 60 LB. (FILL DIRECTION)

GENERAL NOTES

Ⓐ SILT FENCE WITH WIRE BACKING IS USED TO INTERCEPT SMALL AMOUNTS OF SEDIMENT AND REDUCE VELOCITY FROM SHEET FLOW ONLY. USE SILT FENCE WITH WIRE BACKING UP-GRADIENT TO, AND ALONG THE PERIMETER OF STREAMS, WETLANDS, PONDS, SPRINGS, OR OTHER NATURAL WATER RESOURCES LOCATED WITHIN OR ADJACENT TO THE PROJECT RIGHT-OF-WAY AND AT LARGE FILL SLOPES.

Ⓑ THE MAXIMUM DRAINAGE AREA SIZE FOR CONTINUOUS SILT FENCE WITH BACKING SHALL BE 1 ACRE PER 150 LINEAR FEET OF FENCE LENGTH. MAXIMUM SLOPE LENGTH BEHIND FENCE ON UP SLOPE SIDE SHALL BE 290 FEET (AS MEASURED ALONG THE GROUND SURFACE).

Ⓒ WHEN INSTALLED AT THE TOE OF A SLOPE SILT FENCE WITH WIRE BACKING SHOULD BE PLACED 5 FEET TO 10 FEET AWAY FROM THE TOE TO ALLOW SPACE FOR PONDING OF WATER, COLLECTION OF SEDIMENT, AND EASE OF MAINTENANCE AND REMOVAL.

Ⓓ WHEN TWO SECTIONS OF SILT FENCE WITH WIRE BACKING FABRIC ADJOIN EACH OTHER, THEY SHALL BE JOINED ACCORDING TO THE DETAILS ON STANDARD DRAWING EC-STR-3E.

Ⓔ MAINTENANCE SHALL BE PREFORMED AS NEEDED; CAPTURED SOIL MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE AND/OR WHEN EVIDENCE OF FILTER CLOGGING IS OBSERVED.

Ⓕ STEEL POSTS SHALL BE ROLLED FROM HIGH CARBON STEEL AND SHALL HAVE A MINIMUM WEIGHT OF 1.25 LB/FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH GRADE WEATHER RESISTANT STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH AN ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED TO AID IN THE ATTACHMENT OF THE WIRE BACKING. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702.

Ⓖ STEEL POSTS SHALL HAVE A PROJECTION FOR FASTENING WIRE TO THEM. WOVEN WIRE FENCE BACKING TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. THE WIRE FASTENERS SHOULD BE EVENLY SPACED WITH AT LEAST SIX PER POST.

Ⓗ FABRIC SHALL BE FASTENED SECURELY TO WOVEN WIRE FENCE BACKING WITH THE TIES SPACED EVERY 24 INCHES ALONG TOP AND MIDSECTION.

Ⓘ WOVEN WIRE FENCE BACKING SHALL MEET THE REQUIREMENTS FOR ASTM A-116 FOR NO. 11 FARM, DESIGN NO. 832-6-11, CLASS 3 COATING.

Ⓙ SILT FENCE WITH BACKING SHOULD BE PLACED ALONG OR NEAR THE GROUND CONTOURS. THE BOTTOM OF THE FENCE AT GROUND LINE SHOULD BE ON A ZERO PERCENT (0%) GRADE, PLUS OR MINUS ONE HALF PERCENT (± 0.5%). THE END OF A ROW OF SILT FENCE WITH WIRE BACKING SHOULD BE TURNED UP SLOPE FORMING A J-HOOK TO FILTER ANY CONCENTRATED FLOW BEHIND FENCE.

Ⓚ FOR TRENCH-BASED INSTALLATIONS, SILT FENCING WITH WIRE BACKING SHALL BE INSTALLED PER THE FOLLOWING STEPS AND IN THE FOLLOWING ORDER:
1. EXCAVATE TRENCH A MAXIMUM OF 4 INCHES WIDE AND 6 INCHES DEEP. THE TRENCH SHALL BE HAND-CLEANED FOLLOWING EXCAVATION TO REMOVE BULKY DEBRIS SUCH AS ROCKS, STICKS, AND SOIL CLODS FROM THE TRENCH.
2. DRIVE AND SET SUPPORT POSTS PER SPACING REQUIREMENTS GIVEN ON THE APPLICABLE FENCE DETAIL.
3. ATTACH WOVEN WIRE FENCE BACKING TO POSTS AND FABRIC TO THE WIRE BACKING USING WIRE TIES. SPACING AND DENSITY OF TIES SHALL BE INSTALLED ACCORDING TO NOTES Ⓖ AND Ⓗ.
4. INSTALL FABRIC IN TRENCH.
5. BACKFILL TRENCH (OVER-FILL) WITH SOIL PLACED AROUND FABRIC.
6. COMPACT SOIL BACKFILL WITH MECHANICAL EQUIPMENT. DO NOT DAMAGE THE FABRIC DURING COMPACTION (DAMAGED FABRIC SHALL BE REPLACED).

Ⓛ ONLY SILT FENCE WITH WIRE BACKING FABRIC LISTED ON THE QUALIFIED PRODUCTS LIST MAY BE USED. ANY PRODUCTS LISTED ON THE QUALIFIED PRODUCTS LIST AS AN APPROVED ALTERNATE MAY ALSO BE USED.

Ⓜ SILT FENCE WITH WIRE BACKING SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:

209-08.02 TEMPORARY SILT FENCE (WITH BACKING), L.F.

PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF THE SILT FENCE WITH WIRE BACKING.

Ⓝ SEDIMENT SHALL BE REMOVED FROM BEHIND THE SILT FENCE WITH WIRE BACKING WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NUMBER 209-05, SEDIMENT REMOVAL PER C.Y.

Ⓞ ORANGE SAFETY CAPS FOR METAL POSTS SHALL BE REQUIRED TO MEET OSHA REGULATION 1926.701. ALL COST OF THE CAPS TO BE INCLUDED IN THE COST OF THE FENCE.

EROSION CONTROL PLAN LEGEND: * SFB * SFB * SFB * SILT FENCE WITH WIRE BACKING

NOT TO SCALE

REV. 12-18-03: MODIFIED TABLE 2 AND GENERAL NOTE Ⓔ.
REV. 7-29-04: CHANGED VALUES IN TABLE 2 FROM MEAN TO MARV VALUES.
REV. 4-15-06: MODIFIED FABRIC HEIGHT. ADDED NOTES Ⓙ AND Ⓚ. REVISED TABLE TITLE. REORDERED GENERAL NOTES. REFORMATTED SHEET, REVISED NOTES, MISC. EDITS TO DRAWING.
REV. 4-1-08: REMOVED TEMPORARY REFERENCE, REVISED NOTES, AND MISC. EDITS TO DRAWING.
REV. 8-1-12: MINOR EDITS TO GENERAL NOTES.
REV. 06-28-2019: ADDED NOTE Ⓞ. REDREW SHEET.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

SILT FENCE WITH WIRE BACKING

12-18-2002 | EC-STR-3C

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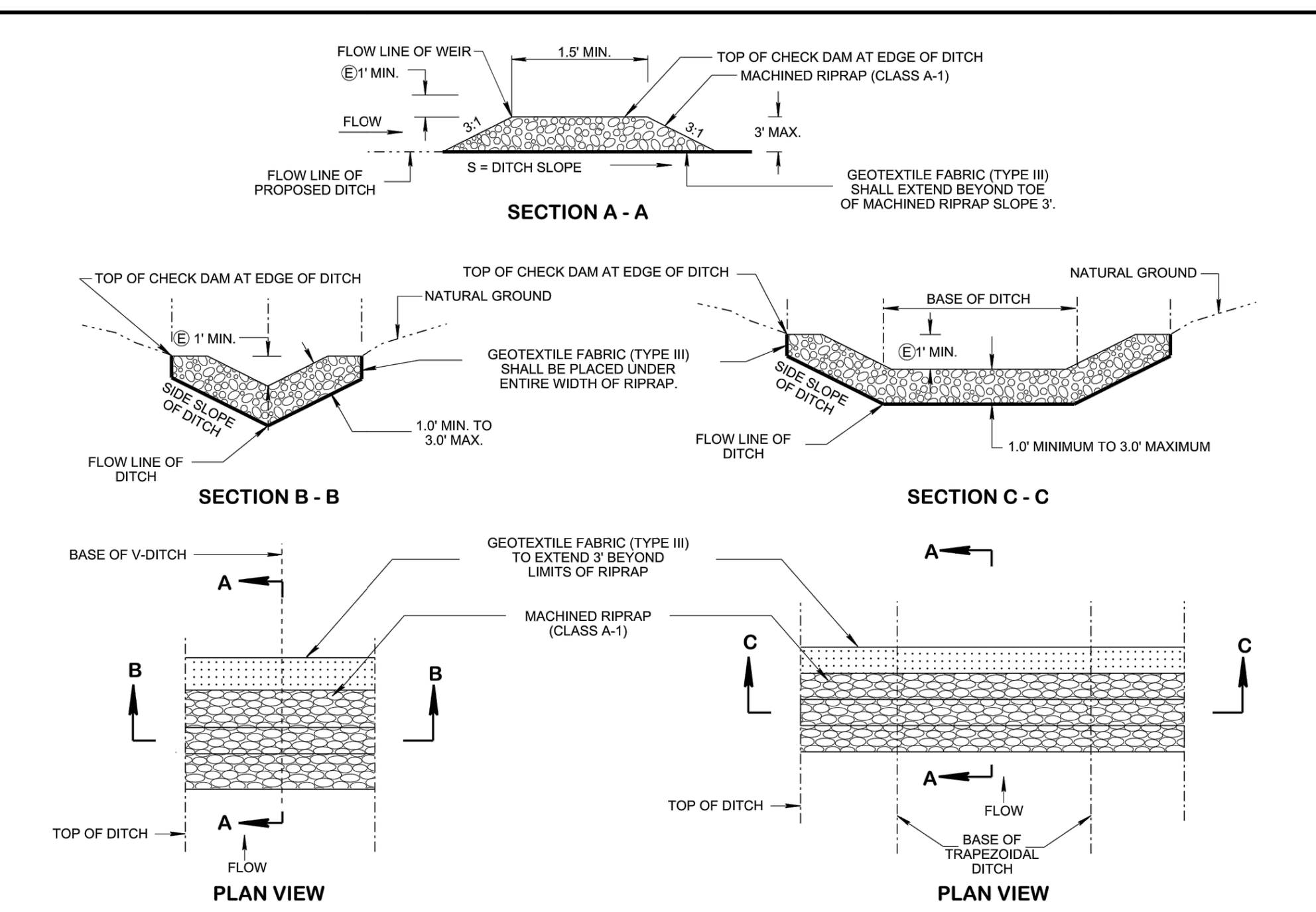
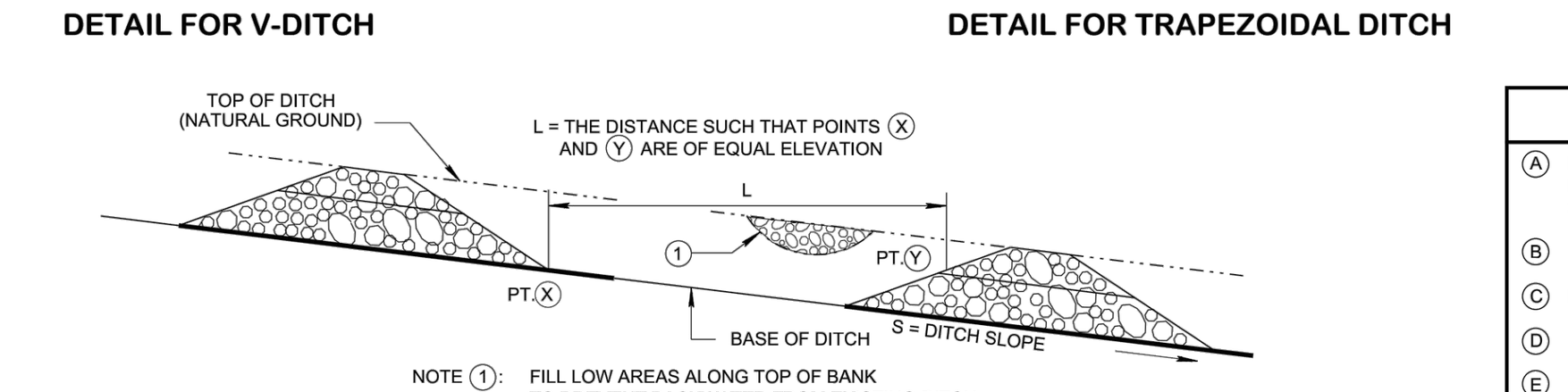
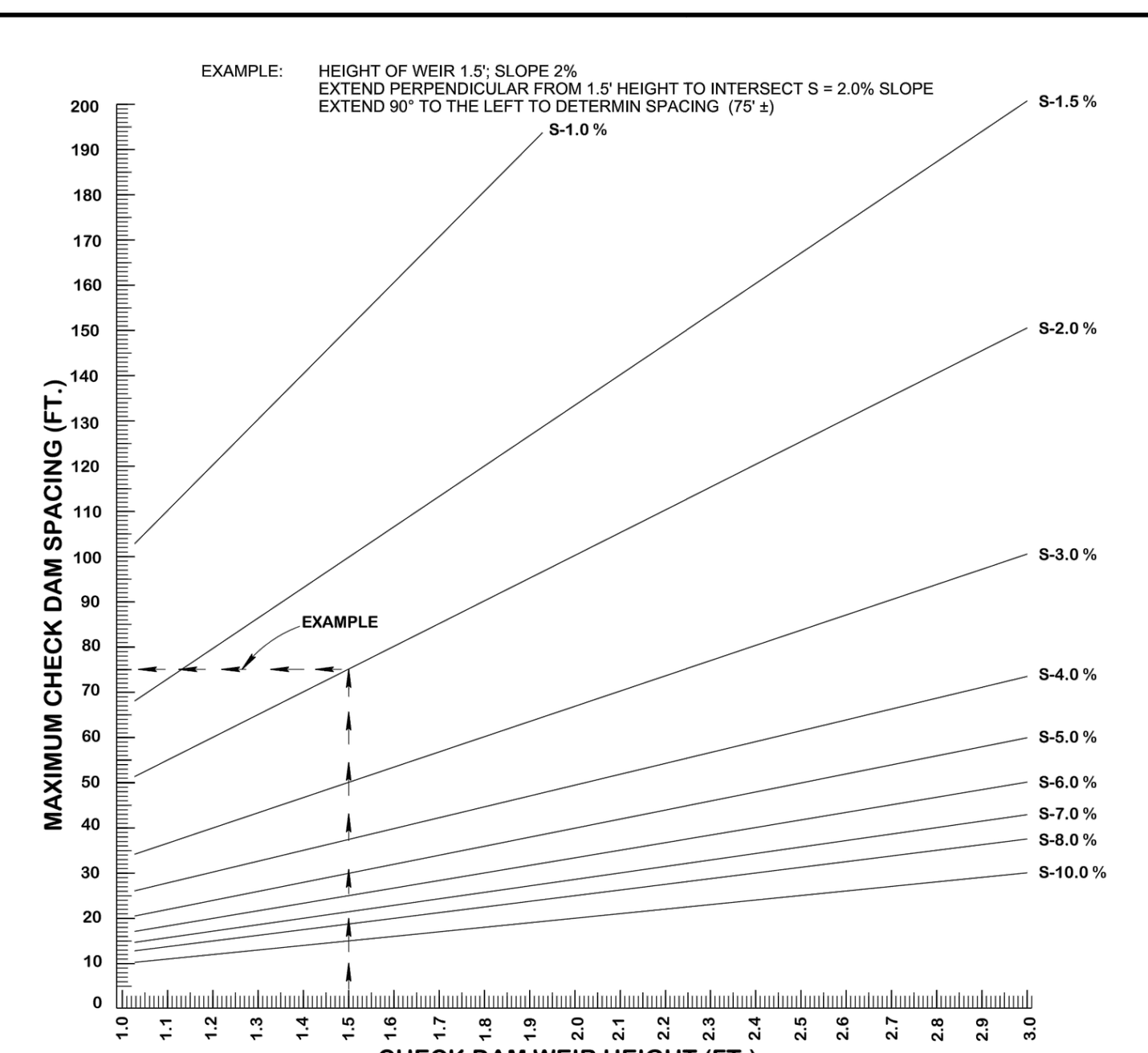




DETAIL FOR SPACING BETWEEN CHECK DAMS



ROCK CHECK DAM SPACING

ROCK CHECK DAM ESTIMATED QUANTITIES									
	2:1 DITCH SLOPE			3:1 DITCH SLOPE			4:1 DITCH SLOPE		
V-DITCH ②	HEIGHT FT	RIP RAP TON	GEOTEXTILE SF	HEIGHT FT	RIP RAP TON	GEOTEXTILE SF	HEIGHT FT	RIP RAP TON	GEOTEXTILE SF
	1.5	6.5	16.8	1.5	9.2	23.7	1.5	12.0	30.9
	2.0	13.0	24.6	2.0	18.4	34.8	2.0	24.1	45.4
	2.5	22.8	33.9	2.5	32.3	48.0	2.5	42.1	62.5
	3.0	36.5	44.7	3.0	51.7	63.2	3.0	67.3	82.5
TRAPEZOIDAL DITCH ③	HEIGHT FT	RIP RAP TON	GEOTEXTILE SF	HEIGHT FT	RIP RAP TON	GEOTEXTILE SF	HEIGHT FT	RIP RAP TON	GEOTEXTILE SF
	1.5	8.9	22.8	1.5	11.6	29.7	1.5	14.4	36.9
	2.0	16.9	31.9	2.0	22.3	42.1	2.0	27.9	52.7
	2.5	28.7	42.6	2.5	38.1	56.6	2.5	47.9	71.2
	3.0	44.7	54.7	3.0	59.8	73.2	3.0	75.5	92.4

② ESTIMATED QUANTITIES BASED ON 4:1 SIDE SLOPES. QUANTITIES WILL VARY BASED ON ACTUAL DITCH CONFIGURATION.

③ ESTIMATED QUANTITIES BASED ON 4 FT BOTTOM WIDTH, AND 4:1 SIDE SLOPES. QUANTITIES WILL VARY BASED ON ACTUAL DITCH CONFIGURATION.

ROCK CHECK DAM GENERAL NOTES

Ⓐ ROCK CHECK DAMS ARE TO BE USED FOR VELOCITY REDUCTION AND EROSION PREVENTION IN AREAS WHERE CONCENTRATED FLOW EXISTS. ROCK CHECK DAMS SHALL NOT BE USED IN STREAMS OR OTHER NATURAL WATER RESOURCES. ROCK CHECK DAMS ARE NOT TO BE USED FOR SEDIMENT CONTROL AND SHOULD NOT BE CONSIDERED A SEDIMENT TRAPPING DEVICE.

Ⓑ THE DRAINAGE AREA FOR THE ROCK CHECK DAMS SHALL BE 10 ACRES OR LESS.

Ⓒ ROCK CHECK DAMS MAY REMAIN IN PLACE AS PERMANENT CHECK DAMS, IF SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

Ⓓ THE CENTER OF THE ROCK CHECK DAM MUST BE AT LEAST ONE (1) FOOT LOWER THAN THE OUTER EDGES.

Ⓔ THE DEPTH OF FLOW ON THE CENTER OF THE STRUCTURE SHALL BE COMPUTED FOR THE PEAK FLOW RATE GENERATED BY THE 2-YEAR, 24-HOUR STORM IN ORDER TO ENSURE THAT THE TOP OF THE STRUCTURE WILL NOT BE OVERTOPPED. FOR SITES WHICH DRAIN TO EXCEPTIONAL TENNESSEE WATERS OR SEDIMENT-IMPARIED STREAMS, THE DEPTH SHOULD BE DETERMINED FOR THE 5-YEAR, 24-HOUR PEAK FLOW RATE. THIS WILL ELIMINATE THE ROCK-SOIL FAILURE POINT WHERE THE ROCK CHECK DAM AND NATURAL GROUND MERGE.

Ⓕ FOR SITES WHICH DRAIN TO EXCEPTIONAL TENNESSEE WATERS OR SEDIMENT-IMPAIRED STREAMS, THE MINIMUM HEIGHT OF THE STRUCTURE ABOVE THE DITCH BOTTOM SHALL BE INCREASED TO 2 FEET.

Ⓖ THE MAXIMUM SPACING BETWEEN ROCK CHECK DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE FLOW LINE OF THE WEIR OF THE DOWNSTREAM DAM (SEE ROCK CHECK SPACING GRAPH THIS SHEET).

Ⓗ ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.

Ⓘ PRODUCTS LISTED ON THE QUALIFIED PRODUCTS LIST FOR FILTER SOCK DITCH APPLICATION (SEE STANDARD DRAWING EC-STR-8) MAY BE USED AND SHALL BE PAID UNDER FOLLOWING ITEM NUMBER:

209-08.09, FILTER SOCK CHECK DAM, EACH.

Ⓙ ROCK CHECK DAMS SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:

209-08.07, ROCK CHECK DAM, EACH.

PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF ROCK CHECK DAMS.

Ⓚ SEDIMENT SHALL BE REMOVED FROM BEHIND THE ROCK CHECK DAMS WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE DAM AND PAID FOR UNDER ITEM NUMBER:

209-05, SEDIMENT REMOVAL, C.Y.

EROSION CONTROL PLAN LEGEND : ROCK CHECK DAM (V-DITCH), ROCK CHECK DAM (TRAPEZOIDAL DITCH)

NOT TO SCALE

REV. 12-18-95: CHANGED DRAWING NO. FROM ESC-STR-6 TO EC-STR-6.
REV. 7-29-96: MADE MINOR CORRECTIONS TO GENERAL NOTES.
REV. 4-15-98: CHANGED PAY ITEMS FOR CHECK DAMS.
REV. 5-27-01: CHANGED DESCRIPTION FOR GEOTEXTILE FABRIC (TYPE III, CLASS A) TO GEOTEXTILE FABRIC (TYPE III).
REV. 12-18-02: CHANGED GENERAL NOTE Ⓖ.
REV. 1-22-03: CORRECTED NOTE IN SECTION A-A.
REV. 4-15-06: REFORMATTED SHEET, REVISED NOTES, MISC. EDITS TO DRAWING.
REV. 4-1-08: REMOVED TEMPORARY REFERENCE, REVISED NOTES, MISC. EDITS TO DRAWING, MODIFIED SPACING CHART.
REV. 8-1-12: MINOR EDITS TO GENERAL NOTES.
REV. 5-6-16: REVISED QUANTITIES TABLE, REVISED GENERAL NOTE Ⓘ. REVISED DITCH DETAIL.
REV. 11-30-20: REDREW SHEET. REVISED GENERAL NOTE Ⓙ ITEM DESCRIPTION.

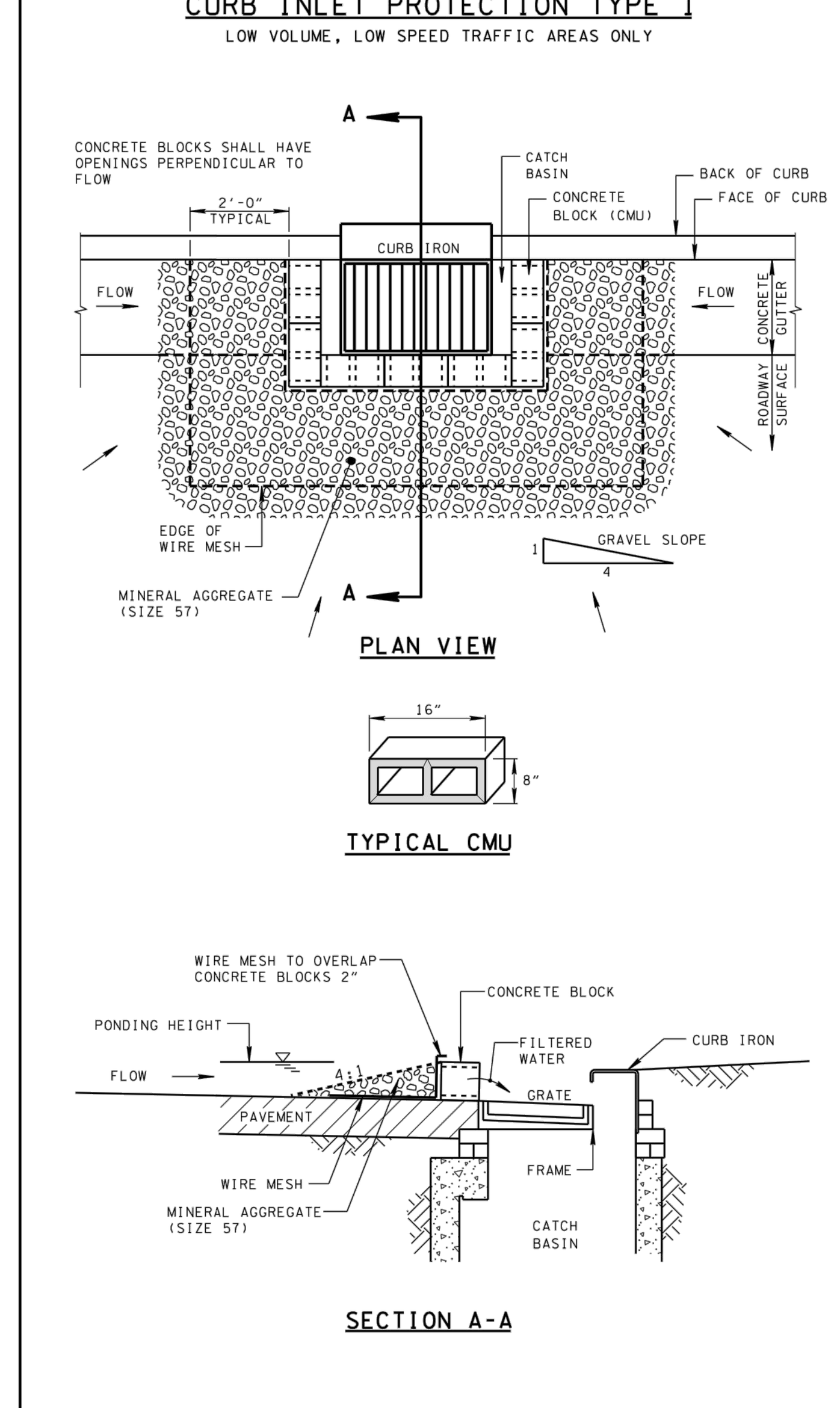
STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

ROCK CHECK DAM

10-26-1992 | EC-STR-6

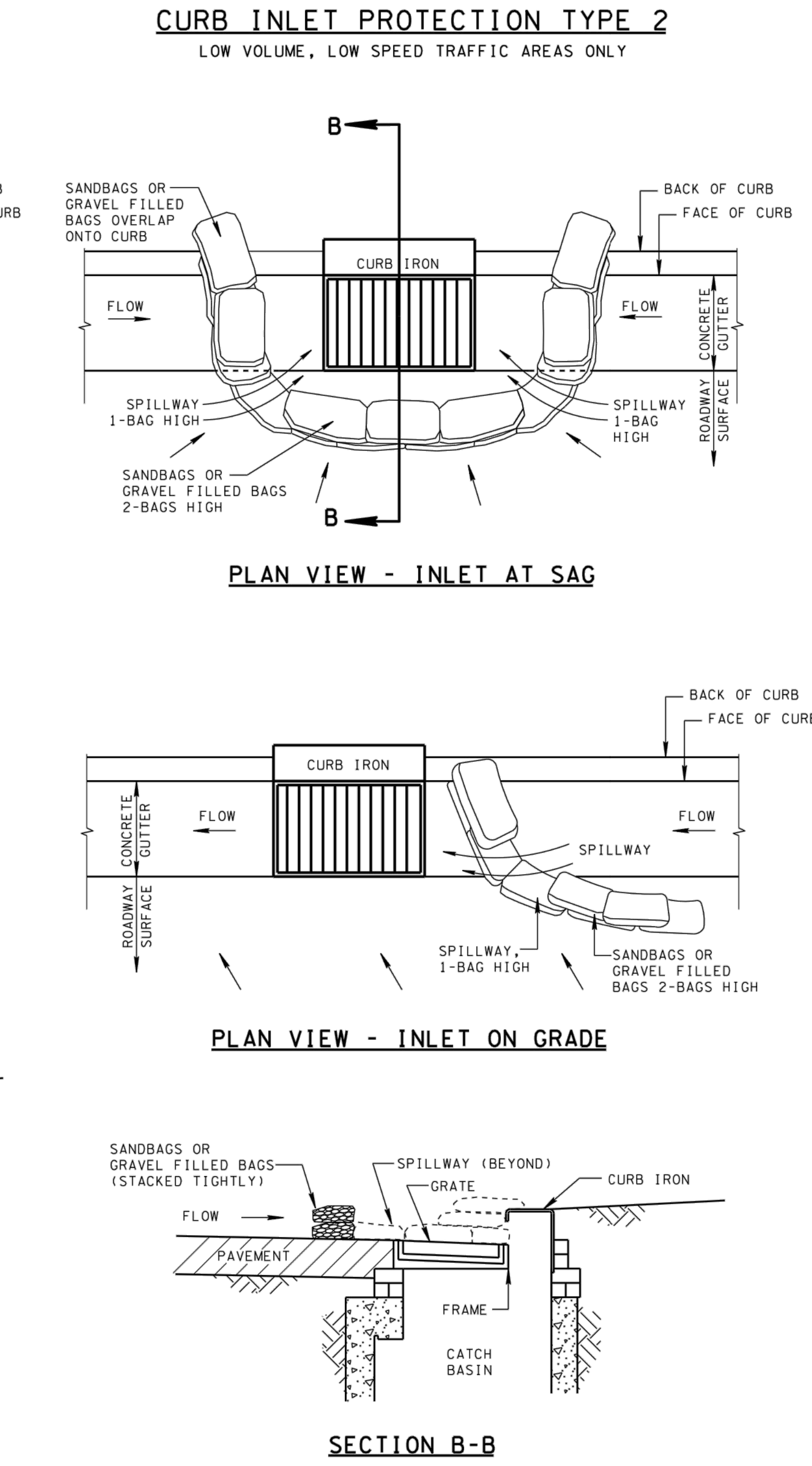
CURB INLET PROTECTION TYPE 1

LOW VOLUME, LOW SPEED TRAFFIC AREAS ONLY



CURB INLET PROTECTION TYPE 2

LOW VOLUME, LOW SPEED TRAFFIC AREAS ONLY



CURB INLET PROTECTION TYPE 1 GENERAL NOTES

(A1) CURB INLET PROTECTION (TYPE 1) IS USED TO INTERCEPT SEDIMENT AND PREVENT SEDIMENT LADEN WATER FROM ENTERING STORM SEWER SYSTEMS. THIS DEVICE IS INTENDED AS A SECONDARY SEDIMENT CONTROL MEASURE. CURB INLET PROTECTION (TYPE 1) IS USED IN AREAS WHERE PONDING IS NOT A CONCERN AND ADEQUATE AREA IS AVAILABLE FOR PONDING.

(A2) MAXIMUM DRAINAGE AREA IS 1 ACRE.

(A3) CONCRETE BLOCKS SHALL BE PLACED LENGTHWISE ON THEIR SIDES IN A SINGLE ROW AROUND THE PERIMETER OF THE INLET. THE ENDS OF ADJACENT BLOCKS SHOULD ABUT TIGHTLY TOGETHER.

(A4) ADDITIONAL BLOCKS WITH OPENINGS PERPENDICULAR TO FLOW MAY BE REQUIRED DEPENDING ON AMOUNT OF FLOW AND AVAILABLE PONDING AREA.

(A5) WIRE MESH SHALL BE 19 GUAGE GALVANIZED HARDWARE CLOTH WITH ¼ INCH OPENINGS. WIRE SHALL BE SHAPED TO FIT SECURELY AGAINST CONCRETE BLOCK AND SHALL LAP OVER THE TOP OF THE BLOCK A MINIMUM OF 2 INCHES.

(A6) CURB INLET PROTECTION (TYPE 1) SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER.

209-09.40 CURB INLET PROTECTION (TYPE 1) PER EACH

PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF CURB INLET PROTECTION (TYPE 1).

(A7) ANY PRODUCT LISTED ON THE QUALIFIED PRODUCTS LIST AS AN APPROVED ALTERNATE IS ALSO ACCEPTABLE.

(A8) MAINTENANCE SHALL BE PERFORMED AS NEEDED. FOR PROPER FUNCTION, SEDIMENT REMOVAL SHALL BE PERFORMED CONTINUOUSLY AND/OR AFTER EVERY RAIN EVENT AND PAID FOR UNDER ITEM NUMBER 209-05, SEDIMENT REMOVAL, PER CUBIC YARD.

CURB INLET PROTECTION TYPE 2 GENERAL NOTES

(B1) CURB INLET PROTECTION (TYPE 2) IS USED TO INTERCEPT SEDIMENT AND PREVENT SEDIMENT LADEN WATER FROM ENTERING STORM SEWER SYSTEMS. THIS DEVICE IS INTENDED AS A SECONDARY SEDIMENT CONTROL MEASURE. CURB INLET PROTECTION (TYPE 2) IS USED IN AREAS WHERE PONDING IS NOT A CONCERN AND ADEQUATE AREA IS AVAILABLE FOR PONDING.

(B2) MAXIMUM DRAINAGE AREA IS 1 ACRE.

(B3) MAXIMUM TOP OF SPILLWAY ELEVATION = TOP OF CURB ELEVATION MINUS 1 INCH.

(B4) BAGS SHALL BE MADE OF EITHER BURLAP OR GEOTEXTILE FABRIC AND FILLED WITH CLEAN MINERAL AGGREGATE (SIZE 57) OR SAND.

(B5) PACK SAND/GRAVEL FILLED BAGS TIGHTLY TOGETHER END TO END TO ENSURE NO SEDIMENT FLOWS BETWEEN OR UNDERNEATH THE BAGS. WHERE TIGHT FIT IS UNACHIEVABLE, INSTALL GEOTEXTILE FABRIC (TYPE III) ALONG THE UPSTREAM FACE OF THE BAGS LAPPING OVER THE TOP BAGS 6 INCHES AND EXTENDING GEOTEXTILE FABRIC (TYPE III) A MINIMUM OF 18 INCHES UPSTREAM OF THE BAGS. COVER GEOTEXTILE FABRIC (TYPE III) WITH MINERAL AGGREGATE (SIZE 57) STONE WEDGE TO THE TOP OF THE BAGS.

(B6) ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.

(B7) AN OVERFLOW SPILLWAY SHALL BE PROVIDED BY LEAVING AN OPENING OF ONE SAND OR GRAVEL BAG WIDE AND HIGH AS SHOWN. STORMS GREATER THAN 2-YEAR, 24 HOUR STORM SHOULD NOT OVERTOP THE CURB.

(B8) CURB INLET PROTECTION (TYPE 2) SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:

209-09.41 CURB INLET PROTECTION (TYPE 2) PER EACH

PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF CURB INLET PROTECTION (TYPE 2).

(B9) ANY PRODUCT LISTED ON THE QUALIFIED PRODUCTS LIST AS AN APPROVED ALTERNATE IS ALSO ACCEPTABLE.

(B10) MAINTENANCE SHALL BE PERFORMED AS NEEDED. FOR PROPER FUNCTION SEDIMENT REMOVAL SHALL BE PERFORMED CONTINUOUSLY AND/OR AFTER EVERY RAIN EVENT AND PAID FOR UNDER ITEM NUMBER 209-05, SEDIMENT REMOVAL, PER CUBIC YARD.

EROSION CONTROL PLAN LEGEND: ① CURB INLET PROTECTION (TYPE 1) EROSION CONTROL PLAN LEGEND: ② CURB INLET PROTECTION (TYPE 2)

REV. 4-15-06: REFORMATTED SHEET, REVISED NOTES, MISC. EDITS TO DRAWING.
REV. 4-1-08: MISC. MINOR EDITS AND GENERAL NOTE REVISIONS.
REV. 8-1-12: MINOR EDITS TO GENERAL NOTES.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

NOT TO SCALE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CURB INLET PROTECTION TYPE 1 & 2

1-20-06 | EC-STR-39

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ON SITE
CIVIL GROUP
980 BIRMINGHAM RD, SUITE 501-340, MILTON, GA 30004
PHONE: 678-615-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 124450
STATE OF TENNESSEE

REVISIONS		
No.	DATE	DESCRIPTION
-	-	-

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

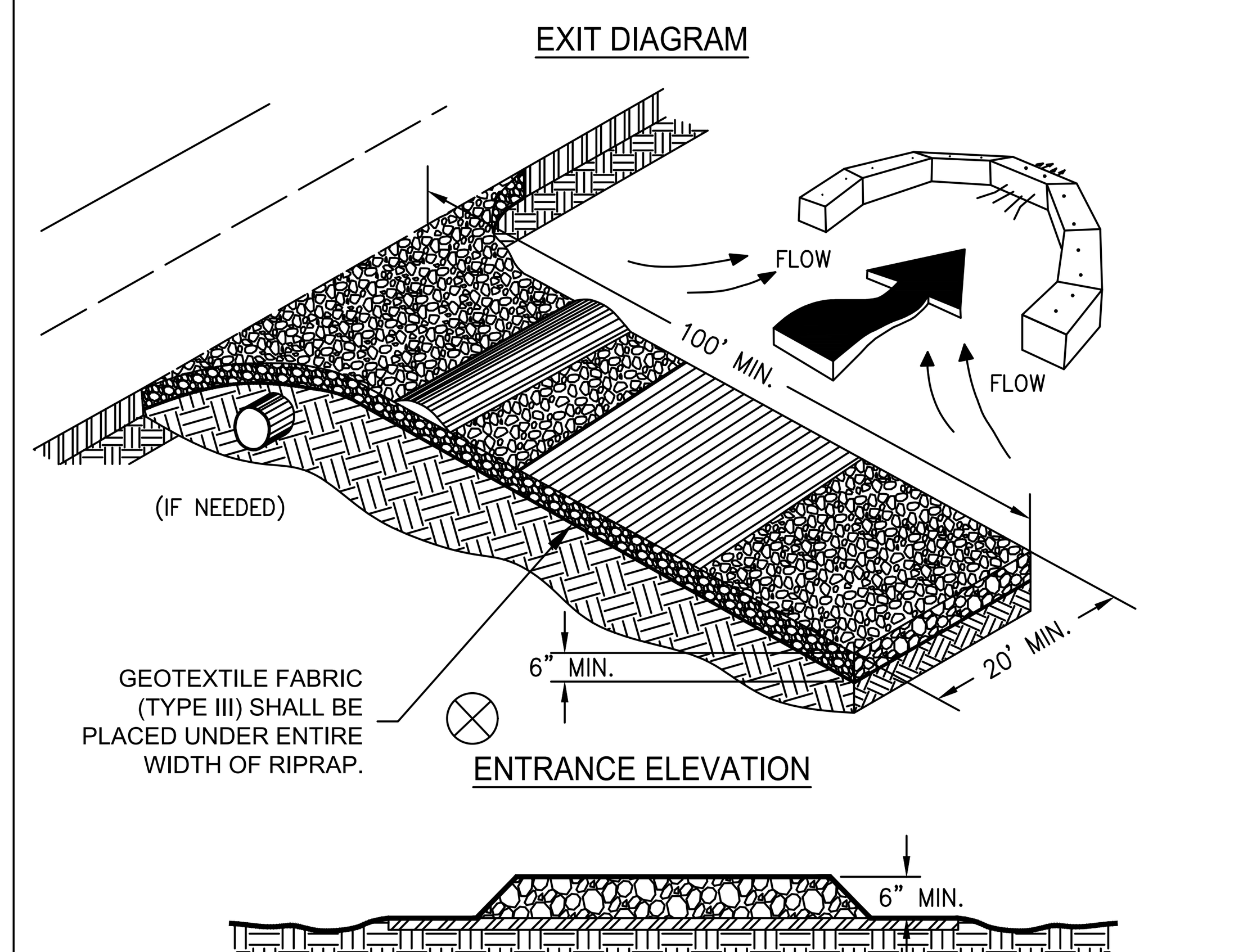
COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

EPSC DETAILS

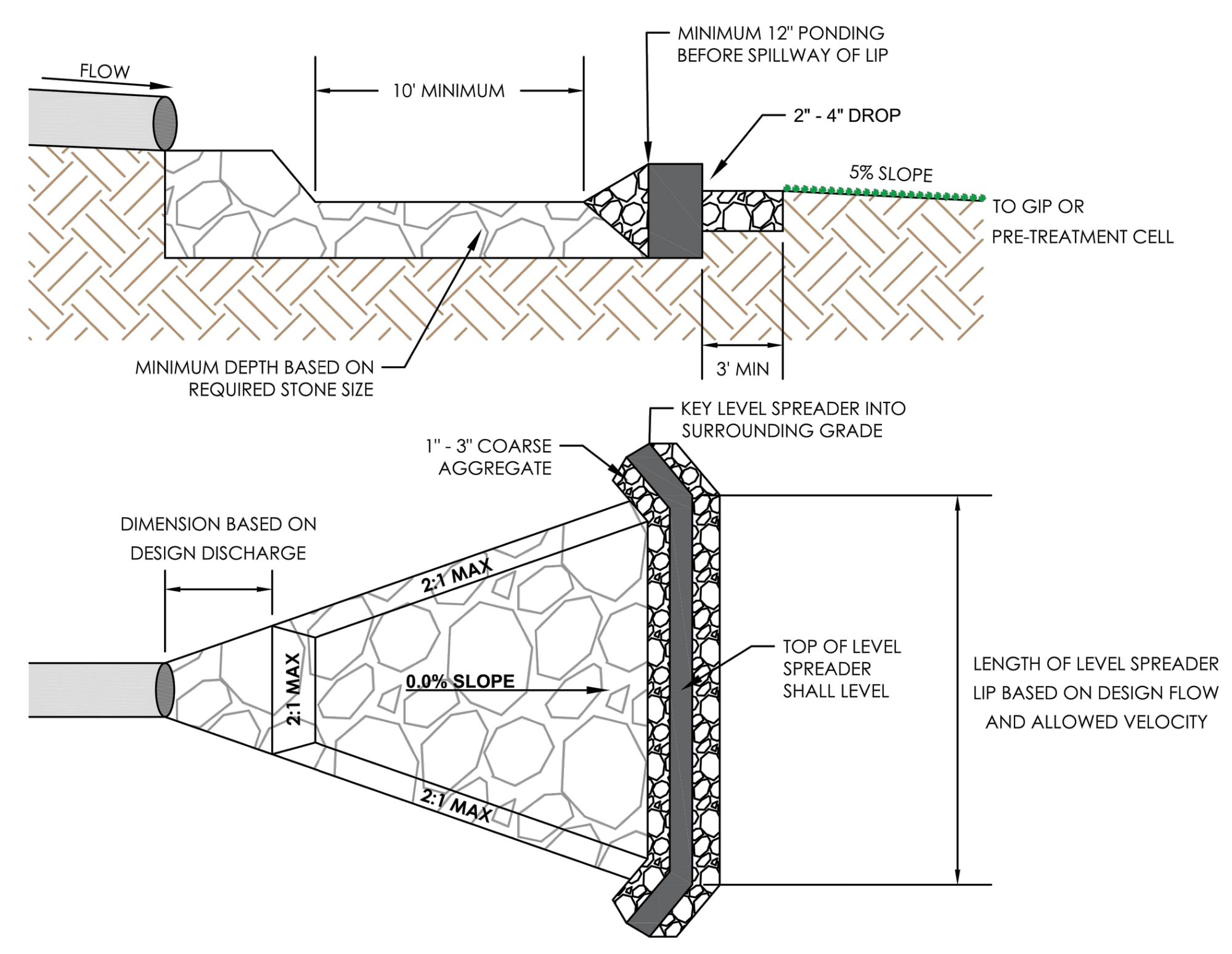
DATE: 5-4-23
PROJECT: 22-030

SHEET: C 3.4

CRUSHED STONE CONSTRUCTION EXIT



NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%..
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

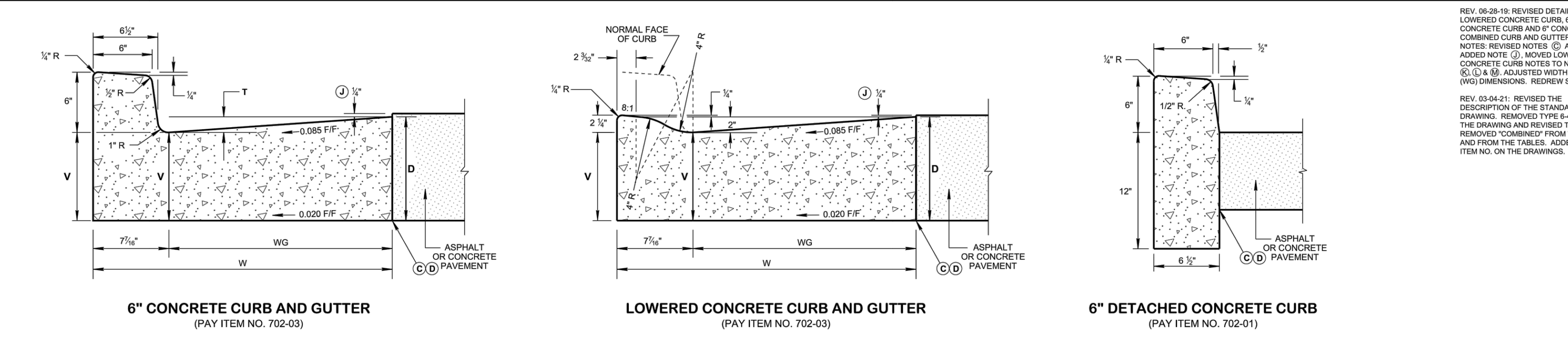


THE GRAVEL FLOW SPREADER IS LOCATED AT CURB CUTS, DOWNSPOUTS, OR OTHER CONCENTRATED INFLOW POINTS, AND SHALL HAVE A 2" - 4" ELEVATION DROP FROM A HARD-EDGED SURFACE INTO A GRAVEL OR STONE DIAPHRAGM. THE GRAVEL SHOULD EXTEND THE ENTIRE WIDTH OF THE OPENING AND CREATE A LEVEL STONE WEIR AT THE BOTTOM OR TREATMENT ELEVATION OF THE BASIN. CONSTRUCTION INSPECTION IS CRITICAL TO OBTAIN ADEQUATE SPOT ELEVATIONS, TO ENSURE THE GRAVEL FLOW SPREADER LIP IS LEVEL, KEYED INTO EXISTING CONTOURS, AND CONSTRUCTED TO THE CORRECT DESIGN ELEVATION.

LEVEL SPREADER NOTES:
1. ALL STONE SHALL BE WASHED BEFORE INSTALLATION
2. MINIMUM PONDING DEPTH OF 12" TO SPREADER LIP
3. THE FOREBAY SHALL BE SIZED TO ACCOMMODATE 0.2% OF THE CONTRIBUTING IMPERVIOUS AREA
4. THE LEVEL SPREADER LIP SHALL BE AN ACCEPTED, RIGID, NON-ERODIBLE MATERIAL; TIMBER WOOD IS NOT ACCEPTED
5. **SEE CITY BMP MANUAL FOR SPECIFIC DESIGN REQUIREMENTS**

N.T.S.

TITLE: Pre-Treatment (concentrated flow) GRAVEL/STONE FLOW SPREADER	CITY OF FRANKLIN ENGINEERING 109 THIRD AVE SOUTH FRANKLIN, TN 37064	
DWG.NO.: PRE-05	DIRECTOR OF ENGINEERING	DATE: 04/30/2021
EFFECTIVE DATE: 07/01/2021	STORMWATER COORDINATOR	DATE: 04/30/2021



CONCRETE CURB AND GUTTER TABLE

TYPE	TOTAL WIDTH (W) IN INCHES	WIDTH OF GUTTER (WG) IN INCHES	VERTICAL DROP (T) IN INCHES	VERTICAL DEPTH (V) OF GUTTER ✠ AT FLOW LINE
6-30	30	22 9/16"	2	D - 1 17/32"
6-36	36	28 9/16"	2½	D - 1 29/32"

✠ VERTICAL DEPTH (V) MUST ALWAYS EXCEED SIX (6) INCHES.

QUANTITIES FOR DETACHED CURB

HEIGHT OF CURB	CUBIC YARD PER LINEAR FOOT
6"	0.02950
LOWERED CURB	0.02534

QUANTITIES FOR CURB AND GUTTER

DEPTH (D) OF GUTTER IN INCHES	TOTAL WIDTH (W) IN INCHES	6" CONCRETE CURB AND GUTTER (CY/LF)	LOWERED CONCRETE CURB AND GUTTER (CY/LF)
8	30	0.06409	0.05711
	36	0.07780	0.07085
9	30	0.07181	0.06483
	36	0.08706	0.08011
10	30	0.07953	0.07254
	36	0.09632	0.08934
11	30	0.08724	0.08026
	36	0.10558	0.09860
12	30	0.09496	0.08799
	36	0.11484	0.10786

LEGEND

D = VERTICAL DEPTH OF GUTTER (IS BASED ON PAVEMENT DESIGN)
T = VERTICAL DROP IN GUTTER FROM FRONT EDGE TO FACE OF CURB
V = VERTICAL DEPTH OF GUTTER AT FLOW LINE
W = TOTAL WIDTH OF COMBINED CURB AND GUTTER
WG = WIDTH OF GUTTER

GENERAL NOTES

(A) FOR SPECIFICATIONS SEE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION, SECTION 702 - CEMENT CONCRETE CURB, GUTTER AND COMBINED CURB AND GUTTER.
(B) THE FRONT FACE OF THE CONCRETE CURBS FOR ALL DEGREES OF CURVATURE SHALL CONFORM TO THE CONTOUR OF THE CURVE AND NO CHORD SECTIONS WILL BE PERMITTED.
(C) CONCRETE EXPANSION JOINT MATERIAL IS TO BE 1/2" IN THICKNESS AT ALL LOCATIONS. ALL MATERIAL IS TO BE PRE-MOLDED FIBER IN ACCORDANCE WITH SECTION 905 - JOINT MATERIALS OF THE STANDARD SPECIFICATIONS.
(D) EXPANSION JOINTS ARE TO BE PLACED AS FOLLOWS:
1. AT TANGENT POINTS OF CIRCULAR CURBS.
2. BETWEEN CURBS AND ABUTTING RIGID OBJECTS.
3. AT OTHER PLACES WHERE STRESSES MAY DEVELOP.
4. TO LINE UP WITH PAVEMENT JOINTS WHERE THE ADJACENT PAVEMENT IS CONCRETE.
5. THE MAXIMUM SPACING IS TO BE 100 FEET.
6. BETWEEN CONCRETE CURBS OR CURB AND GUTTERS AND CONCRETE PAVEMENT. IT IS NOT REQUIRED WHEN CURBS OR CURB AND GUTTERS ARE ADJACENT TO ASPHALT.
(E) CONTRACTION JOINTS ARE TO BE SPACED AT 10 FEET. THE SPACING OF 10 FEET MAY BE REDUCED FOR CLOSURES, BUT NOT LESS THAN 6 FEET.
(F) EDGES OF JOINTS SHALL BE FINISHED ON 1/4" RADII.
(G) ALL COST OF JOINTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE CURBS AND CONCRETE CURBS AND GUTTERS.
(H) THE UNIT PRICE BID FOR CONCRETE CURB, CONCRETE CURB AND GUTTER AND CONCRETE PAVEMENT WILL INCLUDE ANY CIRCULAR SECTION REQUIRED TO BE BUILT CONFORMING TO SECTIONS SHOWN ON THIS SHEET.
(I) PAYMENT WILL BE AS FOLLOWS:
ITEM NO. 702-01, CONCRETE CURB, PER C.Y.
ITEM NO. 702-03, CONCRETE COMBINED CURB AND GUTTER, PER C.Y.
(J) THE 1/4" HEIGHT IS FOR WHEN ASPHALT PAVEMENT IS ADJACENT TO CONCRETE CURB AND GUTTER ONLY. CONCRETE PAVEMENT WILL BE FLUSH WITH THE TOP OF THE GUTTER.

LOWERED CONCRETE CURB NOTES

(K) TO BE BUILT AS COMBINED CURB AND GUTTER, DETACHED CURB OR INTEGRAL CURB AS NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
(L) FOR DETACHED CURB, OMIT RADIUS AT FLOW LINE.
(M) TO BE USED FOR PROPOSED RAMP OPENINGS.

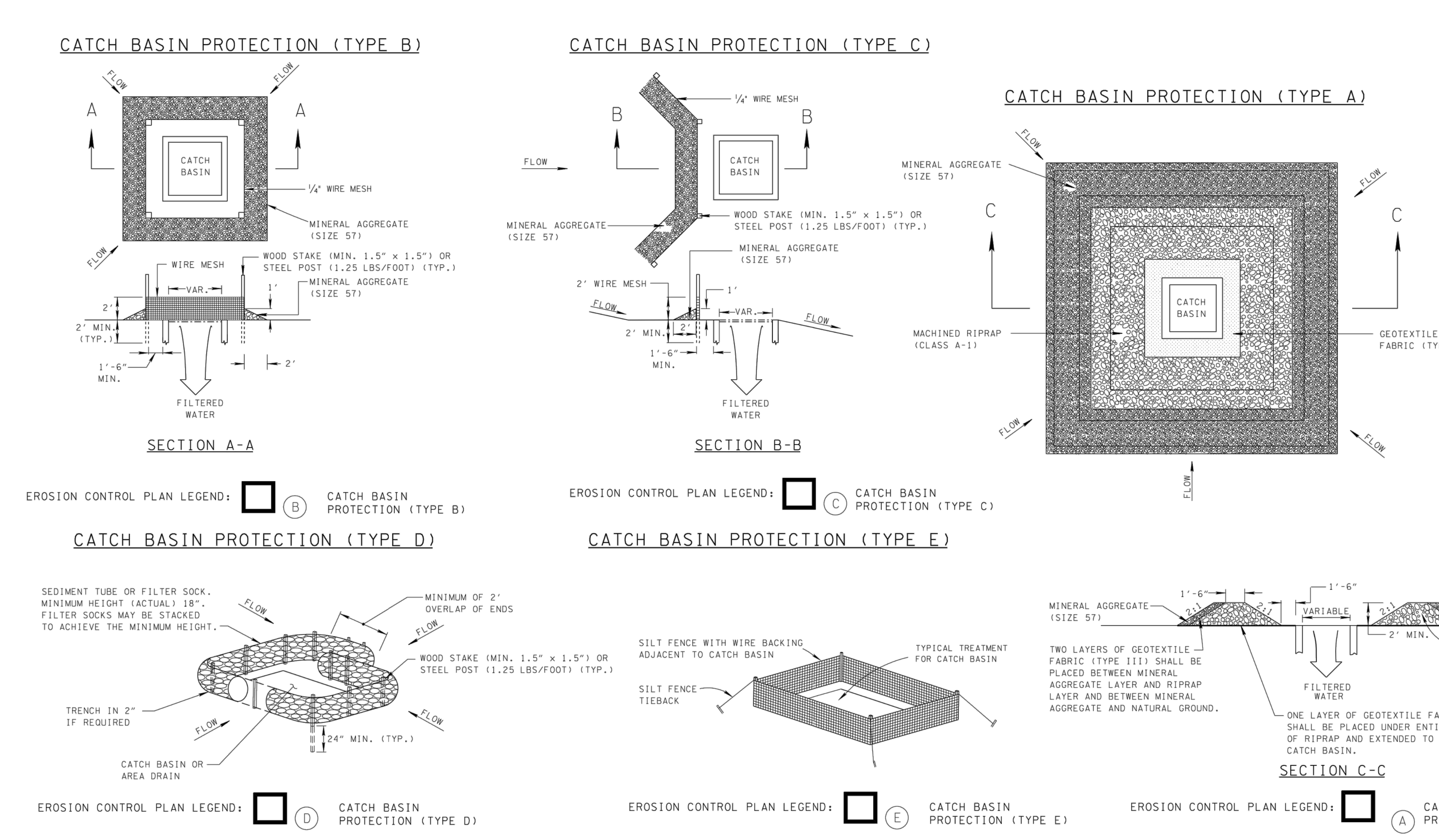
REV. 06-28-19: REVISED DETAILS FOR LOWERED CONCRETE CURB, 6" DETACHED CONCRETE CURB AND 6" CONCRETE COMBINED CURB AND GUTTER. GENERAL NOTES: REVISED NOTES (C) AND (D), ADDED NOTE (J), MOVED LOWERED CONCRETE CURB NOTES TO NOTE NOS. (K), (L) & (M). ADJUSTED WIDTH OF GUTTER (WG) DIMENSIONS. REDREW SHEET.

