



City of Franklin

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

Meeting Agenda

Work Session

Tuesday, November 28, 2017

5:00 PM

Board Room

Call to Order

Citizen Comments

WORKSESSION DISCUSSION ITEMS

1. [17-0902](#) *Consideration of Amendment 1 to Contract 2016-0035 with Franklin Housing Authority (FHA) for Public Facilities Improvements Utilizing Community Development Block Grant (CDBG) Funds from Program Year 2015-2016.

Sponsors: Building and Neighborhood Services (BNS) and Chris Bridgewater

Attachments: [Signed CONTRACT 2016-0035 Public Facilities to FHA PY2015-16](#)
 [Voided CHP Contract 2016-0226](#)
 [FHA Request for Additional Allocation to 2016-0035](#)
 [2016-0035_Amnd.1_2nd Franklin Housing Authority agreement for Public Facil](#)
2. [17-0992](#) *Consideration of Amendment 1 to Contract 2016-0227 with BRIDGES of Williamson County for Public Facilities Improvements Utilizing Community Development Block Grant (CDBG) Funds from Program Year 2015-2016.

Sponsors: Building and Neighborhood Services (BNS) and Chris Bridgewater

Attachments: [Voided CHP Contract 2016-0226](#)
 [Signed CONTRACT 2016-0227 Public Facilities to BRIDGES PY2015-16](#)
 [CONTRACT 2016-0227 Amd 1 Public Facilities to BRIDGES from PY2015-16](#)
3. [17-0958](#) Consideration of Resolution 2017-79, a Resolution Authorizing the City Administrator to Terminate the Off-Street Parking Lease Agreement with the 4th Avenue Church of Christ for the two parking areas located adjacent to their 117-4th Avenue N, Franklin, TN property. (11/28/17 WS)

Sponsors: Eric Stuckey, Vernon Gerth and Kristine Brock

Attachments: [Res. 2017-79 4th Ave. Church of Christ - Parking Lease Termination_with Map.](#)

4. [17-0999](#) Status of the City-Owned “Hill” Property and Consideration of Future Uses (403 and 405 5th Avenue N)
- Sponsors:** Emily Hunter and Kelly Dannenfelser
- Attachments:** [Hill Property Resolution.pdf](#)
[Recreation Design Concept-Envision Franklin](#)
[MAP Hill Property BOMA work session 112817](#)
[CPAT Study Excerpts](#)
5. [17-1035](#) Consideration of a Road Impact Fee Offset Agreement (COF Contract No. 2017-0293) with Suntrust Realty and Land, LLC for the Colletta Park PUD Subdivision.(11/28/17 WS)
- Sponsors:** Paul Holzen
- Attachments:** [COF 2017-0293 Colletta Park Road Impact Fee Agreement _with Exhibit A.Law](#)
6. [17-0967](#) PUBLIC HEARING Consideration Of Resolution 2017-62, To Be Entitled: “A Resolution Approving A Development Plan For Colletta Park PUD Subdivision, With 2 Modifications Of Development Standards (Lots Less Than One Acre, Cul-De-Sac Length Greater Than 500 Feet), For The Properties Located South Of Murfreesboro Road And East Of Carothers Parkway, (Including 4350 And 4344 South Carothers Road)”. (11/16/17 FMPC 7-2; WS 11/28/17)
- Sponsors:** Franklin Municipal Planning Commission, Emily Hunter, Amy Diaz-Barriga and Josh King
- Attachments:** [MAP_CollettaParkDevPlan.pdf](#)
[RESOLUTION 2017-62 Colletta Park _with Map.Law Approved 3.pdf](#)
[Colletta _Conditions of Approval_01.pdf](#)
[Impact Study \(10.18.17\) - 10647.pdf](#)
[Arch_Colletta.pdf](#)
[Colletta Park Dev Plan Resubmittal 11.2.2017.pdf](#)
[CollettaConnectivity.pdf](#)
[CollettaLayout.pdf](#)
- Legislative History**
- | | | |
|----------|--|--|
| 11/16/17 | Franklin Municipal Planning Commission | recommended favorably to the Board of Alderman and to the Work Session |
|----------|--|--|
7. [17-1033](#) Acknowledge Receipt of Downtown Parking Capacity and Management Study (COF Contract No. 2016-0230; 11/28/17 and 12/12/17 WS)
- Sponsors:** Engineering
- Attachments:** [Franklin Parking Study Recommendations BOMA _final 11-17-17](#)
[Parking Overview 12-7-2017.pdf](#)

Other Business

Adjournment

Anyone requesting accommodations due to disabilities should contact ADA coordinator at 791-3277.

**CONTRACT FOR PUBLIC FACILITIES AND
PUBLIC IMPROVEMENT PROJECTS
COF Contract No. 2016-0035**

This Contract, made and entered into this 1st day of August, 2016 by and between the City of Franklin, (hereinafter "The City") and Franklin Housing Authority (hereinafter "THE ORGANIZATION").

WITNESSETH:

WHEREAS, THE CITY has identified has identified housing developments as an important issue in the community, and to achieve the goal of creating affordable housing within the City of Franklin will make available a portion of the Community Development Block Grant funds toward this objective; and

WHEREAS, THE ORGANIZATION replied to a publicly advertised Request For Proposals and was selected to participate as a contractor in the City's Community Development Block Grant Program;

NOW, THEREFORE, in consideration of the mutual promises as contained herein, the parties hereto have agreed and hereby enter into this Contract according to the provisions as set forth herein.

SECTION 1 - SCOPE OF SERVICES

THE ORGANIZATION will be required to successfully meet the following deadlines:

- THE ORGANIZATION will completely and successfully obtain all required permits and begin physical construction as provided in the Scope of Services (attached as Exhibit A and incorporated as if stated fully herein) within 90 days of execution of a written agreement.
- Expend all CDBG funds and complete the construction project(s), within a maximum of 18 months from all execution of a written agreement.

SECTION 2 - RESPONSIBILITIES OF PARTIES

- A. Perform the duties described herein and in Exhibit A and will submit regular reports (not less often than quarterly) as directed by THE CITY detailing the progress of their project.
- B. At the request of THE CITY, THE ORGANIZATION will periodically send a representative to neighborhood or other public meetings to discuss and promote their project.

ORIGINAL

- C. THE CITY will provide funding for the program from the Community Development Block Grant program as set forth in Section 3 of this contract.

SECTION 3 – COMPENSATION

THE ORGANIZATION will receive a total of **Twenty-One Thousand One Hundred Nine and 13/100 (\$21,109.13)** for the services outlined above and contained in Exhibit A from the Community Development Block Grant program for eligible expenses.

SECTION 4 - TIME OF PERFORMANCE

- A. Services shall begin in the Fiscal Program Year 2015, which runs from July 1, 2015 through June 30, 2016. Services shall be complete no later than December 31, 2016.
- B. Services shall begin no later than ninety (90) days following execution of this Contract.
- C. This Contract may be terminated upon thirty (30) days written notice by either party.

SECTION 5 - PAYMENT TERMS AND CONDITIONS

- A. THE CITY shall reimburse THE ORGANIZATION for services rendered based on submittal of valid invoices for project costs with a description and documentation of work performed. The CITY has the option of inspecting the completed work prior to making any payments.
- B. Invoices may be submitted monthly
- C. Final payment will be subject to receipt of a final report that is satisfactory to THE CITY.

SECTIONS 6 - NOTICES

All notices under this Contract shall be in writing and sent by certified mail to the address listed below for each party.

**Kathleen L. Sauseda
City of Franklin
City Hall
109 3rd Avenue South
Franklin, TN 37064**

**Derwin Jackson,
Executive Director
Franklin Housing Authority
200 Spring Street
Franklin, TN 37064**

SECTION 7 - STANDARD TERMS AND CONDITIONS

A. COMPLIANCE WITH FEDERAL LAWS/REGULATIONS

THE ORGANIZATION shall comply with all applicable Federal and State laws and regulations in the performance of this Contract.

B. ANTIDISCRIMINATION/AFFIRMATIVE ACTION AND EQUAL EMPLOYMENT OPPORTUNITY

No person on the grounds of handicap, age, race, color, religion, sex, national origin, disability, or marital/familial status or any other classification protected by Federal and/or State of Tennessee constitutional and/or statutory law shall be excluded from participation in, or be denied benefits or, or be otherwise subjected to discrimination in the performance of this Contract.

C. AUDIT REQUIREMENTS

- i. This Contract, as well as any sub-agreement made with other participating agencies, is subject to all of the administrative requirements in OMB Circulars A-110 and A-122.
- ii. THE CITY hereby notifies THE ORGANIZATION that a single audit is required for non-profit agencies receiving \$300,000 or more in federal funds in any single fiscal year. This requirement is in accordance with OMB Circulars A-110 and A-133. If required, a copy of the single audit report will be kept on file and made available to THE CITY staff during sub-recipient monitoring visits and appropriate officials as requested.

D. CONFLICT OF INTEREST

THE ORGANIZATION agrees to abide by the following requirements with respect to conflicts of interest, and covenants that it presently has no interest, direct or indirect, and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required under this Contract. THE ORGANIZATION further covenants that in the performance of this Contract no person having such an interest, direct or indirect, shall be employed or retained by THE ORGANIZATION hereunder. These conflict of interest provisions apply to any person who is an employee, agent, consultant, officer, or elected official or appointed official of THE ORGANIZATION or of any designated public agencies or sub-recipients that are receiving funds under this program.

E. PROCUREMENT STANDARDS AND METHODS

THE ORGANIZATION shall comply with THE CITY's current policy concerning the purchase of equipment and shall maintain inventory records of all non-expendable personal property as defined by such policy as may be procured with funds herein.

THE ORGANIZATION shall procure all materials, property, or services in accordance with the requirements of Attachment O of OMB Circular A-110, Procurement Standards.

F. VENUE

In the event of a dispute or litigation arising out of said Contract, it is understood and agreed and that this Contract was executed and performed in Williamson County, Tennessee, and as such, it is agreed by both parties that venue of said litigation, including an action for Declaratory Judgment, will be in Williamson County, Tennessee.

G. ASSIGNMENT

Neither THE CITY nor THE ORGANIZATION may assign its rights or delegate its responsibilities under this contract.

H. ENTIRE CONTRACT AND MODIFICATION

This Contract between the parties supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of the entire Contract. The terms and conditions of this Contract may not be changed except by an amendment expressly referencing this Contract by section number and signed by an authorized representative of each party.

If seeking any addition or modification to the Contract, the parties agree to reference the specific paragraph number sought to be changed on any future document or purchase order issued in furtherance of the Contract, however, an omission of the reference to same shall not affect its applicability. In no event shall either party be bound by any terms contained in any purchase order, acknowledgement, or other writings unless: (a) such purchase order, acknowledgement, or other writings specifically refer to the Contract or to the specific clause they are intended to modify; (b) clearly indicate the intention of both parties to override and modify the Contract; and (c) such purchase order, acknowledgement, or other writings are signed, with specific material clauses separately initialed, by authorized representatives of both parties.

I. SEVERABILITY

If any provision of this Contract is held invalid, the remainder of the Contract shall not be affected thereby and all other parts of this Contract shall nevertheless be in full force and effect.

J. TIME OF THE ESSENCE

The parties agree that TIME IS OF THE ESSENCE with respect to the parties' performance of all provisions of the Contract.

K. NO TAXES, NO INTEREST PAYMENTS

As a tax-exempt entity, THE CITY shall not be responsible for sales or use taxes incurred for products or services. THE CITY shall supply THE ORGANIZATION with its Sales and Use Tax Exemption Certificate upon THE ORGANIZATION's request. THE ORGANIZATION shall bear the burden of providing its suppliers with a copy of THE CITY's tax exemption certificate and shall assume all liability for such taxes, if any, that should be incurred. THE CITY does not agree to pay any interest for late payments, having agreed to pay in a timely manner.

L. WAIVER

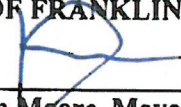
Neither party's failure or delay to exercise any of its rights or powers under the Contract will constitute or be deemed a waiver or forfeiture of those rights or powers. For a waiver of a right or power to be effective, it must be in writing signed by the waiving party. An effective waiver of a right or power shall not be construed as either (a) a future or continuing waiver of that same right or power, or (b) the waiver of any other right or power.

M. BREACH

Upon deliberate breach of the Contract by either party, the non-breaching party shall be entitled to terminate the Contract without notice, with all of the remedies it would have in the event of termination, and may also have such other remedies as it may be entitled to in law or in equity.

Witness our hands, on the date entered above:

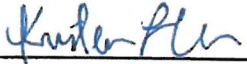
THE CITY OF FRANKLIN

By: 
Dr. Ken Moore, Mayor

Attest:


Eric S. Stuckey, City Administrator

Approved as to Form:



Kristen L. Corn, Assistant City Attorney

FRANKLIN HOUSING AUTHORITY

By: 

Its: Executive Director

EXHIBIT A

Scope of Work:

Park Street is a 22-unit development located as the name implies on Park Street, in the City of Franklin, Williamson County, in the state of Tennessee. Located adjacent to the Natchez historic district and within walking distance of Franklin's thriving downtown, the development is the third phase of Franklin Housing Authority's ("FHA") comprehensive redevelopment strategy to replace all of its 297 public housing units, now interspersed on eight public housing sites, with new mixed income communities. The first phase containing 48 senior designated units, Senior Residences @ Reddick, was completed in 2013 and is fully occupied by income-eligible senior citizens.

The 2nd phase of development will be completed beginning in October, 2016 and consists of sixty-five (65) apartments including 64 rentals and one non-revenue, manager's unit. Consisting of 22, one and two story buildings, the development sits on 7.19 acres of land and will feature an on-site playground for children residing in the new community. All units will contain Energy Star compliant systems or their equivalents including dishwashers, HVAC units, refrigerators, light bulbs, windows and exterior doors.

Park Street consists of six buildings with a varying mix of units including four three bedroom units, fourteen two bedroom units and four one bedroom units. The rehab project will include installation of new, energy efficient HVAC units, attic insulation, LED lighting, new roofing, windows, doors, cabinets, fixtures, flooring, kitchen appliances, hot water heaters and washer/dryer hookups and additional parking spaces. The exterior of the units will be updated to complement the character of neighboring homes and the other Franklin Housing Authority redevelopment projects.

The renovation is financially feasible and is being funded by a Tennessee Department of Environment and Conservation Energy Grant, a Federal Home Loan Bank Grant and a Community Investment Tax Credit Low Interest Loan. Franklin Housing Collaborative, a non-profit affiliate of Franklin Housing Authority, will serve as the manager of the property. FHA will retain ownership of the land.

Specific Work proposed for CDBG funds:

With the renovation of the 22 unit apartment development, an additional 15 new parking spaces including curb and gutters will be added for which the grant funds are intended. The additional parking spaces are needed to meet the needs of the residents. Parking is currently limited on the site with only one parking space per unit and no visitor parking available. Enclosed with this proposal is a site plan showing the additional parking to be added to the development. Also enclosed are architectural elevations.

The grant funds will be applied toward concrete for the parking areas as well as curbs and gutters and will include the cost for labor. It is estimated that \$ 59,500 in CDBG grant monies will fund the total cost of material and labor associated with adding the parking. Construction is anticipated to begin in October, 2016 with completion of the entire renovation anticipated by July, 2017.

Below is a timeline for construction closing and completion of the work:

Pre-Construction:

- Complete lender due diligences - 08/01/2016
- Receive Final commitments from lenders & investor- 09/15/2016
- Anticipated Award of CDBG funds 09/30/2016
- 100% Architectural and Construction Drawings 07/01/2016
- Receive Grading & Building Permits- 10/01/2016

Construction:

- Mobilization, Fencing, Trailer Set-up 10/01/2016
- Site Grading 10/01/2016
- Building Framing-Roofs 12/01/2016
- Mechanical, Electrical, and Plumbing Rough-in 10/01/2016
- Sidewalks 10/01/2016
- Interior and Exterior Finishes 11/01/2016
- Landscape 06/01/2017
- Use & Occupancy Permits 07/01/2017

Sources and Uses:

PARK STREET PERMANENT SOURCES	UNITS - 22	PER UNIT
TDEC Grant	\$ 92,493	\$ 4,204
FHLB Grant	\$ 220,000	\$ 10,000
FHA Contribution	\$ 113,046	\$ 5,138
CITC Loan	\$ 1,086,441	\$ 48,475
CDBG Funds	\$ 59,500	\$ 2,705
TOTAL SOURCES	\$ 1,551,480	\$ 70,522
PERMANENT USES		
Infrastructure/ Site Cost	\$ 114,900	\$ 5,223
Hard Costs	\$ 1,211,520	\$ 55,069
Soft Costs	\$ 225,060	\$ 10,230
TOTAL USES	\$ 1,551,480	\$ 70,522

**CONTRACT FOR PUBLIC FACILITIES AND
PUBLIC IMPROVEMENT PROJECTS**
COF Contract No. 2016-0226

This Contract, made and entered into this ___ day of _____, 2016 by and between the City of Franklin, (hereinafter "THE CITY") and **Community Housing Partnership** (hereinafter "THE ORGANIZATION").

WITNESSETH:

WHEREAS, THE CITY has identified housing developments as an important issue in the community, and to achieve the goal of creating affordable housing within the City of Franklin, THE CITY will make available a portion of the Community Development Block Grant funds toward this objective; and

WHEREAS, THE ORGANIZATION replied to a publicly advertised Request For Proposals and was selected to participate as a contractor in the City's Community Development Block Grant Program;

NOW, THEREFORE, in consideration of the mutual promises as contained herein, the parties hereto have agreed and hereby enter into this Contract according to the provisions as set forth herein.

SECTION 1 - SCOPE OF SERVICES

THE ORGANIZATION will be required to successfully meet the following deadlines:

- THE ORGANIZATION will completely and successfully obtain all required permits and begin physical construction as provided in the Scope of Services (attached as Exhibit A and incorporated as if stated fully herein) within ninety (90) days of execution of a written agreement.
- Expend all Community Development Block Grant (CDBG) funds and complete the construction project(s), within a maximum of twelve (12) months from all execution of a written agreement.

SECTION 2 - RESPONSIBILITIES OF PARTIES

- A. Perform the duties described herein and in Exhibit A and will submit regular reports (not less often than quarterly) as directed by THE CITY detailing the progress of their project.
- B. At the request of THE CITY, THE ORGANIZATION will periodically send a representative to neighborhood or other public meetings to discuss and promote their project.

ORIGINAL

- C. THE CITY will provide funding for the program from the Community Development Block Grant program as set forth in Section 3 of this contract.

SECTION 3 – COMPENSATION

THE ORGANIZATION will receive a total of **Twenty-One Thousand One Hundred Nine and 13/100 Dollars (\$21,109.13)** for the services outlined above and contained in Exhibit A from the Community Development Block Grant program for eligible expenses.

SECTION 4 - TIME OF PERFORMANCE

- A. Services shall begin in the Fiscal Program Year 2015, which runs from July 1, 2015 through June 30, 2016; services shall be complete no later than December 31, 2016.
- B. Services shall begin no later than ninety (90) days following execution of this Contract.
- C. This Contract may be terminated upon thirty (30) days written notice by either party.

SECTION 5 - PAYMENT TERMS AND CONDITIONS

- A. THE CITY shall reimburse THE ORGANIZATION for services rendered based on submittal of valid invoices for project costs with a description and documentation of work performed. The CITY has the option of inspecting the completed work prior to making any payments.
- B. Invoices may be submitted monthly
- C. Final payment will be subject to receipt of a final report that is satisfactory to THE CITY.

SECTIONS 6 - NOTICES

All notices under this Contract shall be in writing and sent by certified mail to the address listed below for each party.

Kathleen L. Sauseda	Stephen Murray, Executive Director
City of Franklin	Community Housing Partnership
109 3 rd Avenue South	129 West Fowlkes Street, Suite 128
Franklin, TN 37064	Franklin, TN 37064-3562

SECTION 7 - STANDARD TERMS AND CONDITIONS

A. COMPLIANCE WITH FEDERAL LAWS/REGULATIONS

THE ORGANIZATION shall comply with all applicable Federal and State laws and regulations in the performance of this Contract.

B. ANTIDISCRIMINATION/AFFIRMATIVE ACTION AND EQUAL EMPLOYMENT OPPORTUNITY

No person on the grounds of handicap, age, race, color, religion, sex, national origin, disability, or marital/familial status or any other classification protected by Federal and/or State of Tennessee constitutional and/or statutory law-shall be excluded from participation in, or be denied benefits or, or be otherwise subjected to discrimination in the performance of this Contract.

C. AUDIT REQUIREMENTS

- i. This Contract, as well as any sub-agreement made with other participating agencies, is subject to all of the administrative requirements in OMB Circulars A-110 and A-122.
- ii. THE CITY hereby notifies THE ORGANIZATION that a single audit is required for non-profit agencies receiving \$300,000 or more in federal funds in any single fiscal year. This requirement is in accordance with OMB Circulars A-110 and A-133. If required, a copy of the single audit report will be kept on file and made available to THE CITY staff during sub-recipient monitoring visits and appropriate officials as requested.

D. CONFLICT OF INTEREST

THE ORGANIZATION agrees to abide by the following requirements with respect to conflicts of interest, and covenants that it presently has no interest, direct or indirect, and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required under this Contract. THE ORGANIZATION further covenants that in the performance of this Contract no person having such an interest, direct or indirect, shall be employed or retained by THE ORGANIZATION hereunder. These conflict of interest provisions apply to any person who is an employee, agent, consultant, officer, or elected official or appointed official of THE ORGANIZATION or of any designated public agencies or sub-recipients that are receiving funds under this program.

E. PROCUREMENT STANDARDS AND METHODS

THE ORGANIZATION shall comply with THE CITY's current policy concerning the purchase of equipment and shall maintain inventory records of all non-expendable personal property as defined by such policy as may be procured with funds herein.

THE ORGANIZATION shall procure all materials, property, or services in accordance with the requirements of Attachment O of OMB Circular A-110, Procurement Standards.

F. VENUE

In the event of a dispute or litigation arising out of said Contract, it is understood and agreed and that this Contract was executed and performed in Williamson County, Tennessee, and as such, it is agreed by both parties that venue of said litigation, including an action for Declaratory Judgment, will be in Williamson County, Tennessee.

G. ASSIGNMENT

Neither THE CITY nor THE ORGANIZATION may assign its rights or delegate its responsibilities under this contract.

H. ENTIRE CONTRACT AND MODIFICATION

This Contract between the parties supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of the entire Contract. The terms and conditions of this Contract may not be changed except by an amendment expressly referencing this Contract by section number and signed by an authorized representative of each party.

If seeking any addition or modification to the Contract, the parties agree to reference the specific paragraph number sought to be changed on any future document or purchase order issued in furtherance of the Contract, however, an omission of the reference to same shall not affect its applicability. In no event shall either party be bound by any terms contained in any purchase order, acknowledgement, or other writings unless: (a) such purchase order, acknowledgement, or other writings specifically refer to the Contract or to the specific clause they are intended to modify; (b) clearly indicate the intention of both parties to override and modify the Contract; and (c) such purchase order, acknowledgement, or other writings are signed, with specific material clauses separately initialed, by authorized representatives of both parties.

I. SEVERABILITY

If any provision of this Contract is held invalid, the remainder of the Contract shall not be affected thereby and all other parts of this Contract shall nevertheless be in full force and effect.

J. TIME OF THE ESSENCE

The parties agree that TIME IS OF THE ESSENCE with respect to the parties' performance of all provisions of the Contract.

K. NO TAXES, NO INTEREST PAYMENTS

As a tax-exempt entity, THE CITY shall not be responsible for sales or use taxes incurred for products or services. THE CITY shall supply THE ORGANIZATION with its Sales and Use Tax Exemption Certificate upon THE ORGANIZATION's request. THE ORGANIZATION shall bear the burden of providing its suppliers with a copy of THE CITY's tax exemption certificate and shall assume all liability for such taxes, if any, that should be incurred. THE CITY does not agree to pay any interest for late payments, having agreed to pay in a timely manner.

L. WAIVER

Neither party's failure or delay to exercise any of its rights or powers under the Contract will constitute or be deemed a waiver or forfeiture of those rights or powers. For a waiver of a right or power to be effective, it must be in writing signed by the waiving party. An effective waiver of a right or power shall not be construed as either (a) a future or continuing waiver of that same right or power, or (b) the waiver of any other right or power.

M. BREACH

Upon deliberate breach of the Contract by either party, the non-breaching party shall be entitled to terminate the Contract without notice, with all of the remedies it would have in the event of termination, and may also have such other remedies as it may be entitled to in law or in equity.

Witness our hands, this ____ day of _____, 2016.

THE CITY OF FRANKLIN

By: _____
Dr. Ken Moore, Mayor

Attest:

Eric S. Stuckey, City Administrator

Approved as to Form:

Approved as to Form:

Kristen L. Corn, Staff Attorney

By:

A handwritten signature in black ink, appearing to read "Stephen M. ...", written over a horizontal line.

Its:

Executive Director



FRANKLIN HOUSING AUTHORITY

FRANKLIN, TENNESSEE

Lighting your path to affordable housing

April 4, 2017

Mrs. Kathleen Sauseda
Housing Development Coordinator
109 Third Avenue South
Franklin, TN 37064

Dear Kathleen,

We understand that Community Housing Partnership is not going to be able to utilize the CDBG funds awarded to them for this year. The FHA would like to request those funds which will be used for fire sprinkler lines (infrastructure) at our Park Street property. Please let me know what information you need for this request.

We continue to appreciate the support and partnership we have with the City.

Sincerely,

Derwin Jackson
Executive Director

200 Spring Street, Franklin, TN 37064
615-794-1247

$$\$21,109.13 \div 2 = \$10,554.57$$

Bridges Domestic Violence Center

Proposed Scope of Work

Infrastructure:

Bridges Domestic Violence Center proposes to construct a paved parking lot with retainer wall and sidewalks. The current parking area is gravel and when it rains there are multiple areas of ponding. There isn't a current sidewalk. The parking lot and current stepping stones are not safe when it rains and makes certain areas of the building where clients are directed to enter unsafe.

The process will include but isn't limited to:

- Grant Application
- Grant Approval
- Compliance with grant requirements/permits where necessary
- Contractor Research (insure compliance with grant requirements)
- Bidding Process
- Sign Construction Contract
- Supervise progress of project
- Final Reporting on Grant

Cost

The site preparation, partial paving of parking area was estimated by a licensed paving company to cost \$13,696 the sidewalk and retaining wall was bid by a small business owner and is estimated to cost \$11,359. Total cost of \$25,055. Formal written bids have not been requested due to the timing between grant application, approval notification and start of project. Most contractors only guarantee a bid from 30 to 60 days from the time of bid.

**AMENDMENT NO. 1 TO
CONTRACT FOR PUBLIC FACILITIES AND PUBLIC IMPROVEMENT PROJECTS
COF Contract No. 2016-0035**

THIS AMENDMENT is made and entered into on this the ____ day of _____, 2017, by and between the **City of Franklin, Tennessee** ("City") and **FRANKLIN HOUSING AUTHORITY** ("Organization").

WHEREAS, City and Organization entered into an Agreement ("Agreement") for Public Facilities and Public Improvement Projects ("Project"), dated the 18th day of November 2016; and

WHEREAS, said Agreement stipulated that the Organization would be paid a not to exceed fee of **EIGHTEEN THOUSAND NINETY-THREE AND 54/100 DOLLARS (\$18,093.54)**, as authorized by the Community Development Block Grant Program; and,

WHEREAS, additional funding has become available and Organization and City desire to amend the Agreement to provide for Organization to receive such funding in the amount of **TEN THOUSAND FIVE HUNDRED FIFTY-FOUR AND 57/100 DOLLARS (\$10,554.57)**; and

WHEREAS, Organization and City also desire to modify the dates during which the funding must be spent.

NOW, THEREFORE, in consideration of these premises and the mutual promises contained herein, it is agreed by and between the parties as follows:

1. The foregoing recitals are incorporated by reference as if fully stated herein.
2. Organization's Responsibilities and Duties. Organization agrees to perform the work as proposed in (**Exhibit A**) which includes the Scope of Services and Costs for this Amendment, all of which shall be considered as an integral part hereof.
3. City's Responsibilities and Duties. City shall pay Organization for the cost of the work as described in Exhibit A in an amount not to exceed **TEN THOUSAND FIVE HUNDRED FIFTY-FOUR AND 57/100 DOLLARS (\$10,554.57)**.
4. Section 4 – Time of Performance, Paragraph A, shall be amended by replacing the text in its entirety so that it shall read, "Services shall be performed as provided in Exhibit A, and completed no later than December 31, 2018."
5. Severability. If any term or provision of the Amendment is held to be illegal or unenforceable, the validity or enforceability of the remainder of the Amendment will not be affected.
6. Precedence. In the event of conflict between this Amendment and the provisions of the previous Agreement(s), or any other contract, agreement or other document to which this Amendment may accompany or incorporate by reference, the provisions of this Amendment

will, to the extent of such conflict (or to the extent the Agreement is silent), take precedence unless such document expressly states that it is amending this Amendment.

7. Entire Agreement. The Amendment between the parties supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of the entire Amendment. The terms and conditions of this Amendment may not be changed except by an amendment expressly referencing this Amendment by section number and signed by an authorized representative of each party.

8. Breach. Upon deliberate breach of the Amendment by either party, the non-breaching party shall be entitled to terminate the Amendment without notice, with all of the remedies it would have in the event of termination, and may also have such other remedies as it may be entitled to in law or in equity.

9. Survival. This Amendment shall survive the completion of or any termination of the original contract, revised contract, or agreement or other document to which it may accompany or incorporate by reference.

All other provisions of the Agreement dated November 18, 2016, are unchanged and remain in full force and effect.

IN WITNESS WHEREOF, the parties have executed this Amendment.

The CITY OF FRANKLIN, TENNESSEE

FRANKLIN HOUSING AUTHORITY

By: _____
Dr. Ken Moore
Mayor
Date: _____

By: _____
Print: _____
Title: _____
Date: _____

Attest:

Eric S. Stuckey
City Administrator
Date: _____

Approved as to form:

Kristen L. Corn, Assistant City Attorney

EXHIBIT A

Scope of Work:

Park Street is a 22-unit development located as the name implies on Park Street, in the City of Franklin, Williamson County, in the state of Tennessee. Located adjacent to the Natchez historic district and within walking distance of Franklin's thriving downtown, the development is the third phase of Franklin Housing Authority's ("FHA") comprehensive redevelopment strategy to replace all of its 297 public housing units, now interspersed on eight public housing sites, with new mixed income communities. The first phase containing 48 senior designated units, Senior Residences @ Reddick, was completed in 2013 and is fully occupied by income-eligible senior citizens.

The 2nd phase of development will be completed beginning in October, 2016 and consists of sixty-five (65) apartments including 64 rentals and one non-revenue, manager's unit. Consisting of 22, one and two story buildings, the development sits on 7.19 acres of land and will feature an on-site playground for children residing in the new community. All units will contain Energy Star compliant systems or their equivalents including dishwashers, HVAC units, refrigerators, light bulbs, windows and exterior doors.

Park Street consists of six buildings with a varying mix of units including four three bedroom units, fourteen two bedroom units and four one bedroom units. The rehab project will include installation of new, energy efficient HVAC units, attic insulation, LED lighting, new roofing, windows, doors, cabinets, fixtures, flooring, kitchen appliances, hot water heaters and washer/dryer hookups and additional parking spaces. The exterior of the units will be updated to complement the character of neighboring homes and the other Franklin Housing Authority redevelopment projects.

The renovation is financially feasible and is being funded by a Tennessee Department of Environment and Conservation Energy Grant, a Federal Home Loan Bank Grant and a Community Investment Tax Credit Low Interest Loan. Franklin Housing Collaborative, a non-profit affiliate of Franklin Housing Authority, will serve as the manager of the property. FHA will retain ownership of the land.

Specific Work proposed for CDBG funds:

With the renovation of the 22 unit apartment development, underground fire sprinkler lines will be installed. The grant funds will be applied toward that work. It is estimated that \$ 10,555 in CDBG grant monies will fund a portion of the cost of material and labor associated with the lines. Construction has begun with an anticipated completion by February, 2018. This funding is in addition to the \$21,109 awarded previously for parking lot additions.

Fire line underground Piping

All piping shall be installed to specifications of NFPA 13. All taps on existing lines shall be done with a stainless steel tapping saddle. All lines that turn or have cast iron connections shall be connected with mega lugs. They shall be covered with plastic or asphalt type sealer. The plastic shall be sealed with tape. All piping shall have a blue number 12 tracer wire taped on top of the pipe and extend to the flanges and up in

EXHIBIT A

the valve casing. Locator tape can be used 12 inches above the pipe. Pipe shall be bedded in sand and covered with sand prior to using clean fill.

Valves

There shall be valves placed at the main. The top of the valve casing shall be painted RED in color. There shall be dust / dirt protection in the top of the valves. Foam type is preferred.

Below is a timeline for construction closing and completion of the work:

Construction:

- Mobilization, Fencing, Trailer Set-up 03/01/2017
- Site Grading 05/23/2017
- Installation of underground fire sprinkler lines 06/01/2017
- Building Framing-Roofs 07/01/2017
- Mechanical, Electrical, and Plumbing Rough-in 08/01/2017
- Interior and Exterior Finishes 09/01/2017
- Landscape 11/01/2017
- Rehab Completion 02/01/2018

Sources and Uses:

PARK STREET PERMANENT SOURCES	UNITS - 22	PER UNIT
TDEC Grant	\$ 92,493	\$ 4,204
FHLB Grant	\$ 220,000	\$ 10,000
FHA Contribution	\$ 113,046	\$ 5,138
CITC Loan	\$ 1,094,277	\$ 49,741
CDBG Funds (\$10,555 + \$21,109)	\$ 31,664	\$ 1,439
TOTAL SOURCES	\$ 1,551,480	\$ 70,522
PERMANENT USES		
Infrastructure/ Site Cost	\$ 114,900	\$ 5,223
Hard Costs	\$ 1,211,520	\$ 55,069
Soft Costs	\$ 225,060	\$ 10,230
TOTAL USES	\$ 1,551,480	\$ 70,522

**CONTRACT FOR PUBLIC FACILITIES AND
PUBLIC IMPROVEMENT PROJECTS**
COF Contract No. 2016-0226

This Contract, made and entered into this ___ day of _____, 2016 by and between the City of Franklin, (hereinafter "THE CITY") and **Community Housing Partnership** (hereinafter "THE ORGANIZATION").

WITNESSETH:

WHEREAS, THE CITY has identified housing developments as an important issue in the community, and to achieve the goal of creating affordable housing within the City of Franklin, THE CITY will make available a portion of the Community Development Block Grant funds toward this objective; and

WHEREAS, THE ORGANIZATION replied to a publicly advertised Request For Proposals and was selected to participate as a contractor in the City's Community Development Block Grant Program;

NOW, THEREFORE, in consideration of the mutual promises as contained herein, the parties hereto have agreed and hereby enter into this Contract according to the provisions as set forth herein.

SECTION 1 - SCOPE OF SERVICES

THE ORGANIZATION will be required to successfully meet the following deadlines:

- THE ORGANIZATION will completely and successfully obtain all required permits and begin physical construction as provided in the Scope of Services (attached as Exhibit A and incorporated as if stated fully herein) within ninety (90) days of execution of a written agreement.
- Expend all Community Development Block Grant (CDBG) funds and complete the construction project(s), within a maximum of twelve (12) months from all execution of a written agreement.

SECTION 2 - RESPONSIBILITIES OF PARTIES

- A. Perform the duties described herein and in Exhibit A and will submit regular reports (not less often than quarterly) as directed by THE CITY detailing the progress of their project.
- B. At the request of THE CITY, THE ORGANIZATION will periodically send a representative to neighborhood or other public meetings to discuss and promote their project.

ORIGINAL

- C. THE CITY will provide funding for the program from the Community Development Block Grant program as set forth in Section 3 of this contract.

SECTION 3 – COMPENSATION

THE ORGANIZATION will receive a total of **Twenty-One Thousand One Hundred Nine and 13/100 Dollars (\$21,109.13)** for the services outlined above and contained in Exhibit A from the Community Development Block Grant program for eligible expenses.

SECTION 4 - TIME OF PERFORMANCE

- A. Services shall begin in the Fiscal Program Year 2015, which runs from July 1, 2015 through June 30, 2016; services shall be complete no later than December 31, 2016.
- B. Services shall begin no later than ninety (90) days following execution of this Contract.
- C. This Contract may be terminated upon thirty (30) days written notice by either party.

SECTION 5 - PAYMENT TERMS AND CONDITIONS

- A. THE CITY shall reimburse THE ORGANIZATION for services rendered based on submittal of valid invoices for project costs with a description and documentation of work performed. The CITY has the option of inspecting the completed work prior to making any payments.
- B. Invoices may be submitted monthly
- C. Final payment will be subject to receipt of a final report that is satisfactory to THE CITY.

SECTIONS 6 - NOTICES

All notices under this Contract shall be in writing and sent by certified mail to the address listed below for each party.

Kathleen L. Sauseda	Stephen Murray, Executive Director
City of Franklin	Community Housing Partnership
109 3 rd Avenue South	129 West Fowlkes Street, Suite 128
Franklin, TN 37064	Franklin, TN 37064-3562

SECTION 7 - STANDARD TERMS AND CONDITIONS

A. COMPLIANCE WITH FEDERAL LAWS/REGULATIONS

THE ORGANIZATION shall comply with all applicable Federal and State laws and regulations in the performance of this Contract.

B. ANTIDISCRIMINATION/AFFIRMATIVE ACTION AND EQUAL EMPLOYMENT OPPORTUNITY

No person on the grounds of handicap, age, race, color, religion, sex, national origin, disability, or marital/familial status or any other classification protected by Federal and/or State of Tennessee constitutional and/or statutory law-shall be excluded from participation in, or be denied benefits or, or be otherwise subjected to discrimination in the performance of this Contract.

C. AUDIT REQUIREMENTS

- i. This Contract, as well as any sub-agreement made with other participating agencies, is subject to all of the administrative requirements in OMB Circulars A-110 and A-122.
- ii. THE CITY hereby notifies THE ORGANIZATION that a single audit is required for non-profit agencies receiving \$300,000 or more in federal funds in any single fiscal year. This requirement is in accordance with OMB Circulars A-110 and A-133. If required, a copy of the single audit report will be kept on file and made available to THE CITY staff during sub-recipient monitoring visits and appropriate officials as requested.

D. CONFLICT OF INTEREST

THE ORGANIZATION agrees to abide by the following requirements with respect to conflicts of interest, and covenants that it presently has no interest, direct or indirect, and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required under this Contract. THE ORGANIZATION further covenants that in the performance of this Contract no person having such an interest, direct or indirect, shall be employed or retained by THE ORGANIZATION hereunder. These conflict of interest provisions apply to any person who is an employee, agent, consultant, officer, or elected official or appointed official of THE ORGANIZATION or of any designated public agencies or sub-recipients that are receiving funds under this program.

E. PROCUREMENT STANDARDS AND METHODS

THE ORGANIZATION shall comply with THE CITY's current policy concerning the purchase of equipment and shall maintain inventory records of all non-expendable personal property as defined by such policy as may be procured with funds herein.

THE ORGANIZATION shall procure all materials, property, or services in accordance with the requirements of Attachment O of OMB Circular A-110, Procurement Standards.

F. VENUE

In the event of a dispute or litigation arising out of said Contract, it is understood and agreed and that this Contract was executed and performed in Williamson County, Tennessee, and as such, it is agreed by both parties that venue of said litigation, including an action for Declaratory Judgment, will be in Williamson County, Tennessee.

G. ASSIGNMENT

Neither THE CITY nor THE ORGANIZATION may assign its rights or delegate its responsibilities under this contract.

H. ENTIRE CONTRACT AND MODIFICATION

This Contract between the parties supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of the entire Contract. The terms and conditions of this Contract may not be changed except by an amendment expressly referencing this Contract by section number and signed by an authorized representative of each party.

If seeking any addition or modification to the Contract, the parties agree to reference the specific paragraph number sought to be changed on any future document or purchase order issued in furtherance of the Contract, however, an omission of the reference to same shall not affect its applicability. In no event shall either party be bound by any terms contained in any purchase order, acknowledgement, or other writings unless: (a) such purchase order, acknowledgement, or other writings specifically refer to the Contract or to the specific clause they are intended to modify; (b) clearly indicate the intention of both parties to override and modify the Contract; and (c) such purchase order, acknowledgement, or other writings are signed, with specific material clauses separately initialed, by authorized representatives of both parties.

I. SEVERABILITY

If any provision of this Contract is held invalid, the remainder of the Contract shall not be affected thereby and all other parts of this Contract shall nevertheless be in full force and effect.

J. TIME OF THE ESSENCE

The parties agree that TIME IS OF THE ESSENCE with respect to the parties' performance of all provisions of the Contract.

K. NO TAXES, NO INTEREST PAYMENTS

As a tax-exempt entity, THE CITY shall not be responsible for sales or use taxes incurred for products or services. THE CITY shall supply THE ORGANIZATION with its Sales and Use Tax Exemption Certificate upon THE ORGANIZATION's request. THE ORGANIZATION shall bear the burden of providing its suppliers with a copy of THE CITY's tax exemption certificate and shall assume all liability for such taxes, if any, that should be incurred. THE CITY does not agree to pay any interest for late payments, having agreed to pay in a timely manner.

L. WAIVER

Neither party's failure or delay to exercise any of its rights or powers under the Contract will constitute or be deemed a waiver or forfeiture of those rights or powers. For a waiver of a right or power to be effective, it must be in writing signed by the waiving party. An effective waiver of a right or power shall not be construed as either (a) a future or continuing waiver of that same right or power, or (b) the waiver of any other right or power.

M. BREACH

Upon deliberate breach of the Contract by either party, the non-breaching party shall be entitled to terminate the Contract without notice, with all of the remedies it would have in the event of termination, and may also have such other remedies as it may be entitled to in law or in equity.

Witness our hands, this ____ day of _____, 2016.

THE CITY OF FRANKLIN

By: _____
Dr. Ken Moore, Mayor

Attest:

Eric S. Stuckey, City Administrator

Approved as to Form:

Approved as to Form:

Kristen L. Corn, Staff Attorney

By:

A handwritten signature in black ink, appearing to read "Stephen M. ...", written over a horizontal line.

Its:

Executive Director

**CONTRACT FOR PUBLIC FACILITIES AND
PUBLIC IMPROVEMENT PROJECTS
COF Contract No. 2016-0227**

This Contract, made and entered into this ___ day of _____, 2016 by and between the City of Franklin, (hereinafter "THE CITY ") and BRIDGES of Williamson County (hereinafter "THE ORGANIZATION").

WITNESSETH:

WHEREAS, THE CITY has identified housing developments as an important issue in the community, and to achieve the goal of creating affordable housing within the City of Franklin, THE CITY will make available a portion of the Community Development Block Grant funds toward this objective; and

WHEREAS, THE ORGANIZATION replied to a publicly advertised Request For Proposals and was selected to participate as a contractor in the City's Community Development Block Grant Program;

NOW, THEREFORE, in consideration of the mutual promises as contained herein, the parties hereto have agreed and hereby enter into this Contract according to the provisions as set forth herein.

SECTION 1 - SCOPE OF SERVICES

THE ORGANIZATION will be required to successfully meet the following deadlines:

- THE ORGANIZATION will completely and successfully obtain all required permits and begin physical construction as provided in the Scope of Services (attached as Exhibit A and incorporated as if stated fully herein) within ninety (90) days of execution of a written agreement.
- Expend all Community Development Block Grant (CDBG) funds and complete the construction project(s), within a maximum of twelve (12) months from all execution of a written agreement.

SECTION 2 - RESPONSIBILITIES OF PARTIES

- A. Perform the duties described herein and in Exhibit A and will submit regular reports (not less often than quarterly) as directed by THE CITY detailing the progress of their project.
- B. At the request of THE CITY, THE ORGANIZATION will periodically send a representative to neighborhood or other public meetings to discuss and promote their project.

ORIGINAL

- C. THE CITY will provide funding for the program from the Community Development Block Grant program as set forth in Section 3 of this contract.

SECTION 3 – COMPENSATION

THE ORGANIZATION will receive a total of **Eighteen Thousand Ninety-Three and 54/100 Dollars (\$18,093.54)** for the services outlined above and contained in Exhibit A from the Community Development Block Grant program for eligible expenses.

SECTION 4 - TIME OF PERFORMANCE

- A. Services shall begin in the Fiscal Program Year 2015, which runs from July 1, 2015 through June 30, 2016, and must be completed by December 31, 2016.
- B. Services shall begin no later than ninety (90) days following execution of this Contract.
- C. This Contract may be terminated upon thirty (30) days written notice by either party.

SECTION 5 - PAYMENT TERMS AND CONDITIONS

- A. THE CITY shall reimburse THE ORGANIZATION for services rendered based on submittal of valid invoices for project costs with a description and documentation of work performed. The CITY has the option of inspecting the completed work prior to making any payments.
- B. Invoices may be submitted monthly
- C. Final payment will be subject to receipt of a final report that is satisfactory to THE CITY.

SECTIONS 6 - NOTICES

All notices under this Contract shall be in writing and sent by certified mail to the address listed below for each party.

Kathleen L. Sauseda
City of Franklin, City Hall
109 3rd Avenue South
Franklin, TN 37064

Linda Jackson, Executive Director
BRIDGES of Williamson County
P.O. Box 1592
Franklin, TN 37065

SECTION 7 - STANDARD TERMS AND CONDITIONS

A. COMPLIANCE WITH FEDERAL LAWS/REGULATIONS

THE ORGANIZATION shall comply with all applicable Federal and State laws and regulations in the performance of this Contract.

B. ANTIDISCRIMINATION/AFFIRMATIVE ACTION AND EQUAL EMPLOYMENT OPPORTUNITY

No person on the grounds of handicap, age, race, color, religion, sex, national origin, disability, or marital/familial status or any other classification protected by Federal and/or State of Tennessee constitutional and/or statutory law-shall be excluded from participation in, or be denied benefits or, or be otherwise subjected to discrimination in the performance of this Contract.

C. AUDIT REQUIREMENTS

- i. This Contract, as well as any sub-agreement made with other participating agencies, is subject to all of the administrative requirements in OMB Circulars A-110 and A-122.
- ii. THE CITY hereby notifies THE ORGANIZATION that a single audit is required for non-profit agencies receiving \$300,000 or more in federal funds in any single fiscal year. This requirement is in accordance with OMB Circulars A-110 and A-133. If required, a copy of the single audit report will be kept on file and made available to THE CITY staff during sub-recipient monitoring visits and appropriate officials as requested.

D. CONFLICT OF INTEREST

THE ORGANIZATION agrees to abide by the following requirements with respect to conflicts of interest, and covenants that it presently has no interest, direct or indirect, and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required under this Contract. THE ORGANIZATION further covenants that in the performance of this Contract no person having such an interest, direct or indirect, shall be employed or retained by THE ORGANIZATION hereunder. These conflict of interest provisions apply to any person who is an employee, agent, consultant, officer, or elected official or appointed official of THE ORGANIZATION or of any designated public agencies or sub-recipients that are receiving funds under this program.

E. PROCUREMENT STANDARDS AND METHODS

THE ORGANIZATION shall comply with THE CITY's current policy concerning the purchase of equipment and shall maintain inventory records of all non-expendable personal property as defined by such policy as may be procured with funds herein.

THE ORGANIZATION shall procure all materials, property, or services in accordance with the requirements of Attachment O of OMB Circular A-110, Procurement Standards.

F. VENUE

In the event of a dispute or litigation arising out of said Contract, it is understood and agreed and that this Contract was executed and performed in Williamson County, Tennessee, and as such, it is agreed by both parties that venue of said litigation, including an action for Declaratory Judgment, will be in Williamson County, Tennessee.

G. ASSIGNMENT

Neither THE CITY nor THE ORGANIZATION may assign its rights or delegate its responsibilities under this contract.

H. ENTIRE CONTRACT AND MODIFICATION

This Contract between the parties supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of the entire Contract. The terms and conditions of this Contract may not be changed except by an amendment expressly referencing this Contract by section number and signed by an authorized representative of each party.

If seeking any addition or modification to the Contract, the parties agree to reference the specific paragraph number sought to be changed on any future document or purchase order issued in furtherance of the Contract, however, an omission of the reference to same shall not affect its applicability. In no event shall either party be bound by any terms contained in any purchase order, acknowledgement, or other writings unless: (a) such purchase order, acknowledgement, or other writings specifically refer to the Contract or to the specific clause they are intended to modify; (b) clearly indicate the intention of both parties to override and modify the Contract; and (c) such purchase order, acknowledgement, or other writings are signed, with specific material clauses separately initialed, by authorized representatives of both parties.

I. SEVERABILITY

If any provision of this Contract is held invalid, the remainder of the Contract shall not be affected thereby and all other parts of this Contract shall nevertheless be in full force and effect.

J. TIME OF THE ESSENCE

The parties agree that TIME IS OF THE ESSENCE with respect to the parties' performance of all provisions of the Contract.

K. NO TAXES, NO INTEREST PAYMENTS

As a tax-exempt entity, THE CITY shall not be responsible for sales or use taxes incurred for products or services. THE CITY shall supply THE ORGANIZATION with its Sales and Use Tax Exemption Certificate upon THE ORGANIZATION's request. THE ORGANIZATION shall bear the burden of providing its suppliers with a copy of THE CITY's tax exemption certificate and shall assume all liability for such taxes, if any, that should be incurred. THE CITY does not agree to pay any interest for late payments, having agreed to pay in a timely manner.

L. WAIVER

Neither party's failure or delay to exercise any of its rights or powers under the Contract will constitute or be deemed a waiver or forfeiture of those rights or powers. For a waiver of a right or power to be effective, it must be in writing signed by the waiving party. An effective waiver of a right or power shall not be construed as either (a) a future or continuing waiver of that same right or power, or (b) the waiver of any other right or power.

M. BREACH

Upon deliberate breach of the Contract by either party, the non-breaching party shall be entitled to terminate the Contract without notice, with all of the remedies it would have in the event of termination, and may also have such other remedies as it may be entitled to in law or in equity.

Witness our hands, this ____ day of _____, 2016.

THE CITY OF FRANKLIN

By: _____
Dr. Ken Moore, Mayor

Attest:

Eric S. Stuckey, City Administrator

Approved as to Form:

Kristen L. Corn, Assistant City Attorney

BRIDGES OF WILLIAMSON COUNTY

By: Linda Jackson

Its: 7/21/16 Exec. Dir.

EXHIBIT A

The proposed Scope of Services and Costs are enclosed on the following pages and are incorporated by reference into the Contract.

**Bridges Domestic Violence Center
Proposed Scope of Services**

Infrastructure:

Bridges Domestic Violence Center proposes to construct a paved parking lot with retainer wall and sidewalks. The current parking area is gravel and when it rains there are multiple areas of ponding. There isn't a current sidewalk. The parking lot and current stepping stones are not safe when it rains and makes certain areas of the building where clients are directed to enter unsafe.

The process will include but isn't limited to:

- Grant Application
- Grant Approval
- Compliance with grant requirements/permits where necessary
- Contractor Research (insure compliance with grant requirements)
- Bidding Process
- Sign Construction Contract
- Supervise progress of project
- Final Reporting on Grant

Cost

The site preparation, partial paving of parking area was estimated by a licensed paving company to cost \$20,500.00 the sidewalk was bid by a small business owner and is estimated to cost \$5,000. This request is not expected to cover the cost for the project. We have a private family foundation that has committed to cover the balance as well as any unforeseen overages that this project requires. Formal written bids have not been requested due to the timing between grant application, approval notification and start of project. Most contractors only guarantee a bid from 30 to 60 days from the time of bid.

Recordkeeping

Records will be maintained by Bridges Domestic Violence Center, including all records regarding project implementation, certifications and expenditures. We will maintain all records for 10 years from the completion of the project. Additionally, we will be available and help the City of Franklin on all compliance reporting regarding this grant.

Bridges Domestic Violence Center has all the internal systems available to begin this program immediately upon approval of this grant proposal.

**AMENDMENT NO. 1 TO
CONTRACT FOR PUBLIC FACILITIES AND PUBLIC IMPROVEMENT PROJECTS
COF Contract No. 2016-0227**

THIS AMENDMENT is made and entered into on this the ____ day of _____, 2017, by and between the City of Franklin, Tennessee ("City") and **BRIDGES OF WILLIAMSON COUNTY** ("Organization").

WITNESSETH:

WHEREAS, City and Organization entered into an Agreement ("Agreement") for Public Facilities and Public Improvement Projects ("Project"), dated the 18th day of November 2016; and

WHEREAS, said Agreement stipulated that the Organization would be paid a not to exceed fee of **EIGHTEEN THOUSAND NINETY-THREE AND 54/100 DOLLARS (\$18,093.54)**, as authorized by the Community Development Block Grant Program; and,

WHEREAS, additional funding has become available and Organization and City desire to amend the Agreement to provide for Organization to receive such funding in the amount of **TEN THOUSAND FIVE HUNDRED FIFTY-FOUR AND 56/100 DOLLARS (\$10,554.56)**; and

WHEREAS, Organization and City also desire to modify the dates during which the funding must be spent.