REV. 03-04-21: REVISED THE DESCRIPTION OF THE STANDARD DRAWING. REMOVED TYPE 6-45 FROM THE DRAWING AND REVISED TABLES. REMOVED "COMBINED" FROM THE TITLE AND FROM THE TABLES. ADDED PAY ITEM NO. ON THE DRAWINGS.

(Replaced Std Dwg RP-NMC-10)

STATE OF TENNESSEE — STANDARD DRAWING — DEPARTMENT OF TRANSPORTATION
VERTICAL CONCRETE CURB AND CURB AND GUTTER (FOR 8" TO 12" GUTTER DEPTH)
05-15-2018 RP-VC-10

NOT TO SCALE



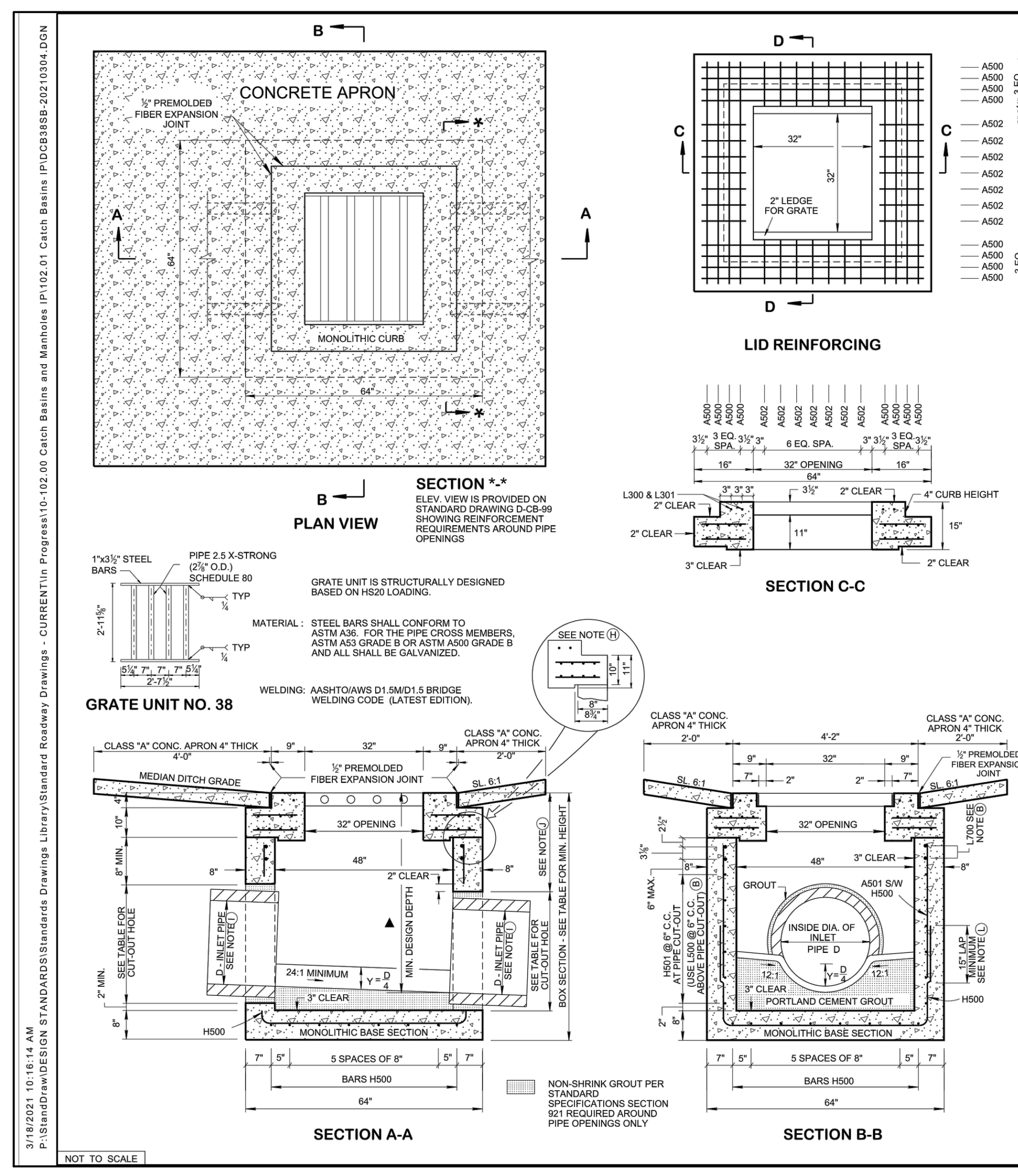
REV. 12-18-95: CHANGED DRAWING NO. FROM ESC-STR-19 TO EC-STR-19.
REV. 5-27-01: CHANGED ITEM NO. 303-15.01 TO 303-10.01.
REV. 12-18-02: IN CATCH BASIN SILT FENCE SILT TRAP CHANGED TYPE OF SILT FENCE FROM SILT FENCE (WITHOUT BACKING) TO SILT FENCE (WITH BACKING) AND PAY ITEM FROM 209-08 TO 209-08.02.
REV. 3-15-04: CHANGED LEGENDS FOR TEMPORARY ROCK AND SILT FENCE CATCH BASIN PROTECTION.
REV. 4-15-06: REFORMATTED SHEET, REVISED NOTES, MISC. EDITS TO DRAWING.
REV. 4-1-08: REPLACED HAY BALE SILT TRAP, REVISED GENERAL NOTES, AND MISC. EDITS TO DRAWING.

CATCH BASIN PROTECTION GENERAL NOTES

(A) CATCH BASIN PROTECTION IS USED TO PREVENT SEDIMENT IN CONSTRUCTION SITE RUNOFF FROM ENTERING A STORM SEWER SYSTEM.
(B) TYPE B, TYPE C, TYPE D (SEDIMENT TUBE), AND TYPE E SHOULD ONLY BE USED IN UNPAVED AREAS. TYPE A AND TYPE D (FILTER SOCK) MAY BE USED IN BOTH UNPAVED AND PAVED AREAS.
(C) TYPE B, TYPE C, TYPE D, AND TYPE E HAVE A MAXIMUM DRAINAGE AREA OF 1 ACRE. TYPE A HAS A MAXIMUM DRAINAGE AREA OF 2 ACRES.
(D) ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.
(E) THE WIRE MESH USED IN TYPE B AND TYPE C SHALL BE A MINIMUM 19 GAGE HARDWARE CLOTH WITH 1/4 INCH MESH OPENINGS.
(F) FOR INSTALLATION DETAILS FOR SILT FENCE WITH WIRE BACKING (EC-STR-3C), FILTER SOCK (EC-STR-8), AND SEDIMENT TUBE (EC-STR-37) REFER TO THEIR RESPECTIVE STANDARD DRAWING. FILTER SOCKS MAY NOT REQUIRE STAKING WHEN APPROVED BY THE ENGINEER.
(G) ANY PRODUCT LISTED ON THE QUALIFIED PRODUCTS LIST AS AN APPROVED ALTERNATE IS ALSO ACCEPTABLE.
(H) CATCH BASIN PROTECTION SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBERS:
209-40.30 CATCH BASIN PROTECTION (TYPE A) PER EACH
209-40.31 CATCH BASIN PROTECTION (TYPE B) PER EACH
209-40.32 CATCH BASIN PROTECTION (TYPE C) PER EACH
209-40.33 CATCH BASIN PROTECTION (TYPE D) PER EACH
209-40.34 CATCH BASIN PROTECTION (TYPE E) PER EACH
PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF CATCH BASIN PROTECTION.
(I) SEDIMENT SHALL BE REMOVED FROM BEHIND THE CATCH BASIN PROTECTION WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NUMBER 209-05, SEDIMENT REMOVAL, PER CUBIC YARD.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION
CATCH BASIN PROTECTION
10-26-92 EC-STR-19



CATCH BASIN MAXIMUM DEPTH NOTE

MAXIMUM DEPTH FOR THIS STRUCTURE IS 28.00'.

CATCH BASIN DIMENSIONS

INSIDE DIAMETER (D) OF PIPE (INCHES)	PIPE WALL THICKNESS (INCHES)	DIAMETER OF CUT-OUT HOLES (INCHES)	BOX SECTION MINIMUM HEIGHTS (INCHES)	▲ FOR DESIGN USE ONLY CATCH BASIN MINIMUM DESIGN DEPTH (FEET)
18	2½	25	57	3.82
24	3	32	64	4.36
30	3½	39	71	4.90
36	4	46	78	5.45

(1) CUT-OUT HOLES BASED ON REINFORCED CONCRETE PIPE WITH WALL TYPE "B".
(2) ALL FLEXIBLE PIPE MATERIALS REQUIRE GASKET. SEE STANDARD DRAWING D-PB-2.
(3) CUT-OUT HOLES FOR PRECAST STRUCTURES TO BE FORMED IN ORDER TO OBTAIN A SMOOTH EDGED HOLE. SCORED OR ETCHED HOLES WITH REINFORCING STEEL LEFT UNCUT WILL NOT BE PERMITTED.

REINFORCING STEEL LEGEND

DIMENSIONS SHOWN ON THIS LEGEND ARE OUTSIDE TO OUTSIDE OF BAR. STANDARD C.R.S.I. HOOK AND TIE DETAILS SHALL APPLY, EXCEPT AS NOTED.

GENERAL NOTES

(A) DRAWING TO BE USED FOR ALL CAST-IN-PLACE NO. 38SB CONCRETE CATCH BASINS AND ALL PRECAST NO. 38SB CONCRETE CATCH BASINS. SEE STANDARD DRAWING D-CB-99 FOR ADDITIONAL CONSTRUCTION NOTES AND DETAILS.
(B) THIS DRAWING DEPICTS THE MINIMUM HORIZONTAL REINFORCING AT THE TOP OF CATCH BASIN WALLS. SEE ADDITIONAL DETAILS ON STANDARD DRAWING D-CB-99 FOR TALLER SECTIONS AND STEEL PLACEMENT ABOVE PIPE OPENINGS.
(C) CAST-IN-PLACE CONCRETE CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS, SECTION 611 AND/OR SPECIAL PROVISIONS UNLESS SUPERSEDED BY THIS DRAWING. THE CONTRACTOR MAY WITH PERMISSION FROM THE ENGINEER SUBSTITUTE PRECAST CATCH BASINS FOR CAST-IN-PLACE CATCH BASINS PROVIDED THAT ALL PRECAST ELEMENTS MEET ASTM C913 (CURRENT EDITION) UNLESS SUPERSEDED BY THIS DRAWING.
(D) THE FOLLOWING MATERIAL PROPERTIES ARE REQUIRED FOR BOTH CAST-IN-PLACE AND PRECAST STRUCTURES:
CONCRETE: f'c = 4,000 POUNDS PER SQUARE INCH AT 28 DAYS
REINFORCING STEEL: ASTM A615, Fy = 60,000 POUNDS PER SQUARE INCH
ALL REINFORCING IS TO BE INSTALLED AS DETAILED ON THIS DRAWING.
(E) PRECAST CATCH BASIN UNITS WHICH ARE DAMAGED DURING SHIPMENT OR INSTALLATION WILL BE REJECTED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE DAMAGED CATCH BASIN UNITS AT THEIR OWN EXPENSE.
(F) APPROPRIATE SIZING AND LOCATION OF LIFTING DEVICES SHALL BE THE RESPONSIBILITY OF THE FABRICATOR.
(G) THE CONTRACTOR IS TO PATCH ALL LIFTING DEVICE HOLES WITH GROUT AND PLACE A MINIMUM OF ONE (1) INCH OF COVER OVER THE HARDWARE OF THESE DEVICES ON BOTH TOP AND BOTTOM SURFACES.
(H) ALTERNATIVE JOINT DETAILS MAY BE ACCEPTABLE. SEE STANDARD DRAWING D-CB-99 FOR ADDITIONAL DETAILS.
(I) SEE ROADWAY PLANS DRAINAGE TABULATION FOR PIPE INLET AND OUTLET ELEVATIONS. IF NEEDED, INVERT ELEVATIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER IN ORDER TO ACCOMMODATE INLET AND OUTLET PIPES.
(J) FOR CASES WHERE THE OUTLET PIPE DIAMETER IS LARGER THAN THE INLET PIPE DIAMETER, A MINIMUM 22 INCH DEPTH SHALL BE MAINTAINED ABOVE THE OUTLET PIPE.
(K) CONCRETE JOINT MATERIAL TO BE ½ INCH PREMOLDED FIBER IN ACCORDANCE WITH SECTION 905 OF STANDARD SPECIFICATIONS.
(L) THE CONTRACTOR MAY ELIMINATE THE A501 BARS BY LENGTHENING THE VERTICAL LEG OF THE H500 BARS SO THAT 1½ INCHES OF CLEAR COVER IS PROVIDED AT THE TOP OF THE STRUCTURE.
(M) PAY DEPTH MEASUREMENT MADE FROM TOP OF GRATE TO OUTLET FLOW ELEVATION. PAYMENT INCLUDES GRATE. PAYMENT FOR CATCH BASIN WILL BE MADE UNDER ITEM NUMBERS:
611-38.01, CATCH BASINS, TYPE 38, 0'-4' DEPTH, EACH (THROUGH)
611-38.07, CATCH BASINS, TYPE 38, > 24'-28' DEPTH, EACH.
WHEN CLASS "A" CONCRETE APRON IS USED, IT IS TO BE INCLUDED IN THE PRICE BID PER CATCH BASIN.

REV. 5-27-01: CHANGED PAY ITEMS IN GENERAL NOTE (J). ADDED CATCH BASIN MAXIMUM DEPTH NOTE.
REV. 9-11-02: MODIFIED LID DETAIL.
REV. 9-5-04: CHANGED GROOVE DEPTH IN LID.
REV. 8-01-12: REVISED CATCH BASIN FOR COMPLIANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS,4TH EDITION WITH INTERIMS. REVISED REINFORCING, GENERAL NOTES, LEGEND AND ADDITIONAL MISC. DRAFTING EDITS.
REV. 9-24-12: MODIFIED TOP SLAB AND MINIMUM DEPTH.
REV. 3-11-14: ELIMINATED STIRRUPS.
REV. 05-15-18: REVISED CATCH BASIN MINIMUM DESIGN DEPTH VALUES. CORRECTED STANDARD SPECIFICATIONS SECTION NUMBER TO 921 FOR NON-SHRINK GROUT. ADDED DIMENSION IN SECTION VIEW A-A FOR MINIMUM DESIGN DEPTH. CORRECTED REBAR PLACEMENT IN LIDS. ADJUSTED BOX SECTION MINIMUM HEIGHTS.
REV. 02-20-2020: REDREW SHEET.
REV. 03-04-2021: REVISED GRATE UNIT NOTES.

APPROVED BY FHWA (ALL OTHERS APPROVED BY TDOT)

STATE OF TENNESSEE — STANDARD DRAWING — DEPARTMENT OF TRANSPORTATION
STANDARD 4' X 4' SQUARE CONCRETE NO. 38 CATCH BASIN
05-27-1999 D-CB-38SB

NOT TO SCALE

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ON SITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 501-340, MILTON, GA 30004
PHONE: 678-615-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL — REGISTERED ENGINEER — No. 124450 — STATE OF TENNESSEE — AGRICULTURE — COMMERCE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

EPSC DETAILS

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 3.5

TT OF INF COOL SPRINGS PROP LLC TAX MAP
53 PARCEL 122.21
D.B. 5322–PG.622

LOT 687

REVISION 1 – COOL SPRINGS EAST SUBDIVISION
– SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF NASHVILLE PROPERTY LLC TAX MAP 53
PARCEL 122.20
D.B. 5641–PG. 464

LOT 684

REVISION 1 – COOL SPRINGS EAST
SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

NOTE: THE FIRE LANE MUST BE AVAILABLE 24 HOURS A DAY, 365 DAYS A YEAR. NO GATES OR DOORS ARE PERMITTED BLOCKING ACCESS. NO PARKING (AS SHOWN) OR STORAGE OF MATERIALS WILL BE PERMITTED IN THE FIRE LANE.

360-DEGREE ACCESS TO THE BUILDING SHALL BE PROVIDED AT AL TIME DURING CONSTRUCTION. WHEN IT IS NECESSARY TO BLOCK ACCESS, DRIVERS SHALL BE CLOSE BY TO MOVE VEHICLES IN CASE OF EMERGENCY.

PROPERTY LINE

COF FIRE TRUCK AUTOTURN.

PROPOSED ADDITION PHASE 2

NEW LANDSCAPE ISLAND FOR PHASE 1.

PHASE 1 BLDG. CONSTRUCTION. (COORDINATE DIMENSIONS WITH ARCHITECTURAL.)

FRONT OF PROPOSED BLDG.

18" HDPE ADS ROOF DRAIN COLLECTION SYSTEM PIPED TO FOREBAY.

DISTURBED AREA=1.21 ACRES

MARKET EXCHANGE COURT (LOCAL) (50' R.O.W. – P.B. P41, PG. 26)

COMTIDE COURT (PRIVATE)

NISSAN

TT OF MZ COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.24
D.B. 5322–PG. 566

LOT 682

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

TT OF INF COOL SPRINGS PROP LLC TAX MAP 53 PARCEL 122.21
D.B.5322–PG. 622

TT OF NASHVILLE PROPERTY LLC TAX MAP 53 PARCEL 122.20
D.B. 5641–PG.464

LOT 684

REVISION 1 – COOL SPRINGS EAST SUBDIVISION – SECTION 33
RESUBDIVISION OF LOTS 682–689
P.B. 41 – PG. 26

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 591-340, MILTON, GA 30004
PHONE: 678-605-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

THESE DRAWINGS ARE THE PROPERTY OF ONSITE CIVIL GROUP, LLC AND SHALL NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF ONSITE CIVIL GROUP, LLC.

JARRETT M. SENKBEIL
REGISTERED ENGINEER
AGRICULTURE
LICENSED
No. 124450
STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

ROW & ACCESS PLAN

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 4.0

WATER & SEWER GENERAL 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 PRE-CONSTRUCTION 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.

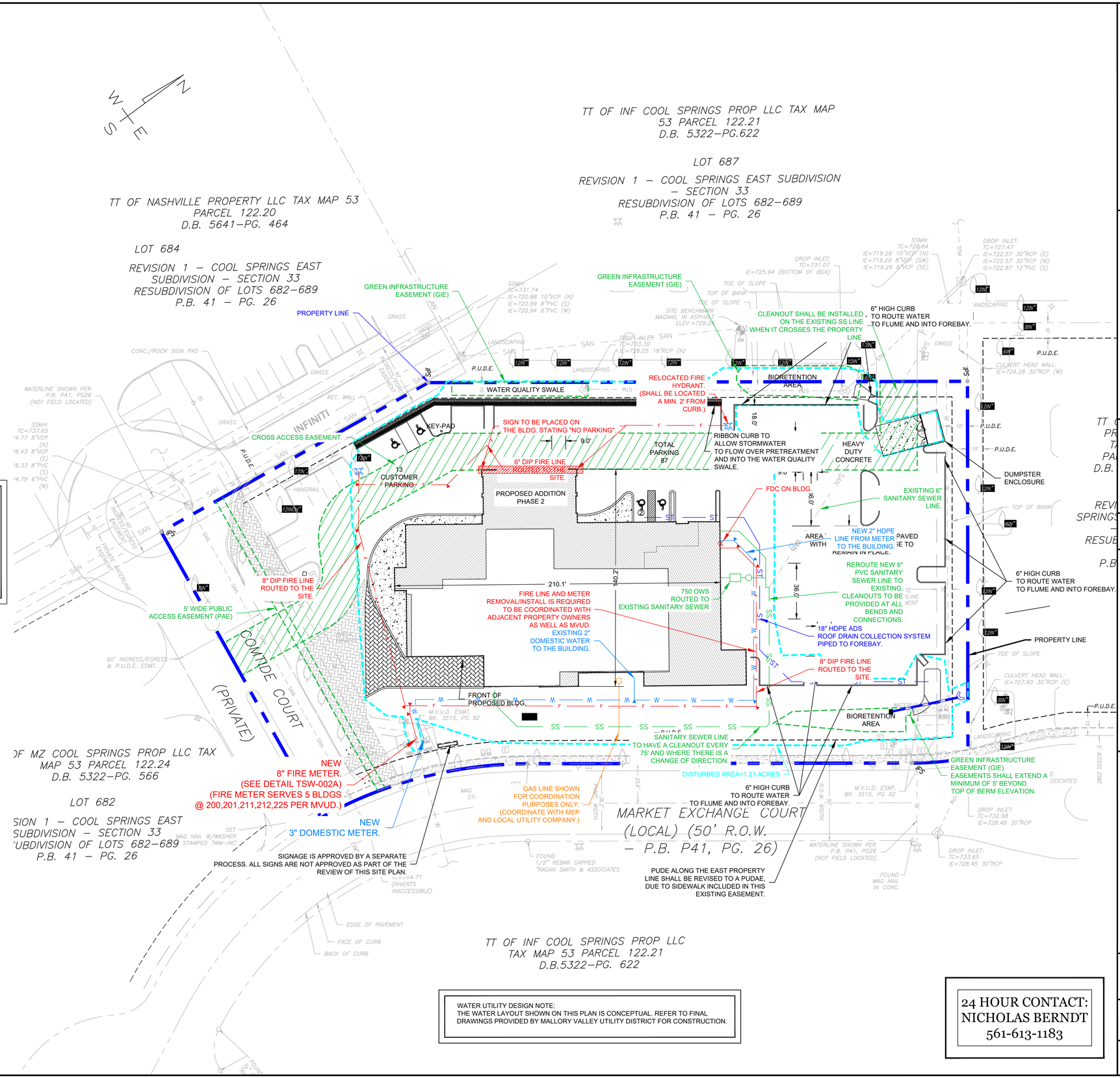
WATER & SEWER DATA CHART
FACILITY TYPE: OFFICE/WAREHOUSE
UNIT FLOW IN GPD:2,260 GPD (OFFICE)
NUMBER OF UNITS: 1
TOTAL FLOW IN GPD: 2,260 GPD

UTILITY NOTES:
UNDERGROUND FIRE MAIN SHOP DRAWINGS MUST BE SUBMITTED TO THE FIRE DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. BE ADVISED THAT APPROVAL OF THE UNDERGROUND FIRE MAIN PLANS IS SEPARATE FROM THE APPROVAL OF THE SITE / UTILITY PLANS. PLANS MUST BE PREPARED BY A TN LICENSED FIRE PROTECTION CONTRACTOR AND BE SUBMITTED THROUGH THE CITY'S IDT ELECTRONIC PLAN REVIEW SITE.
HTTPS://FRANKLIN.IDTPLANS.COM/SECURE/ PLANS MUST BE APPROVED BY THE ENGINEER PREPARING THE STANDARD OF CARE / DESIGN INTENT.

UTILITY NAME AND CONTACT INFORMATION:

WATER:	MALLORY VALLEY UTILITY DISTRICT 465 DUKE DRIVE FRANKLIN, TN 37067 615-628-0237
SEWER:	CITY OF FRANKLIN 124 LUMBER DR. FRANKLIN, TN 37064 UTILITY INSPECTOR 615-794-4554
GAS:	ATMOS GAS 810 CRESCRENT CENTRE DRIVE, 600 FRANKLIN, TN 37067
ELECTRIC:	MTEMC 555 NEW SALEM HWY. MURFREESBORO, TN 37133
WATER MANAGEMENT:	CITY OF FRANKLIN 124 LUMBER DR. FRANKLIN, TN 37064 UTILITY INSPECTOR 615-794-4554

WATER NOTE:
1. DURING DEVELOPMENT OF THE SITE IN 2004, A MASTER METER WAS INSTALLED AT THE CORNER OF MARKET EXCHANGE CT. AND COMTIDE BLVD. LOTS 683, 684, 685 AND 687 HAVE METERS INSIDE EACH BUILDING.
2. FIRE HYDRANTS THROUGH THE DEVELOPMENT ARE PRIVATE AND ARE FED FROM EACH BUILDING AND MONITORED THROUGH THE METERS INSIDE EACH BUILDING.



WATER UTILITY DESIGN NOTE:
THE WATER LAYOUT SHOWN ON THIS PLAN IS CONCEPTUAL. REFER TO FINAL DRAWINGS PROVIDED BY MALLORY VALLEY UTILITY DISTRICT FOR CONSTRUCTION.

24 HOUR CONTACT:
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561-613-1183

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JARRETT M. SENKBEIL
REGISTERED ENGINEER
STATE OF TENNESSEE
No. 124450

REVISIONS

No.	DATE	DESCRIPTION
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0 30 60 Feet

CLIENT:
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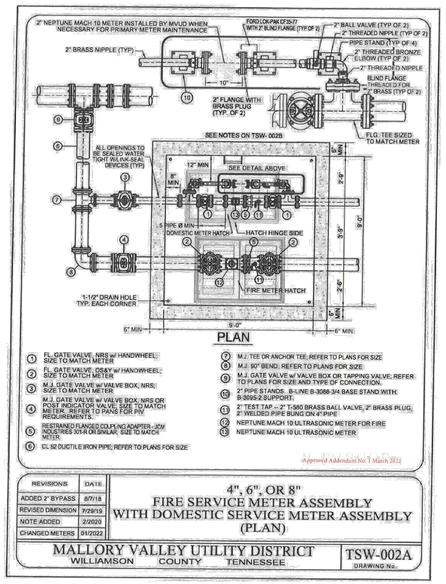
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33; REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

UTILITY PLAN

DATE: 5-4-23
PROJECT: 22-030

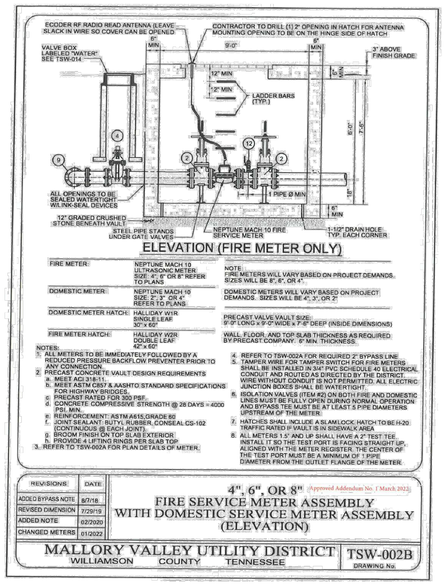
SHEET: C 5.0



REVISIONS:	DATE:
ADDED 2" BYPASS	8/7/18
REVISED DIMENSION	7/25/19
NOTE ADDED	2/2020
CHANGED METERS	01/2022

4", 6", OR 8"
FIRE SERVICE METER ASSEMBLY
WITH DOMESTIC SERVICE METER ASSEMBLY
(PLAN)

MALLORY VALLEY UTILITY DISTRICT
WILLIAMSON COUNTY TENNESSEE
TSW-002A
DRAWING No.



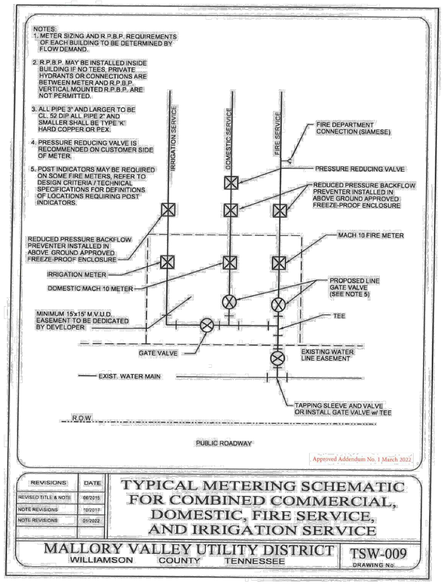
FIRE METER:	NEPTUNE MACH 10 ULTRASONIC METER SIZE: 4", 6" OR 8" REFER TO PLANS	NOTE: FIRE METERS WILL VARY BASED ON PROJECT DEMANDS. SIZES WILL BE 4", 6", OR 8"
DOMESTIC METER:	NEPTUNE MACH 10 SIZE: 2", 3" OR 4" REFER TO PLANS	DOMESTIC METERS WILL VARY BASED ON PROJECT DEMANDS. SIZES WILL BE 4", 3", OR 2"
DOMESTIC METER HATCH:	HALLIDAY W/IN SINGLE LEAF 30" x 60"	PRECAST VALVE VAULT SIZE: 9'-9" LONG x 9'-0" WIDE x 7'-6" DEEP (INSIDE DIMENSIONS)
FIRE METER HATCH:	HALLIDAY W/2R DOUBLE LEAF 42" x 60"	WALL, FLOOR, AND TOP SLAB THICKNESS AS REQUIRED BY PRECAST COMPANY. 5" MIN. THICKNESS

NOTES:
1. ALL METERS TO BE IMMEDIATELY FOLLOWED BY A REDUCED PRESSURE BACKFLOW PREVENTER PRIOR TO ANY CONNECTION.
2. PRECAST CONCRETE VAULT DESIGN REQUIREMENTS
   a. MEET AGI 318-11.
   b. MEET ASTM C857 & AASHTO STANDARD SPECIFICATIONS FOR PRECAST WAY BRIDGES.
   c. PRECAST DESIGNED FOR 350 PSF.
   d. CONCRETE COMPRESSIVE STRENGTH @ 28 DAYS = 4000 PSI, MIN.
   e. REINFORCEMENT: ASTM A615, GRADE 60
   f. JOINT SEALANT: BUTYL RUBBER, CONSEAL CS-102 (CONTINUOUS @ EACH JOINT).
   g. BROOM FINISH ON TOP SLAB EXTERIOR
   h. PROVIDE 4 LIFTING RINGS PER SLAB TOP.
3. REFER TO TSW-002A FOR PLAN DETAILS OF METER.
4. REFER TO TSW-002A FOR REQUIRED 2" BYPASS LINE.
5. TAMPER WIRE FOR TAMPER SWITCH FOR FIRE METERS SHALL BE INSTALLED IN 3/4" PVC SCHEDULE 40 ELECTRICAL CONDUIT AND ROUTED AS DIRECTED BY THE DISTRICT. WIRE WITHOUT CONDUIT IS NOT PERMITTED. ALL ELECTRIC JUNCTION BOXES SHALL BE WATERTIGHT.
6. ISOLATION VALVES (FIRE & DOM) ON BOTH FIRE AND DOMESTIC LINES MUST BE FULLY OPEN DURING NORMAL OPERATION AND BYPASS TEE MUST BE AT LEAST 5 PIPE DIAMETERS UPSTREAM OF THE METER.
7. HATCHES SHALL INCLUDE A SSL#LOCK HATCH TO BE H-20 TRAFFIC RATED IF VAULT IS IN SIDEWALK AREA
8. ALL METERS 1.5" AND UP SHALL HAVE A 2" TEST TEE. INSTALL IT SO THE TEST PORT IS FACING STRAIGHT UP, ALIGNED WITH THE METER REGISTER. THE CENTER OF THE TEST PORT MUST BE A MINIMUM OF 1 PIPE DIAMETER FROM THE OUTLET FLANGE OF THE METER.

REVISIONS:	DATE:
ADDED BYPASS NOTE	8/7/18
REVISED DIMENSION	7/25/19
ADDED NOTE	2/2020
CHANGED METERS	01/2022

4", 6", OR 8" (Approved Addendum No. 1 March 2023)
FIRE SERVICE METER ASSEMBLY
WITH DOMESTIC SERVICE METER ASSEMBLY
(ELEVATION)

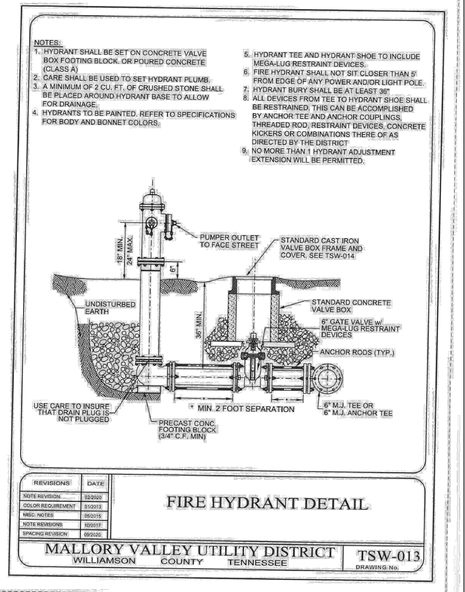
MALLORY VALLEY UTILITY DISTRICT
WILLIAMSON COUNTY TENNESSEE
TSW-002B
DRAWING No.



REVISIONS:	DATE:
REVISED TITLE & NOTE	6/7/15
NOTE REVISIONS	7/2017
NOTE REVISIONS	2/2020

TYPICAL METERING SCHEMATIC FOR COMBINED COMMERCIAL, DOMESTIC, FIRE SERVICE, AND IRRIGATION SERVICE

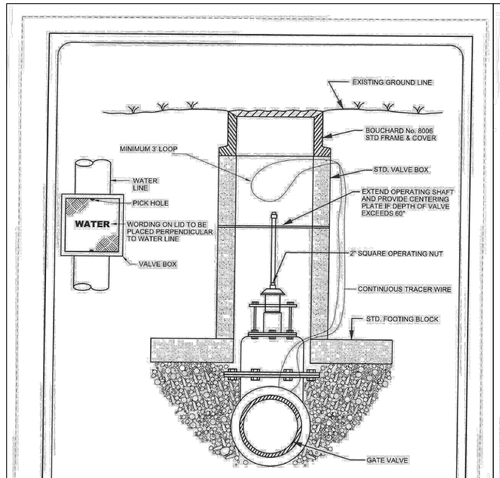
MALLORY VALLEY UTILITY DISTRICT
WILLIAMSON COUNTY TENNESSEE
TSW-009
DRAWING No.



REVISIONS:	DATE:
NOTE REVISION	2/2020
COLOR REQUIREMENT	01/2013
MISC. NOTES	2/2015
NOTE REVISIONS	2/2017
SPACING REVISION	2/2020

FIRE HYDRANT DETAIL

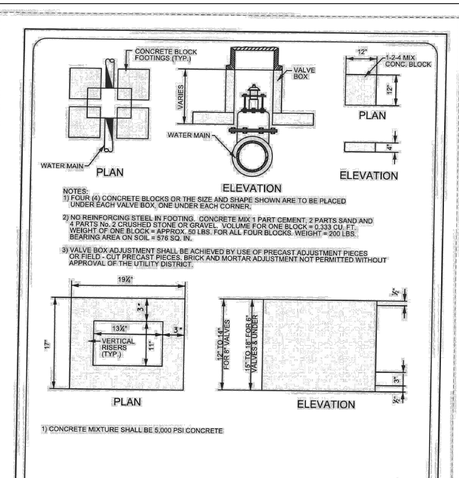
MALLORY VALLEY UTILITY DISTRICT
WILLIAMSON COUNTY TENNESSEE
TSW-013
DRAWING No.



REVISIONS:	DATE:
ADDED DIRECTIONAL NOTE	2/12/13
ADDED CENTER PLATE	9/5/2019
ADDED TRACER WIRE	5/2020

VALVE BOX SETTING DETAIL

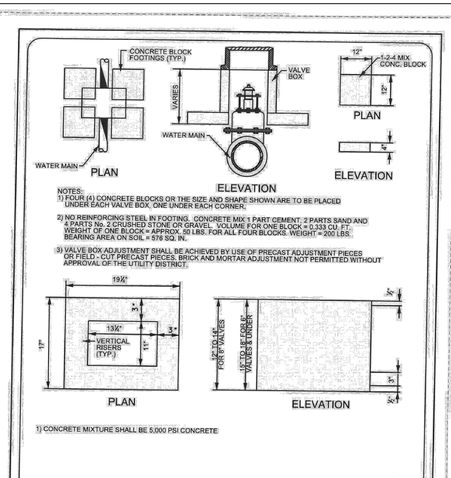
MALLORY VALLEY UTILITY DISTRICT
WILLIAMSON COUNTY TENNESSEE
TSW-014
DRAWING No.



REVISIONS:	DATE:
NOTE ADDED	6/19/18
DELETE REINF.	5/2020

STANDARD CONCRETE VALVE BOX

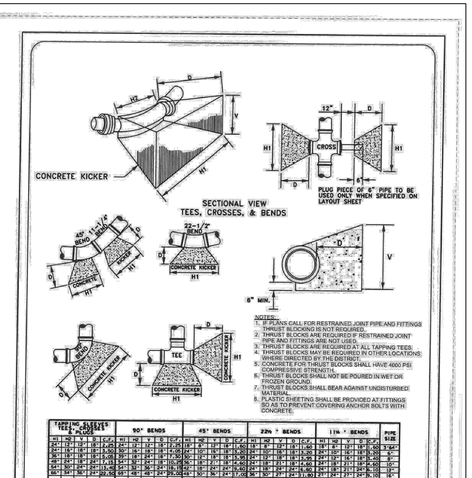
MALLORY VALLEY UTILITY DISTRICT
WILLIAMSON COUNTY TENNESSEE
TSW-017
DRAWING No.



REVISIONS:	DATE:
NOTE ADDED	6/19/18
DELETE REINF.	5/2020

STANDARD CONCRETE VALVE BOX

MALLORY VALLEY UTILITY DISTRICT
WILLIAMSON COUNTY TENNESSEE
TSW-017
DRAWING No.



PIPE NO. ELEVEN 90° TEES IN A PLACE	90° BENDS				45° BENDS				22½ ° BENDS				11¼ ° BENDS				PIPE SIZE
	H	H1	V	D	H	H1	V	D	H	H1	V	D	H	H1	V	D	
4"	1'-0"	0'-6"	0'-6"	0'-6"	0'-9"	0'-3"	0'-3"	0'-6"	0'-6"	0'-2"	0'-2"	0'-6"	0'-6"	0'-1"	0'-1"	0'-6"	4"
6"	1'-0"	0'-9"	0'-9"	0'-9"	0'-9"	0'-4"	0'-4"	0'-9"	0'-6"	0'-3"	0'-3"	0'-9"	0'-6"	0'-2"	0'-2"	0'-9"	6"
8"	1'-0"	1'-0"	1'-0"	1'-0"	0'-9"	0'-5"	0'-5"	1'-0"	0'-6"	0'-3"	0'-3"	1'-0"	0'-6"	0'-2"	0'-2"	1'-0"	8"
10"	1'-0"	1'-3"	1'-3"	1'-3"	0'-9"	0'-6"	0'-6"	1'-3"	0'-6"	0'-3"	0'-3"	1'-3"	0'-6"	0'-3"	0'-3"	1'-3"	10"
12"	1'-0"	1'-6"	1'-6"	1'-6"	0'-9"	0'-7"	0'-7"	1'-6"	0'-6"	0'-3"	0'-3"	1'-6"	0'-6"	0'-3"	0'-3"	1'-6"	12"
16"	1'-0"	2'-0"	2'-0"	2'-0"	0'-9"	0'-9"	0'-9"	2'-0"	0'-6"	0'-4"	0'-4"	2'-0"	0'-6"	0'-4"	0'-4"	2'-0"	16"
20"	1'-0"	2'-6"	2'-6"	2'-6"	0'-9"	1'-0"	1'-0"	2'-6"	0'-6"	0'-5"	0'-5"	2'-6"	0'-6"	0'-5"	0'-5"	2'-6"	20"
24"	1'-0"	3'-0"	3'-0"	3'-0"	0'-9"	1'-2"	1'-2"	3'-0"	0'-6"	0'-6"	0'-6"	3'-0"	0'-6"	0'-6"	0'-6"	3'-0"	24"
30"	1'-0"	3'-6"	3'-6"	3'-6"	0'-9"	1'-5"	1'-5"	3'-6"	0'-6"	0'-7"	0'-7"	3'-6"	0'-6"	0'-7"	0'-7"	3'-6"	30"
36"	1'-0"	4'-0"	4'-0"	4'-0"	0'-9"	1'-8"	1'-8"	4'-0"	0'-6"	0'-8"	0'-8"	4'-0"	0'-6"	0'-8"	0'-8"	4'-0"	36"

REVISIONS:	DATE:
GENERAL NOTES REV.	01/2013

CONCRETE THRUST BLOCK DETAILS

MALLORY VALLEY UTILITY DISTRICT
WILLIAMSON COUNTY TENNESSEE
TSW-021
DRAWING No.

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 501-340, MILTON, GA 30004
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STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
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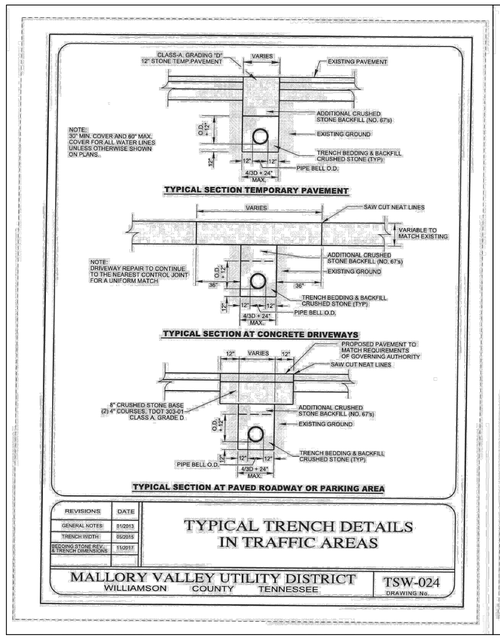
CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

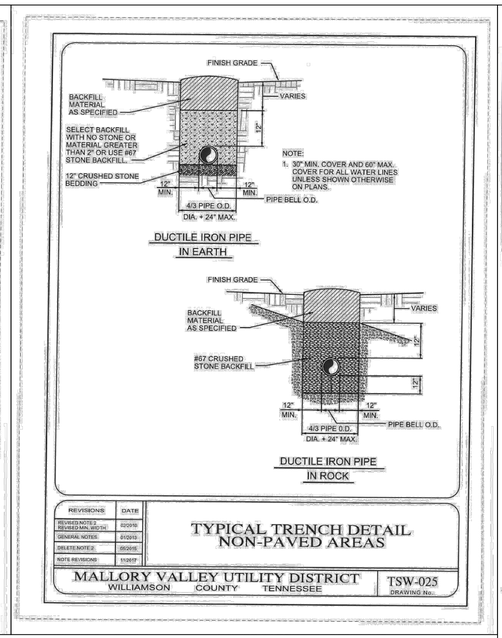
COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

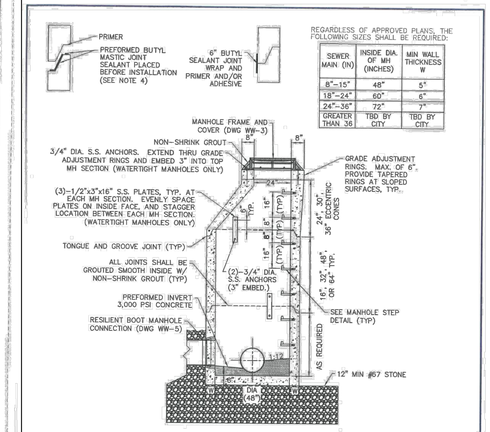
UTILITY DETAILS

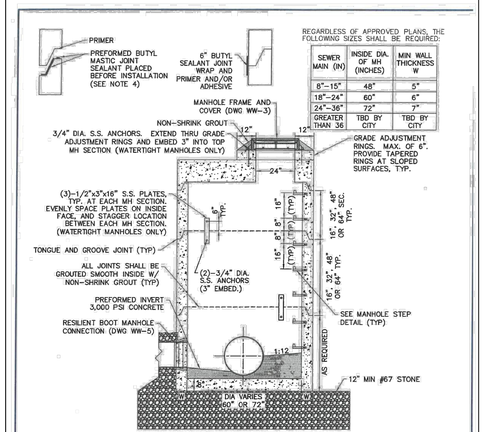
DATE: 5-4-23
PROJECT: 22-030

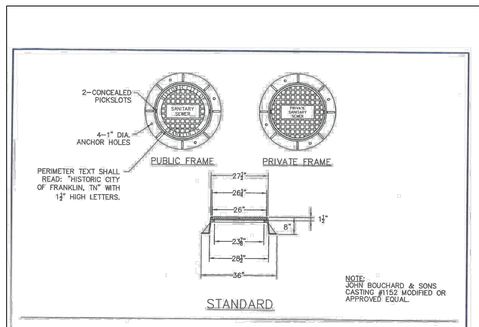
SHEET: C 5.1

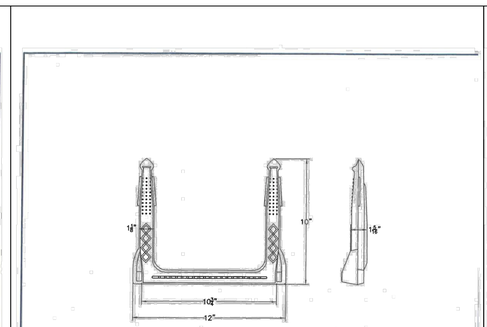


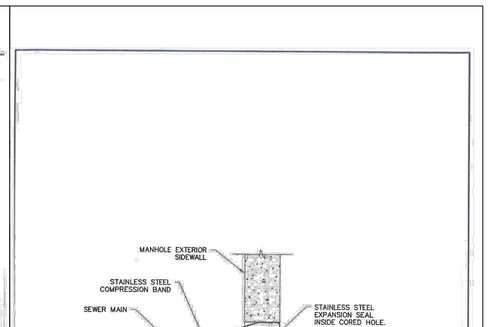












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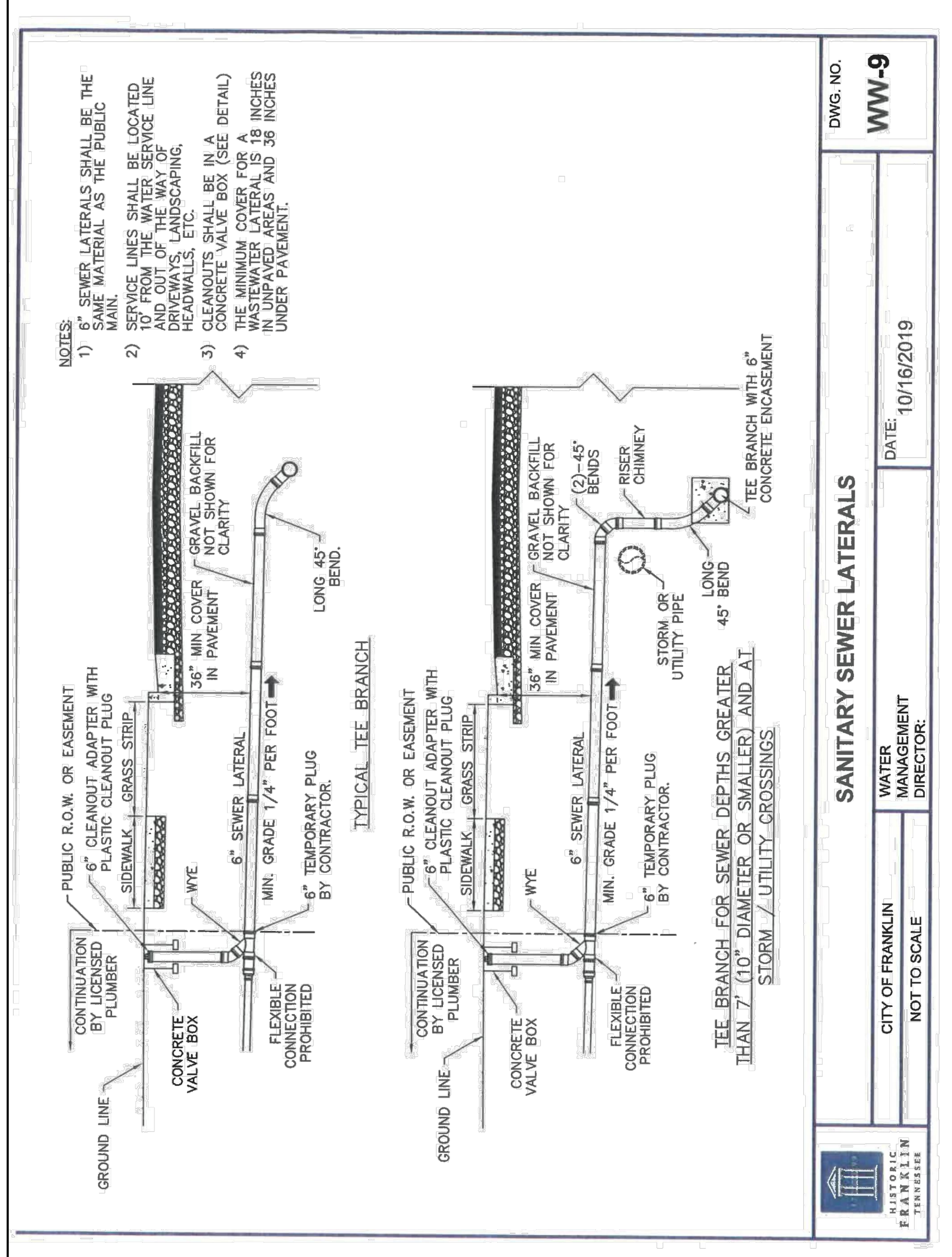
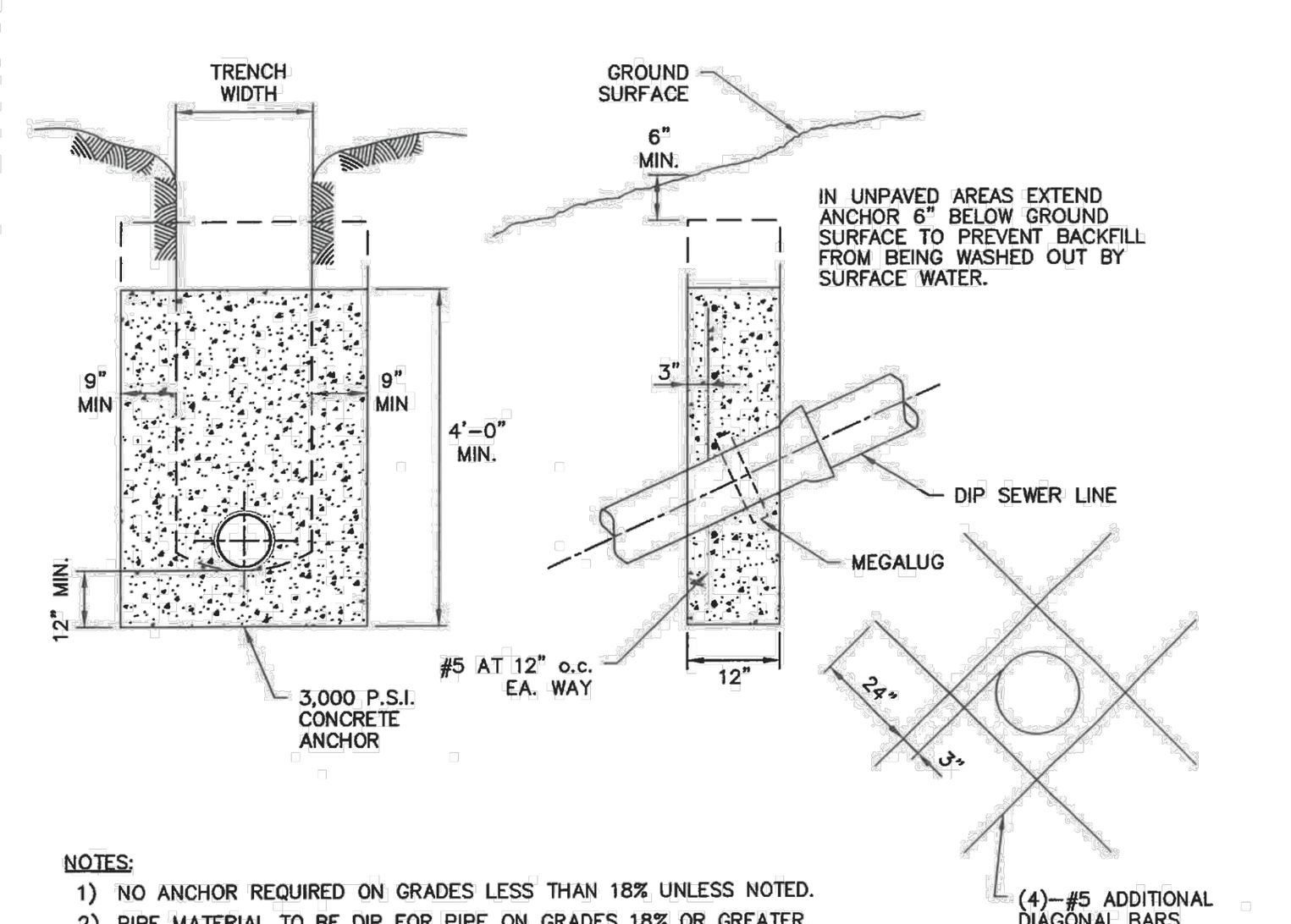
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

UTILITY DETAILS

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 5.2





NOTES:
1) NO ANCHOR REQUIRED ON GRADES LESS THAN 18% UNLESS NOTED.
2) PIPE MATERIAL TO BE DIP FOR PIPE ON GRADES 18% OR GREATER.
3) PROVIDE ANCHOR 36'-0" CENTER TO CENTER ON GRADES BETWEEN 18% AND 25%.
4) PROVIDE ANCHOR 24'-0" CENTER TO CENTER ON GRADES BETWEEN 25% AND 35%.
5) PROVIDE ANCHOR 16'-0" CENTER TO CENTER ON GRADES 35% AND GREATER.
6) PROVIDE A MID-SPAN MEGALUG PIPE RESTRAINT CENTERED IN EACH CONCRETE ANCHOR.
7) CONTRACTOR MAY SUBMIT ALTERNATE DESIGN UTILIZING ROCK BOLTS TO KEY ANCHOR TO ROCK TRENCH.
8) FOR CONDITIONS OTHER THAN SHOWN HEREON, ANCHORS SHALL BE PROVIDED AS DESIGNED BY THE ENGINEER-OF-RECORD.

HISTORIC FRANKLIN TENNESSEE

CONCRETE ANCHORS FOR SEWER ON STEEP GRADES

CITY OF FRANKLIN	WATER MANAGEMENT DIRECTOR:	DATE: 10/16/2019	DWG. NO. WW-10
NOT TO SCALE			

HANCOR BLUE SEAL® PIPE SPECIFICATIONS

Scope
This specification describes 4- through 60-inch (100 to 1500 mm) Hancor BLUE SEAL® pipe for use in gravity flow applications.

Pipe Requirements
BLUE SEAL® pipe shall have a smooth interior and annular exterior corrugations.
- 4- through 10-inch (100 to 250 mm) shall meet AASHTO M252, Type S.
- 12- through 60-inch (300 to 1500 mm) shall meet AASHTO M294, Type S or ASTM F2306.
- Manning's "n" value for use in design shall be 0.012.

Joint Performance
Pipe shall be joined with the BLUE SEAL® joint meeting the watertight requirements of AASHTO M252, AASHTO M294, or ASTM F2306.

4- through 60-inch (300 to 1500 mm) shall be watertight according to the requirements of ASTM D3212. Gaskets shall be made of polyisoprene meeting the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. 12- through 30-inch (300 to 750 mm) bells shall include a reinforcing rib at the flare O.D. to assure meeting roundness tolerances and enhance proper joint assembly. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly.

24- through 60-inch (600 to 1500 mm) diameters shall have a reinforced bell with a bell tolerance device. The bell tolerance device shall be installed by the manufacture.

Fittings
Fittings shall conform to AASHTO M252, AASHTO M294, or ASTM F2306. Fabricated fittings shall be welded at all accessible interior and exterior junctions.