NOW, THEREFORE, in consideration of these premises and the mutual promises contained herein, it is agreed by and between the parties as follows:

1. The foregoing recitals are incorporated by reference as if fully stated herein.
2. Organization's Responsibilities and Duties. Organization agrees to perform the work as proposed in (Exhibit A) which includes the Scope of Services and Costs for this Amendment, all of which shall be considered as an integral part hereof.
3. City's Responsibilities and Duties. City shall pay Organization for the cost of the work as described in Exhibit A in an amount not to exceed **TEN THOUSAND FIVE HUNDRED FIFTY-FOUR AND 56/100 DOLLARS (\$10,554.56)**.
4. Section 4 – Time of Performance, Paragraph A, shall be amended by replacing the text in its entirety so that it shall read, "Services shall be performed as provided in Exhibit A, and completed no later than December 31, 2018."
5. Severability. If any term or provision of the Amendment is held to be illegal or unenforceable, the validity or enforceability of the remainder of the Amendment will not be affected.
6. Precedence. In the event of conflict between this Amendment and the provisions of the previous Agreement(s), or any other contract, agreement or other document to which this

Amendment may accompany or incorporate by reference, the provisions of this Amendment will, to the extent of such conflict (or to the extent the Agreement is silent), take precedence unless such document expressly states that it is amending this Amendment.

7. Entire Agreement. The Amendment between the parties supersedes any prior or contemporaneous communications, representations or agreements between the parties, whether oral or written, regarding the subject matter of the entire Amendment. The terms and conditions of this Amendment may not be changed except by an amendment expressly referencing this Amendment by section number and signed by an authorized representative of each party.

8. Breach. Upon deliberate breach of the Amendment by either party, the non-breaching party shall be entitled to terminate the Amendment without notice, with all of the remedies it would have in the event of termination, and may also have such other remedies as it may be entitled to in law or in equity.

9. Survival. This Amendment shall survive the completion of or any termination of the original contract, revised contract, or agreement or other document to which it may accompany or incorporate by reference.

All other provisions of the Agreement dated November 18, 2016, are unchanged and remain in full force and effect.

IN WITNESS WHEREOF, the parties have executed this Amendment.

CITY OF FRANKLIN, TENNESSEE

BRIDGES OF WILLIAMSON COUNTY

By: _____
Dr. Ken Moore
Mayor
Date: _____

By: _____
Print: _____
Title: _____
Date: _____

Attest:

Eric S. Stuckey
City Administrator
Date: _____

Approved as to form:

Kristen L. Corn, Assistant City Attorney

RESOLUTION 2017-79

A RESOLUTION AUTHORIZING THE CITY ADMINISTRATOR TO TERMINATE THE OFF-STREET PARKING LEASE AGREEMENT WITH THE 4TH AVENUE CHURCH OF CHRIST FOR TWO PARKING AREAS LOCATED ADJACENT TO THEIR 117-4TH AVENUE N, FRANKLIN, TN PROPERTY.

MADE THIS _____ day of _____, 2017, to be effective (The "Effective Date"), by and among the 4th Avenue Church of Christ ("Lessor") and the City of Franklin, Tennessee ("Lessee").

RECITALS:

WHEREAS, Lessee and Lessor are parties to a certain Agreement, dated November 11, 2008, and known as the "Lease Agreement", relating to operation and maintenance of a certain off-street parking lot located within the Lessee's corporate limits as more fully described therein Exhibit A; and

WHEREAS, Lessee and Lessor are parties to a certain Agreement where the Lessor desired to make the off-street parking lot available to Lessee for the benefit of the citizens of the City of Franklin; and

WHEREAS, the Term of the Agreement was ten (10) years, unless the Lessor exercised his right to terminate the Agreement, stipulated in Article 7 of Agreement, relating to the Termination clause; and

WHEREAS, the Lessor wishes to terminate their lease agreement with the City of Franklin, Tennessee, and has reimbursed the pro-rated share of the expense the Lessee incurred for improving the off-street parking lot which included asphalt paving, striping, and maintenance as stipulated in Article 7 of the Agreement; and

WHEREAS, the Lessor made payment to the City of Franklin, TN in the amount of \$ 7,607.00 on October 30, 2017, effectively satisfying the Termination Clause of said Agreement.

NOW THEREFORE, BE IT RESOLVED, BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF FRANKLIN, TENNESSEE, THAT in consideration of the mutual promises and covenants hereinafter set forth, other good and valuable consideration, the receipt of \$ 7,607.00 on October 30, 2017, and adequacy of which is acknowledged and legally bound, the parties agree as follows:

Section 1. Termination of Lease Agreement. The Lessor and Lessee as of the Effective Date, mutually promise, agree, and release each other from the Lease Agreement, henceforth.

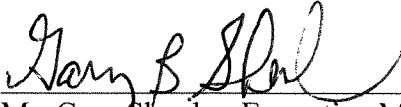
Section 2: That this Resolution shall be effective upon adoption.

ADOPTED THIS _____ DAY OF _____, 2017

Lessee:
CITY OF FRANKLIN, TENNESSEE

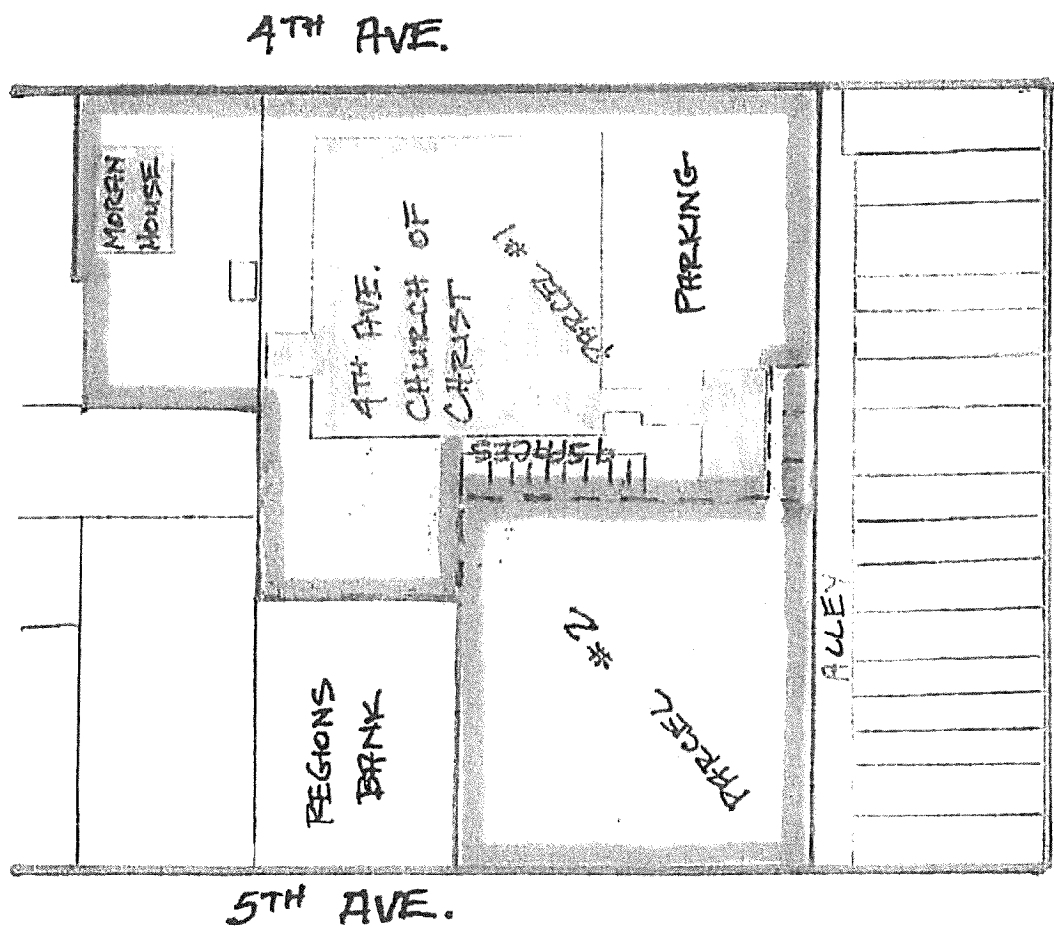
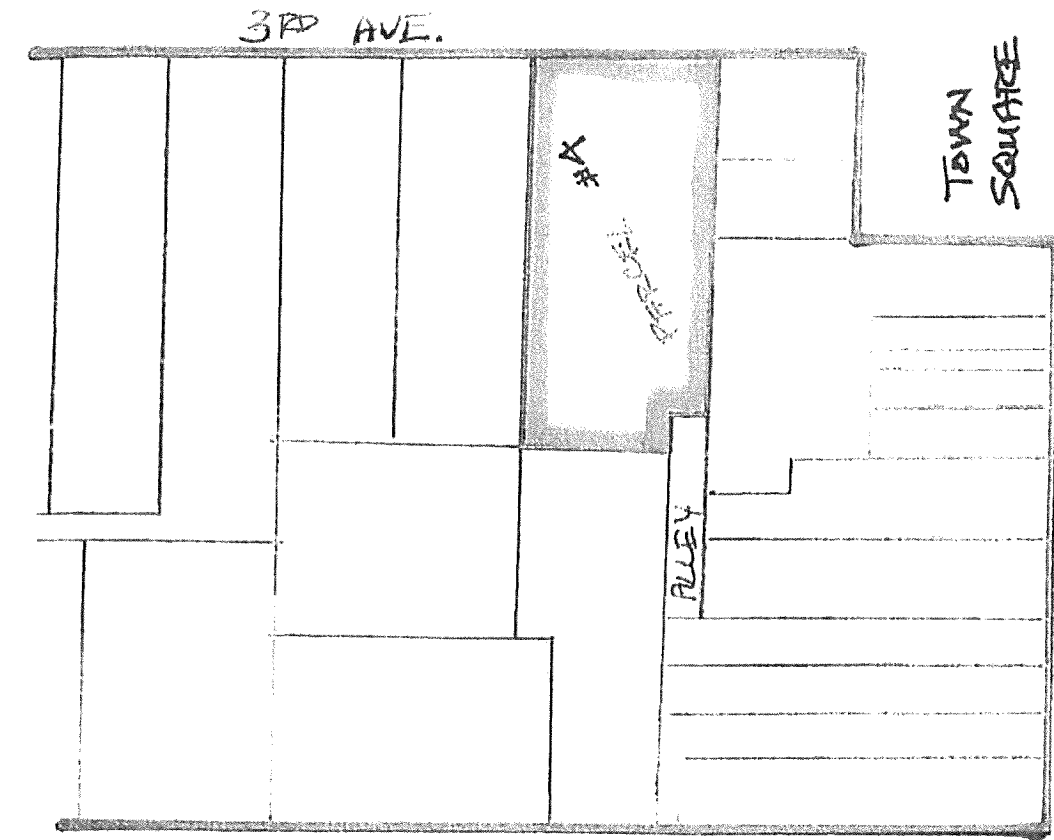
Eric S. Stuckey, City Administrator

Lessor:
4TH AVENUE CHURCH OF CHRIST
MR. GARY SHRADER,
EXECUTIVE MINISTER



Mr. Gary Shrader, Executive Minister

Approved as to form by
Shauna R. Billingsley, City Attorney



1 4 1

MAIN ST

FRANKLIN, TN.

EXHIBIT A

RESOLUTION NO. 2016-35

TO BE ENTITLED: "A Resolution to Defer a Decision about the Future of the Property at 403 and 405 5th Avenue North, "The Hill Property," Until Such Time as Improvements to Bicentennial Park and Hillsboro Road are Finished and Associated Activity can be Fully Assessed, and the existing metal structures should be removed."

WHEREAS, 403 and 405 5th Avenue North and known informally as "The Hill Property" is owned by the City, jointly held by the General Fund (61%) and the Water & Sewer Fund (39%); and

WHEREAS, The Hill Property has been largely unused since the City's new Public Works Facility opened in Spring of 2014, and several competing interests have indicated interest in the property for redevelopment; and

WHEREAS, the appraised market value ranges from \$1.82 to \$2.55 million; however, the Water & Sewer Fund may not be permitted to partake in any transactions other than those based on fair-market value; and

WHEREAS, the Land Use Plan recommends that new uses should be limited to low-scale, low-impact public uses that respect the adjacent historic cemetery; however, if the BOMA declares the property surplus, then low-scale, low-impact commercial and civic/institutional uses would be appropriate; and

WHEREAS, the Board of Mayor and Aldermen has held several discussions related to the future of the property with varied opinions; and

WHEREAS, improvements to Bicentennial Park and Hillsboro Road are not fully complete and some redevelopment along the southern portion of 5th Avenue N is anticipated in the near future, making it difficult to determine the full impact in this area in terms of increased traffic, parking needs, and community-related activities; and

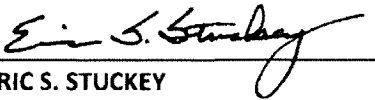
WHEREAS, it is beneficial for a City to hold on to public property if there's any likelihood for future public use and it is too early to predict whether the property should remain public or private.

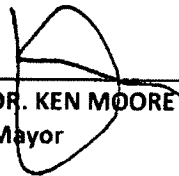
NOW THEREFORE, BE IT RESOLVED, BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF FRANKLIN, TENNESSEE, that The Hill Property be held by the City until such time the improvements to Bicentennial Park and Hillsboro Road are completed and associated activity can be fully assessed. Due to the condition of the structures on the property, they should be removed.

IT IS SO RESOLVED AND DONE on this 12th day of July 2016

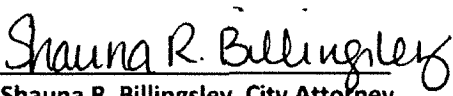
ATTEST:

CITY OF FRANKLIN, TENNESSEE

By: 
ERIC S. STUCKEY
City Administrator

By: 
DR. KEN MOORE
Mayor

Approved as to Form

By: 
Shauna R. Billingsley, City Attorney



MEMORANDUM

DATE: November 25, 2015

TO: Board of Mayor and Aldermen

FROM: Eric Stuckey, City Administrator
Vernon Gerth, Assistant City Administrator
Bob Martin, Interim Planning Director
Kelly Dannenfelser, Principal Planner
Brian Wilcox, Purchasing Manager

SUBJECT:

Consideration of Options and Staff Recommendation for 403 and 405 5th Avenue North - "The Hill"

Purpose

The purpose of this memorandum is to identify and outline the general process and merits, all for consideration by the Board of Mayor and Aldermen, of various options for 403 and 405 5th Ave. North.

Background

403 and 405 5th Ave. North, alternatively addressed as 403 and 405 Hillsboro Road and known informally by some as "The Hill," is currently owned by the City. The original purchase by the City took place in 1961 and additional land was purchased by the City in 1981. Most recently, it is the former site of City of Franklin Water Management Department headquarters and the Fleet Maintenance facility. Previously, it also served as headquarters of the City's Department of Sanitation and Environmental Services as well as the solid waste transfer station for that department.

According to May and June, 2015 appraisals of the property obtained by the City, the as-is market value ranges from \$1.82 to \$2.55 million. From an accounting point of view, according to a June 9, 2015 staff analysis, the real estate is a City asset jointly held by the General Fund and the Water & Sewer Fund (in the approximate ratio of 61% to 39%, respectively). (Although Sanitation operated at the site, there is no evidence that any Sanitation related revenue stream or expense was used to purchase land or construct buildings at the site.) This joint title means one fund could buy out the other, based on an appraised value, or proceeds from sale or lease of the property could be apportioned according to the above ratio. Note that, to protect the City's water and wastewater rate payers, the Water & Sewer Fund may not be permitted to partake in any transactions other than those based on fair-market value.



MEMORANDUM

Since the City's new Public Works Facility opened in 2014, the property at 403 and 405 5th Ave. North has been largely unused. Should the Board of Mayor and Aldermen decide that the property should be redeveloped for a different purpose, staff has identified, and offers a general description of the process and relative merits, for the following alternative methods for doing so:

1. Declare as surplus; sell for redevelopment by another party. The City could declare the real estate as surplus and solicit offers to purchase the property from the City, possibly for redevelopment for a specific use or possibly preliminary to and separate from any proposal for redevelopment for a particular use, and either in keeping with the current zoning classification for the property or pursuant to an approved change of zoning classification.
 - a. Process: Pursuant to Franklin Municipal Code Section 5-802 ("Disposal of surplus real property"), selling the property as surplus would involve (a) the Board of Mayor and Aldermen, by resolution, authorizing its sale, and (b) following specified public notice, the City soliciting sealed bids for purchase of the property. Bids would be evaluated first on the basis of compliance with the terms and conditions and any restrictions placed on the sale, and then on the basis of value.
 - b. Merits:
 - City could, if the property were to be offered for sale for redevelopment for a specific use sale, control how the property is redeveloped, either for a minimum period of time or in perpetuity.
 - Buyer could, if the sale were to be preliminary to and separate from any proposal for redevelopment for a particular use, have maximum latitude to redevelop the property in a creative manner, possibly resulting in the highest and best use of the property.
 - Property could, depending upon the new use, become subject to property taxes.
 - City's obligation to maintain the property could be terminated upon closing, depending upon any contractual commitments made by the City.
2. Declare as surplus; lease for redevelopment by another party. The City could solicit proposals to enter into a long-term lease of the real estate, possibly for redevelopment for a specific use or possibly preliminary to and separate from any proposal for redevelopment for a particular use, and either in keeping with the current zoning classification for the property or pursuant to an approved change of zoning classification.



MEMORANDUM

- a. Process: Pursuant to Franklin Municipal Code Section 5-802 ("Disposal of surplus real property"), leasing the property would involve (a) the Board of Mayor and Aldermen, by resolution, authorizing its lease, and (b) following public notice, the City issuing a request for proposals for lease of the property from the City. Proposals would be evaluated according to weighted selection criteria identified in the request for proposals.
 - b. Merits:
 - Would allow the City to maintain ownership of the property, and thus preserve some options for the future use of the property, subject to the terms of the lease.
 - City could control how the property is redeveloped during the term of the lease.
 - Property could, depending upon the new use, become subject to property taxes during the term of the lease.
 - City's obligation to maintain the property during the term of the lease could be discontinued, depending upon any contractual commitments made by the City.
3. Maintain ownership and control of the property for redevelopment by the City. The City could redevelop the property as open space or a particular use.
- a. Process: Any redevelopment of or other improvements to the property would be handled as a City facilities project, with funding and purchasing to be pursued according to standard procedures for such.
 - b. Merits:
 - Would allow the City to redevelop the property for a public purpose.

The land-use planning context for the property at 403 and 405 5th Ave. North is attached as Appendix No. 1.

Financial Impact

The financial impact of each alternative method for redeveloping the property is difficult to quantify but may include the following potential revenues and expenditures:

Alternative method for redeveloping the property	Potential revenues	Potential expenditures
--	--------------------	------------------------



MEMORANDUM

1	Proceeds from sale of property; could be substantial; likely would be recognized upon closing	Not likely to be substantial
2	Proceeds from lease of property; could be substantial; likely would be recognized over the term of the lease	Not likely to be substantial
3	Revenues not likely to be substantial	Cost of preferred redevelopment; likely would be substantial; could be expensed as incurred or financed over time

Option

In addition to the various alternative methods for redeveloping the property identified above, the City has the option of allowing the property to remain as is for the immediate future and at least until such time the planned improvements to Hillsboro Road and Bicentennial Park are finished and associated activity can be fully assessed.

Recommendation

Staff supports the City of Franklin Land Use Plan recommendations for this property. Specifically, the Land Use Plan recommends that new uses should be limited to low-scale, low-impact public uses or civic/institutional private uses that respect the adjacent historic cemetery.

Equally important, staff recognizes the improvements to Hillsboro Road and Bicentennial Park are not fully complete, making it difficult to determine the full impact in this area in terms of increased traffic and community-related activities. Therefore, it may be too early to consider the type of uses that may best serve this area or whether "The Hill" should remain public or private. Generally, it is beneficial for a City to hold on to public property if there's any likelihood for future public use, and at this point, it is too early to predict Bicentennial Park's full parking needs.

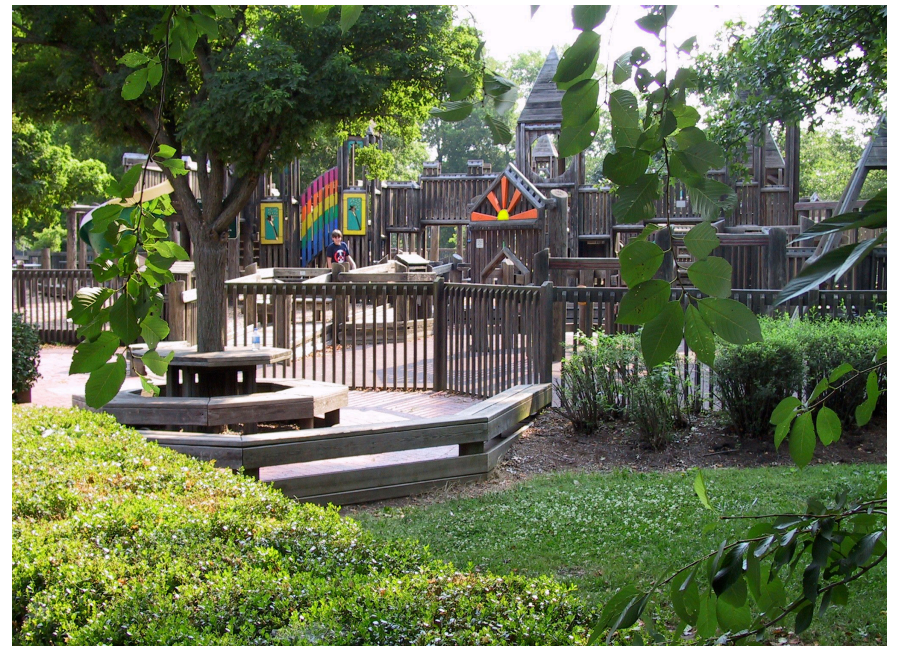
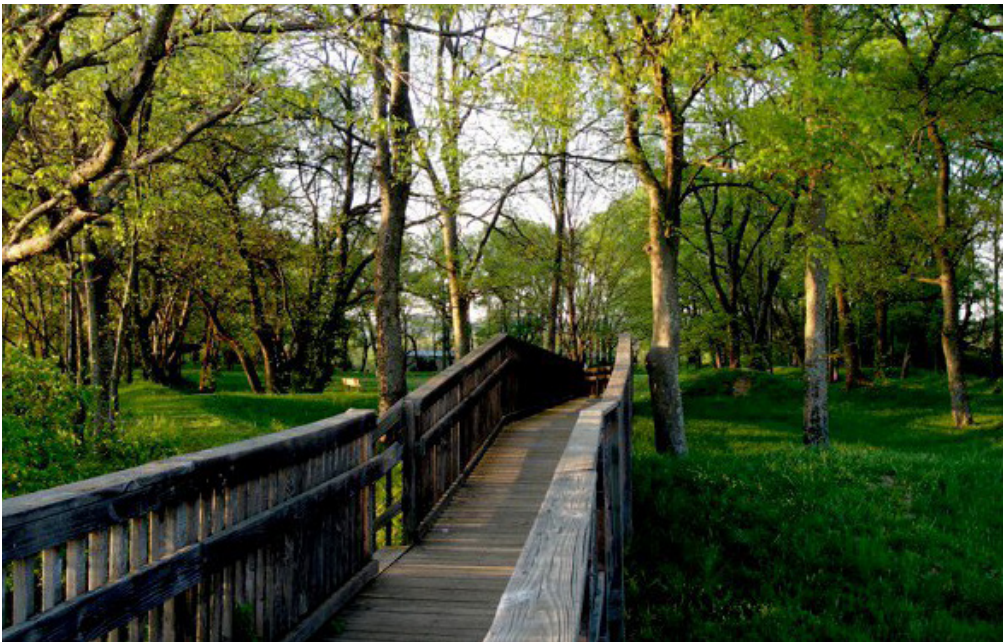
Staff recommends the BOMA allow the property to remain vacant until such time the improvements to Hillsboro Road and Bicentennial Park are finished (or at least further developed) and associated activity can be fully assessed. Additionally, staff recommends the BOMA consider allocating funds within the upcoming FY 2017 budget to demolish the existing metal structures and stabilize this property.

RECREATION

The [Recreation design concept](#) comprises areas of public and private recreational opportunities. These areas include active and passive open spaces, as well as City parks, and should be interconnected through bike lanes, multi-use paths, and sidewalks.

Institutional facilities, such as the water treatment and wastewater treatment plants, are also assigned to this design concept and fulfill significant municipal functions.

*“...INTERCONNECTED
THROUGH BIKE LANES,
MULTI-USE PATHS, AND
SIDEWALKS.”*



RECREATION

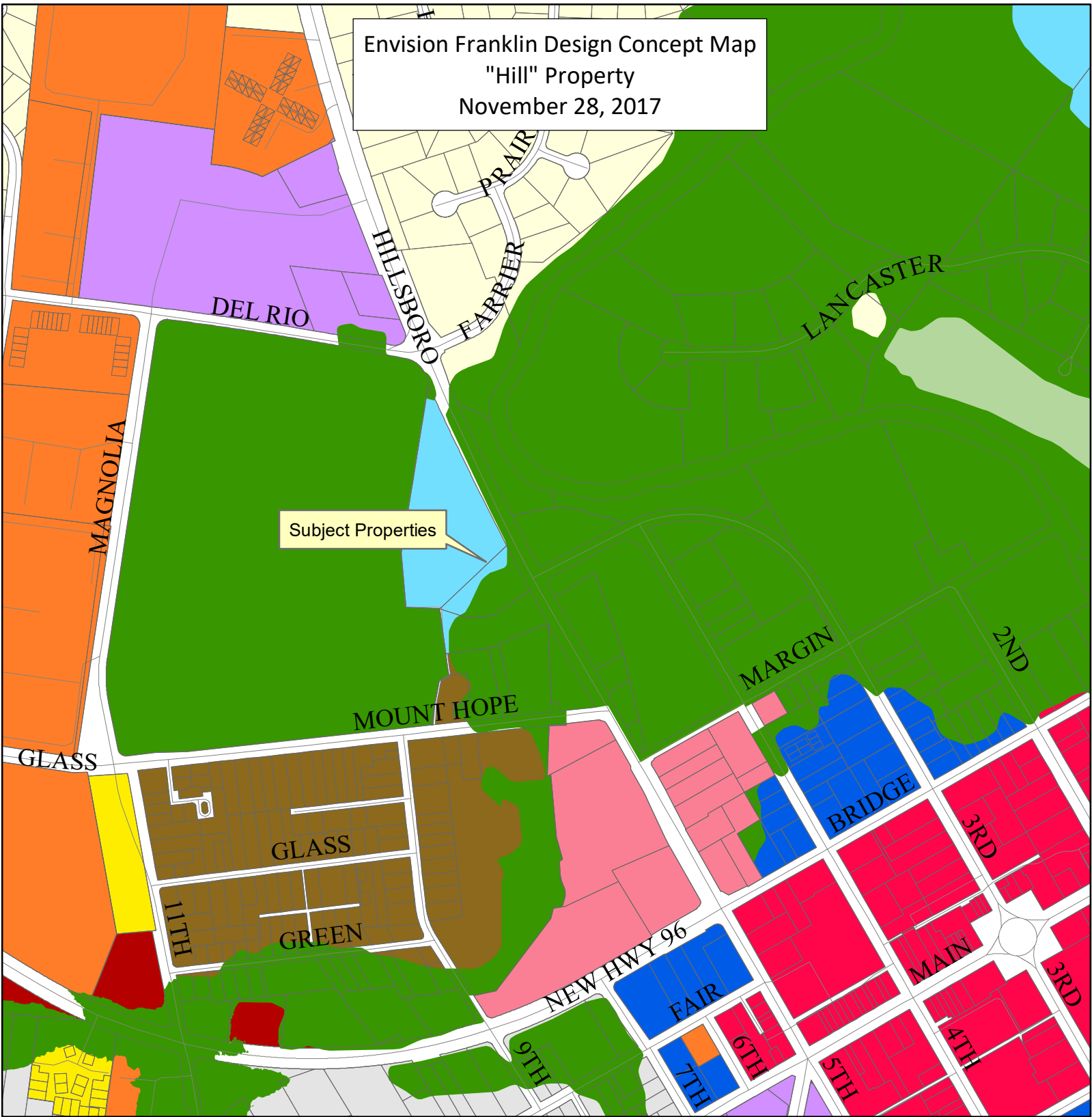
USES	Primary	Institutional and Recreation
	Secondary	N/A
FORM	Building Placement	Varied, based on location
	Building Character	Varied, based on location
	Building Height	Maximum of two stories
SITE DESIGN	Landscape	Preservation of existing natural features
	Amenities	Significant open space and active and passive recreational opportunities The Harpeth River is intended to have a public edge that is physically and visually accessible to the public through a greenway network that extends north to south along the river. The purpose is to provide environmental educational opportunities, points for passive recreation, small informal gatherings and scenic vistas.
	Access	Primary access should be from the street. Parking and services should be accessed through internal and secondary streets. Streets should be designed for slower speeds to allow for a mix of pedestrian and vehicular traffic. Strong pedestrian connections should be provided externally and internally so as to connect to adjacent neighborhoods.
	Parking	Generally off-street. On-street parking may be provided along internal or low-volume streets.

RECREATION

TRANSPORTATION	Vehicular	New streets should be designed per the Corridor Character Matrix and Connect Franklin.
	Bicycle and Pedestrian	A coordinated pedestrian system should be provided throughout the area. Connections between uses on the site and between the site and adjacent properties and rights-of-way should be provided. Bicycle, multi-use path, and pedestrian connections should be designed and provided per the Corridor Character Matrix, Connect Franklin, Parks Master Plan, and this Plan.
	Transit	Transit stops and/or stations should be provided along existing or planned routes.
SPECIAL CONSIDERATIONS	Fifth Avenue North, "Hill Property"	New development should be low-scale, low-impact, public uses that respect and complement the adjacent historic cemeteries. If this property is declared surplus, then low-scale commercial and institutional uses would be appropriate.
	New Highway 96 West	This scenic corridor should have deep setbacks of at least 300 feet for new development. Informal landscape design and rural features, such as stone walls, wood plank fencing, and informal tree plantings, should be utilized to sustain the scenic and rural quality of the area. Commercial and office uses should not front along New Highway 96 West.



Envision Franklin Design Concept Map
 "Hill" Property
 November 28, 2017



Design Concepts

Development Reserve

Recreation

Conservation

Conservation Subdivision

Large Lot Residential

Historic Residential

Compact Residential

Single Family Residential

Office Residential

Mixed Residential

Multifamily Residential

5th Avenue North

Main Street

Neighborhood Mixed Use

Neighborhood Commercial

Regional Commerce

Industrial Flex



SUMMARY OF RECOMMENDATIONS		
Type	Description	Term
Hill Property		
PR	Maintain City ownership of the site	Short
IM	Limited low-scale, community-oriented development; options include:	Long
IM	• Community center	Long
IM	• Welcome or visitor center	Medium
IM	• Parking for the adjacent cemeteries, special events & Bicentennial Park	Long
IM	• Expansion of adjacent cemeteries	Short
IM	• Park, passive open space, and/or trailhead	Short
IM	• Gateway feature	Short
PR	Development must respect/complement adjacent historic cemeteries	Mixed
Bicentennial Park Area		
IM	Complete remaining park improvements	Mixed
IM	Purchase remaining privately owned properties	Medium
IM	Include additional amenities; options include:	Long
IM	• Amphitheater	Medium
IM	• Additional parking for adjacent cemeteries	Long
IM	• Splash park	Mixed
IM	• Additional trails to connect to existing trails/sidewalks	Short
IM	• Relocate downtown special events to the site	Mixed
IM	• Enhance connectivity to and use of the river via trails, livery, etc.	Short
IM	• Relocate the farmers market to the old Durango boot factory	Short
IM	• Increase the frequency of the farmers market	Medium
IM	• Trailhead(s)	Medium
IM	Retrofit bollard at east end of Margin Street for easier emergency access	Short
IM	French's Property:	Medium
IM	• Purchase/lease property for public parking to access cemeteries/park	Medium
IM	• Beautify French's parking lot	Medium
IM	Uses for City-Owned Properties along 5 th Ave (in this area); options:	Short
IM	• Demolish remaining structures	Short
IM	• Install additional parking for cemeteries/park	Short
IM	• Add transit stop	Medium
IM	• Add a trailhead	Medium
IM	• Install a gateway feature	Medium
East of 5th Avenue, South of Margin		
PR	Properties fronting 5 th Ave - revise City zoning ordinances to:	Short
PR	• Expand permitted non-residential uses	Short
PR	• Prohibit auto-oriented uses currently allowed in this area	Short
PR	• Revise setbacks to require buildings to be closer to the street	Short
PR	• Require cross-access easements and encourage shared parking	Short
PR	• Require corner properties to provide access only from the side street	Short
PR	• Require moving parking behind the buildings when properties redevelop	Short
PR	• Require new buildings to meet/exceed the floodplain requirements	Short
PR	• Prohibit parking that requires vehicles to back directly out onto 5 th Ave	Short

OVERVIEW



Hill Property- City Facility

Hill Property

The City owns property located on a mound adjacent to two African American cemeteries near Mount Hope Road and 5th Avenue North. The building on the property is currently used as a city administrative facility for water treatment. It is massed on 4.2 acres. The City is committed to removing the structure and is considering more appropriate development on the site. There were several alternative suggestions made during input sessions for this site. Possible uses include a new city hall, low-scale residential, entertainment district, retail/commercial, visitors center, community center, parking, open space. However, repeatedly, citizens insisted that any new development must respect the integrity of the adjacent cemeteries and not infringe upon the accessibility or physical/social context of the Hard Bargain neighborhood or cemeteries.

POLICY RECOMMENDATIONS

1. Utilize this Parcel for Open Space

Other than the two, privately-owned African American cemeteries to the west of the "Hill Property", there are no parks, trails, or other greenway facilities in this sub area. Additionally, unless the "Hill Property" remains in public ownership, any new recreation or open space facilities in this sub-area would be isolated and would not directly connect to existing or proposed facilities.

2. Encourage Low-Scale/Low-Impact Public Uses
3. Enforce Compliance with Floodplain Regulations
4. Ensure No Impact on Surrounding Historic Cemeteries

IMPLEMENTATION MEASURES

1. Construct an Interpretive or Visitor's Center/ Architectural Gateway Feature

The Hill property presents a unique opportunity to consider a wide range of redevelopment (or no development) strategies. Unlike most of the sites in the study area, this city-owned property is one of the only substantial sized sites not in the flood plain. It also has the distinction of being the site that is most visually prominent as one approaches the Downtown core from the north and understandably it is the site that has the most development pressure. That said, the site does have several constraints that would make it challenging to develop in any substantial manner. Although the site is elevated above the flood plain, access to it or from it would not be safe from a flood condition. Also the eastern side of the hill has been cut into and supported with a 25'-to 30' retaining wall. Circulation and parking for any sizeable development on the Hill property may render a proposed project less economically feasible. Another condition that requires some sensitivity is the adjacent cemeteries, one of which is on the National Registry for Historic Places.

Based on the conditions outlined previously, **it is recommended that the site be targeted for low scale community oriented development.** It was suggested on numerous occasions that this site should accommodate a welcome/ visitors / Franklin interpretive center or gateway marker for the City with the latter being a reoccurring theme amongst different stakeholder groups. These ideas not only would be suitable for the site but would also address the issue of a physical marker needed to denote the entry into the downtown historic core. Additionally, a smaller scaled project would lessen potential visual impacts associated with the retaining wall combined with a substantial structure looming overhead.

CHARACTER AREAS

SPECIAL AREA 9

The New Hwy 96 W/5th Avenue N Key Area encompasses the entirety of Special Area 9.

Key Area –New Highway 96 West/5th Avenue N

This area represents an important corridor leading into the historic downtown core. The community desires to improve upon the area and transform the character of the built environment to promote a vibrant downtown core while protecting the residential character of the surrounding areas.

Most of these properties are located within the 100-year floodplain and have redevelopment constraints due to local and Federal floodplain regulations that are intended to protect against significant risk of life and property. Much of this area was developed prior to these regulations.



5th Avenue

In certain instances, local restrictions should be given flexibility in order to support and enhance community-valued resources. A study was completed by the American Planning Association Community Planning Assistance Team (CPAT) that provided recommendations for this gateway into historic downtown Franklin: both redevelopment of commercial uses in the shallower floodplain and conservation of the deeper floodway fringe and floodway. This FLUP reflects those recommendations. Because the topography changes significantly across this small geographical area, recommendations have been broken down at the block and mid-block level.

5th Avenue N between N Margin St/Mt Hope St and Del Rio Pike

Much of this area is located in the deeper floodplain and floodway and properties should be preserved as open space so that they may serve as storm water capacity during flood events and reduce risk to life safety.

New uses for the “hill property” should be limited to low-scale, low-impact public uses that respect the adjacent historic cemetery. If the BOMA decides to declare this property surplus, low-scale commercial and civic/institutional uses would be appropriate.

5th Avenue N between New Highway 96 W/Bridge St and N Margin St/Mt Hope St

This area is currently underutilized in terms of development potential. Future redevelopment should follow standards for traditional areas and meet the City’s floodplain construction standards. Commercial, retail, and civic/institutional uses should be concentrated in this area.

Land aggregation and redevelopment of properties of a half block size or greater is highly encouraged in order to achieve the development form recommendations of this Key Area. Shared parking site design and shared parking agreements are also highly encouraged. Additional street and pedestrian interconnectivity should better integrate the site with the existing network. Flat roofs with parapet walls are recommended with the intent to de-emphasize the overall building height. Zero side yard setbacks with architectural features

**ROAD IMPACT FEE OFFSET AGREEMENT
COF CONTRACT NO 2017-0293**

This agreement is entered into between THE CITY OF FRANKLIN, TENNESSEE (“City”) and **Suntrust Realty and Land, LLC.**, (“Developer”), on this the _____ day of _____, 201____, pursuant to Title 16, Chapter 4 of the Franklin Municipal Code (“FMC”).

WHEREAS, the Developer has previously submitted to the Franklin Municipal Planning Commission a Development Plan for Colletta Park PUD Subdivision (the “Development Project”); and

WHEREAS, the Lockwood Glen Development Plan was previously submitted and approved by the Franklin Municipal Planning Commission and will contribute a significant amount of traffic to South Carothers Roadway; and

WHEREAS, the City has required the Developer to design and construct certain roadway improvements to include the dedication of collector right-of-way, the engineering design of non-site related collector improvements and/or the construction of certain non-site related collector improvements as a requirement of the Development Project; and

WHEREAS, City staff is preparing an amendment to the Comprehensive Transportation Network Plan (Major Thoroughfare Plan) and proposing to reclassify South Carothers Roadway to a collector road; and

WHEREAS, the estimated Collector Impact Fees to be generated by the development is \$664,660.00 (199 single-family homes at \$3,340/single-family home) and the estimated Collector Impact Fees to be generated by the Lockwood Glen Development Plan is \$794,133.00; and

WHEREAS, the Developer has made application to offset a portion of the costs of construction of these improvements against any Road Impact Fees due from the Development Project, and the estimated amount of such eligible costs, and potential offset, was determined by the Road Impact Fee Administrator (City Engineer) on November 9, 2017, to be \$1,458,793, as shown on Exhibit A.

NOW THEREFORE, the City and the Developer, their successors and assigns, do hereby agree as follows:

1. The foregoing recitals are incorporated into this Agreement and made a part thereof.
2. Developer has submitted reliable information, as shown in Exhibit A, related to the costs of construction of the following arterial roadway improvements and/or works:

South Carothers Roadway

3. The total estimated costs of engineering/design, right-of-way and construction of the Improvements is **One Million, Four Hundred Fifty-Eight Thousand, Seven Hundred Ninety-Three and No/100 Dollars (\$1,458,793.00)** for the Development Project and the total reimbursement to the Developer is an identical amount. The following costs are

specifically excluded: fiscal cost, including interest of money borrowed to finance the construction, cost for utility relocations, turn lanes, internal management fees and signals improvements that benefit solely the development and not the collector roadway. **At no time shall reimbursement exceed the Collector Impact Fees collected as part of the Development Project and the Lockwood Glen PUD Development Project.**

4. Pursuant to the Franklin Municipal Code, the eligible reimbursement shall not exceed the total of the Collector Road Impact Fees due for the Development Project and the City agrees to contribute the Collector Impact Fees collected as part of the Lockwood Glen PUD Development Project.
5. The Developer shall be responsible for obtaining all offsite right-of-way and easements associated with the offsite collector improvements. Should negotiations fail, the city agrees to acquire the right-of-way and easements necessary for the Collector Roadway Improvements as shown in Exhibit A.
6. The City Engineer shall review and approve all design contracts, ROW acquisition offers and construction bids prior to the spending of any funding in which the Developer is seeking reimbursement from the City. The Developer agrees that failure to obtain contract approval from the City Engineer may result in loss of City funding / reimbursement.
7. Reimbursement of funding is contingent upon the Franklin Municipal Planning Commission approval to reclassify South Carothers Roadway as a Collector Road. Should this amendment be disapproved by the Franklin Municipal Planning Commission, the developer agrees to make all improvements required as part of the Development Plan approval.
8. The Developer may submit periodic invoices to the City during the course of construction (not more frequently than every ninety (90) days), which invoices shall be payable within thirty (30) days after approval by the Road Impact Fee Administrator (City Engineer), subject to collected impact fees and paragraph 3 above. Invoices shall include copies of approved contracts and invoices associated with the collector roadway improvements and copies of checks to show proof of payment.
9. Within 60 days of completion and acceptance of the improvements, the Developer and the City shall settle on a final billing. The Developer will provide reasonable documentation for all such cost and provide notarized release of liens.
10. The City and Developer agree that the terms and conditions contained herein shall be binding on and shall inure to their heirs, representatives, successors, and assigns and that there are no understandings or agreements between them except as contained in this instrument.
11. The City shall have no liability except as specifically provided in this Agreement.
12. Applicable Law/Choice of Forum and Venue. This Agreement is made under and will be construed in accordance with the laws of the State of Tennessee without giving effect to that state's choice of law rules. The parties' choice for forum and venue shall be exclusively in the courts of Williamson County, Tennessee.

CITY

CITY OF FRANKLIN, TENNESSEE, a
municipality

By: _____
DR. KEN MOORE
Mayor

Date: _____

By: _____
ERIC S. STUCKEY
City Administrator

Date: _____

STATE OF TENNESSEE)
)
COUNTY OF WILLIAMSON)

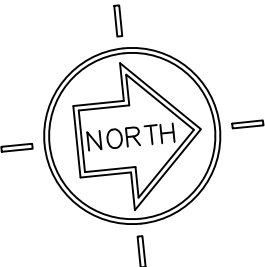
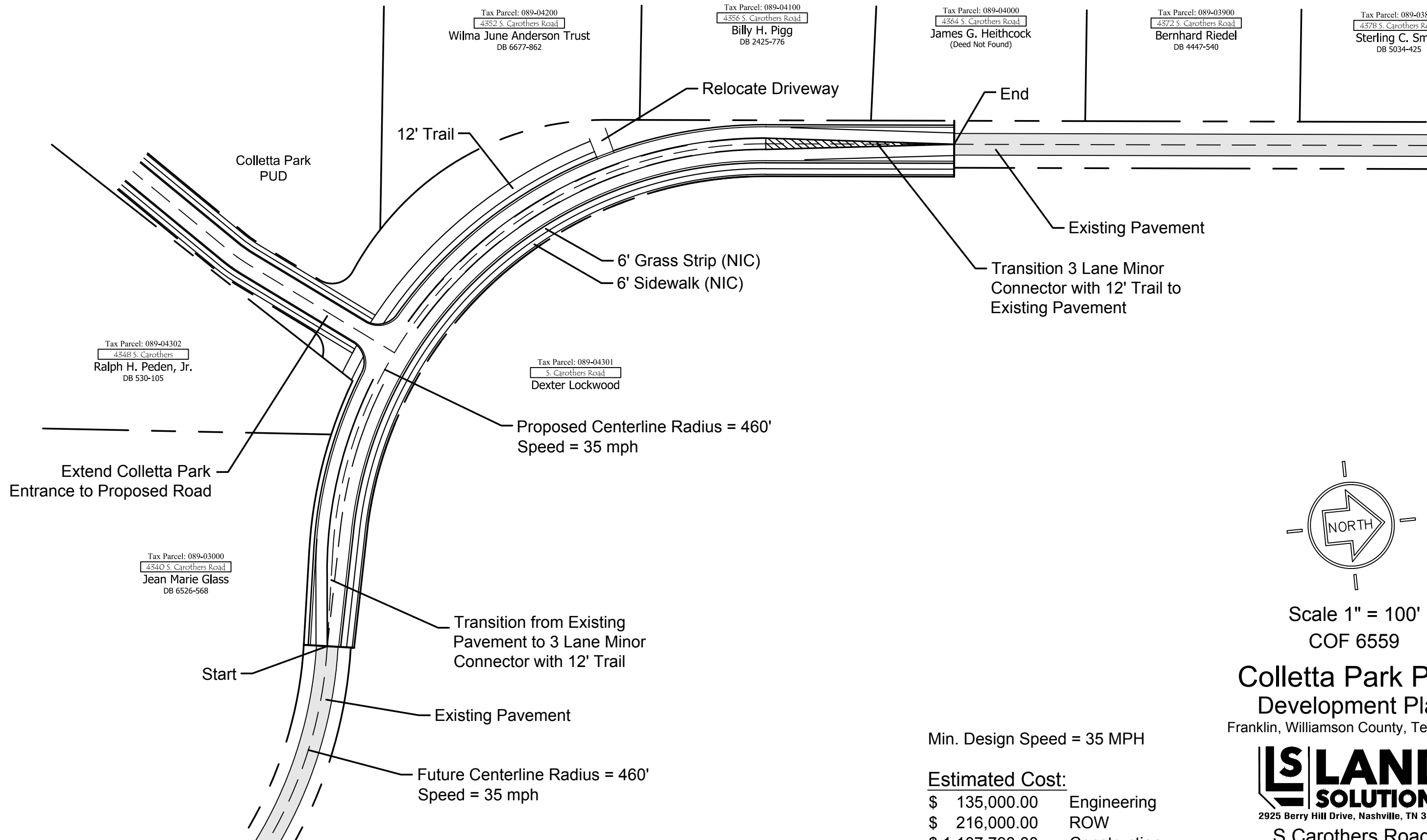
Before me, the undersigned Notary Public of said County and State, personally appeared DR. KEN MOORE and ERIC S. STUCKEY, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who, upon oath, acknowledged themselves to be the Mayor and City Administrator, respectively, of the City of Franklin, Tennessee, the within named bargainor, a municipality, and that as such Mayor and City Administrator executed the foregoing instrument for the purposes therein contained, by signing the name of the municipality by themselves as Mayor and City Administrator.

Witness my hand and seal this _____ day of _____, 20____.

Notary Public
My Commission Expires: _____

Approved as to form by:

Tiffany M. Pope, Staff Attorney



Scale 1" = 100'
COF 6559

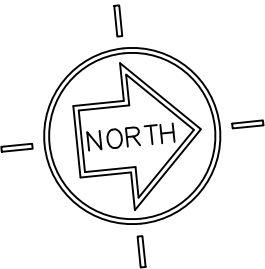
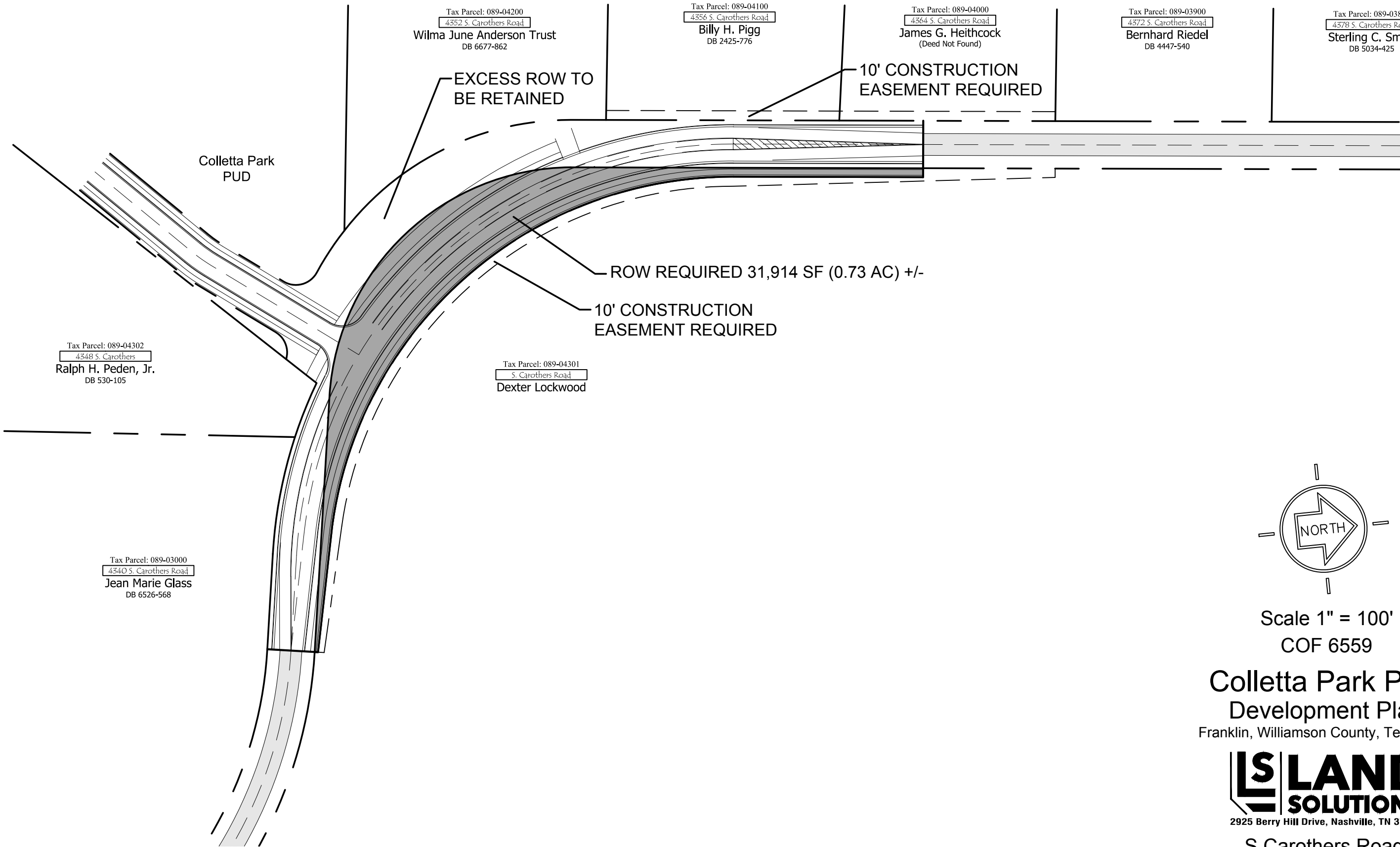
Colletta Park PUD
Development Plan
Franklin, Williamson County, Tennessee



S Carothers Road
EX.1 - PROPOSED ROAD
ALIGNMENT

Min. Design Speed = 35 MPH

<u>Estimated Cost:</u>	
\$ 135,000.00	Engineering
\$ 216,000.00	ROW
\$ 1,107,793.00	Construction
\$ 1,458,793.00	TOTAL

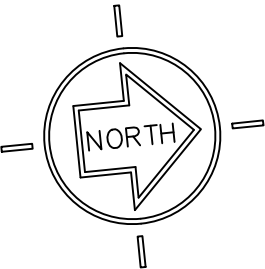
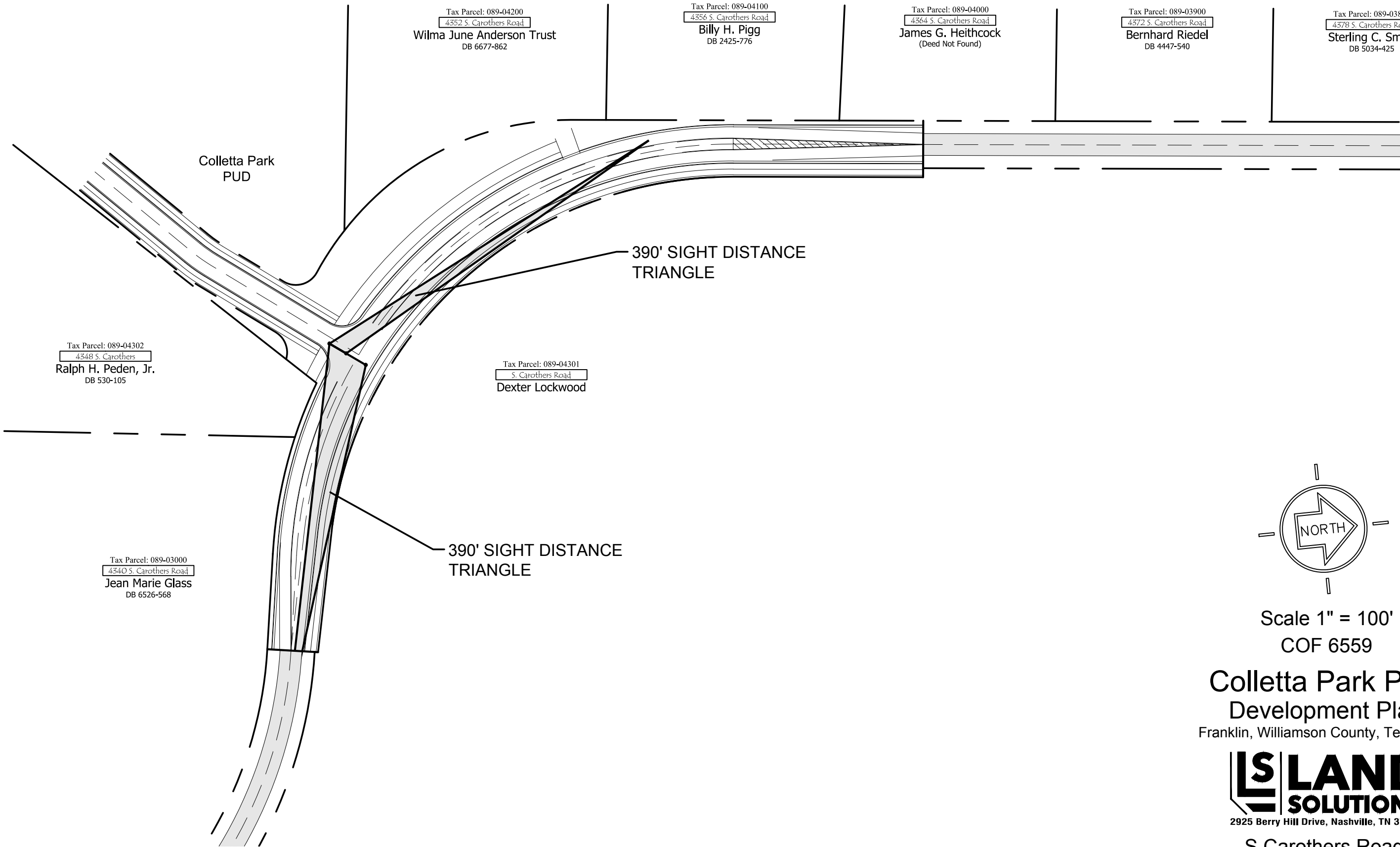


Scale 1" = 100'
COF 6559

Colletta Park PUD
Development Plan
Franklin, Williamson County, Tennessee



S Carothers Road
EX.2 - ROW ACQUISITION EXHIBIT



Scale 1" = 100'
COF 6559

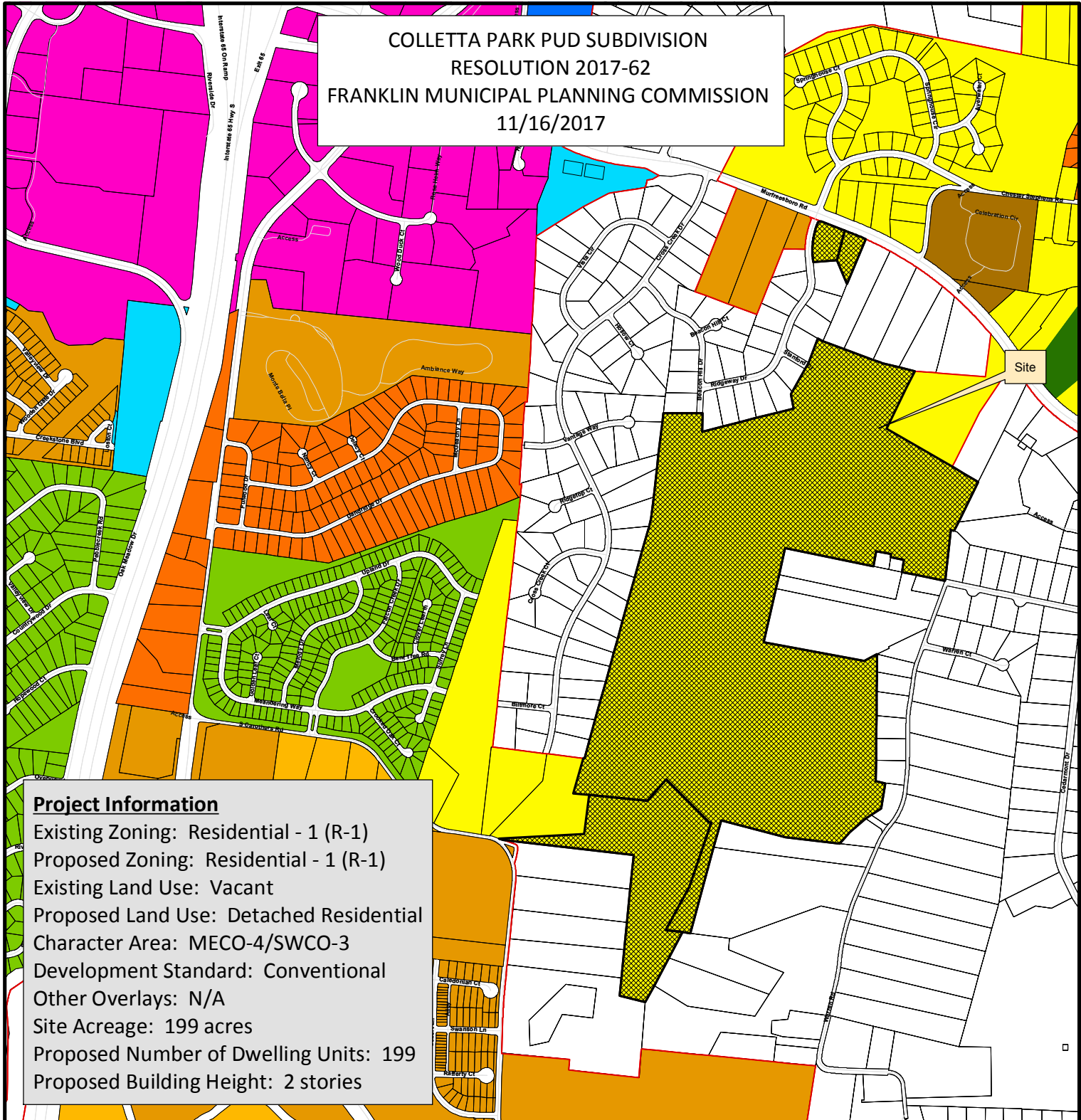
Colletta Park PUD
Development Plan

Franklin, Williamson County, Tennessee



S Carothers Road
EX.3 - SIGHT DISTANCE EXHIBIT

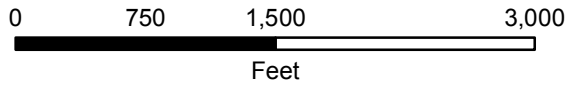
COLLETTA PARK PUD SUBDIVISION
 RESOLUTION 2017-62
 FRANKLIN MUNICIPAL PLANNING COMMISSION
 11/16/2017



Project Information

Existing Zoning: Residential - 1 (R-1)
 Proposed Zoning: Residential - 1 (R-1)
 Existing Land Use: Vacant
 Proposed Land Use: Detached Residential
 Character Area: MECO-4/SWCO-3
 Development Standard: Conventional
 Other Overlays: N/A
 Site Acreage: 199 acres
 Proposed Number of Dwelling Units: 199
 Proposed Building Height: 2 stories

- | | |
|--|---------------------------------------|
| Colletta Park | SD-R Specific Development-Residential |
| AG Agricultural District | SD-X Specific Development-Variety |
| ER Estate Residential | OR Office Residential District |
| R-1 Residential District | GO General Office District |
| R-2 Residential District | CC Central Commercial District |
| R-3 Residential District | NC Neighborhood Commercial District |
| R-6 Residential District | GC General Commercial District |
| RM-10 Attached 10 Residential District | LI Light Industrial District |
| RM-15 Attached 15 Residential District | HI Heavy Industrial District |
| RM-20 Attached 20 Residential District | CI Civic and Institutional District |



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RESOLUTION 2017-62

TO BE ENTITLED: "A RESOLUTION APPROVING A DEVELOPMENT PLAN FOR COLLETTA PARK PUD SUBDIVISION WITH 2 MODIFICATIONS OF DEVELOPMENT STANDARDS (LOTS LESS THAN ONE ACRE CUL-DE-SAC LENGTH GREATER THAN 500 FEET), FOR THE PROPERTIES LOCATED SOUTH OF MURFREESBORO ROAD AND EAST OF CAROTHERS PARKWAY, (INCLUDING 4350 AND 4344 SOUTH CAROTHERS ROAD)."

WHEREAS, the Board of Mayor and Aldermen (BOMA) of the City of Franklin, Tennessee, has approved the zoning for the property as part of Ordinance 2016-28; 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
079M---B02800	1.5
079M---B02900	1.2
089---05500	167.2
089---04304	22.5

089---04303	6.6
Total	199

Legal Description for Parcels 079M-B02800 and 079M-B02900. Land lying in the Fourteenth Civil District of Williamson County, being lots 127 and 128 on the Final Plat for Section 1 of Franklin East, of record in Plat Book 6, Page 91, Register's Office of Williamson County, Tennessee, and containing 2.7 acres more or less.

And

Legal Description for Parcels 089-04303, 089-04304, & 089-05500. The following legal description is for land in the Fourteenth Civil District of Williamson County, located on the lands of James E. Adams, Jr., of record in Deed Book 2008, Page 702, R.O.W.C., TN, Patti Sue Watkins, of record in Deed Book 6074, Page 249, R.O.W.C., TN, and George V. Durnin, of record in Deed Book 1607, Page 1006, R.O.W.C., TN, and more particularly described in as follow:

Beginning at a Point in the north margin of South Carothers Road, approximately 1650 feet southeast of the intersection of Falcon Creek Drive and said South Carothers Road;

Thence, leaving the north margin of said South Carothers Road, North 44 Degrees 04 Minutes 29 Seconds East, a distance of 621.82 feet to a point;

Thence North 08 Degrees 24 Minutes 25 Seconds East, a distance of 222.13 feet to a point; Thence South 82 Degrees 57 Minutes 01 Seconds East, a distance of 297.62

feet to a point; Thence South 81 Degrees 57 Minutes 51 Seconds East, a distance of 10.49 feet to a point; Thence North 15 Degrees 32 Minutes 59 Seconds East, a

distance of 2,025.58 feet to a point; Thence North 06 Degrees 33 Minutes 34 Seconds East, a distance of 861.42 feet to a point; Thence South 89 Degrees 39 Minutes 10

Seconds East, a distance of 319.84 feet to a point; Thence South 02 Degrees 23 Minutes 32 Seconds West, a distance of 149.73 feet to a point; Thence North 75

Degrees 48 Minutes 17 Seconds East, a distance of 768.48 feet to a point; Thence North 09 Degrees 39 Minutes 11 Seconds West, a distance of 117.87 feet to a point;

Thence North 29 Degrees 14 Minutes 05 Seconds East, a distance of 293.60 feet to a point; Thence North 20 Degrees 05 Minutes 58 Seconds East, a distance of 210.10 feet

to a point; Thence South 62 Degrees 38 Minutes 15 Seconds East, a distance of 48.00 feet to a point; Thence South 69 Degrees 38 Minutes 11 Seconds East, a distance of

509.70 feet to a point; Thence South 76 Degrees 09 Minutes 25 Seconds East, a distance of 277.18 feet to a point; Thence South 26 Degrees 11 Minutes 34 Seconds

West, a distance of 520.34 feet to a point; Thence South 59 Degrees 49 Minutes 41 Seconds East, a distance of 862.61 feet to a point; Thence South 26 Degrees 16

Minutes 06 Seconds West, a distance of 444.04 feet to a point; Thence North 70 Degrees 59 Minutes 36 Seconds West, a distance of 28.01 feet to a point; Thence

South 06 Degrees 10 Minutes 51 Seconds West, a distance of 403.96 feet to a point; Thence South 20 Degrees 12 Minutes 18 Seconds West, a distance of 14.56 feet to a

point; Thence North 78 Degrees 25 Minutes 28 Seconds West, a distance of 356.81 feet to a point; Thence North 09 Degrees 56 Minutes 19 Seconds East, a distance of

100.04 feet to a point; Thence North 78 Degrees 25 Minutes 28 Seconds West, a distance of 110.05 feet to a point; Thence North 09 Degrees 56 Minutes 27 Seconds

East, a distance of 25.01 feet to a point; Thence North 78 Degrees 25 Minutes 30

Seconds West, a distance of 125.05 feet to a point; Thence South 09 Degrees 56 Minutes 17 Seconds West, a distance of 125.05 feet to a point; Thence North 78 Degrees 25 Minutes 29 Seconds West, a distance of 734.65 feet to a point;

Thence South 12 Degrees 44 Minutes 58 Seconds West, a distance of 784.89 feet to a point; Thence South 79 Degrees 24 Minutes 14 Seconds East, a distance of 830.08 feet to a point; Thence North 62 Degrees 28 Minutes 37 Seconds East, a distance of 119.56 feet to a point; Thence South 00 Degrees 37 Minutes 45 Seconds West, a distance of 1,031.05 feet to a point; Thence South 76 Degrees 31 Minutes 22 Seconds East, a distance of 81.00 feet to a point; Thence South 09 Degrees 52 Minutes 41 Seconds West, a distance of 206.49 feet to a point; Thence South 57 Degrees 04 Minutes 46 Seconds West, a distance of 151.05 feet to a point; Thence South 49 Degrees 16 Minutes 17 Seconds West, a distance of 170.39 feet to a point; Thence South 41 Degrees 39 Minutes 12 Seconds West, a distance of 123.05 feet to a point; Thence North 83 Degrees 17 Minutes 12 Seconds West, a distance of 441.91 feet to a point;

Thence North 75 Degrees 19 Minutes 30 Seconds West, a distance of 540.96 feet to a point; Thence South 15 Degrees 23 Minutes 08 Seconds West, a distance of 951.14 feet to a point; Thence North 82 Degrees 39 Minutes 38 Seconds West, a distance of 60.79 feet to a point; Thence South 28 Degrees 07 Minutes 56 Seconds West, a distance of 646.53 feet to a point; Thence North 75 Degrees 15 Minutes 25 Seconds West, a distance of 215.00 feet to a point; Thence North 05 Degrees 42 Minutes 26 Seconds East, a distance of 1,148.85 feet to a point; Thence North 83 Degrees 26 Minutes 21 Seconds West, a distance of 1,067.76 feet to a point, said point being in the north margin of said South Carothers Road; Thence, with the north margin of said South Carothers Road, North 71 Degrees 12 Minutes 54 Seconds West, a distance of 37.65 feet to a point; Thence North 73 Degrees 31 Minutes 47 Seconds West, a distance of 77.67 feet to the point of beginning, and containing 8,552,236.49 square feet or 196.33 acres more or less.

SECTION II. That the attached Location Map shall serve the purpose of further delineating the geographical boundaries as described by this Resolution.

SECTION III. That the overall entitlements for the Colletta Park are as follows:

Entitlements	Colletta Park PUD Subdivision
Base Zone District	Residential -1 (R-1)
Character Area Overlay	SWCO-3/MECO-6
Other Zoning Overlays	N/A
Development Standard	Conventional
Number of Dwelling Units	199
Connectivity Index	1.31
Open Space Requirements	65.44 acres
Number of Phases in Development	7

SECTION IV. That 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: Lots less than 1 Acre Approved: _____ Denied: _____	Lots required to be between one to five acres. Section 3.5.10(2)(d)(iii) <i>Staff recommended <u>Approval</u>.</i>
MOS 2: Cul-De-Sac length greater than 500 feet and serve more than 20 lots Approved: _____ Denied: _____	Cul-De-Sac length is limited to 500 feet or less and serve 20 lots or less Section 5.10.8(1)(d) and Section 5.10.8(1)(e) <i>Staff recommended <u>Approval</u>.</i>

SECTION VI. That this Resolution shall take effect from and after the passage of Ordinance 2017-46, on third and final reading, the health, safety, and welfare of the citizens requiring it.

Eric S. Stuckey
City Administrator

Dr. Ken Moore
Mayor

Approved as to form by:

Shauna R. Billingsley
City Attorney

PREAPPLICATION CONFERENCE: 10/5/2017

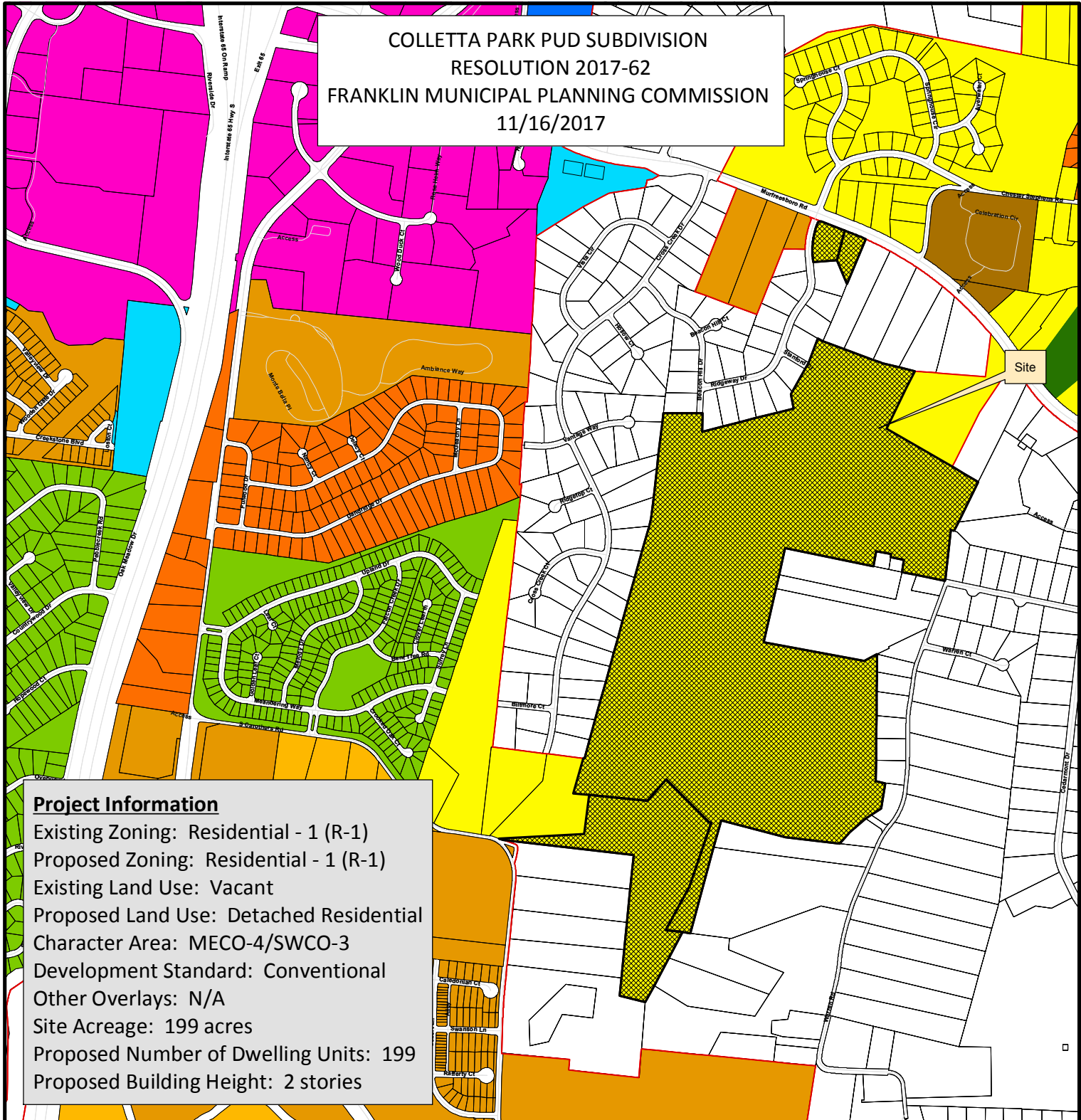
BOMA/FMPC JOINT CONCEPTUAL WORKSHOP: 10/26/2017

NEIGHBORHOOD MEETING: 11/1/2017

PLANNING COMMISSION RECOMMENDED APPROVAL: _____

PUBLIC HEARING AND BOMA APPROVAL: _____

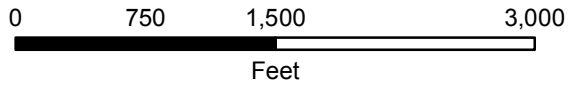
COLLETTA PARK PUD SUBDIVISION
 RESOLUTION 2017-62
 FRANKLIN MUNICIPAL PLANNING COMMISSION
 11/16/2017



Project Information

Existing Zoning: Residential - 1 (R-1)
 Proposed Zoning: Residential - 1 (R-1)
 Existing Land Use: Vacant
 Proposed Land Use: Detached Residential
 Character Area: MECO-4/SWCO-3
 Development Standard: Conventional
 Other Overlays: N/A
 Site Acreage: 199 acres
 Proposed Number of Dwelling Units: 199
 Proposed Building Height: 2 stories

- | | |
|--|---------------------------------------|
| Colletta Park | SD-R Specific Development-Residential |
| AG Agricultural District | SD-X Specific Development-Variety |
| ER Estate Residential | OR Office Residential District |
| R-1 Residential District | GO General Office District |
| R-2 Residential District | CC Central Commercial District |
| R-3 Residential District | NC Neighborhood Commercial District |
| R-6 Residential District | GC General Commercial District |
| RM-10 Attached 10 Residential District | LI Light Industrial District |
| RM-15 Attached 15 Residential District | HI Heavy Industrial District |
| RM-20 Attached 20 Residential District | CI Civic and Institutional District |



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CONDITIONS OF APPROVAL:

Open Issues: 8 These issues are currently being filtered

Addressing

General Issues

10. Street Name

lori.jarosz@franklintn.gov This comment is to remain open until street names have been submitted and approved.

Engineering - PUD Plan Checklist

General Issues

18. D. Statement of Impacts

carlb@franklintn.gov Applicant has partially met this condition by reaching out to Jimmy Wiseman. The specific roadway improvements must be shown in the plans as scaled schematics on maps, to be submitted as a condition of approval for this development. Such schematics shall be submitted for One-Stop review, with approval at that step to allow the development to proceed. Any application for roadway impact fee offset for funding these improvements must be approved by the BOMA prior to site plan approval.
[Edited By Carl Baughman]

23. F. Development Plan

kevin.long@franklintn.gov *The following is an Advisory Comment to be addressed if needed at site plan, but does not hinder the approval of the Development Plan.*

Advisory Comment: Any street stubs (serving more than one lot) at the boundary of the PUD or at section lines shall be designed and constructed in accordance with COF Std. Dwg SD-2, Temporary Cul-de-sac.
[Edited By Kevin Long]

25. ROW Dedication

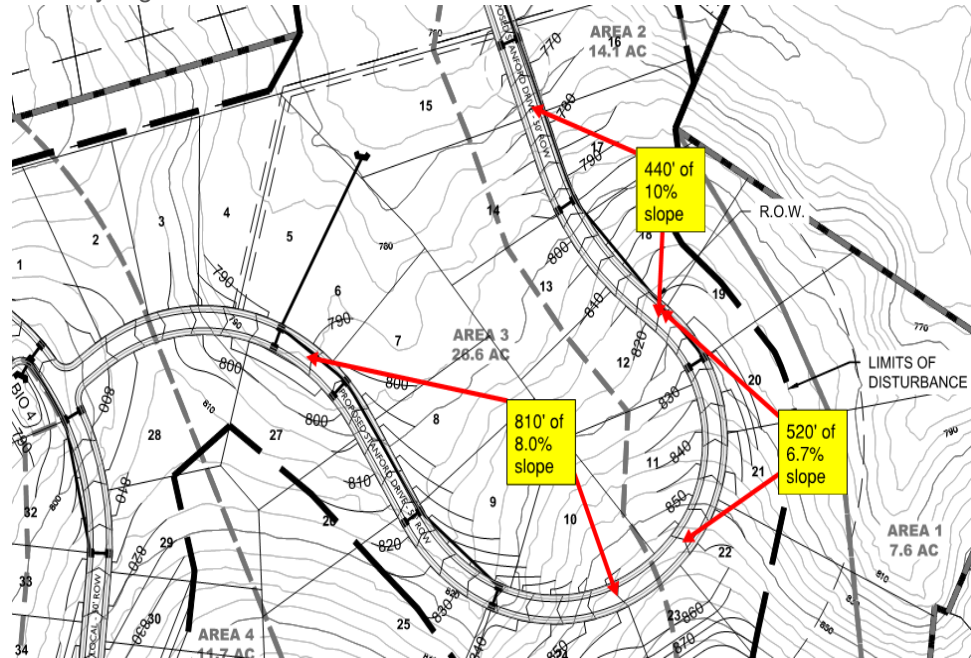
joe.marlo@franklintn.gov Applicant to show a note on Development Plan C2.0 stating "ROW dedication along site frontage with Highway 96 to extend 52.5 feet from the centerline of the roadway."

Applicant to be aware that additional dedication may be required along site frontage with further design refinement at the Site Plan stage.

30. F. Development Plan

kevin.long@franklin.tn.gov The following is an Advisory Comment and reminder to staff to be addressed at the site plan stage. **This comment does not hinder the approval of the Development Plan.**

Advisory Comment: Special consideration will need to be made for the street and drainage design in section 1 due to the length of excessive grades for the proposed roadway alignments.



38. Steep Slopes

joe.marlo@franklin.tn.gov The following is an Advisory Comment, but **does not hinder the approval of the Development Plan.**

Advisory Comment: While grades will be better defined by the field-run topographic survey required at Site Plan stage, GIS data on the Development Plan shows several proposed lots in areas having steep slopes exceeding 14%. The Applicant is to be aware that in the review of Critical Lot plans, the City of Franklin will not waive any City requirements for construction proposed on lots with steep slopes, including 3H:1V maximum site slopes, maximum residential retaining wall heights listed in Zoning Ordinance Table 5-8, 14% maximum driveway slopes with an 8% maximum driveway approach from the street, etc. No development is permitted in areas with natural slopes of 20% or greater.

Planning

General Issues

35. Phasing Plan

josh.king@franklintn.gov

Building permits shall only be issued for 20 units until the applicant constructs a secondary access road or emergency access route. Alternatively, the applicant may fully bond the roadway infrastructure along the route that completes the secondary access or emergency access point. The applicant shall submit a phasing plan for development that incorporates this condition of approval.

If more than 20 homes are permitted for any reason and not meeting the condition above, all homes will require the installation and maintenance of an automatic home fire sprinkler system to compensate for the extended travel distance and the single access point. This requirement shall be recorded on the final plat of each phase approved.

Planning (Landscape)

General Issues

41. Existing tree canopy on existing conditions

jason.arnold@franklintn.gov

On sheets C1.2 & C1.3, the existing canopy is very difficult to read, when compared to the previous submit. Applicant shall improve graphic representation of existing canopy.

F i s c h b a c h
Transportation Group, LLC
Traffic Engineering and Planning

Traffic Impact Study

Colletta Park Residential Development
Highway 96E and S. Carothers Road
Franklin, TN

Prepared October 2017
For Land Solutions Company

FTG, LLC
P.O. Box 682736
Franklin, TN 37068
(615) 771-8022 phone
Gillian@FTGtraffic.com

Traffic Impact Study

Colletta Park Residential Development Highway 96E and S. Carothers Road

Franklin, Tennessee

Prepared October 2017

PREPARED FOR:

Land Solutions, LLC
2925 Berry Hill Rd
Nashville, TN 37204

PREPARED BY:

Ms. Gillian L. Fischbach, P.E., PTOE
Fischbach Transportation Group (FTG, LLC)
P.O. Box 682736
Franklin, TN 37068
Phone: (615) 771-8022
FTG Project Number: 10647

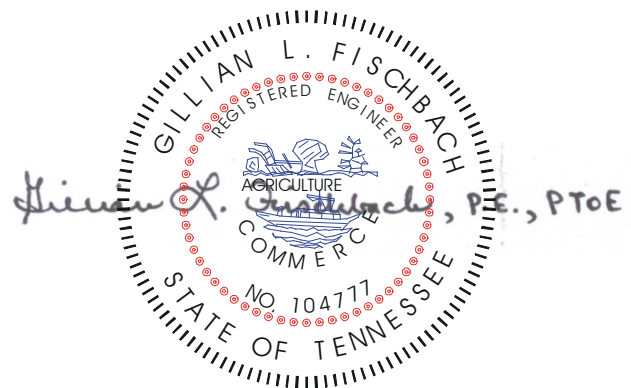


Table of Contents

1. INTRODUCTION	4
2. PROJECT DESCRIPTION.....	5
FIGURE 1. LOCATION OF THE PROJECT SITE.....	6
FIGURE 2. CURRENT PROJECT SITE PLAN	7
3. EXISTING CONDITIONS.....	8
3.1 PEAK HOUR TRAFFIC VOLUMES	8
FIGURE 3. EXISTING LANEAGE WITHIN THE STUDY AREA.....	9
FIGURE 4. EXISTING PEAK HOUR TRAFFIC VOLUMES.....	10
TABLE 1. DESCRIPTIONS OF LOS FOR SIGNALIZED INTERSECTIONS	11
TABLE 2. DESCRIPTIONS OF LOS FOR UNSIGNALIZED INTERSECTIONS	12
TABLE 3. EXISTING PEAK HOUR LEVELS OF SERVICE.....	13
3.2 TRAFFIC SIGNAL WARRANT ANALYSES	15
TABLE 4. TRAFFIC SIGNAL WARRANT ANALYSIS	16
4. PROJECTION OF BACKGROUND TRAFFIC VOLUMES	17
TABLE 5. HISTORICAL TRAFFIC VOLUMES IN THE STUDY AREA.....	17
FIGURE 5A. INITIAL BACKGROUND TRAFFIC VOLUMES.....	18
FIGURE 5B. PEAK HOUR TRAFFIC GENERATED BY OCTOBER WOODS.....	20
FIGURE 5C. PEAK HOUR TRAFFIC GENERATED BY ECHELON	21
FIGURE 5D. PEAK HOUR TRAFFIC GENERATED BY WATER’S EDGE	22
FIGURE 5E. PEAK HOUR TRAFFIC GENERATED BY SILVER GRACE.....	23
FIGURE 5F. FINAL BACKGROUND TRAFFIC VOLUMES	24
TABLE 6. BACKGROUND PEAK HOUR LEVELS OF SERVICE.....	25
5. IMPACTS OF PROPOSED DEVELOPMENT	27
5.1 TRIP GENERATION	27
TABLE 7. TRIP GENERATION	27
5.2 TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT.....	28
FIGURE 6. DISTRIBUTION OF SITE-GENERATED TRAFFIC	29
FIGURE 7. PEAK HOUR SITE-GENERATED TRAFFIC.....	30
5.3 CAPACITY ANALYSES.....	31
FIGURE 8. TOTAL PROJECTED PEAK HOUR TRAFFIC VOLUMES.....	32
TABLE 8. PROJECTED PEAK HOUR LEVELS OF SERVICE	33

5.4	TRAFFIC SIGNAL WARRANT ANALYSES	35
	TABLE 9. TRIP GENERATION (APPROVED AND PROPOSED HOMES)	35
	TABLE 10. HOURLY TRAFFIC VOLUMES	37
	TABLE 11. TRAFFIC SIGNAL WARRANT ANALYSIS	38
6.	CONCLUSIONS AND RECOMMENDATIONS	39
	APPENDIX A	40
	APPENDIX B	55
	APPENDIX C	136
	APPENDIX D	141
	APPENDIX E	153
	APPENDIX F	155

1. INTRODUCTION

This traffic study has been prepared in order to identify the traffic impacts of a single-family residential development that is proposed to be constructed between Highway 96E and S. Carothers Road in Franklin, Tennessee.

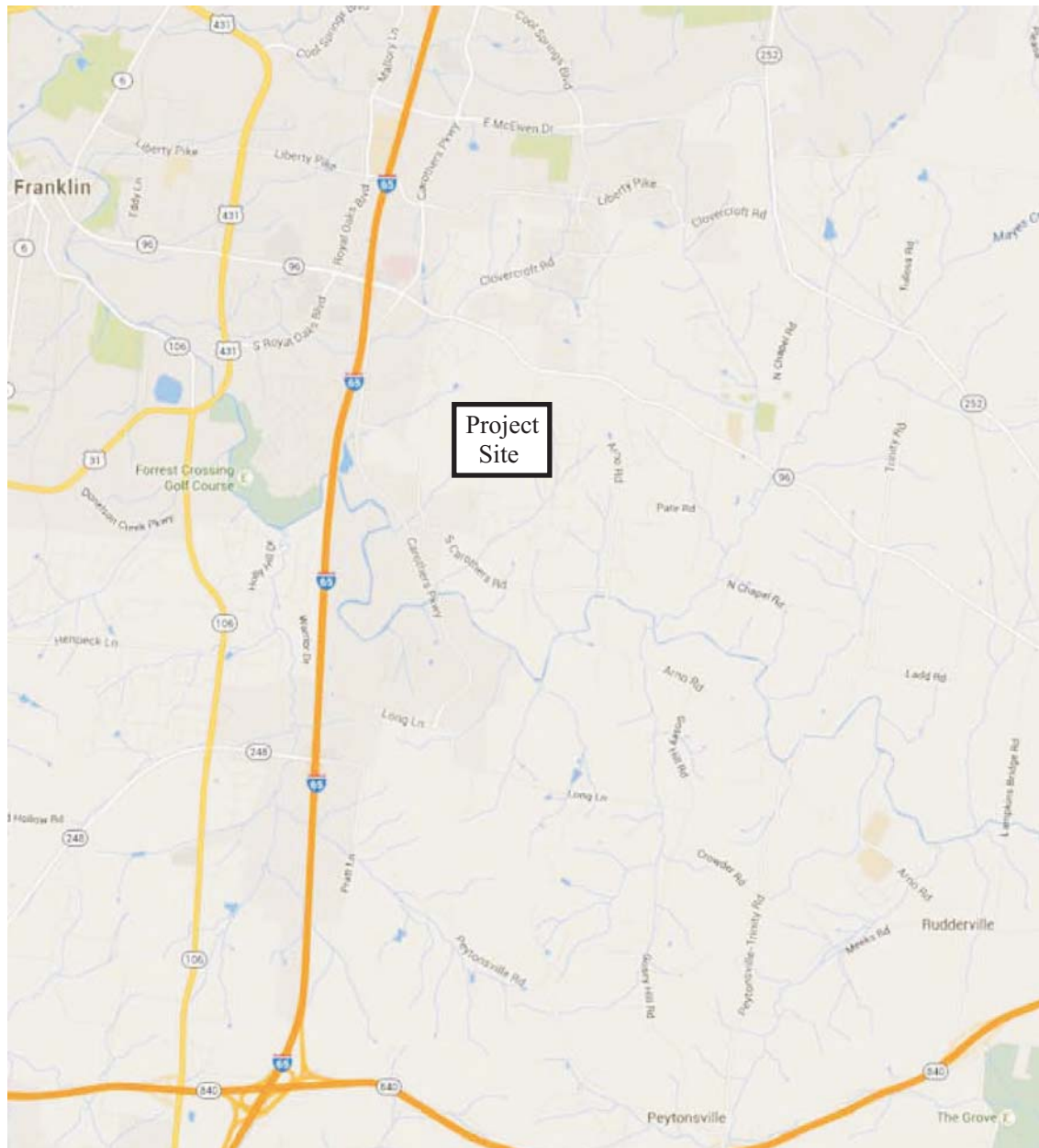
For the purposes of this study, existing and background traffic volumes were established, and capacity analyses were conducted for these conditions. Also, trip generation calculations were performed, and the trips which are expected to be generated by the proposed project were distributed to the roadway system and added to the background traffic volumes. The roadways and intersections which provide access to the site were then re-evaluated to determine the traffic impacts of the proposed project. Access needs for the project were evaluated, and the necessary roadway and/or traffic control improvements were identified. This report presents the results of these analyses and the subsequent recommendations.

2. PROJECT DESCRIPTION

The location of the proposed project is shown in [Figure 1](#). As shown, the project site is located between Highway 96E and S. Carothers Road in Franklin, Tennessee. The current project site plan is shown in [Figure 2](#). As shown, project site includes 199 single-family homes. Access for the proposed project will be provided at one location on S. Carothers Road. Also, emergency-only access will be provided by at Stanford Drive.

In large part, economic and market considerations will dictate the pace and timing with which the proposed project is actually completed. For the purposes of this study, it was assumed that the proposed project will be completed by Year 2020.

F i s c h b a c h
Transportation Group, LLC
Traffic Engineering and Planning



No Scale

Figure 1.
Location of the Project Site



3. EXISTING CONDITIONS

3.1 PEAK HOUR TRAFFIC VOLUMES

In order to provide data for the traffic impact analysis, peak hour traffic volumes were counted at the following locations:

1. Highway 96E and Carothers Parkway
2. Highway 96E and Clovercroft Road
3. Highway 96E and Cross Creek Drive
4. Highway 96E and Ridgeway Drive / Chester Stevens Road
5. Highway 96E and Arno Road
6. Carothers Parkway and S. Carothers Road
7. S. Carothers Road in the vicinity of the project site.

This data was collected during the morning and afternoon peak hours on typical weekdays in May 2017 when schools were in session. The raw traffic volumes are included in [Appendix A](#). The existing laneage at the intersections within the study area is shown in [Figure 3](#), and the existing peak hour traffic volumes are shown in [Figure 4](#).

Using the existing peak hour traffic volumes shown in [Figure 4](#), capacity analyses were conducted for the intersections counted. Specifically, in order to identify current peak hour levels of operation within the study area, the capacity calculations were performed according to the methods outlined in the [Highway Capacity Manual 2010](#) (HCM2010). These analyses result in the determination of a Level of Service (LOS), which is a measure of evaluation is used to describe how well an intersection or roadway operates. LOS A represents free flow traffic operations, and LOS F suggests that the traffic demand exceeds the available capacity. In an urbanized area, LOS D is typically considered to be the minimum acceptable LOS. [Table 1](#) presents the descriptions of LOS for signalized intersections, and [Table 2](#) presents the descriptions of LOS for unsignalized intersections.

The results of the capacity analyses for the existing peak hour traffic volumes are shown in [Table 3](#), and [Appendix B](#) includes the capacity analyses worksheets. These analyses indicate that signalized intersections within the study area currently operate at LOS C or better during both peak hours.

At the unsignalized intersections with Cross Creek Drive and Ridgeway Drive / Chester Stevens Road, most of the critical turning movements operate at acceptable LOS during both peak hours. Because of the significant traffic volumes on Highway 96E, the turning movements from the side streets operate at poor LOS during one or both peak hours, although the northbound and southbound vehicle queues are relatively short.

At the unsignalized intersection of Carothers Parkway and S. Carothers Road, all of the critical turning movements operate at acceptable LOS during both peak hours.

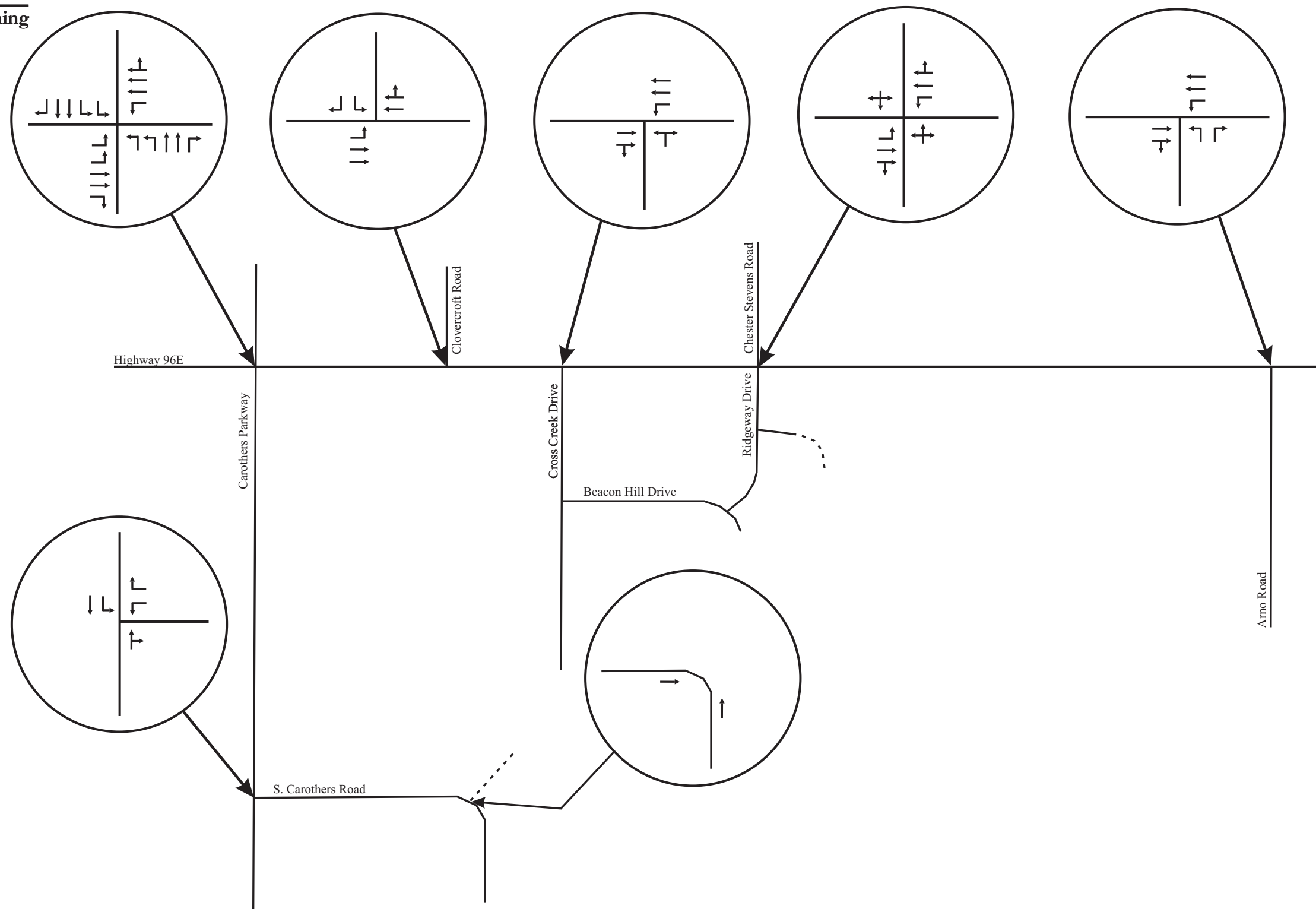
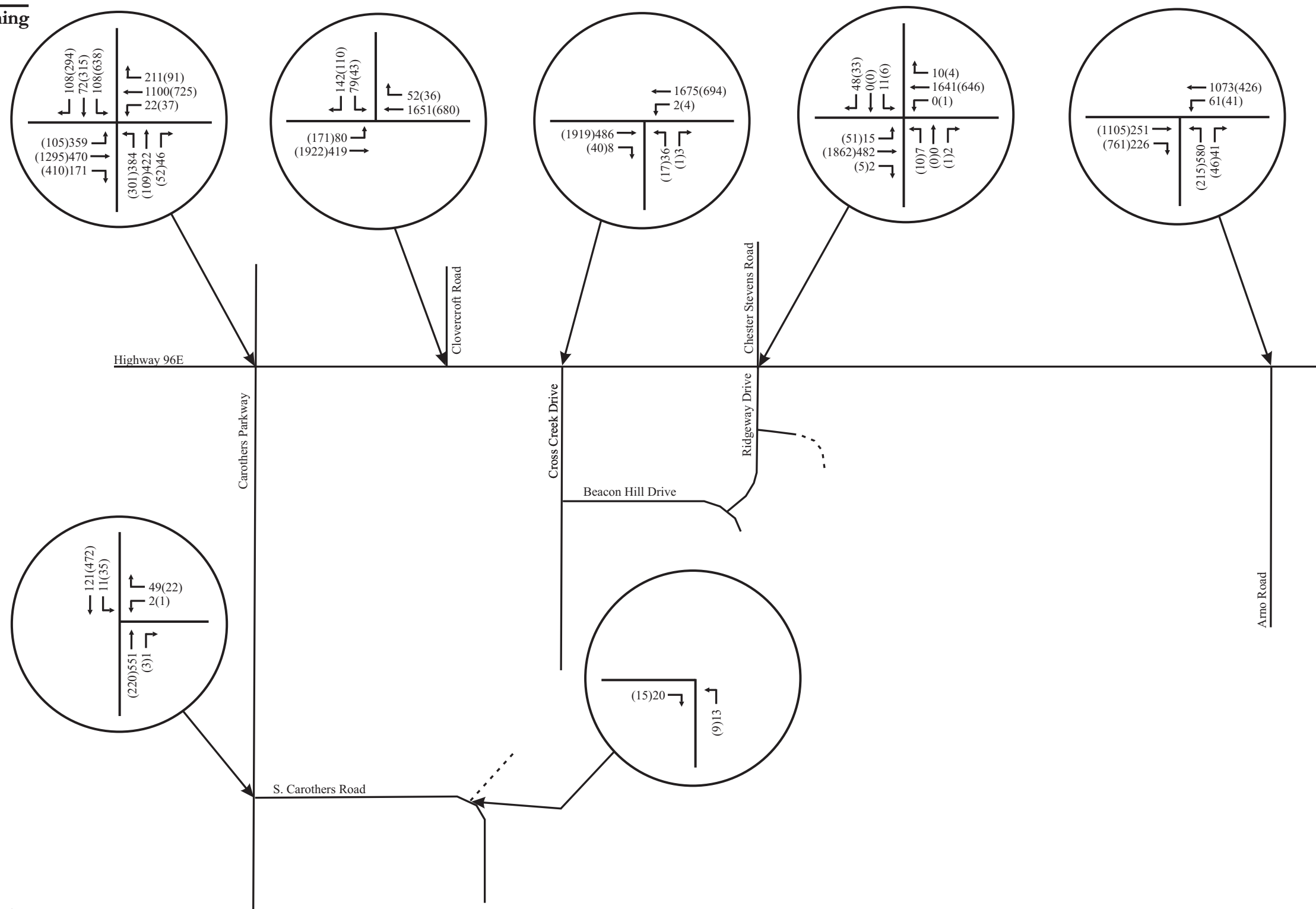


Figure 3.
Existing Laneage within the Study Area

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Transportation Group, LLC
Traffic Engineering and Planning



No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 4.
Existing Peak Hour Traffic Volumes (June 2017)

TABLE 1. DESCRIPTIONS OF LOS FOR SIGNALIZED INTERSECTIONS

Level of Service	Description	Average Control Delay per Vehicle (sec)
A	Operations with very low control delay. Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10
B	Operations with stable flows. This generally occurs with good progression, short cycle lengths, or both. More vehicles stop than for LOS A, causing higher levels of average delay.	> 10 and ≤ 20
C	Operations with stable flow. Occurs with fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	> 20 and ≤ 35
D	Approaching unstable flow. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop.	> 35 and ≤ 55
E	Unstable flow. In many cases, this is considered to be the limit for acceptable delay. These high delays generally indicate poor progression, long cycle lengths, and high v/c ratios.	> 55 and ≤ 80
F	Unacceptable delay. This condition often occurs with oversaturation or with high v/c ratios. Poor progression and long cycle lengths may also cause such delay levels.	> 80

Source: Highway Capacity Manual 2010 (HCM2010)

TABLE 2. DESCRIPTIONS OF LOS FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Description	Average Control Delay (sec/veh)
A	Minimal delay	≤ 10
B	Brief delay	> 10 and ≤ 15
C	Average delay	> 15 and ≤ 25
D	Significant delay	> 25 and ≤ 35
E	Long delay	> 35 and ≤ 50
F	Extreme delay	> 50

Source: Highway Capacity Manual 2010 (HCM 2010)

TABLE 3. EXISTING PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
		LEVEL OF SERVICE	95 TH %-ILE QUEUE	LEVEL OF SERVICE	95 TH %-ILE QUEUE
Highway 96E and Carothers Parkway (signalized)	Eastbound Left Turns	LOS F	150 feet	LOS B	23 feet
	Eastbound Thrus	LOS A	73 feet	LOS C	317 feet
	Eastbound Right Turns	LOS A	25 feet	LOS A	64 feet
	Westbound Left Turns	LOS A	9 feet	LOS B	18 feet
	Westbound Thru/Right Turns	LOS A	187 feet	LOS A	67 feet
	Northbound Left Turns	LOS B	77 feet	LOS B	64 feet
	Northbound Thrus	LOS B	79 feet	LOS B	24 feet
	Northbound Right Turns	LOS A	16 feet	LOS A	22 feet
	Southbound Left Turns	LOS B	25 feet	LOS C	165 feet
	Southbound Thrus	LOS B	17 feet	LOS B	59 feet
	Southbound Right Turns	LOS A	43 feet	LOS B	100 feet
	Overall Intersection	LOS C		LOS B	
Highway 96E and Clovercroft Road (signalized)	Eastbound Left Turns	LOS F	156 feet	LOS A	34 feet
	Eastbound Thrus	LOS A	78 feet	LOS A	351 feet
	Westbound Thrus/Right Turns	LOS B	390 feet	LOS A	41 feet
	Southbound Left Turn Lane	LOS D	92 feet	LOS D	64 feet
	Southbound Right Turn Lane	LOS C	129 feet	LOS B	52 feet
	Overall Intersection	LOS B		LOS A	

Highway 96E and Cross Creek Drive (unsignalized)	Westbound Left Turn Lane	LOS A	0 veh	LOS C	0 veh
	Northbound Left / Right Turn Lane	LOS D	1 veh	LOS F	1 veh
Highway 96E and Ridgeway Drive / Chester Stevens Drive (unsignalized)	Eastbound Left Turn Lane	LOS C	1 veh	LOS A	1 veh
	Westbound Left Turn Lane	LOS A	0 veh	LOS C	0 veh
	Northbound Lane	LOS C	1 veh	LOS F	1 veh
	Southbound Lane	LOS E	2 veh	LOS B	1 veh
Highway 96E and Arno Road (signalized)	Eastbound Thrus / Right Turns	LOS A	95 feet	LOS A	263 feet
	Westbound Left Turns	LOS B	57 feet	LOS D	83 veh
	Westbound Thrus	LOS C	420 feet	LOS A	65 veh
	Northbound Left Turns	LOS C	441 feet	LOS D	217 veh
	Northbound Right Turns	LOS A	18 feet	LOS B	30 veh
	Overall Intersection	LOS C		LOS B	
Carothers Parkway and S. Carothers Road (unsignalized)	Southbound Left Turns	LOS A	0 veh	LOS A	1 veh
	Westbound Left Turns	LOS B	0 veh	LOS C	0 veh
	Westbound Right Turns	LOS B	1 veh	LOS A	1 veh

3.2 TRAFFIC SIGNAL WARRANT ANALYSES

For the purposes of this study, traffic signal warrant analyses were conducted for the intersection of Carothers Parkway and S. Carothers Road. For these analyses, hourly turning movement counts were collected at this intersection in May 2017 when schools were in session. The raw traffic volumes are included in [Appendix A](#), and the hourly traffic volumes are shown in [Table 4](#).

The Federal Highway Administration has published the Manual on Uniform Traffic Control Devices (MUTCD 2010), which includes traffic signal warrants that help traffic engineering professionals to identify when a traffic signal installation is justified at a particular location. The warrants include minimum conditions that are compared to existing or projected traffic conditions, and typically, traffic signals should not be installed unless at least one of the MUTCD warrants, as described in [Appendix C](#), is met.

The Manual on Uniform Traffic Control Devices (MUTCD 2010) stipulates that the signal warrant thresholds may be reduced by 30% "...if the posted or statutory speed limit or the 85th percentile speed on the major street exceeds 40 mph..." Since a 40 mph speed limit is currently posted on Carothers Parkway, full traffic signal warrant thresholds were considered appropriate for the intersection of Carothers Parkway and S. Carothers Road.

The hourly traffic volumes at the intersections were compared to the signal warrant thresholds, and the results of these analyses are included in [Table 4](#). These results indicate that the existing traffic volumes do not satisfy any of the volume-related traffic signal warrants for the intersection of Carothers Parkway and S. Carothers Road.

**TABLE 4. TRAFFIC SIGNAL WARRANT ANALYSIS
INTERSECTION OF CAROTHERS PARKWAY AND S. CAROTHERS ROAD**

HOUR	TOTAL VEHICLES BOTH DIRECTIONS OF CAROTHERS PARKWAY	WESTBOUND VEHICLES ON S. CAROTHERS ROAD	SATISFY FULL WARRANTS?		
			Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2
6:00 - 7:00 AM	340	31	---	---	---
7:00 - 8:00 AM	655	48	---	---	---
8:00 - 9:00 AM	546	50	---	---	---
9:00 - 10:00 AM	368	21	---	---	---
10:00 - 11:00 AM	343	19	---	---	---
11:00 - 12:00 N	421	28	---	---	---
12:00 - 1:00 PM	460	31	---	---	---
1:00 - 2:00 PM	463	34	---	---	---
2:00 - 3:00 PM	426	28	---	---	---
3:00 - 4:00 PM	480	25	---	---	---
4:00 - 5:00 PM	576	16	---	---	---
5:00 - 6:00 PM	730	23	---	---	---
6:00 - 7:00 PM	559	29	---	---	---

4. PROJECTION OF BACKGROUND TRAFFIC VOLUMES

In order to account for the traffic growth which will occur within the study area because of typical growth, as well as other approved developments, Year 2020 background traffic volumes were established for the intersections within the study area.