Field Pipe and Joint Performance
To assure watertightness, field performance verification may be accomplished by testing in accordance with ASTM C969. Appropriate safety precautions must be used when field-testing any pipe material.

Material Properties
Virgin material for pipe and fitting production shall be high-density polyethylene conforming with the minimum requirements of cell classification 424420C for 4- through 10-inch (100 to 250 mm) diameters, and 435400C for 12- through 60-inch (300 to 1500mm) diameters, as defined and described in the latest version of ASTM D3350. The 12- through 60-inch (300 to 1500mm) virgin pipe material shall be a slow crack resistant material evaluated using the notched constant ligament-stress (NCLS) test according to the procedure described in AASHTO M294, Section 9.5. Average NCLS test specimens must exceed 24 hrs. with no test result less than 17 hrs.

Installation
Installation shall be in accordance with ASTM D2321 and Hancor's published installation guidelines, with the exception that minimum cover in trafficked areas for 4- through 48-inch (100 to 1200 mm) diameters shall be one foot. (0.3 m) and for 54- and 60-inch (1350 and 1500 mm) diameters, the minimum cover shall be 2 ft. (0.6 m) in single run applications. Contact your local Hancor representative or visit our website at www.hancor.com for a copy of the latest installation guidelines.

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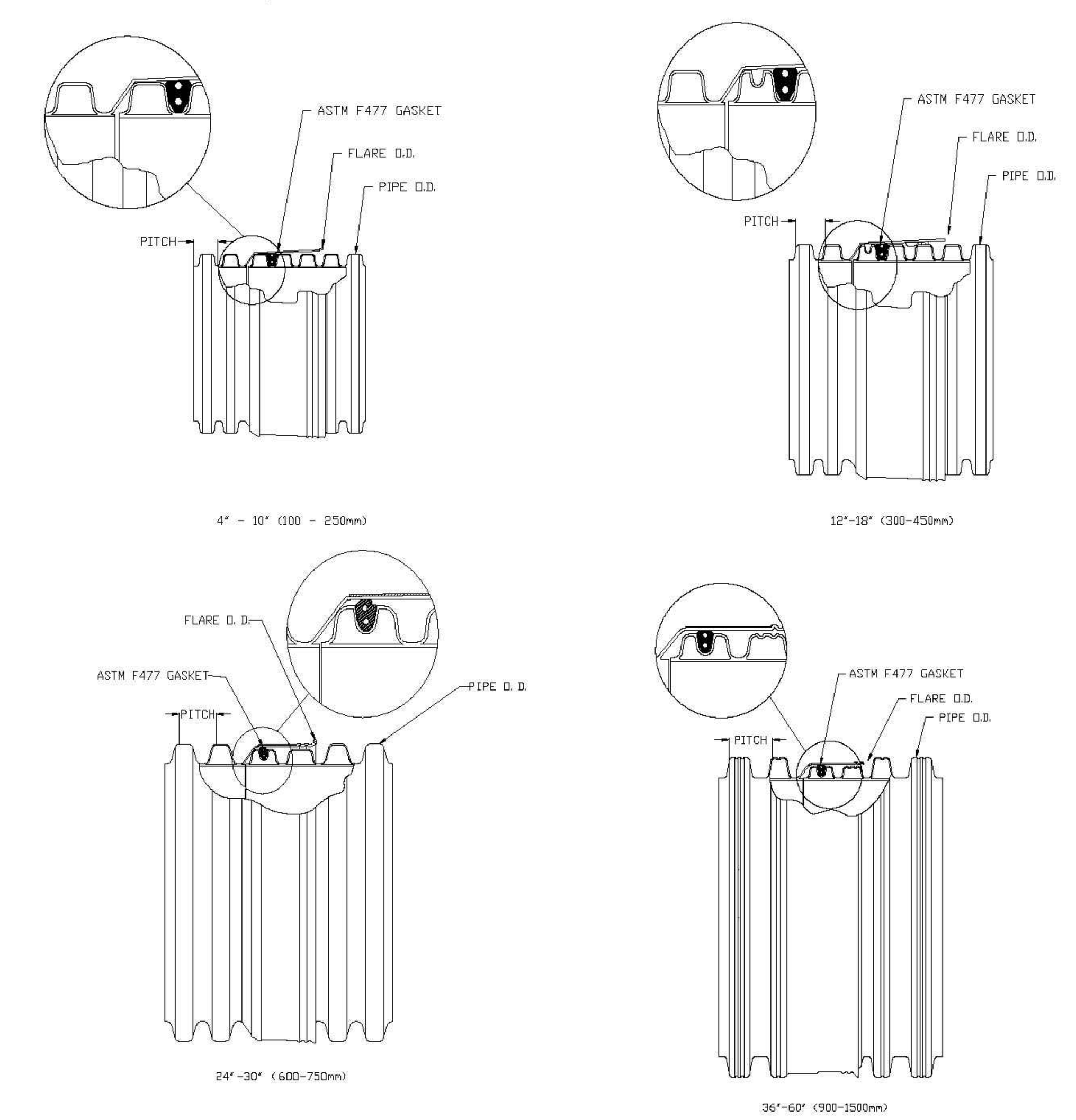
BLUE SEAL® JOINT SYSTEM

(Joint configuration & availability subject to change without notice.)

Pipe Dimensions

	Nominal Diameter, in (mm)													
Pipe I.D. in (mm)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	15 (375)	18 (450)	24 (600)	30 (750)	36 (900)	42 (1050)	48 (1200)	54* (1350)	60 (1500)
Pipe O.D.** in (mm)	4.8 (122)	6.9 (175)	9.1 (231)	11.4 (290)	14.5 (368)	18 (457)	22 (559)	28 (711)	36 (914)	42 (1067)	48 (1219)	54 (1372)	61 (1549)	67 (1702)

*Check with sales representative for availability by region.
**Pipe O.D. values are provided for reference purposes only, values stated for 12- through 60-inch are ± 1 inch. Exact values are provided in the Structures section of the Drainage Handbook.



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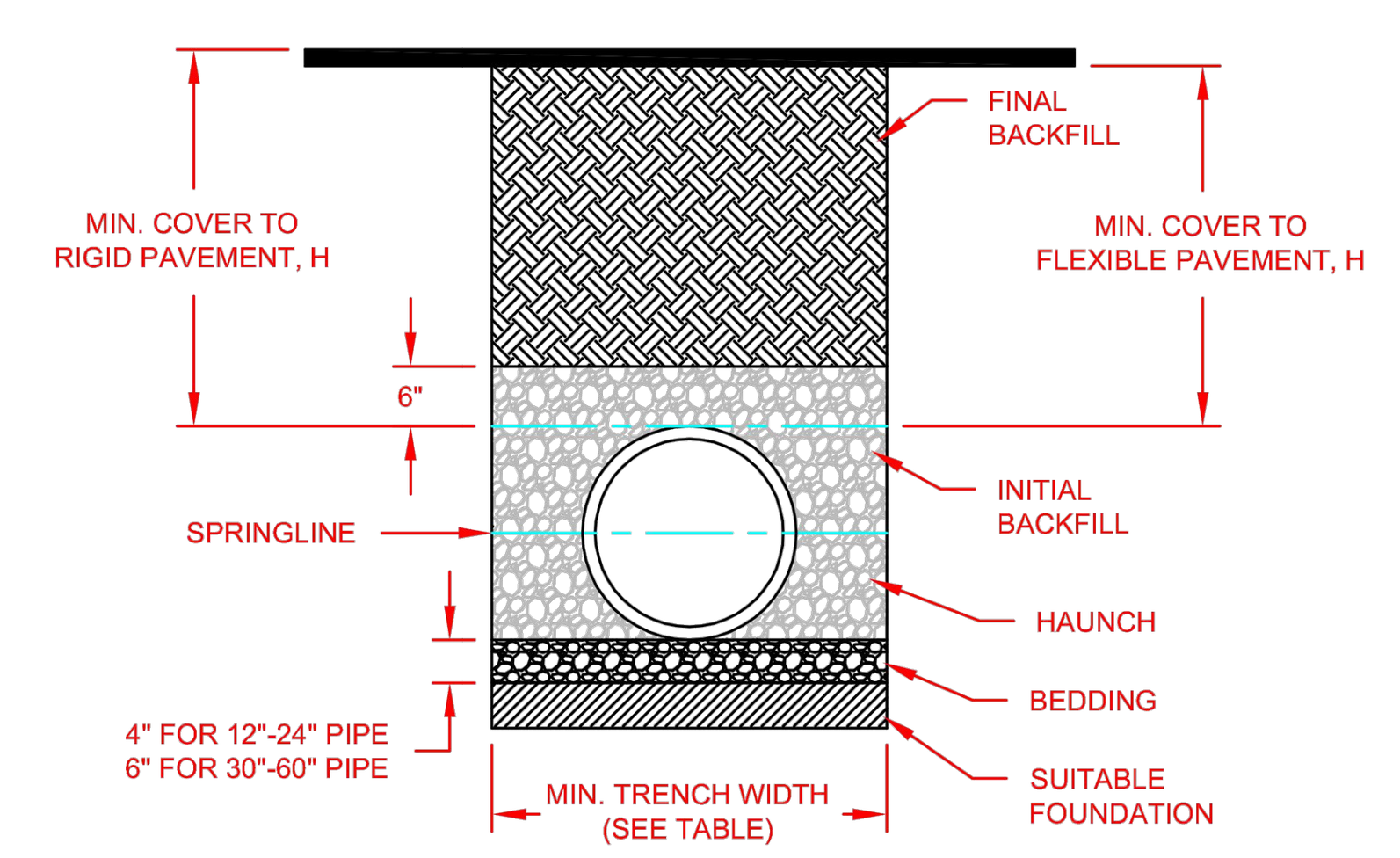

RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.

4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).

5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

MINIMUM RECOMMENDED COVER BASED ON VECHICLE LOADING CONDITIONS

	SURFACE LIVE LOADING CONDITION	
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48"	12"	48"
54" - 60"	24"	60"

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

MINIMUM RECOMMENDED COVER BASED ON RAILWAY LOADING CONDITIONS

PIPE DIAM.	COOPER E-80**
UP TO 24"	24"
30"-36"	36"
42"-60"	48"

** COVER IS MEASURED FROM TOP OF PIPE TO BOTTOM OF RAILWAY TIE.
*** E-80 COVER REQUIREMENTS, ARE ONLY APPLICABLE TO ASTM F 2306 PIPE.

REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
2	ADDED E-80 INFORMATION	TJR	08/20/07	

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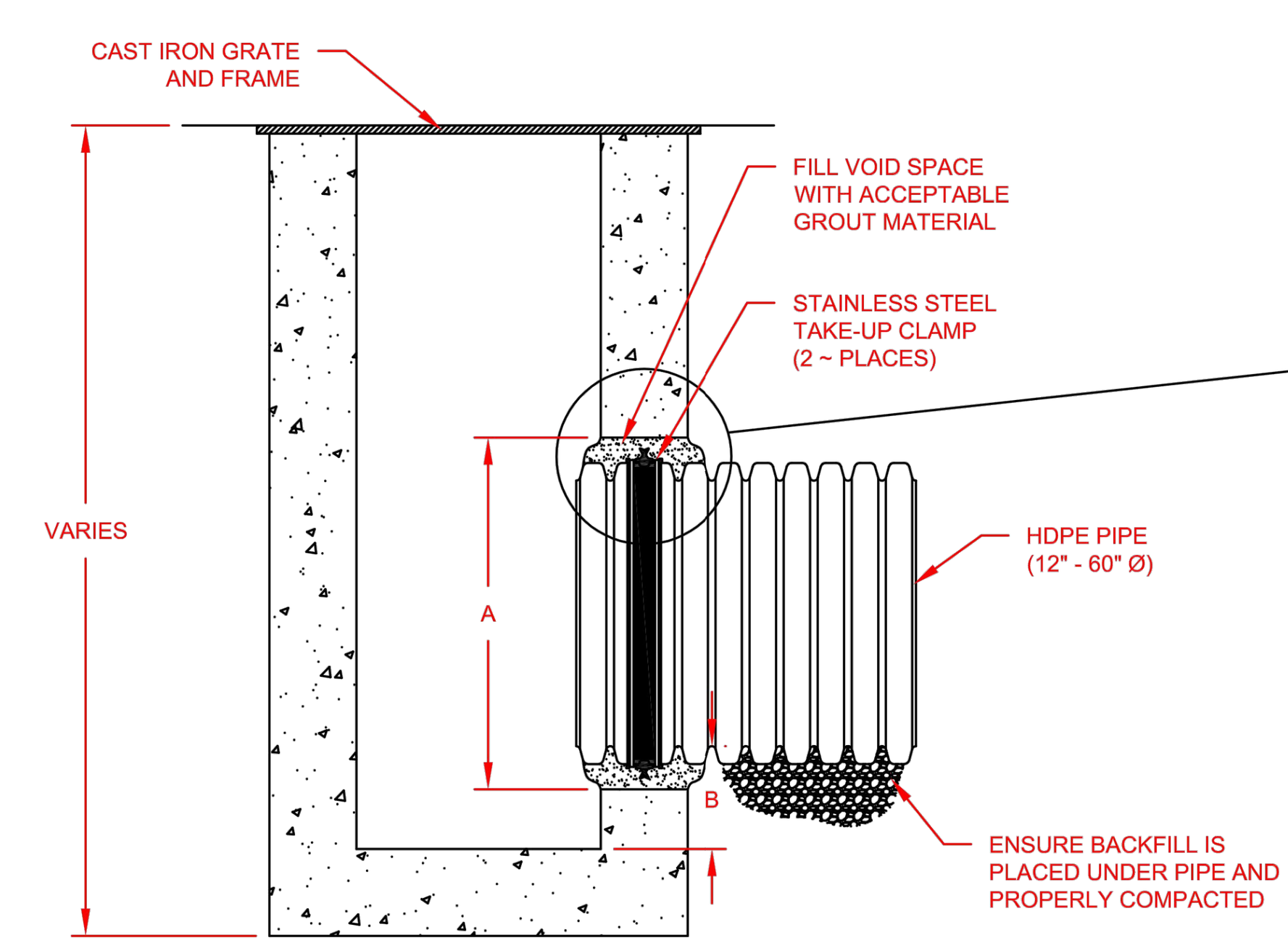
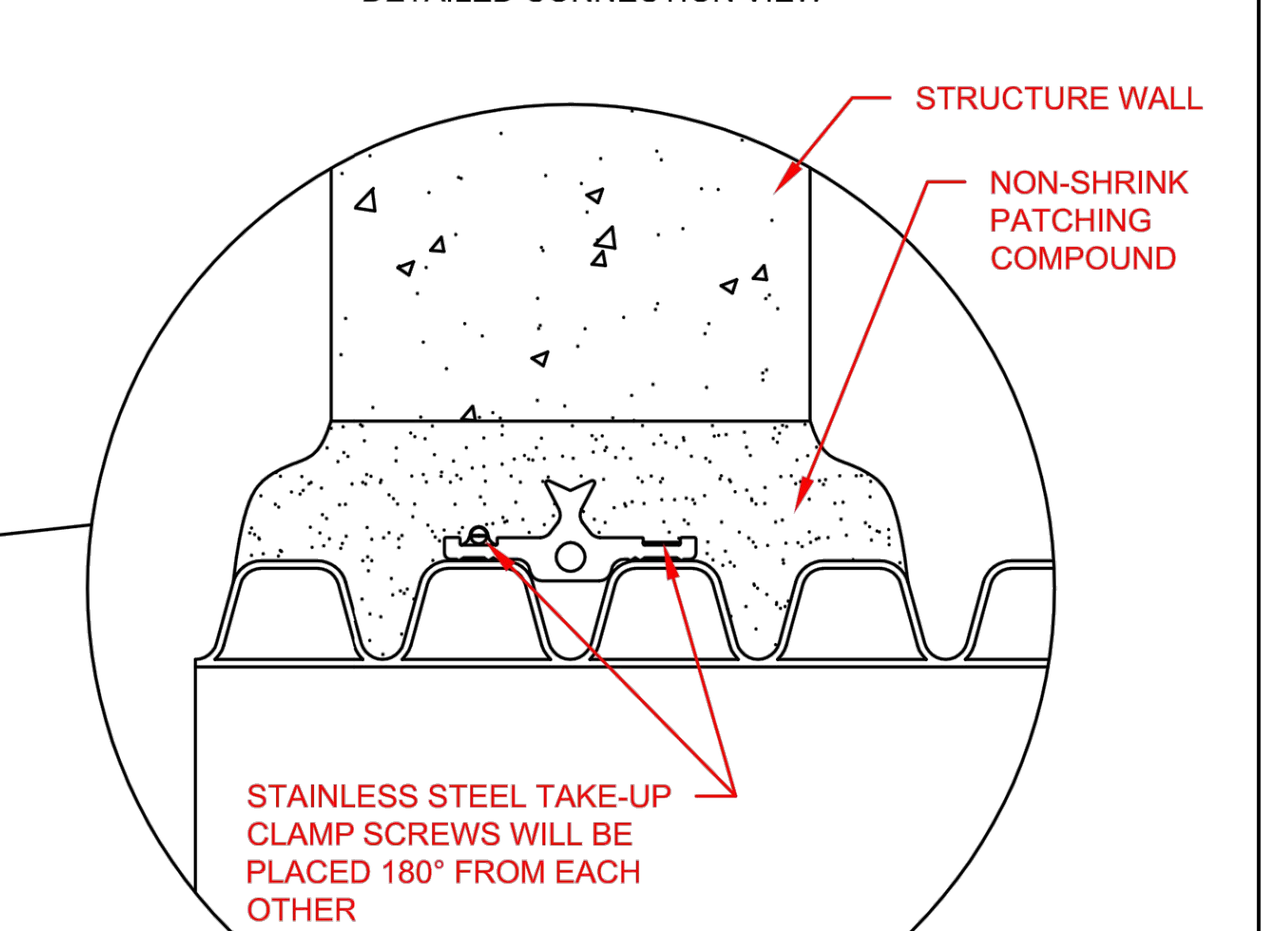
TYPICAL TRENCH DETAIL
DRAWING NUMBER: STD-101

ADS ADVANCED DRAINAGE SYSTEMS, INC. 4640 TRUEMAN BLVD HILLIARD, OHIO 43026
DRAWN BY: CKS DATE: 10/18/06 SCALE: NTS SHEET: 1 OF 1

INSTALLATION VIEW



DETAILED CONNECTION VIEW



TYPE 3: WATERSTOP™ GASKET W/ CORRUGATED HDPE PIPE

INSTALLATION RECOMMENDATIONS ARE ALSO SPECIFIED IN INSTALLATION GUIDE 1.05: WATERSTOP INSTALLATION

PIPE SIZE (IN)	PIPE OD (IN) A-PROFILE	PIPE OD (IN) H-PROFILE	"A" MIN. HOLE Ø (IN)	"B" MIN. DISTANCE PIPE INVERT TO STRUCUTRE INVERT (IN)	MANUFACTURER'S PRODUCT CODE
12	14.5	14.2	19.50	3.7	1202PS
15	17.6	17.8	23.00	4.0	1502PS
18	21.2	21.5	26.50	4.2	1802PS
24	27.8	28.4	33.25	4.5	2402PS
30	35.1	35.5	40.50	5.2	3002PS
36	41.1	41.4	47.00	5.5	3602PS
42	47.7	48.0	53.00	5.7	4202PS
48	53.6	54.0	59.00	5.7	4802PS
60	66.3	67.3	72.00	6.4	6002PS

REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
1	UPDATED DRAWING	TJR	02/21/07	CKS

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WATERSTOP STRUCTURE CONNECTION DETAIL
DRAWING NUMBER: STD-203

ADS ADVANCED DRAINAGE SYSTEMS, INC. 4640 TRUEMAN BLVD HILLIARD, OHIO 43026
DRAWN BY: CKS DATE: 10/10/06 SCALE: NTS SHEET: 1 OF 1

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

ON SITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 501-340, MILTON, GA 30004
PHONE: 678-615-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL REGISTERED ENGINEER AGRICULTURE COMMERCE No. 124450 STATE OF TENNESSEE

REVISIONS

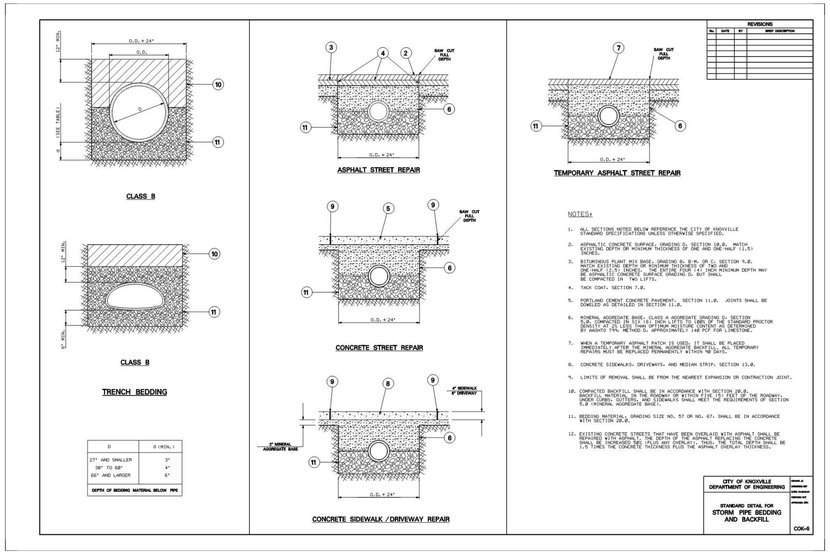
No.	DATE	DESCRIPTION
-	-	-

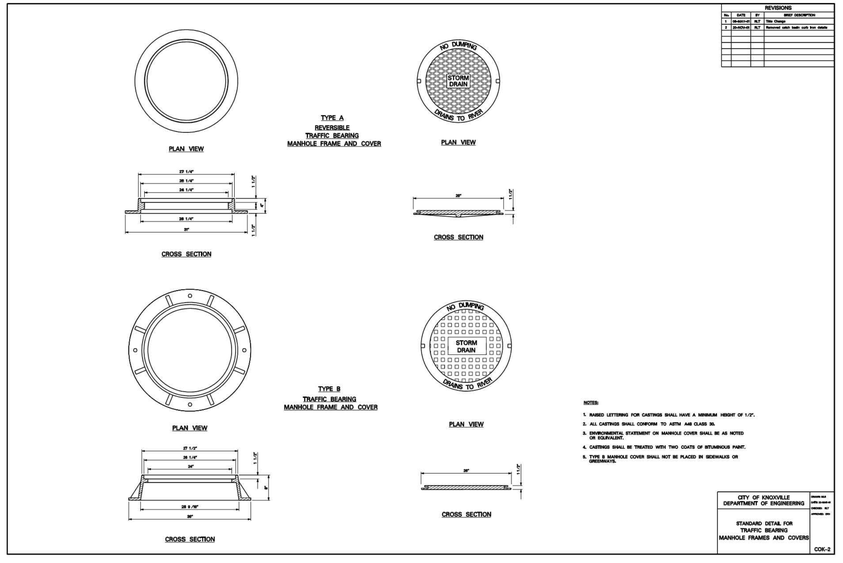
CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

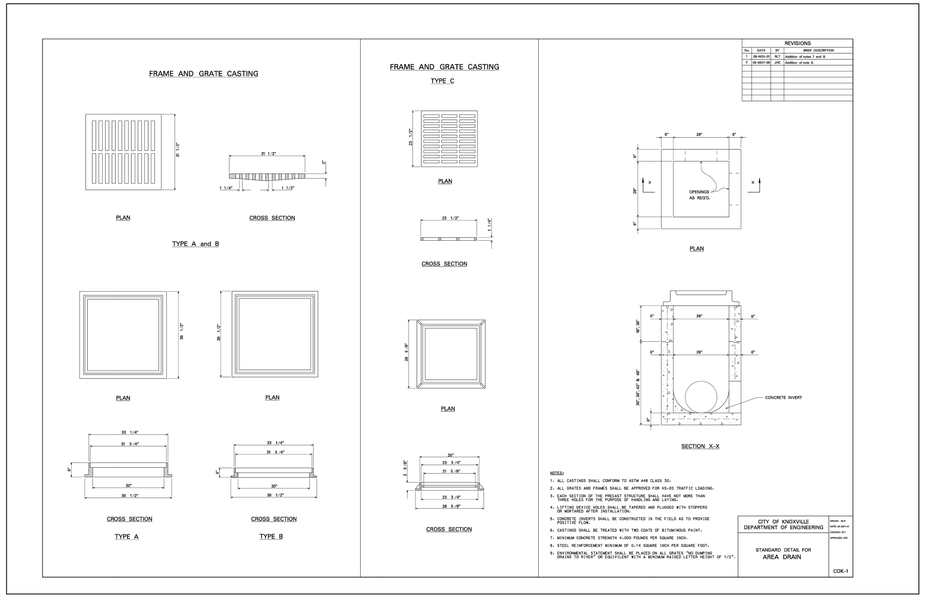
COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

UTILITY DETAILS

DATE: 5-4-23
PROJECT: 22-030
SHEET: C 5.3







ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 591-340, MILTON, GA 30004
PHONE: 678-605-3347
WWW.ONSITECIVIL.COM
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JARRETT M. SENKBEIL
REGISTERED ENGINEER
STATE OF TENNESSEE
AGRICULTURE
COMMERCE
No. 124435
STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
595 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

UTILITY DETAILS

DATE: 5-4-23
PROJECT: 22-030

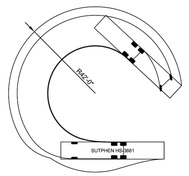
SHEET: C 5.4

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183



APPARATUS AND TURNING INFORMATION

1. NUMBER OF FRONT AXLES = 1
2. FRONT TRACK WIDTH = 8.000 FT
3. WHEELS ON EACH FRONT AXLE = 2
4. NUMBER OF REAR AXLES = 2
5. REAR TRACK WITH = 8.000 FT
6. WHEELS ON EACH REAR AXLE = 4
7. WHEELBASE = 19.292 FT
8. REAR AXLE SPACING = 4.417 FT
9. LOCK-TO-LOCK TIME = 6 SEC
10. TURNING RADIUS WALL TO WALL = 42 FT
11. BODY LENGTH = 50.042 FT
12. BODY WIDTH = 8.333 FT
13. REAR OVERHANG = 24.167 FT
14. MINIMUM DESIGN SPEED = 5 MPH



HISTORIC FRANKLIN TENNESSEE

FIRE APPARATUS TURNING TEMPLATE

CITY OF FRANKLIN	CITY ENGINEER:	DATE:	DWG. NO.
NOT TO SCALE		7/1/2021	SD-7

FIRE TRUCK TURNING TEMPLATE

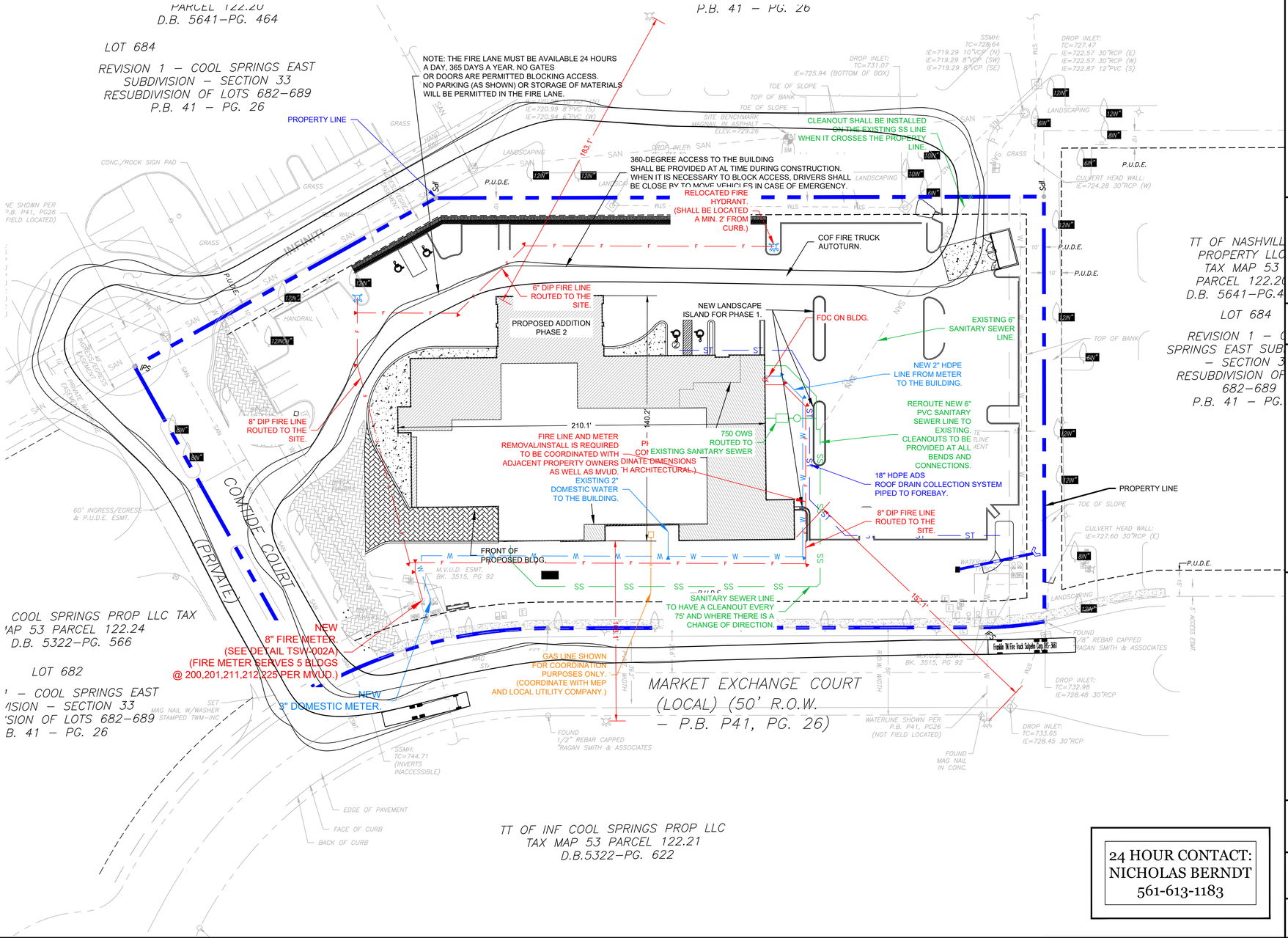
-NUMBER OF FRONT AXLES : 1
-FRONT TRACK WIDTH : 8'
-WHEELS ON EACH FRONT AXLE : 2
-NUMBER OF REAR AXLES : 2
-REAR TRACK WIDTH : 8'
-WHEEL BASE : 19.292' (FRONT AXLE TO FRONT REAR AXLE)
-REAR AXLE SPACING : 4.417'
-BODY LENGTH : 50.0417'
-WIDTH : 8.333'
-REAR OVERHANG : 24.167'
-BODY STYLE : FIRE TRUCK
-TURNING RADIUS WALL TO WALL : 42'
-MINIMUM DESIGN SPEED : 5-MPH

FIRE DEPARTMENT GATE REQUIREMENTS

-GATES MUST BE ACCESSIBLE TO FIRE DEPARTMENT
-MOTORIZED GATE: MUST HAVE A SIREN-OPERATED SENSOR (SOS) AND AN ELECTRONIC BACK-UP WITH A KNOX KEY SWITCH OR KNOX BOX WITH OWNER-SUPPLIED KEY.
-MOTORIZED GATE: GATE MUST BE CAPABLE OF MANUAL OPERATION IN THE EVENT OF A POWER LOSS.
-MOTORIZED GATE: GATE MUST HAVE AN OVERRIDE FEATURE TO PERMIT ACCESS BY MULTIPLE EMERGENCY VEHICLES WITHOUT HAVING TO WAIT FOR INTERMITTENT OPENING OF THE GATE.
-MOTORIZED GATE. AUTOMATIC GATES MUST COMPLY WITH UL 325 AND ASTM F2200.
-MANUAL GATE: KNOX PADLOCK OR KNOX BOX WITH OWNER-SUPPLIED KEY.
-ALL GATES: GATE MUST BE A MINIMUM OF 20-FEET WIDE. WHERE THERE IS A DIVIDED ROADWAY, THE GATE MUST BE A MINIMUM OF 12-FEET WIDE.
-ALL GATES: MINIMUM HEIGHT CLEARANCE IS 13-FEET, 6-INCHES.
THE SIREN-OPERATED SENSOR IS REQUIRED ON ALL AUTOMATIC GATES.

FIRE NOTE:

THE FIRE DEPARTMENT WILL PERMIT ANY OVER-PARKING. ALL VEHICLES MUST BE PARKED IN MARKED SPACES. PARKING VEHICLES OUTSIDE OF MARKED SPACES WILL RESULT IN A NOTICE OF VIOLATION AND A POSSIBLE COURT SUMMONS.



HETHCOAT DAVIS

HETHCOAT & DAVIS, INC.
278 Franklin Road
Building 4, Suite 200
Brentwood, TN 37027
Phone: (615) 577-4300
Fax: (615) 577-4303

March 18, 2022

MEMORANDUM

From: Hunter Patton, E.I.

To: Jenny Clarke, General Manager, Mallory Valley Utility District

Re: Flow Test – Comtide Blvd

A two-hydrant fire flow test was performed on March 15, 2022 near the intersection of Bakers Bridge Avenue and Market Exchange Court in Franklin, TN. The flow test started at approximately 2:00 P.M., CST. The test was executed by Hunter Hethcoat (H&D) and Justin Manwell (MVUD). The hydrants analyzed in the test are described as follows:

Read Hydrant – Location shown on attached map

Flow Hydrant – Location shown on attached map

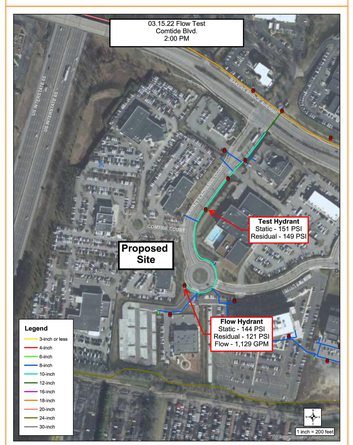
Results were as follows:

Read Hydrant – Static Pressure = 151 psi
Residual Pressure = 149 psi

Flow Hydrant – Static Pressure = 144 psi
Residual Pressure = 121 psi
Flow (Q) = 1,129 GPM

It should be noted that the results provided are instantaneous readings and H&D cannot ensure that it represents actual hydrant flow conditions over any period of time. Again, the pressures stated above are at the point of connection to the MVUD system and does not include losses that may occur due to metering, backflow prevention or multiple story construction.

Please advise if you have questions or require additional information.



ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 591-340, MILTON, GA 30004
PHONE: 678-605-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL — REGISTERED ENGINEER — 129 — AGRICULTURE — COLLEGE — No. 124430 — STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

0 30 60 Feet

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
505 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

EMERGENCY MANAGEMENT PLAN

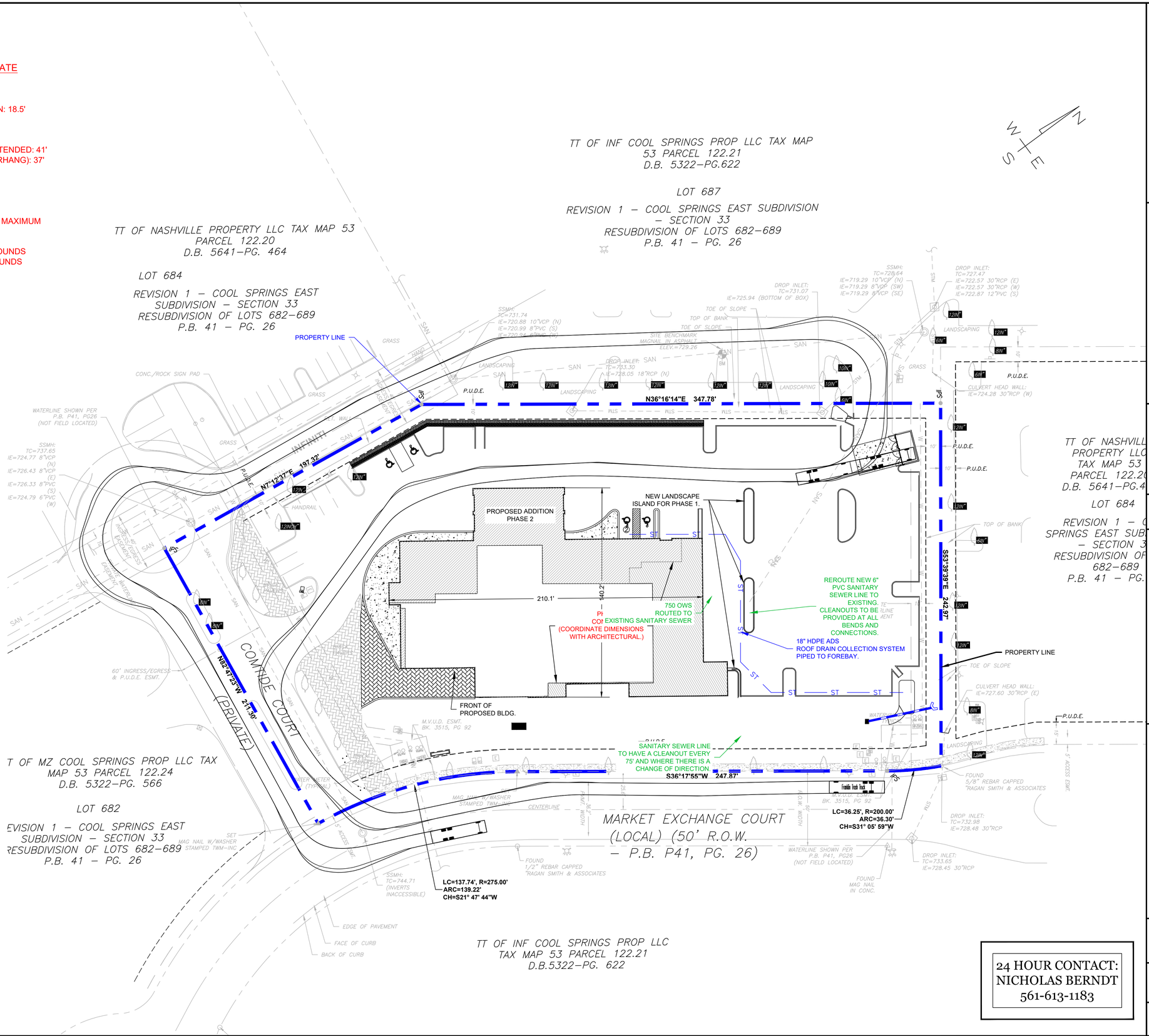
DATE:	5-4-23
PROJECT:	22-030

SHEET: C 6.0

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183

FRONT-END LOADER (REFUSE) TURNING TEMPLATE

HEIGHT: 12.5'
WHEEL BASE: 237" (19.5')
WIDTH: 97" (8' 1")
OVERHEAD CLEARANCE WITH CAN IN RAISED POSITION: 18.5'
TURNING RADIUS: 46'
TURNING DIAMETER: 97'
TRACK: 78.6" (APPROX. 6'6")
TOTAL LENGTH WITH BOOM OVERHANG AND ARMS EXTENDED: 41'
TOTAL OVERALL LENGTH OF TRUCK (WITH BOOM OVERHANG): 37'
TRUCK LENGTH WITHOUT BOOM: 35'
FRONT OVERHANG: 50" (4'2")
FORK LENGTH: 4'
BOOM ARMS FRONT OF BUMPER OVERHANG: 24"
EMPTY SCALE WEIGHT: 40,400 POUNDS
TOTAL GROSS VEHICLE WEIGHT: 75,020 POUNDS (THE MAXIMUM WITHOUT BEING OVER WEIGHT LIMITS)
FRONT AXLE WEIGHT: 18,000 POUNDS
EMPTY TRASH DUMPSTER ESTIMATED WEIGHT : 700 POUNDS
FULL TRASH DUMPSTER ESTIMATED WEIGHT: 1,600 POUNDS



ONSITE CIVIL GROUP
980 BIRMINGHAM RD, SUITE 591-340, MILTON, GA 30004
PHONE: 678-605-3347
WWW.ONSITECIVIL.COM
INFO@ONSITECIVIL.COM

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JARRETT M. SENKBEIL
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 124450
STATE OF TENNESSEE

REVISIONS

No.	DATE	DESCRIPTION
-	-	-

CLIENT:
TT OF H COOL SPRINGS, INC.
(GENISIS)
595 SOUTH FLAGER DRIVE
SUITE 1400
WEST PALM BEACH, FL 33401
facilityinvoices@amsinet.com

COOL SPRINGS EAST SUBDIVISION
SITE PLAN
SECTION 33, REVISION 2, LOT 685
(COMTIDE UNIFIED DEVELOPMENT)
(PROJECT NUMBER 8162)

FRONT-END LOADER TURNING TEMPLATE

DATE: 5-4-23
PROJECT: 22-030

SHEET: C 6.01

24 HOUR CONTACT:
NICHOLAS BERNDT
561-613-1183



LANDSCAPE DATA

SITE ACREAGE: 2.65 AC (±115,434 SF)
SITE ZONING DISTRICT AND APPLICABLE OVERLAYS: RC-6 (REGIONAL COMMERCE 6)
MINIMUM REQUIRED LANDSCAPE AREA (RATIO & ACREAGE): .15 (0.398 AC)
PROVIDED LANDSCAPE SURFACE AREA (RATIO & ACREAGE): .15 (0.398 AC)
PERCENT & ACREAGE OF ORIGINAL CANOPY COVER: 0.52 AC (19%)
PERCENT & ACREAGE TREE CANOPY COVER REQUIRED: 14% (0.07 AC)
PERCENT & ACREAGE OF PRESERVED CANOPY COVER PROVIDED: 11.3% (0.06 AC)
NUMBER AND DBH OF SPECIMEN TREES REMOVED: N/A
PROPOSED TREE SAVE AREA: 0.06 AC

TREE INVENTORY CHART

TREE NUMBER	TREE DBH	TREE SPECIES	TREE HEALTH	SPECIMEN TREE	LOCATION	TREES TO REMAIN	TREES TO BE REMOVED
1	8	N/A	GOOD	NO	SPL		X
2	8	N/A	GOOD	NO	SPL		X
3	8	N/A	GOOD	NO	SPL		X
4	8	N/A	GOOD	NO	SPL	X	
5	8	N/A	GOOD	NO	SPL	X	
6	8	N/A	GOOD	NO	SPL	X	
7	8	N/A	GOOD	NO	SPL	X	
8	8	N/A	GOOD	NO	SPL	X	
9	6	N/A	GOOD	NO	SPL	X	
10	6	N/A	GOOD	NO	SPL	X	
11	12	N/A	GOOD	NO	WPL		X
12	12	N/A	GOOD	NO	WPL		X
13	12	N/A	GOOD	NO	WPL		X
14	12	N/A	GOOD	NO	TI		X
15	10	N/A	GOOD	NO	TI		X
16	12	N/A	GOOD	NO	WPL		X
17	12	N/A	GOOD	NO	WPL	X	
18	6	N/A	GOOD	NO	WPL		X
19	8	N/A	GOOD	NO	WPL		X
20	12	N/A	GOOD	NO	WPL	X	
21	8	N/A	GOOD	NO	WPL		X
22	8	N/A	GOOD	NO	WPL		X
23	12	N/A	GOOD	NO	WPL	X	
24	8	N/A	GOOD	NO	WPL		X
25	10	N/A	GOOD	NO	WPL		X
26	12	N/A	GOOD	NO	WPL	X	
27	12	N/A	GOOD	NO	WPL		X
28	12	N/A	GOOD	NO	WPL	X	
29	8	N/A	GOOD	NO	WPL		X
30	6	N/A	GOOD	NO	WPL		X
31	12	N/A	GOOD	NO	WPL	X	
32	12	N/A	GOOD	NO	WPL		X
33	6	N/A	GOOD	NO	WPL	X	
34	12	N/A	GOOD	NO	WPL		X
35	12	N/A	GOOD	NO	NPL		X
36	12	N/A	GOOD	NO	NPL	X	
37	10	N/A	GOOD	NO	NPL		X
38	12	N/A	GOOD	NO	NPL		X
39	12	N/A	GOOD	NO	NPL	X	
40	12	N/A	GOOD	NO	NPL		X
41	12	N/A	GOOD	NO	NPL	X	
42	12	N/A	GOOD	NO	NPL		X
43	12	N/A	GOOD	NO	TI		X
44	20	N/A	GOOD	NO	TI		X
45	12	N/A	GOOD	NO	TI		X
46	18	N/A	GOOD	NO	TI		X
47	4	N/A	GOOD	NO	EPL		X
48	12	N/A	GOOD	NO	EPL		X
49	18	N/A	GOOD	NO	EPL		X
50	4	N/A	GOOD	NO	EPL		X
51	12	N/A	GOOD	NO	EPL	X	
52	12	N/A	GOOD	NO	EPL		X
53	12	N/A	GOOD	NO	EPL		X
54	8	N/A	GOOD	NO	EPL		X
55	12	N/A	GOOD	NO	EPL	X	
56	18	N/A	GOOD	NO	EPL		X
57	12	N/A	GOOD	NO	TI		X
58	12	N/A	GOOD	NO	EPL		X
59	12	N/A	GOOD	NO	EPL		X
60	10	N/A	GOOD	NO	EPL	X	
61	12	N/A	GOOD	NO	EPL		X
62	12	N/A	GOOD	NO	EPL		X
63	12	N/A	GOOD	NO	EPL	X	
64	12	N/A	GOOD	NO	EPL		X
65	12	N/A	GOOD	NO	EPL	X	
66	12	N/A	GOOD	NO	EPL		X
67	20	N/A	GOOD	NO	EPL		X
68	18	N/A	GOOD	NO	EPL		X
69	4	N/A	GOOD	NO	EPL		X
70	12	N/A	GOOD	NO	EPL	X	
71	8	N/A	GOOD	NO	EPL		X
72	12	N/A	GOOD	NO	EPL		X

Caliper Inches of trees to remain	236
Caliper Inches of trees to be removed	546

KEY	LOCATION
NPL	NORTHERN PROPERTY LINE
EPL	EASTERN PROPERTY LINE
SPL	SOUTHERN PROPERTY LINE
WPL	WESTERN PROPERTY LINE
TI	TREE ISLAND

TREE PROTECTION NOTE:

ALL TREE PROTECTION FENCING SHALL BE IN PLACE PRIOR TO THE ISSUANCE OF A GRADING OR LAND DISTURBANCE PERMIT AND SHALL BE MAINTAINED IN GOOD WORKING ORDER UNTIL ALL CONSTRUCTION ACTIVITY IS COMPLETED. NO DISTURBANCE IS PERMITTED IN A TREE PRESERVATION AREA. ANY REQUIRED EROSION CONTROL MEASURES SHALL BE PLACED OUTSIDE OF ANY TREE PROTECTION FENCING.

KEY

EXISTING TREE CANOPY ON SITE : +/- 0.53 AC (23,004 SF)

PROPOSED EXISTING TREE CANOPY TO REMAIN:
+/- 0.06 AC (2,590 SF)

PROPOSED EXISTING TREE CANOPY TO BE REMOVED
+/- 0.45 AC (20,414 SF)

NORTH

0 30 60 90 feet
SCALE: 1"=30'

KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste 100 Franklin, TN 37067
615.719.1943 | www.kiservogrin.com

CHRISTOPHER BRANDON WOOD
REGISTERED
LANDSCAPE ARCHITECT
COMMERCIAL
05.04.2023

COOL SPRINGS EAST SUBDIVISION, SITE PLAN, SECTION 33, REVISION 2, LOT 685 (COMTIDE UNIFIED DEVELOPMENT)
201 COMTIDE COURT
COF PROJECT # 8162
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE

NO.	REVISIONS	DATE	BY

DESIGNED BY: MKB
DRAWN BY: MKB/AW
CHECKED BY: CBW
DATE: 05/04/2023
KVD PROJECT NO. 22049

DRAWING TITLE:
TREE PRESERVATION PLAN

SHEET NUMBER
L1.0

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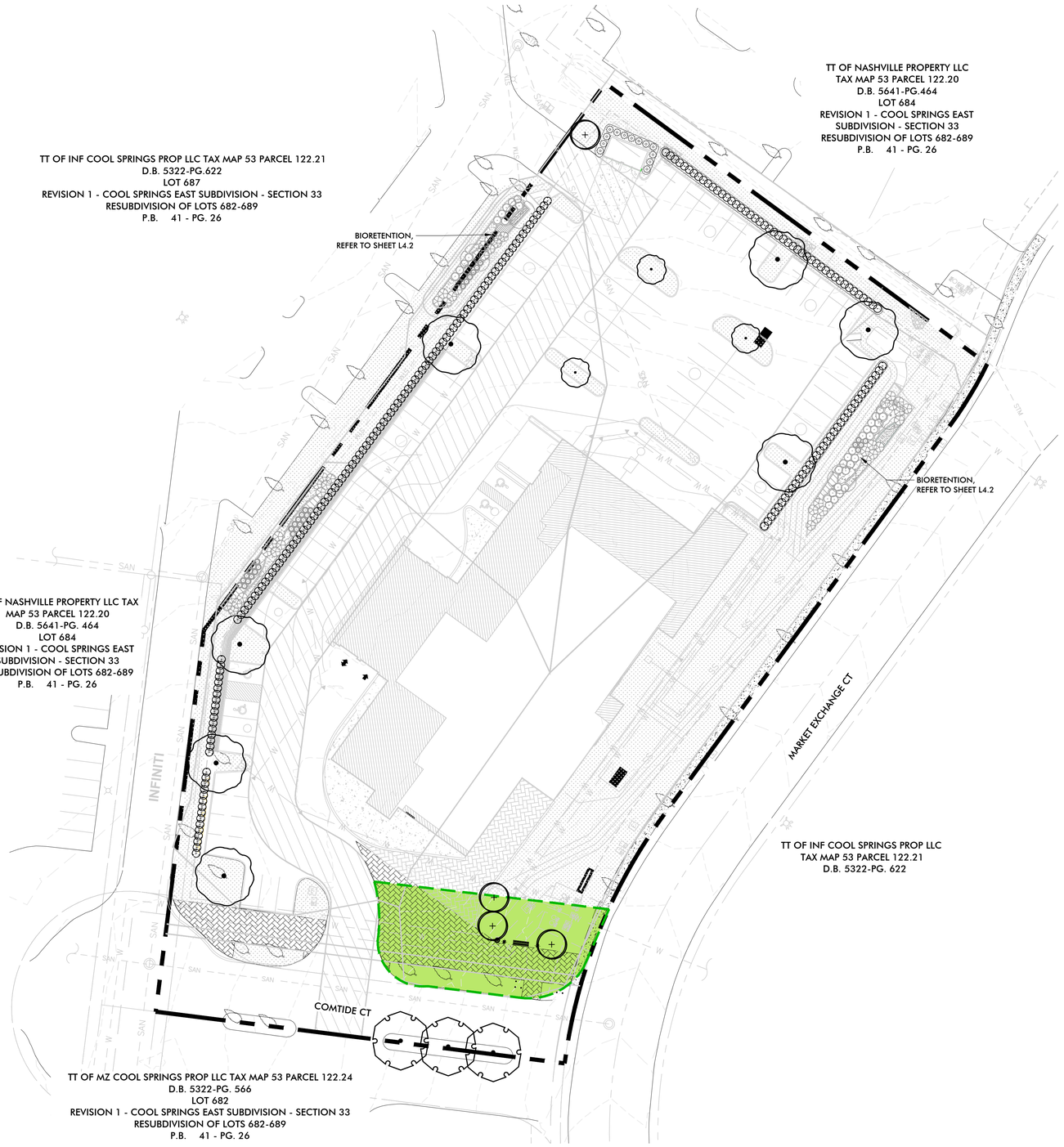

MINIMUM BUFFERING/SCREENING REQUIREMENTS:

THE DEVELOPMENT IS REQUIRED TO HAVE THE FOLLOWING LANDSCAPE IMPROVEMENTS:

BUFFER/SCREEN TYPE:

- ☐ PERIMETER PLANTING STRIP
- ☐ HVAC SCREEN
- ☐ LOADING/SERVICE
- ☐ TRANSITION ZONE BUFFER
- ☐ I-65
- ☐ UTILITY BOX SCREEN
- ☒ DUMPSTER SCREEN
- ☐ HISTORIC RESOURCE EDGE TREATMENT
- ☐ INTERSTATE 65 BUFFER

OTHER:_____

GENERAL NOTES:

1. LANDSCAPING SHALL NOT BE PLACED TO THE FRONT OF ANY FIRE HYDRANT OR WITHIN 3 FEET TO ANY OTHER SIDE OF A FIRE HYDRANT.
2. COMBUSTIBLE MULCH SHALL NOT BE APPLIED OR MAINTAINED WITHIN TWO FEET OF ANY BUILDING AROUND ENTIRE EXTERIOR PERIMETER, EXCEPT ONE AND TWO FAMILY DWELLINGS, BUILDINGS WITH EXTERIOR WALLS AND EXTERIOR WALL COVERINGS CONSTRUCTED OF NONCOMBUSTIBLE MATERIALS.