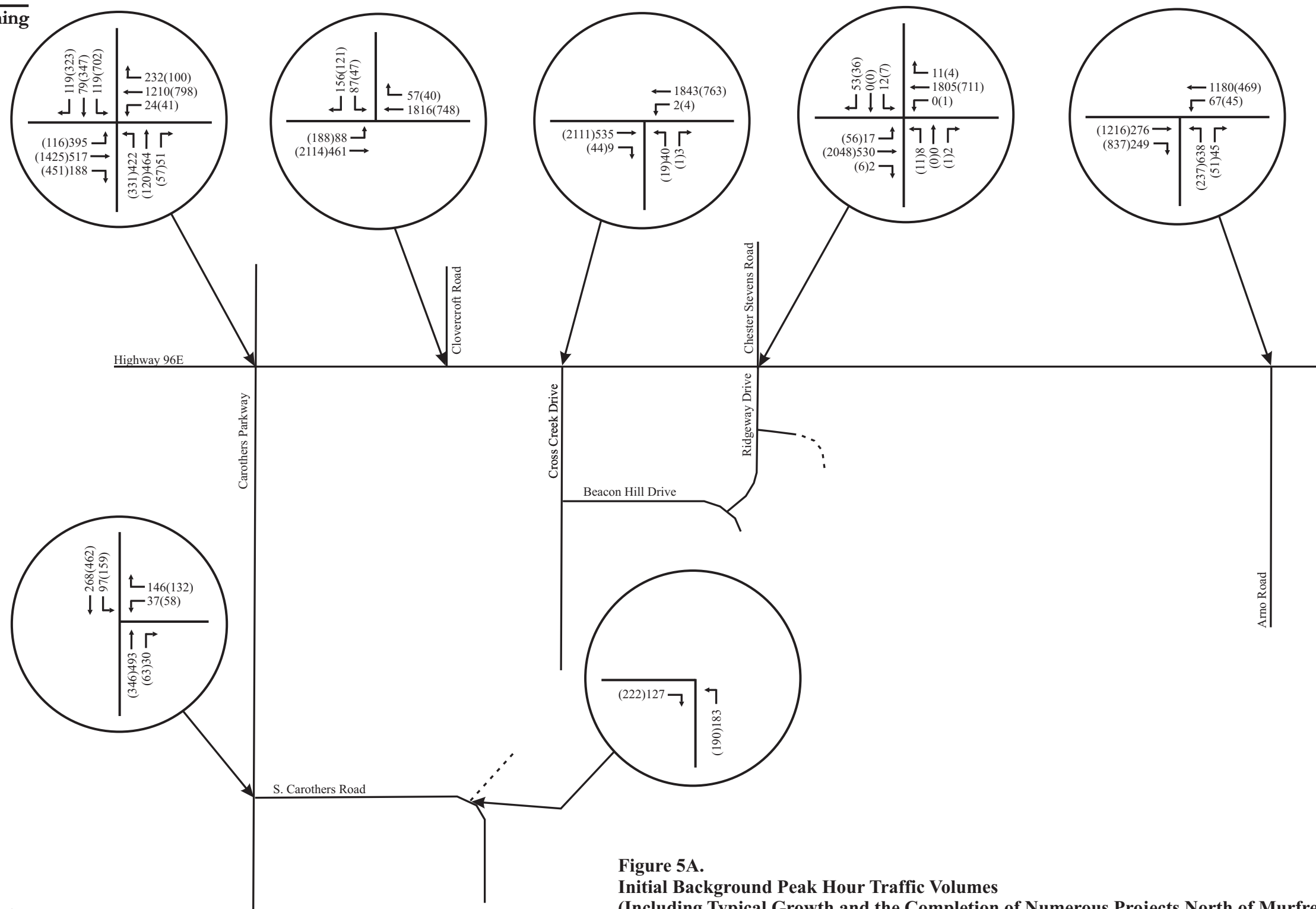
Specifically, in order to account for typical growth within the study area, consideration was given to the historical traffic volumes near the project site. The Tennessee Department of Transportation (TDOT) conducts an annual count program throughout the state. This count program includes the annual collection of average daily traffic (ADT) counts at numerous fixed locations. As shown in [Table 5](#), the daily traffic volumes within the study area have increased steadily since 2007. Based on this information, for the purposes of this study, the existing traffic volumes at the following intersections were increased by 10% to represent initial Year 2020 background traffic volumes, as shown in [Figure 5A](#):

1. Highway 96E and Carothers Parkway
2. Highway 96E and Clovercroft Road
3. Highway 96E and Cross Creek Drive
4. Highway 96E and Ridgeway Drive / Chester Stevens Road
5. Highway 96E and Arno Road

TABLE 5. HISTORICAL TRAFFIC VOLUMES IN THE STUDY AREA

Year	Station 40 Highway 96E ADT	Annual Growth	Overall Growth
2009	19,501		
2010	22,312	14.41%	
2011	23,459	5.14%	
2012	23,343	-0.49%	
2013	23,968	2.68%	
2014	25,865	7.91%	
2015	27,728	7.20%	7.03%
Year	Station 41 Clovercroft Rd ADT	Annual Growth	Overall Growth
2009	2,554		
2010	2,891	13.19%	
2011	3,092	6.95%	
2012	3,155	2.04%	
2013	3,151	-0.13%	
2014	3,345	6.16%	
2015	3,529	5.50%	6.36%

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No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 5A.
Initial Background Peak Hour Traffic Volumes
(Including Typical Growth and the Completion of Numerous Projects North of Murfreesboro Road,
as well as Nichols Bend/Lockwood Glen and Simmon's Ridge, south of Murfreesboro Road)

Also, it is important to note that background traffic volumes for the intersection of Carothers Parkway and S. Carothers Road were identified from the Traffic Impact Study that was prepared for the Simmons Ridge project in July 2012 by Fischbach Transportation Group (FTG, LLC). These traffic volumes are shown in [Figure 5A](#).

In addition, it is important to note that the following other projects are under construction within the study area:

1. Echelon Residential Development, located on the east side of Carothers Parkway, south of S. Carothers Road
2. Water's Edge Residential Development, located on the west side of Carothers Parkway, south of S. Carothers Road
3. October Woods Residential Development, located on the south side of Highway 96E and the west side of Ridgeway Drive
4. Silver Grace Assisted Living Facility, which is located on the north side of Highway 96E, east of Chester Stevens Road.

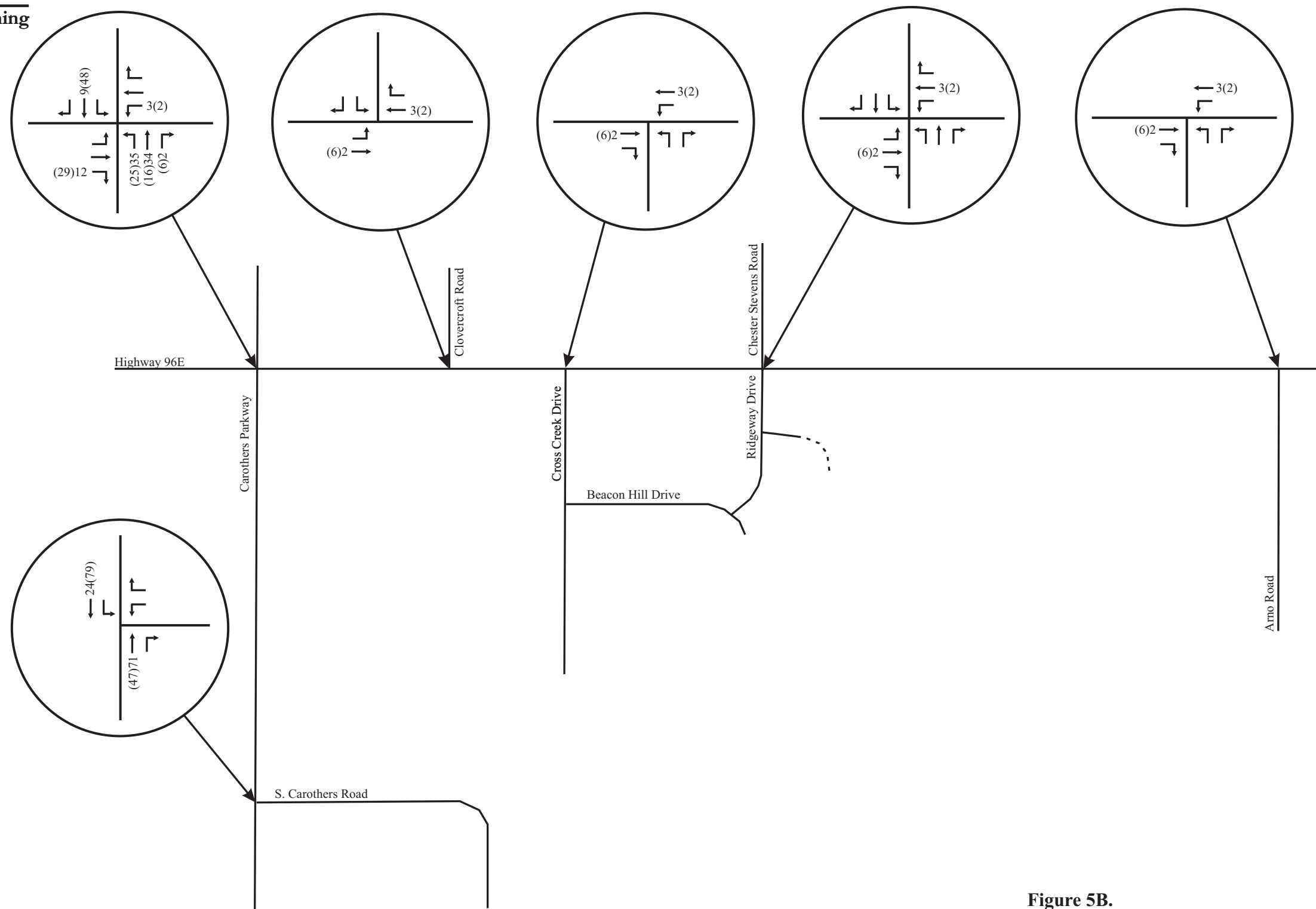
[Figures 5B, 5C, 5D, and 5E](#) include the peak hour traffic volumes that are expected to be generated by these other residential projects. Information about these other projects is included in [Appendix D](#).

The peak hour traffic volumes shown in [Figures 5B, 5C, 5D, and 5E](#) were added to the traffic volumes shown in [Figure 5A](#) in order to establish the final background traffic volumes shown in [Figure 5F](#). Using the final background peak hour traffic volumes, capacity analyses were conducted for the intersections within the study area. For these analyses, it was assumed that all existing laneage and traffic control will be maintained and no improvements will be provided.

The results of the capacity analyses for the background peak hour traffic volumes are shown in [Table 6](#), and [Appendix B](#) includes the capacity analyses worksheets. These analyses indicate that signalized intersections within the study area will continue to operate at LOS C or better during both peak hours.

At the unsignalized intersections with Cross Creek Drive and Ridgeway Drive / Chester Stevens Road, most of the critical turning movements will continue to operate at acceptable LOS during both peak hours. Because of the significant traffic volumes on Highway 96E, the turning movements from the side streets will continue to operate at poor LOS during one or both peak hours, although the northbound and southbound vehicle queues will remain relatively short.

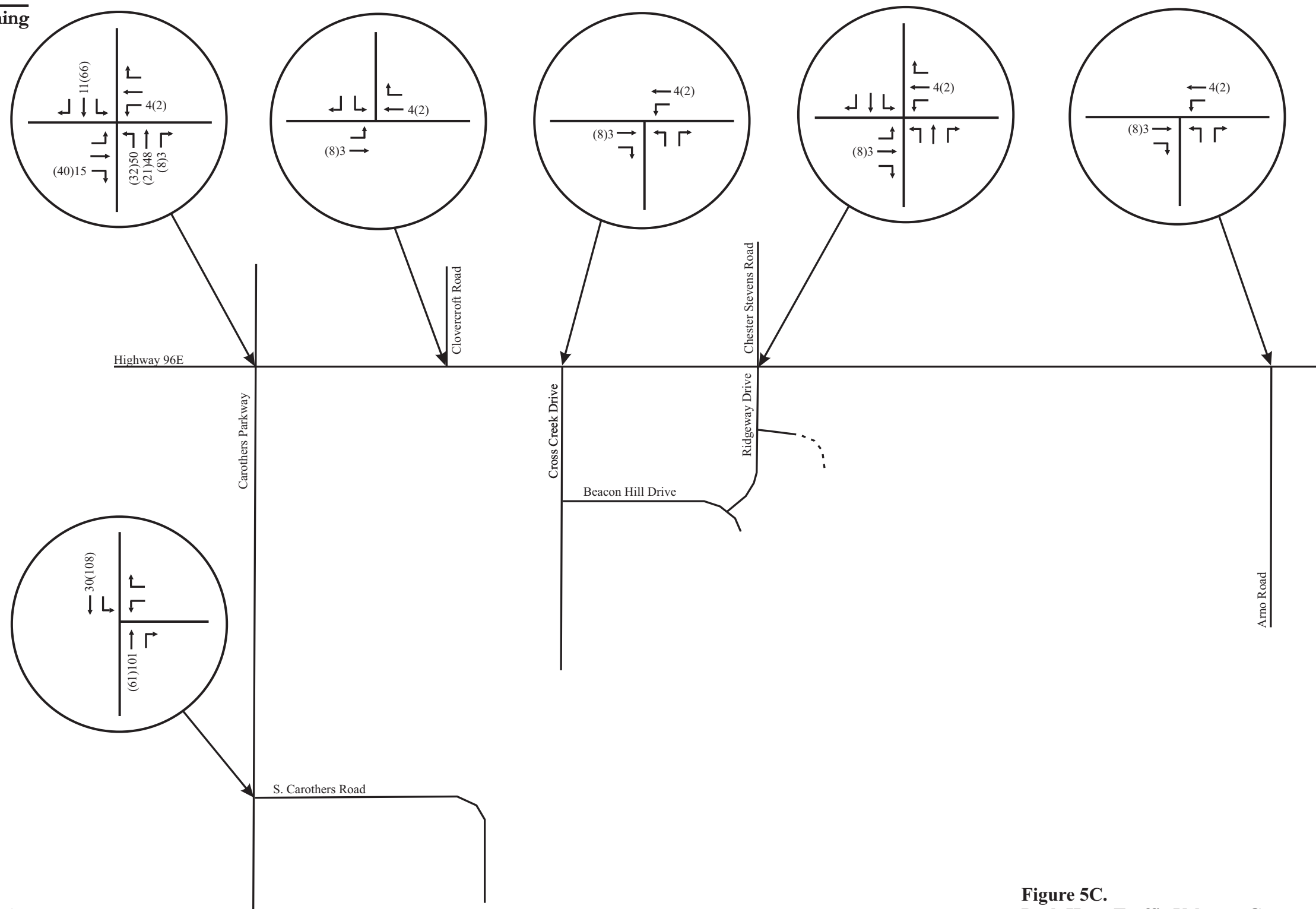
At the unsignalized intersection of Carothers Parkway and S. Carothers Road, most of the critical turning movements will operate at acceptable LOS during both peak hours. Although the westbound left turns are expected to operate at poor LOS, the vehicle queues will be low during both peak hours.



No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

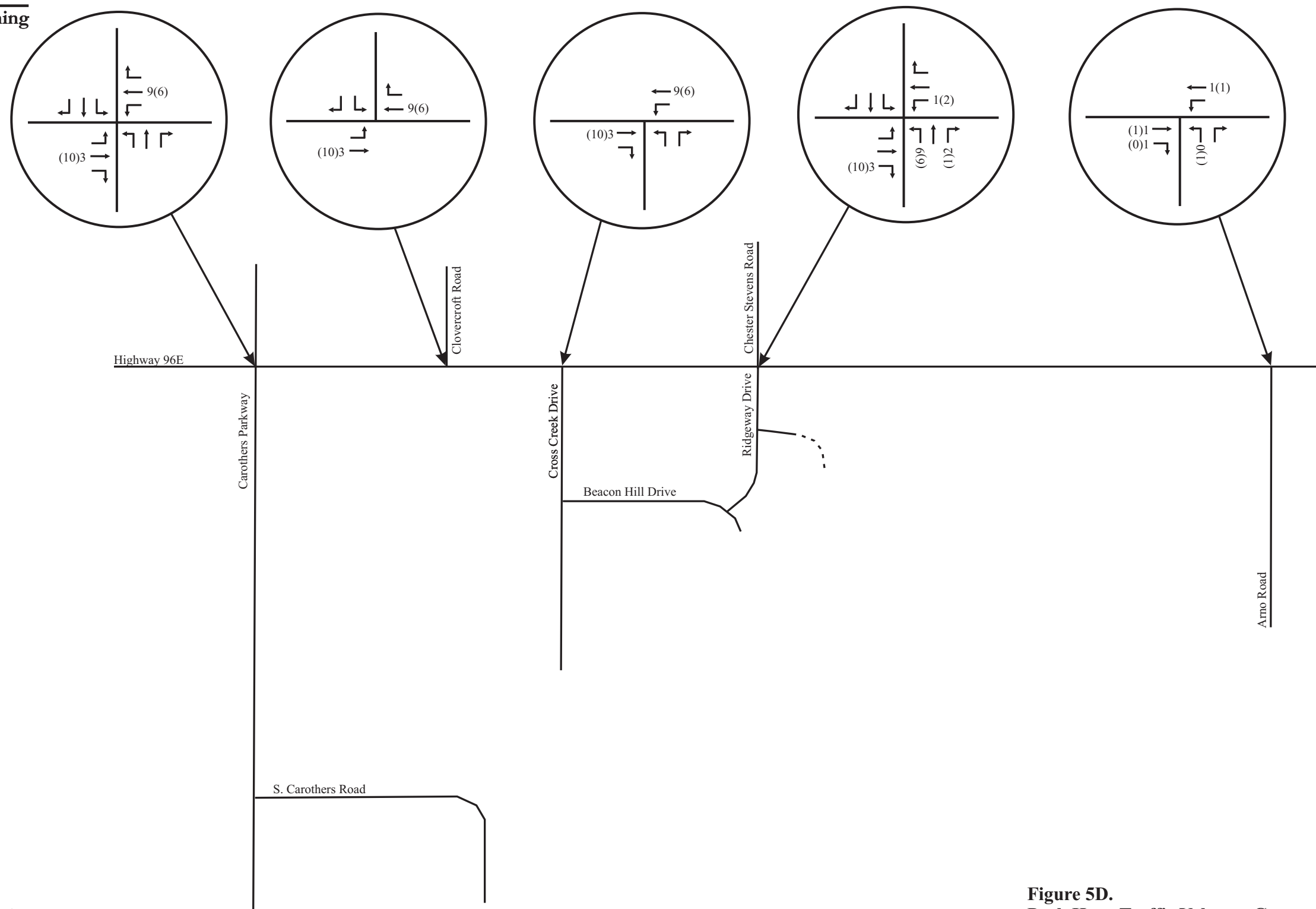
Figure 5B.
Peak Hour Traffic Volumes Generated by the
Echelon Residential Development



No Scale

XX - AM Peak Hour Volumes
(XX) - PM Peak Hour Volumes

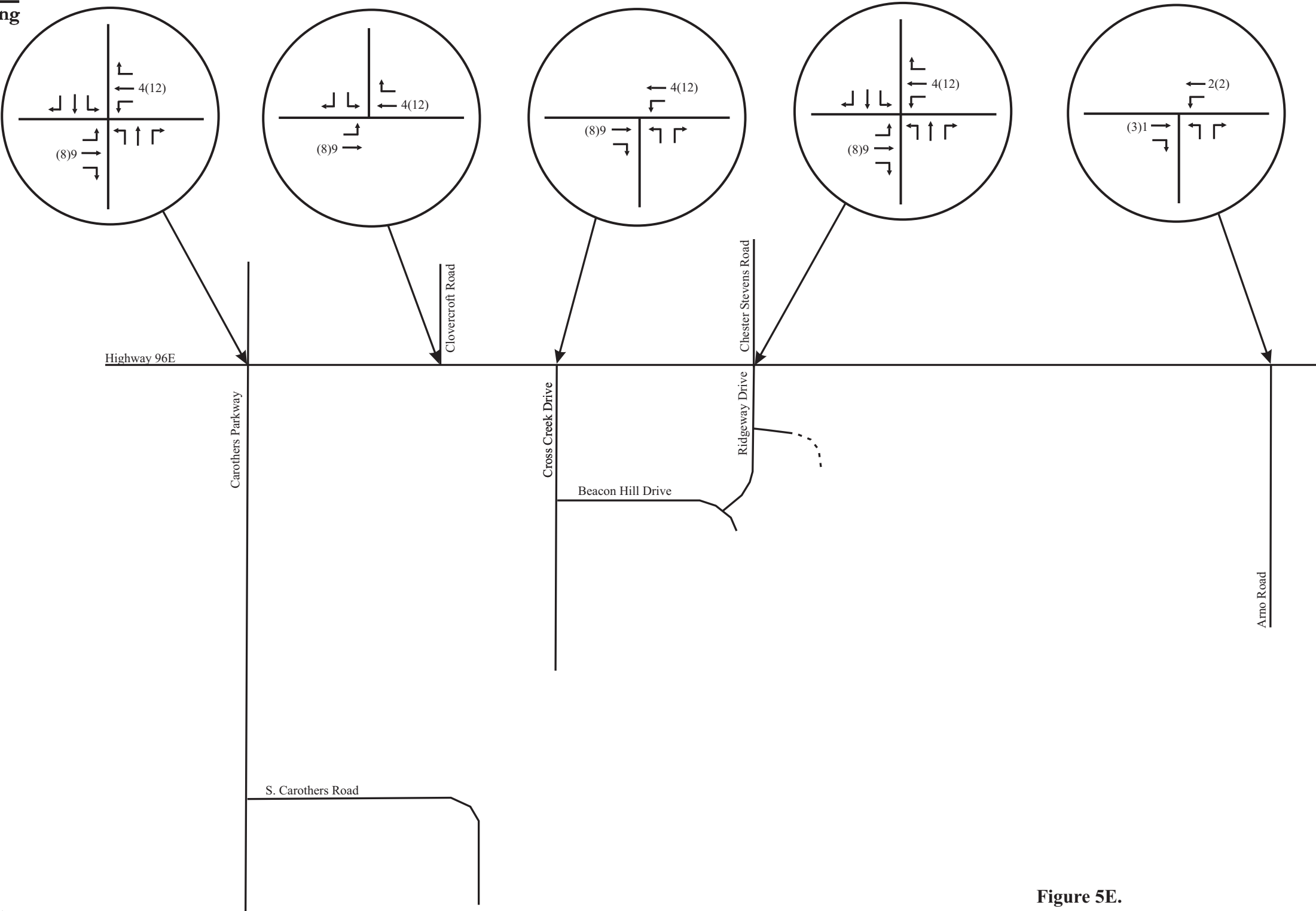
Figure 5C.
Peak Hour Traffic Volumes Generated by the
Water's Edge Residential Development



No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 5D.
 Peak Hour Traffic Volumes Generated by the
 October Woods Residential Development

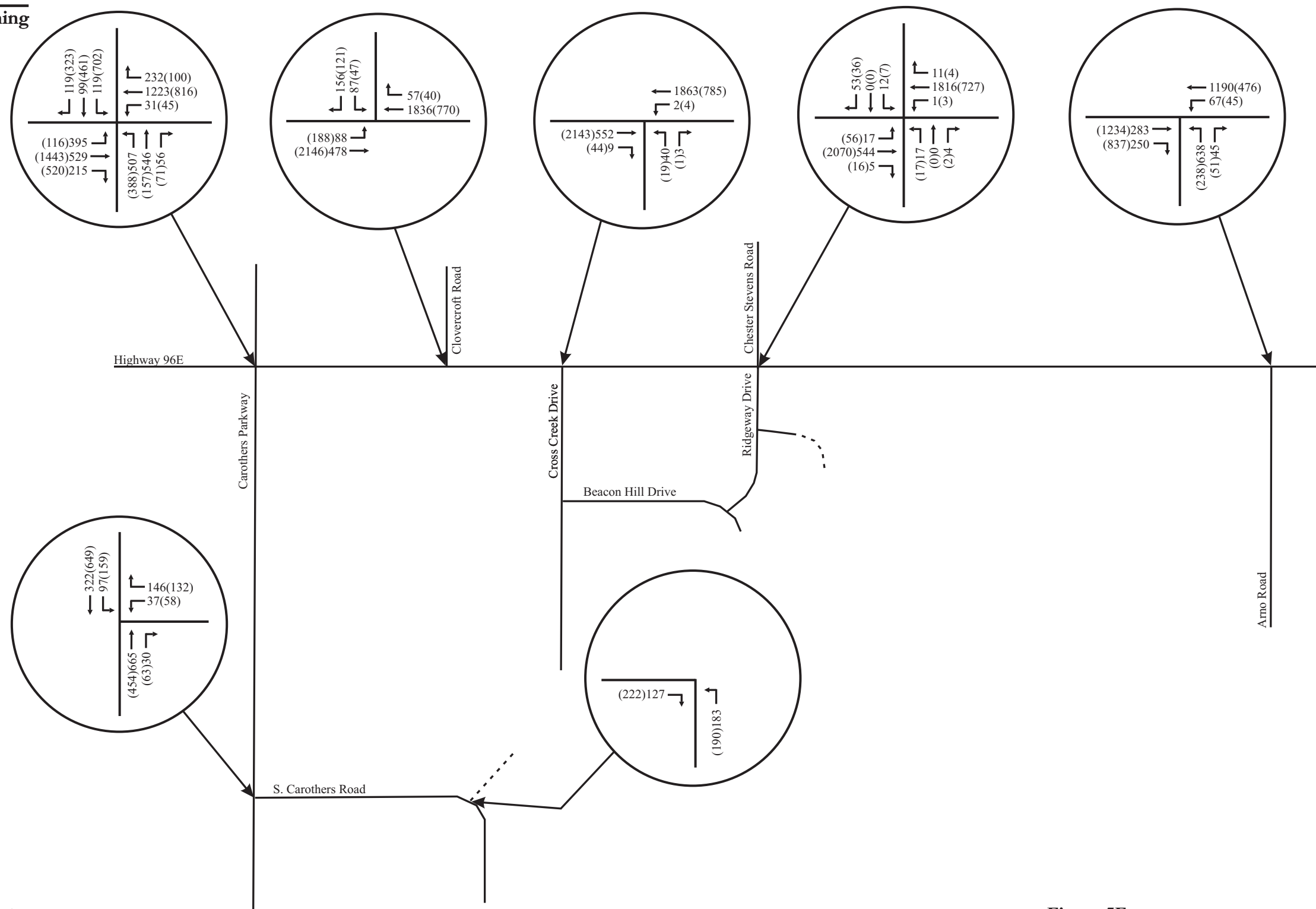


No Scale

XX - AM Peak Hour Volumes
(XX) - PM Peak Hour Volumes

Figure 5E.
Peak Hour Traffic Volumes Generated by the
Silver Grace Assisted Living Development

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No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 5F.
Final Background Peak Hour Traffic Volumes

TABLE 6. BACKGROUND PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
		LEVEL OF SERVICE	95 TH %-ILE QUEUE	LEVEL OF SERVICE	95 TH %-ILE QUEUE
Highway 96E and Carothers Parkway (signalized)	Eastbound Left Turns	LOS F	146 feet	LOS C	27 feet
	Eastbound Thrus	LOS B	84 feet	LOS D	536 feet
	Eastbound Right Turns	LOS A	30 feet	LOS B	159 feet
	Westbound Left Turns	LOS A	10 feet	LOS F	23 feet
	Westbound Thru/Right Turns	LOS B	185 feet	LOS B	142 feet
	Northbound Left Turns	LOS B	89 feet	LOS C	115 feet
	Northbound Thrus	LOS B	86 feet	LOS B	36 feet
	Northbound Right Turns	LOS A	15 feet	LOS B	25 feet
	Southbound Left Turns	LOS B	24 feet	LOS C	223 feet
	Southbound Thrus	LOS A	19 feet	LOS C	116 feet
	Southbound Right Turns	LOS A	39 feet	LOS B	123 feet
	Overall Intersection	LOS C		LOS C	
Highway 96E and Clovercroft Road (signalized)	Eastbound Left Turns	LOS F	171 feet	LOS A	27 feet
	Eastbound Thrus	LOS A	31 feet	LOS A	227 feet
	Westbound Thrus/Right Turns	LOS A	248 feet	LOS A	49 feet
	Southbound Left Turn Lane	LOS D	88 feet	LOS D	72 feet
	Southbound Right Turn Lane	LOS D	137 feet	LOS B	57 feet
	Overall Intersection	LOS B		LOS A	

Highway 96E and Cross Creek Drive (unsignalized)	Westbound Left Turn Lane	LOS A	0 veh	LOS C	1 veh
	Northbound Left / Right Turn Lane	LOS D	1 veh	LOS F	2 veh
Highway 96E and Ridgeway Drive / Chester Stevens Drive (unsignalized)	Eastbound Left Turn Lane	LOS C	1 veh	LOS A	1 veh
	Westbound Left Turn Lane	LOS A	0 veh	LOS C	0 veh
	Northbound Lane	LOS D	1 veh	LOS F	2 veh
	Southbound Lane	LOS F	2 veh	LOS C	1 veh
Highway 96E and Arno Road (signalized)	Eastbound Thrus / Right Turns	LOS B	96 feet	LOS B	231 feet
	Westbound Left Turns	LOS C	60 feet	LOS E	56 veh
	Westbound Thrus	LOS C	456 feet	LOS A	78 veh
	Northbound Left Turns	LOS C	498 feet	LOS D	261 veh
	Northbound Right Turns	LOS A	18 feet	LOS B	34 veh
	Overall Intersection	LOS C		LOS B	
Carothers Parkway and S. Carothers Road (unsignalized)	Southbound Left Turns	LOS A	1 veh	LOS A	1 veh
	Westbound Left Turns	LOS D	1 veh	LOS F	3 veh
	Westbound Right Turns	LOS C	2 veh	LOS B	1 veh

5. IMPACTS OF PROPOSED DEVELOPMENT

5.1 TRIP GENERATION

Trip generation calculations were conducted in order to identify how much traffic will be generated by the proposed project. Trip generation data for daily and peak hour trips were identified from Trip Generation, Ninth Edition, which was published by the Institute of Transportation Engineers (ITE) in 2012. [Table 7](#) presents the daily and peak hour trip generations for the proposed homes, and these calculations are included in [Appendix E](#).

TABLE 7. TRIP GENERATION

LAND USE	SIZE	DAILY TRAFFIC	GENERATED TRAFFIC			
			AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Single-Family (LUC 210)	199 homes	1,894	37	112	125	74

5.2 TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

For the purposes of this study, it was estimated that the trips generated by the proposed project will access the project site according to the directional distribution shown in [Figure 6](#). The development of this distribution was based on the following factors:

- existing land use characteristics,
- the directions of approach of the existing traffic,
- the access proposed for the project, and
- the locations of population centers in the area.

The peak hour trip generation and directional distribution were used to add the site-generated trips to the roadway system. [Figure 7](#) includes the peak hour traffic volumes that are expected to be generated by the proposed project.

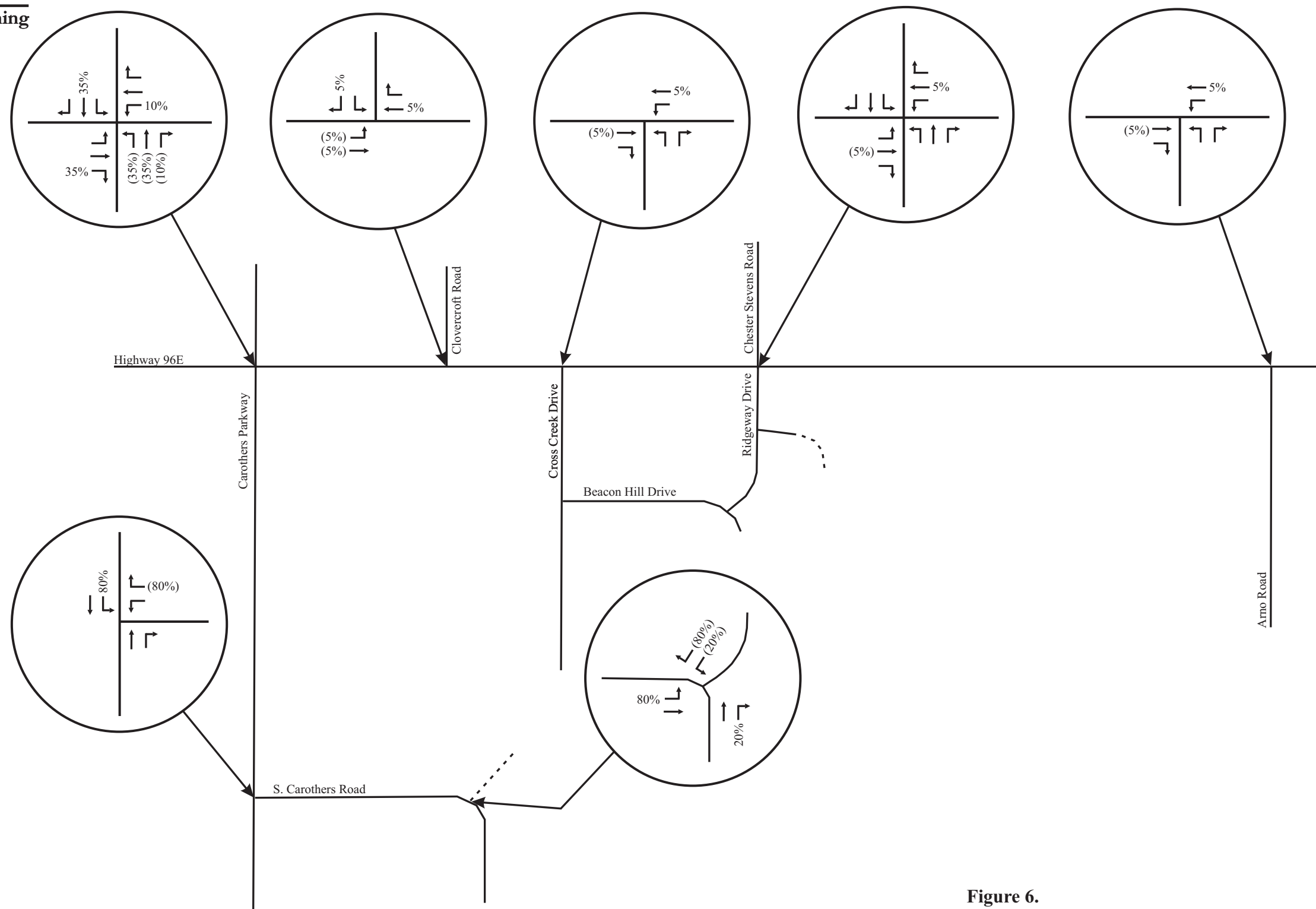
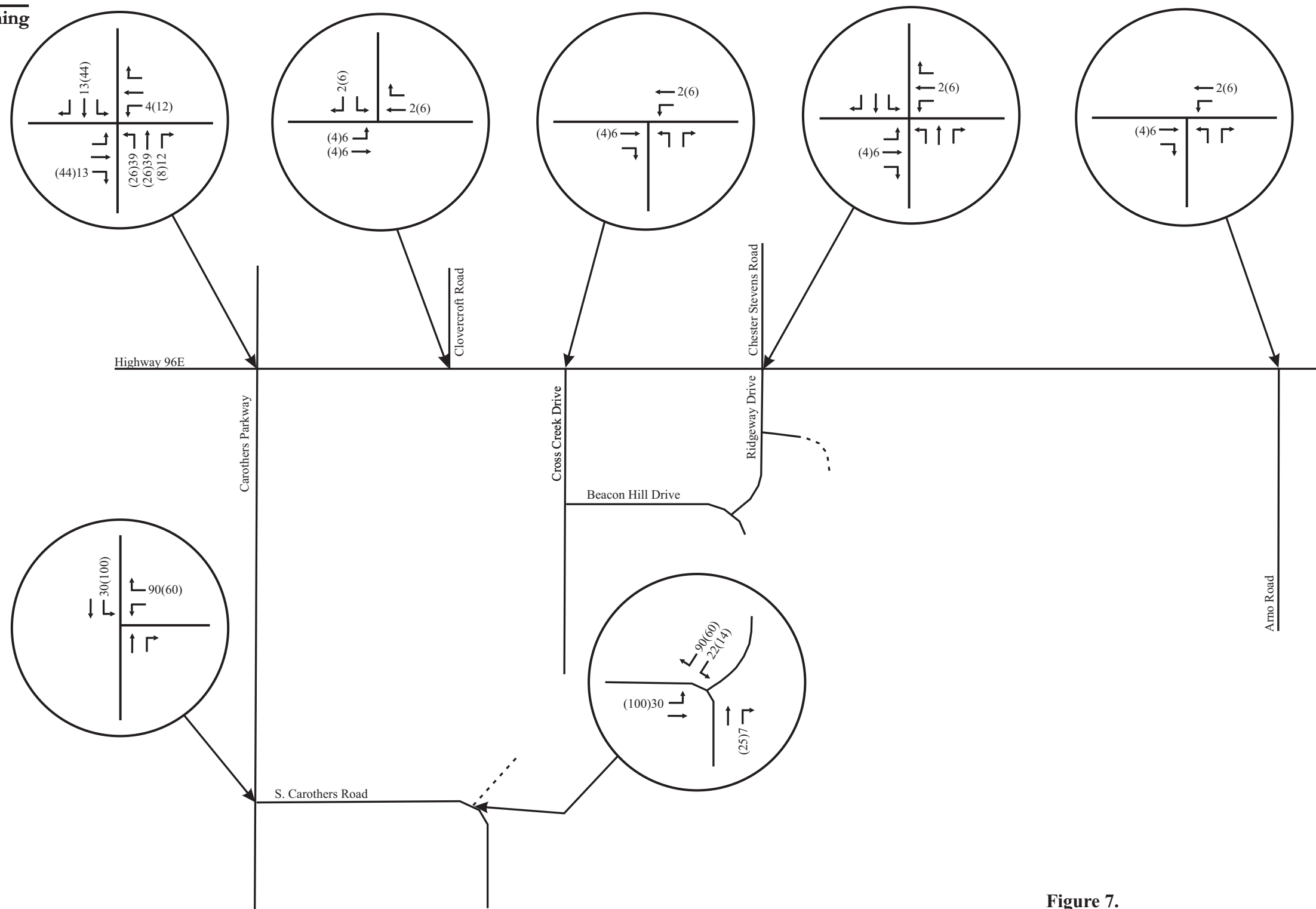


Figure 6.
Directional Distribution of Peak Hour Traffic Volumes
Generated by the Proposed Residential Project



No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 7.
Peak Hour Traffic Volumes Generated by the
Proposed Residential Project

5.3 CAPACITY ANALYSES

In order to identify the projected peak hour traffic volumes at the completion of the proposed project, the trips generated by the project were added to the background peak hour traffic volumes. The resulting peak hour volumes are shown in [Figure 8](#).

Using the total projected peak hour traffic volumes, capacity analyses were conducted in order to determine the impact of the project on the roadway system. Specifically, these capacity analyses were used to evaluate the need for roadway and traffic control improvements within the study area. For these analyses, the following assumptions were made:

- All existing laneage and traffic control will be maintained and no improvements will be provided.
- The project access on S. Carothers Road will be constructed to include one entering lane and one exiting lane.

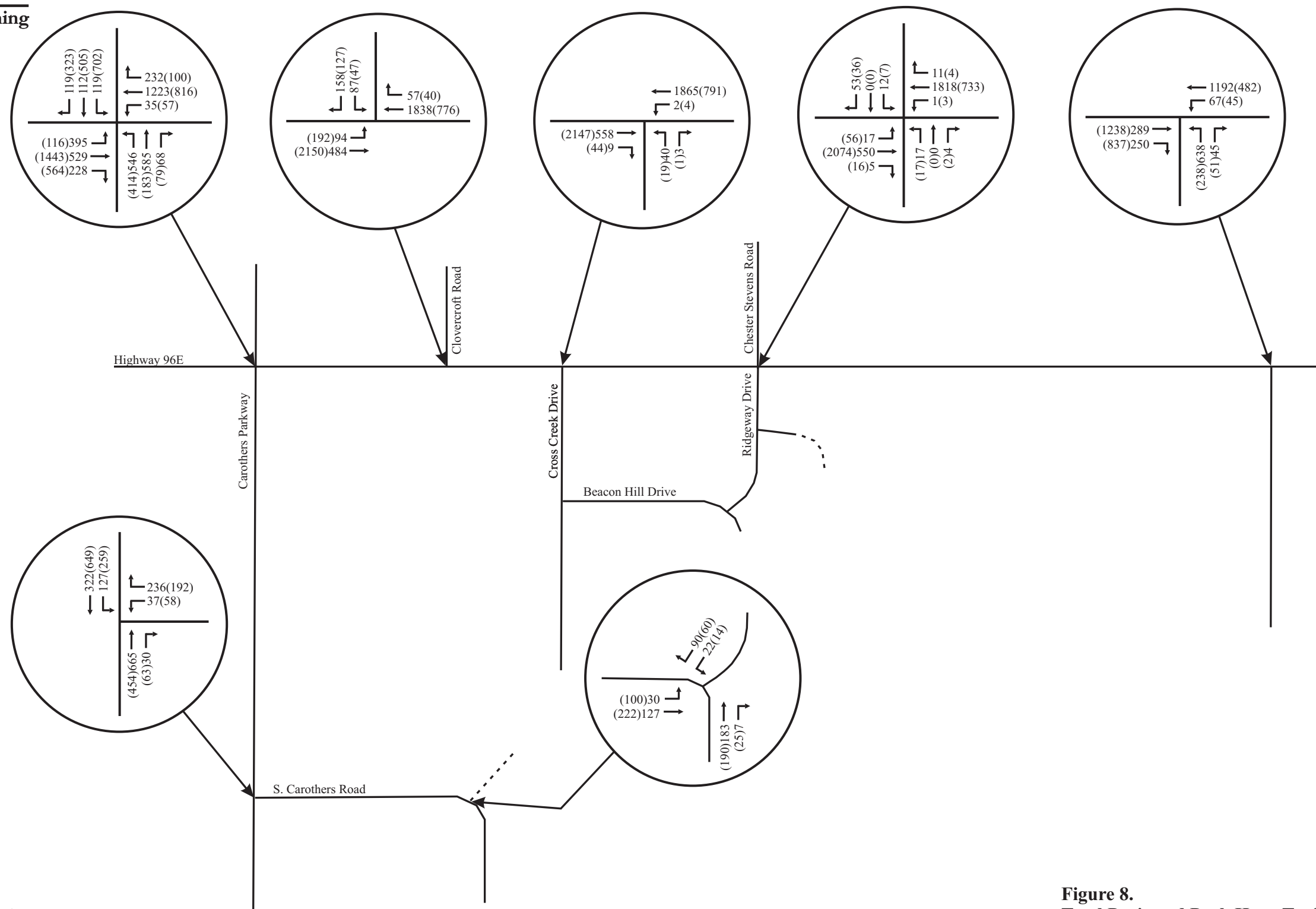
The results of the capacity analyses for the total projected peak hour traffic volumes are shown in [Table 8](#), and [Appendix B](#) includes the capacity analyses worksheets. These analyses indicate that the total projected conditions with full build-out of the project are largely consistent with the background conditions within the study area. Also, these analyses indicate that all of the critical turning movements at the intersection of S. Carothers Road and the project access will operate acceptably during both peak hours.

Further analyses were conducted to determine the need for the following dedicated turn lanes within the study area:

- A dedicated left turn lane on S. Carothers Road at the project access.
- A dedicated right turn lane on S. Carothers Road at the project access.
- A dedicated northbound right turn lane on Carothers Parkway at S. Carothers Road.

These analyses were based on the method outlined in *NCHRP Report 457: Engineering Study Guide for Evaluating Intersection Improvements*. The relevant charts are included in [Appendix F](#). The results of these analyses indicate that a dedicated northbound right turn lane is warranted for construction on Carothers Parkway at S. Carothers Road. Also, a dedicated eastbound right turn lane is warranted for construction on Highway 96E at Ridgeway Drive. However, dedicated turn lanes are not warranted on S. Carothers Road at the project access.

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No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 8.
Total Projected Peak Hour Traffic Volumes
at the Completion of the Proposed Project

TABLE 8. PROJECTED PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
		LEVEL OF SERVICE	95 TH %-ILE QUEUE	LEVEL OF SERVICE	95 TH %-ILE QUEUE
Highway 96E and Carothers Parkway (signalized)	Eastbound Left Turns	LOS F	146 feet	LOS C	65 feet
	Eastbound Thrus	LOS B	84 feet	LOS D	853 feet
	Eastbound Right Turns	LOS A	31 feet	LOS C	449 feet
	Westbound Left Turns	LOS A	11 feet	LOS F	182 feet
	Westbound Thru/Right Turns	LOS B	180 feet	LOS B	195 feet
	Northbound Left Turns	LOS B	99 feet	LOS D	257 feet
	Northbound Thrus	LOS B	93 feet	LOS C	84 feet
	Northbound Right Turns	LOS A	17 feet	LOS C	76 feet
	Southbound Left Turns	LOS B	25 feet	LOS D	396 feet
	Southbound Thrus	LOS A	21 feet	LOS C	225 feet
	Southbound Right Turns	LOS A	39 feet	LOS C	257 feet
	Overall Intersection	LOS C		LOS C	
Highway 96E and Clovercroft Road (signalized)	Eastbound Left Turns	LOS F	181 feet	LOS A	34 feet
	Eastbound Thrus	LOS A	32 feet	LOS A	262 feet
	Westbound Thrus/Right Turns	LOS A	235 feet	LOS A	53 feet
	Southbound Left Turn Lane	LOS D	89 feet	LOS F	94 feet
	Southbound Right Turn Lane	LOS D	139 feet	LOS C	69 feet
	Overall Intersection	LOS B		LOS A	

Highway 96E and Cross Creek Drive (unsignalized)	Westbound Left Turn Lane	LOS A	0 veh	LOS C	1 veh
	Northbound Left / Right Turn Lane	LOS D	1 veh	LOS F	2 veh
Highway 96E and Ridgeway Drive / Chester Stevens Drive (unsignalized)	Eastbound Left Turn Lane	LOS C	1 veh	LOS A	1 veh
	Westbound Left Turn Lane	LOS A	0 veh	LOS C	0 veh
	Northbound Lane	LOS D	1 veh	LOS F	2 veh
	Southbound Lane	LOS F	2 veh	LOS C	1 veh
Highway 96E and Arno Road (signalized)	Eastbound Thrus / Right Turns	LOS B	96 feet	LOS A	433 feet
	Westbound Left Turns	LOS C	60 feet	LOS F	95 veh
	Westbound Thrus	LOS C	460 feet	LOS A	86 veh
	Northbound Left Turns	LOS C	498 feet	LOS F	381 veh
	Northbound Right Turns	LOS A	18 feet	LOS B	41 veh
	Overall Intersection	LOS C		LOS B	
Carothers Parkway and S. Carothers Road (unsignalized)	Southbound Left Turns	LOS A	1 veh	LOS A	1 veh
	Westbound Left Turns	LOS E	1 veh	LOS F	5 veh
	Westbound Right Turns	LOS C	4 veh	LOS C	2 veh
S. Carothers Road and Project Access	Eastbound Left Turns/Thrus	LOS A	1 veh	LOS A	1 veh
	Southbound Left and Right Turns	LOS B	1 veh	LOS B	1 veh

5.4 TRAFFIC SIGNAL WARRANT ANALYSES

Based on the total projected conditions with the proposed project, as well as the residential projects that have already been approved for construction, updated traffic signal warrant analyses were conducted for the intersection of Carothers Parkway and S. Carothers Road.

Specifically, for the purposes of this study, it was estimated that the proposed Colletta Park project and the approved residential projects (Simmon's Ridge, Lockwood Glen, Echelon, and Water's Edge) will include a total of 951 single-family homes, 613 townhomes, and 240 apartments, as shown below:

Colletta Park – 199 single-family homes

Simmons Ridge – 421 townhomes

Lockwood Glen – 347 single-family homes, 32 townhomes, and 240 apartments

Water's Edge – 211 single-family homes and 126 townhomes

Echelon – 134 single-family homes and 34 townhomes

Trip generation data for daily and peak hour trips were identified from Trip Generation, Ninth Edition, which was published by the Institute of Transportation Engineers (ITE) in 2012. [Table 9](#) presents the daily and peak hour trip generations for the homes that have been approved for construction near the intersection of Carothers Parkway and S. Carothers Road.

TABLE 9. TRIP GENERATION (APPROVED AND PROPOSED HOMES)

LAND USE	SIZE	DAILY TRAFFIC	GENERATED TRAFFIC			
			AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Single-Family (LUC 210)	891 homes	8,482	167	501	561	330
Townhomes (LUC 230)	613 homes	3,562	46	224	214	105
Multi-Family (LUC 220)	240 homes	1,596	24	98	97	52
TOTAL	1,744 homes	13,640	237	823	872	487

Based on the daily trip generations shown in [Table 9](#), hourly traffic volumes entering and exiting the project sites were estimated as shown in [Table 10](#).

For the purposes of this study, it was assumed that 100% of the total traffic entering the project sites and 70% of the total traffic exiting the project sites will travel northbound and southbound on Carothers Parkway. Also, it was assumed that 30% of the total traffic exiting the project sites will travel westbound on S. Carothers Road. Based on these assumptions, the hourly traffic volumes on Carothers Parkway and S. Carothers Road were added to the existing traffic volumes in [Table 4](#) in order to establish the projected traffic volumes shown in [Table 11](#). The results of these updated traffic signal warrant analyses are also included in [Table 11](#). **These results indicate that the projected traffic volumes at the intersection of Carothers Parkway and S. Carothers Road will satisfy two of the volume-related signal warrants.**

**TABLE 10. HOURLY TRAFFIC VOLUMES
EXPECTED TO BE GENERATED BY APPROVED AND PROPOSED HOMES**

HOUR	% OF DAILY TRAFFIC	TOTAL TRAFFIC	% ENTER	ENTERING TRAFFIC	% EXIT	EXITING TRAFFIC
12:00 - 1:00 AM	0.6%	75	50%	38	50%	38
1:00 - 2:00 AM	0.5%	68	45%	31	55%	38
2:00 - 3:00 AM	1.0%	136	40%	55	60%	82
3:00 - 4:00 AM	2.0%	273	35%	95	65%	177
4:00 - 5:00 AM	3.0%	409	30%	123	70%	286
5:00 - 6:00 AM	4.0%	546	25%	136	75%	409
6:00 - 7:00 AM	5.0%	682	25%	170	75%	511
7:00 - 8:00 AM	7.8%	1,060	22%	237	78%	823
8:00 - 9:00 AM	6.0%	818	35%	286	65%	532
9:00 - 10:00 AM	5.0%	682	40%	273	60%	409
10:00 - 11:00 AM	5.0%	682	50%	341	50%	341
11:00 - 12:00 N	5.0%	682	50%	341	50%	341
12:00 - 1:00 PM	5.0%	682	50%	341	50%	341
1:00 - 2:00 PM	5.0%	682	50%	341	50%	341
2:00 - 3:00 PM	5.0%	682	50%	341	50%	341
3:00 - 4:00 PM	5.0%	682	55%	375	45%	307
4:00 - 5:00 PM	7.0%	955	60%	573	40%	382
5:00 - 6:00 PM	10.0%	1,359	64%	872	36%	487
6:00 - 7:00 PM	8.0%	1,091	70%	764	30%	327
7:00 - 8:00 PM	5.0%	682	80%	546	20%	136
8:00 - 9:00 PM	3.0%	409	80%	327	20%	82
9:00 - 10:00 PM	1.0%	136	75%	102	25%	34
10:00 - 11:00 PM	0.6%	82	70%	57	30%	25
11:00 - 12:00 M	0.6%	82	65%	53	35%	29
TOTAL	100.0%	13,638		6,819		6,819

**TABLE 11. TRAFFIC SIGNAL WARRANT ANALYSIS
INTERSECTION OF CAROTHERS PARKWAY AND S. CAROTHERS ROAD**

HOUR	TOTAL VEHICLES BOTH DIRECTIONS OF CAROTHERS PARKWAY	WESTBOUND VEHICLES ON S. CAROTHERS ROAD	SATISFY FULL WARRANTS?		
			Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2
6:00 - 7:00 AM	869	184	Yes	Yes	Yes
7:00 - 8:00 AM	1,468	295	Yes	Yes	Yes
8:00 - 9:00 AM	1,205	210	Yes	Yes	Yes
9:00 - 10:00 AM	927	144	---	Yes	Yes
10:00 - 11:00 AM	923	121	---	Yes	Yes
11:00 - 12:00 N	1,001	130	---	Yes	Yes
12:00 - 1:00 PM	1,040	133	---	Yes	Yes
1:00 - 2:00 PM	1,043	136	---	Yes	Yes
2:00 - 3:00 PM	1,006	130	---	Yes	Yes
3:00 - 4:00 PM	1,070	117	---	---	Yes
4:00 - 5:00 PM	1,416	131	---	Yes	Yes
5:00 - 6:00 PM	1,942	169	Yes	Yes	Yes
6:00 - 7:00 PM	1,552	127	---	Yes	Yes

6. CONCLUSIONS AND RECOMMENDATIONS

The analyses presented in this study indicate that the following infrastructure improvements should be provided in order to accommodate the existing, background, and total projected traffic volumes with the completion of the proposed project:

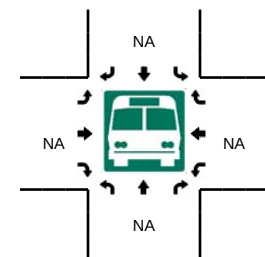
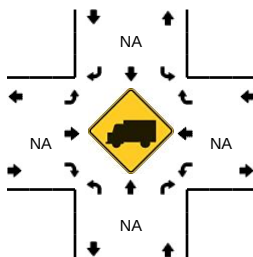
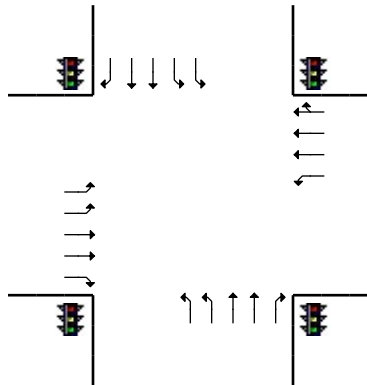
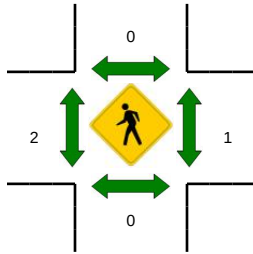
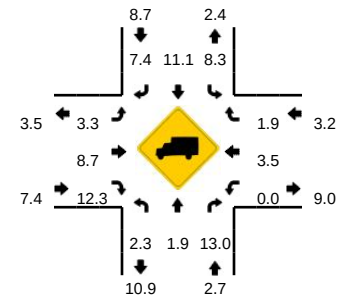
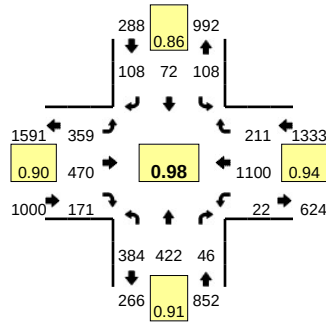
1. A northbound right turn lane should be provided on Carothers Parkway at the intersection with S. Carothers Road. This turn lane should include at least 100 feet of storage and should be designed and constructed according to AASHTO standards.
2. A traffic signal will likely be warranted at the intersection of Carothers Parkway and S. Carothers Road as all of the approved residential projects on Carothers Parkway and S. Carothers Road are developed. If constructed, this traffic signal should be designed and constructed to include protected and permissive signal phases for southbound motorists, as well as right turn overlap signal phases for northbound and westbound approaches.
3. The analyses conducted for the purposes of this study indicate that all of the critical turning movements at the intersection of S. Carothers Road and the project access will operate acceptably even if dedicated turn lanes are not provided at this location.
4. In conjunction with the preparation of final construction documents for the proposed project, sight triangles should be provided to identify the sight distances which will be available, based on the specific location of the project access and its design parameters. These sight triangles should be developed based on guidelines that are included in A Policy on Geometric Design of Highways and Streets, which is published by the American Association of State Highway and Transportation Officials (AASHTO) and commonly known as The Green Book. Specifically, The Green Book indicates that for a speed of 40 mph, the minimum stopping sight distance is 305 feet. This is the distance that motorists on S. Carothers Road will need to come to a stop if a vehicle turning from the project access creates a conflict. Also, based on The Green Book, the minimum intersection sight distance is 445 feet. This is the distance that motorists on the project access will need to safely complete a turn onto S. Carothers Road.

APPENDIX A
EXISTING TRAFFIC COUNTS

LOCATION: Carothers Pkwy -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408501
DATE: Wed, May 10 2017

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM



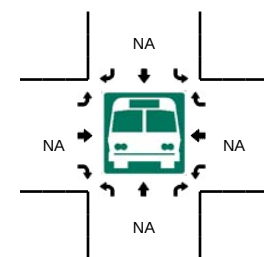
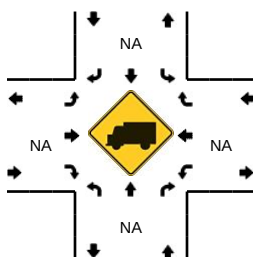
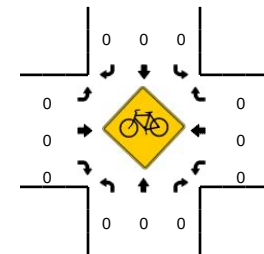
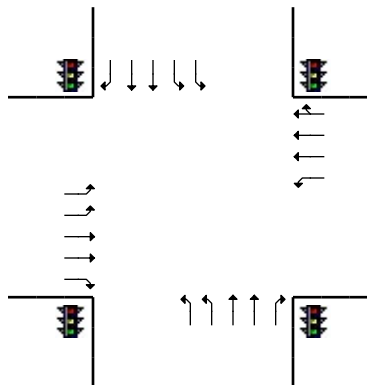
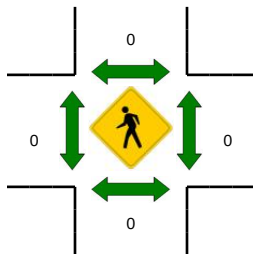
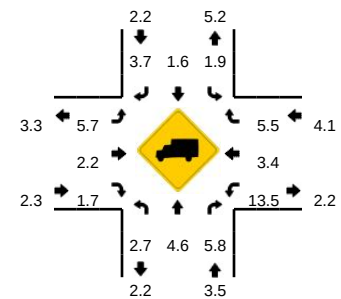
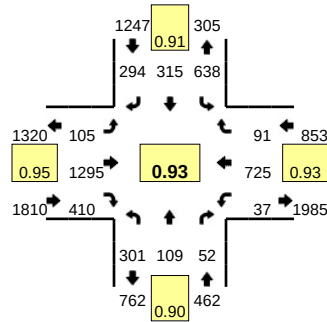
15-Min Count Period Beginning At	Carothers Pkwy (Northbound)				Carothers Pkwy (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	42	6	1	0	2	2	6	0	20	43	28	0	3	174	20	0	347	2528
6:15 AM	84	18	8	0	9	6	9	0	33	75	25	0	4	286	23	0	580	
6:30 AM	102	41	13	0	23	13	18	0	49	119	47	0	7	323	19	0	774	
6:45 AM	94	72	6	0	25	9	21	0	72	106	52	0	9	331	30	0	827	
7:00 AM	82	84	8	0	30	16	23	0	91	120	43	0	4	290	53	0	844	3025
7:15 AM	79	116	9	0	33	16	34	0	104	111	43	0	5	269	44	0	863	3308
7:30 AM	119	117	12	0	17	20	32	0	75	101	35	0	8	293	55	0	884	3418
7:45 AM	103	105	17	1	28	20	19	0	89	138	50	0	5	248	59	0	882	3473
8:00 AM	119	92	13	0	33	25	13	0	60	111	52	0	9	251	41	0	819	3448
8:15 AM	118	54	28	1	15	20	26	0	60	129	44	0	11	301	40	0	847	3432
8:30 AM	103	51	11	0	31	15	46	0	49	112	63	0	14	282	43	0	820	3368
8:45 AM	101	67	11	0	31	26	34	0	58	142	61	0	6	252	41	0	830	3316
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	476	468	48	0	68	80	128	0	300	404	140	0	32	1172	220	0	3536	
Heavy Trucks	24	12	4		8	8	12		12	36	20		0	40	8		184	
Pedestrians		0				0				4				0			4	
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Carothers Pkwy -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408502
DATE: Wed, May 10 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



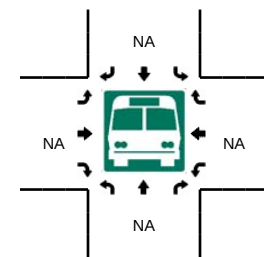
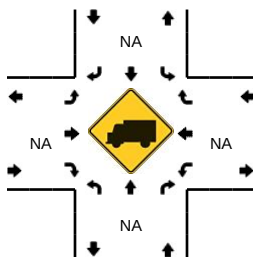
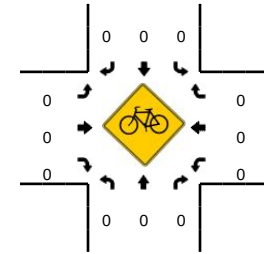
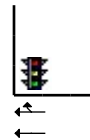
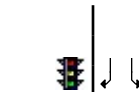
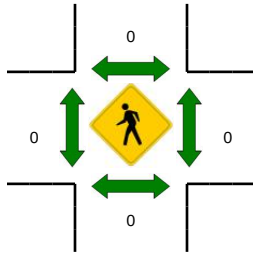
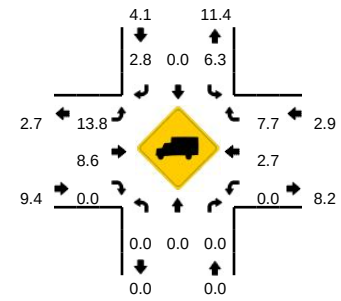
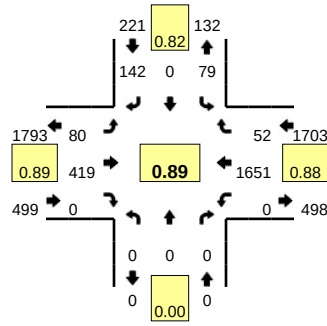
15-Min Count Period Beginning At	Carothers Pkwy (Northbound)				Carothers Pkwy (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	74	27	15	0	159	53	72	0	34	259	76	0	8	172	26	0	975	
4:15 PM	71	25	8	0	135	74	56	0	25	294	93	0	13	201	22	0	1017	
4:30 PM	58	21	14	0	173	75	93	0	33	331	95	0	7	174	20	0	1094	
4:45 PM	72	25	11	0	138	74	65	0	22	310	92	0	10	158	26	0	1003	4089
5:00 PM	91	32	15	0	163	74	62	0	21	311	119	0	8	176	25	0	1097	4211
5:15 PM	80	31	12	0	164	92	74	0	29	343	104	0	12	217	20	0	1178	4372
5:30 PM	87	23	14	0	149	84	46	0	35	260	103	0	10	190	26	0	1027	4305
5:45 PM	79	24	14	0	119	69	26	0	38	275	97	0	7	204	22	0	974	4276
6:00 PM	94	35	12	0	96	48	57	0	26	251	85	1	4	188	24	0	921	4100
6:15 PM	80	19	9	0	83	57	31	0	31	259	97	0	16	177	17	0	876	3798
6:30 PM	89	19	10	0	73	55	29	0	23	222	88	2	7	163	7	0	787	3558
6:45 PM	52	15	8	0	65	40	24	0	29	198	74	0	7	144	19	0	675	3259
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	320	124	48	0	656	368	296	0	116	1372	416	0	48	868	80	0	4712	
Heavy Trucks	8	8	0		8	4	8		4	32	0		0	40	4		116	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Clovercroft Rd -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408503
DATE: Wed, May 10 2017

Peak-Hour: 6:30 AM -- 7:30 AM
Peak 15-Min: 6:45 AM -- 7:00 AM



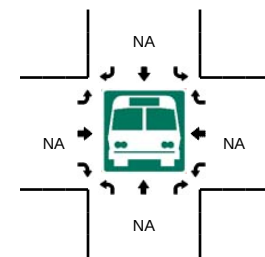
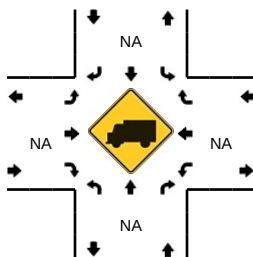
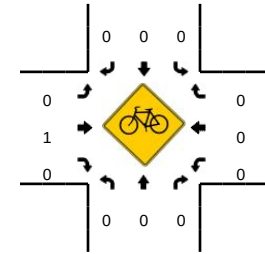
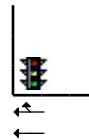
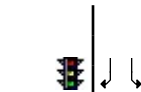
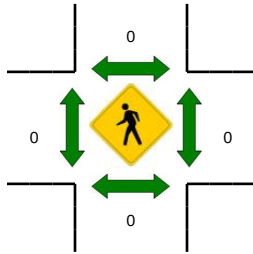
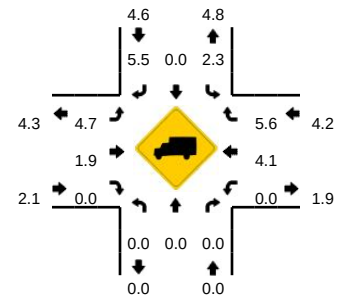
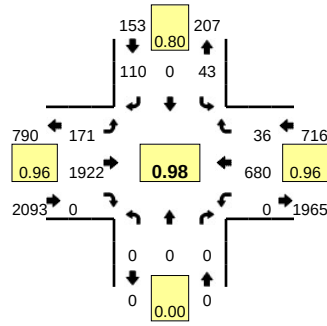
15-Min Count Period Beginning At	Clovercroft Rd (Northbound)				Clovercroft Rd (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	0	0	20	0	11	34	0	0	0	194	1	0	260	
6:15 AM	0	0	0	0	3	0	26	0	10	57	0	0	0	342	2	0	440	
6:30 AM	0	0	0	0	24	0	31	0	14	117	0	0	0	385	5	0	576	
6:45 AM	0	0	0	0	39	0	30	0	18	99	0	0	0	483	8	0	677	1953
7:00 AM	0	0	0	0	16	0	37	0	25	94	0	0	0	389	20	0	581	2274
7:15 AM	0	0	0	0	0	0	44	0	23	109	0	0	0	394	19	0	589	2423
7:30 AM	0	0	0	0	4	0	57	0	24	76	0	0	0	389	17	0	567	2414
7:45 AM	0	0	0	0	1	0	48	0	29	131	0	0	0	350	8	0	567	2304
8:00 AM	0	0	0	0	4	0	30	0	18	113	0	0	0	332	5	0	502	2225
8:15 AM	0	0	0	0	5	0	43	0	23	124	0	0	0	347	5	0	547	2183
8:30 AM	0	0	0	0	2	0	59	0	24	107	0	0	0	353	3	0	548	2164
8:45 AM	0	0	0	0	2	0	39	0	28	112	0	0	0	270	11	0	462	2059
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	156	0	120	0	72	396	0	0	0	1932	32	0	2708	
Heavy Trucks	0	0	0	0	4	0	0	0	0	20	0	0	0	40	0	0	64	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Clovercroft Rd -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408504
DATE: Wed, May 10 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



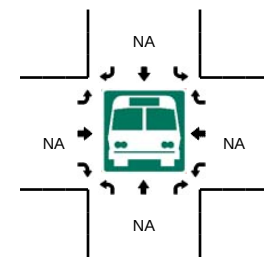
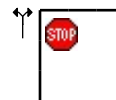
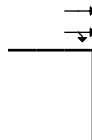
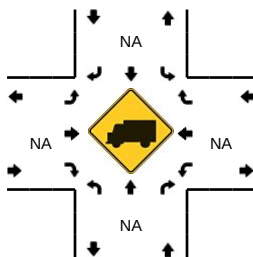
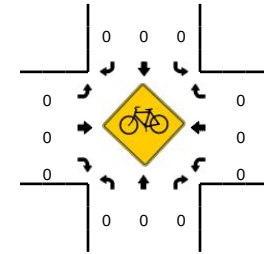
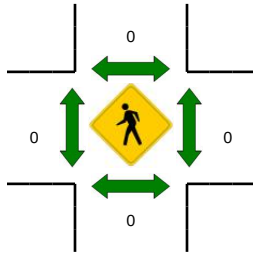
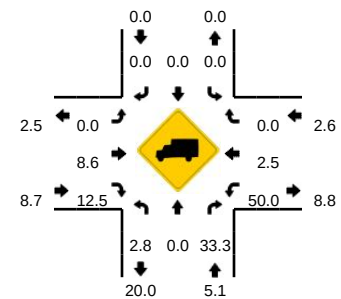
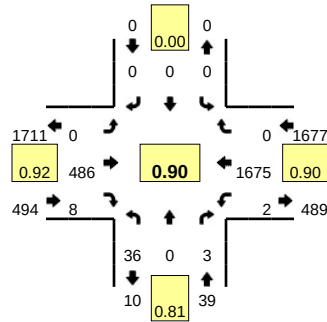
15-Min Count Period Beginning At	Clovercroft Rd (Northbound)				Clovercroft Rd (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	13	0	30	0	52	409	0	0	0	171	8	0	683	
4:15 PM	0	0	0	0	9	0	25	0	34	426	0	0	0	188	8	0	690	
4:30 PM	0	0	0	0	10	0	34	0	37	503	0	0	0	164	9	0	757	
4:45 PM	0	0	0	0	11	0	20	0	44	447	0	0	0	159	11	0	692	2822
5:00 PM	0	0	0	0	13	0	34	0	42	475	0	0	0	183	10	0	757	2896
5:15 PM	0	0	0	0	9	0	22	0	48	497	0	0	0	174	6	0	756	2962
5:30 PM	0	0	0	0	9	0	42	0	46	413	0	0	0	193	3	0	706	2911
5:45 PM	0	0	0	0	7	0	27	0	37	395	0	0	0	176	5	0	647	2866
6:00 PM	0	0	0	0	6	0	19	0	38	323	0	0	0	186	4	0	576	2685
6:15 PM	0	0	0	0	5	0	23	0	28	337	0	0	0	165	3	0	561	2490
6:30 PM	0	0	0	0	4	0	29	0	31	263	0	0	0	146	2	0	475	2259
6:45 PM	0	0	0	0	7	0	30	0	20	248	0	0	0	126	4	0	435	2047
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	0	0	0	40	0	136	0	148	2012	0	0	0	656	36	0	3028	
Heavy Trucks	0	0	0	0	0	0	12	0	8	60	0	0	0	24	0	0	104	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Cross Creek Dr -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408505
DATE: Wed, May 10 2017

Peak-Hour: 6:30 AM -- 7:30 AM
Peak 15-Min: 6:45 AM -- 7:00 AM



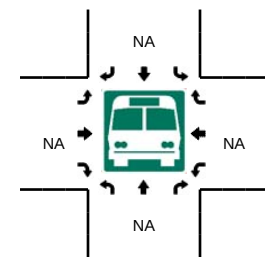
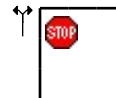
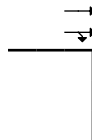
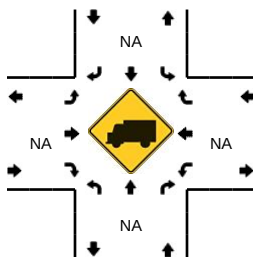
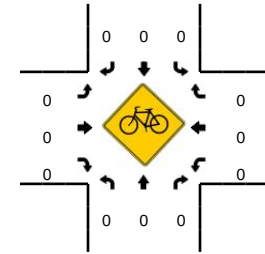
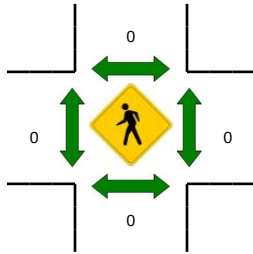
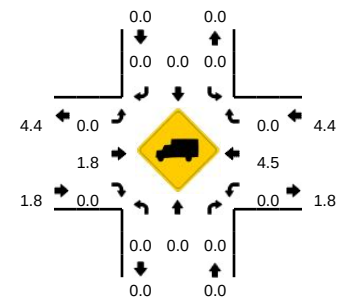
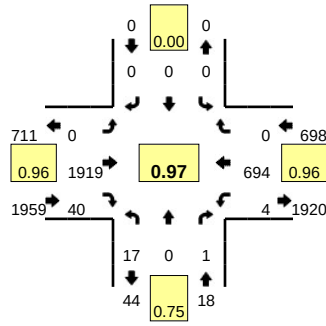
15-Min Count Period Beginning At	Cross Creek Dr (Northbound)				Cross Creek Dr (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	4	0	0	0	0	0	0	0	0	35	0	0	0	188	0	0	227	
6:15 AM	3	0	2	0	0	0	0	0	0	61	1	0	0	343	0	0	410	
6:30 AM	8	0	1	0	0	0	0	0	0	136	2	0	1	398	0	0	546	
6:45 AM	9	0	0	0	0	0	0	0	0	134	3	0	1	467	0	0	614	1797
7:00 AM	12	0	0	0	0	0	0	0	0	106	3	0	0	411	0	0	532	2102
7:15 AM	7	0	2	0	0	0	0	0	0	110	0	0	0	399	0	0	518	2210
7:30 AM	7	0	0	0	0	0	0	0	0	76	4	0	0	400	0	0	487	2151
7:45 AM	6	0	1	0	0	0	0	0	0	132	2	0	0	353	0	0	494	2031
8:00 AM	7	0	0	0	0	0	0	0	0	114	2	0	1	334	0	0	458	1957
8:15 AM	3	0	0	0	0	0	0	0	0	125	4	0	2	349	0	0	483	1922
8:30 AM	5	0	0	0	0	0	0	0	0	111	5	0	1	344	0	0	466	1901
8:45 AM	6	0	0	0	0	0	0	0	0	101	8	0	0	273	0	0	388	1795
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	0	0	0	0	0	0	0	0	536	12	0	4	1868	0	0	2456	
Heavy Trucks	0	0	0	0	0	0	0	0	0	32	0	0	0	36	0	0	68	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Cross Creek Dr -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408506
DATE: Wed, May 10 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



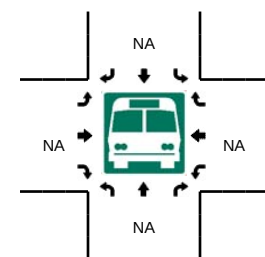
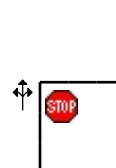
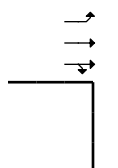
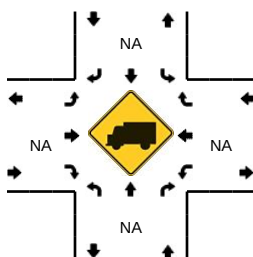
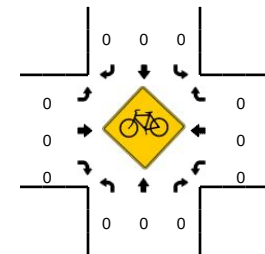
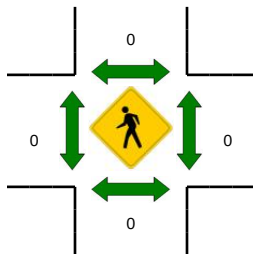
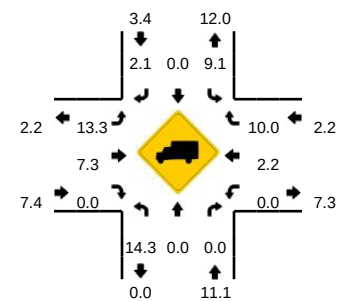
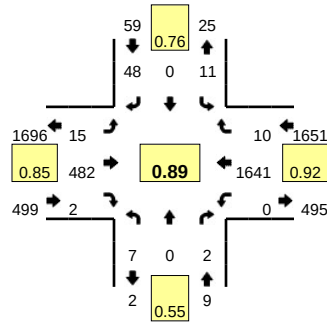
15-Min Count Period Beginning At	Cross Creek Dr (Northbound)				Cross Creek Dr (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	0	1	0	0	0	0	0	0	410	9	0	1	180	0	0	603	
4:15 PM	4	0	0	0	0	0	0	0	0	425	9	1	0	190	0	0	629	
4:30 PM	4	0	0	0	0	0	0	0	0	495	14	0	1	175	0	0	689	
4:45 PM	4	0	0	0	0	0	0	0	0	452	8	0	0	161	0	0	625	2546
5:00 PM	4	0	0	0	0	0	0	0	0	478	6	0	2	186	0	0	676	2619
5:15 PM	5	0	1	0	0	0	0	0	0	494	12	0	1	172	0	0	685	2675
5:30 PM	6	0	0	0	0	0	0	0	0	417	7	0	0	185	0	0	615	2601
5:45 PM	5	0	0	0	0	0	0	0	0	400	6	0	0	177	0	0	588	2564
6:00 PM	6	0	2	0	0	0	0	0	0	328	9	0	0	185	0	0	530	2418
6:15 PM	5	0	0	0	0	0	0	0	0	330	9	0	1	164	0	0	509	2242
6:30 PM	9	0	0	0	0	0	0	0	0	264	6	0	0	136	0	0	415	2042
6:45 PM	3	0	0	0	0	0	0	0	0	250	6	0	1	127	0	0	387	1841
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	16	0	0	0	0	0	0	0	0	1980	56	0	4	700	0	0	2756	
Heavy Trucks	0	0	0	0	0	0	0	0	0	64	0	0	0	24	0	0	88	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Ridgeway Dr -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408509
DATE: Wed, May 10 2017

Peak-Hour: 6:30 AM -- 7:30 AM
Peak 15-Min: 6:45 AM -- 7:00 AM



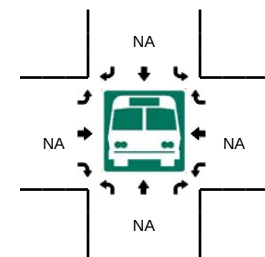
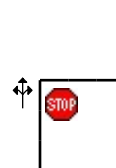
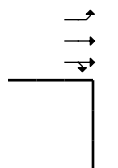
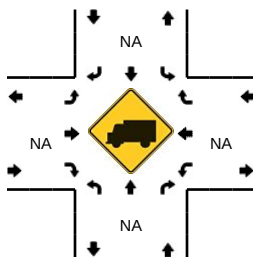
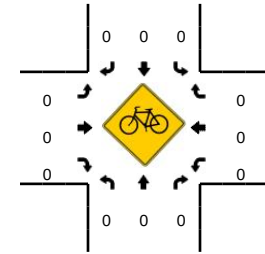
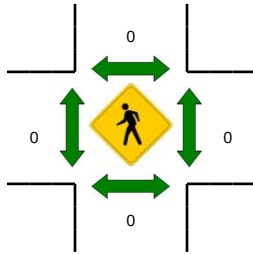
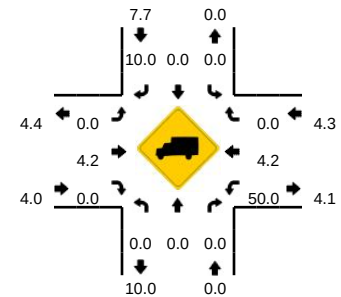
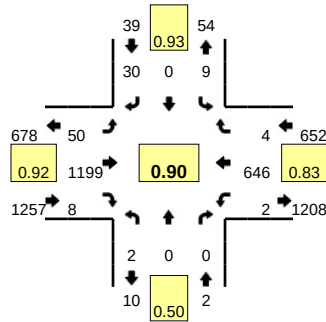
15-Min Count Period Beginning At	Ridgeway Dr (Northbound)				Ridgeway Dr (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	1	0	0	0	0	0	7	0	2	32	0	0	0	181	0	0	223	
6:15 AM	1	0	0	0	0	0	10	0	3	60	0	0	0	329	0	0	403	
6:30 AM	1	0	1	0	3	0	10	0	4	128	1	0	0	402	0	0	550	
6:45 AM	3	0	0	0	8	0	18	0	2	143	0	0	0	447	0	0	621	1797
7:00 AM	2	0	1	0	0	0	7	0	2	106	0	0	0	399	3	0	520	2094
7:15 AM	1	0	0	0	0	0	13	0	7	105	1	0	0	393	7	0	527	2218
7:30 AM	2	0	0	0	0	0	14	0	2	74	0	0	0	379	2	0	473	2141
7:45 AM	1	0	0	0	0	0	16	0	2	126	1	0	0	333	1	0	480	2000
8:00 AM	2	0	3	0	1	0	9	0	6	108	1	0	1	320	1	0	452	1932
8:15 AM	3	0	0	0	4	0	16	0	4	117	2	0	2	330	1	0	479	1884
8:30 AM	2	0	0	0	0	0	15	0	6	98	1	0	0	329	2	0	453	1864
8:45 AM	1	0	0	0	0	0	14	0	9	95	1	0	0	260	0	0	380	1764
9:00 AM	2	0	0	0	1	0	7	0	2	115	0	0	0	217	0	0	344	1656
9:15 AM	0	0	0	0	1	0	8	0	7	102	0	0	0	205	1	0	324	1501
9:30 AM	1	0	0	0	0	0	11	0	9	110	1	0	0	221	0	0	353	1401
9:45 AM	3	0	1	0	0	0	13	0	6	129	3	0	1	236	0	0	392	1413
10:00 AM	1	0	1	0	0	0	8	0	1	106	0	0	0	185	2	0	304	1373
10:15 AM	0	0	0	0	1	0	8	0	5	117	2	1	0	163	2	0	299	1348
10:30 AM	2	0	1	0	1	0	8	0	8	117	0	0	2	185	0	0	324	1319
10:45 AM	0	0	0	0	2	0	11	0	10	140	0	0	0	157	0	0	320	1247
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	0	0	0	32	0	72	0	8	572	0	0	0	1788	0	0	2484	
Heavy Trucks	0	0	0	0	0	0	0	0	0	24	0	0	0	40	0	0	64	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Ridgeway Dr -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408510
DATE: Wed, May 10 2017

Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:45 PM -- 4:00 PM



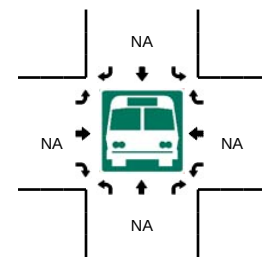
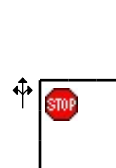
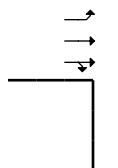
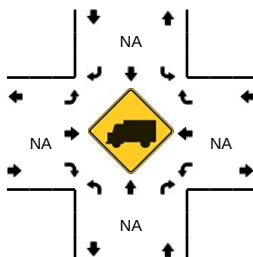
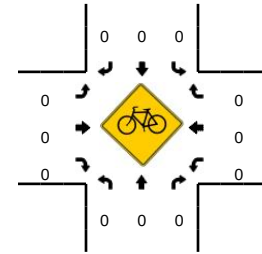
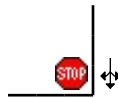
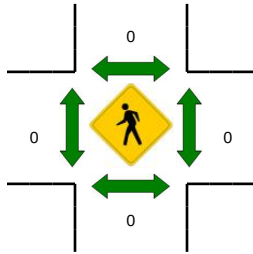
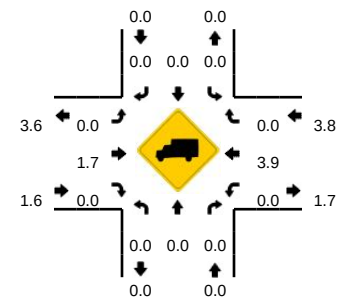
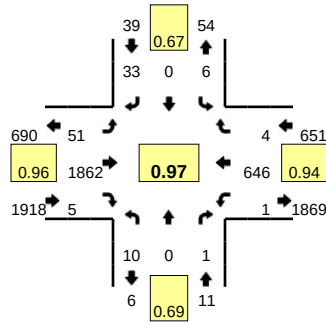
15-Min Count Period Beginning At	Ridgeway Dr (Northbound)				Ridgeway Dr (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	1	0	0	0	0	0	11	0	8	144	2	0	0	198	0	0	364	1377
11:15 AM	1	0	1	0	1	0	9	0	3	171	0	0	0	149	0	0	335	
11:30 AM	2	0	1	0	0	0	11	0	12	155	0	0	0	161	2	0	344	
11:45 AM	5	1	0	0	0	0	9	0	7	146	1	0	2	163	0	0	334	
12:00 PM	1	0	0	0	0	0	7	0	10	157	2	0	0	150	0	1	328	
12:15 PM	1	0	0	0	1	0	6	0	12	164	4	0	0	156	3	0	347	
12:30 PM	2	0	1	0	1	0	4	0	7	177	5	0	0	140	1	0	338	
12:45 PM	4	0	1	0	1	0	13	0	9	177	0	0	0	135	0	0	340	
1:00 PM	2	0	0	0	0	0	7	0	7	179	0	0	0	150	0	0	345	
1:15 PM	1	1	0	0	0	0	8	0	13	191	2	0	0	153	0	0	369	
1:30 PM	0	0	0	0	1	0	9	0	8	200	0	0	1	151	0	0	370	
1:45 PM	1	0	0	0	3	0	3	0	8	195	4	0	0	164	1	0	379	
2:00 PM	1	0	0	0	1	0	6	0	9	203	1	0	0	164	0	0	385	
2:15 PM	0	0	0	0	3	0	9	0	7	244	1	0	0	146	1	0	411	
2:30 PM	0	0	1	0	2	0	9	0	8	216	2	0	1	167	1	0	407	
2:45 PM	0	0	0	0	2	0	5	0	9	231	0	0	0	205	5	0	457	
3:00 PM	0	0	0	0	3	0	7	0	10	238	1	0	1	174	0	0	434	1709
3:15 PM	1	0	0	0	2	0	7	0	14	311	0	0	0	144	1	0	480	1778
3:30 PM	1	0	0	0	1	0	9	0	12	326	3	0	1	141	1	0	495	1866
3:45 PM	0	0	0	0	3	0	7	0	14	324	4	0	0	187	2	0	541	1950
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	12	0	28	0	56	1296	16	0	0	748	8	0	2164	
Heavy Trucks	0	0	0	0	0	0	4	0	0	72	0	0	0	20	0	0	96	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Ridgeway Dr -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408511
DATE: Wed, May 10 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



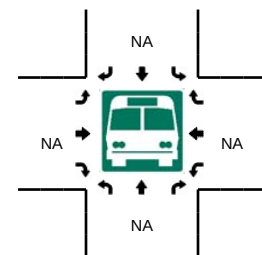
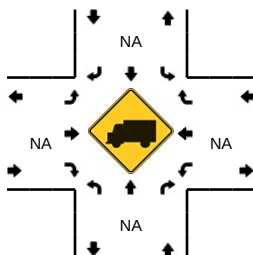
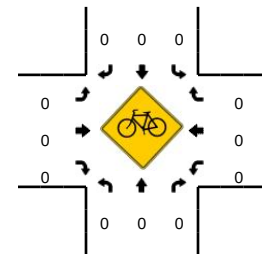
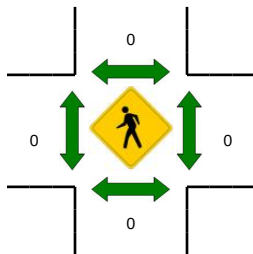
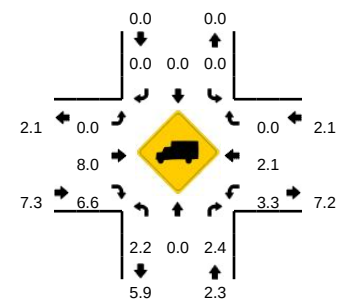
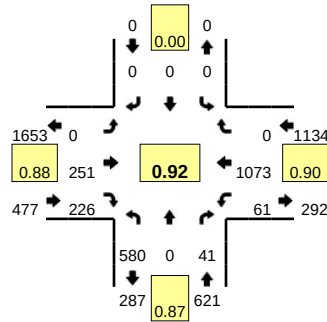
15-Min Count Period Beginning At	Ridgeway Dr (Northbound)				Ridgeway Dr (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	0	0	0	0	6	0	9	394	0	0	1	169	0	0	580	
4:15 PM	0	0	0	0	2	0	16	0	14	413	6	0	1	172	2	0	626	
4:30 PM	3	0	1	0	1	0	9	0	12	481	1	0	0	164	1	0	673	
4:45 PM	3	0	0	0	4	0	7	0	18	435	2	0	0	151	1	0	621	2500
5:00 PM	3	0	0	0	1	0	8	0	8	461	1	1	0	170	2	0	655	2575
5:15 PM	1	0	0	0	0	0	9	0	12	485	1	0	1	161	0	0	670	2619
5:30 PM	0	0	0	0	1	0	7	0	12	406	0	0	0	178	2	0	606	2552
5:45 PM	1	0	0	0	0	0	12	0	12	388	2	0	0	162	0	0	577	2508
6:00 PM	1	0	0	0	1	0	14	0	10	316	2	0	1	166	1	0	512	2365
6:15 PM	1	0	2	0	0	0	3	0	21	308	1	0	0	158	1	0	495	2190
6:30 PM	0	0	0	0	0	0	17	0	13	244	1	0	0	125	1	0	401	1985
6:45 PM	5	0	0	0	1	0	10	0	7	244	0	0	1	118	0	0	386	1794
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	0	4	0	4	0	36	0	48	1924	4	0	0	656	4	0	2692	
Heavy Trucks	0	0	0	0	0	0	0	0	0	52	0	0	0	20	0	0	72	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Arno Rd -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408507
DATE: Wed, May 10 2017

Peak-Hour: 6:30 AM -- 7:30 AM
Peak 15-Min: 6:45 AM -- 7:00 AM



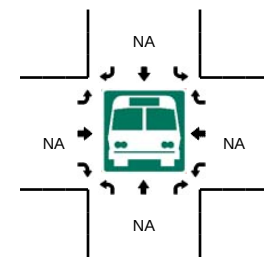
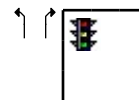
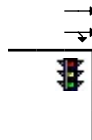
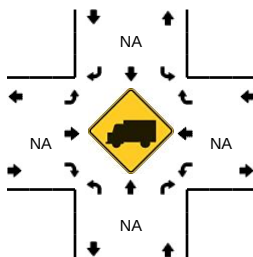
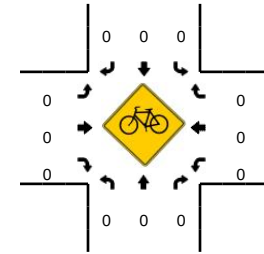
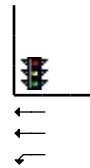
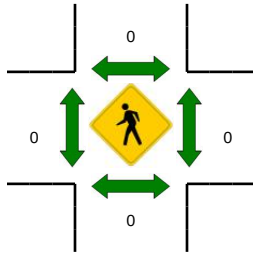
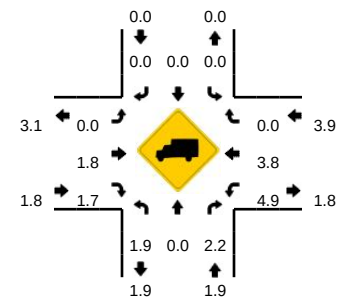
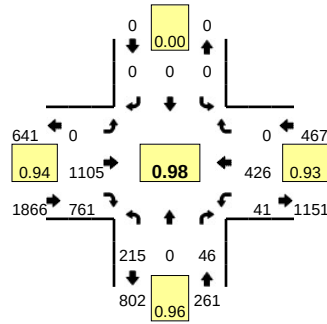
15-Min Count Period Beginning At	Arno Rd (Northbound)				Arno Rd (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	46	0	0	0	0	0	0	0	0	18	9	0	2	144	0	0	219	
6:15 AM	86	0	2	0	0	0	0	0	0	40	16	0	3	243	0	0	390	
6:30 AM	118	0	8	0	0	0	0	0	0	55	75	0	9	287	0	0	552	
6:45 AM	151	0	8	0	0	0	0	0	0	53	82	0	35	280	0	0	609	1770
7:00 AM	142	0	7	0	0	0	0	0	0	67	43	0	8	272	0	0	539	2090
7:15 AM	169	0	18	0	0	0	0	0	0	76	26	0	9	234	0	0	532	2232
7:30 AM	147	0	7	0	0	0	0	0	0	42	14	0	6	227	0	0	443	2123
7:45 AM	149	0	11	0	0	0	0	0	0	94	30	0	1	192	0	0	477	1991
8:00 AM	129	0	18	0	0	0	0	0	0	82	35	0	8	177	0	0	449	1901
8:15 AM	121	0	32	0	0	0	0	0	0	94	25	0	16	203	0	0	491	1860
8:30 AM	102	0	5	0	0	0	0	0	0	60	36	0	9	231	0	0	443	1860
8:45 AM	107	0	7	0	0	0	0	0	0	66	31	0	4	154	0	0	369	1752
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	604	0	32	0	0	0	0	0	0	212	328	0	140	1120	0	0	2436	
Heavy Trucks	16	0	0	0	0	0	0	0	0	4	12	0	4	16	0	0	52	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Arno Rd -- Murfreesboro Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408508
DATE: Wed, May 10 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



15-Min Count Period Beginning At	Arno Rd (Northbound)				Arno Rd (Southbound)				Murfreesboro Rd (Eastbound)				Murfreesboro Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	56	0	7	0	0	0	0	0	0	253	150	0	13	106	0	0	585	
4:15 PM	59	0	11	0	0	0	0	0	0	287	157	0	9	99	0	0	622	
4:30 PM	57	0	13	0	0	0	0	0	0	266	192	0	9	106	0	0	643	
4:45 PM	52	0	11	0	0	0	0	0	0	284	200	0	9	99	0	0	655	2505
5:00 PM	58	0	13	0	0	0	0	0	0	242	185	0	16	117	0	0	631	
5:15 PM	48	0	9	0	0	0	0	0	0	313	184	0	7	104	0	0	665	2594
5:30 PM	74	0	6	0	0	0	0	0	0	271	152	0	13	110	0	0	626	2577
5:45 PM	49	0	2	0	0	0	0	0	0	265	131	0	7	121	0	0	575	2497
6:00 PM	46	0	2	0	0	0	0	0	0	223	100	0	4	118	0	0	493	2359
6:15 PM	43	0	2	0	0	0	0	0	0	204	90	0	5	103	0	0	447	2141
6:30 PM	51	0	1	0	0	0	0	0	0	181	60	0	5	72	0	0	370	1885
6:45 PM	39	0	4	0	0	0	0	0	0	184	72	0	8	81	0	0	388	1698
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	192	0	36	0	0	0	0	0	0	1252	736	0	28	416	0	0	2660	
Heavy Trucks	8	0	0	0	0	0	0	0	0	20	12	0	4	20	0	0	64	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

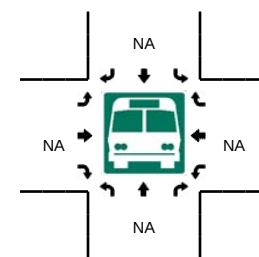
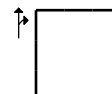
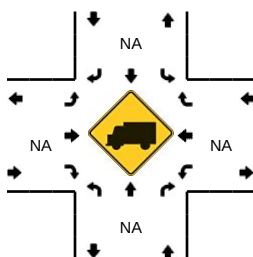
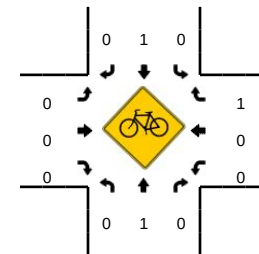
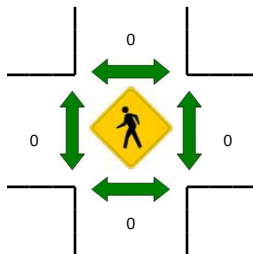
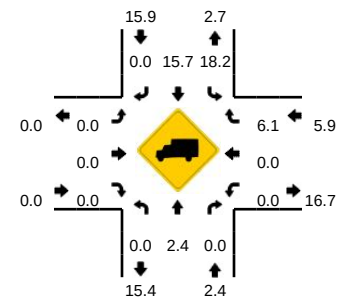
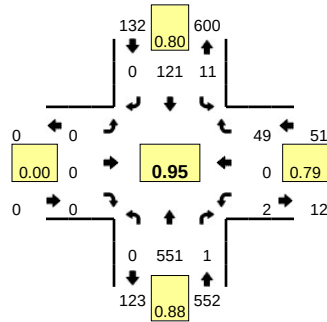
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Carothers Pkwy -- S Carothers Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408512
DATE: Wed, May 10 2017

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM



15-Min Count Period Beginning At	Carothers Pkwy (Northbound)				Carothers Pkwy (Southbound)				S Carothers Rd (Eastbound)				S Carothers Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	27	0	0	3	19	0	0	0	0	0	0	0	0	1	0	50	
6:15 AM	0	36	0	0	0	12	0	0	0	0	0	0	0	0	10	0	58	
6:30 AM	0	61	0	0	5	43	0	0	0	0	0	0	0	0	13	0	122	
6:45 AM	0	88	1	0	3	42	0	0	0	0	0	0	0	0	7	0	141	371
7:00 AM	0	102	0	0	4	31	0	0	0	0	0	0	0	0	7	0	144	465
7:15 AM	0	143	0	0	0	24	0	0	0	0	0	0	1	0	9	0	177	584
7:30 AM	0	155	1	0	2	22	0	0	0	0	0	0	0	0	14	0	194	656
7:45 AM	0	126	0	0	5	40	0	0	0	0	0	0	0	0	17	0	188	703
8:00 AM	0	127	0	0	4	35	0	0	0	0	0	0	1	0	9	0	176	735
8:15 AM	0	118	0	0	2	34	0	0	0	0	0	0	0	0	13	0	167	725
8:30 AM	0	64	0	0	1	32	0	0	0	0	0	0	0	0	13	0	110	641
8:45 AM	0	88	0	0	3	38	0	0	0	0	0	0	2	0	12	0	143	596
9:00 AM	0	67	0	0	7	39	0	0	0	0	0	0	0	0	9	0	122	542
9:15 AM	0	41	0	0	1	30	0	0	0	0	0	0	0	0	6	0	78	453
9:30 AM	0	49	1	0	6	36	0	1	0	0	0	0	0	0	3	0	96	439
9:45 AM	0	57	1	0	4	29	0	0	0	0	0	0	0	0	3	0	94	390
10:00 AM	0	36	0	0	9	42	0	0	0	0	0	0	1	0	3	0	91	359
10:15 AM	0	42	0	0	7	26	0	0	0	0	0	0	1	0	6	0	82	363
10:30 AM	0	43	1	0	2	37	0	0	0	0	0	0	0	0	3	0	86	353
10:45 AM	0	42	0	0	6	50	0	0	0	0	0	0	0	0	5	0	103	362
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	620	4	0	8	88	0	0	0	0	0	0	0	0	56	0	776	
Heavy Trucks	0	12	0	0	4	12	0	0	0	0	0	0	0	0	8	0	36	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
Railroad																		
Stopped Buses																		

Comments:

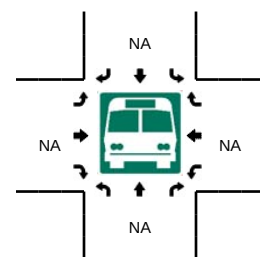
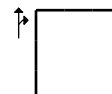
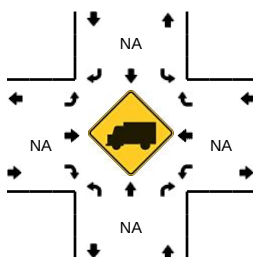
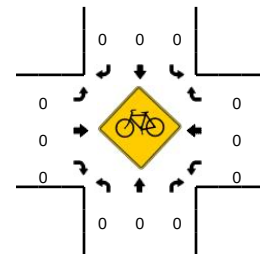
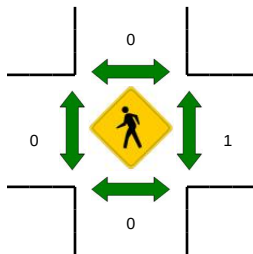
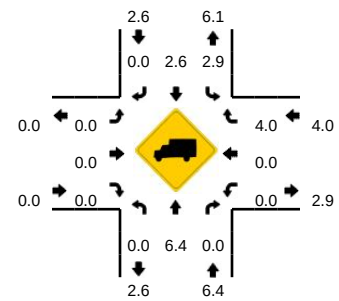
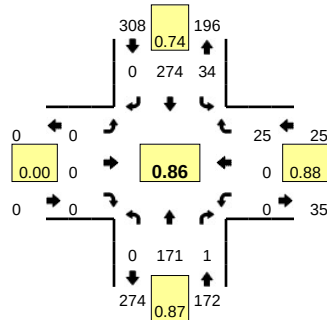
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Carothers Pkwy -- S Carothers Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408513
DATE: Wed, May 10 2017

Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:45 PM -- 4:00 PM



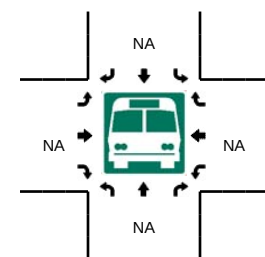
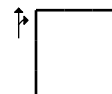
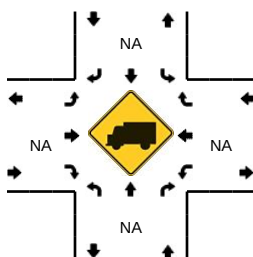
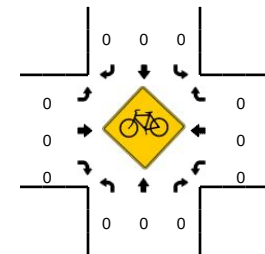
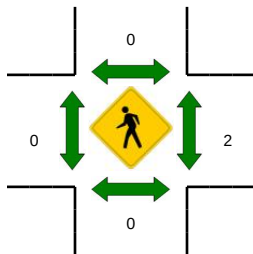
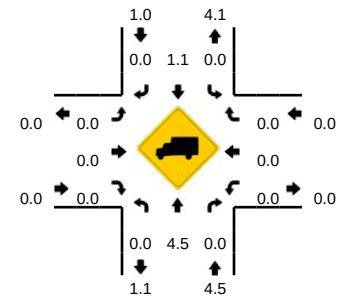
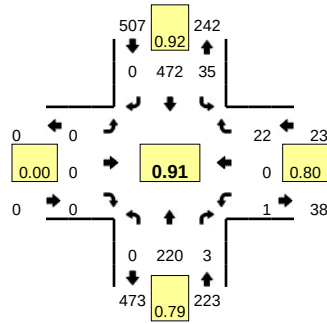
15-Min Count Period Beginning At	Carothers Pkwy (Northbound)				Carothers Pkwy (Southbound)				S Carothers Rd (Eastbound)				S Carothers Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	54	2	0	3	32	0	0	0	0	0	0	0	0	4	0	95	
11:15 AM	0	58	0	0	8	43	0	0	0	0	0	0	0	0	8	0	117	
11:30 AM	0	42	2	0	7	46	0	0	0	0	0	0	1	0	8	0	106	
11:45 AM	0	61	3	0	6	54	0	0	0	0	0	0	1	0	6	0	131	449
12:00 PM	0	56	1	0	5	61	0	0	0	0	0	0	0	0	9	0	132	486
12:15 PM	0	42	0	0	11	63	0	0	0	0	0	0	0	0	10	0	126	495
12:30 PM	0	58	1	0	5	46	0	0	0	0	0	0	0	0	4	0	114	503
12:45 PM	0	47	1	0	3	60	0	0	0	0	0	0	2	0	6	0	119	491
1:00 PM	0	52	1	0	5	66	0	0	0	0	0	0	1	0	7	0	132	491
1:15 PM	0	56	0	0	10	59	0	0	0	0	0	0	1	0	12	0	138	503
1:30 PM	0	36	0	0	8	52	0	0	0	0	0	0	0	0	6	0	102	491
1:45 PM	0	42	1	0	9	66	0	0	0	0	0	0	0	0	7	0	125	497
2:00 PM	0	54	1	0	8	50	0	0	0	0	0	0	0	0	7	0	120	485
2:15 PM	0	41	1	0	3	57	0	1	0	0	0	0	0	0	9	0	112	459
2:30 PM	0	30	1	0	11	64	0	0	0	0	0	0	0	0	3	0	109	466
2:45 PM	0	43	0	0	8	54	0	0	0	0	0	0	0	0	9	0	114	455
3:00 PM	0	42	0	0	4	45	0	0	0	0	0	0	0	0	7	0	98	433
3:15 PM	0	51	0	0	9	72	0	0	0	0	0	0	0	0	9	0	141	462
3:30 PM	0	40	0	0	8	66	0	0	0	0	0	0	0	0	5	0	119	472
3:45 PM	0	38	1	0	13	91	0	0	0	0	0	0	0	0	4	0	147	505
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	152	4	0	52	364	0	0	0	0	0	0	0	0	16	0	588	
Heavy Trucks	0	4	0	0	4	8	0	0	0	0	0	0	0	0	0	0	16	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Carothers Pkwy -- S Carothers Rd
CITY/STATE: Franklin, TN

QC JOB #: 14408514
DATE: Wed, May 10 2017

Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



15-Min Count Period Beginning At	Carothers Pkwy (Northbound)				Carothers Pkwy (Southbound)				S Carothers Rd (Eastbound)				S Carothers Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	45	0	0	8	71	0	0	0	0	0	0	0	0	3	0	127	
4:15 PM	0	42	1	0	5	98	0	0	0	0	0	0	0	0	3	0	149	
4:30 PM	0	32	0	0	8	109	0	0	0	0	0	0	0	0	7	0	156	
4:45 PM	0	58	1	0	10	88	0	0	0	0	0	0	0	0	3	0	160	592
5:00 PM	0	70	1	0	9	122	0	0	0	0	0	0	0	0	4	0	206	671
5:15 PM	0	51	0	0	12	126	0	0	0	0	0	0	0	0	6	0	195	717
5:30 PM	0	47	2	0	8	117	0	0	0	0	0	0	1	0	9	0	184	745
5:45 PM	0	52	0	0	6	107	0	0	0	0	0	0	0	0	3	0	168	753
6:00 PM	0	73	0	0	3	96	0	0	0	0	0	0	0	0	9	0	181	728
6:15 PM	0	52	0	0	11	88	0	0	0	0	0	0	0	0	10	0	161	694
6:30 PM	0	54	0	0	9	73	0	0	0	0	0	0	1	0	6	0	143	653
6:45 PM	0	32	2	0	12	54	0	0	0	0	0	0	2	0	1	0	103	588
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	280	4	0	36	488	0	0	0	0	0	0	0	0	16	0	824	
Heavy Trucks	0	8	0	0	0	12	0	0	0	0	0	0	0	0	0	0	20	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

**APPENDIX B
CAPACITY ANALYSES**

EXISTING CONDITIONS (AM PEAK HOUR)

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

6/15/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	359	470	171	22	1100	211	384	422	46	108	72	108
Future Volume (vph)	359	470	171	22	1100	211	384	422	46	108	72	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Frts			0.850		0.976				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	4963	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.176			0.458			0.704			0.477		
Satd. Flow (perm)	636	3539	1583	853	4963	0	2544	3539	1583	1724	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			186		103				50			33
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		150			1130			3000			147	
Travel Time (s)		2.3			17.1			58.4			2.5	
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
Adj. Flow (vph)	390	511	186	24	1196	229	417	459	50	117	78	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	390	511	186	24	1425	0	417	459	50	117	78	117
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

6/15/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	27.2	27.2	27.2	27.2	27.2		22.8	22.8	22.8	22.8	22.8	22.8
Total Split (%)	54.4%	54.4%	54.4%	54.4%	54.4%		45.6%	45.6%	45.6%	45.6%	45.6%	45.6%
Maximum Green (s)	22.7	22.7	22.7	22.7	22.7		18.3	18.3	18.3	18.3	18.3	18.3
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
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
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)	22.7	22.7	22.7	22.7	22.7		18.3	18.3	18.3	18.3	18.3	18.3
Actuated g/C Ratio	0.45	0.45	0.45	0.45	0.45		0.37	0.37	0.37	0.37	0.37	0.37
v/c Ratio	1.35	0.32	0.23	0.06	0.62		0.45	0.35	0.08	0.19	0.06	0.20
Control Delay	201.2	9.4	2.5	6.9	8.3		13.9	12.5	4.3	11.8	10.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	201.2	9.4	2.5	6.9	8.3		13.9	12.5	4.3	11.8	10.5	9.3
LOS	F	A	A	A	A		B	B	A	B	B	A
Approach Delay		77.1			8.3			12.7			10.6	
Approach LOS		E			A			B			B	
90th %ile Green (s)	22.7	22.7	22.7	22.7	22.7		18.3	18.3	18.3	18.3	18.3	18.3
90th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	22.7	22.7	22.7	22.7	22.7		18.3	18.3	18.3	18.3	18.3	18.3
70th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	22.7	22.7	22.7	22.7	22.7		18.3	18.3	18.3	18.3	18.3	18.3
50th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	22.7	22.7	22.7	22.7	22.7		18.3	18.3	18.3	18.3	18.3	18.3
30th %ile Term Code	Max	Max	Max	Hold	Hold		Coord	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	22.7	22.7	22.7	22.7	22.7		18.3	18.3	18.3	18.3	18.3	18.3
10th %ile Term Code	Max	Max	Max	Hold	Hold		Coord	Coord	Coord	Coord	Coord	Coord
Stops (vph)	272	273	21	11	696		273	286	12	68	45	54
Fuel Used(gal)	18	5	1	0	20		11	12	1	1	1	1
CO Emissions (g/hr)	1289	332	36	23	1432		801	864	79	72	47	59
NOx Emissions (g/hr)	251	65	7	4	279		156	168	15	14	9	11
VOC Emissions (g/hr)	299	77	8	5	332		186	200	18	17	11	14
Dilemma Vehicles (#)	0	47	0	0	114		0	42	0	0	7	0
Queue Length 50th (ft)	~80	46	0	3	89		45	49	0	11	7	16
Queue Length 95th (ft)	#150	73	25	m9	187		77	79	16	25	17	43
Internal Link Dist (ft)		70			1050			2920			67	
Turn Bay Length (ft)												
Base Capacity (vph)	288	1606	820	387	2309		931	1295	611	630	1295	600
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.35	0.32	0.23	0.06	0.62		0.45	0.35	0.08	0.19	0.06	0.20

Lanes, Volumes, Timings

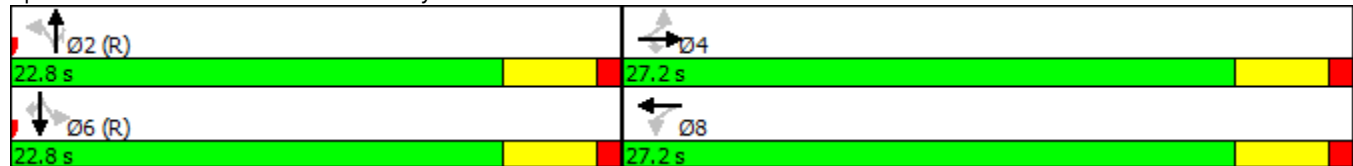
1: Carothers Parkway & Murfreesboro Road

6/15/2017

Intersection Summary

Area Type: Other
 Cycle Length: 50
 Actuated Cycle Length: 50
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.35
 Intersection Signal Delay: 29.4 Intersection LOS: C
 Intersection Capacity Utilization 67.0% ICU Level of Service C
 Analysis Period (min) 15
 Description: Hwy 96 and Carothers Pkwy
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 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.