BICYCLE PARKING:

REQUIREMENT : 1 SPACE PER 20 VEHICLE SPACES
VEHICLE SPACES: 87
BICYCLE PARKING REQUIRED: 5 SPACES
BICYCLE PARKING PROVIDED: 7 SPACES

LEGEND

SYMBOL	DESCRIPTION	DETAIL
	PERMEABLE PAVERS (REFER TO CIVIL PLANS)	
	LEVEL 2 WATER QUALITY SWALE (REFER TO CIVIL PLANS)	
	SOD (TURF TYPE TALL FESCUE)	
	CONCRETE (REFER TO CIVIL PLANS)	
	BENCH	3 L5.1
	PEDESTRIAN LIGHTING	4 L5.1
	TRASH RECEPTACLE	5 L5.1
	BIKE RACK	6 L5.1

LANDSCAPE REQUIREMENTS (ACI)

LSA MINIMUM: 0.396 AC (15% OF SITE) TREE SAVE AREA (TSA): 0.06 AC ADJUSTED LSA: 0.336 AC LSA PROVIDED: 0.396 AC (15% OF SITE)	QUANTITY PROVIDED			INCHES PROVIDED
	EXISTING TREES	PROPOSED	TOTAL PROVIDED	CALIPER INCHES
EXISTING TREES =14"	-	-	-	-
EXISTING TREES (SEE TREE INVENTORY)	-	-	-	-
5"+ CALIPER CANOPY TREES	-	-	-	-
4" CALIPER CANOPY TREES	-	-	-	-
3" CALIPER CANOPY TREES	-	13	13	36
2" CALIPER CANOPY TREES	-	-	-	-
AGGREGATE CANOPY CALIPER INCHES PROVIDED				36
AGGREGATE CANOPY CALIPER INCHES REQUIRED				28
3" CALIPER UNDERSTORY TREES	-	-	-	-
2" CALIPER UNDERSTORY TREES	-	8	8	16
1.5" CALIPER UNDERSTORY TREES	-	-	-	-
AGGREGATE UNDERSTORY CALIPER INCHES PROVIDED				16
AGGREGATE UNDERSTORY CALIPER INCHES REQUIRED				7
MIN. 18" HEIGHT SHRUBS PROVIDED				-
MIN. 30" HEIGHT SHRUBS PROVIDED				299
TOTAL SHRUBS PROVIDED				299
TOTAL SHRUBS REQUIRED				32

LANDSCAPE DATA

SITE ACREAGE: 2.65 AC (±115,434 SF)
SITE ZONING DISTRICT AND APPLICABLE OVERLAYS: RC-6 (REGIONAL COMMERCE 6)
MINIMUM REQUIRED LANDSCAPE AREA (RATIO & ACREAGE): .15 (0.398 AC)
PROVIDED LANDSCAPE SURFACE AREA (RATIO & ACREAGE): .15 (0.398 AC)
PERCENT & ACREAGE OF ORIGINAL CANOPY COVER: 0.52 AC (19%)
PERCENT & ACREAGE TREE CANOPY COVER REQUIRED: 14% (0.07 AC)
PERCENT & ACREAGE OF PRESERVED CANOPY COVER PROVIDED: 11.3% (0.06 AC)
NUMBER AND DBH OF SPECIMEN TREES REMOVED: N/A
PROPOSED TREE SAVE AREA: 0.06 AC

OPEN SPACE REQUIREMENTS CHART

SITE ACREAGE: ± 2.65 AC ±115,434 SF
MINIMUM OPEN SPACE AREA REQUIRED : 5% 0.13 AC ±5,750 SF
PROPOSED OPEN SPACE AREA: 5% 0.13 AC ±5,750SF

OPEN SPACE PROVIDED

KEY	OPEN SPACE TYPE	AREA OF OPEN SPACE	PROPOSED FEATURES
OS 001	GREEN	0.13AC 5,750 SF	SEATING ELEMENTS, PEDESTRIAN SCALE LIGHTING, SITE FURNISHINGS, HARDSCAPE, LANDSCAPE DESIGN
	TOTAL PROVIDED	0.13AC 5,750 SF	

22049 GENESIS DEALERSHIP Sheet L4.0 OVERALL PLANT SCHEDULE

ABBR.	QTY	BOTANICAL NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	SPREAD	SPACING	NOTES
TREES									
CEC	4	*Cercis canadensis*	Eastern Redbud	B&B	1.5" CAL.	10' HT.	5' SPR.	SEE PLAN	Specimen, Req. by COF
LSR	3	*Liquidambar styraciflua `Rotundiloba`*	Round-Lobed Sweet Gum	B&B	3" CAL.	12' HT.	6' SPR.	SEE PLAN	Specimen, Req. by COF
QUP	3	*Quercus phellos*	Willow Oak	B&B	3" CAL.	14' HT.	7' SPR.	SEE PLAN	Specimen, Req. by COF
QUS	7	*Quercus shumardii*	Shumard Oak	B&B	3" CAL.	14' HT.	7' SPR.	SEE PLAN	Specimen, Req. by COF
SHRUBS									
ICB	157	*Ilex cornuta `Nana`*	Dwarf Burford Holly	CONT.		30" HT.		36" O.C.	FTG, Req. by COF
TMD	46	*Taxus x media `Densiformis`*	Dense Yew	CONT.		30" HT.		36" O.C.	FTG, Req. by COF
TOE	13	*Thuja occidentalis `Emerald`*	Emerald Arborvitae	CONT.		30" HT.		48" O.C.	FTG, Req. by COF

Key Legend:
Cont= Container; B&B = Balled and Burlapped; Cal=Caliper (diameter of the tree trunk); Ht= Height of foliage; Spr= Spread (diameter of plant foliage; Spacing: Refers to how far apart to plant plantings (from center to center of plants) when in massings. Otherwise, if plant stands alone, use scale on drawing to measure how far away to plant in relation to other plants
Full: Plants shall have dense growth in height and width; ST: Single Trunk; MT: Multi-Trunk (3 Stems)
2nd Yr. Growth: A plant that has been growing for 2 years before install
FTG (Full to Ground): Plant has foliage from top to bottom
Specimen: Refers to Tree/Shrubs that shall be top grade for each species and type. Plants shall exhibit exceptionally heavy, symmertrical, apperance to be unquestionably and outstandingly superior in form, compactness and shape

22049 GENESIS DEALERSHIP Sheet L4.0 OVERALL BIORETENTION PLANT SCHEDULE

ABBR.	QTY	BOTANICAL NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	SPREAD	SPACING	NOTES
TREES									
MAV	4	*Magnolia virginiana*	Sweetbay Magnolia	B&B	2" CAL.	10' HT.		SEE PLAN	Specimen, Req. by COF
SHRUBS									
HYQ	44	*Hydrangea quercifolia*	Oakleaf Hydrangea	CONT.		30" HT.		60" O.C.	Full
IGD	39	*Ilex glabra `Densa`*	Inkberry Holly	CONT.		30" HT.		48" O.C.	FTG
ANNUALS / PERENNIALS / GROUNDCOVER / ORNAMENTAL GRASSES									
AST	102	*Asclepias tuberosa*	Butterfly Milkweed	1 GALLON				18" O.C.	Full, 2nd Yr Growth
CAM	76	*Carex muskingumensis*	Palm Sedge	1 GALLON				24" O.C.	Full, 2nd Yr Growth, Spring planting only
MOD	54	*Monarda didyma*	Bee Balm	1 GALLON				24" O.C.	Full, 2nd Yr Growth
PVH	33	*Panicum virgatum `Hot Rod`*	Hot Rod Switch Grass	3 GALLON				36" O.C.	Full, 2nd Yr Growth, Spring planting only

Key Legend:
Cont= Container; B&B = Balled and Burlapped; Cal=Caliper (diameter of the tree trunk); Ht= Height of foliage; Spr= Spread (diameter of plant foliage; Spacing: Refers to how far apart to plant plantings (from center to center of plants) when in massings. Otherwise, if plant stands alone, use scale on drawing to measure how far away to plant in relation to other plants
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2nd Yr. Growth: A plant that has been growing for 2 years before install
FTG (Full to Ground): Plant has foliage from top to bottom
Specimen: Refers to Tree/Shrubs that shall be top grade for each species and type. Plants shall exhibit exceptionally heavy, symmertrical, apperance to be unquestionably and outstandingly superior in form, compactness and shape

AFTER INSTALLATION, THE LANDSCAPE WILL BE MAINTAINED BY:
TO BE DETERMINED BY OWNER.

ATTENTION OWNER/INSTALLER:
THIS LANDSCAPE PLAN HAS BEEN DESIGNED TO MEET THE MINIMUM REQUIREMENTS OF THE CITY OF FRANKLIN ZONING ORDINANCE, THE APPROVAL OF THE PLANNING COMMISSION, AND PLANNING DEPARTMENT POLICY. RELOCATING, SUBSTITUTING, RESIZING, REDUCING OR DELETING MATERIAL MAY CAUSE THE SITE TO NO LONGER CONFORM TO THE REQUIREMENTS; THUS PROBLEMS MAY ARISE WITH RELEASING THE PERFORMANCE/MAINTENANCE SURETY FOR THE LANDSCAPE MATERIAL DEVIATION FROM THE APPROVED LANDSCAPE PLAN SHALL NOT BE MADE WITHOUT FIRST CONSULTING THE LANDSCAPE ARCHITECT WHO DESIGNED THE PROJECT. THE DESIGNING LANDSCAPE ARCHITECT SHALL REVIEW PROPOSED SUBSTITUTIONS TO ENSURE THAT ALL CITY STANDARDS AND REQUIREMENTS ARE MET. THE CITY SHALL BE NOTIFIED IN WRITING UPON FINAL APPROVAL OF ANY PLANT SUBSTITUTIONS.

OWNER: TT OF NASHVILLE PROPERTY LLC

LANDSCAPE ARCHITECT: CHRIS WOOD, (615) 719-1943

FRANKLIN PLANNING DEPARTMENT: (615) 791-3212

NORTH

0 30 60 90 feet
SCALE: 1"=30'

811

KVD
KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste 100 Franklin, TN 37067
615.719.1943 | www.kiservogrin.com

CHRISTOPHER BRANDON WOOD REGISTERED LANDSCAPE ARCHITECT TENNESSEE

05.04.2023

COOL SPRINGS EAST SUBDIVISION, SITE PLAN, SECTION 33, REVISION 2, LOT 685 (COMTIDE UNIFIED DEVELOPMENT)
201 COMTIDE COURT
COF PROJECT # 8162
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE

NO:	REVISIONS	DATE	BY

DESIGNED BY: MKB
DRAWN BY: MKB/AW
CHECKED BY: CBW
DATE: 05/04/2023

KVD PROJECT NO. 22049

DRAWING TITLE:
LANDSCAPE PLAN

SHEET NUMBER
L4.0

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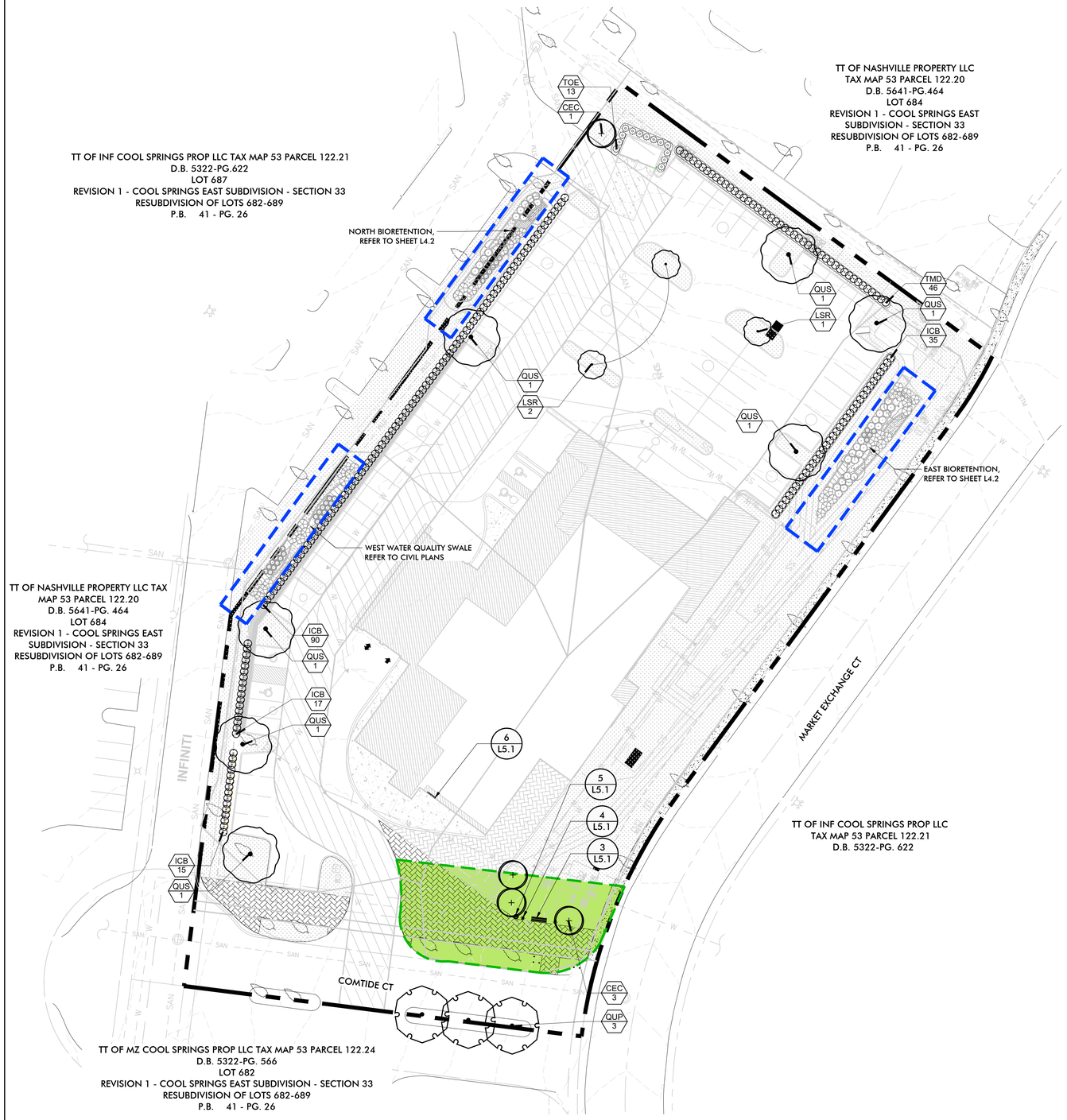

MINIMUM BUFFERING/SCREENING REQUIREMENTS:

THE DEVELOPMENT IS REQUIRED TO HAVE THE FOLLOWING LANDSCAPE IMPROVEMENTS:

BUFFER/SCREEN TYPE:

- ☐ PERIMETER PLANTING STRIP
- ☐ HVAC SCREEN
- ☐ LOADING/SERVICE
- ☐ TRANSITION ZONE BUFFER
- ☐ I-65
- ☐ UTILITY BOX SCREEN
- ☒ DUMPSTER SCREEN
- ☐ HISTORIC RESOURCE EDGE TREATMENT
- ☐ INTERSTATE 65 BUFFER

OTHER:_____

GENERAL NOTES:

1. LANDSCAPING SHALL NOT BE PLACED TO THE FRONT OF ANY FIRE HYDRANT OR WITHIN 3 FEET TO ANY OTHER SIDE OF A FIRE HYDRANT.
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BICYCLE PARKING:

REQUIREMENT : 1 SPACE PER 20 VEHICLE SPACES
VEHICLE SPACES: 87
BICYCLE PARKING REQUIRED: 5 SPACES
BICYCLE PARKING PROVIDED: 7 SPACES

LEGEND

SYMBOL	DESCRIPTION	DETAIL
	PERMEABLE PAVERS (REFER TO CIVIL PLANS)	
	LEVEL 2 WATER QUALITY SWALE (REFER TO CIVIL PLANS)	
	SOD (TURF TYPE TALL FESCUE)	
	CONCRETE (REFER TO CIVIL PLANS)	
	BENCH	3 / L5.1
	PEDESTRIAN LIGHTING	4 / L5.1
	TRASH RECEPTACLE	5 / L5.1
	BIKE RACK	6 / L5.1

LANDSCAPE REQUIREMENTS (ACI)

LSA MINIMUM: 0.396 AC (15% OF SITE) TREE SAVE AREA (TSA): 0.06 AC ADJUSTED LSA: 0.336 AC LSA PROVIDED: 0.396 AC (15% OF SITE)	QUANTITY PROVIDED			INCHES PROVIDED
	EXISTING TREES	PROPOSED	TOTAL PROVIDED	CALIPER INCHES
EXISTING TREES =14"	-	-	-	-
EXISTING TREES (SEE TREE INVENTORY)	-	-	-	-
5"+ CALIPER CANOPY TREES	-	-	-	-
4" CALIPER CANOPY TREES	-	-	-	-
3" CALIPER CANOPY TREES	-	13	13	36
2" CALIPER CANOPY TREES	-	-	-	-
AGGREGATE CANOPY CALIPER INCHES PROVIDED				36
AGGREGATE CANOPY CALIPER INCHES REQUIRED				28
3" CALIPER UNDERSTORY TREES	-	-	-	-
2" CALIPER UNDERSTORY TREES	-	8	8	16
1.5" CALIPER UNDERSTORY TREES	-	-	-	-
AGGREGATE UNDERSTORY CALIPER INCHES PROVIDED				16
AGGREGATE UNDERSTORY CALIPER INCHES REQUIRED				7

MIN. 18" HEIGHT SHRUBS PROVIDED	-
MIN. 30" HEIGHT SHRUBS PROVIDED	299
TOTAL SHRUBS PROVIDED	299
TOTAL SHRUBS REQUIRED	32

LANDSCAPE DATA

SITE ACREAGE: 2.65 AC (±115,434 SF)
SITE ZONING DISTRICT AND APPLICABLE OVERLAYS: RC-6 (REGIONAL COMMERCE 6)
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PERCENT & ACREAGE OF PRESERVED CANOPY COVER PROVIDED: 11.3% (0.06 AC)
NUMBER AND DBH OF SPECIMEN TREES REMOVED: N/A
PROPOSED TREE SAVE AREA: 0.06 AC

OPEN SPACE REQUIREMENTS CHART

SITE ACREAGE: ± 2.65 AC ±115,434 SF
MINIMUM OPEN SPACE AREA REQUIRED : 5% 0.13 AC ±5,750 SF
PROPOSED OPEN SPACE AREA: 5% 0.13 AC ±5,750SF

OPEN SPACE PROVIDED

KEY	OPEN SPACE TYPE	AREA OF OPEN SPACE	PROPOSED FEATURES
OS 001	GREEN	0.13AC 5,750 SF	SEATING ELEMENTS, PEDESTRIAN SCALE LIGHTING, SITE FURNISHINGS, HARDSCAPE, LANDSCAPE DESIGN
	TOTAL PROVIDED	0.13AC 5,750 SF	

22049 GENESIS DEALERSHIP Sheet L4.0 OVERALL PLANT SCHEDULE

ABBR.	QTY	BOTANICAL NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	SPREAD	SPACING	NOTES
TREES									
CEC	4	*Cercis canadensis*	Eastern Redbud	B&B	1.5" CAL.	10' HT.	5' SPR.	SEE PLAN	Specimen, Req. by COF
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QUP	3	*Quercus phellos*	Willow Oak	B&B	3" CAL.	14' HT.	7' SPR.	SEE PLAN	Specimen, Req. by COF
QUS	7	*Quercus shumardii*	Shumard Oak	B&B	3" CAL.	14' HT.	7' SPR.	SEE PLAN	Specimen, Req. by COF
SHRUBS									
ICB	157	*Ilex cornuta `Nana'*	Dwarf Burford Holly	CONT.		30" HT.		36" O.C.	FTG, Req. by COF
TMD	46	*Taxus x media `Densiformis'*	Dense Yew	CONT.		30" HT.		36" O.C.	FTG, Req. by COF
TOE	13	*Thuja occidentalis `Emerald'*	Emerald Arborvitae	CONT.		30" HT.		48" O.C.	FTG, Req. by COF

Key Legend:
Cont= Container; B&B = Balled and Burlapped; Cal=Caliper (diameter of the tree trunk); Ht= Height of foliage; Spr= Spread (diameter of plant foliage; Spacing: Refers to how far apart to plant plantings (from center to center of plants) when in massings. Otherwise, if plant stands alone, use scale on drawing to measure how far away to plant in relation to other plants
Full: Plants shall have dense growth in height and width; ST: Single Trunk; MT: Multi-Trunk (3 Stems)
2nd Yr. Growth: A plant that has been growing for 2 years before install
FTG (Full to Ground): Plant has foliage from top to bottom
Specimen: Refers to Tree/Shrubs that shall be top grade for each species and type. Plants shall exhibit exceptionally heavy, symmertrical, apperance to be unquestionably and outstandingly superior in form, compactness and shape

AFTER INSTALLATION, THE LANDSCAPE WILL BE MAINTAINED BY:
TO BE DETERMINED BY OWNER.

ATTENTION OWNER/INSTALLER:
THIS LANDSCAPE PLAN HAS BEEN DESIGNED TO MEET THE MINIMUM REQUIREMENTS OF THE CITY OF FRANKLIN ZONING ORDINANCE, THE APPROVAL OF THE PLANNING COMMISSION, AND PLANNING DEPARTMENT POLICY. RELOCATING, SUBSTITUTING, RESIZING, REDUCING OR DELETING MATERIAL MAY CAUSE THE SITE TO NO LONGER CONFORM TO THE REQUIREMENTS; THUS PROBLEMS MAY ARISE WITH RELEASING THE PERFORMANCE/MAINTENANCE SURETY FOR THE LANDSCAPE MATERIAL DEVIATION FROM THE APPROVED LANDSCAPE PLAN SHALL NOT BE MADE WITHOUT FIRST CONSULTING THE LANDSCAPE ARCHITECT WHO DESIGNED THE PROJECT. THE DESIGNING LANDSCAPE ARCHITECT SHALL REVIEW PROPOSED SUBSTITUTIONS TO ENSURE THAT ALL CITY STANDARDS AND REQUIREMENTS ARE MET. THE CITY SHALL BE NOTIFIED IN WRITING UPON FINAL APPROVAL OF ANY PLANT SUBSTITUTIONS.

OWNER: TT OF NASHVILLE PROPERTY LLC

LANDSCAPE ARCHITECT: CHRIS WOOD, (615) 719-1943

FRANKLIN PLANNING DEPARTMENT: (615) 791-3212

NORTH

0 30 60 90 feet
SCALE: 1"=30'

811

KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste 100 Franklin, TN 37067
615.719.1943 | www.kiservogrin.com

CHRISTOPHER BRANDON WOOD REGISTERED LANDSCAPE ARCHITECT TENNESSEE
05.04.2023

COOL SPRINGS EAST SUBDIVISION, SITE PLAN, SECTION 33, REVISION 2, LOT 685 (COMTIDE UNIFIED DEVELOPMENT)
201 COMTIDE COURT
COF PROJECT # 8162
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE

NO:	REVISIONS	DATE	BY

DESIGNED BY: MKB
DRAWN BY: MKB/AW
CHECKED BY: CBW
DATE: 05/04/2023

KVD PROJECT NO. 22049

DRAWING TITLE: LANDSCAPE PLAN

SHEET NUMBER L4.1

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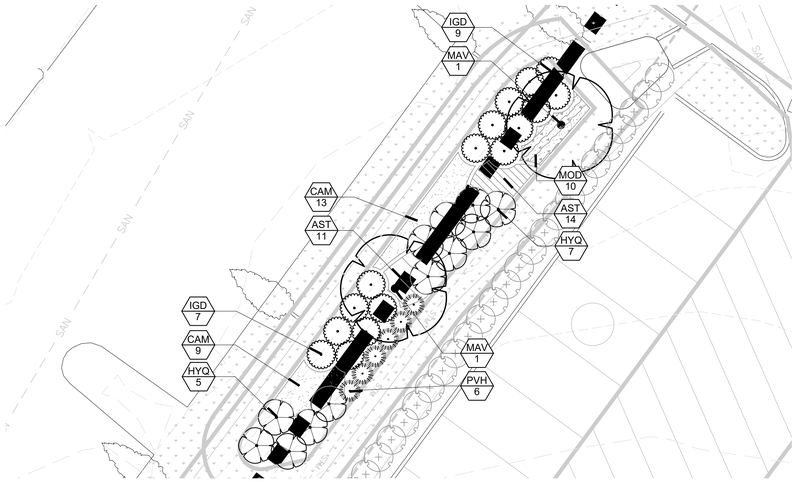


NORTH BIORETENTION ENALRGEMENT

BIORETENTION AREA: +/- 685 SF
LEVEL 2 BIORETENTION
TYPE: ORNAMENTAL PLANTING
TREES: 1 TREE PER 400 SF OF GIP AREA
TREES REQUIRED: 1
TREES PROVIDED: 2
SHRUBS/PERENNIALS: 75% OF GIP AREA PLANTED
PLANTED AREA REQUIRED: 513 SF
PLANTED AREA PROVIDED: +/- 513 SF
NATIVE MILKWEED: 5% OF GIP AREA PLANTED
PLANTED AREA REQUIRED: 26 SF
PLANTED AREA PROVIDED: +/- 26 SF

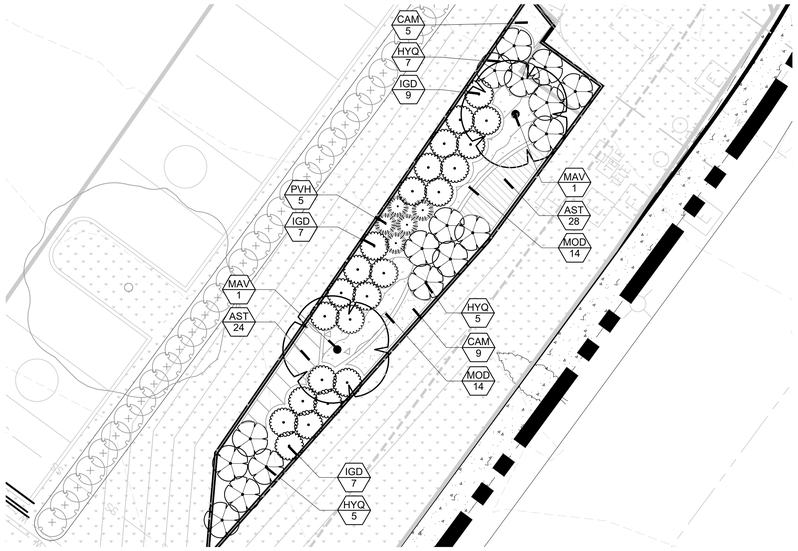
22049 GENESIS DEALERSHIP SHEET L4.2 NORTH BIORETENTION PLANT SCHEDULE

ABBR.	QTY	BOTANICAL NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	SPREAD	SPACING	NOTES
TREES									
MAV	2	*Magnolia virginiana*	Sweetbay Magnolia	B&B	2" CAL.	10' HT.		SEE PLAN	Specimen, Req. by COF
SHRUBS									
HYQ	12	*Hydrangea quercifolia*	Oakleaf Hydrangea	CONT.		30" HT.		60" O.C.	Full
IGD	16	*Ilex glabra 'Densa'*	Inkberry Holly	CONT.		30" HT.		48" O.C.	FTG
ANNUALS / PERENNIALS / GROUNDCOVER / ORNAMENTAL GRASSES									
AST	25	*Asclepias tuberosa*	Butterfly Milkweed	1 GALLON				18" O.C.	Full, 2nd Yr Growth
CAM	22	*Carex muskingumensis*	Palm Sedge	1 GALLON				24" O.C.	Full, 2nd Yr Growth, Spring planting only
MOD	10	*Monarda didyma*	Bee Balm	1 GALLON				24" O.C.	Full, 2nd Yr Growth
PVH	6	*Panicum virgatum `Hot Rod`*	Hot Rod Switch Grass	3 GALLON				36" O.C.	Full, 2nd Yr Growth, Spring planting only

Key Legend:
Cont= Container; B&B = Balled and Burlapped; Cal=Caliper (diameter of the tree trunk); Ht= Height of foliage; Spr= Spread (diameter of plant foliage; Spacing: Refers to how far apart to plant plantings (from center to center of plants) when in massings. Otherwise, if plant stands alone, use scale on drawing to measure how far away to plant in relation to other plants
Full: Plants shall have dense growth in height and width; ST: Single Trunk; MT: Multi-Trunk (3 Stems)
2nd Yr. Growth: A plant that has been growing for 2 years before install
FTG (Full to Ground): Plant has foilage from top to bottom
Specimen: Refers to Tree/Shrubs that shall be top grade for each species and type. Plants shall exhibit exceptionally heavy, symmertrical, apperance to be unquestionably and outstandingly superior in form, compactness and shape

BIORETENTION NOTES:

1. BIORETENTION SQ FT DOES NOT INCLUDE FOREBAY SQ FT.
2. BMP'S THAT REQUIRE TREES IN THE PLANTING SCHEDULE SHALL REQUIRE TREE HOLES IN THE FILTER BED THAT MUST BE AT LEAST 4 FEET DEEP (OR AS MUCH AS DESIGN ALLOWS) TO PROVIDE ENOUGH SOIL VOLUME FOR THE ROOT STRUCTURE OF MATURE TREES. IN ADDITION A MORE ORGANIC FILTER MEDIA IS REQUIRED WITHIN THE PLANTING HOLES FOR TREES, WITH RATIO OF 50% SAND, 30% TOP SOIL AND 20% ACCEPTABLE LEAF COMPOST (OR OTHER AS APPROVED).
3. SEE L6.2 LANDSCAPE DETAILS FOR MORE INFORMATION
4. GROUNDCOVER TO BE AGED DOUBLE SHREDDED HARDWOOD MULCH



EAST BIORETENTION ENALRGEMENT

BIORETENTION AREA: +/- 1032 SF
LEVEL 2 BIORETENTION
TYPE: ORNAMENTAL PLANTING
TREES: 1 TREE PER 400 SF OF GIP AREA
TREES REQUIRED: 2
TREES PROVIDED: 2
SHRUBS/PERENNIALS: 75% OF GIP AREA PLANTED
PLANTED AREA REQUIRED: 774 SF
PLANTED AREA PROVIDED: +/- 774 SF
NATIVE MILKWEED: 5% OF GIP AREA PLANTED
PLANTED AREA REQUIRED: 39 SF
PLANTED AREA PROVIDED: +/- 39 SF

22049 GENESIS DEALERSHIP SHEET L4.2 EAST BIORETENTION PLANT SCHEDULE

ABBR.	QTY	BOTANICAL NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	SPREAD	SPACING	NOTES
TREES									
MAV	2	*Magnolia virginiana*	Sweetbay Magnolia	B&B	2" CAL.	10' HT.		SEE PLAN	Specimen, Req. by COF
SHRUBS									
HYQ	17	*Hydrangea quercifolia*	Oakleaf Hydrangea	CONT.		30" HT.		60" O.C.	Full
IGD	23	*Ilex glabra 'Densa'*	Inkberry Holly	CONT.		30" HT.		48" O.C.	FTG
ANNUALS / PERENNIALS / GROUNDCOVER / ORNAMENTAL GRASSES									
AST	52	*Asclepias tuberosa*	Butterfly Milkweed	1 GALLON				18" O.C.	Full, 2nd Yr Growth
CAM	14	*Carex muskingumensis*	Palm Sedge	1 GALLON				24" O.C.	Full, 2nd Yr Growth, Spring planting only
MOD	28	*Monarda didyma*	Bee Balm	1 GALLON				24" O.C.	Full, 2nd Yr Growth
PVH	5	*Panicum virgatum `Hot Rod`*	Hot Rod Switch Grass	3 GALLON				36" O.C.	Full, 2nd Yr Growth, Spring planting only

Key Legend:
Cont= Container; B&B = Balled and Burlapped; Cal=Caliper (diameter of the tree trunk); Ht= Height of foliage; Spr= Spread (diameter of plant foliage; Spacing: Refers to how far apart to plant plantings (from center to center of plants) when in massings. Otherwise, if plant stands alone, use scale on drawing to measure how far away to plant in relation to other plants
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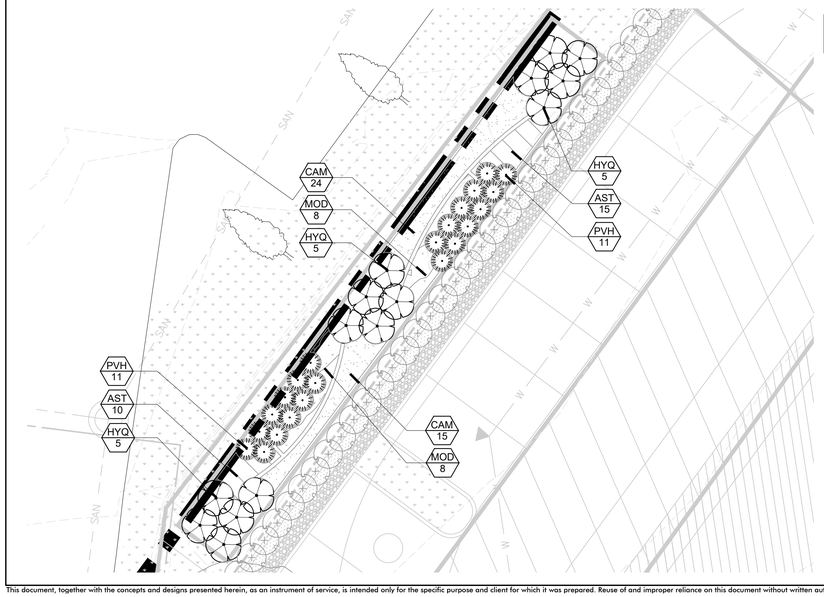

WEST WATER QUALITY SWALE

22049 GENESIS DEALERSHIP SHEET L4.2 WATER QUALITY SWALE

ABBR.	QTY	BOTANICAL NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	SPREAD	SPACING	NOTES
SHRUBS									
HYQ	15	*Hydrangea quercifolia*	Oakleaf Hydrangea	CONT.		30" HT.		60" O.C.	Full
ANNUALS / PERENNIALS / GROUNDCOVER / ORNAMENTAL GRASSES									
AST	25	*Asclepias tuberosa*	Butterfly Milkweed	1 GALLON				18" O.C.	Full, 2nd Yr Growth
CAM	39	*Carex muskingumensis*	Palm Sedge	1 GALLON				24" O.C.	Full, 2nd Yr Growth, Spring planting only
MOD	16	*Monarda didyma*	Bee Balm	1 GALLON				24" O.C.	Full, 2nd Yr Growth
PVH	22	*Panicum virgatum `Hot Rod`*	Hot Rod Switch Grass	3 GALLON				36" O.C.	Full, 2nd Yr Growth, Spring planting only

Key Legend:
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TO BE DETERMINED BY OWNER.

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OWNER: TT OF NASHVILLE PROPERTY LLC

LANDSCAPE ARCHITECT: CHRIS WOOD, (615) 719-1943

FRANKLIN PLANNING DEPARTMENT: (615) 791-3212

NORTH

0 10 20 30 feet
SCALE: 1"=10'

811

KVD
KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste 100 Franklin, TN 37067
615.719.1943 | www.kiservogrin.com

CHRISTOPHER BRANDON WOOD
REGISTERED
LANDSCAPE ARCHITECT
COMMERCIAL SEAL
05.04.2023

COOL SPRINGS EAST SUBDIVISION, SITE PLAN, SECTION 33, REVISION 2, LOT 685 (COMTIDE UNIFIED DEVELOPMENT)
201 COMTIDE COURT
COF PROJECT # 8162
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE

NO.	REVISIONS	DATE	BY

DESIGNED BY: MKB
DRAWN BY: MKB/AW
CHECKED BY: CBW
DATE: 05/04/2023
KVD PROJECT NO. 22049

DRAWING TITLE:
ENLARGED LANDSCAPE PLAN

SHEET NUMBER
L4.2

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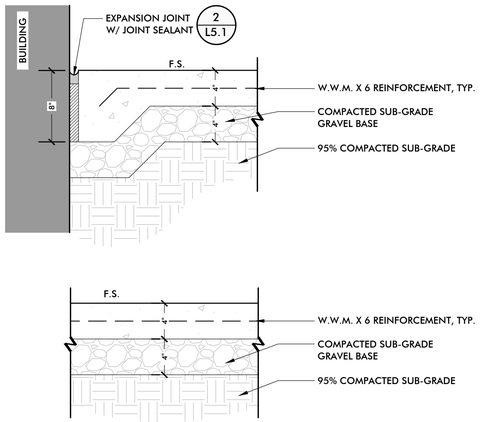
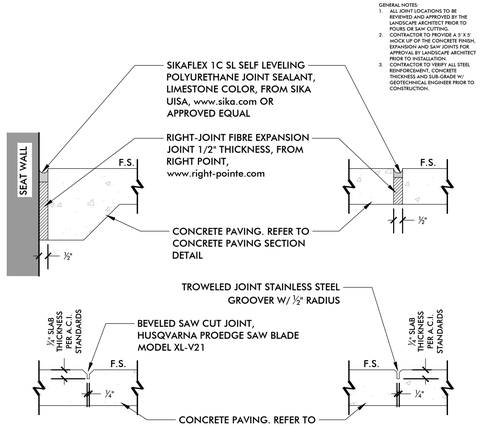


1 CONCRETE PAVING SECTION

1 1/2" = 1'-0"

SECTION



GENERAL NOTES:
1. ALL EXPANSION LOCATIONS TO BE APPROVED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO POURS OR SAW CUTTING.
2. CONTRACTOR TO PROVIDE A 5' X 5' MOCK-UP OF THE CONCRETE FINISH, EXPANSION AND SAW JOINTS FOR REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
3. CONTRACTOR TO VERIFY ALL STEEL REINFORCEMENT, CONCRETE THICKNESS AND SUB-GRADE W/ GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.

2 EXPANSION, SAWN & TROWELED JOINTS

1 1/2" = 1'-0"

SECTION

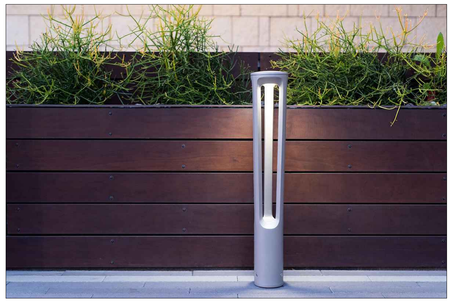


MANUFACTURER: FORMS+SURFACES
MODEL: RATIO BENCH - SBRAT - 72BPC
COLOR: INK BLUE TEXTURE
CONTACT: ERIC LINEBARGER | eric.linebarger@forms-surfaces.com
PHONE: T 800.451.0410 | M 615.556.9945 | F 412.385.4715
WEBSITE: https://www.forms-surfaces.com/

3 RATIO BENCH

N.T.S.

IMAGE



MANUFACTURER: FORMS+SURFACES
MODEL: BOLLARD - HARDWIRED 3000K LED - LBAPT-AC
COLOR: INK BLUE TEXTURE
CONTACT: ERIC LINEBARGER | eric.linebarger@forms-surfaces.com
PHONE: T 800.451.0410 | M 615.556.9945 | F 412.385.4715
WEBSITE: https://www.forms-surfaces.com/

4 APTOS BOLLARD - HARDWIRED

N.T.S.

IMAGE

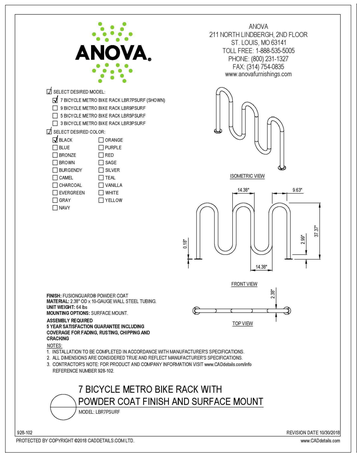


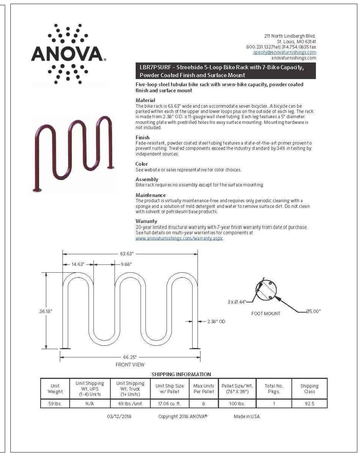
MANUFACTURER: FORMS+SURFACES
MODEL: DISPATCH LITTER & RECYCLING RECEPTACLE - SLDIS-145
COLOR: INK BLUE TEXTURE
CONTACT: ERIC LINEBARGER | eric.linebarger@forms-surfaces.com
PHONE: T 800.451.0410 | M 615.556.9945 | F 412.385.4715
WEBSITE: https://www.forms-surfaces.com/

5 DISPATCH LITTER & RECYCLING RECEPTACLE

N.T.S.

IMAGE





6 ANOVA BIKE RACK

N.T.S.

SECTION/ELEVATION/PLAN

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5005 Meridian Blvd. Ste 100 Franklin, TN 37067
615.719.1943 | www.kiservogrin.com

CHRISTOPHER BRANDON WOOD
REGISTERED
LANDSCAPE ARCHITECT
TENNESSEE
05.04.2023

COOL SPRINGS EAST SUBDIVISION, SITE PLAN, SECTION 33, REVISION 2, LOT 685 (COMTIDE UNIFIED DEVELOPMENT)
201 COMTIDE COURT
COF PROJECT # 8162
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE

NO.	REVISIONS	DATE	BY

DESIGNED BY:	MKB
DRAWN BY:	MKB/AW
CHECKED BY:	CBW
DATE:	05/04/2023

KVD PROJECT NO. 22049

DRAWING TITLE:

HARDSCAPE DETAILS

SHEET NUMBER

L5.1

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AZALEA, HYDRANGEA, RHODODENDRON AND YEW PLANTING SPECIFICATIONS

1. REMOVE ALL CLAY SUBSOIL FROM PLANTING BED. PLANTING BEDS MUST HAVE A MINIMUM TOP SOIL DEPTH OF 12".

2. A PERCOLATION TEST SHALL BE PERFORMED IN EACH PLANTING AREA. DIG A HOLE 12 INCHES DEEP AND FILL COMPLETELY WITH WATER. NOTE THE TIME OF DAY THAT THE HOLE WAS FILLED. WAIT 24 HOURS AND THEN CHECK THE WATER LEVEL IN THE HOLE. IF WATER IS STILL PRESENT IN THE HOLE, CONTACT LANDSCAPE ARCHITECT AS DRAINAGE FOR THIS AREA MAY NEED TO BE PROVIDED.

3. A SOIL TEST IS TO BE PERFORMED IN ORDER TO DETERMINE WHAT CHEMICALS/FERTILIZERS MAY NEED TO BE ADDED TO ENSURE SUCCESSFUL PLANT GROWTH.

4. IF THERE IS ANY QUESTION AS TO THE CHEMICAL SUITABILITY OF WATER TO BE USED FOR IRRIGATION PURPOSES, IT IS RECOMMENDED THAT A WATER QUALITY CHEMICAL ANALYSIS BE PERFORMED.

5. ALL TOPSOIL SHALL BE AMEND WITH PRO-MIX HP BIOSTIMULANT + MYCORRHIZAE GROWING MEDIUM PRIOR TO PLANTING.
   5.1. PRO-MIX PRODUCTS; 1.855.867.5407

6. ROTOTILL EXISTING SOIL TO A DEPTH OF 12" PRIOR TO ANY TOPSOIL PLACEMENT. PLACE PLANTING SOIL MIX IN ALL PLANT AND GROUNDCOVER BED AREAS. ROTOTILL SOIL MIX INTO THE EXISTING SOIL. REMOVE ROCKS OVER 1" DIAMETER. *PLANTING BED AREAS WITH EXISTING PLANT MATERIAL TO REMAIN SHALL NOT BE ROTOTILLED WITHIN THE TREE PROTECTION ZONE.

7. ENTIRE PLANT BED SHALL BE TILLED TO MINIMUM DEPTH OF 12"

8. ENSURE THAT PLANTING HOLES DO NOT HOLD WATER, (INADEQUATE PLANT BED DRAINAGE WILL LEAD TO PLANT DECLINE)

9. ALL PLANTS SHALL BE PLANTED A MINIMUM OF 2" ABOVE GRADE.

10. BACKFILL ALL PLANTING HOLES WITH A MIX OF SPECIFIED GROWING MEDIUM AND TILLED TOPSOIL

11. WATER ALL PLANTS WITH FERTILIZER MIX OF:

- SUPERTHRIVE ROOTING STIMULANT - AS PER MANUFACTURERS RECOMMENDATIONS
- VITAMIN INSTITURE; 1.800.441.8482
- MONTYS PLANT FOOD: ALL PURPOSE GROWTH - AS PER MANUFACTURERS RECOMMENDATIONS
- MONTYS PLANT & SOIL PRODUCTS; 1.800.978.6342

GENERAL TREE SPECIFICATIONS:

1. ALL STREET AND PARKING LOT TREES SHALL BE LIMBED UP TO THE FOLLOWING HEIGHTS:
   a. 2" CALIPER TREES: LOWEST BRANCH 6' HT.
   b. 3" CALIPER TREES: LOWEST BRANCH 7' HT.
2. TREE CANOPY WIDTH SHALL BE RELATIVE TO HEIGHT/CALIPER OF TREE AND TYPE OF TREE.
   a. 1" CALIPER/6-8' HT: 3-4' WIDE MIN.
   b. 2" CALIPER/12-14' HT: 4-5' WIDE MIN.
   c. 3" CALIPER/14-16' HT: 6-7' WIDE MIN.
3. CANOPY TREES SHALL NOT HAVE CO-DOMINATE LEADERS IN LOWER HALF OF TREE CROWN
4. ALL TREES SHALL HAVE SYMMETRICAL OR BALANCED BRANCHING ON ALL SIDES OF THE TREE.
5. TREES SHALL NOT BE TIPPED PRUNED.
6. TREE TRUNKS SHALL NOT BE BOWED OR "DOG-LEGGED" .
7. TREES SHALL BE SOUND, HEALTHY, VIGOROUS, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF, FREE OF DISEASE AND INSECTS, EGGS LARVAE.
8. TREES SHALL BE FREE OF PHYSICAL DAMAGE FROM SHIPPING AND HANDLING. DAMAGED TREES SHALL BE REJECTED.
9. SUMMER DUG TREES SHALL HAVE ROOTBALL SIZE INCREASED BY 20%.
10. TREES WHICH EXCEED RECOMMENDED CALIPER TO HEIGHT RELATIONSHIP SHALL BE REJECTED.

SPECIMEN TREE SPECIFICATIONS:

1. TREES SHALL MEET REQUIREMENTS SET FORTH IN GENERAL TREE SPECIFICATIONS.
2. TREES SHALL BE TOP GRADE TREES FOR EACH SPECIES AND TYPE. PLANTS SHALL EXHIBIT EXCEPTIONALLY HEAVY, SYMMETRICAL, APPEARANCE AS TO BE UNQUESTIONABLY AND OUTSTANDINGLY SUPERIOR IN FORM, COMPACTNESS AND SHAPE.
3. ANY PRUNING CUTS SHALL HAVE BEEN HEALED FOR A MINIMUM OF ONE GROWING SEASON. TREES WITH PRUNING CUTS OVER 1" SHALL BE REJECTED.
4. TREES SHALL NOT HAVE CROSSING BRANCHES WITHIN THE CROWN.
5. ROOTBALL SIZES SHALL MEET OR EXCEED ANSI Z60.1 SPECIFICATIONS

CITY OF FRANKLIN MINIMUM PLANT QUALITY AND SIZE STANDARDS

1. ALL NEWLY PLANTED LANDSCAPE PLANT MATERIALS SHALL CONFORM TO THE LATEST VERSION OF THE *AMERICAN STANDARD OF NURSERY STOCK* (ANSI Z60.1).

2. ALL TYPE 1, 2, AND 3 TREES (AS DEFINED IN ANSI Z60.1) USED TO MEET THE REQUIREMENTS OF THIS SUBSECTION SHALL HAVE THE FOLLOWING CHARACTERISTICS:

   2.1. DECIDUOUS TREES SHALL HAVE ONE DOMINANT TRUNK WITH THE TIP OF THE LEADER ON THE MAIN TRUNK LEFT INTACT AND THE TERMINAL BUD ON THE CENTRAL LEADER AT THE HIGHEST POINT ON THE TREE;

   2.2. TREES WITH FORKED TRUNKS ARE ACCEPTABLE IF ALL THE FOLLOWING CONDITIONS ARE MET:
   1. THE FORK OCCURS IN THE UPPER ONE-THIRD OF THE TREE;
   2. ONE FORK IS LESS THAN TWO-THIRDS THE DIAMETER OF THE DOMINANT FORK; AND
   3. THE TOP ONE-THIRD OF THE SMALLER FORK IS REMOVED AT THE TIME OF PLANTING;

   2.3. NO BRANCH IS GREATER THAN TWO-THIRDS THE DIAMETER OF THE TRUNK DIRECTLY ABOVE THE BRANCH;

   2.4. SEVERAL BRANCHES ARE LARGER IN DIAMETER AND OBVIOUSLY MORE DOMINANT;

   2.5. BRANCHING HABIT IS MORE HORIZONTAL THAN VERTICAL, AND NO BRANCHES ARE ORIENTED NEARLY VERTICAL TO THE TRUNK; AND

   2.6. BRANCHES ARE EVENLY DISTRIBUTED AROUND THE TRUNK WITH NO MORE THAN ONE MAJOR BRANCH LOCATED DIRECTLY ABOVE ANOTHER AND THE CROWN IS FULL OF FOLIAGE THAT IS EVENLY DISTRIBUTED AROUND THE TREE.

3. LAGERSTROEMIA X 'NATCHEZ' ON THIS PLAN IS CONSIDERED AS UNDERSTORY TREES AND SHALL NOT BE TOPPED, RACKED OR THE CROWN REMOVED IN ANY FASHION. IF THIS OCCURS THE EFFECTED PLANT SHALL BE REPLACED.

CITY OF FRANKLIN LANDSCAPE NOTES

1. ANY PLANT MATERIAL THAT DIES, TURNS BROWN OR DEFOLIATES SHALL BE REPLACED WITHIN ONE YEAR OR BY THE NEXT GROWING SEASON, WHICH EVER COMES FIRST. OTHER DEFECTIVE LANDSCAPE MATERIAL SHALL BE REPLACED WITHIN THREE MONTHS.

2. ALL TREES SHALL MEET FRANKLIN'S MINIMUM SIZE AND QUALITY STANDARD. ALL PLANTS SHALL BE HEALTHY, VIGOROUS MATERIAL, FREE OF PEST AND DISEASE. ALL ROOTBALLS, CONTAINERS AND HEIGHT TO WIDTH RATIOS SHALL CONFORM TO THE SIZE STANDARDS SET FORTH IN THE AMERICAN STANDARDS FOR NURSERY STOCK, CURRENT EDITION.

3. ALL REQUIRED TREES AND SHRUBS SHALL MEET THE MINIMUM SIZE AND QUANTITY AS LISTED IN THE PLANT SCHEDULE.

4. PLANT MATERIAL SHALL NOT OBSCURE TRAFFIC OR PARKING SIGNS/SIGNALS OR VEHICULAR SIGHT LINES.

5. TREE TOPPING IS NOT PERMITTED.

6. ADDITIONAL SCREENING MAY BE REQUIRED IF THE INSPECTION FOR THE RELEASE OF THE PERFORMANCE SURETY REVEALS THAT THE REQUIRED SCREENING IS NOT EFFECTIVE.

7. ALL REQUIRED TREE PROTECTION FENCING SHALL BE INSTALLED AND INSPECTED BY THE CODES DEPARTMENT PRIOR TO LAND DISTURBING ACTIVITIES.

8. ANY SITE OR LANDSCAPE CHANGES (INCLUDING BUT NOT LIMITED TO A CHANGE IN DESIGN, A REDUCTION IN SIZE OR NUMBER OF PLANT MATERIAL, OR THE RELOCATION OF OVERHEAD OR UNDERGROUND UTILITIES) SHALL REQUIRE A REVISED LANDSCAPE PLAN TO BE SUBMITTED AND APPROVED PRIOR TO THE LANDSCAPE INSTALLATION.

9. EXISTING TREES ACCEPTED IN PARTIAL COMPLIANCE OF THE LANDSCAPE REQUIREMENTS FOR THIS SITE SHALL BE ACCESSIBLE AND FLAGGED PRIOR TO ALL LANDSCAPE INSPECTIONS.

10. ANY EXISTING TREE, SHOWN AS BEING PRESERVED ON APPROVED PLANS THAT IS REMOVED, DIES OR IS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AS REQUIRED IN THE ZONING ORDINANCE.

11. SCREENING PROPOSED AROUND ANY UTILITY BOX OR TRANSFORMER IS REQUIRED TO BE EVERGREEN AND ADEQUATELY SCREEN THE OBJECT. THE PROPOSED EVERGREEN PLANT MATERIAL SHALL BE REPLACED IF IT IS NOT OF A HEIGHT SUFFICIENT TO SCREEN THE OBJECT.

12. ALL PLANT MATERIAL SHALL BE FROM THE FRANKLIN PLANT LIST UNLESS PRIOR APPROVAL IS RECEIVED FROM THE CITY.

13. ALL TREE-PROTECTION FENCING SHALL BE IN PLACE PRIOR TO THE ISSUANCE OF A GRADING PERMIT AND SHALL BE MAINTAINED IN GOOD WORKING ORDER UNTIL ALL CONSTRUCTION ACTIVITY IS COMPLETED. ANY REQUIRED EROSION CONTROL MEASURES SHALL BE PLACED OUTSIDE OF ANY TREE PROTECTION FENCING.

14. TOP SOIL USED IN ALL LANDSCAPE AREAS SHALL BE SCREENED PRIOR TO DEPOSITION IN PLANTING AREAS AND ISLANDS.

15. ANY PLANT MATERIAL LOCATED ADJACENT TO A PARKING AREA SHALL BE PLANTED SO AS TO ALLOW FOR A TWO AND A HALF FOOT VEHICULAR BUMPER OVER HANG FROM THE FACE OF CURB TO THE EDGE OF THE MATURE ADJACENT PLANT MATERIAL.

16. THE OWNER ACKNOWLEDGES THAT PLANTING LANDSCAPE MATERIAL IN A DEDICATED EASEMENT DOES NOT WAIVE OR MODIFY THE CITY OF FRANKLIN'S RIGHTS AS THE EASEMENT HOLDER. THE OWNER UNDERSTANDS THAT THE CITY OF FRANKLIN, ITS AUTHORIZED CONTRACTOR OR APPLICABLE PRIVATE UTILITY MAY AT ANY TIME AND FOR ANY REASON PERFORM WORK WITHIN THE DEDICATED EASEMENT. THE CITY, ITS AUTHORIZED CONTRACTOR OR APPLICABLE PRIVATE UTILITY SHALL HAVE NO LIABILITY TO THE OWNER FOR ANY DAMAGE TO THE LANDSCAPE MATERIAL IN THE EASEMENT WHEN SAID DAMAGE IS DUE TO WORK WITHIN THE EASEMENT. THE OWNER MAY BE HELD RESPONSIBLE FOR THE REMOVAL OF THE LANDSCAPE MATERIAL TO ENABLE WORK TO BE DONE. THE OWNER SHALL BE SOLELY RESPONSIBLE FOR ANY COSTS INCURRED IN REPAIRING AND/OR REPLACING THE REQUIRED LANDSCAPE MATERIAL.

PLANTING NOTES:

1. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO CONFIRM ALL MATERIAL QUANTITIES. IN THE EVENT OF A DISCREPANCY, THE QUANTITIES SHOWN ON THE PLAN SHALL TAKE PRECEDENCE OVER THE MATERIAL SCHEDULE.

2. NO SUBSTITUTIONS AS TO TYPE, SIZE, OR SPACING OF PLANT MATERIALS SPECIFIED ON THIS PLAN MAY BE MADE WITHOUT THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

3. THE CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN, REPAIR ANY DAMAGE ACCORDING TO LOCAL STANDARDS AND AT CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY.

4. ALL PLANTING BEDS TO RECEIVE PINE STRAW MULCH. MULCH TO BE INSTALLED TO 4" DEPTH UNLESS OTHERWISE INDICATED ON THE PLANTING DETAILS.

5. DIMENSIONS LISTED FOR HEIGHTS, SPREAD AND TRUNK SPECIFICATIONS ON THE PLANT MATERIAL SCHEDULE ARE GENERAL GUIDE FOR THE MINIMUM REQUIRED SIZE OF EACH PLANT.

6. PRE-EMERGENT HERBICIDE SHALL BE APPLIED TO ALL PLANTING BEDS IMMEDIATELY PRIOR TO PLACEMENT OF MULCH FOR WEED CONTROL.

7. ALL DISTURBED AREAS OF THE SITE ARE TO BE SODDED IN ACCORDANCE WITH THE SPECIFICATIONS.

8. NO EXCAVATION OR PLANTING PIT SHALL BE LEFT OPEN OVERNIGHT.

9. THE LANDSCAPE CONTRACTOR SHALL OBTAIN ANY NECESSARY PERMITS, LICENSES, ETC. AND SHALL GIVE ALL NOTICES AND COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, CODES, RULES AND REGULATIONS DURING THE COURSE OF THE INSTALLATION OF THIS PROJECT.

10. ALL PLANT MATERIALS TO BE NURSERY GROWN AND TO COMPLY WITH THE AMERICAN STANDARD FOR NURSERY STOCK ANSI Z60.1 CURRENT EDITION FOR SIZE AND QUALITY. SEE ADDITIONAL NOTES ON SHEET L1.0.

11. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REFUSE ANY PLANT MATERIAL OR ANY DEFECTIVE WORKMANSHIP.

12. ALL PLANTS SHALL HAVE A WELL-FORMED HEAD WITH MINIMUM CALIPER, HEIGHT AND SPREAD OF THE SIDE BRANCHES AS SHOWN ON THE PLANT LIST. TRUNKS SHALL BE UNDAMAGED AND SHAPE SHALL BE TYPICAL OF THE SPECIES.

13. MEASUREMENT OF CONIFER HEIGHT SHALL INCLUDE NOT MORE THAN FIFTY PERCENT (50%) OF THIS YEARS VERTICAL GROWTH (TOP CANDLE).

14. THE LANDSCAPE CONTRACTOR WILL BE RESPONSIBLE FOR STAKING AND LAYOUT OF PLANTINGS ON THIS PROJECT. THE LANDSCAPE ARCHITECT OR OWNER SHALL BE ADVISED WHEN STAKES ARE READY FOR INSPECTION ON VARIOUS PLANTING AREAS. ALL LAYOUT WORK SHALL BE INSPECTED AND APPROVED BY THE LANDSCAPE ARCHITECT OR OWNER PRIOR TO OPENING ANY PLANT PITS.

15. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO VERIFY THAT EACH EXCAVATED TREE OR SHRUB PIT WILL PERCOLATE (DRAIN) PRIOR TO ADDING TOPSOIL AND INSTALLING TREES OR SHRUBS. THE CONTRACTOR SHALL FILL THE BOTTOM OF SELECTED HOLES WITH SIX INCHES OF WATER. THIS WATER SHOULD PERCOLATE WITHIN A 24-HOUR PERIOD. THE OWNER OR LANDSCAPE ARCHITECT SHALL VERIFY ACCURACY AND EFFECT OF PERCOLATION TESTING. IF THE SOIL AT A GIVEN AREA DOES NOT DRAIN PROPERLY, A PVC DRAIN OR GRAVEL SUMP SHALL BE INSTALLED OR THE PLANTING RELOCATED.

16. SHOULD THE LANDSCAPE CONTRACTOR ENCOUNTER UNSATISFACTORY SURFACE OR OTHER SUBSURFACE DRAINAGE CONDITIONS, SOIL DEPTH, LATENT SOILS, HARD PAN, STEAM OF OTHER UTILITY LINES OR OTHER CONDITIONS THAT WILL JEOPARDIZE THE HEALTH AND VIGOR OF THE PLANTS, HE MUST ADVISE THE LANDSCAPE ARCHITECT IN WRITING OF THE CONDITIONS PRIOR TO INSTALLING THE PLANTS, OTHERWISE THE LANDSCAPE CONTRACTOR WARRANTS THAT THE PLANTING AREAS ARE SUITABLE PROPER GROWTH AND DEVELOPMENT OF THE PLANTS TO BE INSTALLED.

17. NO MATERIAL SHALL BE PLANTED BEFORE FINISH GRADING HAS BEEN COMPLETED.

18. EXISTING TREES TO BE PRESERVED ARE TO BE BARRICADED BEFORE BEGINNING CONSTRUCTION. IN ACCORDANCE WITH THE TREE PRESERVATION NOTES AND DETAILS ON THE LANDSCAPE PLAN.

19. SELECTIVE CLEARING CONSISTING OF REMOVAL OF VINES, SAPLINGS UNDER 1" DIAMETER AND UNDERBRUSH SHALL BE PERFORMED IN TREE PRESERVATION AREAS INTERNAL TO THE PROJECT AND NOTED ON PLANS.

20. ALL BEDS ARE TO BE TILLED TO A DEPTH OF 8" WITH THE ADDITION OF: (1) 3.8 CU. FT. BALE OF SPHAGNUM PEAT MOSS PER 40 SQ. FT. OF BED AREA: (25#) 10-10-10 FERTILIZER PER 1000 SQ. FT.. IF AZALEAS, RHODODENDRONS OR PIERIS ARE USED, SEE SPECIFIC PLANTING NOTES

21. CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT WHEN THE PLANT MATERIALS ARE AVAILABLE AT THE JOB SITE FOR REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

NOTES:

THE OWNER ACKNOWLEDGES THAT LANDSCAPING IN A DEDICATED EASEMENT DOES NOT WAIVE OR MODIFY THE CITY OF FRANKLIN'S RIGHTS AS THE EASEMENT HOLDER. THE OWNER UNDERSTANDS THAT THE CITY OF FRANKLIN, ITS AUTHORIZED CONTRACTOR OR APPLICABLE PRIVATE UTILITY, MAY AT ANY TIME AND FOR ANY REASON PERFORM WORK WITHIN THE DEDICATED EASEMENT. THE CITY, ITS AUTHORIZED CONTRACTOR OR APPLICABLE PRIVATE UTILITY, SHALL HAVE NO LIABILITY TO THE OWNER, FOR ANY DAMAGE TO THE LANDSCAPING IN THE EASEMENT, WHEN SAID DAMAGE IS DUE TO WORK WITHIN THE EASEMENT. THE OWNER MAY BE HELD RESPONSIBLE FOR THE REMOVAL OF THE LANDSCAPING, TO ENABLE WORK TO BE DONE. THE OWNER SHALL BE SOLELY RESPONSIBLE FOR ANY COSTS INCURRED IN REPAIRING AND/OR REPLACING THE REQUIRED LANDSCAPING.

ALL UTILITY STRUCTURES, TRANSFORMERS, METERS AND/OR UNITS SHALL BE SCREENED.

ALL TREE STAKES AND GUYS SHALL BE REGULARLY MONITORED TO INSURE THERE ARE NO DETRIMENTAL EFFECTS TO THE TREE. ALL TREE STAKES AND GUYS SHALL BE REMOVED NO LATER THAN ONE GROWING SEASON AFTER PLANTING.

EXISTING TREES SHOWN ON AN APPROVED TREE PRESERVATION OR LANDSCAPE PLAN AS BEING PRESERVED THAT ARE REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED WITH THE EQUIVALENT NUMBER OF CALIPER INCHES OF A SIMILAR SPECIES.

KV+D
KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste 100 Franklin, TN 37067
615.719.1943 | www.kiservogrin.com

CHRISTOPHER BRANDON WOOD
REGISTERED LANDSCAPE ARCHITECT
AGRICULTURE COMMERCE
TENNESSEE NO. 570
05.04.2023

COOL SPRINGS EAST SUBDIVISION, SITE PLAN, SECTION 33, REVISION 2, LOT 685 (COMTIDE UNIFIED DEVELOPMENT)
201 COMTIDE COURT
COF PROJECT # 8162
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE

NO:	REVISIONS	DATE	BY

DESIGNED BY: MKB
DRAWN BY: MKB/AW
CHECKED BY: CBW
DATE: 05/04/2023

KVD PROJECT NO. 22049

DRAWING TITLE:
LANDSCAPE NOTES

SHEET NUMBER
L6.1

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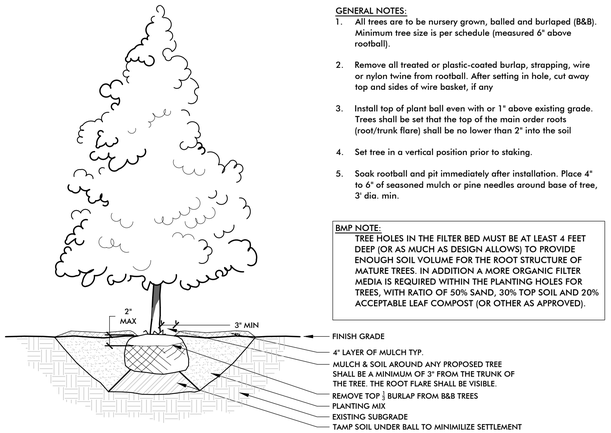


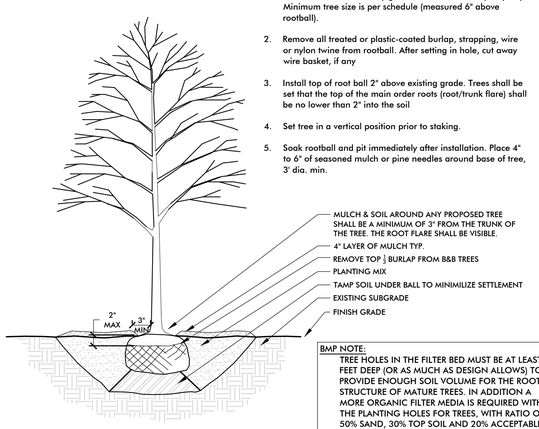
GENERAL NOTES:

1. All trees are to be nursery grown, balled and burlaped (B&B). Minimum tree size is per schedule (measured 6" above rootball).
2. Remove all treated or plastic-coated burlap, strapping, wire or nylon twine from rootball. After setting in hole, cut away top and sides of wire basket, if any
3. Install top of plant ball even with or 1" above existing grade. Trees shall be set that the top of the main order roots (root/trunk flare) shall be no lower than 2" into the soil
4. Set tree in a vertical position prior to staking.
5. Soak rootball and pit immediately after installation. Place 4" to 6" of seasoned mulch or pine needles around base of tree, 3' dia. min.

BMP NOTE:
TREE HOLES IN THE FILTER BED MUST BE AT LEAST 4 FEET DEEP (OR AS MUCH AS DESIGN ALLOWS) TO PROVIDE ENOUGH SOIL VOLUME FOR THE ROOT STRUCTURE OF MATURE TREES. IN ADDITION A MORE ORGANIC FILTER MEDIA IS REQUIRED WITHIN THE PLANTING HOLES FOR TREES, WITH RATIO OF 50% SAND, 30% TOP SOIL AND 20% ACCEPTABLE LEAF COMPOST (OR OTHER AS APPROVED).

1 EVERGREEN TREE PLANTING

3/4" = 1'-0" M-FLD-01



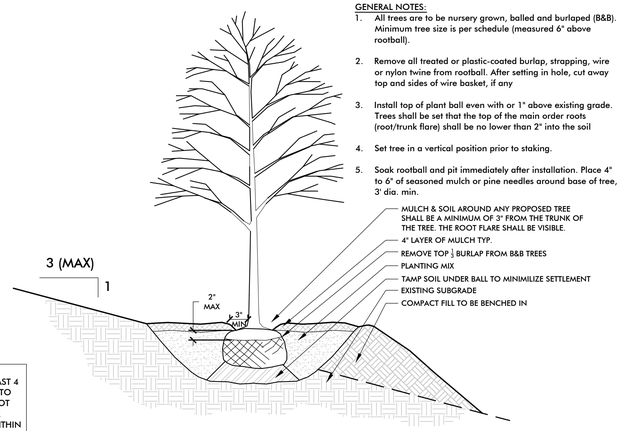
GENERAL NOTES:

1. All trees are to be nursery grown, balled and burlaped (B&B). Minimum tree size is per schedule (measured 6" above rootball).
2. Remove all treated or plastic-coated burlap, strapping, wire or nylon twine from rootball. After setting in hole, cut away top and sides of wire basket, if any
3. Install top of root ball 2" above existing grade. Trees shall be set that the top of the main order roots (root/trunk flare) shall be no lower than 2" into the soil
4. Set tree in a vertical position prior to staking.
5. Soak rootball and pit immediately after installation. Place 4" to 6" of seasoned mulch or pine needles around base of tree, 3' dia. min.

BMP NOTE:
TREE HOLES IN THE FILTER BED MUST BE AT LEAST 4 FEET DEEP (OR AS MUCH AS DESIGN ALLOWS) TO PROVIDE ENOUGH SOIL VOLUME FOR THE ROOT STRUCTURE OF MATURE TREES. IN ADDITION A MORE ORGANIC FILTER MEDIA IS REQUIRED WITHIN THE PLANTING HOLES FOR TREES, WITH RATIO OF 50% SAND, 30% TOP SOIL AND 20% ACCEPTABLE LEAF COMPOST (OR OTHER AS APPROVED).

2 SINGLE TRUNK TREE PLANTING

3/4" = 1'-0" M-FLD-04

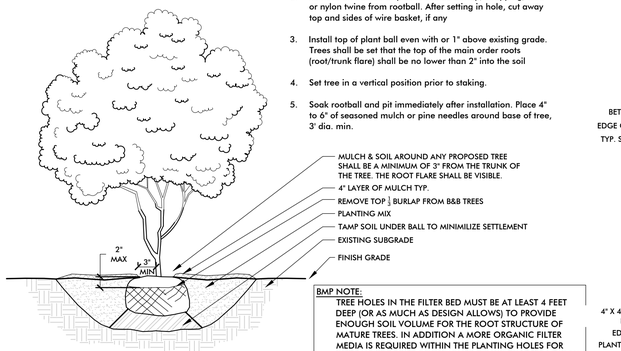


GENERAL NOTES:

1. All trees are to be nursery grown, balled and burlaped (B&B). Minimum tree size is per schedule (measured 6" above rootball).
2. Remove all treated or plastic-coated burlap, strapping, wire or nylon twine from rootball. After setting in hole, cut away top and sides of wire basket, if any
3. Install top of plant ball even with or 1" above existing grade. Trees shall be set that the top of the main order roots (root/trunk flare) shall be no lower than 2" into the soil
4. Set tree in a vertical position prior to staking.
5. Soak rootball and pit immediately after installation. Place 4" to 6" of seasoned mulch or pine needles around base of tree, 3' dia. min.

3 SINGLE TRUNK TREE PLANTING ON SLOPE

NTS M-FLD-05



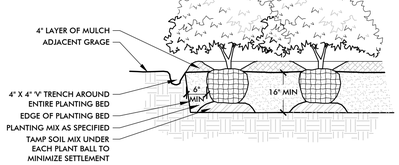
GENERAL NOTES:

1. All trees are to be nursery grown, balled and burlaped (B&B). Minimum tree size is per schedule (measured 6" above rootball).
2. Remove all treated or plastic-coated burlap, strapping, wire or nylon twine from rootball. After setting in hole, cut away top and sides of wire basket, if any
3. Install top of plant ball even with or 1" above existing grade. Trees shall be set that the top of the main order roots (root/trunk flare) shall be no lower than 2" into the soil
4. Set tree in a vertical position prior to staking.
5. Soak rootball and pit immediately after installation. Place 4" to 6" of seasoned mulch or pine needles around base of tree, 3' dia. min.

BMP NOTE:
TREE HOLES IN THE FILTER BED MUST BE AT LEAST 4 FEET DEEP (OR AS MUCH AS DESIGN ALLOWS) TO PROVIDE ENOUGH SOIL VOLUME FOR THE ROOT STRUCTURE OF MATURE TREES. IN ADDITION A MORE ORGANIC FILTER MEDIA IS REQUIRED WITHIN THE PLANTING HOLES FOR TREES, WITH RATIO OF 50% SAND, 30% TOP SOIL AND 20% ACCEPTABLE LEAF COMPOST (OR OTHER AS APPROVED).

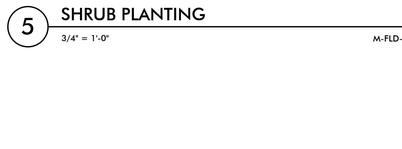
4 MULTI-TRUNK TREE PLANTING

3/4" = 1'-0" M-FLD-03



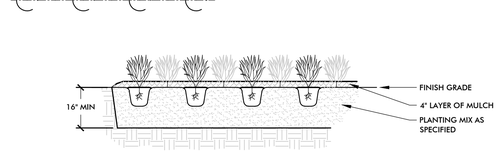
GENERAL NOTES:

1. OMIT COLLAR AROUND EACH SHRUB WHEN IRRIGATION SYSTEM IS PRESENT.
2. INSTALL TOP OF PLANT BALL 2" ABOVE ADJACENT GRADE.
3. TAMP PLANTING MIX FIRMLY AS PIT IS FILLED AROUND EACH PLANT BALL.
4. SOAK EACH PLANT BALL AND PIT IMMEDIATELY AFTER INSTALLATION.



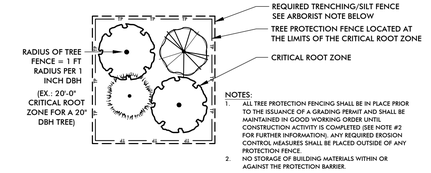
5 SHRUB PLANTING

3/4" = 1'-0" M-FLD-06



6 GRASS / GROUNDCOVER PLANTING

3/4" = 1'-0" M-FLD-07



GENERAL NOTES:

1. LAYOUT PLANTS IN PREPARED BED AS SHOWN.
2. SPACING AS SPECIFIED, PER SCHEDULE IN STAGGERED ROWS.

NOTES:

1. ALL TREE PROTECTION FENCING SHALL BE IN PLACE PRIOR TO THE ISSUANCE OF A GRADING PERMIT AND SHALL BE MAINTAINED IN GOOD WORKING ORDER UNTIL CONSTRUCTION ACTIVITY IS COMPLETED (SEE NOTE #2 FOR FURTHER INFORMATION). ANY REQUIRED EROSION CONTROL MEASURES SHALL BE PLACED OUTSIDE OF ANY PROTECTION FENCE.
2. NO STORAGE OF BUILDING MATERIALS WITHIN OR AGAINST THE PROTECTION BARRIER.

7 TREE PROTECTION

NTS M-FLD-09

TREE CALIPER DIMENSION "A"	MULCH RING DIAMETER DIMENSION "B"
1"	36"DIAMETER MIN.
1.5"	42" DIAMETER MIN.
2"	48" DIAMETER MIN.
2.5"	54" DIAMETER MIN.
3"	60" DIAMETER MIN.
3.5"	66" DIAMETER MIN.
4"	72" DIAMETER MIN.
5"	80" DIAMETER MIN.
6"	86" DIAMETER MIN.

8 MULCH RING SIZING CHART

1" = 1'-0" M-FLD-02

KVD
KISER VOGRIN DESIGN
5005 Meridian Blvd. Ste 100 Franklin, TN 37067
615.719.1943 | www.kiservogrin.com

CHRISTOPHER BRANDON WARD REGISTERED LANDSCAPE ARCHITECT TENNESSEE
05.04.2023

COOL SPRINGS EAST SUBDIVISION, SITE PLAN, SECTION 33, REVISION 2, LOT 685 (COMTIDE UNIFIED DEVELOPMENT)
201 COMTIDE COURT
COF PROJECT # 8162
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE

NO:	REVISIONS	DATE	BY

DESIGNED BY: MKB
DRAWN BY: MKB/AW
CHECKED BY: CBW
DATE: 05/04/2023
KVD PROJECT NO. 22049

DRAWING TITLE:
LANDSCAPE DETAILS

SHEET NUMBER
L6.2

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4 RIGHT ELEVATION

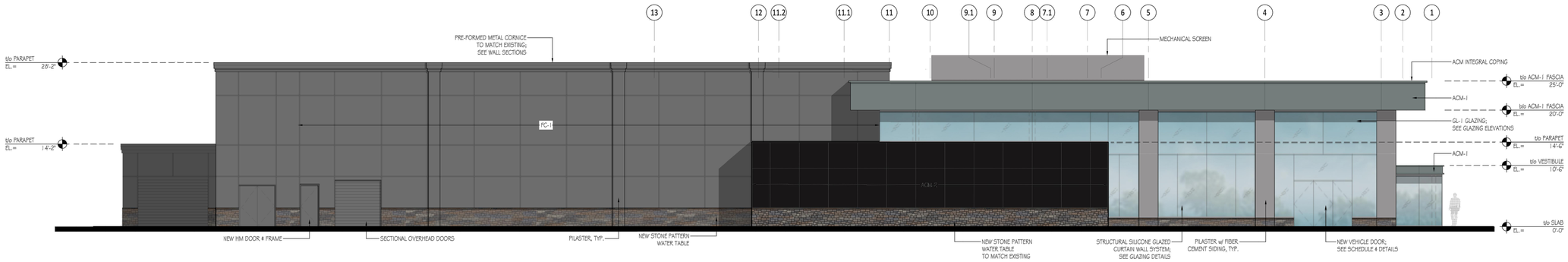
Scale: 1/8" - 1'-0"

EXTERIOR MATERIALS SCHEDULE

TAG	MATERIAL	SPECIFICATION	REMARKS
WALLS			
ACM-1	ALUMINUM COMPOSITE PANEL	ALUCOBOND - BASALT GREY PVDF-2 - MATTE	EXTERIOR FASCIA
ACM-2	ALUMINUM COMPOSITE PANEL	ALUCOBOND - TRICORN BLACK SMP - MATTE	SERVICE WRITE-UP EXTERIOR
ACM-3	ALUMINUM COMPOSITE PANEL	ALUCOBOND - PLATINUM MICA - PERFORATED	ROOFTOP MECHANICAL SCREENS
EP-1	EXTERIOR PAINT	SHERWIN WILLIAMS - SW7076 CYBERSPACE	SERVICE SHOP EXTERIOR
PV-1	EXTERIOR PAVERS	ORCO - PAVINGSTONES - BORREGO ANTIQUE COBBLE - INTERLOCKING - #24017 - 6" x 6" - RUNNING BOND	SITE FEATURE VEHICLE DISPLAY PAD
ST-1	STACKED STONE VENEER	MATCH EXISTING: CULTURED STONE - GRAY (SWT-1372)	
FC-1	FIBER CEMENT PANELS	EQUITONE - NATURA 12mm - N164	BUILDING EXTERIOR WALLS

GENERAL EXTERIOR FINISH SCHEDULE NOTES

- UNLESS NOTED OTHERWISE, PAINTED SURFACES SHALL BE PREPARED & FINISHED AS FOLLOWS:
  - EXTERIOR HOLLOW METAL DOOR FRAMES & MISCELLANEOUS METALS - 1 COAT PRIMER - 2 FINISH COATS - SEMI-GLOSS FINISH
  - EXTERIOR GYPSUM WALLBOARD CEILINGS/SOFFITS - 1 COAT PRIMER - 2 FINISH COATS - FLAT FINISH
  - EXTERIOR WALLS - STUCCO/EIFS - 1 COAT PRIMER - 2 FINISH COATS - SATIN FINISH



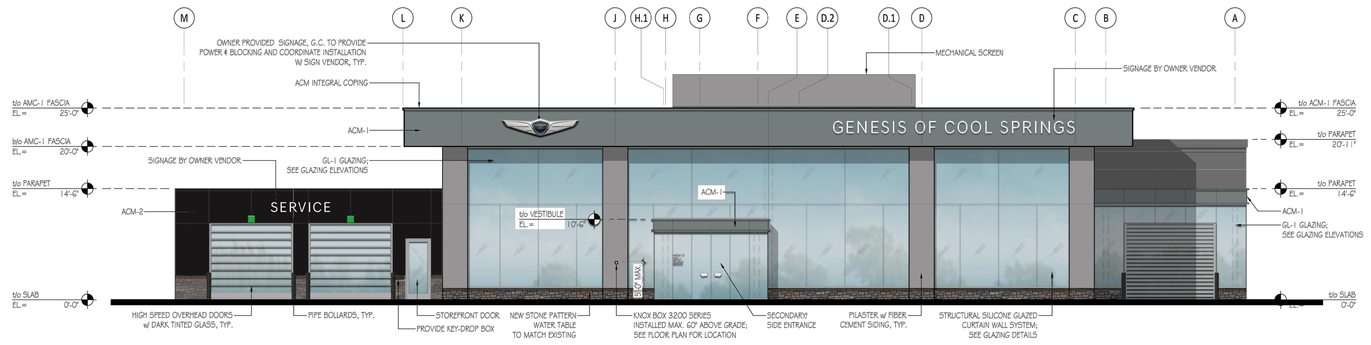
3 REAR ELEVATION (INFINITI)

Scale: 1/8" - 1'-0"



2 FRONT ELEVATION (MARKET EXCHANGE COURT)

Scale: 1/8" - 1'-0"



1 LEFT ELEVATION (COMTIDE COURT)

Scale: 1/8" - 1'-0"

These elevations have been designed to meet the requirements of the City of Franklin's architectural design standards and the approval of the Planning Commission/ City of Franklin. Changes shall not be made to the approved elevations unless approved by either the BNS Director or the Planning Commission.

Building Type: Commercial / Mixed Use Building

Construction Type: IIB (per Section 602.2.)

Occupancy: B (Section 304.1) Motor Vehicle Showroom
S-1 (Section 311.2) Motor Vehicle Repair Garage

Per Chapter 6.8, the following glazing material is prohibited: Reflective, tinted, or other glass treatments that inhibit views into the building. This is not intended to preclude glass treatments as required by the Energy Code or LEED certification or the limited use of spandrel glass used to cover structural elements.

ALL signs are not approved as part of the review of this site plan.



PENNEY DESIGN GROUP
8120 Woodmont Avenue | Suite 750 | Bethesda, Maryland 20814
p.301.979.7600 | f.301.710.6384 | www.penneydesigngroup.com

TT of H Cool Springs
505 South Flagler Drive, Suite 1400
West Palm Beach, FL 33401

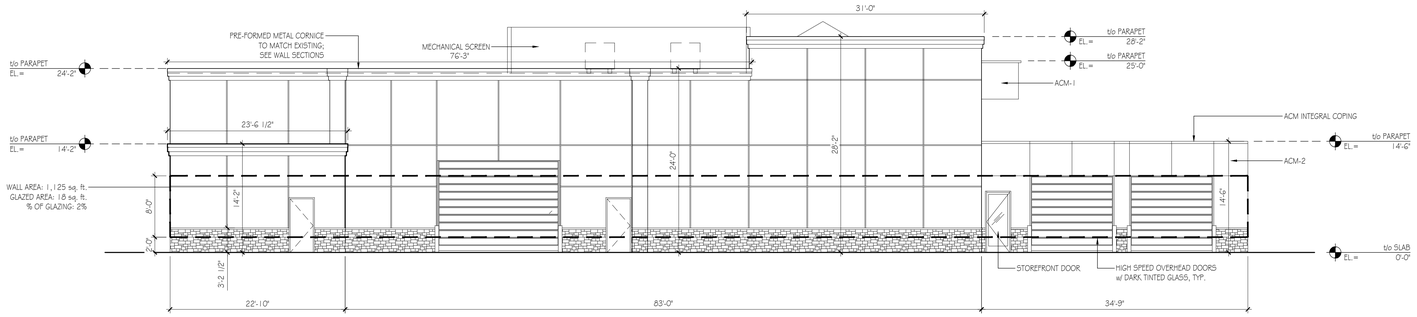
Cool Springs East Subdivision, Site Plan, Section 33,
Revision 2, Lot 685 (Comtide Unified Development)

Building Elevations

Car Dealership
May 04, 2023
COF Project: 8162

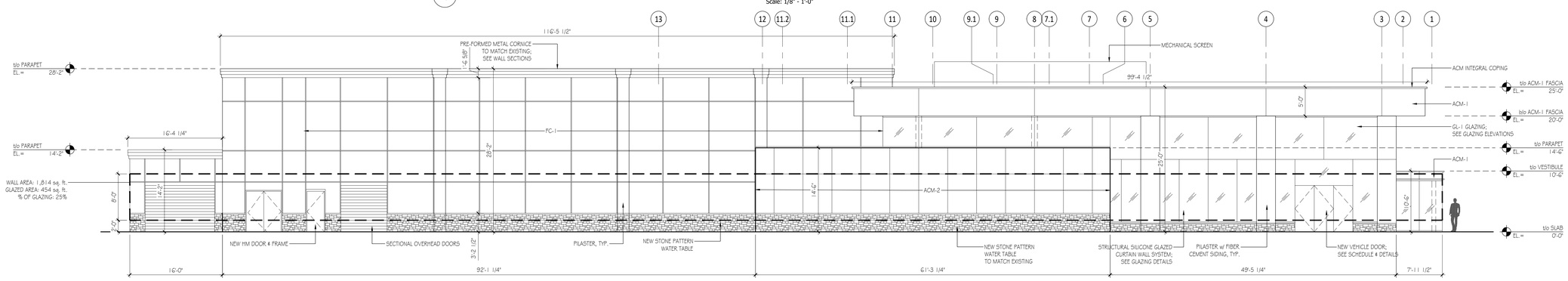
Genesis Cool Springs
201 Comtide Court
Franklin, TN 37067
AMS017a

EL-1
SCALE:
1/8" = 1'-0"
30 x 42



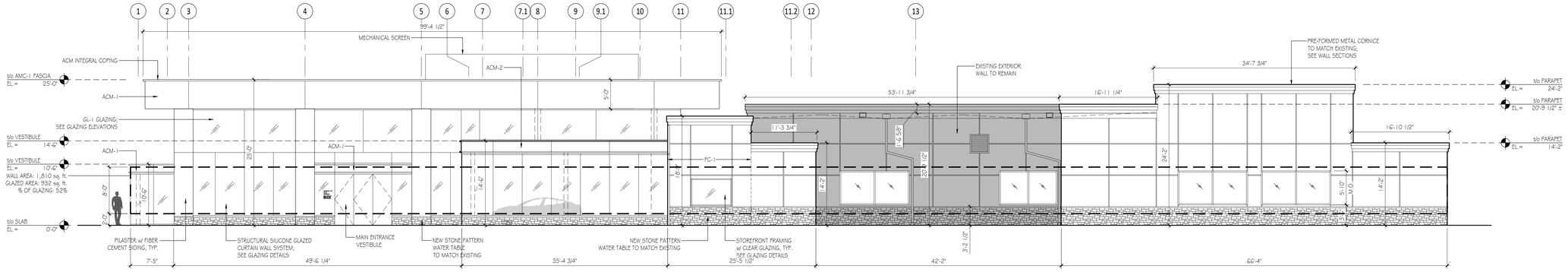
4 RIGHT ELEVATION

Scale: 1/8" - 1'-0"



3 REAR ELEVATION (INFINITI)

Scale: 1/8" - 1'-0"



2 FRONT ELEVATION (MARKET EXCHANGE COURT)

Scale: 1/8" - 1'-0"

These elevations have been designed to meet the requirements of the City of Franklin's architectural design standards and the approval of the Planning Commission/ City of Franklin. Changes shall not be made to the approved elevations unless approved by either the BNS Director or the Planning Commission.

All glazing shall be low-iron insulated clear glass w/ Solarban 72 coating per energy code requirements.

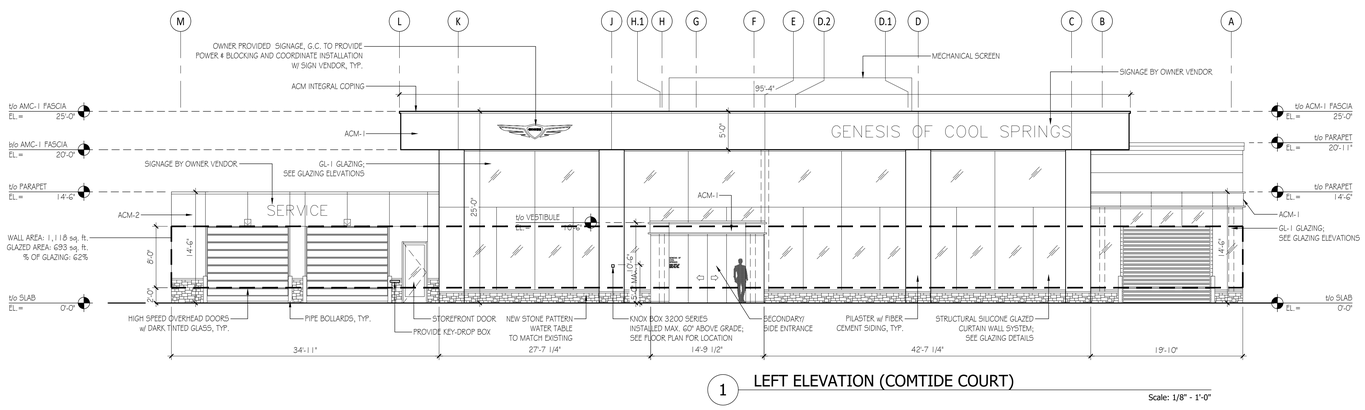
Glazing Percentages

Left Elevation (Comtide Court): 62%
Front Elevation (Market Exchange Court): 36%
Rear Elevation (Infiniti): 25%
Right Elevation: 2%

Per Chapter 6.8, the following glazing material is prohibited: Reflective, tinted, or other glass treatments that inhibit views into the building. This is not intended to preclude glass treatments as required by the Energy Code or LEED certification or the limited use of spandrel glass used to cover structural elements.

ALL signs are not approved as part of the review of this site plan.





1 LEFT ELEVATION (COMTIDE COURT)

Scale: 1/8" - 1'-0"

PENNEY DESIGN GROUP
8120 Woodmont Avenue | Suite 750 | Bethesda, Maryland 20814
p.301.979.7600 | f.301.710.6384 | www.penneydesigngroup.com

TT of H Cool Springs
505 South Flagler Drive, Suite 1400
West Palm Beach, FL 33401

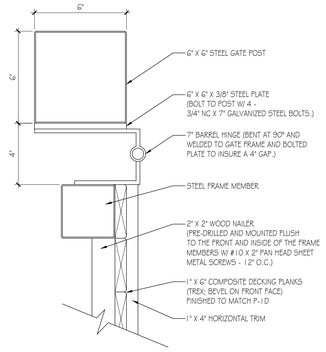
Cool Springs East Subdivision, Site Plan, Section 33, Revision 2, Lot 685 (Comtide Unified Development)

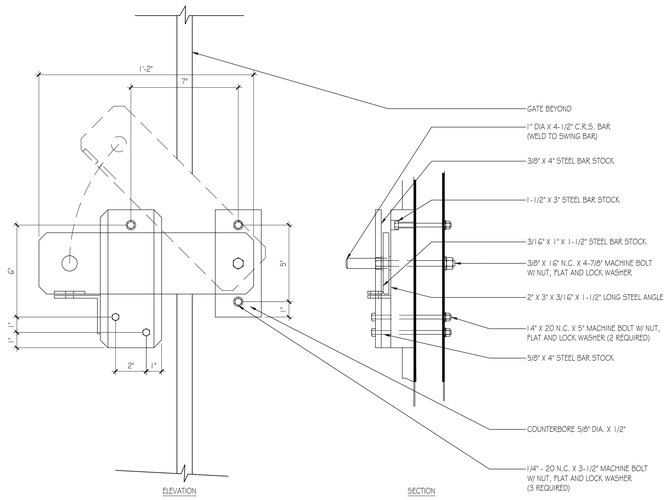
Building Elevations

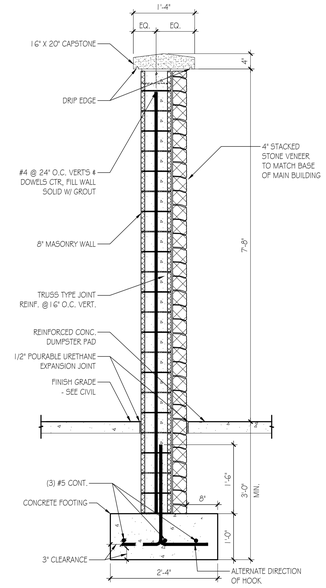
Car Dealership
May 04, 2023
COF Project: 8162

Genesis Cool Springs
201 Comtide Court
Franklin, TN 37067
AMS017a

EL-2
SCALE:
1/8" = 1'-0"
30 x 42

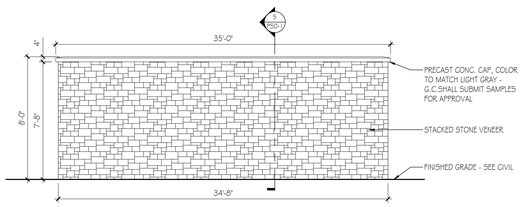






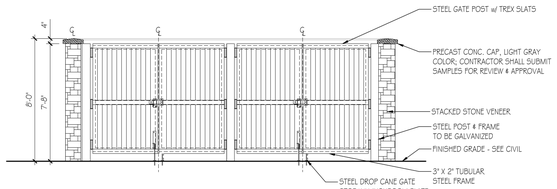
7 DETAIL

Scale: 3" = 1'-0"



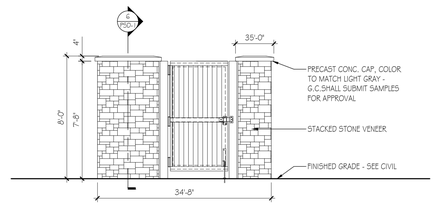
6 DETAIL

Scale: 3" = 1'-0"



5 SECTION

Scale: 3" = 1'-0"



4 ELEVATION

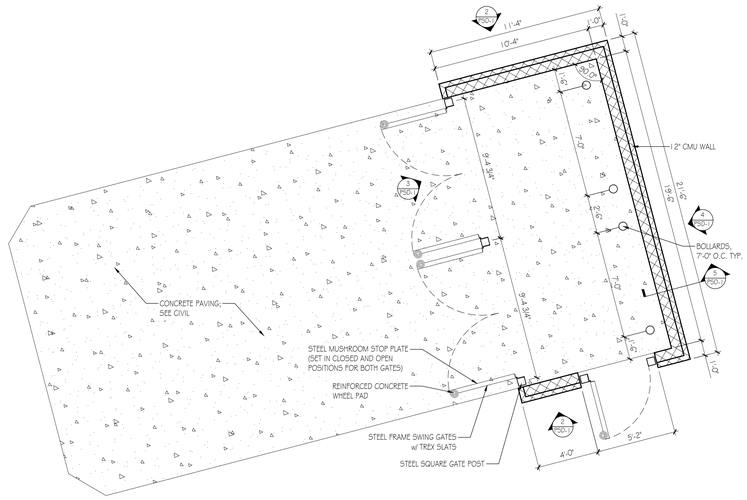
Scale: 1/4" = 1'-0"

3 ELEVATION

Scale: 1/4" = 1'-0"

2 ELEVATION

Scale: 1/4" = 1'-0"



1 TRASH ENCLOSURE PLAN

Scale: 1/4" = 1'-0"

JOHN J. PENNEY
LICENSED ARCHITECT
STATE OF TENNESSEE
REGISTERED
No. 106111
04 MAY 2023

PENNEY DESIGN GROUP
8120 Woodmont Avenue | Suite 750 | Bethesda, Maryland 20814
p.301.979.7600 | f.301.710.6384 | www.penneydesigngroup.com

TT of H Cool Springs
505 South Flagler Drive, Suite 1400
West Palm Beach, FL 33401

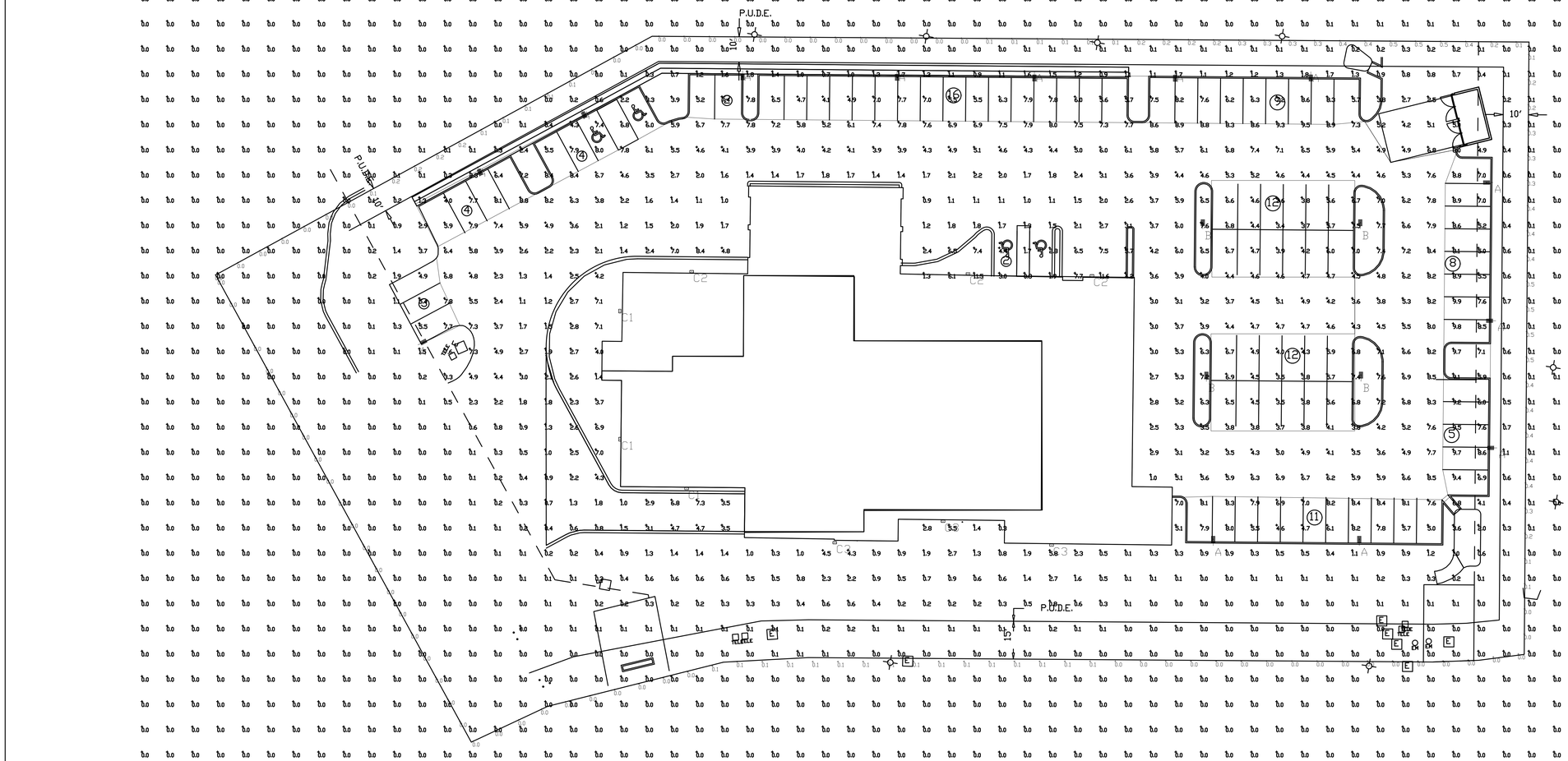
Cool Springs East Subdivision, Site Plan, Section 33,
Revision 2, Lot 685 (Comtide Unified Development)

Dumpster Enclosure Details

Car Dealership
May 04, 2023
COF Project: 8162

Genesis Cool Springs
201 Comtide Court
Franklin, TN 37067
AMS017a

PSD-1
SCALE:
As Noted
30 x 42



Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ALL CALCS AT 4' ABOVE GRADE	Illuminance	Fc	1.55	11.6	0.0	N.A.	N.A.
PROPERTY LINE	Illuminance	Fc	0.11	0.5	0.0	N.A.	N.A.
INTERIOR DISPLAY	Illuminance	Fc	5.01	7.5	3.4	1.47	2.21
PERIMETER DISPLAY	Illuminance	Fc	7.23	9.9	2.2	3.29	4.50

JOHN J. PENNEY — LICENSED ARCHITECT — STATE OF TENNESSEE — No. 100131 — 04 MAY 2023

PHOTOMETRIC EVALUATION
NOT FOR CONSTRUCTION

Based on the information provided, all dimensions and luminaire locations shown represent recommended positions. The engineer and/or architect must determine the applicability of the layout to existing or future field conditions.

This lighting plan represents illumination levels calculated from laboratory data taken under controlled conditions in accordance with The Illuminating Engineering Society (IES) approved methods. Actual performance of any manufacturer's luminaires may vary due to changes in electrical voltage, tolerance in lamps/LED's and other variable field conditions. Calculations do not include obstructions such as buildings, curbs, landscaping, or any other architectural elements unless noted. Fixture nomenclature noted does not include mounting hardware or poles. This drawing is for photometric evaluation purposes only and should not be used as a construction document or as a final document for ordering product.

Luminaire Schedule									
Symbol	Qty	Label	Arrangement	Description	LLD	LDD	LLF	Arr. Lum. Lumens	Arr. Watts
	13	A	SINGLE	MRM-LED-18L-SIL-FT-50-70CRI-IL-SINGLE-20' MH	1.000	1.000	1.000	12405	135
	4	B	SINGLE	MRM-LED-18L-SIL-5W-50-70CRI-SINGLE-20' MH	1.000	1.000	1.000	18633	135
	3	C1	SINGLE	XWM-FT-LED-08L-50-16' MH	1.000	1.000	1.000	8465	64
	3	C2	SINGLE	XWM-FT-LED-06L-50-12' 9'' MH	1.000	1.000	1.000	6557	47
	3	C3	SINGLE	XWS-LED-02L-MT-50-80CRI-16' MH	1.000	1.000	1.000	2236	15

Total Project Watts
Total Watts = 2673

LIGHTING PROPOSAL LD-156728

AMS1 GENESIS OF COOL SPRINGS
225 COMTIDE CT
FRANKLIN, TN

BY:MKM/AMO	DATE:05/3/22	REV:	SHEET 1 OF 1

SCALE: 1"=20' 0 20

HISTORIC FRANKLIN TENNESSEE

City of Franklin

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

File #: 21-04665

DATE: May 9, 2023

TO: Franklin Municipal Planning Commission

FROM: Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development
Joseph Bryan, Principal Planner

SUBJECT:

555 Franklin Road PUD Subdivision, Final Plat, Creating 1 Commercial Lot And 1 Open Space Lot, On 32.83 Acres, Located At 555 Franklin Road. (CONSENT AGENDA)

PURPOSE:

PROJECT INFORMATION
COF Project Number: 8152
Applicant: Christie Willoughby, Cherry Land Surveying, Inc.
Owner: Clearview Baptist Church, Phillip Cantrell, Rep.

BACKGROUND/STAFF COMMENTS:
The purpose of this plat is to create one commercial lot and one open space for the 32.83 acres located at 555 Franklin Road. This property correlates to the 555 Franklin Road PUD Subdivision. The corresponding development plan was approved in October 2022, and the site plan was approved with conditions on the April 2023 Administrative agenda.

PROCEDURAL REQUIREMENTS:
1. In addition to uploading the corrected plat to the online plan review website (https://franklin.contractorsplanroom.com/secure/), the applicant shall submit the Mylar to the Department of Building and Neighborhood Services (Suite 110, Franklin City Hall). The mylar shall be 18 inches by 24 inches in size. The Certificates of Approval for the Subdivision Name and Street Names, Water System (if not COF Water), Survey, and Ownership shall be signed when the plat is resubmitted. The Mylar shall be submitted to BNS within five (5) business days of the corrected electronic plat being uploaded to the online plan review website (or vice versa) or the item shall be rejected as incomplete for City review. 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.
3. The applicant shall upload a .dwg copy of the final plat through the IDT system (link above)

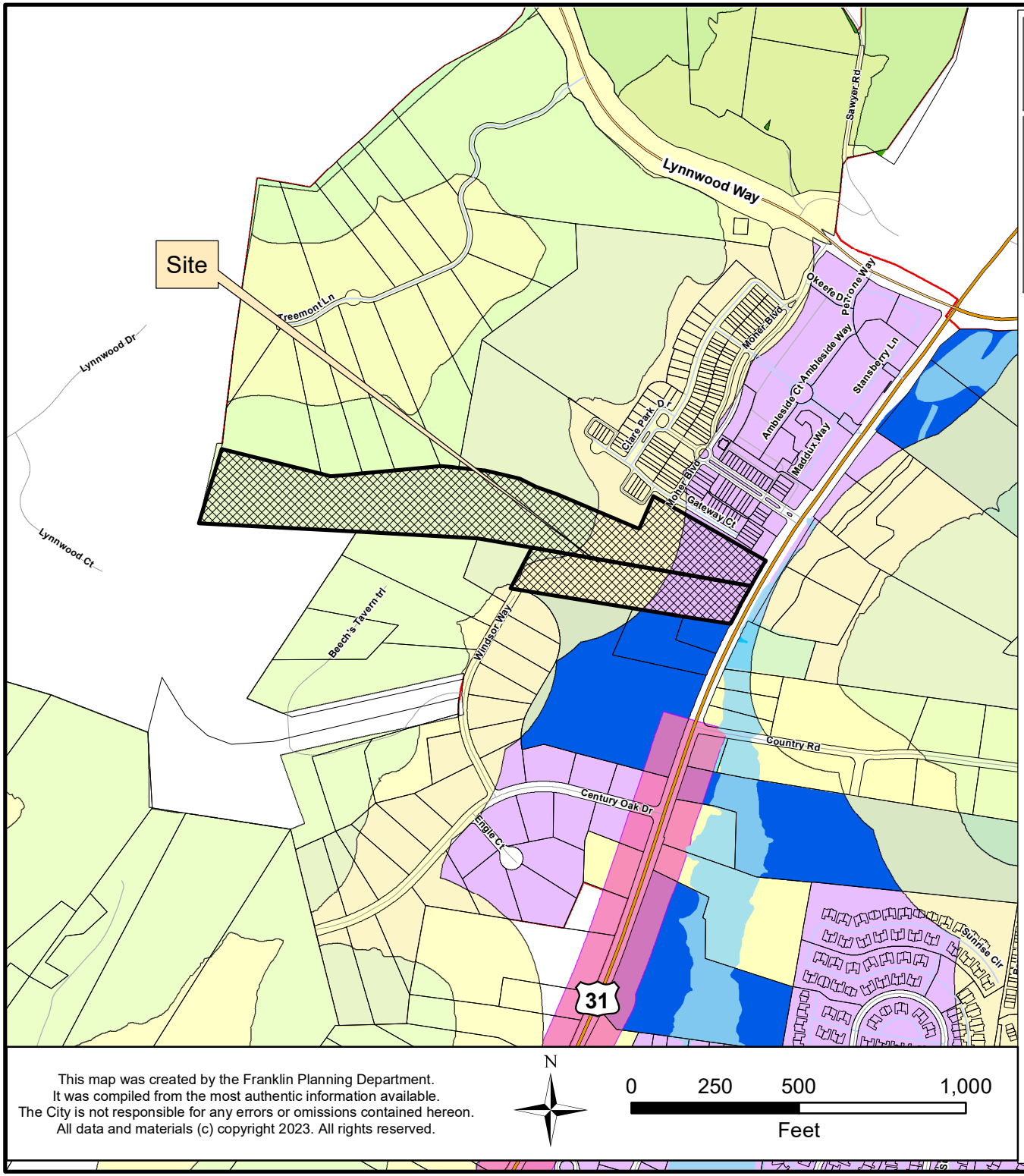
in Tennessee state plan coordinates, NAD 83, NAVD 88, zone 4100/5301 for incorporation of the plat into the Franklin GIS database.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Staff recommends approval with conditions of the 555 Franklin Road PUD Subdivision, Final Plat.



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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N

0 250 500 1,000

Feet

555 FRANKLIN ROAD PUD SUBDIVISION
FINAL PLAT

Project Information
Existing Zoning: PD Planned District
Overlay Districts: HHO, 500' Buffer of Hillside Overlay
Site Acreage: 32.830 acres
Total Number of Lots: 2

Legend

- 555 Franklin Road PUD Subdivision
- Hillside/Hillcrest Overlay
- 500 Ft Buffer of Hillside
- Floodway Fringe Overlay
- Floodway Overlay
- Scenic Corridor Overlay
- 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

HISTORIC FRANKLIN TENNESSEE

COF no: 8152

CONDITIONS OF APPROVAL:

Open Issues: 16 These issues are currently being filtered

Engineering - Final Plat Checklist

General Issues

12. Final Plat Shall Match Site Plan

joe.marlo@franklintn.gov Applicant shall ensure that any modifications to the associated site plan (COF 8040), which is being reviewed concurrently with this final plat, are reflected on the final plat. The final plat shall match the site plan.

13. ROW Reservation

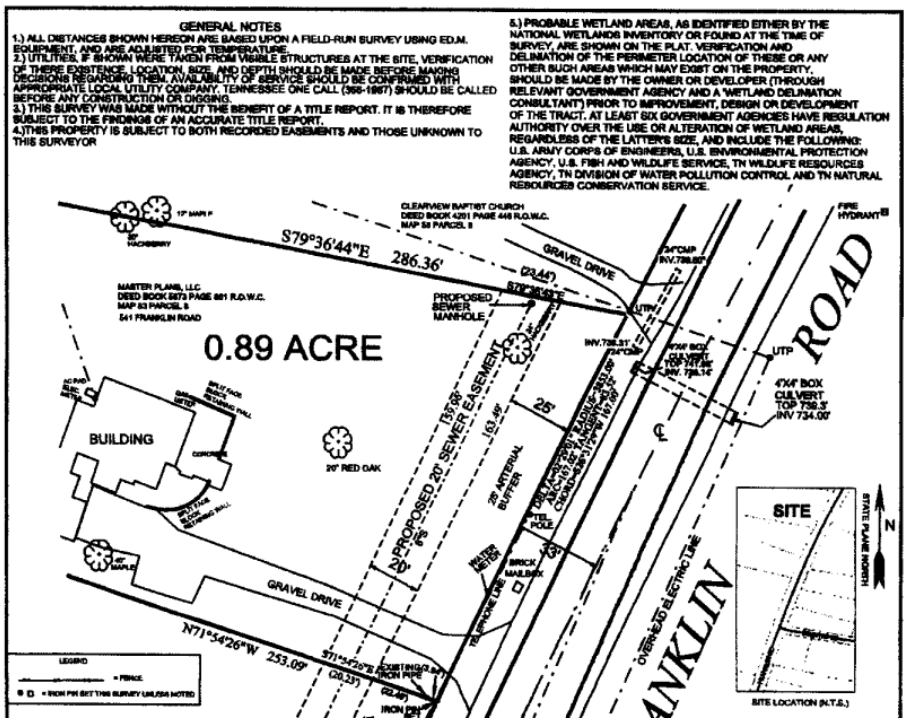
joe.marlo@franklintn.gov *ROW Reservation has now been shown, however location of ROW Reservation does not match that shown on Site Plan.*

Applicant shall revise centerline of Franklin Road to match that shown on the Site Plan and corresponding to the double yellow line (2 lane section) or middle of center lane (3 lane section). ROW Reservation line location and dimension to centerline shall be revised to match Site Plan.

22. C. Final Plat

lance.fittro@franklintn.gov The previous comment has not been fully-addressed. Applicant shall show the location and reference for the sanitary sewer easement recorded in **Deed Book 6108 Page 218**. While this easement is not located on the subject property, the easement and manhole adjacent the southeastern corner of the subject property are the means by which the property is served with sanitary sewer, as necessary for the creation of the buildable lot.

COF 2014-0010



23. C. Final Plat

lance.fittro@franklintn.gov The previous comment, "Show the open space and buffer areas referenced in Note 14" has not been properly addressed.

Previous note

14) NO BUILDINGS ARE PERMITTED IN OPEN SPACE, BUFFER, OR EASEMENT AREA.

Revised note

14) NO BUILDINGS ARE PERMITTED IN EASEMENT AREAS.

With the open space and HHO areas now shown on the plat (thank you), the Applicant shall revise Note 14 to again designate these areas as unbuildable

29. C. Final Plat

lance.fittro@franklintn.gov The previous comment has not been fully-addressed. Applicant shall correct the zoning referenced for the subject property in Note 15:

15) THIS PROPERTY IS CURRENTLY ZONED "PUD".

33. C. Final Plat

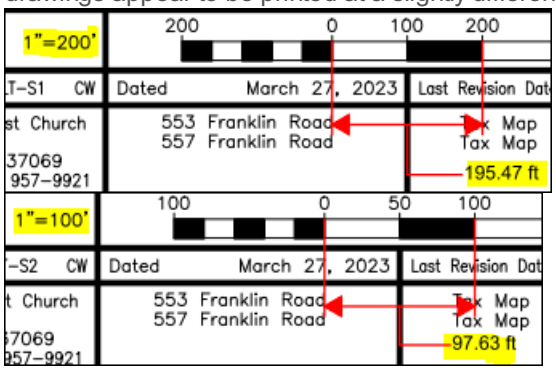
lance.fittro@franklintn.gov For the MTEMC overhead electric that is to be relocated / remain for service to the adjacent property, Applicant shall show the easement for the relocated OHE line on the plat, and reference the added Note 20 for the exception that allows for the relocated overhead line to remain.

20) WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO THE NEW DEVELOPMENT, ALL UTILITIES (INCLUDING CABLE, ELECTRICAL, NATURAL GAS, SEWER, TELEPHONE, AND WATER LINES) SHALL BE PLACED UNDERGROUND, EXCEPT FOR THE AGREED UPON OVERHEAD MTE UTILITY EASEMENT.

42. Scale

joe.marlo@franklintn.gov *The following is a newcomment due to newinformation shown (revised plat layout).*

Applicant shall revise final plat documents to be drawn and printed to scale. Sheet 1 indicates a 1" = 200' scale and sheets 2 and 3 indicate a 1"=100' scale, however drawings appear to be printed at a slightly different scale.



43. C. Final Plat

lance.fittro@franklintn.gov Applicant shall add the following note back to the final plat (note was present on previous submittal, but removed from the current submittal):

1. All open space shall be Public Utility, Drainage, and Access Easements and shall be maintained by the Property Owner(s) or the HOA.