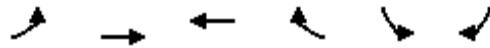
Splits and Phases: 1: Carothers Parkway & Murfreesboro Road



Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

6/15/2017



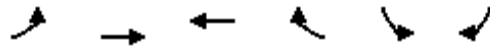
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	80	419	1651	52	79	142
Future Volume (vph)	80	419	1651	52	79	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3522	0	1770	1583
Flt Permitted	0.072				0.950	
Satd. Flow (perm)	134	3539	3522	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			8			37
Link Speed (mph)		45	45		40	
Link Distance (ft)		1130	160		355	
Travel Time (s)		17.1	2.4		6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	455	1795	57	86	154
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	455	1852	0	86	154
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0

Baseline

Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

6/15/2017



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	76.0	76.0	76.0		24.0	24.0
Total Split (%)	76.0%	76.0%	76.0%		24.0%	24.0%
Maximum Green (s)	71.5	71.5	71.5		19.5	19.5
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	71.6	71.6	71.6		19.4	19.4
Actuated g/C Ratio	0.72	0.72	0.72		0.19	0.19
v/c Ratio	0.92	0.18	0.73		0.25	0.46
Control Delay	90.9	4.7	10.5		38.6	33.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	90.9	4.7	10.5		38.6	33.5
LOS	F	A	B		D	C
Approach Delay		18.5	10.5		35.4	
Approach LOS		B	B		D	
90th %ile Green (s)	72.2	72.2	72.2		18.8	18.8
90th %ile Term Code	Max	Max	Max		Coord	Coord
70th %ile Green (s)	75.7	75.7	75.7		15.3	15.3
70th %ile Term Code	Max	Max	Hold		Coord	Coord
50th %ile Green (s)	78.2	78.2	78.2		12.8	12.8
50th %ile Term Code	Max	Max	Hold		Coord	Coord
30th %ile Green (s)	73.4	73.4	73.4		17.6	17.6
30th %ile Term Code	Gap	Gap	Hold		Coord	Coord
10th %ile Green (s)	58.4	58.4	58.4		32.6	32.6
10th %ile Term Code	Hold	Hold	Gap		Coord	Coord
Stops (vph)	58	149	913		67	98
Fuel Used(gal)	3	5	17		1	2
CO Emissions (g/hr)	195	372	1172		103	159
NOx Emissions (g/hr)	38	72	228		20	31
VOC Emissions (g/hr)	45	86	272		24	37
Dilemma Vehicles (#)	0	7	72		0	0
Queue Length 50th (ft)	30	50	224		51	71
Queue Length 95th (ft)	#156	78	390		92	129
Internal Link Dist (ft)		1050	80		275	
Turn Bay Length (ft)						
Base Capacity (vph)	99	2626	2615		391	378
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.88	0.17	0.71		0.22	0.41

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 84 (84%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 14.4

Intersection LOS: B

Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road



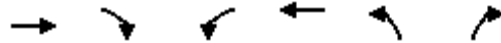
Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

6/15/2017

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	251	226	61	1073	580	41
Future Volume (vph)	251	226	61	1073	580	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.929					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3288	0	1770	3539	1770	1583
Flt Permitted			0.416		0.950	
Satd. Flow (perm)	3288	0	775	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	246					45
Link Speed (mph)	45			45	50	
Link Distance (ft)	1550			63	683	
Travel Time (s)	23.5			1.0	9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	273	246	66	1166	630	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	519	0	66	1166	630	45
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

6/15/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	46.0		46.0	46.0	54.0	54.0
Total Split (%)	46.0%		46.0%	46.0%	54.0%	54.0%
Maximum Green (s)	41.5		41.5	41.5	49.5	49.5
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Min	Min
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	32.4		32.4	32.4	33.5	33.5
Actuated g/C Ratio	0.43		0.43	0.43	0.44	0.44
v/c Ratio	0.34		0.20	0.77	0.80	0.06
Control Delay	8.7		18.0	23.7	27.9	4.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	8.7		18.0	23.7	27.9	4.5
LOS	A		B	C	C	A
Approach Delay	8.7			23.4	26.3	
Approach LOS	A			C	C	
90th %ile Green (s)	41.5		41.5	41.5	49.5	49.5
90th %ile Term Code	Hold		Max	Max	Max	Max
70th %ile Green (s)	41.5		41.5	41.5	41.9	41.9
70th %ile Term Code	Hold		Max	Max	Gap	Gap
50th %ile Green (s)	33.2		33.2	33.2	34.1	34.1
50th %ile Term Code	Hold		Gap	Gap	Gap	Gap
30th %ile Green (s)	26.9		26.9	26.9	26.7	26.7
30th %ile Term Code	Hold		Gap	Gap	Gap	Gap
10th %ile Green (s)	19.2		19.2	19.2	18.5	18.5
10th %ile Term Code	Hold		Gap	Gap	Gap	Gap
Stops (vph)	144		37	846	460	6
Fuel Used(gal)	7		1	16	13	0
CO Emissions (g/hr)	520		50	1128	899	22
NOx Emissions (g/hr)	101		10	220	175	4
VOC Emissions (g/hr)	120		11	262	208	5
Dilemma Vehicles (#)	25		0	63	0	0
Queue Length 50th (ft)	40		19	235	246	0
Queue Length 95th (ft)	95		57	420	441	18
Internal Link Dist (ft)	1470			1	603	
Turn Bay Length (ft)						
Base Capacity (vph)	2046		458	2094	1228	1112
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.25		0.14	0.56	0.51	0.04

Baseline

Synchro 9 Light Report
Page 10

Lanes, Volumes, Timings

5: Arno Road & Murfreesboro Rd

6/15/2017

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 75.6

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 21.1 Intersection LOS: C

Intersection Capacity Utilization 69.3% ICU Level of Service C

Analysis Period (min) 15

90th %ile Actuated Cycle: 100

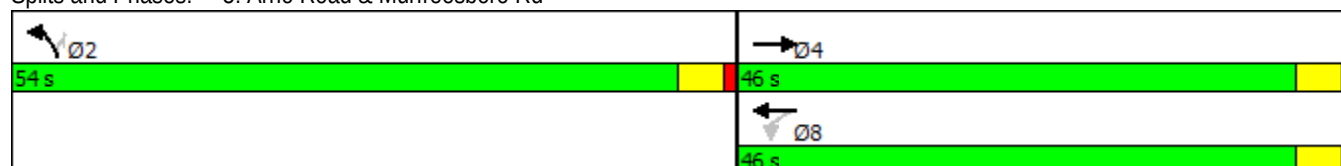
70th %ile Actuated Cycle: 92.4

50th %ile Actuated Cycle: 76.3

30th %ile Actuated Cycle: 62.6

10th %ile Actuated Cycle: 46.7

Splits and Phases: 5: Arno Road & Murfreesboro Rd



HCS7 Two-Way Stop-Control Report

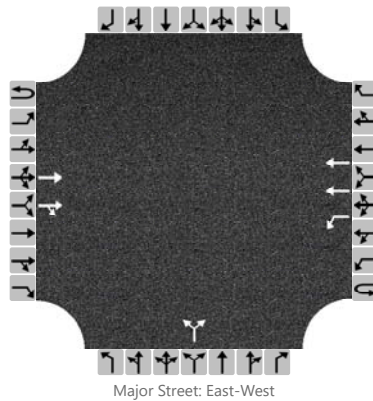
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	June 2017
Analysis Year	2017
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	10647

Site Information

Intersection	Hwy 96E and Cross Creek
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Cross Creek Drive
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume, V (veh/h)			486	8		2	1675			36		3				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				7.50		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2					43					
Capacity, c (veh/h)						1031					215					
v/c Ratio						0.00					0.20					
95% Queue Length, Q ₉₅ (veh)						0.0					0.7					
Control Delay (s/veh)						8.5					25.9					
Level of Service, LOS						A					D					
Approach Delay (s/veh)					0.0				25.9							
Approach LOS									D							

HCS7 Two-Way Stop-Control Report

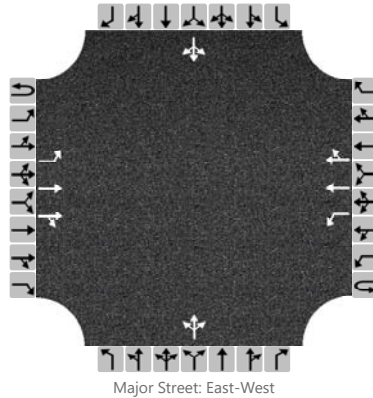
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	June 2017
Analysis Year	2017
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	10647

Site Information

Intersection	Highway 96E and Ridgeway
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Chester Stevens/Ridgeway
Peak Hour Factor	0.89
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume, V (veh/h)		15	482	2		0	1641	10		7	0	2		11	0	48
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		17				0					10					66
Capacity, c (veh/h)		331				1035					190					177
v/c Ratio		0.05				0.00					0.05					0.37
95% Queue Length, Q ₉₅ (veh)		0.2				0.0					0.2					1.6
Control Delay (s/veh)		16.5				8.5					25.0					37.1
Level of Service, LOS		C				A					C					E
Approach Delay (s/veh)	0.5				0.0				25.0				37.1			
Approach LOS									C				E			

HCS7 Two-Way Stop-Control Report

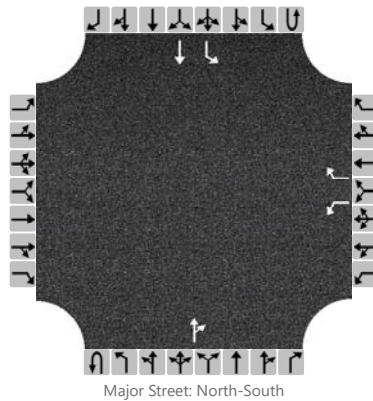
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	2017
Analysis Year	2017
Time Analyzed	AM Peak Hour
Intersection Orientation	North-South
Project Description	10647 (Existing)

Site Information

Intersection	Carothers and S. Carother
Jurisdiction	Franklin, TN
East/West Street	S. Carothers Road
North/South Street	Carothers Parkway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume, V (veh/h)						2		49			551	1		11	121	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.23						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.33						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2		52						12		
Capacity, c (veh/h)						387		512						1003		
v/c Ratio						0.01		0.10						0.01		
95% Queue Length, Q ₉₅ (veh)						0.0		0.3						0.0		
Control Delay (s/veh)						14.4		12.8						8.6		
Level of Service, LOS						B		B						A		
Approach Delay (s/veh)					12.9								0.7			
Approach LOS					B											

EXISTING CONDITIONS (PM PEAK HOUR)

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

6/15/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1295	410	37	725	91	301	109	52	638	315	294
Future Volume (vph)	105	1295	410	37	725	91	301	109	52	638	315	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Frts			0.850		0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	4999	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.287			0.178			0.546			0.677		
Satd. Flow (perm)	1037	3539	1583	332	4999	0	1973	3539	1583	2446	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			329		57				33			107
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		150			1130			3000			147	
Travel Time (s)		2.3			17.1			58.4			2.5	
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
Adj. Flow (vph)	114	1408	446	40	788	99	327	118	57	693	342	320
Shared Lane Traffic (%)												
Lane Group Flow (vph)	114	1408	446	40	887	0	327	118	57	693	342	320
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

6/15/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	27.0	27.0	27.0	27.0	27.0		23.0	23.0	23.0	23.0	23.0	23.0
Total Split (%)	54.0%	54.0%	54.0%	54.0%	54.0%		46.0%	46.0%	46.0%	46.0%	46.0%	46.0%
Maximum Green (s)	22.5	22.5	22.5	22.5	22.5		18.5	18.5	18.5	18.5	18.5	18.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
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
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)	22.5	22.5	22.5	22.5	22.5		18.5	18.5	18.5	18.5	18.5	18.5
Actuated g/C Ratio	0.45	0.45	0.45	0.45	0.45		0.37	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.24	0.88	0.50	0.27	0.39		0.45	0.09	0.09	0.77	0.26	0.49
Control Delay	10.3	21.7	5.0	12.1	8.1		14.3	10.6	6.7	21.3	11.7	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	21.7	5.0	12.1	8.1		14.3	10.6	6.7	21.3	11.7	10.9
LOS	B	C	A	B	A		B	B	A	C	B	B
Approach Delay		17.2			8.3			12.6			16.4	
Approach LOS		B			A			B			B	
90th %ile Green (s)	22.5	22.5	22.5	22.5	22.5		18.5	18.5	18.5	18.5	18.5	18.5
90th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	22.5	22.5	22.5	22.5	22.5		18.5	18.5	18.5	18.5	18.5	18.5
70th %ile Term Code	Max	Max	Max	Hold	Hold		Coord	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	22.5	22.5	22.5	22.5	22.5		18.5	18.5	18.5	18.5	18.5	18.5
50th %ile Term Code	Max	Max	Max	Hold	Hold		Coord	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	22.5	22.5	22.5	22.5	22.5		18.5	18.5	18.5	18.5	18.5	18.5
30th %ile Term Code	Max	Max	Max	Hold	Hold		Coord	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	22.5	22.5	22.5	22.5	22.5		18.5	18.5	18.5	18.5	18.5	18.5
10th %ile Term Code	Max	Max	Max	Hold	Hold		Coord	Coord	Coord	Coord	Coord	Coord
Stops (vph)	63	1038	88	26	509		215	66	21	515	203	146
Fuel Used(gal)	1	20	2	1	14		9	3	1	8	3	2
CO Emissions (g/hr)	77	1390	134	48	955		630	216	95	592	214	167
NOx Emissions (g/hr)	15	270	26	9	186		123	42	18	115	42	32
VOC Emissions (g/hr)	18	322	31	11	221		146	50	22	137	50	39
Dilemma Vehicles (#)	0	125	0	0	66		0	11	0	0	31	0
Queue Length 50th (ft)	9	184	19	9	84		35	11	4	88	35	44
Queue Length 95th (ft)	23	#317	64	18	67		64	24	22	#165	59	100
Internal Link Dist (ft)		70			1050			2920			67	
Turn Bay Length (ft)												
Base Capacity (vph)	466	1592	893	149	2280		730	1309	606	905	1309	653
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.88	0.50	0.27	0.39		0.45	0.09	0.09	0.77	0.26	0.49

Lanes, Volumes, Timings

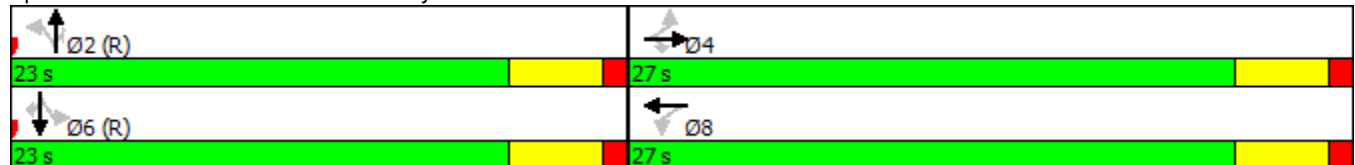
1: Carothers Parkway & Murfreesboro Road

6/15/2017

Intersection Summary

Area Type: Other
 Cycle Length: 50
 Actuated Cycle Length: 50
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 14.8 Intersection LOS: B
 Intersection Capacity Utilization 77.3% ICU Level of Service D
 Analysis Period (min) 15
 Description: Hwy 96 and Carothers Pkwy
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

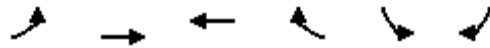
Splits and Phases: 1: Carothers Parkway & Murfreesboro Road



Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

6/15/2017

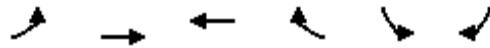


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	171	1922	680	36	43	110
Future Volume (vph)	171	1922	680	36	43	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.992			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3511	0	1770	1583
Flt Permitted	0.342				0.950	
Satd. Flow (perm)	637	3539	3511	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			14			120
Link Speed (mph)		45	45		40	
Link Distance (ft)		1130	160		355	
Travel Time (s)		17.1	2.4		6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	186	2089	739	39	47	120
Shared Lane Traffic (%)						
Lane Group Flow (vph)	186	2089	778	0	47	120
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0

Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

6/15/2017



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	77.0	77.0	77.0		23.0	23.0
Total Split (%)	77.0%	77.0%	77.0%		23.0%	23.0%
Maximum Green (s)	72.5	72.5	72.5		18.5	18.5
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	74.1	74.1	74.1		16.9	16.9
Actuated g/C Ratio	0.74	0.74	0.74		0.17	0.17
v/c Ratio	0.39	0.80	0.30		0.16	0.33
Control Delay	6.1	9.9	5.1		38.5	10.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	6.1	9.9	5.1		38.5	10.2
LOS	A	A	A		D	B
Approach Delay		9.6	5.1		18.1	
Approach LOS		A	A		B	
90th %ile Green (s)	80.0	80.0	80.0		11.0	11.0
90th %ile Term Code	Max	Max	Hold		Coord	Coord
70th %ile Green (s)	71.3	71.3	71.3		19.7	19.7
70th %ile Term Code	Gap	Gap	Hold		Coord	Coord
50th %ile Green (s)	72.4	72.4	72.4		18.6	18.6
50th %ile Term Code	Gap	Gap	Hold		Coord	Coord
30th %ile Green (s)	75.2	75.2	75.2		15.8	15.8
30th %ile Term Code	Gap	Gap	Hold		Coord	Coord
10th %ile Green (s)	71.6	71.6	71.6		19.4	19.4
10th %ile Term Code	Gap	Gap	Hold		Coord	Coord
Stops (vph)	63	1093	191		38	20
Fuel Used(gal)	2	32	4		1	1
CO Emissions (g/hr)	157	2207	270		57	48
NOx Emissions (g/hr)	31	429	52		11	9
VOC Emissions (g/hr)	36	512	63		13	11
Dilemma Vehicles (#)	0	84	39		0	0
Queue Length 50th (ft)	38	413	103		25	0
Queue Length 95th (ft)	m34	351	41		64	52
Internal Link Dist (ft)		1050	80		275	
Turn Bay Length (ft)						
Base Capacity (vph)	474	2637	2620		335	397
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.39	0.79	0.30		0.14	0.30

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 34 (34%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 9.0

Intersection LOS: A

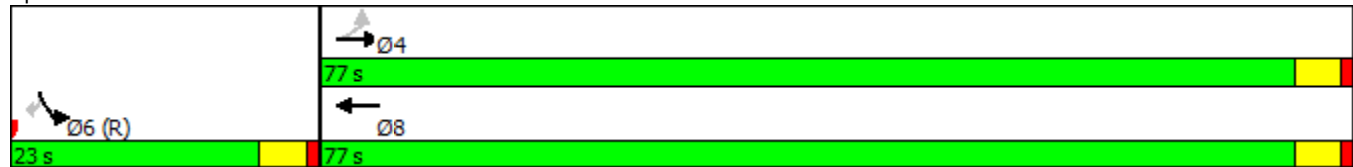
Intersection Capacity Utilization 64.8%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road



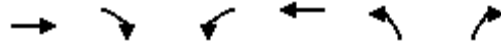
Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

6/15/2017

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	 			 		
Traffic Volume (vph)	1105	761	41	426	215	46
Future Volume (vph)	1105	761	41	426	215	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.939					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3323	0	1770	3539	1770	1583
Flt Permitted			0.058		0.950	
Satd. Flow (perm)	3323	0	108	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	407					50
Link Speed (mph)	45			45	50	
Link Distance (ft)	1550			63	683	
Travel Time (s)	23.5			1.0	9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1201	827	45	463	234	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2028	0	45	463	234	50
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

6/15/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	74.0		74.0	74.0	26.0	26.0
Total Split (%)	74.0%		74.0%	74.0%	26.0%	26.0%
Maximum Green (s)	69.5		69.5	69.5	21.5	21.5
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Min	C-Min
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	68.7		68.7	68.7	22.3	22.3
Actuated g/C Ratio	0.69		0.69	0.69	0.22	0.22
v/c Ratio	0.84		0.61	0.19	0.60	0.13
Control Delay	6.6		48.1	5.7	42.7	10.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	6.6		48.1	5.7	42.7	10.2
LOS	A		D	A	D	B
Approach Delay	6.6			9.4	36.9	
Approach LOS	A			A	D	
90th %ile Green (s)	69.5		69.5	69.5	21.5	21.5
90th %ile Term Code	Max		Max	Max	Coord	Coord
70th %ile Green (s)	70.1		70.1	70.1	20.9	20.9
70th %ile Term Code	Max		Max	Max	Coord	Coord
50th %ile Green (s)	70.9		70.9	70.9	20.1	20.1
50th %ile Term Code	Gap		Hold	Hold	Coord	Coord
30th %ile Green (s)	70.0		70.0	70.0	21.0	21.0
30th %ile Term Code	Gap		Hold	Hold	Coord	Coord
10th %ile Green (s)	63.2		63.2	63.2	27.8	27.8
10th %ile Term Code	Gap		Hold	Hold	Coord	Coord
Stops (vph)	988		27	138	191	11
Fuel Used(gal)	34		1	2	6	0
CO Emissions (g/hr)	2346		53	167	401	32
NOx Emissions (g/hr)	456		10	32	78	6
VOC Emissions (g/hr)	544		12	39	93	8
Dilemma Vehicles (#)	51		0	19	0	0
Queue Length 50th (ft)	35		12	44	138	0
Queue Length 95th (ft)	263		#83	65	217	30
Internal Link Dist (ft)	1470			1	603	
Turn Bay Length (ft)						
Base Capacity (vph)	2448		75	2477	402	398
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.83		0.60	0.19	0.58	0.13

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 64 (64%), Referenced to phase 2:NBL and 6:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 10.2 Intersection LOS: B
 Intersection Capacity Utilization 74.4% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Arno Road & Murfreesboro Rd



HCS7 Two-Way Stop-Control Report

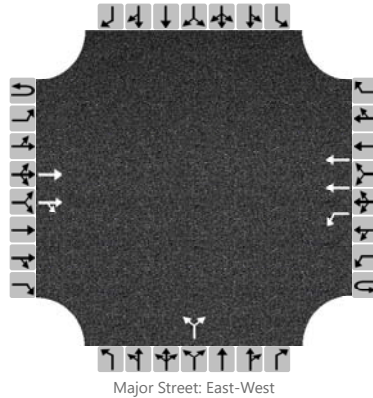
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	June 2017
Analysis Year	2017
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	10647

Site Information

Intersection	Hwy 96E and Cross Creek
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Cross Creek Drive
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume, V (veh/h)			1919	40		4	694			17		1				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				7.50		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4					19					
Capacity, c (veh/h)						286					57					
v/c Ratio						0.01					0.33					
95% Queue Length, Q ₉₅ (veh)						0.0					1.2					
Control Delay (s/veh)						17.8					96.3					
Level of Service, LOS						C					F					
Approach Delay (s/veh)					0.1				96.3							
Approach LOS									F							

HCS7 Two-Way Stop-Control Report

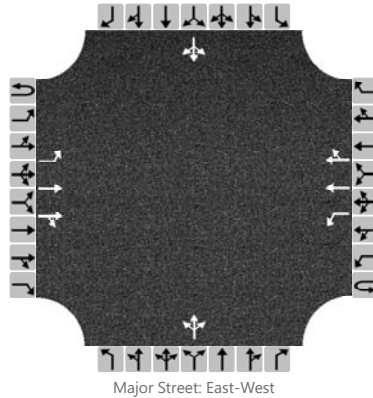
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	June 2017
Analysis Year	2017
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	10647

Site Information

Intersection	Highway 96E and Ridgeway
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Chester Stevens/Ridgeway
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume, V (veh/h)		51	1862	5		1	646	4		10	0	1		6	0	33
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		53				1					11				40	
Capacity, c (veh/h)		930				311					54				447	
v/c Ratio		0.06				0.00					0.21				0.09	
95% Queue Length, Q ₉₅ (veh)		0.2				0.0					0.7				0.3	
Control Delay (s/veh)		9.1				16.6					88.7				13.8	
Level of Service, LOS		A				C					F				B	
Approach Delay (s/veh)	0.2				0.0				88.7				13.8			
Approach LOS									F				B			

HCS7 Two-Way Stop-Control Report

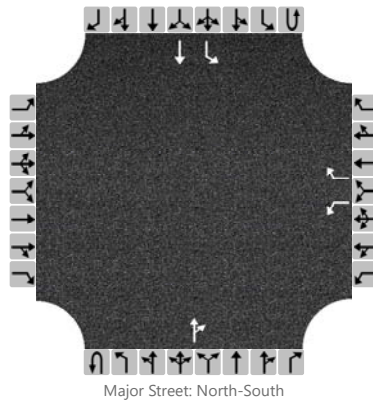
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	2017
Analysis Year	2017
Time Analyzed	PM Peak Hour
Intersection Orientation	North-South
Project Description	10647 (Existing)

Site Information

Intersection	Carothers and S. Carother
Jurisdiction	Franklin, TN
East/West Street	S. Carothers Road
North/South Street	Carothers Parkway
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume, V (veh/h)						1		22			220	3		35	472	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.23						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.33						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1		24						38		
Capacity, c (veh/h)						329		792						1333		
v/c Ratio						0.00		0.03						0.03		
95% Queue Length, Q ₉₅ (veh)						0.0		0.1						0.1		
Control Delay (s/veh)						16.0		9.7						7.8		
Level of Service, LOS						C		A						A		
Approach Delay (s/veh)					9.9								0.5			
Approach LOS					A											

BACKGROUND CONDITIONS (AM PEAK HOUR)

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

6/15/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	529	215	31	1223	232	507	546	56	119	99	119
Future Volume (vph)	395	529	215	31	1223	232	507	546	56	119	99	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Frts			0.850		0.976				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	4963	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.222			0.412			0.684			0.400		
Satd. Flow (perm)	802	3539	1583	767	4963	0	2472	3539	1583	1445	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			234		103				61			36
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		150			1130			3000			147	
Travel Time (s)		2.3			17.1			58.4			2.5	
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
Adj. Flow (vph)	429	575	234	34	1329	252	551	593	61	129	108	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	429	575	234	34	1581	0	551	593	61	129	108	129
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

6/15/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
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
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40		0.40	0.40	0.40	0.40	0.40	0.40
v/c Ratio	1.34	0.41	0.30	0.11	0.77		0.56	0.42	0.09	0.22	0.08	0.20
Control Delay	193.7	10.8	2.9	9.4	13.1		13.1	10.9	3.5	10.2	8.6	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	193.7	10.8	2.9	9.4	13.1		13.1	10.9	3.5	10.2	8.6	7.7
LOS	F	B	A	A	B		B	B	A	B	A	A
Approach Delay		72.7			13.1			11.5			8.9	
Approach LOS		E			B			B			A	
90th %ile Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
90th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
70th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
50th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
30th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
10th %ile Term Code	Max	Max	Max	Hold	Hold		Coord	Coord	Coord	Coord	Coord	Coord
Stops (vph)	307	346	28	21	1121		364	361	13	74	57	55
Fuel Used(gal)	20	6	1	1	29		15	16	1	1	1	1
CO Emissions (g/hr)	1382	418	48	38	1993		1054	1101	94	76	58	59
NOx Emissions (g/hr)	269	81	9	7	388		205	214	18	15	11	12
VOC Emissions (g/hr)	320	97	11	9	462		244	255	22	18	13	14
Dilemma Vehicles (#)	0	59	0	0	131		0	61	0	0	11	0
Queue Length 50th (ft)	~78	52	0	8	135		53	54	0	10	8	14
Queue Length 95th (ft)	#146	84	30	m10	185		89	86	15	24	19	39
Internal Link Dist (ft)		70			1050			2920			67	
Turn Bay Length (ft)												
Base Capacity (vph)	320	1415	773	306	2047		988	1415	669	578	1415	654
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.41	0.30	0.11	0.77		0.56	0.42	0.09	0.22	0.08	0.20

Lanes, Volumes, Timings

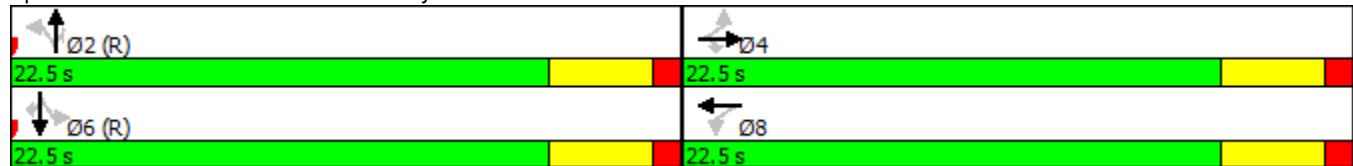
1: Carothers Parkway & Murfreesboro Road

6/15/2017

Intersection Summary

Area Type: Other
 Cycle Length: 45
 Actuated Cycle Length: 45
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.34
 Intersection Signal Delay: 29.0 Intersection LOS: C
 Intersection Capacity Utilization 74.3% ICU Level of Service D
 Analysis Period (min) 15
 Description: Hwy 96 and Carothers Pkwy
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 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.

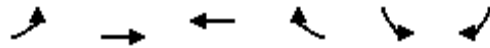
Splits and Phases: 1: Carothers Parkway & Murfreesboro Road



Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

6/15/2017

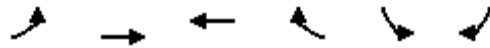


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	88	478	1836	57	87	156
Future Volume (vph)	88	478	1836	57	87	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3522	0	1770	1583
Flt Permitted	0.060				0.950	
Satd. Flow (perm)	112	3539	3522	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			8			20
Link Speed (mph)		45	45		40	
Link Distance (ft)		1130	160		355	
Travel Time (s)		17.1	2.4		6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	520	1996	62	95	170
Shared Lane Traffic (%)						
Lane Group Flow (vph)	96	520	2058	0	95	170
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0

Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

6/15/2017



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	66.0	66.0	66.0		24.0	24.0
Total Split (%)	73.3%	73.3%	73.3%		26.7%	26.7%
Maximum Green (s)	61.5	61.5	61.5		19.5	19.5
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	67.2	67.2	67.2		13.8	13.8
Actuated g/C Ratio	0.75	0.75	0.75		0.15	0.15
v/c Ratio	1.16	0.20	0.78		0.35	0.65
Control Delay	171.1	2.2	6.1		36.2	42.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	171.1	2.2	6.1		36.2	42.8
LOS	F	A	A		D	D
Approach Delay		28.5	6.1		40.5	
Approach LOS		C	A		D	
90th %ile Green (s)	61.5	61.5	61.5		19.5	19.5
90th %ile Term Code	Max	Max	Max		Coord	Coord
70th %ile Green (s)	64.7	64.7	64.7		16.3	16.3
70th %ile Term Code	Max	Max	Max		Coord	Coord
50th %ile Green (s)	67.1	67.1	67.1		13.9	13.9
50th %ile Term Code	Max	Max	Hold		Coord	Coord
30th %ile Green (s)	69.5	69.5	69.5		11.5	11.5
30th %ile Term Code	Max	Max	Hold		Coord	Coord
10th %ile Green (s)	73.1	73.1	73.1		7.9	7.9
10th %ile Term Code	Max	Max	Hold		Coord	Coord
Stops (vph)	63	60	663		74	125
Fuel Used(gal)	4	4	13		2	3
CO Emissions (g/hr)	314	312	878		110	207
NOx Emissions (g/hr)	61	61	171		21	40
VOC Emissions (g/hr)	73	72	203		26	48
Dilemma Vehicles (#)	0	22	41		0	0
Queue Length 50th (ft)	~66	19	213		49	81
Queue Length 95th (ft)	#171	31	248		88	137
Internal Link Dist (ft)		1050	80		275	
Turn Bay Length (ft)						
Base Capacity (vph)	83	2641	2631		383	358
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	1.16	0.20	0.78		0.25	0.47

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 14 (16%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 13.9

Intersection LOS: B

Intersection Capacity Utilization 73.5%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road



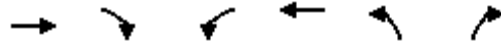
Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

6/15/2017

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	283	250	67	1190	638	45
Future Volume (vph)	283	250	67	1190	638	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.930					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3291	0	1770	3539	1770	1583
Flt Permitted			0.361		0.950	
Satd. Flow (perm)	3291	0	672	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	272					49
Link Speed (mph)	45			45	50	
Link Distance (ft)	1550			63	683	
Travel Time (s)	23.5			1.0	9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	308	272	73	1293	693	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	580	0	73	1293	693	49
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0

Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

6/15/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	42.0		42.0	42.0	48.0	48.0
Total Split (%)	46.7%		46.7%	46.7%	53.3%	53.3%
Maximum Green (s)	37.5		37.5	37.5	43.5	43.5
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Min	C-Min
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	37.3		37.3	37.3	43.7	43.7
Actuated g/C Ratio	0.41		0.41	0.41	0.49	0.49
v/c Ratio	0.38		0.26	0.88	0.81	0.06
Control Delay	14.1		20.2	32.9	28.9	4.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	14.1		20.2	32.9	28.9	4.1
LOS	B		C	C	C	A
Approach Delay	14.1			32.2	27.3	
Approach LOS	B			C	C	
90th %ile Green (s)	37.5		37.5	37.5	43.5	43.5
90th %ile Term Code	Hold		Max	Max	Coord	Coord
70th %ile Green (s)	37.5		37.5	37.5	43.5	43.5
70th %ile Term Code	Hold		Max	Max	Coord	Coord
50th %ile Green (s)	39.4		39.4	39.4	41.6	41.6
50th %ile Term Code	Hold		Max	Max	Coord	Coord
30th %ile Green (s)	38.2		38.2	38.2	42.8	42.8
30th %ile Term Code	Hold		Gap	Gap	Coord	Coord
10th %ile Green (s)	33.7		33.7	33.7	47.3	47.3
10th %ile Term Code	Hold		Gap	Gap	Coord	Coord
Stops (vph)	314		43	1027	517	7
Fuel Used(gal)	11		1	21	14	0
CO Emissions (g/hr)	755		59	1484	1010	24
NOx Emissions (g/hr)	147		11	289	197	5
VOC Emissions (g/hr)	175		14	344	234	6
Dilemma Vehicles (#)	13		0	60	0	0
Queue Length 50th (ft)	57		25	332	336	0
Queue Length 95th (ft)	96		60	#456	#498	18
Internal Link Dist (ft)	1470			1	603	
Turn Bay Length (ft)						
Base Capacity (vph)	1547		284	1495	870	803
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.37		0.26	0.86	0.80	0.06

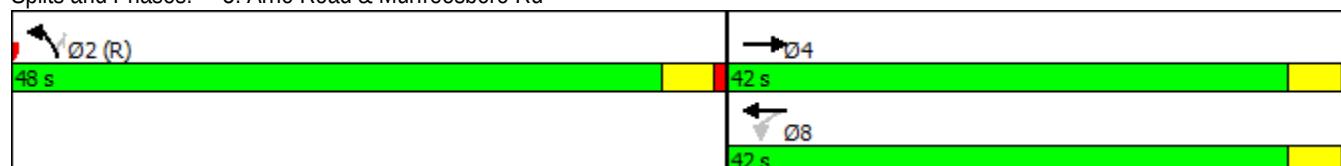
Baseline

Synchro 9 Light Report
Page 10

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 68 (76%), Referenced to phase 2:NBL and 6:, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 26.9 Intersection LOS: C
 Intersection Capacity Utilization 75.7% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Arno Road & Murfreesboro Rd



HCS7 Two-Way Stop-Control Report

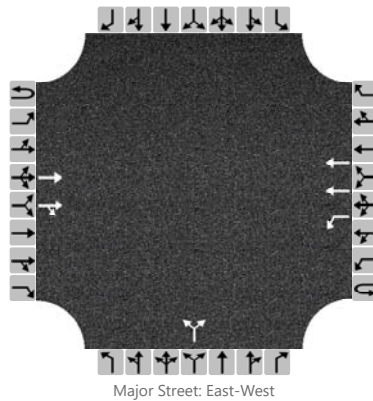
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	June 2017
Analysis Year	2017
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	10647 (Background)

Site Information

Intersection	Hwy 96E and Cross Creek
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Cross Creek Drive
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume, V (veh/h)			552	9		2	1863			40		3				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				7.50		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2					47					
Capacity, c (veh/h)						968					182					
v/c Ratio						0.00					0.26					
95% Queue Length, Q ₉₅ (veh)						0.0					1.0					
Control Delay (s/veh)						8.7					31.5					
Level of Service, LOS						A					D					
Approach Delay (s/veh)					0.0				31.5							
Approach LOS									D							

HCS7 Two-Way Stop-Control Report

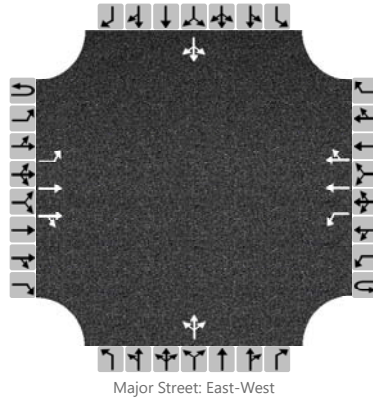
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	June 2017
Analysis Year	2017
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	10647 (Background)

Site Information

Intersection	Highway 96E and Ridgeway
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Chester Stevens/Ridgeway
Peak Hour Factor	0.89
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume, V (veh/h)		17	544	5		1	1816	11		17	0	4		12	0	53
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		19				1					23				73	
Capacity, c (veh/h)		278				973					147				143	
v/c Ratio		0.07				0.00					0.16				0.51	
95% Queue Length, Q ₉₅ (veh)		0.2				0.0					0.5				2.4	
Control Delay (s/veh)		18.9				8.7					33.9				53.6	
Level of Service, LOS		C				A					D				F	
Approach Delay (s/veh)	0.6				0.0				33.9				53.6			
Approach LOS									D				F			

HCS7 Two-Way Stop-Control Report

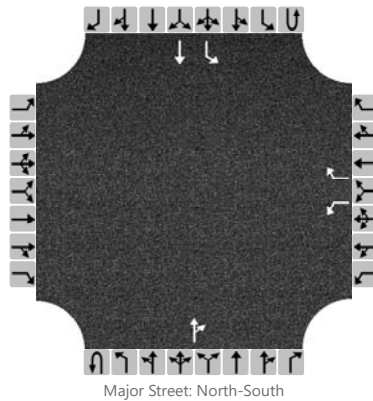
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	2017
Analysis Year	2017
Time Analyzed	AM Peak Hour
Intersection Orientation	North-South
Project Description	10647 (Background)

Site Information

Intersection	Carothers and S. Carother
Jurisdiction	Franklin, TN
East/West Street	S. Carothers Road
North/South Street	Carothers Parkway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume, V (veh/h)						37		146			665	30		97	322	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.23						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.33						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						39		154						102		
Capacity, c (veh/h)						168		428						882		
v/c Ratio						0.23		0.36						0.12		
95% Queue Length, Q ₉₅ (veh)						0.9		1.6						0.4		
Control Delay (s/veh)						32.7		18.1						9.6		
Level of Service, LOS						D		C						A		
Approach Delay (s/veh)					21.0								2.2			
Approach LOS					C											

BACKGROUND CONDITIONS (PM PEAK HOUR)

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

6/15/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	1443	520	45	816	100	388	157	71	702	461	323
Future Volume (vph)	116	1443	520	45	816	100	388	157	71	702	461	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Frts			0.850		0.984				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	5004	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.221			0.077			0.411			0.644		
Satd. Flow (perm)	799	3539	1583	143	5004	0	1485	3539	1583	2327	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			253		26				15			90
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		150			1130			3000			147	
Travel Time (s)		2.3			17.1			58.4			2.5	
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
Adj. Flow (vph)	126	1568	565	49	887	109	422	171	77	763	501	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	1568	565	49	996	0	422	171	77	763	501	351
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

6/15/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	56.4	56.4	56.4	56.4	56.4		53.6	53.6	53.6	53.6	53.6	53.6
Total Split (%)	51.3%	51.3%	51.3%	51.3%	51.3%		48.7%	48.7%	48.7%	48.7%	48.7%	48.7%
Maximum Green (s)	51.9	51.9	51.9	51.9	51.9		49.1	49.1	49.1	49.1	49.1	49.1
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
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
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)	51.9	51.9	51.9	51.9	51.9		49.1	49.1	49.1	49.1	49.1	49.1
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47		0.45	0.45	0.45	0.45	0.45	0.45
v/c Ratio	0.34	0.94	0.64	0.73	0.42		0.64	0.11	0.11	0.74	0.32	0.46
Control Delay	21.4	39.9	15.3	81.4	17.8		29.0	18.0	14.8	30.3	20.3	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	39.9	15.3	81.4	17.8		29.0	18.0	14.8	30.3	20.3	17.7
LOS	C	D	B	F	B		C	B	B	C	C	B
Approach Delay		32.7			20.7			24.5			24.5	
Approach LOS		C			C			C			C	
90th %ile Green (s)	51.9	51.9	51.9	51.9	51.9		49.1	49.1	49.1	49.1	49.1	49.1
90th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	51.9	51.9	51.9	51.9	51.9		49.1	49.1	49.1	49.1	49.1	49.1
70th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	51.9	51.9	51.9	51.9	51.9		49.1	49.1	49.1	49.1	49.1	49.1
50th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	51.9	51.9	51.9	51.9	51.9		49.1	49.1	49.1	49.1	49.1	49.1
30th %ile Term Code	Max	Max	Max	Hold	Hold		Coord	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	51.9	51.9	51.9	51.9	51.9		49.1	49.1	49.1	49.1	49.1	49.1
10th %ile Term Code	Max	Max	Max	Hold	Hold		Coord	Coord	Coord	Coord	Coord	Coord
Stops (vph)	72	1263	229	33	498		296	87	33	565	285	166
Fuel Used(gal)	2	29	5	1	16		13	5	2	11	5	3
CO Emissions (g/hr)	106	2015	348	104	1134		903	324	140	740	361	218
NOx Emissions (g/hr)	21	392	68	20	221		176	63	27	144	70	42
VOC Emissions (g/hr)	25	467	81	24	263		209	75	32	171	84	51
Dilemma Vehicles (#)	0	64	0	0	69		0	7	0	0	21	0
Queue Length 50th (ft)	27	536	159	23	142		115	36	25	223	116	123
Queue Length 95th (ft)	52	#707	281	#106	200		173	57	54	299	157	203
Internal Link Dist (ft)		70			1050			2920			67	
Turn Bay Length (ft)												
Base Capacity (vph)	376	1669	880	67	2374		662	1579	714	1038	1579	756
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.94	0.64	0.73	0.42		0.64	0.11	0.11	0.74	0.32	0.46

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 27.1

Intersection LOS: C

Intersection Capacity Utilization 83.4%

ICU Level of Service E

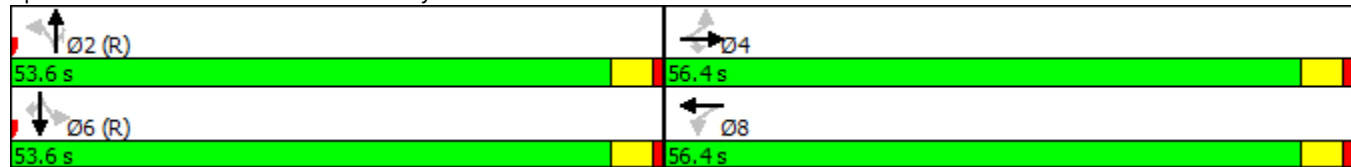
Analysis Period (min) 15

Description: Hwy 96 and Carothers Pkwy

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

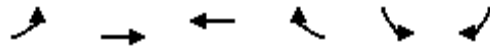
Splits and Phases: 1: Carothers Parkway & Murfreesboro Road



Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

6/15/2017

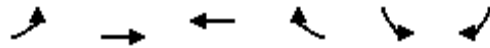


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	188	2146	770	40	47	121
Future Volume (vph)	188	2146	770	40	47	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.993			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3514	0	1770	1583
Flt Permitted	0.309				0.950	
Satd. Flow (perm)	576	3539	3514	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			14			132
Link Speed (mph)		45	45		40	
Link Distance (ft)		1130	160		355	
Travel Time (s)		17.1	2.4		6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	204	2333	837	43	51	132
Shared Lane Traffic (%)						
Lane Group Flow (vph)	204	2333	880	0	51	132
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0

Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

6/15/2017



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	87.4	87.4	87.4		22.6	22.6
Total Split (%)	79.5%	79.5%	79.5%		20.5%	20.5%
Maximum Green (s)	82.9	82.9	82.9		18.1	18.1
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	86.4	86.4	86.4		14.6	14.6
Actuated g/C Ratio	0.79	0.79	0.79		0.13	0.13
v/c Ratio	0.45	0.84	0.32		0.22	0.41
Control Delay	5.1	7.5	2.5		46.1	12.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	5.1	7.5	2.5		46.1	12.2
LOS	A	A	A		D	B
Approach Delay		7.3	2.5		21.6	
Approach LOS		A	A		C	
90th %ile Green (s)	89.3	89.3	89.3		11.7	11.7
90th %ile Term Code	Max	Max	Hold		Coord	Coord
70th %ile Green (s)	91.2	91.2	91.2		9.8	9.8
70th %ile Term Code	Max	Max	Hold		Coord	Coord
50th %ile Green (s)	78.2	78.2	78.2		22.8	22.8
50th %ile Term Code	Gap	Gap	Hold		Coord	Coord
30th %ile Green (s)	84.8	84.8	84.8		16.2	16.2
30th %ile Term Code	Gap	Gap	Hold		Coord	Coord
10th %ile Green (s)	88.6	88.6	88.6		12.4	12.4
10th %ile Term Code	Gap	Gap	Hold		Coord	Coord
Stops (vph)	44	786	131		41	20
Fuel Used(gal)	2	29	3		1	1
CO Emissions (g/hr)	148	2012	201		67	55
NOx Emissions (g/hr)	29	391	39		13	11
VOC Emissions (g/hr)	34	466	47		16	13
Dilemma Vehicles (#)	0	79	21		0	0
Queue Length 50th (ft)	56	460	70		30	0
Queue Length 95th (ft)	m27	m227	49		72	57
Internal Link Dist (ft)		1050	80		275	
Turn Bay Length (ft)						
Base Capacity (vph)	457	2810	2793		306	382
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.45	0.83	0.32		0.17	0.35

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 16 (15%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 6.8

Intersection LOS: A

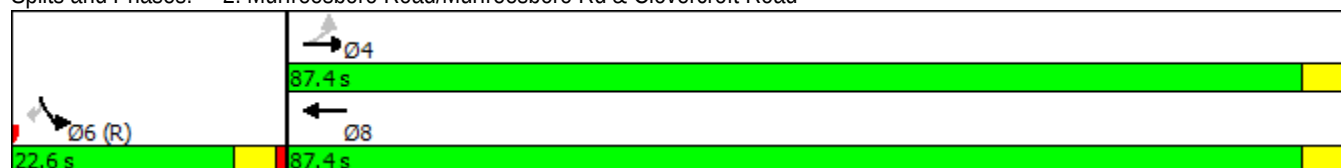
Intersection Capacity Utilization 71.0%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road



Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

6/15/2017

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1234	837	45	476	238	51
Future Volume (vph)	1234	837	45	476	238	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.939					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3323	0	1770	3539	1770	1583
Flt Permitted			0.051		0.950	
Satd. Flow (perm)	3323	0	95	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	367					55
Link Speed (mph)	45			45	50	
Link Distance (ft)	1550			63	683	
Travel Time (s)	23.5			1.0	9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1341	910	49	517	259	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2251	0	49	517	259	55
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0

Baseline

Synchro 9 Light Report
Page 9

Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

6/15/2017

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	82.0		82.0	82.0	28.0	28.0
Total Split (%)	74.5%		74.5%	74.5%	25.5%	25.5%
Maximum Green (s)	77.5		77.5	77.5	23.5	23.5
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Min	C-Min
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	78.2		78.2	78.2	22.8	22.8
Actuated g/C Ratio	0.71		0.71	0.71	0.21	0.21
v/c Ratio	0.91		0.73	0.21	0.71	0.15
Control Delay	12.4		71.9	5.7	52.0	10.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.4		71.9	5.7	52.0	10.5
LOS	B		E	A	D	B
Approach Delay	12.4			11.4	44.7	
Approach LOS	B			B	D	
90th %ile Green (s)	77.5		77.5	77.5	23.5	23.5
90th %ile Term Code	Max		Max	Max	Coord	Coord
70th %ile Green (s)	77.5		77.5	77.5	23.5	23.5
70th %ile Term Code	Max		Max	Max	Coord	Coord
50th %ile Green (s)	79.8		79.8	79.8	21.2	21.2
50th %ile Term Code	Max		Hold	Hold	Coord	Coord
30th %ile Green (s)	77.2		77.2	77.2	23.8	23.8
30th %ile Term Code	Gap		Hold	Hold	Coord	Coord
10th %ile Green (s)	78.9		78.9	78.9	22.1	22.1
10th %ile Term Code	Gap		Hold	Hold	Coord	Coord
Stops (vph)	499		29	149	218	11
Fuel Used(gal)	32		1	3	7	0
CO Emissions (g/hr)	2256		73	181	482	35
NOx Emissions (g/hr)	439		14	35	94	7
VOC Emissions (g/hr)	523		17	42	112	8
Dilemma Vehicles (#)	124		0	20	0	0
Queue Length 50th (ft)	75		17	53	175	0
Queue Length 95th (ft)	231		#56	78	261	34
Internal Link Dist (ft)	1470			1	603	
Turn Bay Length (ft)						
Base Capacity (vph)	2469		67	2517	379	382
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.91		0.73	0.21	0.68	0.14

Baseline

Synchro 9 Light Report
Page 10

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 28 (25%), Referenced to phase 2:NBL and 6:, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 15.5 Intersection LOS: B
 Intersection Capacity Utilization 81.6% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Arno Road & Murfreesboro Rd



HCS7 Two-Way Stop-Control Report

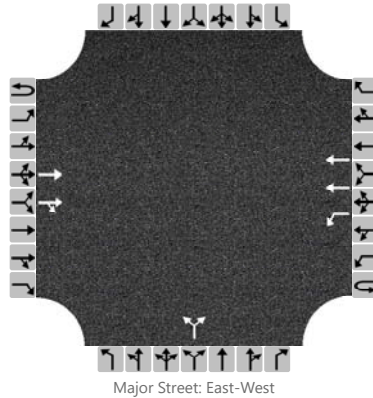
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	June 2017
Analysis Year	2017
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	10647 (Background)

Site Information

Intersection	Hwy 96E and Cross Creek
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Cross Creek Drive
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume, V (veh/h)			2143	44		4	785			19		1				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				7.50		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4					21					
Capacity, c (veh/h)						231					41					
v/c Ratio						0.02					0.51					
95% Queue Length, Q ₉₅ (veh)						0.1					1.8					
Control Delay (s/veh)						20.8					164.0					
Level of Service, LOS						C					F					
Approach Delay (s/veh)					0.1				164.0							
Approach LOS									F							

HCS7 Two-Way Stop-Control Report

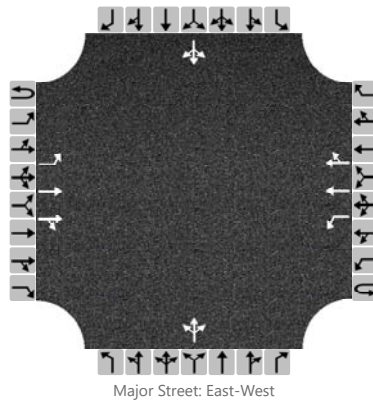
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	June 2017
Analysis Year	2017
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	10647 (Background)

Site Information

Intersection	Highway 96E and Ridgeway
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Chester Stevens/Ridgeway
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume, V (veh/h)		56	2070	16		3	727	4		17	0	2		7	0	36
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		58				3					20				44	
Capacity, c (veh/h)		866				254					38				387	
v/c Ratio		0.07				0.01					0.52				0.11	
95% Queue Length, Q ₉₅ (veh)		0.2				0.0					1.8				0.4	
Control Delay (s/veh)		9.5				19.3					174.0				15.5	
Level of Service, LOS		A				C					F				C	
Approach Delay (s/veh)	0.2				0.1				174.0				15.5			
Approach LOS									F				C			

HCS7 Two-Way Stop-Control Report

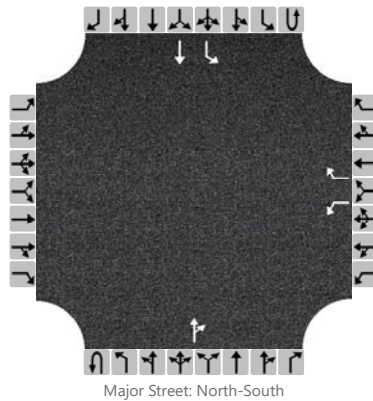
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	2017
Analysis Year	2017
Time Analyzed	PM Peak Hour
Intersection Orientation	North-South
Project Description	10647 (Background)

Site Information

Intersection	Carothers and S. Carother
Jurisdiction	Franklin, TN
East/West Street	S. Carothers Road
North/South Street	Carothers Parkway
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume, V (veh/h)						58		132			454	63		159	649	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.23						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.33						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						64		145						175		
Capacity, c (veh/h)						98		544						1014		
v/c Ratio						0.65		0.27						0.17		
95% Queue Length, Q ₉₅ (veh)						3.2		1.1						0.6		
Control Delay (s/veh)						93.3		14.0						9.3		
Level of Service, LOS						F		B						A		
Approach Delay (s/veh)					38.3								1.8			
Approach LOS					E											

TOTAL PROJECTED CONDITIONS (AM PEAK HOUR)

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

10/18/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	529	228	35	1223	232	546	585	68	119	112	119
Future Volume (vph)	395	529	228	35	1223	232	546	585	68	119	112	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Frts			0.850		0.976				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	4963	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.222			0.412			0.675			0.372		
Satd. Flow (perm)	802	3539	1583	767	4963	0	2439	3539	1583	1344	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			248		103				74			36
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		150			1130			3000			147	
Travel Time (s)		2.3			17.1			58.4			2.5	
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
Adj. Flow (vph)	429	575	248	38	1329	252	593	636	74	129	122	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	429	575	248	38	1581	0	593	636	74	129	122	129
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0

Baseline

Synchro 9 Light Report
Page 1

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

10/18/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
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
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40		0.40	0.40	0.40	0.40	0.40	0.40
v/c Ratio	1.34	0.41	0.32	0.12	0.77		0.61	0.45	0.11	0.24	0.09	0.20
Control Delay	193.7	10.8	2.9	9.6	13.2		14.0	11.2	3.3	10.5	8.6	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	193.7	10.8	2.9	9.6	13.2		14.0	11.2	3.3	10.5	8.6	7.7
LOS	F	B	A	A	B		B	B	A	B	A	A
Approach Delay	71.9				13.1		12.0				9.0	
Approach LOS	E				B		B				A	
90th %ile Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
90th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
70th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
50th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
30th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	18.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0	18.0	18.0	18.0
10th %ile Term Code	Max	Max	Max	Hold	Hold		Coord	Coord	Coord	Coord	Coord	Coord
Stops (vph)	307	346	30	24	1126		406	393	14	75	65	55
Fuel Used(gal)	20	6	1	1	29		16	17	2	1	1	1
CO Emissions (g/hr)	1382	418	51	44	1998		1149	1185	114	78	66	59
NOx Emissions (g/hr)	269	81	10	8	389		223	231	22	15	13	12
VOC Emissions (g/hr)	320	97	12	10	463		266	275	26	18	15	14
Dilemma Vehicles (#)	0	59	0	0	131		0	65	0	0	13	0
Queue Length 50th (ft)	~78	52	0	8	135		58	59	0	10	9	14
Queue Length 95th (ft)	#146	84	31	m11	180		99	93	17	25	21	39
Internal Link Dist (ft)	70				1050		2920				67	
Turn Bay Length (ft)												
Base Capacity (vph)	320	1415	782	306	2047		975	1415	677	537	1415	654
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.41	0.32	0.12	0.77		0.61	0.45	0.11	0.24	0.09	0.20

Lanes, Volumes, Timings

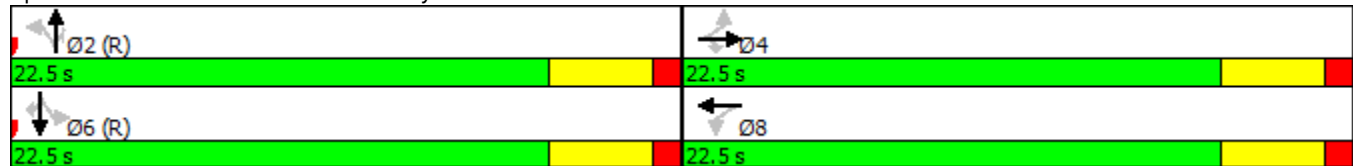
1: Carothers Parkway & Murfreesboro Road

10/18/2017

Intersection Summary

Area Type: Other
 Cycle Length: 45
 Actuated Cycle Length: 45
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.34
 Intersection Signal Delay: 28.6 Intersection LOS: C
 Intersection Capacity Utilization 75.4% ICU Level of Service D
 Analysis Period (min) 15
 Description: Hwy 96 and Carothers Pkwy
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 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.

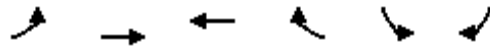
Splits and Phases: 1: Carothers Parkway & Murfreesboro Road



Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

10/18/2017

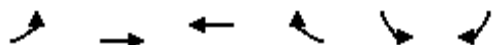


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	94	484	1838	57	87	158
Future Volume (vph)	94	484	1838	57	87	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3522	0	1770	1583
Flt Permitted	0.059				0.950	
Satd. Flow (perm)	110	3539	3522	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			8			22
Link Speed (mph)		45	45		40	
Link Distance (ft)		1130	160		355	
Travel Time (s)		17.1	2.4		6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	526	1998	62	95	172
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	526	2060	0	95	172
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0

Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

10/18/2017



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	67.0	67.0	67.0		23.0	23.0
Total Split (%)	74.4%	74.4%	74.4%		25.6%	25.6%
Maximum Green (s)	62.5	62.5	62.5		18.5	18.5
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	67.4	67.4	67.4		13.6	13.6
Actuated g/C Ratio	0.75	0.75	0.75		0.15	0.15
v/c Ratio	1.24	0.20	0.78		0.36	0.67
Control Delay	200.7	2.1	5.8		36.7	43.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	200.7	2.1	5.8		36.7	43.5
LOS	F	A	A		D	D
Approach Delay		34.4	5.8		41.1	
Approach LOS		C	A		D	
90th %ile Green (s)	62.5	62.5	62.5		18.5	18.5
90th %ile Term Code	Max	Max	Max		Coord	Coord
70th %ile Green (s)	64.7	64.7	64.7		16.3	16.3
70th %ile Term Code	Max	Max	Max		Coord	Coord
50th %ile Green (s)	67.1	67.1	67.1		13.9	13.9
50th %ile Term Code	Max	Max	Hold		Coord	Coord
30th %ile Green (s)	69.6	69.6	69.6		11.4	11.4
30th %ile Term Code	Max	Max	Hold		Coord	Coord
10th %ile Green (s)	73.1	73.1	73.1		7.9	7.9
10th %ile Term Code	Max	Max	Hold		Coord	Coord
Stops (vph)	69	61	619		74	126
Fuel Used(gal)	5	5	12		2	3
CO Emissions (g/hr)	377	316	831		111	211
NOx Emissions (g/hr)	73	61	162		22	41
VOC Emissions (g/hr)	87	73	193		26	49
Dilemma Vehicles (#)	0	22	41		0	0
Queue Length 50th (ft)	~74	20	213		49	81
Queue Length 95th (ft)	#181	32	235		89	139
Internal Link Dist (ft)		1050	80		275	
Turn Bay Length (ft)						
Base Capacity (vph)	82	2650	2639		363	342
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	1.24	0.20	0.78		0.26	0.50

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 14 (16%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 15.0

Intersection LOS: B

Intersection Capacity Utilization 73.9%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road



Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

10/18/2017

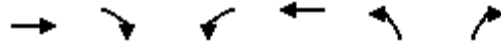
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	289	250	67	1192	638	45
Future Volume (vph)	289	250	67	1192	638	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.930					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3291	0	1770	3539	1770	1583
Flt Permitted			0.357		0.950	
Satd. Flow (perm)	3291	0	665	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	272					49
Link Speed (mph)	45			45	50	
Link Distance (ft)	1550			63	683	
Travel Time (s)	23.5			1.0	9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	314	272	73	1296	693	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	586	0	73	1296	693	49
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0

Baseline

Synchro 9 Light Report
Page 9

Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

10/18/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	42.0		42.0	42.0	48.0	48.0
Total Split (%)	46.7%		46.7%	46.7%	53.3%	53.3%
Maximum Green (s)	37.5		37.5	37.5	43.5	43.5
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Min	C-Min
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	37.3		37.3	37.3	43.7	43.7
Actuated g/C Ratio	0.41		0.41	0.41	0.49	0.49
v/c Ratio	0.39		0.27	0.88	0.81	0.06
Control Delay	14.2		20.3	33.1	28.9	4.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	14.2		20.3	33.1	28.9	4.1
LOS	B		C	C	C	A
Approach Delay	14.2			32.4	27.3	
Approach LOS	B			C	C	
90th %ile Green (s)	37.5		37.5	37.5	43.5	43.5
90th %ile Term Code	Hold		Max	Max	Coord	Coord
70th %ile Green (s)	37.5		37.5	37.5	43.5	43.5
70th %ile Term Code	Hold		Max	Max	Coord	Coord
50th %ile Green (s)	39.4		39.4	39.4	41.6	41.6
50th %ile Term Code	Hold		Max	Max	Coord	Coord
30th %ile Green (s)	38.2		38.2	38.2	42.8	42.8
30th %ile Term Code	Hold		Gap	Gap	Coord	Coord
10th %ile Green (s)	33.7		33.7	33.7	47.3	47.3
10th %ile Term Code	Hold		Gap	Gap	Coord	Coord
Stops (vph)	323		43	1028	517	7
Fuel Used(gal)	11		1	21	14	0
CO Emissions (g/hr)	769		59	1489	1010	24
NOx Emissions (g/hr)	150		11	290	197	5
VOC Emissions (g/hr)	178		14	345	234	6
Dilemma Vehicles (#)	13		0	61	0	0
Queue Length 50th (ft)	58		25	333	336	0
Queue Length 95th (ft)	96		60	#460	#498	18
Internal Link Dist (ft)	1470			1	603	
Turn Bay Length (ft)						
Base Capacity (vph)	1547		281	1495	870	803
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.38		0.26	0.87	0.80	0.06

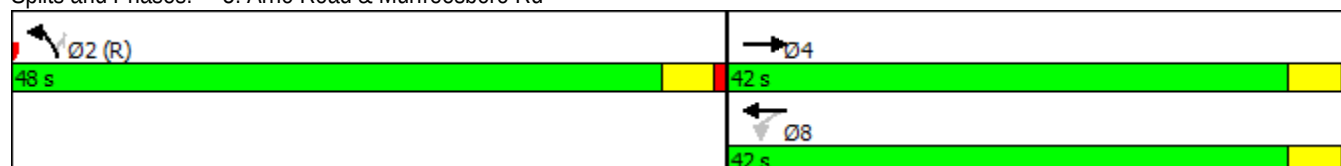
Baseline

Synchro 9 Light Report
Page 10

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 68 (76%), Referenced to phase 2:NBL and 6:, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 27.0 Intersection LOS: C
 Intersection Capacity Utilization 75.8% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Arno Road & Murfreesboro Rd



HCS7 Two-Way Stop-Control Report

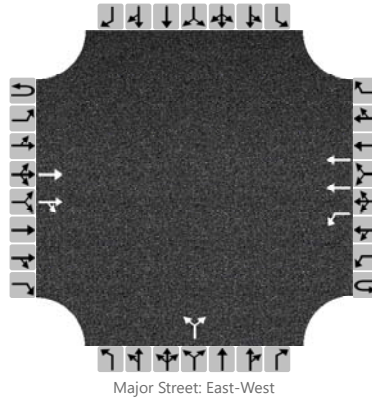
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Oct 2017
Analysis Year	2017
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	10647 (Total)

Site Information

Intersection	Hwy 96E and Cross Creek
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Cross Creek Drive
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume, V (veh/h)			558	9		2	1865			40		3				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage					Left Only				1							

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				7.50		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2					47					
Capacity, c (veh/h)						962					181					
v/c Ratio						0.00					0.26					
95% Queue Length, Q ₉₅ (veh)						0.0					1.0					
Control Delay (s/veh)						8.7					31.7					
Level of Service, LOS						A					D					
Approach Delay (s/veh)					0.0				31.7							
Approach LOS									D							

HCS7 Two-Way Stop-Control Report

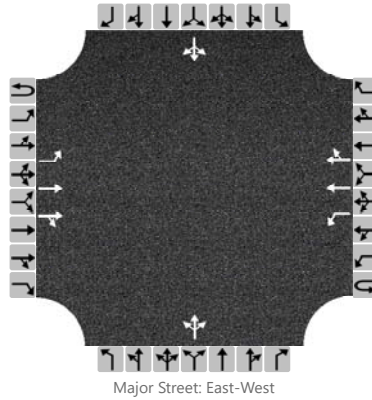
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Oct 2017
Analysis Year	2017
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	10647 (Total)

Site Information

Intersection	Highway 96E and Ridgeway
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Chester Stevens/Ridgeway
Peak Hour Factor	0.89
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume, V (veh/h)		17	550	5		1	1818	11		17	0	4		12	0	53
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		19				1					23				73	
Capacity, c (veh/h)		277				967					146				143	
v/c Ratio		0.07				0.00					0.16				0.51	
95% Queue Length, Q ₉₅ (veh)		0.2				0.0					0.5				2.4	
Control Delay (s/veh)		19.0				8.7					34.2				54.0	
Level of Service, LOS		C				A					D				F	
Approach Delay (s/veh)	0.6				0.0				34.2				54.0			
Approach LOS									D				F			

HCS7 Two-Way Stop-Control Report

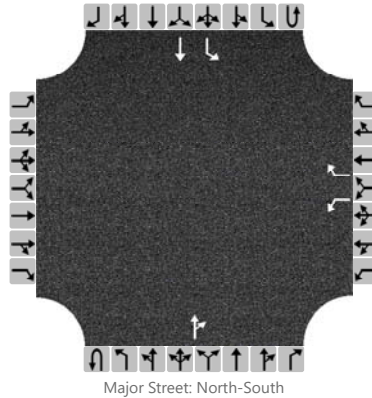
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Oct 2017
Analysis Year	2017
Time Analyzed	AM Peak Hour
Intersection Orientation	North-South
Project Description	10647 (Total)

Site Information

Intersection	Carothers and S. Carother
Jurisdiction	Franklin, TN
East/West Street	S. Carothers Road
North/South Street	Carothers Parkway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume, V (veh/h)						37		236			665	30		127	322	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.23						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.33						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						39		248						134		
Capacity, c (veh/h)						148		428						882		
v/c Ratio						0.26		0.58						0.15		
95% Queue Length, Q ₉₅ (veh)						1.0		3.6						0.5		
Control Delay (s/veh)						37.9		24.3						9.8		
Level of Service, LOS						E		C						A		
Approach Delay (s/veh)					26.2								2.8			
Approach LOS					D											

HCS7 Two-Way Stop-Control Report

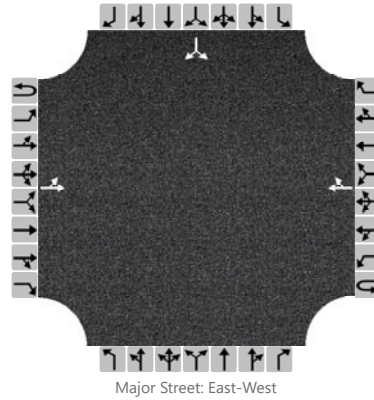
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Oct 2017
Analysis Year	2017
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	10647 (Total)

Site Information

Intersection	S. Carothers and Project
Jurisdiction	Franklin, TN
East/West Street	S. Carothers Road / Proje
North/South Street	S. Carothers Road
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume, V (veh/h)		30	127				183	7						22		90
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												7.10		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		32													118	
Capacity, c (veh/h)		1384													772	
v/c Ratio		0.02													0.15	
95% Queue Length, Q ₉₅ (veh)		0.1													0.5	
Control Delay (s/veh)		7.7													10.5	
Level of Service, LOS		A													B	
Approach Delay (s/veh)	1.6												10.5			
Approach LOS													B			

TOTAL PROJECTED CONDITIONS (PM PEAK HOUR)

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

10/18/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	1443	564	57	816	100	414	183	79	702	505	323
Future Volume (vph)	116	1443	564	57	816	100	414	183	79	702	505	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Frts			0.850		0.984				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	5004	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.218			0.055			0.375			0.622		
Satd. Flow (perm)	788	3539	1583	102	5004	0	1355	3539	1583	2248	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			227		20				13			95
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		150			1130			3000			147	
Travel Time (s)		2.3			17.1			58.4			2.5	
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
Adj. Flow (vph)	126	1568	613	62	887	109	450	199	86	763	549	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	1568	613	62	996	0	450	199	86	763	549	351
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0

Lanes, Volumes, Timings

1: Carothers Parkway & Murfreesboro Road

10/18/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	77.0	77.0	77.0	77.0	77.0		73.0	73.0	73.0	73.0	73.0	73.0
Total Split (%)	51.3%	51.3%	51.3%	51.3%	51.3%		48.7%	48.7%	48.7%	48.7%	48.7%	48.7%
Maximum Green (s)	72.5	72.5	72.5	72.5	72.5		68.5	68.5	68.5	68.5	68.5	68.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
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
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)	72.5	72.5	72.5	72.5	72.5		68.5	68.5	68.5	68.5	68.5	68.5
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.46	0.46	0.46	0.46	0.46	0.46
v/c Ratio	0.33	0.92	0.70	1.27	0.41		0.73	0.12	0.12	0.74	0.34	0.45
Control Delay	26.9	45.6	22.9	244.1	17.8		41.5	23.7	20.3	39.0	27.0	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	45.6	22.9	244.1	17.8		41.5	23.7	20.3	39.0	27.0	21.9
LOS	C	D	C	F	B		D	C	C	D	C	C
Approach Delay		38.5			31.1			34.2			31.4	
Approach LOS		D			C			C			C	
90th %ile Green (s)	72.5	72.5	72.5	72.5	72.5		68.5	68.5	68.5	68.5	68.5	68.5
90th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	72.5	72.5	72.5	72.5	72.5		68.5	68.5	68.5	68.5	68.5	68.5
70th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	72.5	72.5	72.5	72.5	72.5		68.5	68.5	68.5	68.5	68.5	68.5
50th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	72.5	72.5	72.5	72.5	72.5		68.5	68.5	68.5	68.5	68.5	68.5
30th %ile Term Code	Max	Max	Max	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	72.5	72.5	72.5	72.5	72.5		68.5	68.5	68.5	68.5	68.5	68.5
10th %ile Term Code	Hold	Hold	Hold	Max	Max		Coord	Coord	Coord	Coord	Coord	Coord
Stops (vph)	71	1275	295	35	412		335	102	38	569	316	160
Fuel Used(gal)	2	31	7	4	15		15	6	2	12	6	3
CO Emissions (g/hr)	114	2143	478	258	1060		1048	393	162	830	446	233
NOx Emissions (g/hr)	22	417	93	50	206		204	76	32	161	87	45
VOC Emissions (g/hr)	26	497	111	60	246		243	91	38	192	103	54
Dilemma Vehicles (#)	0	46	0	0	23		0	6	0	0	17	0
Queue Length 50th (ft)	38	736	297	~77	160		181	58	40	312	179	167
Queue Length 95th (ft)	65	853	449	#182	195		257	84	76	396	225	257
Internal Link Dist (ft)		70			1050			2920			67	
Turn Bay Length (ft)												
Base Capacity (vph)	380	1710	882	49	2428		618	1616	729	1026	1616	774
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.92	0.70	1.27	0.41		0.73	0.12	0.12	0.74	0.34	0.45

Lanes, Volumes, Timings

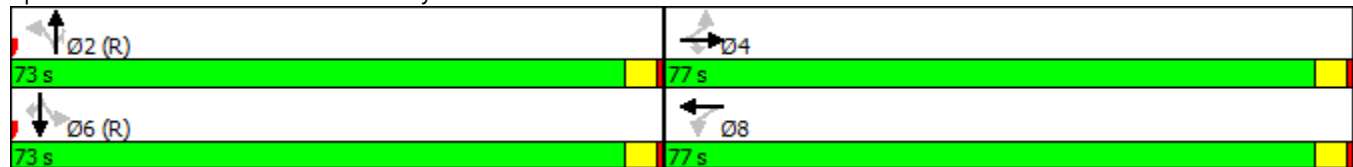
1: Carothers Parkway & Murfreesboro Road

10/18/2017

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.27
 Intersection Signal Delay: 34.6 Intersection LOS: C
 Intersection Capacity Utilization 84.8% ICU Level of Service E
 Analysis Period (min) 15
 Description: Hwy 96 and Carothers Pkwy
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

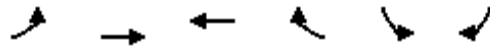
Splits and Phases: 1: Carothers Parkway & Murfreesboro Road



Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

10/18/2017

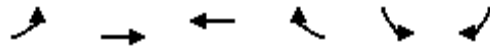


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	192	2150	776	40	47	127
Future Volume (vph)	192	2150	776	40	47	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.993			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3514	0	1770	1583
Flt Permitted	0.316				0.950	
Satd. Flow (perm)	589	3539	3514	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			13			138
Link Speed (mph)		45	45		40	
Link Distance (ft)		1130	160		355	
Travel Time (s)		17.1	2.4		6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	209	2337	843	43	51	138
Shared Lane Traffic (%)						
Lane Group Flow (vph)	209	2337	886	0	51	138
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0

Lanes, Volumes, Timings

2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road

10/18/2017



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	127.0	127.0	127.0		23.0	23.0
Total Split (%)	84.7%	84.7%	84.7%		15.3%	15.3%
Maximum Green (s)	122.5	122.5	122.5		18.5	18.5
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	131.9	131.9	131.9		9.1	9.1
Actuated g/C Ratio	0.88	0.88	0.88		0.06	0.06
v/c Ratio	0.40	0.75	0.29		0.47	0.61
Control Delay	2.8	3.3	1.2		81.5	21.7
Queue Delay	0.0	0.1	0.0		0.0	0.0
Total Delay	2.8	3.4	1.2		81.5	21.7
LOS	A	A	A		F	C
Approach Delay		3.3	1.2		37.8	
Approach LOS		A	A		D	
90th %ile Green (s)	127.6	127.6	127.6		13.4	13.4
90th %ile Term Code	Max	Max	Hold		Coord	Coord
70th %ile Green (s)	130.4	130.4	130.4		10.6	10.6
70th %ile Term Code	Max	Max	Hold		Coord	Coord
50th %ile Green (s)	132.3	132.3	132.3		8.7	8.7
50th %ile Term Code	Max	Max	Hold		Coord	Coord
30th %ile Green (s)	133.7	133.7	133.7		7.3	7.3
30th %ile Term Code	Max	Max	Hold		Coord	Coord
10th %ile Green (s)	135.3	135.3	135.3		5.7	5.7
10th %ile Term Code	Max	Max	Hold		Coord	Coord
Stops (vph)	26	504	75		44	19
Fuel Used(gal)	2	23	2		1	1
CO Emissions (g/hr)	129	1642	139		93	74
NOx Emissions (g/hr)	25	320	27		18	14
VOC Emissions (g/hr)	30	381	32		21	17
Dilemma Vehicles (#)	0	38	15		0	0
Queue Length 50th (ft)	21	218	32		49	0
Queue Length 95th (ft)	m34	262	53		94	69
Internal Link Dist (ft)		1050	80		275	
Turn Bay Length (ft)						
Base Capacity (vph)	517	3111	3090		218	316
Starvation Cap Reductn	0	57	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.40	0.77	0.29		0.23	0.44

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 16 (11%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 4.6

Intersection LOS: A

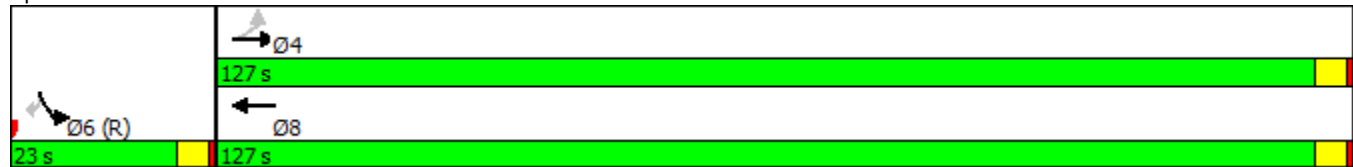
Intersection Capacity Utilization 71.1%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Murfreesboro Road/Murfreesboro Rd & Clovercroft Road



Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

10/18/2017

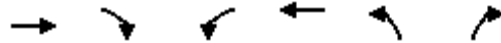
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1238	837	45	482	238	51
Future Volume (vph)	1238	837	45	482	238	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.939					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3323	0	1770	3539	1770	1583
Flt Permitted			0.035		0.950	
Satd. Flow (perm)	3323	0	65	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	324					55
Link Speed (mph)	45			45	50	
Link Distance (ft)	1550			63	683	
Travel Time (s)	23.5			1.0	9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1346	910	49	524	259	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2256	0	49	524	259	55
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0

Baseline

Synchro 9 Light Report
Page 9

Lanes, Volumes, Timings
5: Arno Road & Murfreesboro Rd

10/18/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	118.0		118.0	118.0	32.0	32.0
Total Split (%)	78.7%		78.7%	78.7%	21.3%	21.3%
Maximum Green (s)	113.5		113.5	113.5	27.5	27.5
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Min	C-Min
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	114.7		114.7	114.7	26.3	26.3
Actuated g/C Ratio	0.76		0.76	0.76	0.18	0.18
v/c Ratio	0.86		1.00	0.19	0.84	0.17
Control Delay	7.7		152.7	5.1	82.3	13.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	7.7		152.7	5.1	82.3	13.5
LOS	A		F	A	F	B
Approach Delay	7.7			17.8	70.3	
Approach LOS	A			B	E	
90th %ile Green (s)	113.5		113.5	113.5	27.5	27.5
90th %ile Term Code	Max		Max	Max	Coord	Coord
70th %ile Green (s)	113.5		113.5	113.5	27.5	27.5
70th %ile Term Code	Max		Max	Max	Coord	Coord
50th %ile Green (s)	113.5		113.5	113.5	27.5	27.5
50th %ile Term Code	Hold		Max	Max	Coord	Coord
30th %ile Green (s)	116.5		116.5	116.5	24.5	24.5
30th %ile Term Code	Hold		Gap	Gap	Coord	Coord
10th %ile Green (s)	116.5		116.5	116.5	24.5	24.5
10th %ile Term Code	Hold		Gap	Gap	Coord	Coord
Stops (vph)	713		28	124	221	10
Fuel Used(gal)	33		2	2	8	1
CO Emissions (g/hr)	2308		123	157	588	36
NOx Emissions (g/hr)	449		24	31	114	7
VOC Emissions (g/hr)	535		29	36	136	8
Dilemma Vehicles (#)	32		0	15	0	0
Queue Length 50th (ft)	387		42	68	245	0
Queue Length 95th (ft)	433		#95	86	#381	41
Internal Link Dist (ft)	1470			1	603	
Turn Bay Length (ft)						
Base Capacity (vph)	2617		49	2705	324	335
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.86		1.00	0.19	0.80	0.16

Baseline

Synchro 9 Light Report
Page 10

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 48 (32%), Referenced to phase 2:NBL and 6:, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 15.8 Intersection LOS: B
 Intersection Capacity Utilization 81.7% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Arno Road & Murfreesboro Rd

 Ø2 (L)	 Ø4
32 s	118 s
	 Ø8
	118 s

HCS7 Two-Way Stop-Control Report

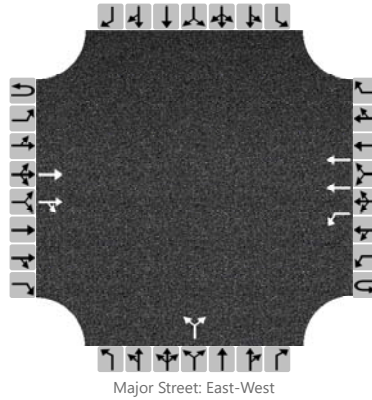
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Oct 2017
Analysis Year	2017
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	10647 (Total)

Site Information

Intersection	Hwy 96E and Cross Creek
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Cross Creek Drive
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume, V (veh/h)			2147	44		4	791			19		1				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.10				7.50		6.90				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4					21					
Capacity, c (veh/h)						231					41					
v/c Ratio						0.02					0.52					
95% Queue Length, Q ₉₅ (veh)						0.1					1.8					
Control Delay (s/veh)						20.9					165.6					
Level of Service, LOS						C					F					
Approach Delay (s/veh)					0.1				165.6							
Approach LOS									F							

HCS7 Two-Way Stop-Control Report

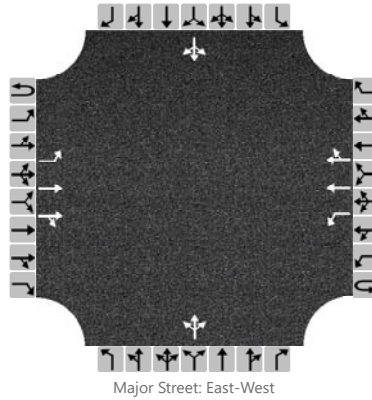
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Oct 2017
Analysis Year	2017
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	10647 (Total)

Site Information

Intersection	Highway 96E and Ridgeway
Jurisdiction	Franklin, TN
East/West Street	Highway 96E
North/South Street	Chester Stevens/Ridgeway
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume, V (veh/h)		56	2074	16		3	733	4		17	0	2		7	0	36
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		58				3					20				44	
Capacity, c (veh/h)		861				253					38				384	
v/c Ratio		0.07				0.01					0.52				0.11	
95% Queue Length, Q ₉₅ (veh)		0.2				0.0					1.8				0.4	
Control Delay (s/veh)		9.5				19.4					175.9				15.6	
Level of Service, LOS		A				C					F				C	
Approach Delay (s/veh)	0.2				0.1				175.9				15.6			
Approach LOS									F				C			

HCS7 Two-Way Stop-Control Report

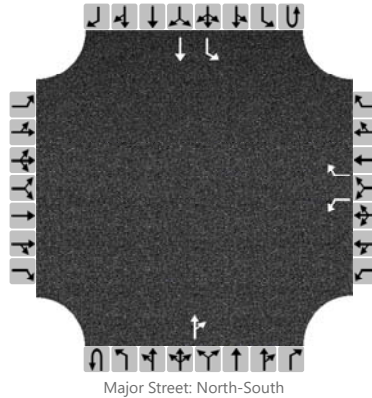
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Oct 2017
Analysis Year	2017
Time Analyzed	PM Peak Hour
Intersection Orientation	North-South
Project Description	10647 (Total)

Site Information

Intersection	Carothers and S. Carother
Jurisdiction	Franklin, TN
East/West Street	S. Carothers Road
North/South Street	Carothers Parkway
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume, V (veh/h)						58		192			454	63		259	649	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.23						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.33						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						64		211						285		
Capacity, c (veh/h)						62		544						1014		
v/c Ratio						1.03		0.39						0.28		
95% Queue Length, Q ₉₅ (veh)						5.0		1.8						1.2		
Control Delay (s/veh)						231.5		15.8						9.9		
Level of Service, LOS						F		C						A		
Approach Delay (s/veh)					66.0								2.8			
Approach LOS					F											

HCS7 Two-Way Stop-Control Report

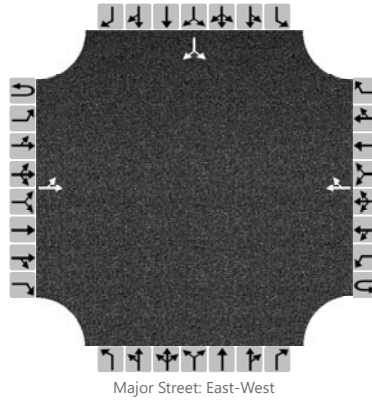
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Oct 2017
Analysis Year	2017
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	10647 (Total)

Site Information

Intersection	S. Carothers and Project
Jurisdiction	Franklin, TN
East/West Street	S. Carothers Road / Proje
North/South Street	S. Carothers Road
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume, V (veh/h)		100	222				190	25						14		60
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												7.10		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		110													81	
Capacity, c (veh/h)		1343													650	
v/c Ratio		0.08													0.12	
95% Queue Length, Q ₉₅ (veh)		0.3													0.4	
Control Delay (s/veh)		7.9													11.3	
Level of Service, LOS		A													B	
Approach Delay (s/veh)	3.0												11.3			
Approach LOS													B			

APPENDIX C
TRAFFIC SIGNAL WARRANTS

The Federal Highway Administration has published the Manual on Uniform Traffic Control Devices 2010 (MUTCD 2010), which includes eight traffic signal warrants that help traffic engineering professionals to identify when a traffic signal installation is justified at a particular location. These eight warrants include minimum conditions that are compared to existing or projected traffic conditions, and typically, traffic signals should not be installed unless at least one of the MUTCD warrants is met. Of the eight total signal warrants, the following are relevant to the intersection considered as part of this study:

Warrant 1, Eight-Hour Vehicular Volume

The Minimum Vehicular Volume, Condition A, is intended for application where a large volume of intersecting traffic is the principal reason to consider installing a traffic signal. The Interruption of Continuous Traffic, Condition B, is intended for application where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Standard: The need for a traffic control signal shall be considered if an engineering study finds that one of the following conditions exists for each of any eight hours of an average day:

- A. The vehicles per hour given in both of the 100% columns of Condition A in Table C1 exist on the major street and on the higher volume minor-street approaches, respectively, to the intersection, or
- B. The vehicles per hour given in both of the 100% columns of Condition B in Table C1 exist on the major street and on the higher volume minor-street approaches, respectively, to the intersection.

In applying each condition, the major street and minor street volumes shall be for the same eight hours. On the minor street, the higher volume shall not be required to be on the same approach during each of these eight hours.

Option: If the posted or statutory speed limit or the 85th percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 70% columns in Table C1 may be used in place of the 100% columns.

Standard: The need for a traffic control signal shall be considered if an engineering study finds that both of the following conditions exists for each of any eight hours of an average day:

- A. The vehicles per hour given in both of the 80% columns of Condition A in Table C1 exist on the major street and on the higher volume minor-street approaches, respectively, to the intersection, and
- B. The vehicles per hour given in both of the 80% columns of Condition B in Table C1 exist on the major street and on the higher volume minor-street approaches, respectively, to the intersection.

These major street and minor street volumes shall be for the same eight hours for each condition; however, the eight hours satisfied in Condition A shall not be required to be the same eight hours satisfied in Condition B. On the minor street, the higher volume shall not be required to be on the same approach during each of these eight hours.

TABLE C1. WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

CONDITION A – MINIMUM VEHICULAR VOLUME							
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor street approach (one direction only)		
Major Street	Minor Street	100%	80%	70%	100%	80%	70%
1 lane	1 lane	500	400	350	150	120	105
2 or more lanes	1 lane	600	480	420	150	120	105
2 or more lanes	2 or more lanes	600	480	420	200	160	140
1 lane	2 or more lanes	500	400	350	200	160	140

CONDITION B – INTERRUPTION OF CONTINUOUS TRAFFIC							
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor street approach (one direction only)		
Major Street	Minor Street	100%	80%	70%	100%	80%	70%
1 lane	1 lane	750	600	525	75	60	53
2 or more lanes	1 lane	900	720	630	75	60	53
2 or more lanes	2 or more lanes	900	720	630	100	80	70
1 lane	2 or more lanes	750	600	525	100	80	70

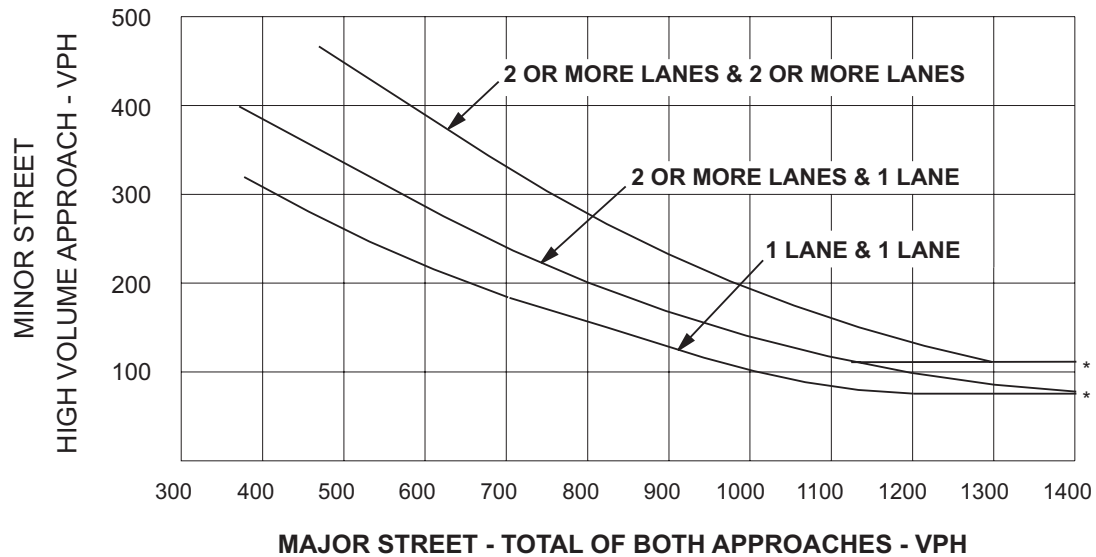
Warrant 2, Four-Hour Vehicular Volume

The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic signal.

Standard: The need for a traffic control signal shall be considered if an engineering study finds that for each of any four hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only) all fall above the applicable curve in Figure C1-Graph A for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these four hours.

Option: If the posted or statutory speed limit or the 85th percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure C1-Graph B may be used in place of Figure C1-Graph A.

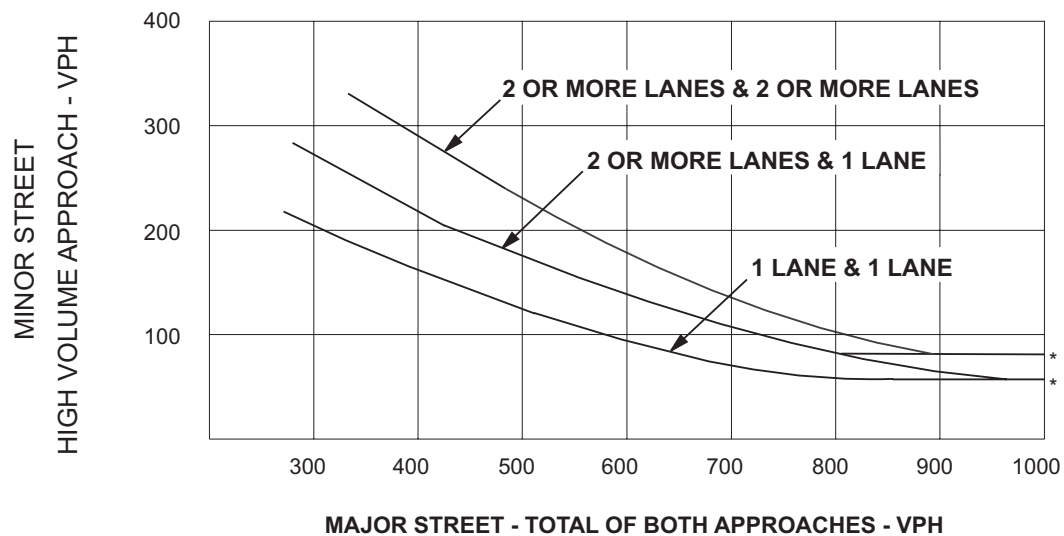
GRAPH A: FOUR HOUR VOLUME WARRANT



*NOTE: 115 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

GRAPH B: FOUR HOUR VOLUME WARRANT

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*NOTE: 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 60 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

**APPENDIX D
INFORMATION ABOUT APPROVED PROJECTS
IN THE VICINITY OF THE PROJECT SITE**

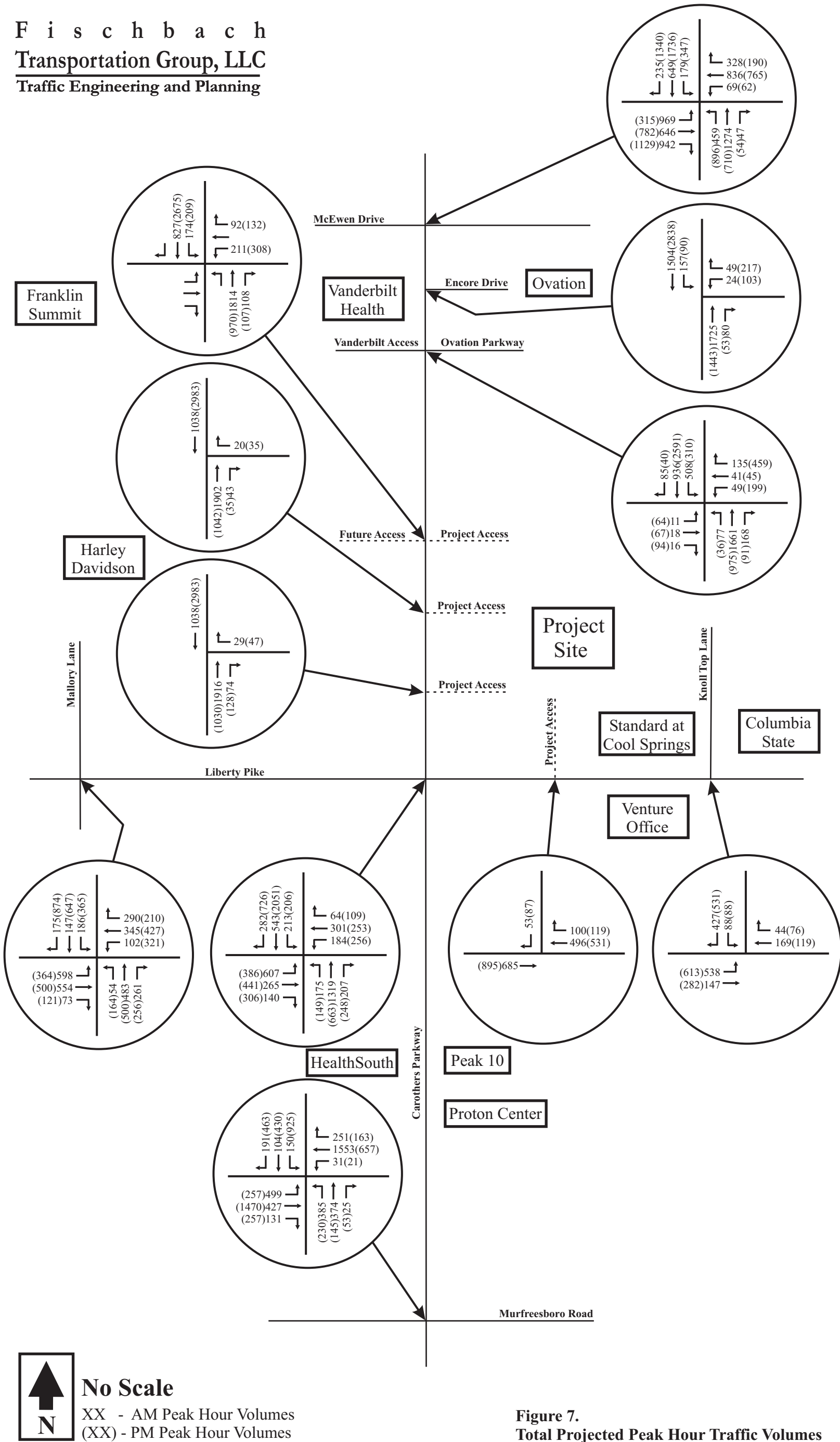
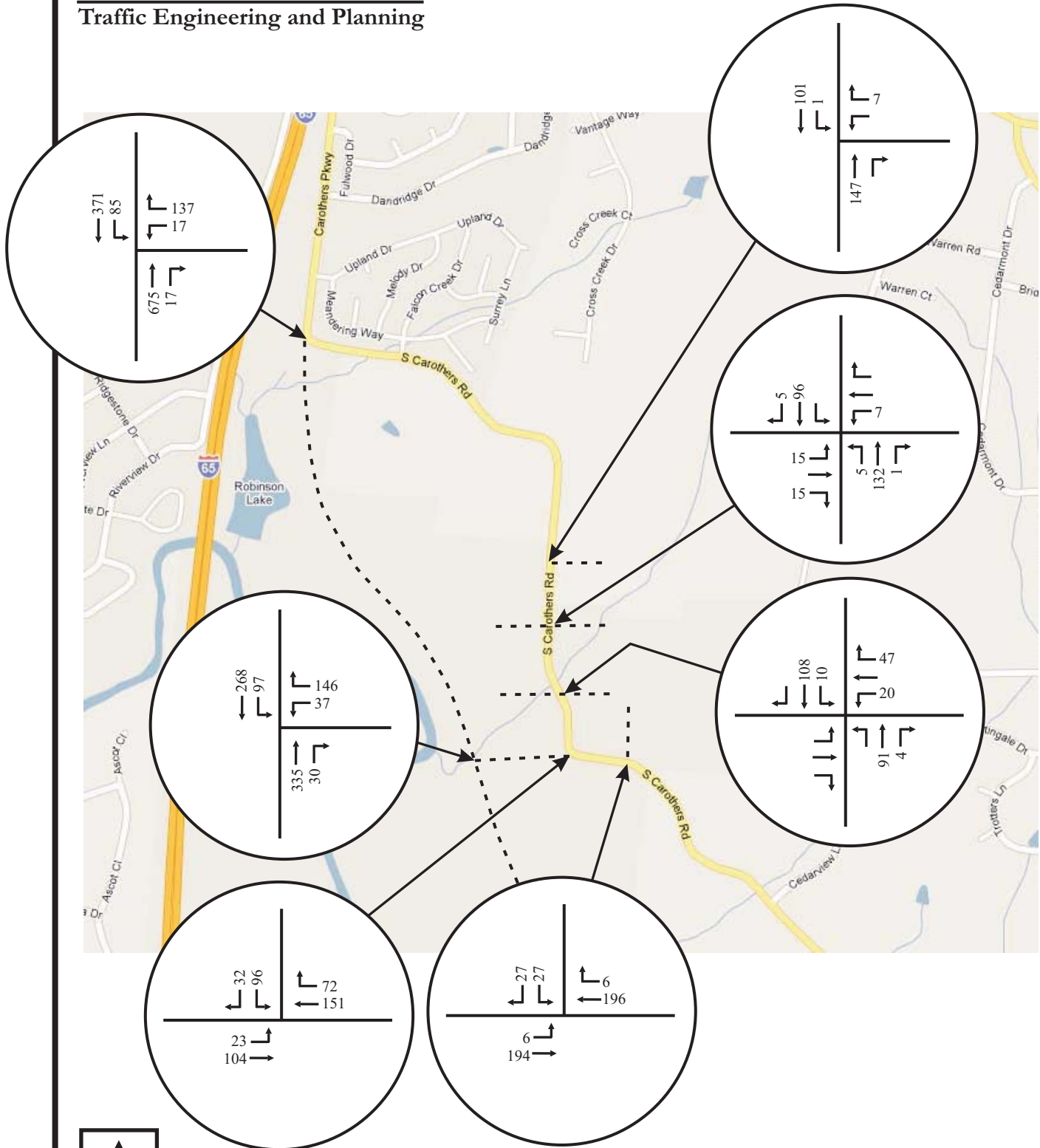


Figure 7.
Total Projected Peak Hour Traffic Volumes

F i s c h b a c h
Transportation Group, Inc.
 Traffic Engineering and Planning



No Scale

Figure 7A.
 Year 2016 AM Peak Hour
 Total Projected Peak Hour Traffic Volumes
 With Carothers Parkway