MTEMC

21106plt.pdf

38. MTEMC Easement

ehale@mtemc.com Please note 40' MTE easement around existing overhead lines on the north and south side of property.(20' each side of line)

MVUD Water

General Issues

39. Signature Block

kyork@mvud.org

Signature Block for water service needs to be changed to Mallory Valley Utility District.

CERTIFICATE OF APPROVAL OF WATER SYSTEM:

I HEREBY CERTIFY THAT THE FOLLOWING WATER SYSTEM
OUTLINED OR INDICATED ON PLAT ENTITLED XXXXXXXX,
HAS BEEN

1. INSTALLED IN ACCORDANCE WITH CURRENT LOCAL AND/OR STATE GOVERNMENT REQUIREMENTS AND TO THE TECHNICAL SPECIFICATIONS OF MALLORY VALLEY UTILITY DISTRICT OR
2. A SECURITY BOND IN THE AMOUNT OF $_____ HAS BEEN POSTED WITH MALLORY VALLEY UTILITY DISTRICT TO ASSURE COMPLETION OF ALL REQUIRED IMPROVEMENTS IN CASE OF DEFAULT.

_____
_____
KAREN YORK, DIRECTOR OF DEVELOPMENT DATE
MALLORY VALLEY UTILITY DISTRICT

Parks

General Issues

40. Parkland Impact Fee

kevinl@franklintn.gov

The Parkland Fees are due at the final plat. The Parkland invoice for 2022-0142 will be uploaded in IDT for review.

Until these fees are collected "*Failed*" will be comment and the plat cannot be recorded. This will be held at OneStop until fees are received.

Please contact Alex Bearden for an appointment in Building and Neighborhood Services to make payment.
***Applicant shall bring the Parkland Invoice with the payment to BNS at City Hall**
alex.bearden@franklintn.gov 615-721-9103

Otherwise contact Kevin Lindsey at Parks
[Edited By Kevin Lindsey]

41. Parkland information

kevinl@franklintn.gov

Parks: Applicant shall include Parkland information on the plat.

Parkland: 115 units x $4,304=$494,960
Fees shall be due at the Final Plat

Performance Agreement and Surety

General Issues

2. Engineering Sureties

kevin.long@franklintn.gov Any unposted sureties associated with this development from site plans: **COF #8040 (555 Franklin Road PUD Subdivision, Site Plan)** and **COF #8121 (Dry Branch Sewer Basin-Sewer System Rehabilitation, Site Plan)** shall be transferred to this final plat as a condition of approval.

(This comment serves only as a reminder to staff and does not hinder approval. No response is necessary from the applicant beyond "N/A" or "Acknowledged" to satisfy requirements of the IDT system.)

Planning

General Issues

18. Open Space

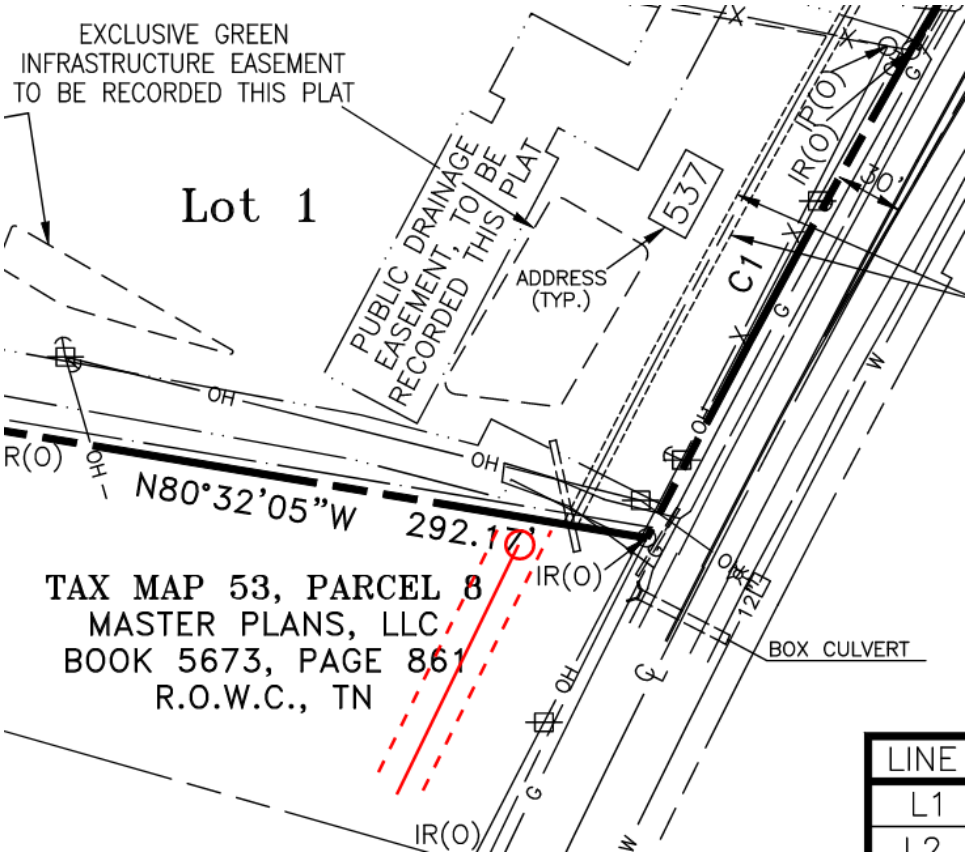
joseph.bryan@franklintn.gov Applicant shall revise label to OS Lot 101 for further clarity that this lot is unbuildable.

Water/Sewer

General Issues

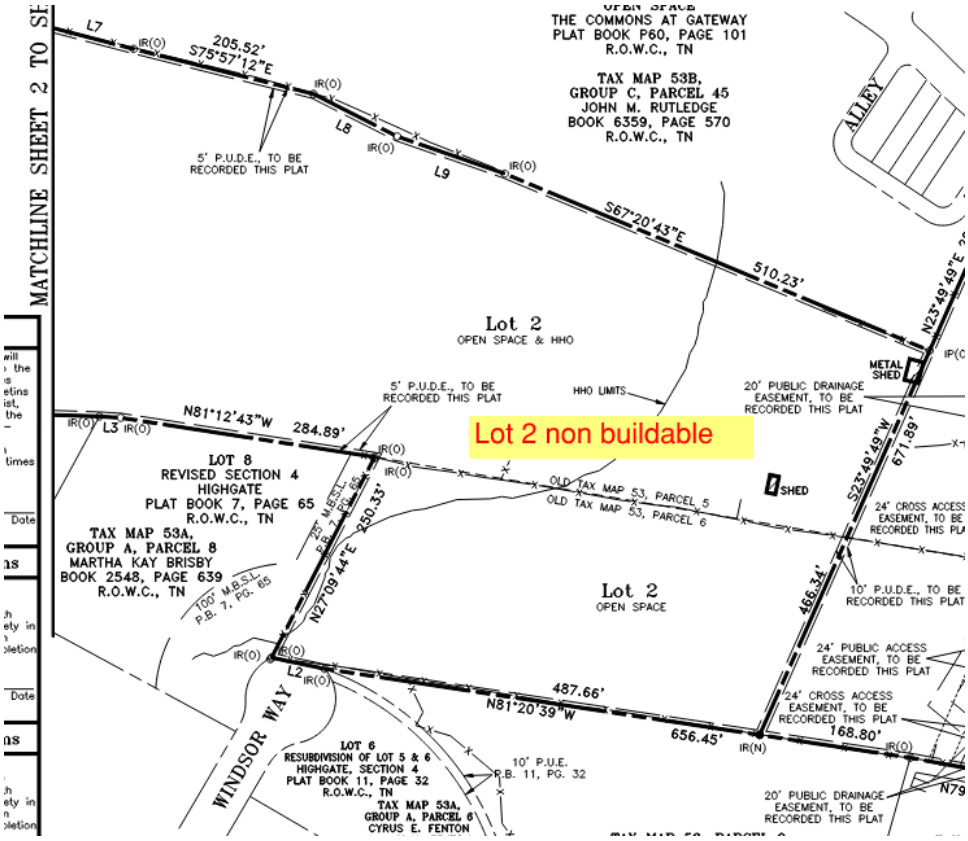
5. Public utility and easement information

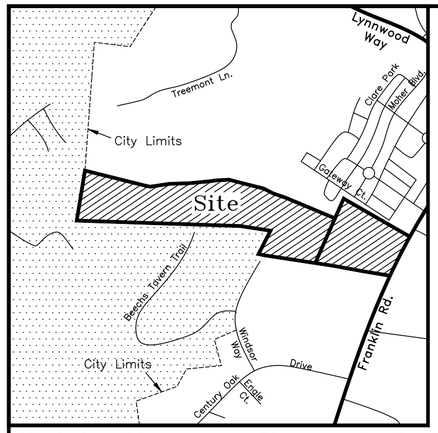
ben.mcneil@franklintn.gov The applicant shall provide the existing sanitary sewer serving lot 1 and reference the deed book and page for recorded easement.



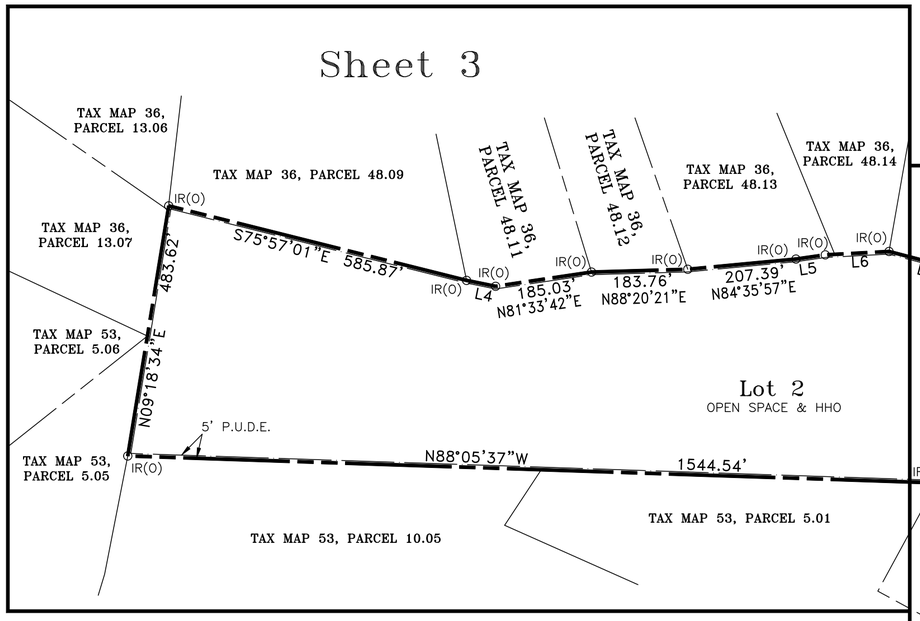
6. Plat matchlines

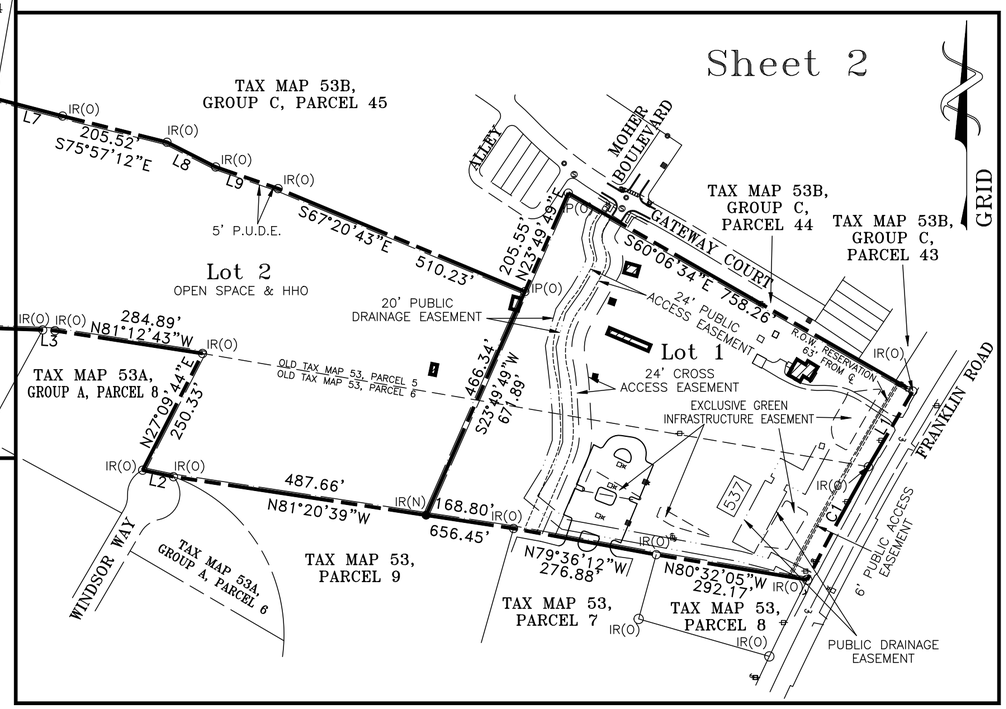
ben.mcneil@franklintn.gov The applicant has labeled lot 2 to the rear of lot 1, no sanitary sewer has been extended to serve lot 2, therefore lot 2 shall be labeled as a non buildable lot.





Vicinity Map Not to Scale





Lot 1: 395,378 Sq. Ft. (9.077 Ac. ±)
Lot 2: 1,034,677 Sq. Ft. (23.753 Ac. ±)
Total Area: 1,430,055 Sq. Ft. (32.830 Ac. ±)

CURVE TABLE

CURVE	LENGTH	RADIUS	CHORD	BEARING	DELTA
C1	245.42'	5759.58'	245.40'	S28°23'18"W	02°26'29"

LINE TABLE

LINE	BEARING	LENGTH
L1	S30°26'29"W	167.33'
L2	N78°03'04"W	60.11'
L3	N86°24'55"W	23.60'
L4	S78°30'36"E	56.53'
L5	N81°50'47"E	56.52'
L6	N86°57'43"E	121.83'
L7	S75°21'12"E	133.13'
L8	S63°04'12"E	104.23'
L9	S70°52'12"E	126.08'

Deed Reference

Deed reference for this property is Book 4201, Page 446, at the Register's Office for Williamson County, Tennessee. Owner of record being: Clearview Baptist Church

GPS Note

A Topcon GRS-1 GPS network rover utilizing the TDOT GNSS Reference Network to establish horizontal control, Tennessee State Plane Grid (NAD-83), and vertical control (NAVD-88) was used for this survey. A positional horizontal accuracy of one (1) centimeter or less and a GPS (Ortho Height) of two (2) centimeters or less may typically be relied upon.

Legend

PROPERTY LINE
EDGE OF PAVEMENT
EASEMENT LINE
PUBLIC ACCESS EASEMENT
CROSS ACCESS EASEMENT
GREEN INFRASTRUCTURE
DRAINAGE EASEMENT
EDGE OF GRAVEL
EDGE OF CONC.
SETBACK LINE
WALL
CURB
FENCE
OVERHEAD

WATER LINE W 6"
SEWER LINE SA 8"
GAS LINE G 4"
CULVERT 18" RCP
FIRE HYDRANT
IRON ROD NEW ● IR(N)
IRON ROD OLD ○ IR(O)
IRON PIPE OLD ○ IP(O)
CATCH BASIN
MANHOLE
TELEPHONE MANHOLE
UTILITY POLE
LIGHT POLE

Notes

1) THE PURPOSE OF THIS PLAT IS TO CREATE ONE LOT AND ONE OPEN SPACE LOT, RESERVE R.O.W., AND DEDICATE EASEMENTS.

2) THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES, ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM VISIBLE APPURTENANCES AT THE SITE, PUBLIC RECORDS AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED, THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES ARE IN THE EXACT LOCATION INDICATED. THEREFORE, RELIANCE UPON THE TYPE, SIZE AND LOCATION OF UTILITIES SHOWN SHOULD BE DONE SO WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO IS MADE. AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY. IN TENNESSEE, IT IS A REQUIREMENT, PER "THE UNDERGROUND UTILITY DAMAGE PREVENT ACT", THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOWN UNDERGROUND UTILITY OWNER, NO LESS THAN THREE (3) NOR MORE THAN TEN (10) WORKING DAYS PRIOR TO THE DATE OF THEIR INTENT TO EXCAVATE AND ALSO TO AVOID ANY POSSIBLE HAZARD OR CONFLICT. TENNESSEE ONE CALL 1-800-351-1111 OR TENNESSEE REGULATORY AUTHORITY (TRA) AT 811.

3) ALL DISTANCES WERE MEASURED WITH E.D.M. EQUIPMENT AND HAVE BEEN ADJUSTED FOR TEMPERATURE.

4) SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP TITLE EVIDENCE, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

5) THE SURVEYOR'S LIABILITY FOR THIS DOCUMENT SHALL BE LIMITED TO THE ORIGINAL PURCHASER AND THOSE PERSONS LISTED IN THE SURVEYOR'S CERTIFICATE AND DOES NOT EXTEND TO ANY UNNAMED PERSON OR ENTITIES WITHOUT AN EXPRESSED RE-CERTIFICATION BY THE SURVEYOR WHOSE SIGNATURE APPEARS UPON THIS SURVEY.

6) THE LOCATION AND/OR EXISTENCE OF UTILITY SERVICE LINES TO THE PROPERTY SURVEYED ARE UNKNOWN AND ARE NOT SHOWN.

7) THIS PARCEL DESCRIBED HEREON DOES NOT LIE WITHIN FLOOD HAZARD AREAS IN ACCORDANCE WITH "INSURANCE RATE MAP PANEL NUMBER: 47187C0204F" DATED: SEPTEMBER 29, 2006 AND "INSURANCE RATE MAP PANEL NUMBER 47187C205F", DATED: SEPTEMBER 29, 2006. FLOOD ZONE "X".

8) SIDEWALKS AND TRAILS OUTSIDE OF PUBLIC RIGHT-OF-WAY SHALL BE PUBLIC ACCESS EASEMENTS AND SHALL BE MAINTAINED BY THE PROPERTY OWNER(S) OR THE HOA.

9) ALL OPEN SPACE SHALL BE PUBLIC UTILITY, DRAINAGE AND ACCESS EASEMENTS AND SHALL BE MAINTAINED BY THE PROPERTY OWNER(S) OR THE HOA.

10) MAINTENANCE OF ALL STORMWATER MANAGEMENT FEATURES, INCLUDING LOT LINES SWALES, SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER(S) OR THE HOA.

11) NO OBSTRUCTIONS OR ENCROACHMENTS WHICH IMPEDE THE FLOW OF STORMWATER SHALL BE PERMITTED WITHIN PUBLIC DRAINAGE EASEMENTS. THE CITY OF FRANKLIN IS NOT RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY ENCROACHMENTS THAT ARE DAMAGED OR REMOVED IN THE COURSE OF MAINTENANCE ACTIVITY WITHIN EASEMENTS,

12) TREES SHALL BE PRUNED TO A MINIMUM OF EIGHT FEET ABOVE GRADE AND NO FENCES OR OTHER OBSTRUCTIONS SHALL BE TALLER THAN THREE FEET ABOVE GRADE WITHIN SIGHT TRIANGLES FOR STREET INTERSECTIONS AND ROADWAY SIGNAGE PER THE LATEST VERSION OF AASHTO POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.

13) THE CITY OF FRANKLIN WATER MANAGEMENT DEPARTMENT HAS UNRESTRICTED ACCESS TO ITS DOMESTIC WATER, SANITARY SEWER, RECLAIM WATER LINES OR SYSTEM IMPROVEMENTS LOCATED WITHIN ITS EXCLUSIVE EASEMENTS WITHIN THE DEVELOPMENT. IN THE EVENT LANDSCAPING, FENCING, CONCRETE OR OTHER STRUCTURES ARE INSTALLED OR PLACED WITHIN A CITY OF FRANKLIN EASEMENT, THE CITY OF FRANKLIN SHALL HAVE THE RIGHT TO REMOVE SUCH ENCROACHMENTS WITHIN THE EASEMENT AS MAY BE NECESSARY FOR THE CITY OF FRANKLIN TO REPAIR, MAINTAIN OR REPLACE ITS INFRASTRUCTURE WHICH IS NOW OR IN THE FUTURE MAY BE LOCATED WITHIN THE EASEMENT WITHOUT OBTAINING ANY FURTHER PERMISSION FROM THE PROPERTY OWNER OR HOA. THE PROPERTY OWNER OR HOA SHALL BE RESPONSIBLE FOR REPAIRING AND/OR REPLACING ANY SUCH LANDSCAPING, FENCING, CONCRETE OR OTHER STRUCTURES REMOVED OR DISTURBED BY THE CITY OF FRANKLIN IN COMMON OPEN SPACE LOTS AND IN AREAS OWNED BY THE PROPERTY OWNER OR HOA AT NO EXPENSE TO THE CITY OF FRANKLIN, INDIVIDUAL HOMEOWNERS SHALL BE RESPONSIBLE FOR STRUCTURES REMOVED OR DISTURBED BY THE CITY OF FRANKLIN WITHIN AN EASEMENT ON THE HOMEOWNERS' LOT AT THE HOMEOWNERS' EXPENSE.

14) NO BUILDINGS ARE PERMITTED IN EASEMENT AREAS.

15) THIS PROPERTY IS CURRENTLY ZONED "PUD".

16) MINERAL RIGHTS FOR THIS PROPERTY ARE THE OWNERSHIP OF THE PROPERTY OWNERS.

17) GREEN INFRASTRUCTURE EASEMENTS (GIE) ARE EXCLUSIVE EASEMENTS DEFINING AREAS SET ASIDE FOR THE CONSTRUCTION, MAINTENANCE, REPAIR, MONITORING, AND OTHER ACTIVITIES NECESSARY FOR THE FURTHERANCE OF WATER QUALITY FEATURES DESIGNATED AS GREEN INFRASTRUCTURE PRACTICES BY THE CITY OF FRANKLIN, AND TO PROVIDE PUBLIC ACCESS TO SUCH FEATURES. ANY AND ALL ACTIVITIES, EXCEPT AS SPECIFICALLY PERMITTED BY NOTATION ON THE CURRENT PLAT OF RECORD AND /OR WITHIN THE RECORDED LONG TERM MAINTENANCE AGREEMENT, SHALL BE STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE CITY ENGINEER OR HIS DESIGNEE.

18) CROSS ACCESS EASEMENTS SHALL PROVIDE PERPETUAL, NON-EXCLUSIVE ACCESS FOR THE PURPOSE OF VEHICULAR AND PEDESTRIAN INGRESS AND EGRESS ACROSS THE CROSS ACCESS EASEMENT. PROPERTY OWNER(S) SHALL MAINTAIN AND KEEP THE CROSS ACCESS EASEMENT WITHIN THEIR THEIR DEVELOPMENT IN A COMMERCIALLY REASONABLE CONDITION AND STATE OF REPAIR.

19) THIS PROPERTY IS SUBJECT TO MIDDLE TENNESSEE ELECTRIC EASEMENTS, AS OF RECORD IN DEED BOOK 709, PAGE 321, AT THE REGISTER'S OFFICE FOR WILLIAMSON COUNTY, TENNESSEE. SAID EASEMENT IS BLANKET IN NATURE.

20) WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO THE NEW DEVELOPMENT, ALL UTILITIES (INCLUDING CABLE, ELECTRICAL, NATURAL GAS, SEWER, TELEPHONE, AND WATER LINES) SHALL BE PLACED UNDERGROUND, EXCEPT FOR THE AGREED UPON OVERHEAD MTE UTILITY EASEMENT.

MTEMC Signature

Middle Tennessee Electric Membership Corporation (MTEMC) will provide electric service to the subject property according to the normal operating practices of MTEMC as defined in the rules and regulations, bylaws, policy bulletins and operational bulletins of MTEMC, and in accordance with the plat approval checklist, tree planting guidelines and other regulations contained on the MTEMC website at www.mtemc.com (collectively the "Require-ments"). No electric service will be provided until MTEMC's Requirements have been met and approved in writing by an authorized representative of MTEMC. Any approval is, at all times times, contingent upon continuing compliance with MTEMC's Requirements.

Middle Tennessee Electric Membership Corporation — Date

Certificate of Approval of Water Systems

I hereby certify that:
A. The water system designated in 555 Franklin Road PUD Subdivision, Final Plat have been installed in accordance with City specifications, or B. A performance agreement and surety in the amount of $ _____ for the water system has been posted with the City of Franklin, Tennessee, to assure completion of such system.

Director of HB&TS, City of Franklin, Tennessee — Date

Certificate of Approval of Sewer Systems

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Director Sewer Management Department, City of Franklin, Tennessee — Date

Certificate of Ownership

I (we) hereby certify that I am (we are) the owner(s) of the property shown hereon as of record in Book *, Page *, R.O.W.C, Tennessee, and adopt the plan of subdivision of the property as shown hereon and dedicate all public ways and easements as noted. No lot(s) as shown hereon shall again be subdivided, resubdivided, altered or changed so as to produce less area than is hereby established until otherwise approved by the Franklin Municipal Planning Commission, and under no condition shall such lot(s) be made to produce less area than is prescribed by the restrictive covenants as of record in Book ____, Page ____, R.O.W.C., Tennessee, running with the title to the property. I (We) further certify that there are no liens on this property except as follows: Book _____, Page _____, R.O.W.C.

Clearview Baptist Church – Book 4201, Pg. 446
Phillip Cantrell, Trustee (615) 957-9921 — Date

Certificate of Survey

I (we) hereby certify that the subdivision plat as shown hereon is correct and that all of the monuments shown hereon have been placed as indicated. This subdivision plat correctly represents a survey made under my supervision on the _____ day of _____, 20 ___.

MICHAEL H. CHARETTE — REGISTERED LAND SURVEYOR — XVI AGRICULTURE COMMERCE — TENNESSEE NO. 2048

Michael H. Charette
R.L.S. TN #2048

Certificate of Approval of Subdivision Name, Street Names,

and Addressing Subdivision name and street names approved by the Williamson County Emergency Management Agency and the City of Franklin.

Williamson County Emergency Management Agency — Date

City of Franklin — Date

Certificate of Approval for Recording

Approved by the Franklin Municipal Planning Commission, Franklin, Williamson County, Tennessee, with the exception of such conditions, if any, as are noted in the Planning Commission minutes for the ____ day of _____, 20 ___, and this plat has been approved for recording in the Register's Office of Williamson County.

Secretary, Franklin Municipal Planning Commission — Date

Certificate of Approval of Streets, Drainage, Sidewalks, and Green Infrastructure

I hereby certify that:
A. The streets, drainage, sidewalks, and green infrastructure designated in 555 Franklin Road PUD Subdivision Final Plat, have been installed in accordance with City specifications, or B, A performance agreement and surety in the amount of $ _____ for streets, $ _____ for drainage, $ _____ for sidewalks, and $ _____ for green infrastructure has been posted with the City of Franklin, Tennessee, to assure completion of such improvements.

Director, Streets Department, City of Franklin, Tennessee — Date

CHERRY LAND SURVEYING, INC.
622 WEST IRIS DRIVE
NASHVILLE, TENNESSEE 37204
(615)269-3972 FAX:(615)269-9345
E-MAIL: cherryls@comcast.net

MINIMUM BUILDING SETBACK LINES

FRONT (MAJOR ARTERIAL)	75'
FRONT (LOCAL)	25'
SIDE	25'
REAR	25'

PROJECT NO.: 8152

555 Franklin Road PUD Subdivision, Final Plat

Franklin, Williamson County, Tennessee

Total Acres	32.830	Total Sq. Ft.	1,430,055	Total Lots	2
Civil District	8th	Acres New Road	0	Miles New Road	0
Scale	1"=200'	200 0 100 200 400			
Job Number	21106PLT-S1 CW	Dated	March 27, 2023	Last Revision Date:	May 03, 2023

Owner: Clearview Baptist Church
537 Franklin Road
Franklin, Tennessee 37069
Phillip Cantrell (615) 957-9921
phillip@benchmarkrealtytn.com

553 Franklin Road
557 Franklin Road

Tax Map 53, Parcel 6
Tax Map 53, Parcel 5

CHERRY LAND SURVEYING, INC.
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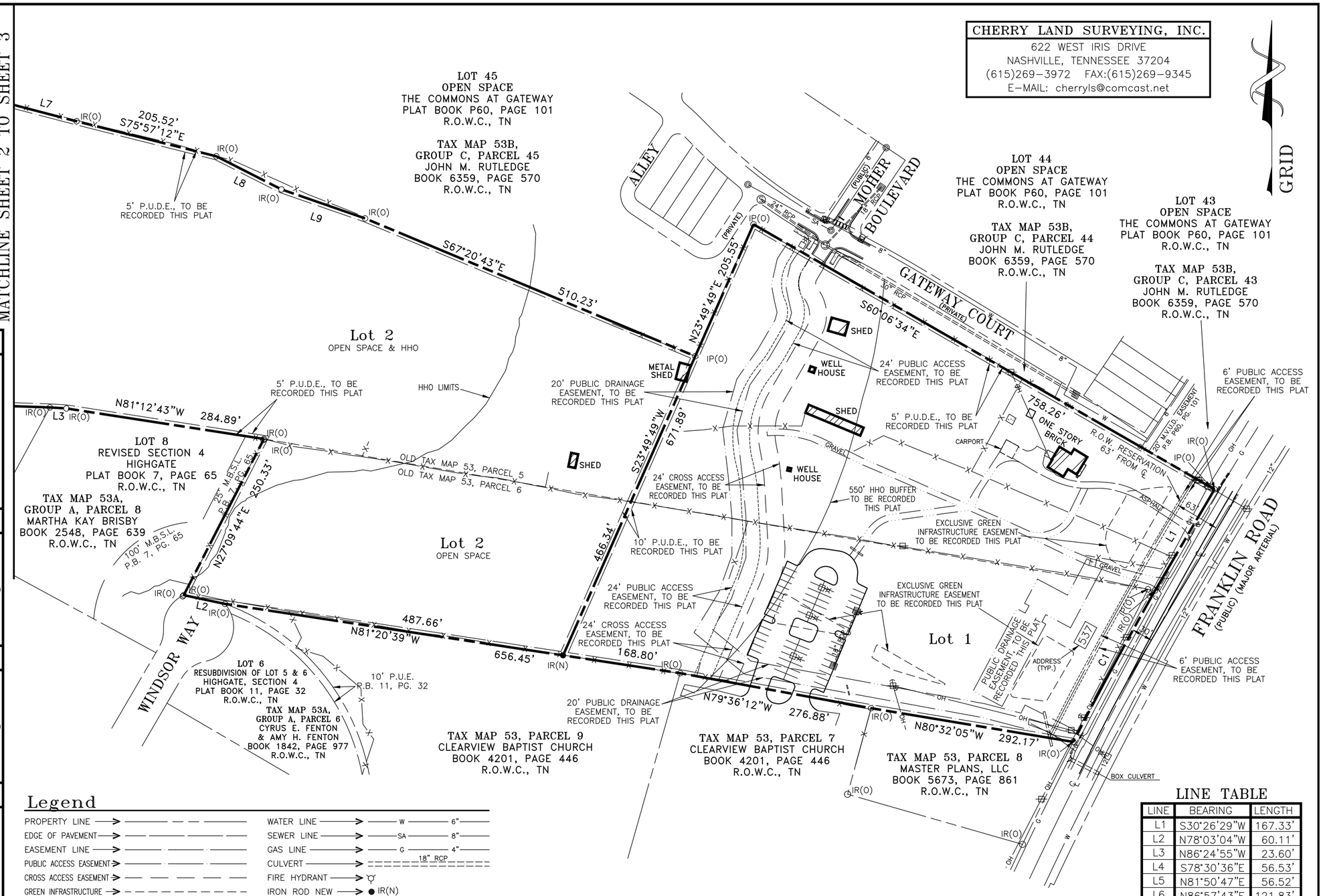

MTEMC Signature

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Middle Tennessee Electric Membership Corporation — Date

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Director of HB&TS
City of Franklin, Tennessee — Date

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Director Sewer Management Department
City of Franklin, Tennessee — Date

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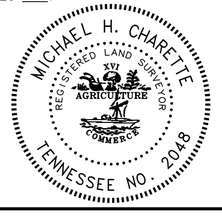
Clearview Baptist Church – Book 4201, Pg. 446
Phillip Cantrell, Trustee (615) 957-9921 — Date

Certificate of Survey

I (we) hereby certify that the subdivision plat as shown hereon is correct and that all of the monuments shown hereon have been placed as indicated. This subdivision plat correctly represents a survey made under my supervision on the _____ day of _____, 20 ___.



Michael H. Charette
R.L.S. TN #2048

Legend

PROPERTY LINE		WATER LINE	W 6"
EDGE OF PAVEMENT		SEWER LINE	SA 8"
EASEMENT LINE		GAS LINE	G 4"
PUBLIC ACCESS EASEMENT		CULVERT	18" RCP
CROSS ACCESS EASEMENT		FIRE HYDRANT	
GREEN INFRASTRUCTURE		IRON ROD NEW	● IR(N)
DRAINAGE EASEMENT		IRON ROD OLD	○ IR(O)
EDGE OF GRAVEL		IRON PIPE OLD	○ IP(O)
EDGE OF CONC.		CATCH BASIN	
SETBACK LINE		MANHOLE	
WALL		TELEPHONE MANHOLE	
CURB		UTILITY POLE	
FENCE	X X	LIGHT POLE	
OVERHEAD	OH OH		

Lot 1: 395,378 Sq. Ft. (9.077 Ac. ±)
Lot 2: 1,034,677 Sq. Ft. (23.753 Ac. ±)
Total Area: 1,430,055 Sq. Ft. (32.830 Ac. ±)

CURVE TABLE

CURVE	LENGTH	RADIUS	CHORD	BEARING	DELTA
C1	245.42'	5759.58'	245.40'	S28°23'18"W	02°26'29"

LINE TABLE

LINE	BEARING	LENGTH
L1	S30°26'29"W	167.33'
L2	N78°03'04"W	60.11'
L3	N86°24'55"W	23.60'
L4	S78°30'36"E	56.53'
L5	N81°50'47"E	56.52'
L6	N86°57'43"E	121.83'
L7	S75°21'12"E	133.13'
L8	S63°04'12"E	104.23'
L9	S70°52'12"E	126.08'

Certificate of Approval of Subdivision Name, Street Names,

and Addressing Subdivision name and street names approved by the Williamson County Emergency Management Agency and the City of Franklin.

Williamson County Emergency Management Agency — Date

City of Franklin — Date

Certificate of Approval for Recording

Approved by the Franklin Municipal Planning Commission, Franklin, Williamson County, Tennessee, with the exception of such conditions, if any, as are noted in the Planning Commission minutes for the ____ day of _____, 20 ___, and this plat has been approved for recording in the Register's Office of Williamson County.

Secretary
Franklin Municipal Planning Commission — Date

Certificate of Approval of Streets, Drainage, Sidewalks, and Green Infrastructure

I hereby certify that:
A. The streets, drainage, sidewalks, and green infrastructure designated in 555 Franklin Road PUD Subdivision Final Plat, have been installed in accordance with City specifications, or B, A performance agreement and surety in the amount of $ _____ for streets, $ _____ for drainage, $ _____ for sidewalks, and $ _____ for green infrastructure has been posted with the City of Franklin, Tennessee, to assure completion of such improvements.

Director, Streets Department
City of Franklin, Tennessee — Date

PROJECT NO.: 8152

555 Franklin Road PUD Subdivision, Final Plat

Franklin, Williamson County, Tennessee

Total Acres 32.830	Total Sq. Ft. 1,430,055	Total Lots 2
Civil District 8th	Acres New Road 0	Miles New Road 0
Scale 1"=100'	100 0 50 100 200	
Job Number 21106PLT-S2 CW	Dated March 27, 2023	Last Revision Date: May 03, 2023
Owner: Clearview Baptist Church 537 Franklin Road Franklin, Tennessee 37069 Phillip Cantrell (615) 957-9921 phillip@benchmarkrealtytn.com	553 Franklin Road 557 Franklin Road	Tax Map 53, Parcel 6 Tax Map 53, Parcel 5

LINE TABLE

LINE	BEARING	LENGTH
L1	S30°26'29"W	167.33'
L2	N78°03'04"W	60.11'
L3	N86°24'55"W	23.60'
L4	S78°30'36"E	56.53'
L5	N81°50'47"E	56.52'
L6	N86°57'43"E	121.83'
L7	S75°21'12"E	133.13'
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LOT 27
MINOR REVISION PLAT
FOR LOT 27
LYNNWOOD DOWNS SUBDIVISION
PLAT BOOK P45, PAGE 140
R.O.W.C., TN
TAX MAP 36, PARCEL 13.06
LUX FAMILY TRUST
BOOK 8404, PAGE 955
R.O.W.C., TN

LOT 28
LYNNWOOD DOWNS SUBDIVISION
PLAT BOOK 14, PAGE 2
R.O.W.C., TN
TAX MAP 36, PARCEL 13.07
RICHARD M. REPATH
& LISA E. REPATH
BOOK 6510, PAGE 867
R.O.W.C., TN

LOT 9
TREEMONT SUBDIVISION
PLAT BOOK P44, PAGE 85
R.O.W.C., TN
TAX MAP 36, PARCEL 48.09
FRANKLIN FAMILY LAND TRUST
BOOK 5485, PAGE 947
R.O.W.C., TN

LOT 30
MINOR REVISION PLAT
LOT 30, LYNNWOOD DOWNS
PLAT BOOK 20, PAGE 53
R.O.W.C., TN
TAX MAP 53, PARCEL 5.06
CORDIA B. WILKINSON
BOOK 1445, PAGE 653
R.O.W.C., TN

LOT 31
MINOR REVISION TO LOT 31
LYNNWOOD DOWNS SUBDIVISION
PLAT BOOK 17, PAGE 20
R.O.W.C., TN
TAX MAP 53, PARCEL 5.05
KENNETH SCOTT WARE
& SUZANNE WARE
BOOK 2376, PAGE 656
R.O.W.C., TN

TAX MAP 53, PARCEL 10.05
GLENDA A. FINK
BOOK 7429, PAGE 535
R.O.W.C., TN

TAX MAP 53, PARCEL 5.01
JOHN C. HARTLEY &
KRISTINA HARTLEY
BOOK 572, PAGE 555
R.O.W.C., TN

LOT 6
TREEMONT SUBDIVISION
REVISION 1
PLAT BOOK P57, PAGE 83
R.O.W.C., TN
TAX MAP 36, PARCEL 48.13
CHRIS AND LINDA
TAYLOR TRUST
BOOK 7331, PAGE 93
R.O.W.C., TN

LOT 4
TREEMONT SUBDIVISION
REVISION 1, PAGE 83
PLAT BOOK P57, TN
R.O.W.C.: PARCEL 48.14
TAX MAP 36, PARCEL 48.14
LEE J. BROWN &
KATHARINE M. BROWN
BOOK 6317, PAGE 969
R.O.W.C., TN

TAX MAP 36, PARCEL 48.11
RYAN D. P. THOMAS &
WENDY P. THOMAS
BOOK 5951, PAGE 961
R.O.W.C., TN

TAX MAP 36, PARCEL 48.12
TERRY W. TERRILL &
KIMBERLY K. TERRILL
BOOK 5903, PAGE 572
R.O.W.C., TN

LOT 8
TREEMONT SUBDIVISION
PLAT BOOK P44, PAGE 85
R.O.W.C., TN

LOT 7
TREEMONT SUBDIVISION
PLAT BOOK P44, PAGE 85
R.O.W.C., TN

10' U.E., P.B. P45, PG. 140
30' HORSE TRAIL EASEMENT P.B. P45, PG. 140
15' U.E., P.B. P45, PG. 140
10' DRAINAGE EASEMENT, P.B. P44, PG. 85
10' DRAINAGE EASEMENT P.B. P44, PG. 85
30' HORSE TRAIL EASEMENT P.B. 14, PG. 2
15' P.U.E., P.B. 14, PG. 2
30' M.B.S.L.
25' M.B.S.L.
10' P.U.E., P.B. 20, PG. 53
15' UTILITY EASEMENT, P.B. 17, PG. 20

S75°57'01"E 585.87'
N09°18'34"E 483.62'
N81°33'42"E 185.03'
N88°20'21"E 183.76'
N84°35'57"E 207.39'
N88°05'37"W 1544.54'

IR(O) L4 L5 L6

5' P.U.E., TO BE RECORDED THIS PLAT
5' P.U.D.E., TO BE RECORDED THIS PLAT

Lot 2
OPEN SPACE & HHO

MATCHLINE SHEET 3 TO SHEET 2

GRID

MTEMC Signature

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Middle Tennessee Electric Membership Corporation — Date

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Clearview Baptist Church – Book 4201, Pg. 446
Phillip Cantrell, Trustee (615) 957-9921 — Date

Certificate of Survey

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MICHAEL H. CHARETTE — REGISTERED LAND SURVEYOR — AGRICULTURE XVI — COMMERCE XVI — TENNESSEE NO. 2048

Michael H. Charette
R.L.S. TN #2048

Certificate of Approval of Subdivision Name, Street Names,

and Addressing Subdivision name and street names approved by the Williamson County Emergency Management Agency and the City of Franklin.

Williamson County Emergency Management Agency — Date
City of Franklin — Date

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Director, Streets Department, City of Franklin, Tennessee — Date

Legend

PROPERTY LINE		WATER LINE	W 6"
EDGE OF PAVEMENT		SEWER LINE	SA 8"
EASEMENT LINE		GAS LINE	G 4"
PUBLIC ACCESS EASEMENT		CULVERT	18" RCP
CROSS ACCESS EASEMENT		FIRE HYDRANT	
GREEN INFRASTRUCTURE		IRON ROD NEW	● IR(N)
DRAINAGE EASEMENT		IRON ROD OLD	○ IR(O)
EDGE OF GRAVEL		IRON PIPE OLD	○ IP(O)
EDGE OF CONC.		CATCH BASIN	
SETBACK LINE		MANHOLE	
WALL		TELEPHONE MANHOLE	Ⓣ
CURB		UTILITY POLE	
FENCE	X X	LIGHT POLE	
OVERHEAD	OH OH		

Lot 1: 395,378 Sq. Ft. (9.077 Ac. ±)
Lot 2: 1,034,677 Sq. Ft. (23.753 Ac. ±)
Total Area: 1,430,055 Sq. Ft. (32.830 Ac. ±)

CURVE TABLE

CURVE	LENGTH	RADIUS	CHORD	BEARING	DELTA
C1	245.42'	5759.58'	245.40'	S28°23'18"W	02°26'29"

PROJECT NO.: 8152

555 Franklin Road PUD Subdivision, Final Plat

Franklin, Williamson County, Tennessee

Total Acres	32.830	Total Sq. Ft.	1,430,055	Total Lots	2
Civil District	8th	Acres New Road	0	Miles New Road	0
Scale	1"=100'	100 0 50 100 200			
Job Number	21106PLT-S3 CW	Dated	March 27, 2023	Last Revision Date:	May 03, 2023

Owner: Clearview Baptist Church
537 Franklin Road
Franklin, Tennessee 37069
Phillip Cantrell (615) 957-9921
phillip@benchmarkrealtytn.com

553 Franklin Road
557 Franklin Road

Tax Map 53, Parcel 6
Tax Map 53, Parcel 5

City of Franklin

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

File #: 21-04666

DATE: May 9, 2023

TO: Franklin Municipal Planning Commission

FROM: Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development
Chelsea Randolph, Principal Planner

SUBJECT:

Aureum PUD Subdivision, Final Plat, Section 1, Revision 1 (Lot 5), Creating Two Lots, On 15.24 Acres, Located At The Intersection Of Ovation Parkway And Aureum Drive. (CONSENT AGENDA)

PURPOSE:

PROJECT INFORMATION
COF Project Number: 8159
Applicant: Ted Stevenson, Ragan Smith Associates
Owner: Glenn McGehee, SS-CH Franklin, LLC

BACKGROUND/STAFF COMMENTS:
The purpose of this final plat is to create two lots, dedicate public right-of-way and create utility easements within the Aureum PUD Subdivision. The Development Plan was originally approved on June 11, 2019 and a revision to the development plan was approved on January 27, 2022 by the Planning Commission. The corresponding site plan was approved by the Planning Commission on March 23, 2023. The final plat is consistent with the development plan and approved site plan.

PROCEDURAL REQUIREMENTS:
1. In addition to uploading the corrected plat to the online plan review website (https://franklin.contractorsplanroom.com/secure/), the applicant shall submit the Mylar to the Department of Building and Neighborhood Services (Suite 110, Franklin City Hall). The mylar shall be 18 inches by 24 inches in size. The Certificates of Approval for the Subdivision Name and Street Names, Water System (if not COF Water), Survey, and Ownership shall be signed when the plat is resubmitted. The Mylar shall be submitted to BNS within five (5) business days of the corrected electronic plat being uploaded to the online plan review website (or vice versa) or the item shall be rejected as incomplete for City review. 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.
3. The applicant shall upload a .dwg copy of the final plat through the IDT system (link above)

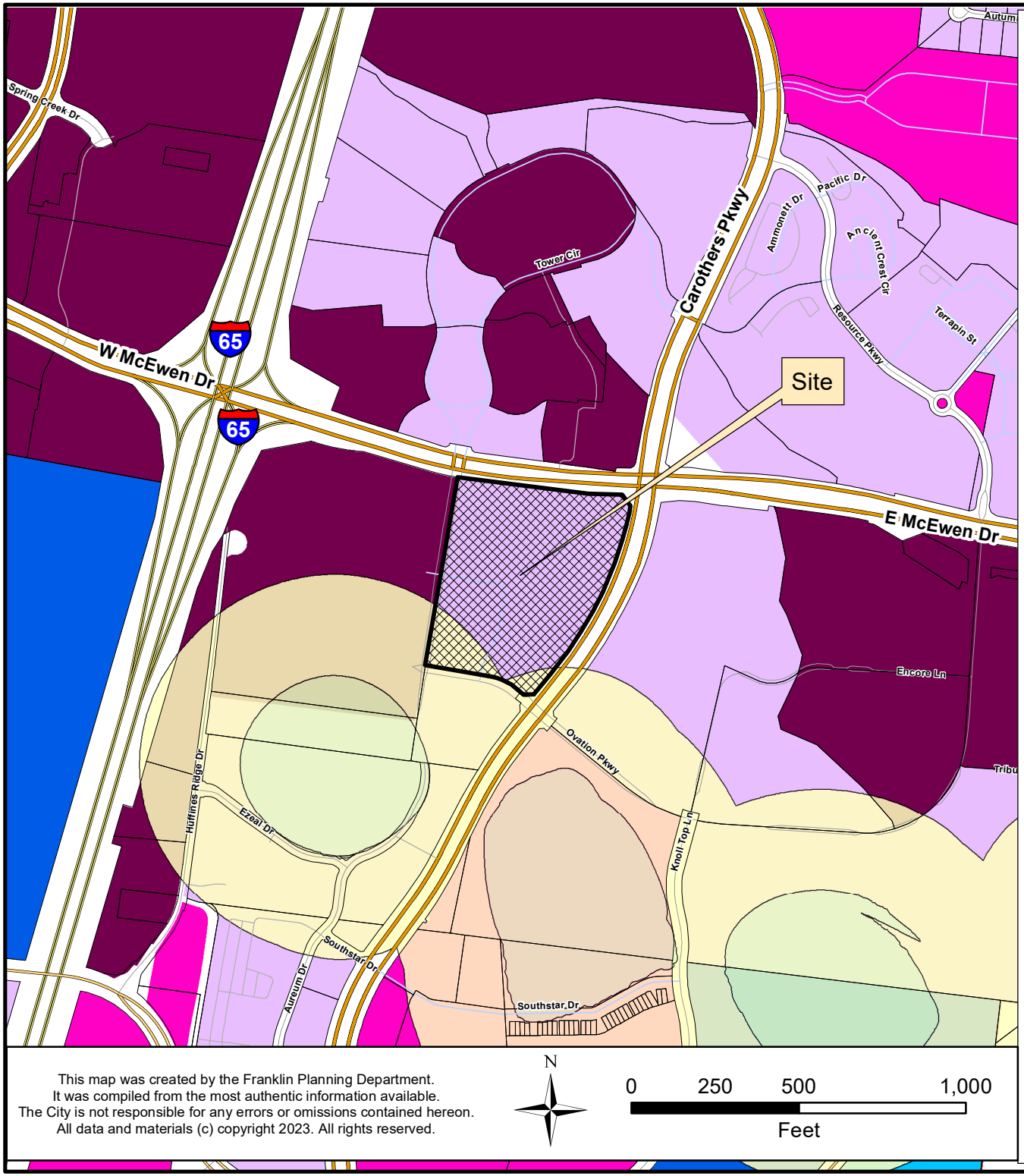
in Tennessee state plan coordinates, NAD 83, NAVD 88, zone 4100/5301 for incorporation of the plat into the Franklin GIS database.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Staff recommends that the Franklin Municipal Planning Commission approve, with conditions, Aureum PUD Subdivision, Final Plat, Section 1, Revision 1 (Lot 5). The conditions of approval are attached.



AUREUM PUD SUBDIVISION, SECTION 1
FINAL PLAT, REVISION 1

Project Information
Existing Zoning: PD Planned District
Overlay Districts: 500' Buffer of Hillside Overlay
Site Acreage: 15.24 acres
Total Number of Lots: 2

Legend

- Aureum PUD Subdivision, Section 1
- Hillside/Hillcrest Overlay
- 500 Ft Buffer of Hillside
- 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.
All data and materials (c) copyright 2023. All rights reserved.

N

0 250 500 1,000
Feet

HISTORIC FRANKLIN TENNESSEE

COF no: 8159

CONDITIONS OF APPROVAL:

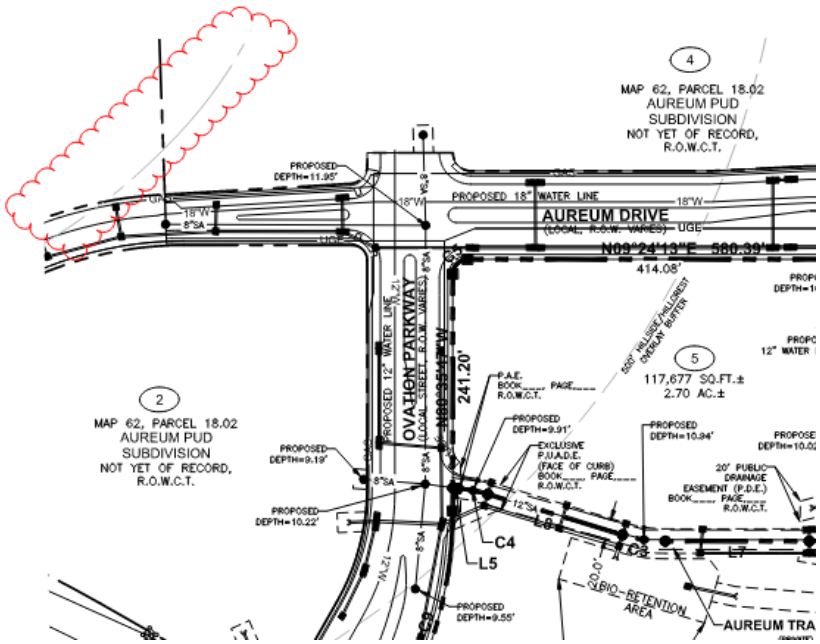
Open Issues: 9 These issues are currently being filtered

Engineering - Final Plat Checklist

General Issues

11. C. Final Plat

dustin.walcott@franklintn.gov Please label the HHO Buffer line.



12. C. Final Plat

lance.fittro@franklintn.gov The previous approved plat for the subject property shall be recorded and the plat book and page number of that recording filled in the appropriate blanks prior to submittal of this plat to One Stop.

14. 0. General Information

lance.fittro@franklintn.gov Applicant shall ensure that any modifications to the site plan, COF #8095, are reflected on the final plat. The final plat shall match the site plan.

15. C. Final Plat

lance.fittro@franklintn.gov Upon recording of the previous approved final plat for the subject property, for all existing easements which were created with the previous plat(s), the applicant shall provide references (plat book and page number) for their creation to fill in the blanks now shown on the plat.

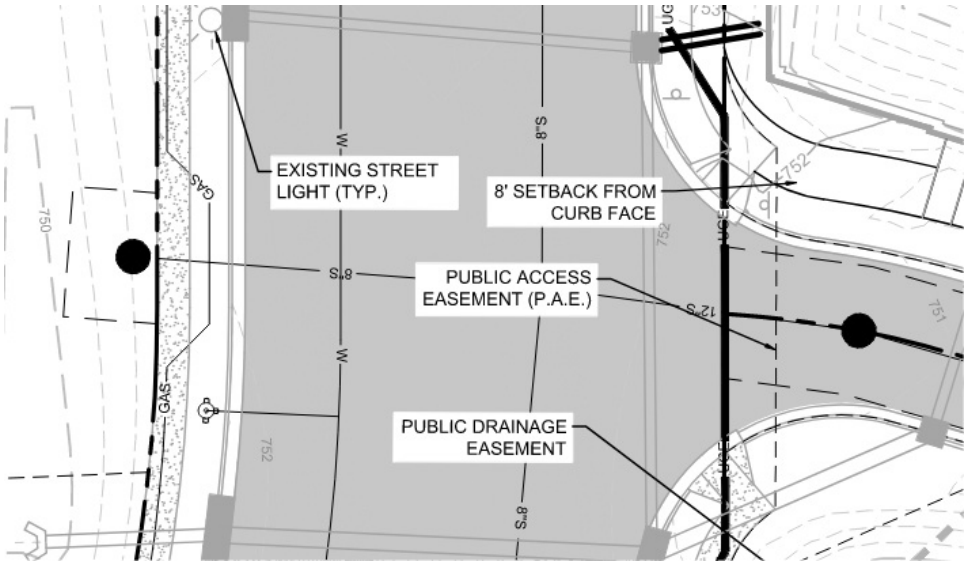
FIRE--Planning--DRT

General Issues

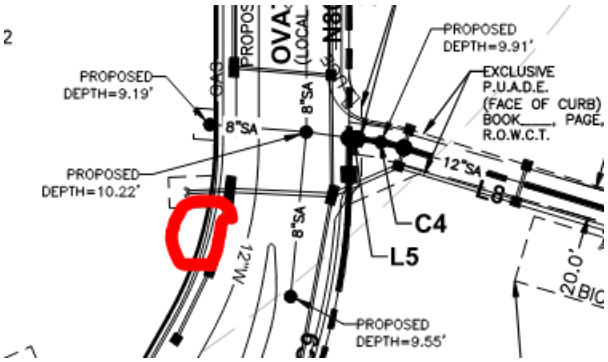
2. Utilities

curt.edelmann@franklintn.gov The site plans are showing hydrants, which don't appear on the plat.

Example.
Site plan



Plat



Parks

General Issues

7. Parkland information

kevinl@franklintn.gov Note shall be placed on plat:

Parkland Fees shall be due at the first building permit for residential for the development.

Performance Agreement and Surety

General Issues

1. Engineering Sureties

kevin.long@franklintn.gov	Any unposted sureties associated with this development from site plan: **COF #8095 (Aureum PUD Subdivision, Site Plan, Section 1, Revision 1 (Lot 5))** shall be transferred to this final plat as a condition of approval. ***(This comment serves only as a reminder to staff and does not hinder approval. No response is necessary from the applicant beyond "N/A" or "Acknowledged" to satisfy requirements of the IDT system.)***

Planning

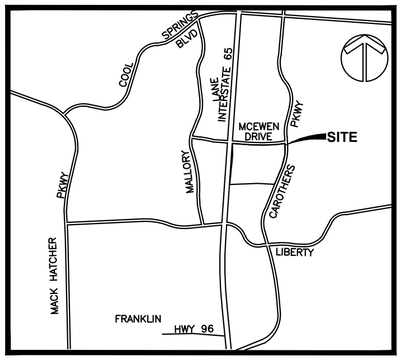
General Issues

4. Project name

chelsea.randolph@franklintn.gov	Applicant shall revise all sheets to reflect the EXACT revised name below: Aureum PUD Subdivision, Final Plat, Section 1, Revision 1 (Lot 5)

18. Void and Vacate note

chelsea.randolph@franklintn.gov	Applicant shall add the book and page of the void and vacated plat on note number 2.



VICINITY MAP
(N.T.S.)

RECORDER'S INFORMATION

GENERAL NOTES

1. THE PURPOSE OF THIS PLAT IS TO SUBDIVIDE LOT 1 INTO LOTS 1 AND 5.

2. THE RECORDING OF THIS PLAT VOIDS, VACATES, AND SUPERCEDES THE PREVIOUS RECORDING OF LOT(S) 1 & 5 ON THE FINAL PLAT ENTITLED AUREUM PUD SUBDIVISION AS RECORDED IN PLAT BOOK ---, PAGE ---, R.O.W.C.T.

3. BEARINGS SHOWN HEREON ARE BASED ON THE TENNESSEE COORDINATE SYSTEM, ZONE 5301, FIPSZONE 4100, NAD83.

4. LOTS 1 AND 5 OF THIS PROPERTY HAS A BASE ZONING OF PD (PLANNED DEVELOPMENT) WITH A CHARACTER OVERLAY OF MECO-4; OTHER APPLICABLE OVERLAYS= HTO, HHO, 500' HHO BUFFER.
PERIMETER SETBACKS (FROM R.O.W./BOUNDARY): EAST MCEWEN DRIVE: 15'; CAROTHERS PARKWAY: 15'
SOUTHERN BOUNDARY: 15'; INTERNAL SETBACKS (FROM FACE OF CURB): GOLD DRIVE: 8'; AUREUM TRAIL LANE: 8'.

5. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONE "X", AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 47187C0212F, WITH AN EFFECTIVE DATE OF SEPTEMBER 29, 2006, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 470206, PANEL NO. 0212, SUFFIX F, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

6. BEING PARCEL NUMBERS 18.02 AS SHOWN ON WILLIAMSON COUNTY PROPERTY MAP NUMBER 62.

7. THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM VISIBLE APPURTENANCES AT THE SITE, PUBLIC RECORDS AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THEREFORE, RELIANCE UPON THE TYPE, SIZE AND LOCATION OF UTILITIES SHOWN SHOULD BE DONE SO WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO IS MADE. AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY. IN TENNESSEE IT IS A REQUIREMENT, PER "THE UNDERGROUND UTILITY DAMAGE PREVENTION ACT", THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOWN UNDERGROUND UTILITY OWNERS, NO LESS THAN (3) THREE NOR MORE THAN (10) TEN WORKING DAYS PRIOR TO THE DATE OF THEIR INTENT TO EXCAVATE AND ALSO TO AVOID ANY POSSIBLE HAZARD OR CONFLICT. TENNESSEE ONE CALL 811.

8. SIDEWALKS AND TRAILS OUTSIDE OF PUBLIC RIGHT-OF-WAY SHALL BE PUBLIC ACCESS EASEMENTS AND SHALL BE MAINTAINED BY THE PROPERTY OWNER(S) OR THE HOA.

9. MAINTENANCE OF ALL STORMWATER MANAGEMENT FEATURES, INCLUDING LOT LINE SWALES, SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER(S) OR THE HOA.

10. NO OBSTRUCTIONS OR ENCROACHMENTS WHICH IMPEDE THE FLOW OF STORMWATER SHALL BE PERMITTED WITHIN PUBLIC DRAINAGE EASEMENTS. THE CITY OF FRANKLIN IS NOT RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY ENCROACHMENTS THAT ARE DAMAGED OR REMOVED IN THE COURSE OF MAINTENANCE ACTIVITY WITHIN EASEMENTS.

11. GREEN INFRASTRUCTURE EASEMENTS ARE EXCLUSIVE EASEMENTS DEFINING AREAS SET ASIDE FOR THE CONSTRUCTION, MAINTENANCE, REPAIR, MONITORING, AND OTHER ACTIVITIES NECESSARY FOR THE FURTHERANCE OF WATER QUALITY FEATURES DESIGNATED AS GREEN INFRASTRUCTURE PRACTICES BY THE CITY OF FRANKLIN, AND TO PROVIDE PUBLIC ACCESS TO SUCH FEATURES. ANY AND ALL ACTIVITIES, EXCEPT AS SPECIFICALLY PERMITTED BY NOTATION ON THE CURRENT PLAT OF RECORD AND/OR WITHIN THE RECORDED LONG TERM MAINTENANCE AGREEMENT, SHALL BE STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE CITY ENGINEER OR HIS DESIGNEE.

12. CROSS ACCESS EASEMENTS SHALL PROVIDE PERPETUAL, NON-EXCLUSIVE ACCESS FOR THE PURPOSES OF VEHICULAR AND PEDESTRIAN INGRESS AND EGRESS ACROSS THE CROSS ACCESS EASEMENT. PROPERTY OWNER(S) SHALL MAINTAIN AND KEEP THE CROSS ACCESS EASEMENT WITHIN THEIR DEVELOPMENT IN A COMMERCIALLY REASONABLE CONDITION AND STATE OF REPAIR.

13. THE CITY OF FRANKLIN WATER MANAGEMENT DEPARTMENT HAS UNRESTRICTED ACCESS TO ITS DOMESTIC WATER, SANITARY SEWER, RECLAIM WATER LINES OR SYSTEM IMPROVEMENTS LOCATED WITHIN ITS EXCLUSIVE EASEMENTS WITHIN THE DEVELOPMENT. IN THE EVENT LANDSCAPING, FENCING, CONCRETE OR OTHER STRUCTURES ARE INSTALLED OR PLACED WITHIN A CITY OF FRANKLIN EASEMENT, THE CITY OF FRANKLIN SHALL HAVE THE RIGHT TO REMOVE SUCH ENCROACHMENTS WITHIN THE EASEMENT AS MAY BE NECESSARY FOR THE CITY OF FRANKLIN TO REPAIR, MAINTAIN OR REPLACE ITS INFRASTRUCTURE WHICH IS NOW OR IN THE FUTURE MAY BE LOCATED WITHIN THE EASEMENT WITHOUT OBTAINING ANY FURTHER PERMISSION FROM THE PROPERTY OWNER OR HOA. THE PROPERTY OWNER OR HOA SHALL BE RESPONSIBLE FOR REPAIRING AND/OR REPLACING ANY SUCH LANDSCAPING, FENCING, CONCRETE OR OTHER STRUCTURES REMOVED OR DISTURBED BY THE CITY OF FRANKLIN IN COMMON OPEN SPACE LOTS AND IN AREAS OWNED BY THE PROPERTY OWNER OR HOA AT NO EXPENSE TO THE CITY OF FRANKLIN. INDIVIDUAL HOMEOWNERS SHALL BE RESPONSIBLE FOR STRUCTURES REMOVED OR DISTURBED BY THE CITY OF FRANKLIN WITHIN AN EASEMENT ON THE HOMEOWNER'S LOT AT THE HOMEOWNER'S EXPENSE.

14. WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO, THE NEW DEVELOPMENT, ALL UTILITIES (INCLUDING CABLE TELEVISION, ELECTRICAL, NATURAL GAS, SEWER, TELEPHONE, AND WATER LINES) SHALL BE PLACED UNDERGROUND.

15. ALL STREET LIGHT LOCATIONS AND QUANTITIES ARE APPROXIMATE. FINAL POSITIONING AND QUANTITY SHALL BE AT THE DIRECTION OF MTEMC.

16. THE MINERAL RIGHTS FOR THIS PROPERTY ARE HELD BY THE OWNER.

17. THERE SHALL BE NO DIRECT ACCESS TO LOT 1 FROM MCEWEN DRIVE. ACCESS TO LOT 1 FROM CAROTHERS PARKWAY SHALL BE SOLELY VIA THE RIGHT-IN / RIGHT-OUT FOR GOLD DRIVE AS DEPICTED ON AN APPROVED SITE PLAN.

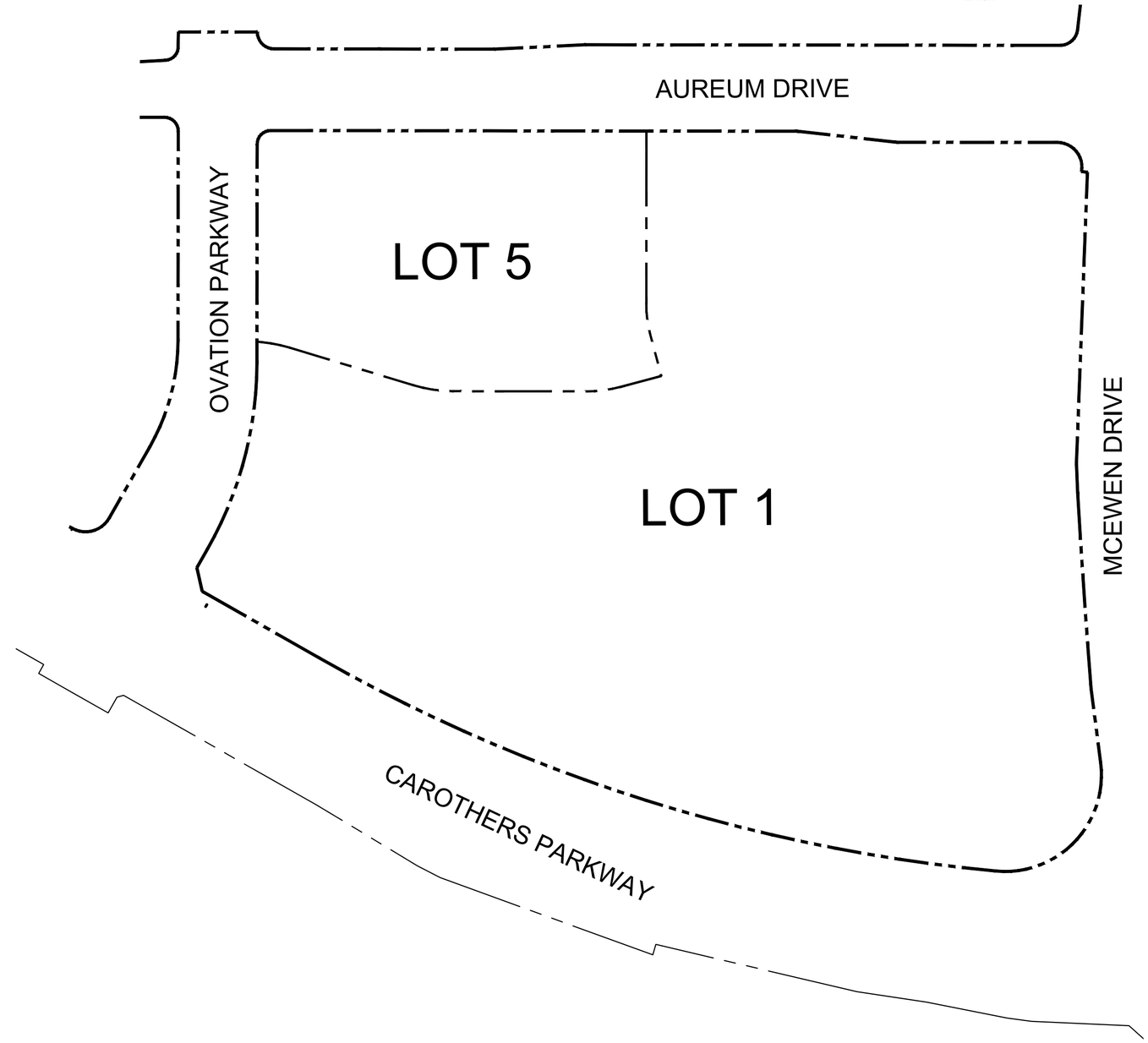
18. ALL UTILITY INFORMATION SHOWN HEREON IS PROPOSED.

19. 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.

20. PARCEL 18.02: BEING THE SAME PROPERTY AS CONVEYED TO SS-CH FRANKLIN, LLC BY QUITCLAIM DEED OF RECORD IN DEED BOOK 7357, PAGE 667 AND SPECIAL WARRANTY DEED OF RECORD IN DEED BOOK 7357, PAGE 661, REGISTER'S OFFICE FOR WILLIAMSON COUNTY, TENNESSEE.

21. NO UTILITY OTHER THAN SANITARY SEWER SHALL BE LOCATED WITHIN EXCLUSIVE SANITARY SEWER EASEMENTS, INCLUDING WHERE EXCLUSIVE SANITARY SEWER EASEMENTS OVERLAP OTHER PUBLIC UTILITY EASEMENTS. UTILITY CROSSINGS MAY BE PERMITTED SUBJECT TO CITY OF FRANKLIN APPROVAL.

22. TREES SHALL BE PRUNED TO A MINIMUM OF EIGHT FEET ABOVE GRADE AND NO FENCES OR OTHER OBSTRUCTIONS SHALL BE TALLER THAN THREE FEET ABOVE GRADE WITHIN SIGHT TRIANGLES FOR STREET INTERSECTIONS AND ROADWAY SIGNAGE PER THE LATEST VERSION OF AASHTO POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.



TOTAL AREA= 664,213 SQUARE FEET OR 15.24 ACRES±

0 150 300

OWNER/DEVELOPERS
SS-CH FRANKLIN, LLC
GLENN WILSON
1620 WESTGATE CIRCLE
SUITE 170
BRENTWOOD, TN 37207
(615) 472-8916
gwilson@southstarco.com

THEODORE JOSEPH STEVENSON II
REGISTERED LAND SURVEYOR
AGRICULTURE
COMMERCE
05/17/2023
TENNESSEE NO. 2136

CERTIFICATE OF OWNERSHIP

I HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY SHOWN HEREON AS OF RECORD IN DEED BOOK 8801, PAGE 319, DEED BOOK 7357, PAGE 667, DEED BOOK 7357, PAGE 661 AND DEED BOOK 8205, PAGE 98, R.O.W.C., TENNESSEE, AND ADOPT THE PLAN OF SUBDIVISION OF THE PROPERTY AS SHOWN HEREON AND DEDICATE ALL PUBLIC WAYS AND EASEMENTS AS NOTED. NO LOT(S) AS SHOWN HEREON SHALL AGAIN BE SUBDIVIDED, RE-SUBDIVIDED, ALTERED, OR CHANGED SO AS TO PRODUCE LESS AREA THAN IS HEREBY ESTABLISHED UNTIL OTHERWISE APPROVED BY THE FRANKLIN MUNICIPAL PLANNING COMMISSION, AND UNDER NO CONDITION SHALL SUCH LOT(S) BE MADE TO PRODUCE LESS AREA THAN IS PRESCRIBED BY THE RESTRICTIVE COVENANTS AS OF RECORD IN BOOK ___, PAGE ___, R.O.W.C., TENNESSEE, RUNNING WITH THE TITLE TO THE PROPERTY. I (WE) FURTHER CERTIFY THAT THERE ARE NO LIENS ON THIS PROPERTY.

SS-CH FRANKLIN, LLC

GLENN WILSON DATE

CERTIFICATE OF SURVEY

I (WE) HEREBY CERTIFY THAT THE SUBDIVISION PLAT AS SHOWN HEREON IS CORRECT AND THAT ALL OF THE MONUMENTS SHOWN HEREON HAVE BEEN PLACED AS INDICATED. THIS SUBDIVISION PLAT CORRECTLY REPRESENTS A SURVEY MADE UNDER MY SUPERVISION ON THE 21ST DAY OF MARCH, 2022. THE RATIO OF PRECISION OF THE UNADJUSTED SURVEY IS 1: 70,373

5/03/2023

TED J. STEVENSON II TN RLS NO. 2136 DATE

CERTIFICATE OF APPROVAL OF SEWER SYSTEM

I HEREBY CERTIFY THAT:(1) THE SEWER SYSTEM DESIGNATED IN AUREUM PUD SUBDIVISION, HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR (2) A PERFORMANCE AGREEMENT AND SURETY IN THE AMOUNT OF $_____FOR THE SEWER SYSTEM HAS BEEN POSTED WITH THE CITY OF FRANKLIN, TENNESSEE, TO ASSURE COMPLETION OF SUCH SYSTEM.

DIRECTOR WATER MANAGEMENT DEPARTMENT DATE
CITY OF FRANKLIN, TENNESSEE

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT:(1) THE WATER SYSTEM DESIGNATED IN AUREUM PUD SUBDIVISION, HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR (2) A PERFORMANCE AGREEMENT AND SURETY IN THE AMOUNT OF $_____FOR THE WATER SYSTEM HAS BEEN POSTED WITH THE MALLORY VALLEY UTILITY DISTRICT TO ASSURE COMPLETION OF SUCH SYSTEM.

MALLORY VALLEY UTILITY DISTRICT DATE

CERTIFICATE OF APPROVAL OF MTEMC

MIDDLE TENNESSEE ELECTRIC MEMBERSHIP CORPORATION (MTEMC) WILL PROVIDE ELECTRIC SERVICE TO THE SUBJECT PROPERTY ACCORDING TO THE NORMAL OPERATING PRACTICES OF MTEMC AS DEFINED IN THE RULES AND REGULATIONS, BYLAWS, POLICY BULLETINS AND OPERATIONAL BULLETINS OF MTEMC, AND IN ACCORDANCE WITH THE PLAT APPROVAL CHECKLIST, TREE PLANTING GUIDELINES AND OTHER REGULATIONS CONTAINED ON THE MTEMC WEBSITE AT WWW.MTEMC.COM ("COLLECTIVELY THE "REQUIREMENTS"). NO ELECTRIC SERVICE WILL BE PROVIDED UNTIL MTEMC'S REQUIREMENTS HAVE BEEN MET AND APPROVED IN WRITING BY AN AUTHORIZED REPRESENTATIVE OF MTEMC. ANY APPROVAL IS, AT ALL TIMES, CONTINGENT UPON CONTINUING COMPLIANCE WITH MTEMC'S REQUIREMENTS.

MIDDLE TENNESSEE ELECTRIC MEMBERSHIP CORPORATION DATE

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE, SIDEWALKS AND GREEN INFRASTRUCTURE

I HEREBY CERTIFY THAT:(A) THE STREETS, DRAINAGE, SIDEWALKS AND GREEN INFRASTRUCTURE DESIGNATED IN AUREUM PUD SUBDIVISION, HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR (B) A PERFORMANCE AGREEMENT AND SURETY IN THE AMOUNT OF $_____ FOR STREETS, $_____ FOR DRAINAGE, $_____ FOR SIDEWALKS AND $_____ FOR GREEN INFRASTRUCTURE HAS BEEN POSTED WITH THE CITY OF FRANKLIN, TENNESSEE, TO ASSURE COMPLETION OF SUCH IMPROVEMENTS.

DIRECTOR, STREETS DEPARTMENT DATE
CITY OF FRANKLIN TENNESSEE

CERTIFICATE OF APPROVAL OF SUBDIVISION NAME, STREET NAMES, AND ADDRESSING

SUBDIVISION NAME AND STREET NAMES APPROVED BY THE WILLIAMSON COUNTY EMERGENCY MANAGEMENT AGENCY.

WILLIAMSON COUNTY EMERGENCY MANAGEMENT AGENCY DATE

CITY OF FRANKLIN DATE

CERTIFICATE OF APPROVAL FOR RECORDING

APPROVED BY THE FRANKLIN MUNICIPAL PLANNING COMMISSION, FRANKLIN, WILLIAMSON COUNTY, TENNESSEE, WITH THE EXCEPTION OF SUCH CONDITIONS, IF ANY, AS ARE NOTED IN THE PLANNING COMMISSION MINUTES FOR THE _____ DAY OF _____,20____ AND THIS PLAT HAS BEEN APPROVED FOR RECORDING IN THE REGISTER'S OFFICE OF WILLIAMSON COUNTY.

SECRETARY, FRANKLIN MUNICIPAL PLANNING COMMISSION DATE

FINAL PLAT

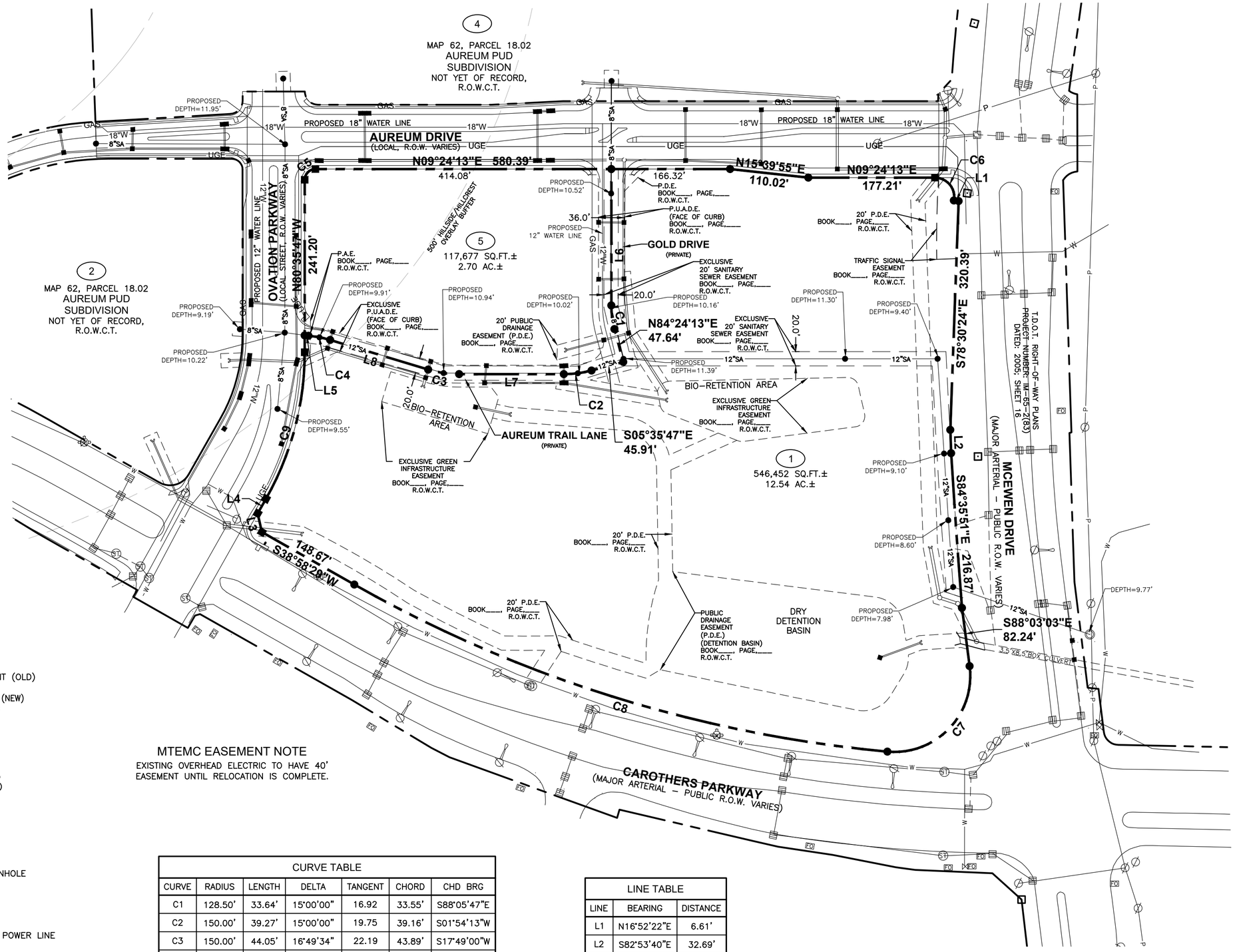
AUREUM PUD SUBDIVISION,

SECTION 1, REVISION 1 (LOT 1 & LOT 5)
McEWEN DRIVE
COF# 8159
9TH CIVIL DISTRICT, CITY OF FRANKLIN,
WILLIAMSON COUNTY, TENNESSEE
SCALE: 1"=100'
DATE: MAY 3, 2023 JOB NO. 22-0349

SHEET 1 of 2

RaganSmith
315 Woodland Street, Nashville, Tennessee 37206
615.244.8591; tstevenson@ragansmith.com
Ted Stevenson

G:\22-0349\1-SURVEY\PLAT\22-0349 PLAT SHEET 1 COVER.DWG



SEE NOTE 1.

0 100 200

OWNER/DEVELOPERS

SS-CH FRANKLIN, LLC
GLENN WILSON
1620 WESTGATE CIRCLE
SUITE 170
BRENTWOOD, TN 37207
(615) 472-8916
gwilson@southstarco.com

JUDSON HOLDINGS, LLC
NICK PAUL
VP OF JUDSON HOLDINGS, LLC
1100 MLK JR. BLVD, STE 500
NASHVILLE, TN 37203
615-344-2079

THEODORE JOSEPH STEVENSON II
REGISTERED LAND SURVEYOR
AGRICULTURE
TENNESSEE NO. 2136

LEGEND

- CM(O) — CONCRETE MONUMENT (OLD)
- CM(N) — CONCRETE MONUMENT (NEW) (4" DIAMETER ALUMINUM DISC W/ 5/8" IRON ROD MARKED "RAGAN-SMITH ASSOCIATES")
- IR(O) — IRON ROD (OLD)
- IR(N) — IRON ROD (NEW) (5/8" X 18" W/CAP STAMPED "RAGAN SMITH & ASSOCIATES")
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- UTILITY POLE
- SANITARY SEWER MANHOLE
- GAS VALVE
- GAS METER
- —P— OVERHEAD ELECTRIC POWER LINE
- —SA— SANITARY SEWER LINE
- —G— GAS LINE
- —W— WATER LINE
- G.I.E. GREEN INFRASTRUCTURE EASEMENT
- P.D.E. PUBLIC DRAINAGE EASEMENT
- P.A.E. PUBLIC ACCESS EASEMENT
- P.U.A.D.E. PUBLIC UTILITY ACCESS AND DRAINAGE EASEMENT
- R.O.W.C.T. REGISTER'S OFFICE FOR WILLIAMSON COUNTY, TENNESSEE

MTEMC EASEMENT NOTE

EXISTING OVERHEAD ELECTRIC TO HAVE 40' EASEMENT UNTIL RELOCATION IS COMPLETE.

CURVE TABLE						
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHD BRG
C1	128.50'	33.64'	15°00'00"	16.92	33.55'	S88°05'47"E
C2	150.00'	39.27'	15°00'00"	19.75	39.16'	S01°54'13"W
C3	150.00'	44.05'	16°49'34"	22.19	43.89'	S17°49'00"W
C4	150.00'	30.96'	11°49'34"	15.54	30.91'	S20°19'00"W
C5	15.00'	23.49'	89°42'46"	14.92	21.16'	N35°44'24"W
C6	27.00'	47.40'	100°35'01"	32.51	41.54'	N59°41'43"E
C7	106.25'	190.42'	102°41'09"	132.83	165.94'	S36°42'28"E
C8	1860.00'	787.66'	24°15'48"	399.82	781.79'	S26°48'18"W
C9	415.50'	214.63'	29°35'47"	109.77	212.25'	N65°47'54"W

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N16°52'22"E	6.61'
L2	S82°53'40"E	32.69'
L3	S86°37'21"W	26.72'
L4	N51°00'00"W	23.57'
L5	S14°24'13"W	5.33'
L6	S80°35'47"E	190.73'
L7	S09°24'13"W	146.38'
L8	S26°13'47"W	143.21'

FINAL PLAT

AUREUM PUD SUBDIVISION,

SECTION 1, REVISION 1 (LOT 1 & LOT 5)

McEWEN DRIVE

COF# 8159

9TH CIVIL DISTRICT, CITY OF FRANKLIN, WILLIAMSON COUNTY, TENNESSEE

SCALE: 1"=100'

DATE: MAY 3, 2023 JOB NO. 22-0349

SHEET 2 of 2

RaganSmith
Nashville - Murfreesboro - Chattanooga
ragansmith.com
315 Woodland Street, Nashville, Tennessee 37206
615.244.8591; tstevenson@ragansmith.com
Ted Stevenson

G:\22-0349\11-SURVEY\PLAT\22-0349 PLAT SHEET 2.DWG

City of Franklin

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

File #: 21-04667

DATE: May 9, 2023

TO: Franklin Municipal Planning Commission

FROM: Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development
Ariella Stanford, Planner

SUBJECT:

Lockwood Glen PUD Subdivision, Final Plat, Section 16, Creating 29 Lots, On 5.92 Acres, Located Between Halswelle Drive and S. Carothers Road. (CONSENT AGENDA)

PURPOSE:

PROJECT INFORMATION
COF Project Number: 8165
Applicant: Ted Terry
Owner: Ted Terry, Lockwood Section 9 & 12, LLC

BACKGROUND/STAFF COMMENTS:
The purpose of this final plat is to create 10 single-family detached lots, 16 townhome residential lots, 3 open space lots, and dedicate right-of-way. The last Development Plan revision was approved with conditions in August 2019 by the Board of Mayor and Aldermen. The most recently approved Site Plan was approved with conditions in March 2021.

PROCEDURAL REQUIREMENTS:
1. In addition to uploading the corrected plat to the online plan review website (https://franklin.contractorsplanroom.com/secure/), the applicant shall submit the Mylar to the Department of Building and Neighborhood Services (Suite 110, Franklin City Hall). The mylar shall be 18 inches by 24 inches in size. The Certificates of Approval for the Subdivision Name and Street Names, Water System (if not COF Water), Survey, and Ownership shall be signed when the plat is resubmitted. The Mylar shall be submitted to BNS within five (5) business days of the corrected electronic plat being uploaded to the online plan review website (or vice versa) or the item shall be rejected as incomplete for City review. 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.
3. The applicant shall upload a .dwg copy of the final plat through the IDT system (link above)

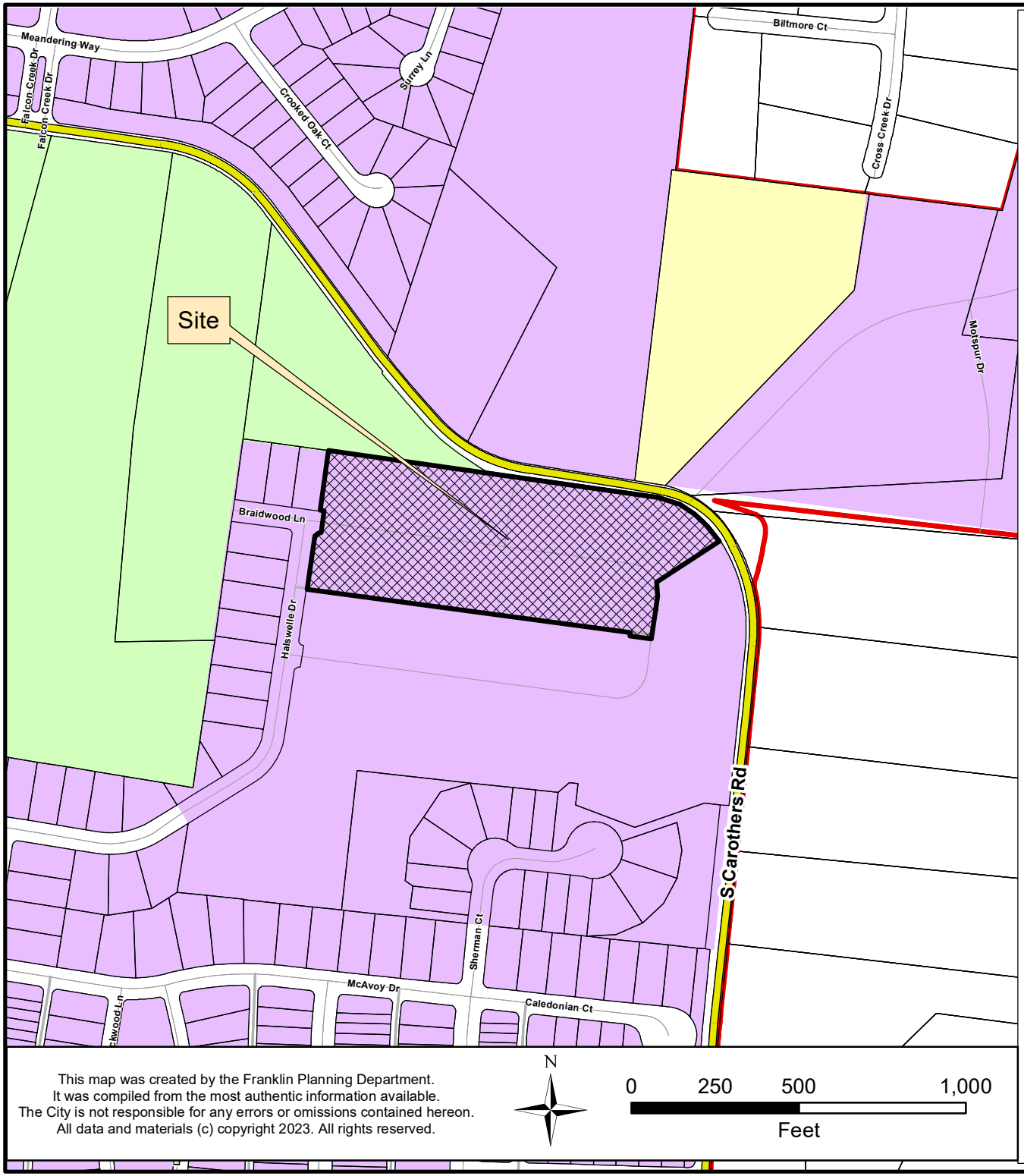
in Tennessee state plan coordinates, NAD 83, NAVD 88, zone 4100/5301 for incorporation of the plat into the Franklin GIS database.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Staff recommends that the Franklin Municipal Planning Commission approve, with conditions, Lockwood Glen PUD Subdivision, Final Plat, Section 16. The conditions of approval are attached.



LOCKWOOD GLEN PUD SUBDIVISION, SECTION 16
FINAL PLAT

Project Information
Existing Zoning: PD Planned District
Overlay Districts: None
Site Acreage: 5.92 acres
Total Number of Lots: 29

Legend

- Lockwood Glen Section 16
- 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.
All data and materials (c) copyright 2023. All rights reserved.

N

0 250 500 1,000
Feet

HISTORIC FRANKLIN TENNESSEE

COF no: 8165

CONDITIONS OF APPROVAL:

Open Issues: 9

Engineering - Final Plat Checklist

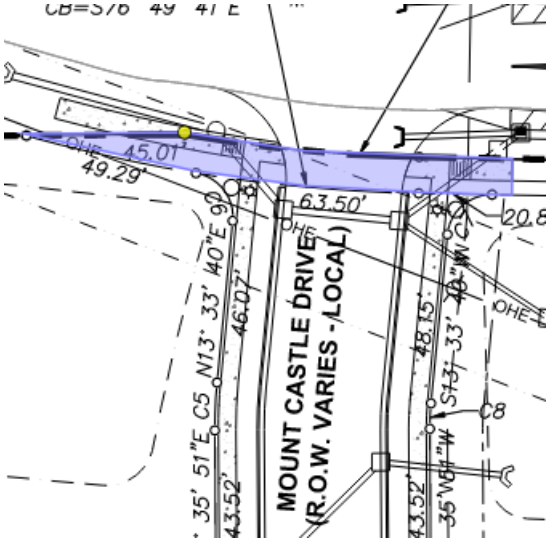
General Issues

8. C. Final Plat

lance.fittro@franklintn.gov	Applicant shall ensure that any changes to Site Plan COF #7151 are reflected on the Final Plat. The Plat shall match the Site Plan.
clay.wallace@eli-llc.com	The site plan from the site plan is being used as the basis for the final plat.
lance.fittro@franklintn.gov	Applicant shall ensure that any changes to Site Plan COF #7151 are reflected on the Final Plat. The Plat shall match the Site Plan.

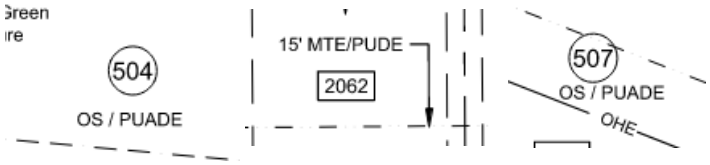
9. C. Final Plat

lance.fittro@franklintn.gov	Developments that adjoin existing streets shall dedicate additional fee simple right-of-way, where necessary, to meet the minimum requirements for the functional street classification of the existing street, or other dimensions as required by the City Engineer. [*City of Franklin Transportation & Street Technical Standards Section 2.2.4 (4)*] Applicant shall show ROW dedication on the plat as was shown on the approved site plan and as necessary for the South Carothers Road widening and realignment project. Provide boundary calls and total area of dedication for the ROW dedication shown on the plat. The ROW dedication associated with the extension of Mount Castle Drive to its connection with South Carothers Road is not eligible for compensation through offsets and shall be provided separate metes and bounds description on the plat to facilitate exclusion of this required ROW dedication from that which is eligible for offsets.
clay.wallace@eli-llc.com	This area has been shown and ROW reservation during all previous discussion with the city and on the previously approved final plat since the dedication is required for the approval of Colletta Park.

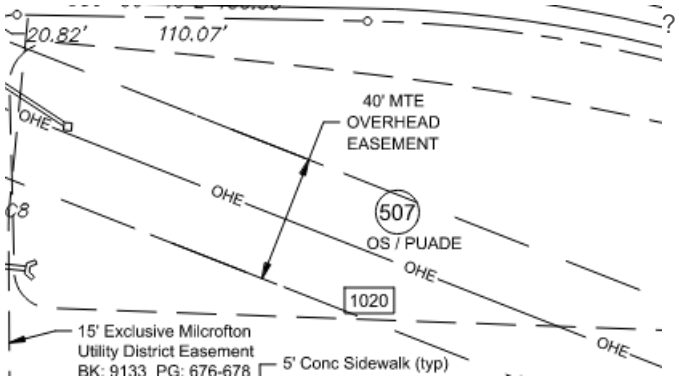
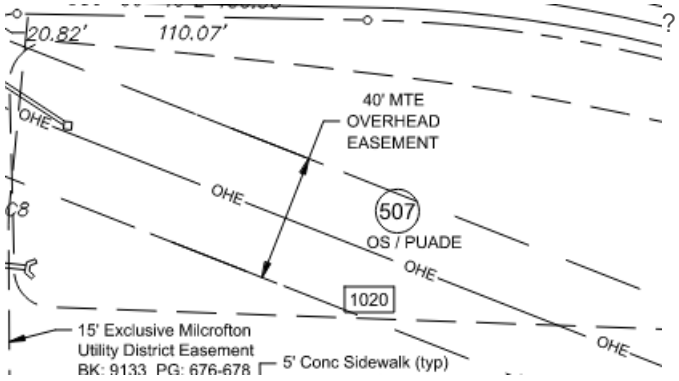
lance.fittro@franklintn.gov	Developments that adjoin existing streets shall dedicate additional fee simple right-of-way, where necessary, to meet the minimum requirements for the functional street classification of the existing street, or other dimensions as required by the City Engineer. [*City of Franklin Transportation & Street Technical Standards Section 2.2.4 (4)*] Applicant shall show the ROW area associated with the extension of Mount Castle Drive to its connection with South Carothers Road, including the proposed sidewalk construction at the intersection, as ROW dedication on the plat. 

11. C. Final Plat

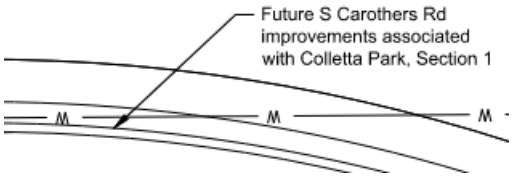
lance.fittro@franklintn.gov	Provide entries in the plat legend to clarify all abbreviated easement types (MTE/PUDE, OS / PUADE, etc)
clay.wallace@eli-llc.com	Legend has been updated

lance.fittro@franklintn.gov	The previous comment, "Provide entries in the plat legend to clarify all abbreviated easement types (MTE/PUDE, OS / PUADE, etc)" has not been properly addressed. All acronyms on the plat (MTE/PUDE, OS / PUADE, etc) shall have an explanation as to the meaning of the acronym: OS = Open Space MTE = Middle Tennessee Electric (easement should be MTEE?) PUADE = Public Utility, Access and Drainage Easement PUDE = Public Utility and Drainage Easement 

12. C. Final Plat

lance.fittro@franklintn.gov	Applicant shall verify ability to install required plantings for the proposed bioretention areas within the MTE Overhead Easement now reflected on the plat which was not shown on the approved Site Plan. In the event there are conflicts between the easement now shown on the plat and the proposed bioretention plantings, the site plan shall be revised to address the conflicts accordingly. 
clay.wallace@eli-llc.com	I will forward along the response from Dale Hood at MTE as soon as we get it
lance.fittro@franklintn.gov	The previous comment has not been addressed. Applicant shall verify ability to install required plantings for the proposed bioretention areas within the MTE Overhead Easement now reflected on the plat which was not shown on the approved Site Plan. In the event there are conflicts between the easement now shown on the plat and the proposed bioretention plantings, the site plan shall be revised to address the conflicts accordingly. 

13. C. Final Plat

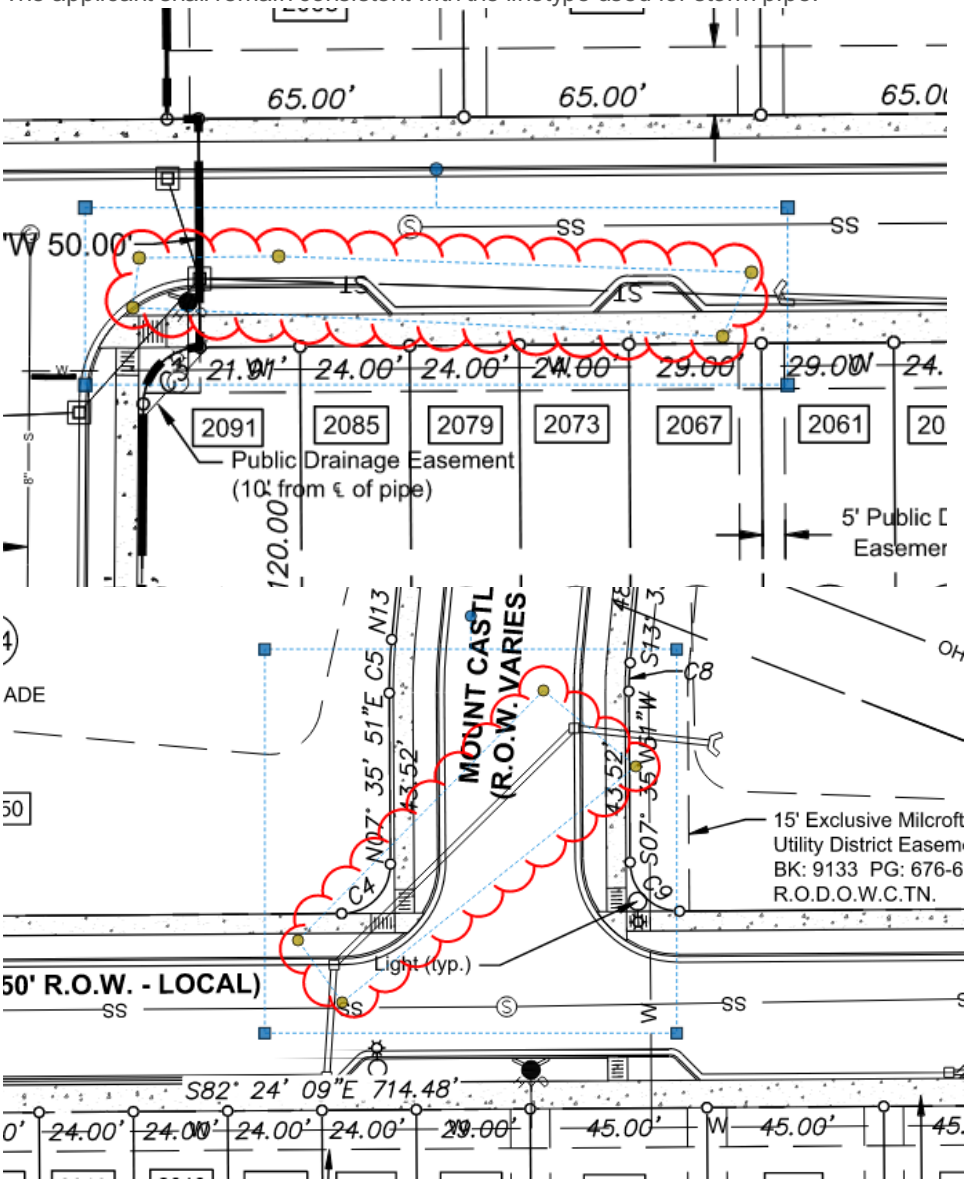
lance.fittro@franklintn.gov	Applicant shall show the location and description of all existing man-made structures and site features (including utilities) both above and below ground. **This is inclusive of the S Carothers Rd roadway pavement and appurtenances as they currently exist.** Proposed realignment of the roadway for which the construction has not yet been completed may also be shown, but shall be clearly indicated as "Proposed".
clay.wallace@eli-llc.com	Existing surveyed S Carothers EOP has is shown
lance.fittro@franklintn.gov	Applicant shall show the location and description of all existing man-made structures and site features (including utilities) both above and below ground. **This is inclusive of the S Carothers Rd roadway pavement and appurtenances as they currently exist.** Show the full existing ROW and pavement extents, drainage structures, etc. Proposed infrastructure for which sureties that ensure its construction will not be posted prior to recording of the plat shall not be shown on the plat. Remove the linework associated with the future S. Carothers Rd improvements associated with Colletta Park Section 1 so that the plat reflects the roadway as it will exist when the plat is recorded. 

15. C. Final Plat

lance.fittro@franklintn.gov	Applicant shall show the ROW width and the functional street classification per the City of Franklin Major Thoroughfare Plan of all public streets (local, major/minor collector, major/minor arterial) on the plat, including South Carothers Road.
clay.wallace@eli-llc.com	ROW and functional classes have been shown and revised for each road
lance.fittro@franklintn.gov	Applicant shall show the ROW width and the functional street classification per the City of Franklin Major Thoroughfare Plan of all public streets (local, major/minor collector, major/minor arterial) on the plat, including South Carothers Road **as it exists today**.

16. C. Final Plat

dustin.walcott@franklintn.gov	The applicant shall remain consistent with the linetype used for storm pipe.



clay.wallace@eli-llc.com	The ---ST---- linetype is used to indicate existing or drainage pipes associated with a previous section. This linetype has been added to the legend.
dustin.walcott@franklintn.gov	Please use the same line-type/symbols for all storm water elements. No need to differentiate existing vs. proposed on a final plat, as this is not a construction document.

18. C. Final Plat

lance.fittro@franklintn.gov	Applicant shall provide all "black" line work on the plat to facilitate reproduction from the recorded mylar. Grayscale, "screened," or color line work becomes muddy and does not duplicate well when reproduced from the recorded mylar, which results in a lack of clarity and loss of information when the plat is reprinted. Use line thickness (bold / thin) and hatching to differentiate areas instead of grayscale or color. Where additional clarity is needed in crowded areas of line work, blow-ups or breaking the plat into multiple sheets with match lines is preferable to screened line work for legibility.

Performance Agreement and Surety

General Issues

1. Engineering Sureties

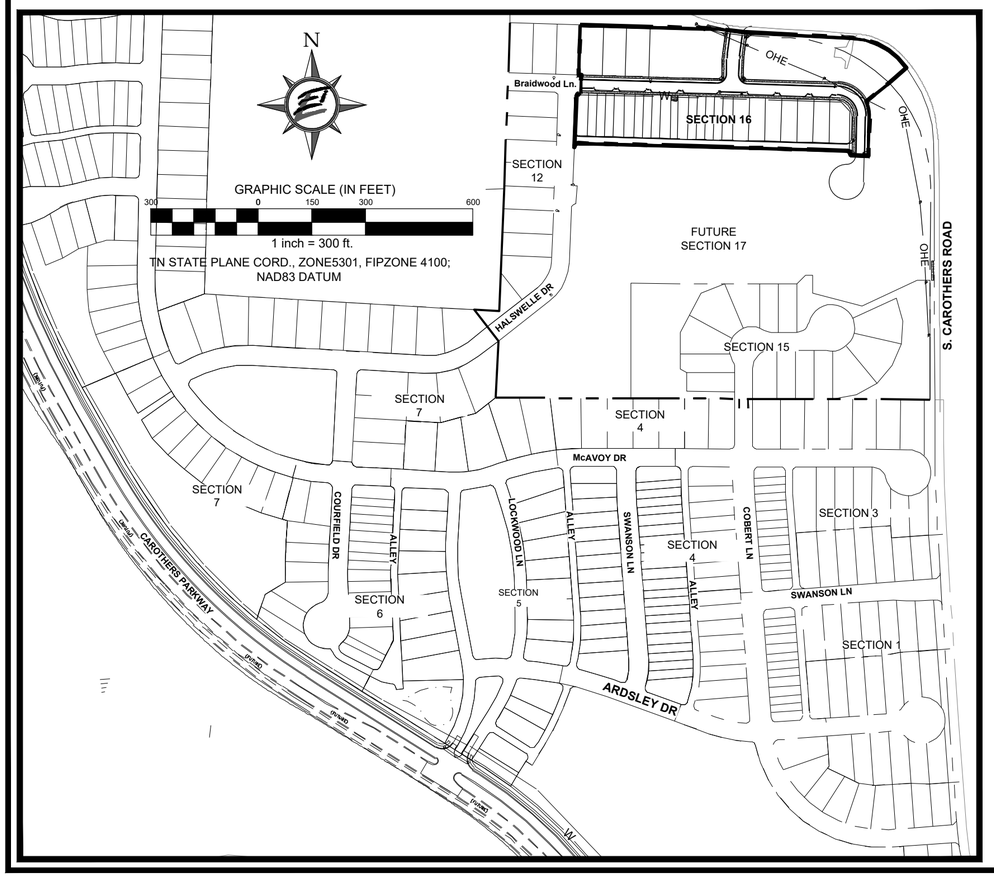
kevin.long@franklintn.gov	Any unposted sureties associated with this development from site plan: **COF #7151 (Lockwood Glen PUD Subdivision, Site Plan, Section 16)** shall be transferred to this final plat as a condition of approval. ***(This comment serves only as a reminder to staff and does not hinder approval. No response is necessary from the applicant beyond "N/A" or "Acknowledged" to satisfy requirements of the IDT system.)***
clay.wallace@eli-llc.com	Noted
kevin.long@franklintn.gov	Any unposted sureties associated with this development from site plan: **COF #7151 (Lockwood Glen PUD Subdivision, Site Plan, Section 16)** shall be transferred to this final plat as a condition of approval. ***(This comment serves only as a reminder to staff and does not hinder approval. No response is necessary from the applicant beyond "N/A" or "Acknowledged" to satisfy requirements of the IDT system.)***

Site Data

Project Name:	Lockwood Glen PUD Subdivision - Section 16
COF Project #:	8165
Subdivision:	Lockwood Glen
Lot numbers:	Lots 327-352
Address:	South Carothers Road
City:	Franklin
County:	Williamson
State:	Tennessee
Civil District:	14th
Existing zoning:	PD
Applicable development standard:	NA
Other Overlays:	FFO, FWO (does not exist in this section)
Acreage of site:	5.92 acres
Minimum required setback lines:	Manor Lots (327-329)
Front:	15 Feet
Side:	5 Feet
Rear:	10 Feet
Minimum required setback lines:	Cottage Lots (346-352)
Front:	8 Feet
Side:	5 Feet
Rear:	4 Feet Min. or 19 Feet Min.
Minimum required setback lines:	Townhome Lots (330-339 & 340-345)
Front:	8 Feet
Side:	5 Feet
Rear:	4 Feet Min. or 19 Feet Min.
Owners representative:	Lockwood Section 9 & 12, LLC
Address:	572 Savannah Highway Charleston, SC 29407
Phone number:	(843) 906-4768
Email address:	T.Terry@crescenthomes.net
Contact name:	Ted Terry
Applicant:	Energy Land & Infrastructure
Address:	1420 Donelson Pike, Suite A12 Nashville, TN 37217
Phone number:	(615) 383-6300
Fax number:	(615) 383-6341
Email address:	Clay.Wallace@eli-llc.com
Contact name:	Clay Wallace
Engineer / Land Surveyor:	Energy Land & Infrastructure
Address:	1420 Donelson Pike, Suite A12 Nashville, TN 37217
Phone number:	(615 383-6300
Fax number:	(615) 383-6341
Contact names:	Bennie Wheeler

Notes

1. The purpose of this plat is to create 10 single-family detached and 16 townhome residential lots, 3 open space lot, and dedicate right-of-way.
2. This property is not located within a flood hazard area as per FEMA FIRM Community Map No. 47187CO214 G, dated December 22, 2016.
3. The lots shall be served by water from Milcrofton Utility District and sewer from the City of Franklin. Individual water and/or sanitary sewer service lines are required for each parcel.
4. Parcel ID's shown thus (000) pertain to property map 089.
5. All property corners not designated otherwise shall be marked with 1/2" iron rods x 18" long with plastic caps.
6. Bearings based on Tennessee State Plan Coordinate System, Zone 5301, Fipszone 4100; NAD 83 datum.
7. Within new development 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.
8. All street light locations and quantities are approximate. Final positioning and quantity shall be at direction of MTEMC.
9. All open space shall be maintained by the HOA or Property Owner(s) and shall be Public Utility, Drainage and Access Easements.
10. Homeowner's association will maintain all open space, landscape and detention/retention areas, and all sidewalks and pathways located outside public rights-of-way. All roadways shall be public streets constructed to the City of Franklin specifications in public rights-of-way.
11. All Milcrofton Utility District (MUD) easements are exclusive easements. No excavation, building, structure, or obstruction of any kind may be constructed or permitted within the easements, except pavement for a driveway that crosses an easement. No trees or shrubbery may be planted within the easements. MUD will have unrestricted access to all of its lines, meters, valves, vaults, and other water system facilities within the easements without seeking any further permission. MUD has the right to disturb or remove any impermissible items within the easements. The property owner will be responsible for repairing or replacing any such items at the property owner's expense.
12. Unless otherwise designated on the recorded plat, a 10' wide public drainage easement shall exist along all common building lot lines (5' on each side of common lot line) the common building lot line being the center line of said easement. The owner or master developer reserves the right to enter upon all lots to establish or re-establish drainage swales within said easements for the purpose of controlling and directing storm water to collection facilities.
13. Maintenance of all storm water management features, including lot line swales, shall be the responsibility of the property owner(s) or HOA.
14. Sidewalks and trails outside of public right-of-way shall be public access easements and shall be maintained by the Homeowners Association.
15. No obstructions or encroachments which impede the flow of stormwater shall be permitted within the Public Drainage Easements. The City of Franklin is not responsible for repair or replacement of any encroachments that are damaged or removed in the course of maintenance activities within easements.
16. The City of Franklin Water Management department has unrestricted access to its domestic water, sanitary sewer, reclaim water lines of system improvement located within its exclusive easements within the development. In the event landscaping, fencing, concrete or other structures are installed or placed within a City of Franklin easement, the City of Franklin shall have the right to remove such encroachments within the easement as may be necessary for the City of Franklin to repair, maintain or replace its infrastructure which is now or in the future may by located within the easement without obtaining any further permission from the owner or H.O.A. The property owner or H.O.A. shall be responsible for repairing and/or replacing any such landscaping fencing concrete or other structures removed or disturbed by the City of Franklin in common open space lots and in areas owned by the property owner or H.O.A. at no expense to the City of Franklin. Individual homeowners shall be responsible for structures removed or disturbed by the City of Franklin within an easement on the homeowners' lot at the homeowners' expense.
17. Any and all mineral rights for the subject property shall transfer to the owner.
18. Any side elevation visible from a street shall have the same degree of architectural details as the front facade.
19. Green Infrastructure Easements (GIE) are exclusive easements defining areas set aside for the construction, maintenance, repair, monitoring and other activities necessary for the furtherance of water quality features designated as green infrastructure practices by the City of Franklin, and provide public access to such features. Any and all activities, except as specifically permitted by notation on the current plat of record and/or within the recorded Long Term Maintenance Agreement, shall be strictly prohibited without the written consent of the City Engineer or his designee.
20. Trees shall be pruned to a minimum of eight feet above grade and no fences or other obstructions shall be taller than three feet above grade within sight triangles for street intersections and roadway signage per the latest version of AASHTO Policy on Geometric Design of Highways and Streets.
21. There shall be no direct access lots in Section 16 from South Carothers Road.



Total area: 274,286 S.F. or 6.30 Acres

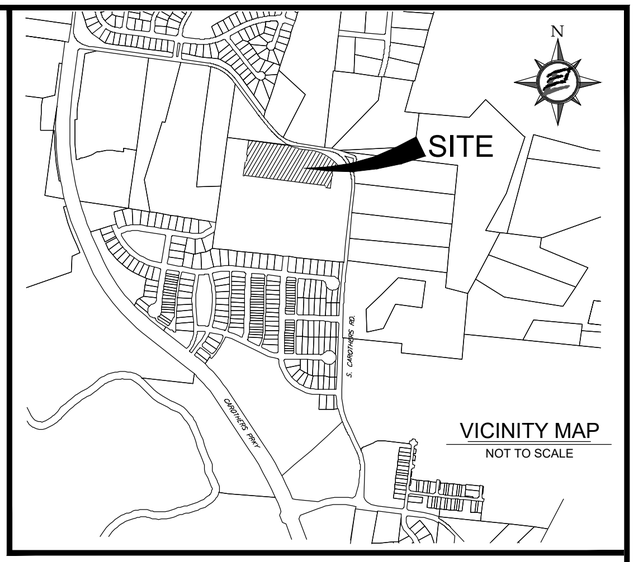
Road Data:

Acreage in new roads including alley right-of-ways	1.60 Acres
Linear footage of new roads	1879 Feet

Deed Reference

TAX MAP 089, PART OF PARCEL 43.01
Owner: Lockwood Section 9 & 12, LLC
P/O Deed Book 7809 ,Page 470
Register's Office for Williamson County, TN

Tennessee811 Know what's below. Call before you dig.



Utility Disclaimer

Energy, Land and Infrastructure, LLC (ELI, LLC) has not physically located the underground utilities. Above grade and underground utilities shown were taken from visible appurtenances at the site, public records and/or maps prepared by others. ELI, LLC makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. ELI, LLC further does not warrant that the underground utilities are in the exact location indicated. Therefore, reliance upon the type, size and location of utilities shown should be done so with this circumstance considered. Detailed verification of existence, location and depth should also be made prior to any decision relative thereto is made. Availability and cost of service should be confirmed with the appropriate utility company. In Tennessee, it is a requirement, per "The Underground Utility Damage Prevention Act", that anyone who engages in excavation must notify all known underground utility owner, no less than three (3) nor more than ten (10) working days prior to the date of their intent to excavate and also to avoid any possible hazard or conflict. Tennessee One Call 811.

Certificate Of Ownership

I (we) hereby certify that I am (we are) the owner(s) of the property shown hereon as of record in Book 7809, Page 470, R.O.W.C., Tennessee and that I (we) hereby adopt this plan of subdivision of the property as shown hereon and dedicate all public ways and easements as noted. No lot or lots as shown hereon shall again be subdivided, re-subdivided, altered or changed so as to produce less area than is hereby established until otherwise approved by the Franklin Municipal Planning Commission and under no condition shall such lot or lots be made to produce less area than is prescribed by the restrictive covenants as of record in Book _____ , Page _____ , R.O.W.C., Tennessee, running with the title to the property. I (we) further certify that there are no liens on this property.

_____ _____
Owner Date

Owner Information
Mark Nosal
Lockwood Section 9 & 12, LLC
572 Savannah Highway
Charleston, SC 29407

MTEMC Certificate of Approval for Recording

Middle Tennessee Electric Membership Corporation (MTEMC) will provide electric service to the subject property according to normal operating practices of MTEMC as defined in the rules and regulation, bylaws, policy bulletins and operational bulletins of MTEMC, and in accordance with the plat approval checklist, tree planting guidelines and other regulations contained on the MTEMC website at www.mtemc.com (collectively the "Requirements"). No electric service will be provided until MTEMC's Requirements have been met and approved in writing by an authorized representative of MTEMC. Any approval is, at all times, contingent upon continuing compliance with MTEMC's Requirements.

_____ _____
Middle Tennessee Electric Membership Corporation Date

Certificate Of Survey

I hereby certify that the subdivision plat shown hereon is correct and that approved monuments shown hereon will be placed as indicated upon completion of construction. All side lot lines are at right angles or radial to a street unless otherwise noted. I further certify that this plat exceeds the minimum requirements for a Federal Geodetic Control Standards pursuant to Chapter 0820-2, Section 4 of the Department of Insurance Standards of Practice for Land Surveyors, having a ratio of precision of the unadjusted survey greater than 1:10,000.

BENNIE O. WHEELER REGISTERED LAND SURVEYOR XVI AGRICULTURE COMMERCE TENNESSEE NO. 1546
5 / 3 / 2023

Surveyor Information
Bennie O. Wheeler, R.L.S.
ELI, LLC
1420 Donelson Pike, Suite A12
Nashville, Tn 37217
Phone: 615-383-6300
Email: Bennie.Wheeler@eli-llc.com

Certificate Of Approval of Subdivision Name, Street Names, and Addressing

Subdivision name and street names approved by the Williamson County Emergency Management Agency.

_____ _____
Williamson County Emergency Management Agency Date

_____ _____
City of Franklin Date

Certificate Of Approval of Sewer Systems

I hereby certify that:
(1) The sewer system designated in Lockwood Glen PUD Subdivision - Section 16 has been installed in accordance with City specifications, or
(2) A performance agreement and surety in the amount of $ _____ for the sewer system has been posted with the City of Franklin, Tennessee, to assure completion of such systems.

_____ _____
Director, Water Management Department Date
City of Franklin, Tennessee

Certificate Of Approval of Water

I hereby certify that:
(1) The water system designated in Lockwood Glen PUD Subdivision - Section 16 has been installed in accordance with MUD specifications, or
(2) A performance agreement and surety in the amount of $ _____ for the water system has been posted with the Milcrofton Utility District to assure completion of such improvements.

_____ _____
General Manager, Milcrofton Utility District Date

Certificate Of Approval of Streets, Drainage, and Sidewalks

I hereby certify that:
(1) the streets, drainage, and sidewalks designated in Lockwood GlenPUD Subdivision - Section 16 has been installed in accordance with City specifications, or
(2) a performance agreement and surety in the amount of $ _____ for streets, $ _____ for access, $ _____ for drainage,
and $ _____for sidewalks has been posted with the City of Franklin, Tennessee, to assure completion of such improvements.

_____ _____
Director, Streets Department Date
City of Franklin, Tennessee

Certificate Of Approval for Recording

Approved by the Franklin Municipal Planning Commission, Franklin, Williamson County, Tennessee, with the exception of such conditions, if any, as are noted in the Planning Commission minutes for the _____ day of _____,
20 ___ , and this plat has been approved for recording in the Register's Office of Williamson County.

_____ _____
Secretary, Franklin Municipal Planning Commission Date

LOCKWOOD GLEN PUD SUBDIVISION FINAL PLAT SECTION 16

SHEET 1 OF 2

14th CIVIL DISTRICT
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE
CITY OF FRANKLIN PROJECT # 8165
DATE: April 3, 2023
REV: May 3, 2023

ENERGY LAND & INFRASTRUCTURE
1420 DONELSON PIKE, SUITE A12 • NASHVILLE, TN 37217
OFFICE 615-383-6300 • WWW.ELI-LLC.COM
ENGINEERS•SURVEYORS•INFRASTRUCTURE•ENVIRONMENTAL

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Legend

- Fire Hydrant
- W — Water Line
- SS — Sewer Line
- Public Drainage Easement
- Exclusive Green Infrastructure Easement
- MTE Easement
- MUD Easement
- ST — Existing Stormwater Inlet
- Proposed Stormwater Inlet
- Concrete Sidewalk
- Sidewalk Ramp
- 1 — Lot Number
- 325 — Address Number
- Landscape Easement
- S — Sewer Manhole
- Iron Rod (New)

N

GRAPHIC SCALE (IN FEET)
50 0 25 50 100
1 inch = 50 ft.

TN STATE PLANE CORD., ZONE5301,
FIPZONE 4100; NAD83 DATUM

☼ = Critical Lots for Grading. These lots will require submittal of a Critical Lot Site Plan with the building permit submittal.

Robert & Nicole Russell
Map 089f, Parcel 44.00
4341 S Carothers Road
DB 6264, PG 672

Landscape Easement

10'

S82° 24' 09"E 345.76'

L=63.50'
R=442.29'
Δ=8°13'36"
CL=63.45'
CB=S76° 49' 41"E

L=66.85'
R=432.00°
Δ=8°51'56"
CL=66.78'
CB=S76° 30' 31"E

Future S Carothers Rd improvements associated with Colletta Park, Section 1

PREVIOUS R.O.W.

S. CAROTHERS RD.
(75' PROPOSED ROW - MINOR COLLECTOR)

S80° 56' 29"E 304.54'

S80° 56' 46"E 130.90'

L=309.83'
R=413.50'
Δ=42°55'51"
CL=302.63'
CB=S59° 28' 50"E

L=178.08'
R=195.00°
Δ=52°19'22"
CL=171.95'
CB=S54° 46' 48"E

S54° 46' 27"W 64.12'

S57° 27' 00"W 80.93'

R.O.W. Reservation
OS / PUADE

20' Public Drainage Easement

Exclusive Green Infrastructure Easement

504
OS / PUADE

MOUNT CASTLE DRIVE
(R.O.W. VARIES - LOCAL)

40' MTE OVERHEAD EASEMENT
BK 8611, PG 117

507
OS / PUADE

1020

Exclusive Green Infrastructure Easement

15' Exclusive Milcrofton Utility District Easement
BK 9133 PG 676-678
R.O.D.O.W.C.TN.

5' Conc Sidewalk (typ)

S82° 24' 09"E 249.20'

Lockwood Glen PUD
Subdivision, Section 12
Plat Book 77, Page 118

326

327 328 329

2068 2062 2056 2050

15' MTE/PUDE

N07° 35' 51"E 140.00'

65.00' 65.00' 65.00' 191.12'

S82° 24' 09"E 379.28'

BRAIDWOOD LANE (50' R.O.W. - LOCAL)

Light (typ.)

8" Sanitary Sewer (typ.)

S07° 35' 51"W 50.00'

Existing Waterline

8" Waterline (typ.)

S82° 24' 09"E 714.48'

2091 2085 2079 2073 2067 2061 2055 2049 2043 2037 2031 2025 2019 2013 2007 2001 1043 1037 1031 1025 1019 1013 1007 1001

Public Drainage Easement (10' from ℄ of pipe)

5' Public Drainage Easement (typ.)

Mail Kiosk

10' Exclusive Milcrofton Utility District Easement (typ.)

7' Conc Sidewalk (typ)

323

Existing Sanitary Sewer

330 331 332 333 334 335 336 337 338 339 505 340 341 342 343 344 345 346 347 348 349 350 351 352

OS / PUADE

Public Drainage Easement (10' from ℄ of pipe)

Lockwood Glen PUD
Subdivision, Section 12
Plat Book 77, Page 118

322

N82° 24' 09"W 746.37'

ALLEY "A" (20' R.O.W. - ALLEY)

N82° 24' 09"W 747.05'

HALSWELLE LANE
(50' R.O.W. - LOCAL)

321

L=20.23'
R=13.00°
Δ=89°09'25"
CL=18.25'
CB=S53° 01' 09"W

S82° 24' 09"E 50.00'

L=20.42'
R=13.00°
Δ=90°00'00"
CL=18.38'
CB=N37° 24' 09"W

20' Public Sanitary Sewer Easement
BK 8561 PG 806-811

"Street to be extended by the authority of the City of Franklin" sign per City of Franklin specifications)

Existing Sanitary Sewer

Sewer Outfall Is Located Cobert Lane

Lockwood Glen PUD Subdivision
Section 17 (FUTURE)

REAR 10' TYP. — 140' TYP. — 5' TYP. — 15' TYP. — 65' MIN.
STREET ACCESS
MANOR HOMES

REAR 4' or 19' MIN. — 120' TYP. — 5' TYP. — 8' TYP. — 45' MIN.
STREET ACCESS
GRADEN HOMES

REAR 4' or 19' MIN. — 120' TYP. — 5' TYP. — 8' TYP. — 24' MIN.
STREET ACCESS
TOWN HOMES

YARD SETBACK DIAGRAMS

Lot Table		
Lot #	Square Feet	Acres
327	9100	0.21
328	9100	0.21
329	9100	0.21
330	4143	0.10
331	2880	0.07
332	2880	0.07
333	2880	0.07
334	3480	0.08
335	3480	0.08
336	2880	0.07
337	2880	0.07
338	2880	0.07
339	3480	0.08

Lot Table		
Lot #	Square Feet	Acres
340	3480	0.08
341	2880	0.07
342	2880	0.07
343	2880	0.07
344	2880	0.07
345	3480	0.08
346	5400	0.12
347	5400	0.12
348	5400	0.12
349	5400	0.12
350	5400	0.12
351	5400	0.12
352	6937	0.16

Open Space Table		
Lot #	Square Feet	Acres
504	28323	0.65
505	2400	0.06
507	40695	0.93

R.O.W. Table		
Lot #	Square Feet	Acres
R.O.W. Reservation	15971	0.37
ROW	69917	1.61

Curve Table						
Curve #	Length	Radius	Delta	Chord Direction	Chord Length	Tangent
C2	20.61	13.00	90°50'35"	S36° 58' 51"E	18.52	13.19
C3	19.45	12.50	89°09'25"	S53° 01' 09"W	17.55	12.32
C4	19.63	12.50	90°00'00"	N52° 35' 51"E	17.68	12.50
C5	13.58	130.50	5°57'48"	S10° 34' 46"W	13.58	6.80
C6	18.82	12.50	86°16'33"	N29° 34' 37"W	17.09	11.71
C7	18.65	12.50	85°29'34"	N56° 18' 27"E	16.97	11.55
C8	7.23	69.50	5°57'48"	S10° 34' 46"W	7.23	3.62
C9	19.63	12.50	90°00'00"	S37° 24' 09"E	17.68	12.50
C10	147.65	94.00	90°00'00"	N37° 24' 09"W	132.94	94.00
C11	69.12	44.00	90°00'00"	N37° 24' 09"W	62.23	44.00
C13	20.42	13.00	90°00'00"	N52° 35' 51"E	18.38	13.00

BENNIE O. WHEELER
REGISTERED LAND SURVEYOR
XVI
AGRICULTURE COMMERCE
TENNESSEE NO. 1546

5 / 3 / 2023

LOCKWOOD GLEN PUD SUBDIVISION FINAL PLAT SECTION 16

SHEET 2 OF 2

14th CIVIL DISTRICT
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE
CITY OF FRANKLIN PROJECT # 8165
DATE: April 3, 2023
REV: May 3, 2023

ENERGY LAND & INFRASTRUCTURE
1420 DONELSON PIKE, SUITE A12 • NASHVILLE, TN 37217
OFFICE 615-383-6300 • WWW.ELI-LLC.COM
ENGINEERS•SURVEYORS•INFRASTRUCTURE•ENVIRONMENTAL

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City of Franklin

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

File #: 21-04668

DATE: May 9, 2023

TO: Franklin Municipal Planning Commission

FROM: Emily Wright, Director of Planning and Sustainability
Amy Diaz-Barriga, Asst Director of Planning Development
Ariella Stanford, Planner

SUBJECT:

Lockwood Glen PUD Subdivision, Final Plat, Section 17, Creating 51 Lots, On 11.77 Acres, Located Between Halswelle Drive and S. Carothers Road. (CONSENT AGENDA)

PURPOSE:

PROJECT INFORMATION
COF Project Number: 8164
Applicant: Ted Terry
Owner: Ted Terry, Lockwood Section 9 & 12, LLC

BACKGROUND/STAFF COMMENTS:
The purpose of this final plat is to create 27 townhome lots, 15 cottage home lots, 6 manor lots, 1 garden lot, 2 open space lots, and reserve and dedicate right-of-way. The corresponding Development Plan was approved with conditions in August 2019. The corresponding Site Plan was approved with conditions in June 2020.

PROCEDURAL REQUIREMENTS:
1. In addition to uploading the corrected plat to the online plan review website (https://franklin.contractorsplanroom.com/secure/), the applicant shall submit the Mylar to the Department of Building and Neighborhood Services (Suite 110, Franklin City Hall). The mylar shall be 18 inches by 24 inches in size. The Certificates of Approval for the Subdivision Name and Street Names, Water System (if not COF Water), Survey, and Ownership shall be signed when the plat is resubmitted. The Mylar shall be submitted to BNS within five (5) business days of the corrected electronic plat being uploaded to the online plan review website (or vice versa) or the item shall be rejected as incomplete for City review. 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.
3. The applicant shall upload a .dwg copy of the final plat through the IDT system (link above)

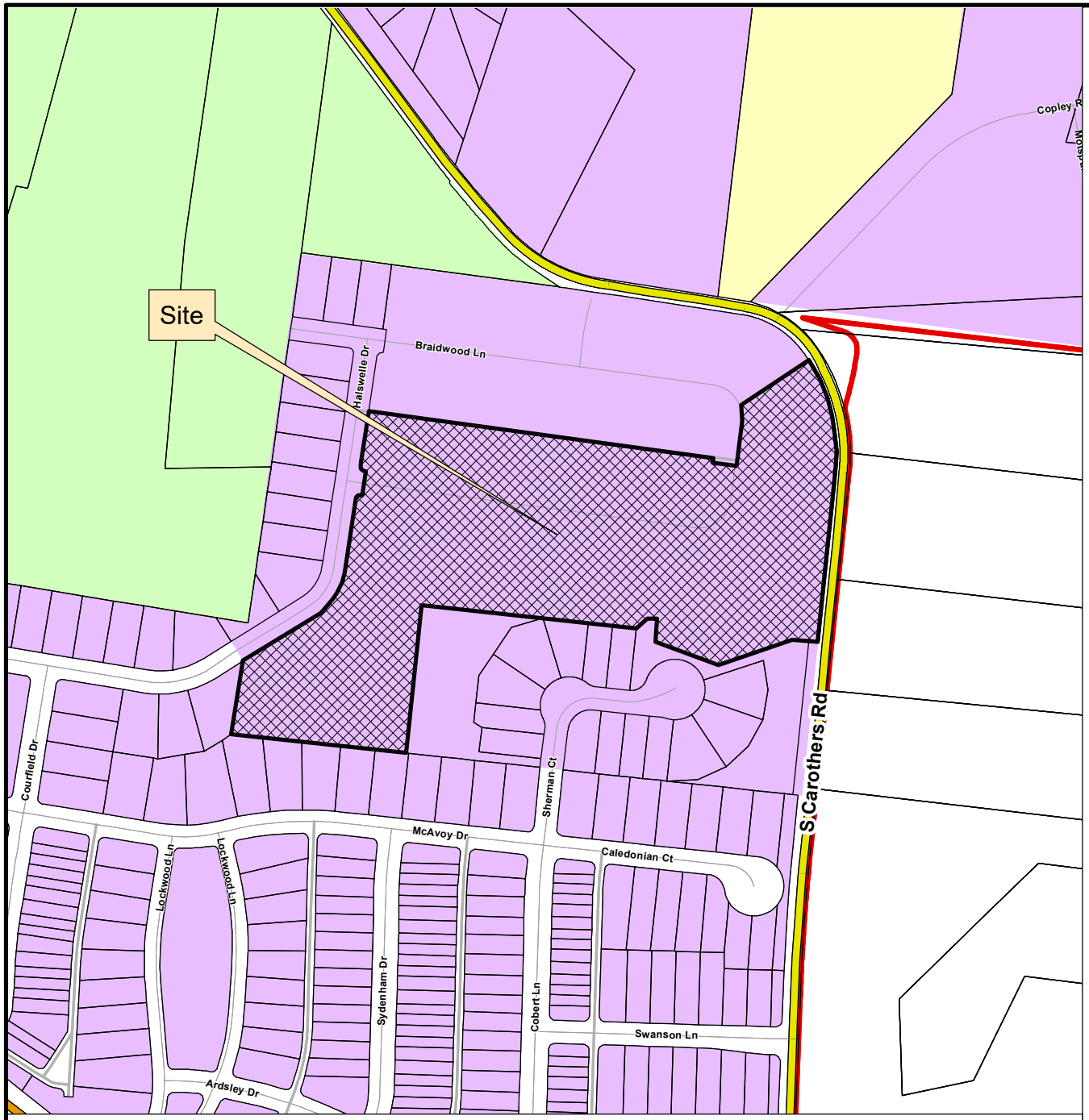
in Tennessee state plan coordinates, NAD 83, NAVD 88, zone 4100/5301 for incorporation of the plat into the Franklin GIS database.

FINANCIAL IMPACT:

Unknown.

RECOMMENDATION:

Staff recommends that the Franklin Municipal Planning Commission approve, with conditions, Lockwood Glen PUD Subdivision, Final Plat, Section 17. The conditions of approval are attached.



LOCKWOOD GLEN PUD SUBDIVISION, SECTION 17
FINAL PLAT

Project Information
Existing Zoning: PD Planned District
Overlay Districts: None
Site Acreage: 11.77 acres
Total Number of Lots: 51

Legend

- Lockwood Glen Section 17
- 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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N

0 250 500 1,000
Feet

HISTORIC FRANKLIN TENNESSEE

COF no: 8164

CONDITIONS OF APPROVAL:

Open Issues: 7

Engineering - Final Plat Checklist

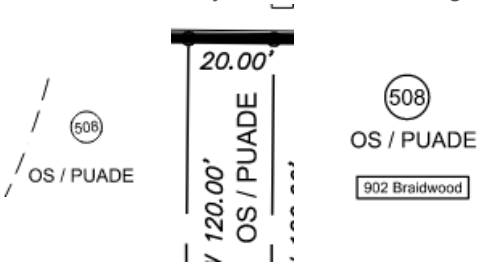
General Issues

3. C. Final Plat

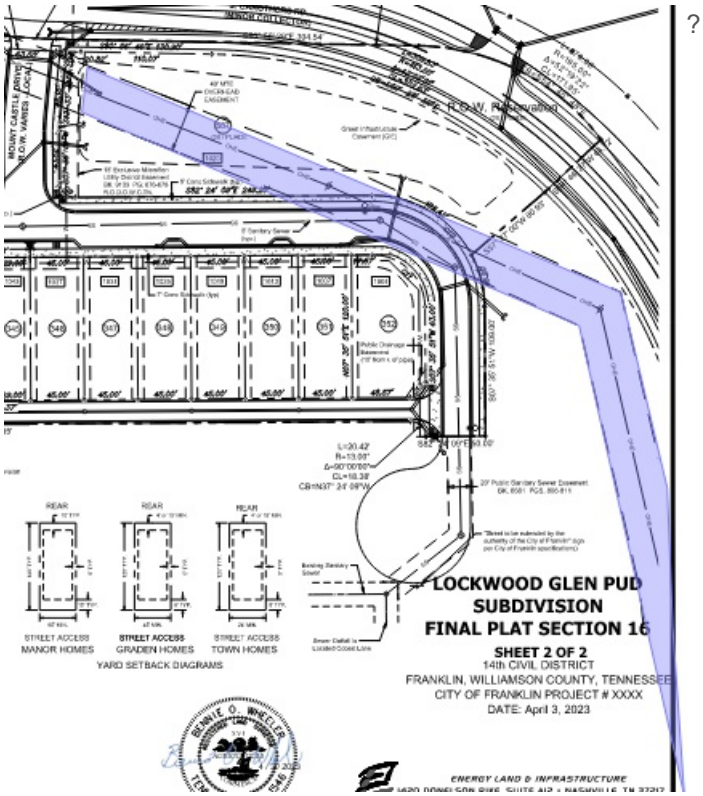
lance.fittro@franklintn.gov	Applicant shall ensure that any changes to the site plan: **COF #7244 (Lockwood Glen PUD Subdivision, Site Plan, Section 17, Revision 1)** are reflected on the Final Plat. The Plat shall match the Site Plan.
clay.wallace@eli-llc.com	Section 17 site plan base is used for the base of the final plat
lance.fittro@franklintn.gov	Applicant shall ensure that any changes to the site plan: **COF #7244 (Lockwood Glen PUD Subdivision, Site Plan, Section 17, Revision 1)** are reflected on the Final Plat. The Plat shall match the Site Plan.

14. C. Final Plat

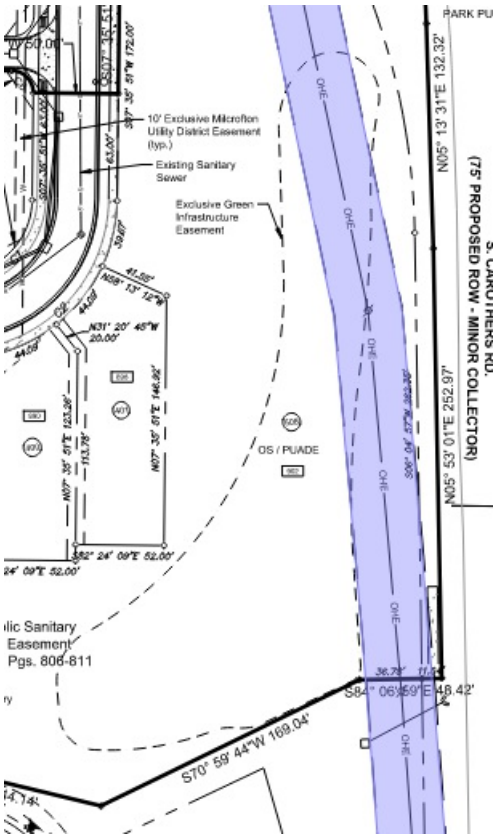
lance.fittro@franklintn.gov	Provide entries in the plat legend to clarify all abbreviated easement types (MTE/PUDE, OS / PUADE, etc)
clay.wallace@eli-llc.com	Legend has been revised
lance.fittro@franklintn.gov	The previous comment, "Provide entries in the plat legend to clarify all abbreviated easement types (MTE/PUDE, OS / PUADE, etc)" has not been properly addressed. All acronyms on the plat (MTE/PUDE, OS / PUADE, etc) shall have an explanation as to the meaning of the acronym: OS = Open Space MTE = Middle Tennessee Electric PUADE = Public Utility, Access and Drainage Easement



15. C. Final Plat

lance.fittro@franklintn.gov	Applicant shall verify ability to install required plantings for the proposed bioretention areas within the MTE Overhead Easement now reflected on the Section 16 plat (and presumably to be extended across the Section 17 area as well) which was not shown on the approved Site Plan. In the event there are conflicts between the easement now shown on the plat and the proposed bioretention plantings, the site plan shall be revised to address the conflicts accordingly.  ?
clay.wallace@eli-llc.com	This will be verified with Dale Hood at MTE

lance.fittro@franklintn.gov	The previous comment has not been addressed. Applicant shall verify ability to install required plantings for the proposed bioretention areas within the MTE Overhead Easement now reflected on the plat which was not shown on the approved Site Plan. In the event there are conflicts between the easement now shown on the plat and the proposed bioretention plantings, the site plan shall be revised to address the conflicts accordingly.

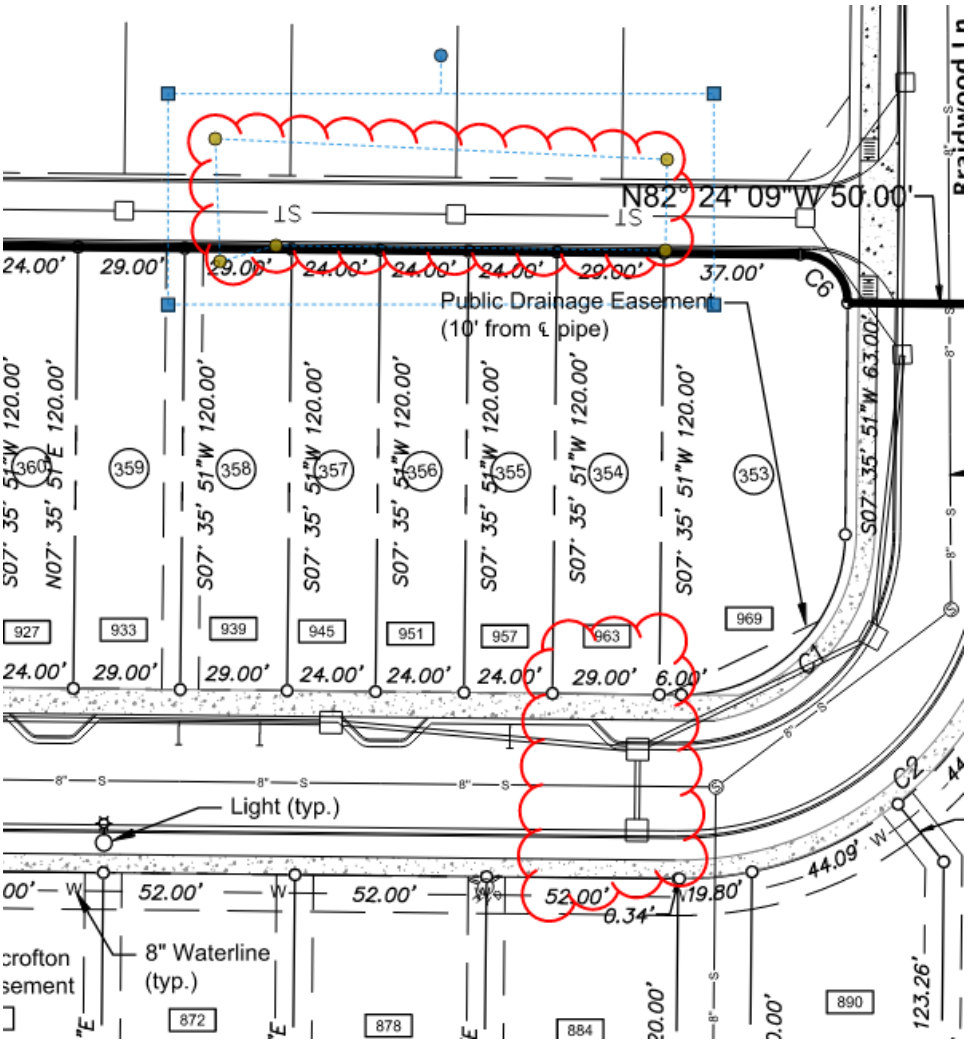


16. C. Final Plat

lance.fittro@franklintn.gov	Applicant shall show the location and description of all existing man-made structures and site features (including utilities) both above and below ground. **This is inclusive of the S Carothers Rd roadway pavement and appurtenances as they currently exist.** Proposed realignment of the roadway for which the construction has not yet been completed may also be shown, but shall be clearly indicated as "Proposed".
clay.wallace@eli-llc.com	The edge of pavement shown and the crossing drainage pipe are both field located. Since the future S Carothers improvements were not shown on the previously approved plat, they have been left off this version. [Edited By Clay Wallace]
lance.fittro@franklintn.gov	Applicant shall show the location and description of all existing man-made structures and site features (including utilities) both above and below ground. **This is inclusive of the S Carothers Rd roadway pavement and appurtenances as they currently exist.** Show the full existing ROW and pavement extents, drainage structures, etc.

21. Storm Linetype

dustin.walcott@franklintn.gov	The applicant shall confirm if varying line types for storm piping is intentional. If not, please revise.



clay.wallace@eli-llc.com	Existing drainage or drainage in a previous section is shown with the single linetype. The legend has been updated accordingly
dustin.walcott@franklintn.gov	Please use uniform line-types/symbols for storm infrastructure.

22. C. Final Plat

lance.fittro@franklintn.gov	Applicant shall provide all "black" line work on the plat to facilitate reproduction from the recorded mylar. Grayscale, "screened," or color line work becomes muddy and does not duplicate well when reproduced from the recorded mylar, which results in a lack of clarity and loss of information when the plat is reprinted. Use line thickness (bold / thin) and hatching to differentiate areas instead of grayscale or color. Where additional clarity is needed in crowded areas of line work, blow-ups or breaking the plat into multiple sheets with match lines is preferable to screened line work for legibility.

Performance Agreement and Surety

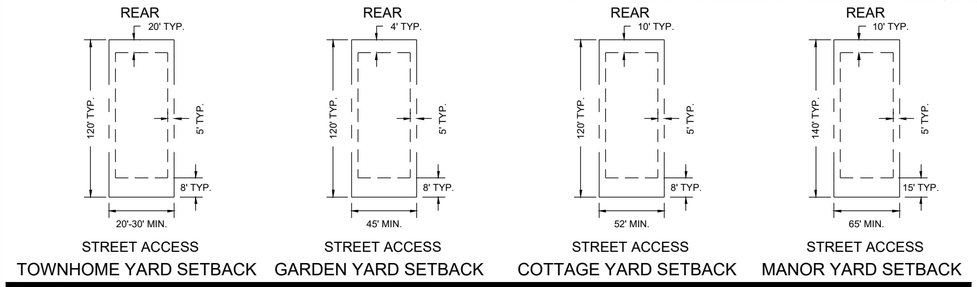
General Issues

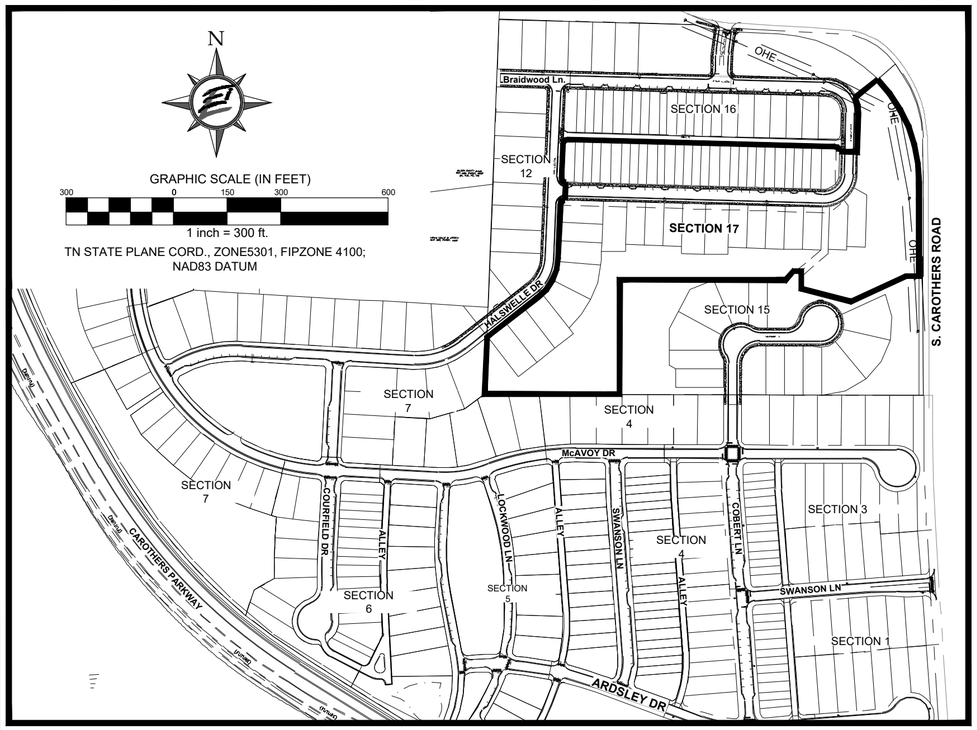
1. Engineering Sureties

kevin.long@franklintn.gov	Any unposted sureties associated with this development from site plan: **COF #7244 (Lockwood Glen PUD Subdivision, Site Plan, Section 17, Revision 1)** shall be transferred to this final plat as a condition of approval. ***(This comment serves only as a reminder to staff and does not hinder approval. No response is necessary from the applicant beyond "N/A" or "Acknowledged" to satisfy requirements of the IDT system.)***
clay.wallace@eli-llc.com	Noted
kevin.long@franklintn.gov	Any unposted sureties associated with this development from site plan: **COF #7244 (Lockwood Glen PUD Subdivision, Site Plan, Section 17, Revision 1)** shall be transferred to this final plat as a condition of approval. ***(This comment serves only as a reminder to staff and does not hinder approval. No response is necessary from the applicant beyond "N/A" or "Acknowledged" to satisfy requirements of the IDT system.)***

Site Data

Project Name:	Lockwood Glen PUD Subdivision - Section 17
COF Project #:	8164
Subdivision:	Lockwood Glen
Lot numbers:	Lots 353-401
Address:	South Carothers Road
City:	Franklin
County:	Williamson
State:	Tennessee
Civil District:	14th
Existing zoning and charter area overlay:	PD
Applicable development standard:	NA
Acreage of site:	11.77 acres
Minimum required setback lines:	
Manor Homes (381-383, 389, 393-394)	Front: 15', Side: 5', Rear: 10', Front Porch Depth: 6' min.
Townhomes (354-380)	Front: 8', Side: 5', Rear: 20', Garage Setback to Rear: 20' (From ROW) Front Porch Depth: 6' min.
Cottage Homes (384-388, 390-392, 395-401)	Front: 8', Side: 5', Rear: 10', Front Porch Depth: 6' min.
Garden Homes (353)	Front: 8', Side: 5', Rear: 4', Garage Setback to Rear: 5' or 20' (From Curb) Front Porch Depth: 6' min.
Owners representative:	Lockwood Section 9 & 12, LLC
Address:	572 Savannah Highway Charleston, SC 29407
Phone number:	(843) 906-4768
Email address:	T.Terry@crescenthomes.net
Contact name:	Ted Terry
Applicant:	Energy Land & Infrastructure
Address:	1420 Donelson Pike, Suite A12 Nashville, TN 37217
Phone number:	(615) 383-6300
Fax number:	(615) 383-6341
Email address:	Clay.Wallace@eli-llc.com
Contact name:	Clay Wallace
Engineer / Land Surveyor:	Energy Land & Infrastructure
Address:	1420 Donelson Pike, Suite A12 Nashville, TN 37217
Phone number:	(615 383-6300
Fax number:	(615) 383-6341
Contact names:	Bennie Wheeler





Notes

1. The purpose of this plat is to create 27 townhome lots, 15 cottage home lots, 6 manor lots, 1 garden lot, 2 open space lots, and reserve and dedicate right-of-way.
2. This property is not located within a flood hazard area as per FEMA FIRM Community Map No. 47187CO214 G, dated December 22, 2016.
3. The lots shall be served by water from Milcrofton Utility District and sewer from the City of Franklin. Individual water and/or sanitary sewer service lines are required for each parcel.
4. Parcel ID's shown thus (000) pertain to property map 089.
5. All property corners not designated otherwise shall be marked with 1/2" iron rods x 18" long with plastic caps.
6. Bearings based on Tennessee State Plan Coordinate System, Zone 5301, Fipszone 4100; NAD 83 datum.
7. Within new development 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.
8. All street light locations and quantities are approximate. Final positioning and quantity shall be at direction of MTEMC.
9. All open space shall be maintained by the HOA or Property Owner(s) and shall be Public Utility, Drainage and Access Easements.
10. Homeowner's association will maintain all open space, landscape and detention/retention areas, and all sidewalks and pathways located outside public rights-of-way. All roadways shall be public streets constructed to the City of Franklin specifications in public rights-of-way.
11. All Milcrofton Utility District (MUD) easements are exclusive easements. No excavation, building, structure, or obstruction of any kind may be constructed or permitted within the easements, except pavement for a driveway that crosses an easement. No trees or shrubbery may be planted within the easements. MUD will have unrestricted access to all of its lines, meters, valves, vaults, and other water system facilities within the easements without seeking any further permission. MUD has the right to disturb or remove any impermissible items within the easements. The property owner will be responsible for repairing or replacing any such items at the property owner's expense.
12. Unless otherwise designated on the recorded plat, a 10' wide public drainage easement shall exist along all common building lot lines (5' on each side of common lot line) the common building lot line being the center line of said easement. The owner or master developer reserves the right to enter upon all lots to establish or re-establish drainage swales within said easements for the purpose of controlling and directing storm water to collection facilities.
13. Maintenance of all storm water management features, including lot line swales, shall be the responsibility of the property owner(s) or HOA.
14. Sidewalks and trails outside of public right-of-way shall be public access easements and shall be maintained by the Homeowners Association.
15. No obstructions or encroachments which impede the flow of stormwater shall be permitted within the Public Drainage Easements. The City of Franklin is not responsible for repair or replacement of any encroachments that are damaged or removed in the course of maintenance activities within easements.
16. The City of Franklin Water Management department has unrestricted access to its domestic water, sanitary sewer, reclaim water lines of system improvement located within its exclusive easements within the development. In the event landscaping, fencing, concrete or other structures are installed or placed within a City of Franklin easement, the City of Franklin shall have the right to remove such encroachments within the easement as may be necessary for the City of Franklin to repair, maintain or replace its infrastructure which is now or in the future may by located within the easement without obtaining any further permission from the owner or H.O.A. The property owner or H.O.A. shall be responsible for repairing and/or replacing any such landscaping fencing concrete or other structures removed or disturbed by the City of Franklin in common open space lots and in areas owned by the property owner or H.O.A. at no expense to the City of Franklin. Individual homeowners shall be responsible for structures removed or disturbed by the City of Franklin within an easement on the homeowners' lot at the homeowners' expense.
17. Any and all mineral rights for the subject property shall transfer to the owner.
18. Any side elevation visible from a street shall have the same degree of architectural details as the front facade.
19. Green Infrastructure Easements (GIE) are exclusive easements defining areas set aside for the construction, maintenance, repair, monitoring and other activities necessary for the furtherance of water quality features designated as green infrastructure practices by the City of Franklin, and provide public access to such features. Any and all activities, except as specifically permitted by notation on the current plat of record and/or within the recorded Long Term Maintenance Agreement, shall be strictly prohibited without the written consent of the City Engineer or his designee.
20. Trees shall be pruned to a minimum of eight feet above grade and no fences or other obstructions shall be taller than three feet above grade within sight triangles for street intersections and roadway signage per the latest version of AASHTO Policy on Geometric Design of Highways and Streets.
21. There shall be no direct access lots in Section 17 from South Carothers Road.

Total area: 527,785 S.F. or 12.12 Acres

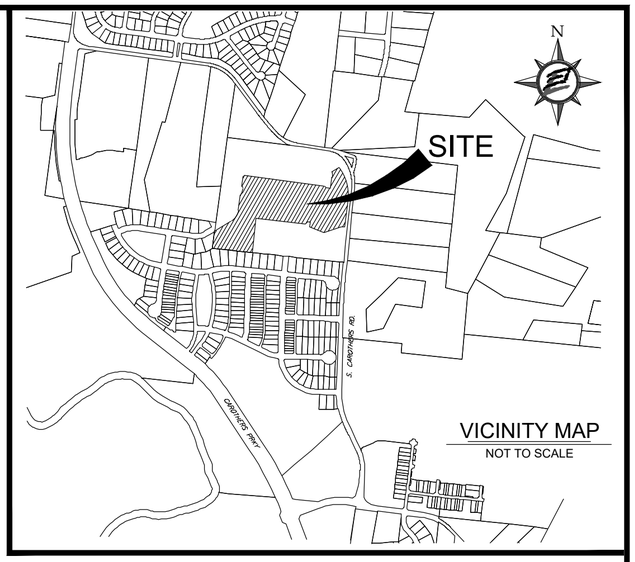
Road Data:

Acreage in new roads including alley right-of-ways	1.02 Acres
Linear footage of new roads	893 Feet

SOUTH CAROTHERS ROAD ROW TO BE OBTAINED WITH THE FINAL DESIGN OF SOUTH CAROTHERS ROAD IMPROVEMENTS FOR THE COLLETA PARK PUD SUBDIVISION

Deed Reference

TAX MAP 089, PART OF PARCEL 43.01
Owner: Lockwood Section 9 & 12, LLC
P/O Deed Book 7809 ,Page 470
Register's Office for Williamson County, TN



Certificate Of Subdivision Name, Street Names, and Addressing

Subdivision name and street names approved by the Williamson County Emergency Management Agency.

Williamson County Emergency Management Agency _____ Date _____

City of Franklin _____ Date _____

Certificate Of Approval of Sewer Systems

I hereby certify that:
(1) The sewer system designated in Lockwood Glen PUD Subdivision - Section 17 has been installed in accordance with City specifications, or
(2) A performance agreement and surety in the amount of $ _____ for the sewer system has been posted with the City of Franklin, Tennessee, to assure completion of such systems.

Director, Water Management Department
City of Franklin, Tennessee _____ Date _____

Certificate Of Approval of Water

I hereby certify that:
(1) The water system designated in Lockwood Glen PUD Subdivision - Section 17 has been installed in accordance with MUD specifications, or
(2) A performance agreement and surety in the amount of $ _____ for the water system has been posted with the Milcrofton Utility District to assure completion of such improvements.

General Manager, Milcrofton Utility District _____ Date _____

Certificate Of Approval of Streets, Drainage, and Sidewalks

I hereby certify that:
(1) the streets, drainage, and sidewalks designated in Lockwood GlenPUD Subdivision - Section 17 has been installed in accordance with City specifications, or
(2) a performance agreement and surety in the amount of $ _____ for streets, $ _____ for access, $ _____ for drainage,
and $ _____for sidewalks has been posted with the City of Franklin, Tennessee, to assure completion of such improvements.

Director, Streets Department
City of Franklin, Tennessee _____ Date _____

Certificate Of Approval for Recording

Approved by the Franklin Municipal Planning Commission, Franklin, Williamson County, Tennessee, with the exception of such conditions, if any, as are noted in the Planning Commission minutes for the _____ day of _____,
20 ___ , and this plat has been approved for recording in the Register's Office of Williamson County.

Secretary, Franklin Municipal Planning Commission _____ Date _____

Certificate Of Ownership

I (we) hereby certify that I am (we are) the owner(s) of the property shown hereon as of record in Book 7809, Page 470, R.O.W.C., Tennessee and that I (we) hereby adopt this plan of subdivision of the property as shown hereon and dedicate all public ways and easements as noted. No lot or lots as shown hereon shall again be subdivided, re-subdivided, altered or changed so as to produce less area than is hereby established until otherwise approved by the Franklin Municipal Planning Commission and under no condition shall such lot or lots be made to produce less area than is prescribed by the restrictive covenants as of record in Book _____ , Page _____ , R.O.W.C., Tennessee, running with the title to the property. I (we) further certify that there are no liens on this property.

Owner _____ Date _____

Owner Information
Mark Nosal
Lockwood Section 9 & 12, LLC
572 Savannah Highway
Charleston, SC 29407

MTEMC Certificate of Approval for Recording

Middle Tennessee Electric Membership Corporation (MTEMC) will provide electric service to the subject property according to normal operating practices of MTEMC as defined in the rules and regulation, bylaws, policy bulletins and operational bulletins of MTEMC, and in accordance with the plat approval checklist, tree planting guidelines and other regulations contained on the MTEMC website at www.mtemc.com (collectively the "Requirements"). No electric service will be provided until MTEMC's Requirements have been met and approved in writing by an authorized representative of MTEMC. Any approval is, at all times, contingent upon continuing compliance with MTEMC's Requirements.

Middle Tennessee Electric Membership Corporation _____ Date _____

Certificate Of Survey

I hereby certify that the subdivision plat shown hereon is correct and that approved monuments shown hereon will be placed as indicated upon completion of construction. All side lot lines are at right angles or radial to a street unless otherwise noted. I further certify that this plat exceeds the minimum requirements for a Federal Geodetic Control Standards pursuant to Chapter 0820-2, Section 4 of the Department of Insurance Standards of Practice for Land Surveyors, having a ratio of precision of the unadjusted survey greater than 1:10,000.



Surveyor Information
Bennie O. Wheeler, R.L.S.
ELI, LLC
1420 Donelson Pike, Suite A12
Nashville, Tn 37217
Phone: 615-383-6300
Email: Bennie.Wheeler@eli-llc.com

Tennessee 811
Know what's below. Call before you dig.

Utility Disclaimer

Energy, Land and Infrastructure, LLC (ELI, LLC) has not physically located the underground utilities. Above grade and underground utilities shown were taken from visible appurtenances at the site, public records and/or maps prepared by others. ELI, LLC makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. ELI, LLC further does not warrant that the underground utilities are in the exact location indicated. Therefore, reliance upon the type, size and location of utilities shown should be done so with this circumstance considered. Detailed verification of existence, location and depth should also be made prior to any decision relative thereto is made. Availability and cost of service should be confirmed with the appropriate utility company. In Tennessee, it is a requirement, per "The Underground Utility Damage Prevention Act", that anyone who engages in excavation must notify all known underground utility owner, no less than three (3) nor more than ten (10) working days prior to the date of their intent to excavate and also to avoid any possible hazard or conflict. Tennessee One Call 811.

LOCKWOOD GLEN PUD SUBDIVISION
FINAL PLAT SECTION 17

SHEET 1 OF 2

14th CIVIL DISTRICT
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE
CITY OF FRANKLIN PROJECT # 8164
DATE: April 4, 2023
REV: May 3, 2023

ENERGY LAND & INFRASTRUCTURE
1420 DONELSON PIKE, SUITE A12 • NASHVILLE, TN 37217
OFFICE 615-383-6300 • WWW.ELI-LLC.COM
ENGINEERS•SURVEYORS•INFRASTRUCTURE•ENVIRONMENTAL

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Legend

- Fire Hydrant
- W — Water Line
- SS — Sewer Line
- Public Drainage Easement
- Exclusive Green Infrastructure Easement
- MTE Easement
- MUD Easement
- ST — Existing Stormwater Inlet
- Proposed Stormwater Inlet
- Concrete Sidewalk
- Sidewalk Ramp
- (1) Lot Number
- 325 Address Number
- Landscape Easement
- (S) Sewer Manhole
- Iron Rod (New)

* = Critical Grading Lot due to storm infrastructure / easements through lots

BRAIDWOOD LANE (50' R.O.W. - LOCAL)

MOUNT CASTLE DRIVE (R.O.W. VARIES - LOCAL)

HALSWELLE LANE (50' R.O.W. - LOCAL)

ALLEY "A" (20' R.O.W. - ALLEY)

BRAIDWOOD LANE (50' R.O.W. - LOCAL)

Lockwood Glen PUD Subdivision Section 16 (FUTURE)

40' MTE OVERHEAD EASEMENT BK 8611, PG 117

S54° 46' 27"W 64.72'

N28° 37' 07"W 33.26'

R.O.W. Reservation
OS / PUADE

Future ROW

Existing ROW

SOUTH CAROTHERS ROAD ROW TO BE OBTAINED WITH THE FINAL DESIGN OF SOUTH CAROTHERS ROAD IMPROVEMENTS FOR THE COLLETA PARK PUD SUBDIVISION

S. CAROTHERS RD. (75' PROPOSED ROW - MINOR COLLECTOR)

N05° 13' 31"E 132.32'

N05° 53' 01"E 252.97'

S07° 35' 51"W 109.00'

S07° 35' 51"W 172.00'

S07° 35' 51"W 63.00'

N82° 24' 09"W 747.05'

N82° 24' 09"W 50.00'

N82° 24' 09"W 717.94'

S82° 24' 09"E 719.04'

N08° 26' 26"E 94.52'

N08° 51' 43"E 50.01'

N08° 26' 26"E 151.71'

N08° 31' 03"E 158.94'

N58° 02' 54"E 139.99'

N58° 02' 54"E 195.00'

N83° 46' 25"W 376.73'

S06° 13' 35"W 320.50'

N83° 50' 55"W 463.29'

N83° 50' 55"W 20.00'

S48° 42' 26"W 33.83'

N06° 09' 05"E 49.72'

N69° 30' 53"W 144.14'

S70° 59' 44"W 169.04'

S84° 06' 59"E 48.42'

S06° 04' 57"W 282.35'

S82° 24' 09"E 156.00'

S82° 24' 09"E 130.00'

S82° 24' 09"E 260.00'

S82° 24' 09"E 52.00'

S82° 24' 09"E 67.06'

N09° 54' 34"E 13.59'

S78° 37' 18"E 120.00'

N16° 44' 45"E 49.58'

S57° 08' 03"E 120.00'

N27° 28' 53"E 49.58'

S31° 57' 06"E 140.00'

N38° 20' 13"E 50.69'

N49° 18' 46"E 50.69'

Existing Sanitary Sewer

Light (typ.)

5' Public Drainage Easement (typ.)

Public Drainage Easement (10' from ℄ pipe)

10' Exclusive Microfton Utility District Easement (typ.)

Existing Sanitary Sewer

Exclusive Green Infrastructure Easement

5' Conc Sidewalk (typ)

15' Exclusive Microfton Utility District Easement (typ.)

8" Waterline (typ.)

20' Public Drainage Easement

5' Public Drainage Easement (typ.)

20' Public Drainage Easement

20' Public Sanitary Sewer Easement Bk. 8561, Pgs. 806-811

Existing Sanitary Sewer

OS / PUADE

SHERMAN CT. (50' R.O.W. - LOCAL)

DUDLEY DAVIS
, PARCEL 45.01
135, PG. 126

Lockwood Glen PUD Subdivision, Section 12 Plat Book 77, Page 118

Lockwood Glen PUD Subdivision, Section 12 Plat Book 76, Page 12

Lockwood Glen PUD Subdivision Section 7

Lockwood Glen PUD Subdivision Section 6

Lockwood Glen PUD Subdivision Section 5

274 Halswelle
818 Braidwood

902 Braidwood

Lot Table		
Lot #	Square Feet	Acres
353	5548	0.13
354	3480	0.08
355	2880	0.07
356	2880	0.07
357	2880	0.07
358	3480	0.08
359	3480	0.08
360	2880	0.07
361	2880	0.07
362	2880	0.07
363	2880	0.07
364	3480	0.08

Lot Table		
Lot #	Square Feet	Acres
365	3480	0.08
366	2880	0.07
367	2880	0.07
368	2880	0.07
369	2880	0.07
370	3480	0.08
371	3480	0.08
372	2880	0.07
373	2880	0.07
374	2880	0.07
375	3480	0.08
376	3480	0.08

Lot Table		
Lot #	Square Feet	Acres
377	2880	0.07
378	2880	0.07
379	2880	0.07
380	4099	0.09
381	9100	0.21
382	9100	0.21
383	9104	0.21
384	8934	0.21
385	9142	0.21
386	7160	0.16
387	6240	0.14
388	7618	0.17

Lot Table		
Lot #	Square Feet	Acres
389	9244	0.21
390	6240	0.14
391	6240	0.14
392	6240	0.14
393	9100	0.21
394	9100	0.21
395	6240	0.14
396	6240	0.14
397	6240	0.14
398	6240	0.14
399	6240	0.14
400	6674	0.15

Lot Table		
Lot #	Square Feet	Acres
401	8199	0.19

Open Space Table		
Lot #	Square Feet	Acres
506	2400	0.06
508	217120	4.98

R.O.W. Table		
Lot #	Square Feet	Acres
R.O.W. Reservation	15088	0.35
ROW	44494	1.02

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	69.12	44.00	90°00'00"	N52° 35' 51"E	62.23
C2	147.65	94.00	90°00'00"	N52° 35' 51"E	132.94
C3	19.45	12.50	89°09'25"	S53° 01' 09"W	17.55
C4	19.82	12.50	90°50'35"	S36° 58' 51"E	17.81
C5	20.23	13.00	89°09'25"	S53° 01' 09"W	18.25
C6	20.42	13.00	90°00'00"	N37° 24' 09"W	18.38
C7	45.20	94.00	27°33'09"	N6° 10' 43"W	44.77
C11	125.54	145.00	49°36'28"	N33° 14' 40"E	121.66

N

GRAPHIC SCALE (IN FEET)
60 0 30 60 120
1 inch = 60 ft.
TN STATE PLANE CORD., ZONE5301, FIPZONE 4100; NAD83 DATUM

LOCKWOOD GLEN PUD SUBDIVISION
FINAL PLAT SECTION 17
SHEET 2 OF 2

14th CIVIL DISTRICT
FRANKLIN, WILLIAMSON COUNTY, TENNESSEE
CITY OF FRANKLIN PROJECT # 8164
DATE: April 4, 2023
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BENNIE O. WHEELER REGISTERED LAND SURVEYOR XVI AGRICULTURE COMMERCE TENNESSEE NO. 1546
5 / 3 / 2023

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