F i s c h b a c h
Transportation Group, Inc.
 Traffic Engineering and Planning

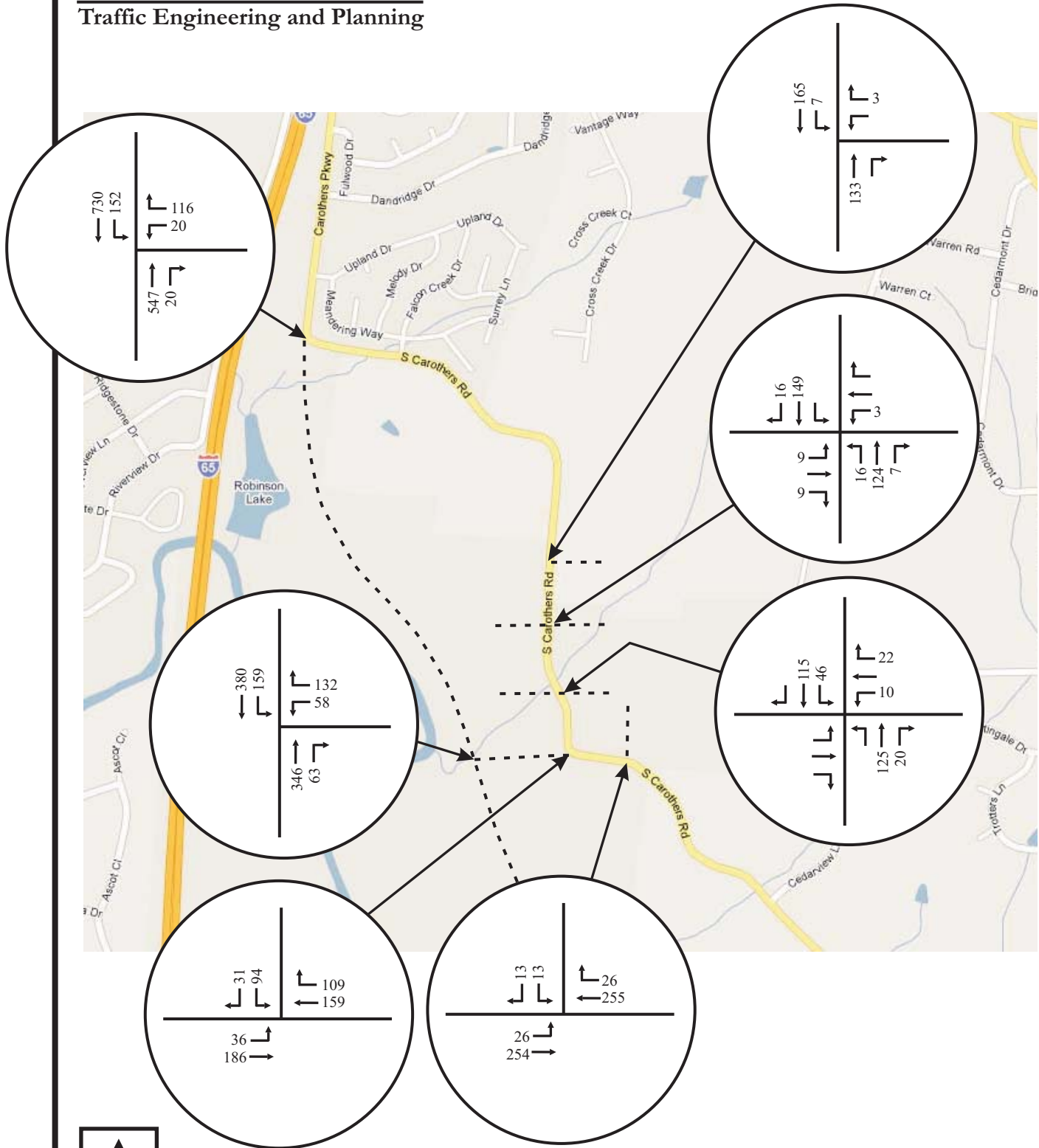
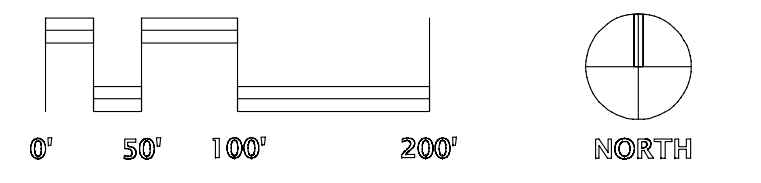
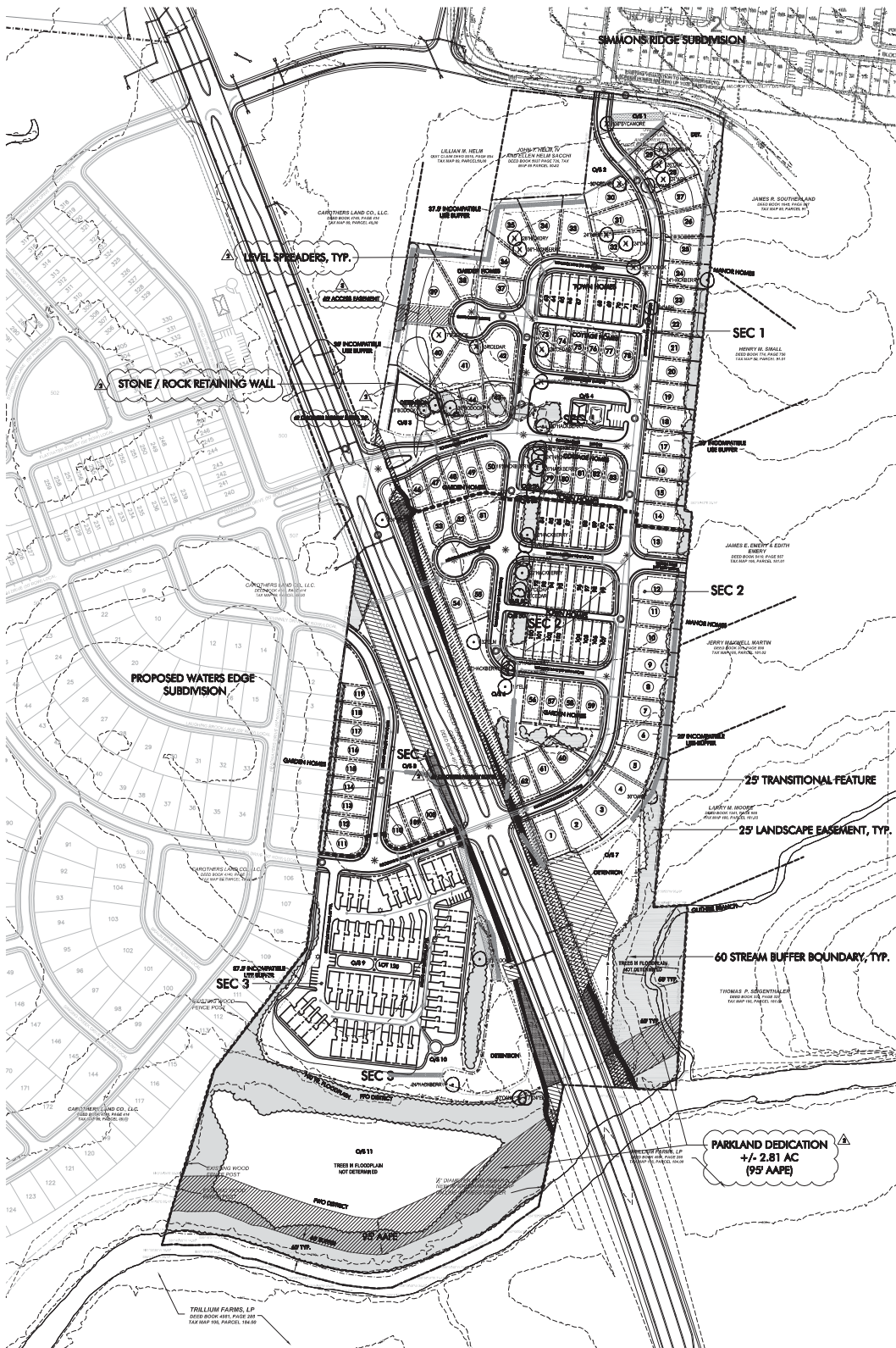


Figure 7C.
 Year 2016 PM Peak Hour
 Total Projected Peak Hour Traffic Volumes
 With Carothers Parkway





LEGEND:

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PARKLAND DEDICATION AREA
- CONNECTIVITY LINK
- CONNECTIVITY NODE
- 60' STREAM BUFFER
- SF SILT FENCE
- TP TREE PROTECTION FENCE
- PRESERVED TREE CANOPY
- STREET LIGHT
- SLOPE EASEMENT DEED BOOK 4971 PAGES 322-335
- TEMPORARY CONSTRUCTION EASEMENT DEED BOOK 4971 PAGES 322-335
- PERMANENT DRAINAGE EASEMENT DEED BOOK 4971 PAGES 335

PROPOSED SOUTH CAROTHERS PKWY LEGEND:

- SLOPE EASEMENT DEED BOOK 4971 PAGES 322-335
- TEMPORARY CONSTRUCTION EASEMENT DEED BOOK 4971 PAGES 322-335
- PERMANENT DRAINAGE EASEMENT DEED BOOK 4971 PAGES 335

- DEVELOPMENT PLAN NOTES:**
- BOUNDARY INFORMATION PROVIDED BY GRESHAM SMITH PARTNERS. TOPOGRAPHIC INFORMATION PROVIDED BY CITY OF FRANKLIN GIS DEPARTMENT.
 - THIS PROPERTY CAN BE REFERENCED AS TAX MAP 89 & 106, PARCELS 05001 & 18121.
 - THERE ARE NO HISTORICAL STRUCTURES ON THIS SITE.
 - THE PUD DEVELOPMENT PLAN WILL RESULT IN A TOTAL OF 168 PROPOSED UNITS. BASED ON AN AVERAGE OF 10 VEHICLE TRIPS PER DAY PER HOUSEHOLD UNIT, THIS WILL GENERATE A TOTAL OF 1,680 TOTAL VEHICLE TRIPS PER DAY.
 - ADEQUATE TURNING MOVEMENTS SHALL BE PROVIDED FOR UTILITY AND SERVICE VEHICLES. ALL STREETS SHALL MEET THE CITY OF FRANKLIN TRANSPORTATION AND STREET TECHNICAL STANDARDS.
 - INITIAL DISCUSSION WITH THE CITY OF FRANKLIN ENGINEERING INDICATES THERE IS ADEQUATE CAPACITY TO SERVE THE PROPOSED DEVELOPMENT WITH SEWER SERVICES.
 - ALL PUBLIC IMPROVEMENTS TO BE LOCATED WITHIN AN EASEMENT
 - THE APPLICANT WILL ENDEAVOR, TO THE EXTENT POSSIBLE, TO PRESERVE EXISTING SUITABLE TREES ALONG THE EDGES AND THE INTERIOR OF THE SITE. EXISTING TREES TO BE SAVED WILL BE FLAGGED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. DURING THE CONSTRUCTION PHASE, THREE PROTECTION FENCING SHALL BE INSTALLED NEAR THE DRIP LINE OF THE PRESERVED TREES. NO CONSTRUCTION ACTIVITY OR STORAGE SHALL OCCUR WITHIN THE TREE PROTECTION ZONES.
 - LIGHTING WILL BE PEDESTRIAN IN SCALE AND LOCATED TO ENSURE SAFE MOVEMENT OF PEDESTRIAN / VEHICLES AND FOR SECURITY PURPOSES WHILE ADHERING TO THE CITY OF FRANKLIN DESIGN STANDARDS. MIDDLE TENNESSEE ELECTRIC SHALL APPROVE STREET LIGHT STANDARDS. DIRECTIONAL LIGHTING WILL BE DESIGNED SO AS TO MINIMIZE GLARE AND REFLECTION ON ADJACENT PROPERTIES.
 - SIGNS WILL MEET THE REQUIREMENTS OF THE CITY OF FRANKLIN ZONING ORDINANCE, CHAPTER 8.7 SIGNS. SIGN CONTROLS WILL BE ESTABLISHED, FOR THE DEVELOPMENT, TO SAFELY FACILITATE PEDESTRIAN AND VEHICULAR MOVEMENT IN AN ATTRACTIVE AND EFFICIENT MANNER. SIGNAGE WILL BE COMPATIBLE WITH THE SURROUNDINGS, WILL BE APPROPRIATE TO RESIDENTIAL SCALE AND EXPRESS THE IDENTITY OF THE DEVELOPMENT.
 - WATER FACILITIES
WATER SERVICE WILL BE COORDINATED WITH THE CITY OF FRANKLIN TO PROVIDE ADEQUATE FLOW AND CAPACITY. ALL WATER MAINS SHALL BE LOCATED IN A 20' PUBLIC UTILITY EASEMENT.
 - SEWER FACILITIES - SEWER SERVICE WILL BE COORDINATED WITH THE CITY OF FRANKLIN TO PROVIDE ADEQUATE FLOW AND CAPACITY. ALL SEWER LINES SHALL BE LOCATED IN A 20' SANITARY SEWER EASEMENT.
 - A 25' TRANSITIONAL FEATURE HAS BEEN PROVIDED ON THE EASTERN BOUNDARY OF THE PROPERTY.
 - ALL FACILITIES SHALL BE DESIGNED TO MEET ALL CITY OF FRANKLIN ORDINANCE.
 - DEVELOPMENT STANDARDS WITHIN 500' OF THE SITE ARE CONVENTIONAL.
 - SIMMONS RIDGE IS A PLANNED DEVELOPMENT TO THE NORTH OF OUR PROJECT SITE. THERE IS ALSO A FUTURE PROPOSED DEVELOPMENT TO THE WEST OF PROJECT BOUNDARY. MEETINGS HAVE BEEN CONDUCTED WITH THE OWNER REPRESENTATIVES FOR THE ADJACENT PROPOSED DEVELOPMENTS TO COORDINATE ACCESS POINTS AND CONNECTIVITY BETWEEN THE PROPERTIES.
 - WATER, SEWER & REPURIFIED WATER FACILITIES
 - EXISTING FACILITIES
 - SANITARY SEWER SYSTEM
 - UTILITY DISTRICT JURISDICTION: CITY OF FRANKLIN
 - UTILITY DISTRICT ADDITIONAL FLOW IS 168 SFUE. 1 SFUE = 350 GALLONS/UNIT/DAY
 - SFUE - SINGLE FAMILY UNIT EQUIVALENT
 - DOMESTIC WATER SUPPLY
 - UTILITY DISTRICT JURISDICTION: MILCROFTON
 - NATURAL GAS SERVICE
 - UTILITY DISTRICT JURISDICTION: ATMOS ENERGY
 - ELECTRIC SERVICE
 - UTILITY DISTRICT JURISDICTION: MIDDLE TENNESSEE ELECTRIC MEMBERSHIP CORPORATION
 - PROPOSED FACILITIES
 - DEMAND IN GALLONS PER DAY 168 X 350 GPD = 58,800 GPD
 - THERE ARE NO ANTICIPATED IMPACTS ON STREETS SHOWN IN THE MAJOR THOROUGHFARE PLAN, THE LOCAL STREET PLAN, OR THE BIKE PEDESTRIAN PLAN.
 - FROM THIS SITE, IT IS APPROXIMATELY 2.5 MILES TO THE FIRE STATION ON HWY. 96/JORDAN ROAD AND 4 MILES TO THE CITY POLICE DEPARTMENT LOCATED DOWNTOWN AT CITY HALL. THE NEAREST PARK AND RECREATIONAL FACILITIES ARE LOCATED APPROXIMATELY 3.7 MILES WEST OF THE DEVELOPMENT ON HWY. 96 (PINKERTON PARK). CHEEK PARK AND THE WILLIAMSON COUNTY RECREATION CENTER ARE APPROXIMATELY 5.5 MILES FROM THE PROPOSED DEVELOPMENT.
 - THIS DEVELOPMENT WILL RESULT IN AN INCREASE OF 168 HOUSEHOLD UNITS. BASED ON AN AVERAGE OF 0.64 SCHOOL AGE STUDENTS PER SINGLE FAMILY HOUSEHOLD, THIS WILL INCREASE THE CURRENT STUDENT SCHOOL POPULATION BY A TOTAL OF +/- 108 STUDENTS WITHIN THE FOLLOWING CATEGORIES: PAGE HIGH SCHOOL, PAGE MIDDLE SCHOOL, AND TRINITY ELEMENTARY SCHOOL.
 - THE SUBJECT PROPERTY IS CONSISTENT WITH THE McEWEN CHARACTER AREA INCLUDING THE GUIDING PRINCIPALS OF SPECIAL AREA 6:
 - REFLECTS SAME CHARACTER OF CURRENT AND PROPOSED DEVELOPMENT.
 - THE PROPOSED DEVELOPMENT PATTERN CONSISTS OF LOTS WHICH ARE COMPARABLE TO THE EXISTING AND PROPOSED SURROUNDING DEVELOPMENT.
 - ALL PARKING REQUIREMENTS SHALL BE MET WITH GARAGES AND DRIVEWAYS AT EACH RESIDENTIAL UNIT AS WELL AS SUPPLEMENTAL ONSTREET PARKING WHERE VILLA UNITS ARE PLANNED.
 - RESIDENTIAL FIRE SPRINKLER SYSTEMS SHALL BE PROVIDED IF 1,500 GPM / 20 PSI IS NOT AVAILABLE.

SITE DATA

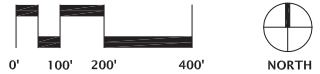
PROJECT NAME:	ECHOLON
TAX MAP:	89 & 106
PARCEL:	089-05001 & 106-18121
CITY:	FRANKLIN
COUNTY:	WILLIAMSON
STATE:	TENNESSEE
CIVIL DISTRICT:	14
LAND USE/ZONING:	AG (AGRICULTURAL DISTRICT)
ADDRESS:	4419 S CAROTHERS ROAD FRANKLIN, TENNESSEE
DEED BOOK:	
OWNER:	JOHN T. HELM IV & ELLEN HELM SACCHI
EXISTING ZONING AND CHARACTER AREA OVERLAY:	AG - McEWEN-6
PROPOSED ZONING:	PUD RX RESIDENTIAL VARIETY
OTHER APPLICABLE OVERLAYS:	FFO & FWO
APPLICABLE DEVELOPMENT STANDARD:	CONVENTIONAL
ACREAGE OF SITE	+/- 57.23
TOTAL UNITS:	168
DENSITY:	
SECTION 1:	3.55 DU/AC
SECTION 2:	2.91 DU/AC
SECTION 3:	2.02 DU/AC
SECTION 4:	2.55 DU/AC
RESIDENTIAL UNITS:	
MANOR:	32
GARDEN:	43
COTTAGE:	11
VILLA:	48
TOWN HOMES:	34
OPEN SPACE REQUIREMENTS	
FORMAL OPEN SPACE REQUIRED	+/- 2.86 AC.
INFORMAL OPEN SPACE REQUIRED	+/- 5.75 AC.
FORMAL OPEN SPACE PROVIDED	+/- 2.86 AC.
INFORMAL OPEN SPACE PROVIDED	+/- 11.80 AC.
OPEN SPACE CHART	
OPEN SPACE #1: INFORMAL	+/- 0.55 AC.
OPEN SPACE #2: INFORMAL	+/- 0.17 AC.
OPEN SPACE #3: INFORMAL	+/- 0.56 AC.
OPEN SPACE #4: FORMAL	+/- 0.68 AC.
OPEN SPACE #5A-5D: INFORMAL	+/- 0.05 AC.
OPEN SPACE #6: INFORMAL	+/- 1.25 AC.
OPEN SPACE #7: INFORMAL	+/- 1.73 AC.
OPEN SPACE #8: INFORMAL	+/- 0.75 AC.
OPEN SPACE #9: FORMAL	+/- 0.18 AC.
OPEN SPACE #10: FORMAL	+/- 2.00 AC.
OPEN SPACE #11: INFORMAL	+/- 6.74 AC.
PARKLAND DEDICATION PROVIDED	
(35 UN x 1,200SF)+(134 UN x 600SF) = 122,400SF (+/-2.81 AC)	+/- 2.81 AC. (122,400 SF)
CONNECTIVITY INDEX	1.73 (26 LINKS / x15NODES = 1.73)
PROPOSED BUILDING SETBACKS - MANOR LOTS	
FRONT BUILDING SETBACK:	15' MINIMUM
SIDE BUILDING SETBACK:	5' MINIMUM
REAR BUILDING SETBACK:	10' MINIMUM
PROPOSED BUILDING SETBACKS - GARDEN, COTTAGE LOTS LOTS	
FRONT BUILDING SETBACK:	8' MINIMUM
SIDE BUILDING SETBACK:	5' MINIMUM
REAR BUILDING SETBACK:	10' MINIMUM
PROPOSED BUILDING SETBACKS - VILLA, TOWN HOME LOTS	
FRONT BUILDING SETBACK:	5' / 8' MINIMUM (SEE SHEET A1.00)
SIDE BUILDING SETBACK:	5' MINIMUM
REAR BUILDING SETBACK:	4' MINIMUM

ENGINEERING PROVIDED BY:
MICHAEL RAY
FISHER & ARNOLD INC.
1420 DONELSON PIKE, SUITE A-12
NASHVILLE, TN. 37217
(615) 383-6300
mray@fisherarnold.com

APPLICANT:
JOHN HAAS
EDGE
210 12TH AVE. SOUTH
SUITE 202
NASHVILLE TN. 37203
(615) 250-8154
jhaas@edgelo.com

DEVELOPER:
T. KEITH GLENN
CRESCENT RESOURCES
227 W. TRADE STREET
SUITE 1000
CHARLOTTE, NC. 28202

DEVELOPER:
CHRIS PASCARELLA
PEARL STREET PARTNERS, LLC
205 POWELL PLACE
BRENTWOOD TN 37027
kpascarella@pearlstreetpartners.com



EDGE
210 Twelfth Avenue South
Suite 202
Nashville, Tennessee 37203
P 615-250-8154
F 615-250-8155

FISHER & ARNOLD, INC.
1420 Donelson Pike, Suite A-12 • Nashville, Tennessee 37217
(615) 383-6300 • Fax: (615) 383-6301 • www.fisherarnold.com



Echelon
PUD Development Plan
Franklin, TN
COF #2667

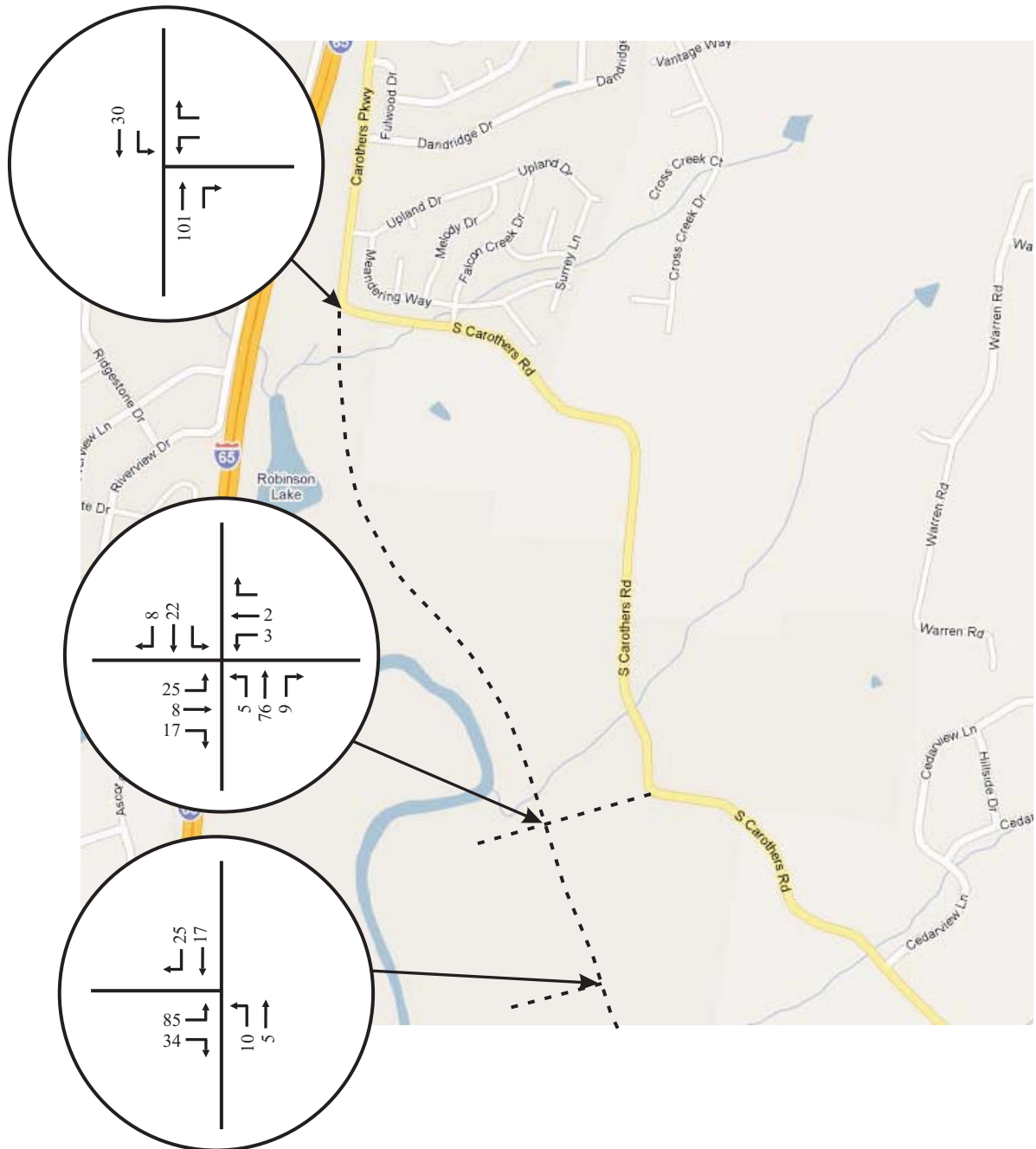
Crescent Resources
Charlotte, NC

PROJECT NO.	13007
Date	2/11/13
Revisions	
03/07/2013	
08/23/2013 POST PC	
10/10/2013 POST PC	

Sheet Title	
DEVELOPMENT PLAN	
Sheet Number	
L 1.00	



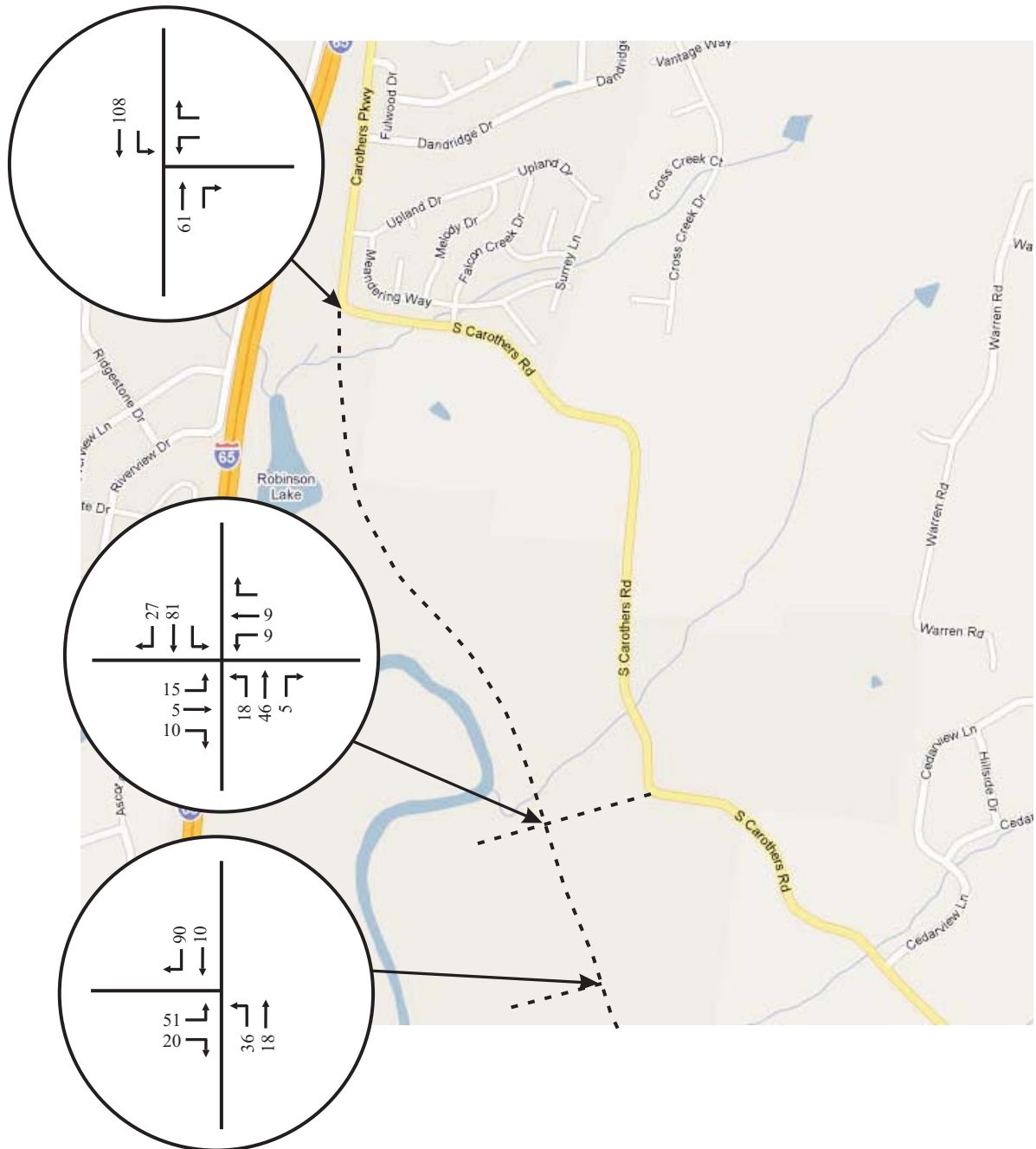
F i s c h b a c h
Transportation Group, LLC
 Traffic Engineering and Planning



No Scale

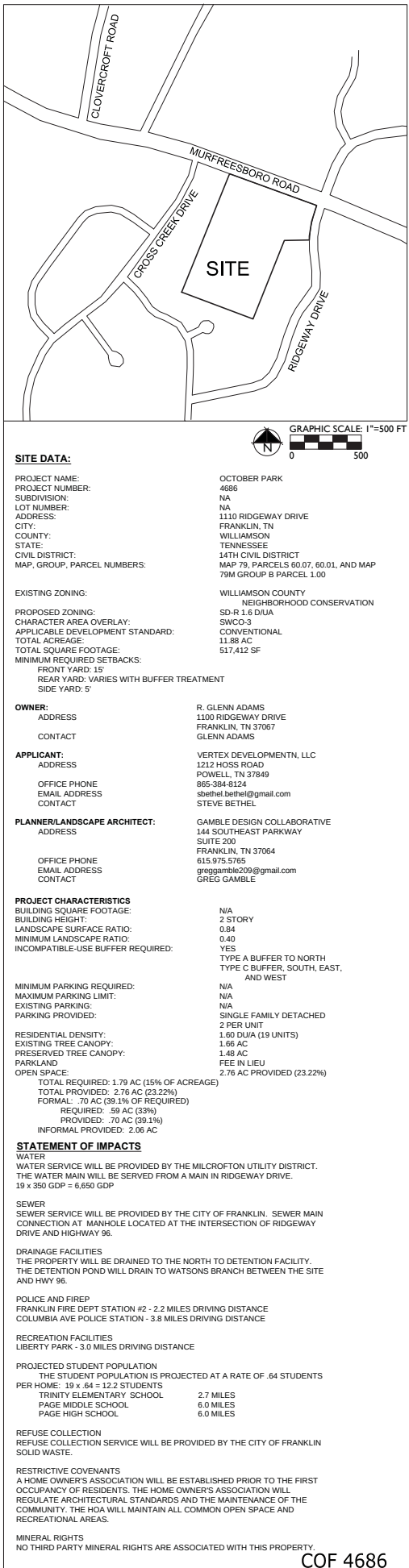
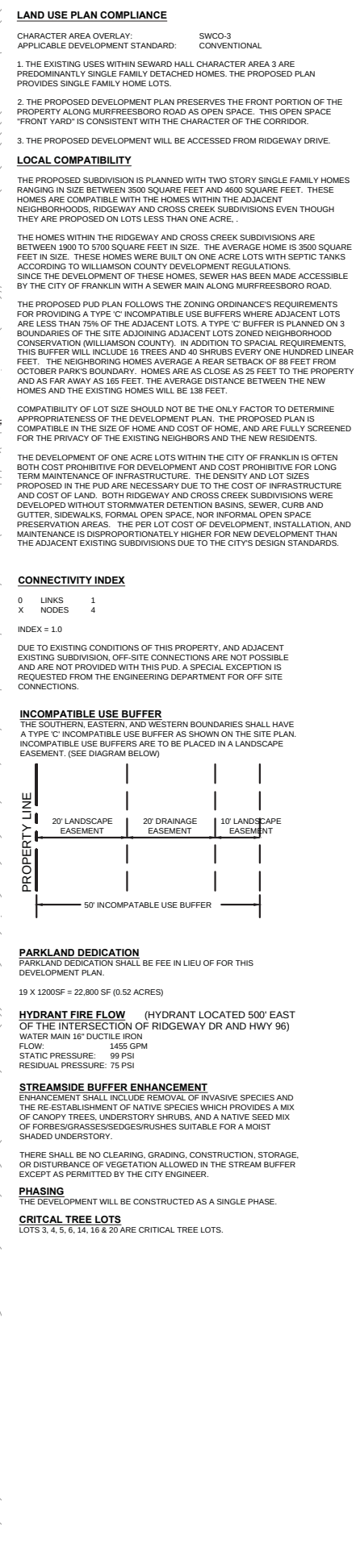
Figure 6A.
AM Peak Hour Traffic Volumes
 Generated by the Water's Edge Project

F i s c h b a c h
Transportation Group, LLC
 Traffic Engineering and Planning



No Scale

Figure 6C.
PM Peak Hour Traffic Volumes
 Generated by the Water's Edge Project



	Revisions: 1. 11.10.2014 2. 12.03.2014
Drawing Notes:	
 GAMBLE DESIGN COLLABORATIVE DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE Date: OCT 13, 2014	
OCTOBER PARK PUD SUBDIVISION DEVELOPMENT PLAN	Parcels 60.07, 60.01 on Map 79 and 1.00 in Group B on Tax Map 79M Franklin, Williamson County, Tennessee
 GAMBLE DESIGN COLLABORATIVE 144 SOUTHEAST PARKWAY SUITE 220 FRANKLIN, TENNESSEE 37064 GREG GAMBLE gg@gambledcoy@gmail.com 615.975.5765	
DEVELOPMENT PLAN	C 3.0

SITE DATA SHEET
PROJECT NAME: FOUNTAINS OF FRANKLIN, SITE PLAN, SECTION 2
PROJECT #: 4523
SUBDIVISION: SILVER GRACE
LOT NUMBER: 1 AND 2
ADDRESS: 4100 MURFREESBORO ROAD
CITY: FRANKLIN
COUNTY: WILLIAMSON
STATE: TENNESSEE
CIVIL DISTRICT: 14TH

DISTING. ZONING AND CHARACTER AREA OVERLAY:
R1 RESIDENTIAL, VARIETY DIST. / SCANDI HALL SH2
APPLICABLE DEVELOPMENT STANDARD: CONVENTIONAL
ACREAGE OF SITE: 14.88
SQUARE FOOTAGE OF SITE: 648,134.2
MINIMUM REQUIRED SETBACK LINES:
STREET FRONTING: 30' LOCAL/50' ARTERIAL (VILLAS)
STREET FRONTING: 60' (SINGLE FAMILY LOTS)
SIDE YARD: 10'
REAR YARD: 30'

OWNER LOTS 1 & 2:
FOUNTAINS OF FRANKLIN, L.L.C.
2202 JEFFERSON COURT
FRANKLIN, TN 37064
(615)790-7041
MAP 79, PARCEL 58
MAP 80, PARCEL 39.04
BOOK 5006, PAGE 86
CONTAINING 13.51 ACRES (588,615.2 S.F.) &
CONTAINING 1.37 ACRES (59,519 S.F.)

APPLICANT/DEVELOPER:
GOODWORKS UNLIMITED, LLC
GARY KEOCKLEY
2202 JEFFERSON COURT
FRANKLIN, TN 37064
(615)790-7041
GKEOCKLEY@YAHOO.COM

BUILDING SQUARE FOOTAGE:
MEMORY CARE BUILDING: 49,548
PHASE 2 VILLAS: 23,213

BUILDING HEIGHT:
MEMORY CARE: ONE STORY-26'
VILLAS: ONE STORY-30'

LANDSCAPE SURFACE RATIO: 0.22
MIN. LANDSCAPE SURFACE RATIO: 0.10
INCOMPATIBLE-USE BUFFER REQUIRED: 37.5' CLASS C ALONG
EAST PROPERTY BOUNDARY (25% REDUCTION W/6' OPAQUE FENCE)

MINIMUM PARKING REQUIREMENT:
MAIN BUILDING: 0.25 PER PATIENT + 1 PER EMPLOYEE =
25 (59) + 15 = 30 SPACES (TEMPORARY CARE FACILITY)
TOTAL: 30 SPACES
MAXIMUM PARKING LIMIT: 120% OF 30 = 36 SPACES

PARKING PROVIDED:
MAIN BUILDING: 59 SPACES
TOTAL: 58 SPACES
ADDITIONAL SPACES FOR FUTURE SECTIONS

RESIDENTIAL DENSITY: 3.96 UNITS PER ACRE

PARKLAND DEDICATION: PAYMENT IN-LIEU BASED ON 30 UNITS
AT 1,200 S.F./UNIT = 36,000 S.F.

TREE CANOPY: 34,570 S.F. TO REMAIN; 58% OF LOT 2

OPEN SPACE:
REQUIRED:
FORMAL: $5\% \times 14,880 \text{ AC} (0.5) = 32,409 \text{ S.F.}$
INFORMAL: $10\% \times 14,880 \text{ AC} (1.0) = 64,817 \text{ S.F.}$
PROVIDED:
FORMAL: 45,907 S.F. = 7.08%
INFORMAL: 173,508 S.F. = 26.77%

WATER SUPPLY:
THE WATER UTILITY DISTRICT THAT SERVES THIS DEVELOPMENT IS THE MIDCROFTON UTILITY DISTRICT, 6333 ARNO RD FRANKLIN, TN 37064. THE CONTACT PERSON AT MIDCROFTON IS CARL SCOTT AT 615-794-5947. THE RECORDED DATA FOR THIS HYDRANT IS 105 PSI STATIC PRESSURE AND 96 PSI RESIDUAL PRESSURE WITH A FLOW RATE OF 1,300+ GPM.

ALL VILLAS AND ASSISTED SUITES TO HAVE AUTOMATIC FIRE SPRINKLERS.

SANITARY SEWER SERVICE:
THE UTILITY DISTRICT THAT SERVES THIS DEVELOPMENT IS THE CITY OF FRANKLIN. THE SEWER INFRASTRUCTURE FOR THIS DEVELOPMENT WAS INSTALLED IN PHASE 1. CLEAN-OUTS FOR THE VILLAS HAVE BEEN STUBBED OUT FOR CONNECTION DURING THIS PHASE. THE MEMORY CARE ADDITION WILL BE SERVED INTERNALLY BY THE EXISTING FACILITY. ALL SEWER CONNECTIONS MUST BE APPROVED BY THE CITY OF FRANKLIN (COF) AND CONSTRUCTION WILL ADHERE TO THE SPECIFICATIONS OF THE COF.

STORMWATER CONTROL:
ALL STORMWATER TREATMENT FOR QUALITY AND QUANTITY WERE INSTALLED DURING PHASE 1 FOR THE COMPLETE BUILD-OUT OF THIS DEVELOPMENT. NO NEW TREATMENT IS REQUIRED FOR THIS PHASE. ON SITE DETENTION WAS DESIGNED TO TREAT A MAXIMUM IMPERVIOUS AREA OF 266,588 S.F.

ELECTRIC SERVICE:
THE UTILITY DISTRICT THAT SERVES THIS DEVELOPMENT IS MIDDLE TENNESSEE ELECTRIC MEMBERSHIP CORP. (MTEC). MTEC HAS PROVIDED THE LAYOUT. ALL ELECTRIC SERVICE LINES TO BE UNDERGROUND. ALL CONSTRUCTION TO ADHERE TO THE SPECIFICATIONS OF MTEC.

TREE PROTECTION NOTE:
ALL TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO ISSUANCE OF A GRADING PERMIT AND SHALL BE MAINTAINED IN GOOD WORKING ORDER UNTIL ALL CONSTRUCTION ACTIVITY IS COMPLETE. ANY REQUIRED EROSION CONTROL MEASURES SHALL BE PLACED OUTSIDE OF ANY TREE PROTECTION FENCING.

UTILITY NOTE:
WITHIN NEW DEVELOPMENTS AND FOR OFFSITE 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.

SOLID WASTE SERVICE:
THE SITE IS CURRENTLY SERVED BY A DUMPSITE LOCATED AT THE REAR OF THE EXISTING FACILITY. THIS WILL CONTINUE TO BE USED FOR THE PRESENT FACILITY AS WELL AS THE PHASE 2 ADDITIONS, MEMORY CARE UNIT AND VILLAS.

APPROVAL NOTE:
THIS SITE PLAN HAS BEEN DESIGNED TO MEET THE CITY OF FRANKLIN STANDARDS AND THE APPROVAL OF THE PLANNING COMMISSION. CHANGES SHALL NOT BE MADE TO THE APPROVED SITE PLAN UNLESS APPROVED BY EITHER THE RELEVANT DEPARTMENT SUPERINTENDENT OR THE PLANNING COMMISSION.

RETAINING WALL NOTE:
ALL RETAINING WALLS ON SITE SHALL MEET THE STANDARDS OF SECTION 6.6 OF THE FRANKLIN ZONING ORDINANCE. DETAILS OF RETAINING WALLS SHALL BE SUBMITTED TO THE DEPT. OF BUILDING AND NEIGHBORHOOD SERVICES FOR REVIEW. REFER TO LANDSCAPE PLANS IN THIS SUBMITAL FOR PLANTINGS AROUND WALLS.

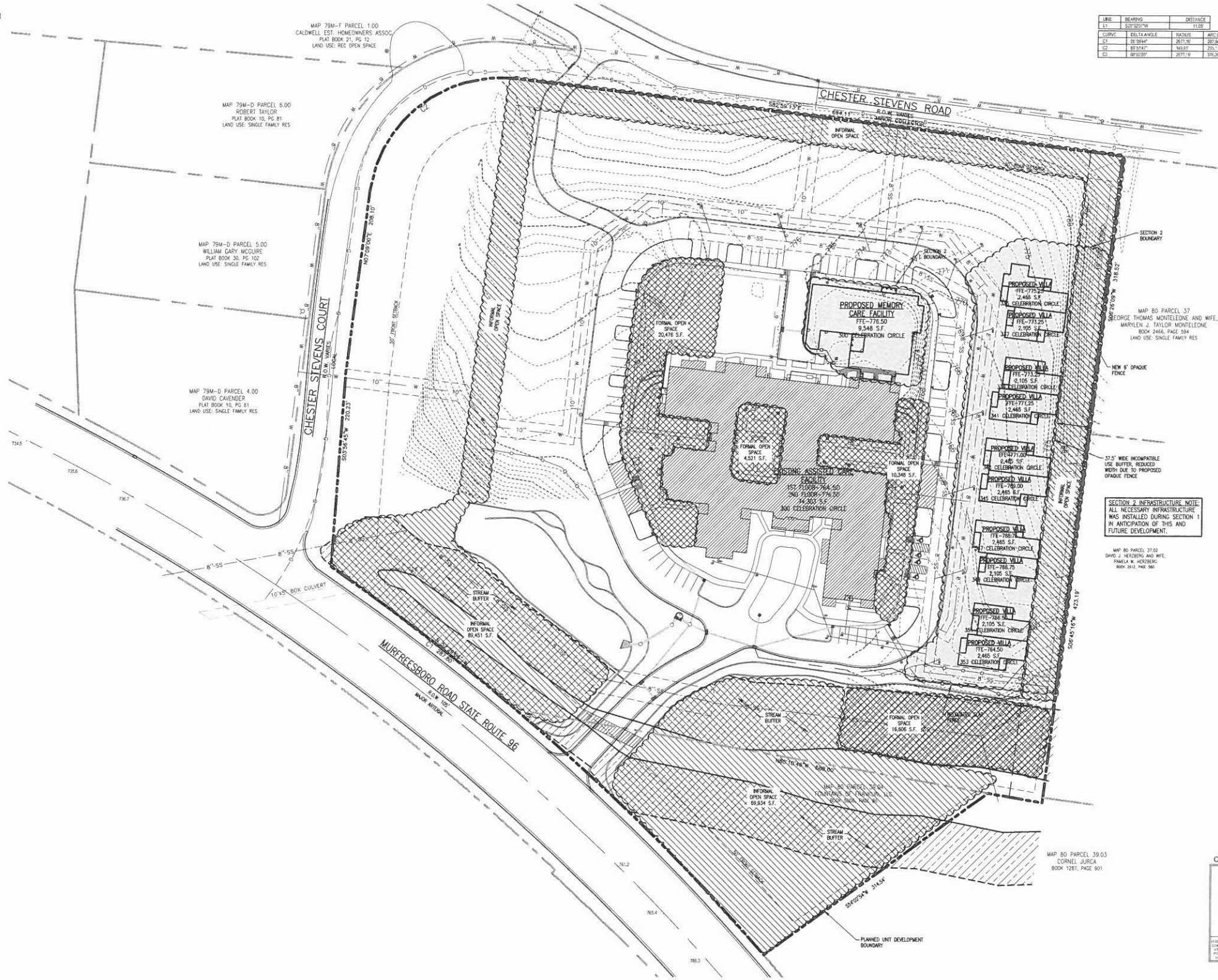
CIVIL CONTRACTOR NOTES:

- THE SCOPE OF WORK IS THE TOTALITY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, FIELD ORDERS, SHOP DRAWING APPROVAL CONDITIONS AND PERFORMANCE REQUIREMENTS OF THE SCOPE OF WORK. THE SCOPE OF WORK IS IDENTIFIED WITH SPECIFICATION SECTIONS AND SHEET ALPHA NUMERIC CONVENTION, BUT SUCH IDENTIFICATION DOES NOT DEFINE, RESTRICT OR ASSIGN THE SCOPE OF WORK OR ORGANIZE THE CONTRACT.
- THE SCOPE OF WORK IS SUBJECT TO AND SHALL INCLUDE THE REQUIREMENTS OF THE APPLICABLE CODES, STANDARDS AND ORDINANCES FOR THE LOCATION OF THIS PROJECT AND THE INTERPRETATIONS OF THE CODES, STANDARDS AND ORDINANCES BY THE AUTHORITIES HAVING JURISDICTION OF THIS PROJECT. SUCH INTERPRETATION SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO BIDDING. ANY VARIANCE FROM THE CONTRACT DOCUMENTS SHALL BE INCLUDED IN THE BIDDING AS A QUALIFICATION OF ANY BID AND SHALL BE INCLUDED IN THE SCOPE OF WORK BY THE CONTRACTOR. FAILURE TO IDENTIFY ANY SUCH VARIANCE AS A QUALIFICATION IN A BID SHALL NOT BE A BASIS FOR A CHANGE ORDER. DO NOT SCALE DRAWINGS. IF DIMENSIONS OR ELEVATIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLARIFICATION FROM THE ARCHITECT BEFORE IMPLEMENTATION OF CONSTRUCTION.
- CONTRACTOR SHALL VERIFY ALL EQUIPMENT REQUIREMENTS, FIXTURE REQUIREMENTS, SYSTEM REQUIREMENTS WHETHER OWNER FURNISHED OR CONTRACTOR FURNISHED, PRIOR TO IMPLEMENTATION OF ANY WORK ASSOCIATED WITH THE EQUIPMENT.
- CONTRACTOR SHALL PROVIDE WORK AS NEEDED FOR ALL SITE UTILITIES WHERE UTILITIES ARE INSTALLED BY OTHERS INCLUDING, BUT NOT LIMITED TO TRENCHING, CONDUIT, JUNCTION BOXES.
- CONTRACTOR SHALL PROVIDE FOR FIRE LINES AND DOMESTIC WATER LINES IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION INCLUDING BUT NOT LIMITED TO LICENSED INSTALLERS, TESTING, MATERIALS.
- NO IMPROVEMENT MAY BE ENCASED, CLOSED OR COVERED PRIOR TO INSPECTION AND ACCEPTANCE BY THE ARCHITECT. PROVIDE ARCHITECT WITH ADEQUATE NOTICE TO INSPECT ANY IMPROVEMENT READY FOR ENCLOSURE.
- CONTRACTOR SHALL LAYOUT BUILDING PAD, PARKING, SIDEWALKS AND ESTABLISH FINISH FLOOR ELEVATION FOR REVIEW AND APPROVAL OF ARCHITECT PRIOR TO IMPLEMENTATION.

GENERAL CONTRACTOR NOTES:

- THE SCOPE OF WORK IS THE TOTALITY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, FIELD ORDERS, SHOP DRAWING APPROVAL CONDITIONS AND PERFORMANCE REQUIREMENTS OF THE SCOPE OF WORK. THE SCOPE OF WORK IS IDENTIFIED WITH SPECIFICATION SECTIONS AND SHEET ALPHA NUMERIC CONVENTION, BUT SUCH IDENTIFICATION DOES NOT DEFINE, RESTRICT OR ASSIGN THE SCOPE OF WORK OR ORGANIZE THE CONTRACT.
- THE SCOPE OF WORK IS SUBJECT TO AND SHALL INCLUDE THE REQUIREMENTS OF THE APPLICABLE CODES, STANDARDS AND ORDINANCES FOR THE LOCATION OF THIS PROJECT AND THE INTERPRETATIONS OF THE CODES, STANDARDS AND ORDINANCES BY THE AUTHORITIES HAVING JURISDICTION OF THIS PROJECT. SUCH INTERPRETATION SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO BIDDING. ANY VARIANCE FROM THE CONTRACT DOCUMENTS SHALL BE INCLUDED IN THE BIDDING AS A QUALIFICATION OF ANY BID AND SHALL BE INCLUDED IN THE SCOPE OF WORK BY THE CONTRACTOR. FAILURE TO IDENTIFY ANY SUCH VARIANCE AS A QUALIFICATION IN A BID SHALL NOT BE A BASIS FOR A CHANGE ORDER.
- DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLARIFICATION FROM THE ARCHITECT BEFORE IMPLEMENTATION OF CONSTRUCTION.
- CONTRACTOR SHALL VERIFY ALL CONDITIONS AND SHALL REPORT ANY CONDITION THAT VARIES FROM THE CONSTRUCTION AS SHOWN.
- FOR CLARIFICATION FROM THE ARCHITECT BEFORE IMPLEMENTATION OF CONSTRUCTION, PROVIDE PLUMBING SUPPLY AND DRAINS FOR ALL FIXTURES AND EQUIPMENT AS SHOWN ON ARCHITECTURAL, MECHANICAL, FIRE PROTECTION AND PLUMBING PLANS. LOCATE ALL ELECTRICAL SWITCHES AND PLUGS AS SHOWN ON ELECTRICAL OR ARCHITECTURAL PLANS AND INTERIOR ELEVATIONS.
- DIMENSIONS ARE NOMINAL TO THE FACE OF THE WALL OR CENTERLINE OF COLUMNS.
- ALL RATED WALLS EXTEND ONLY TO CEILING; RATED WALLS IN ATTICS ARE SHOWN ON ROOF PLAN.
- PROVIDED RATED WALLS AS NOTED BEHIND ALL FIRE EXTINGUISHER CABINETS AND OTHER PENETRATIONS.
- CONCEAL ALL PIPING IN WALLS OR FUR OUT WALL TO ENCASE PIPING. REVIEW ANY CONDITION REQUIRING FURNISH WITH ARCHITECT PRIOR TO IMPLEMENTATION.
- PROVIDE APPROPRIATE STRUCTURAL SUPPORT FOR EQUIPMENT, LAVATORIES OR OTHER IMPROVEMENTS AS REQUIRED TO SUPPORT A MINIMUM LOAD OF 250 LBS.
- NO IMPROVEMENT MAY BE ENCASED, CLOSED OR COVERED PRIOR TO INSPECTION AND ACCEPTANCE BY THE ARCHITECT. PROVIDE ARCHITECT WITH ADEQUATE NOTICE TO INSPECT ANY IMPROVEMENT READY FOR ENCLOSURE.
- TO COORDINATE ALL WORK, MARK THE FLOORS AND WALLS FOR LOCATION OF WALLS, CABINETS, EQUIPMENT, TOILETS, SHOWERS, AIR HANDLING EQUIPMENT, DIFFUSERS, EXHAUSTS, SPRINKLER HEADS, DRAINS AND TEST VALVES, ELECTRICAL, SYSTEMS AND JUNCTION BOXES FOR REVIEW AND APPROVAL OF ARCHITECT PRIOR TO IMPLEMENTATION.

LINE	BEARING	DISTANCE
C1	N02°07'00"W	115.00
C2	N02°07'00"W	115.00
C3	N02°07'00"W	115.00
C4	N02°07'00"W	115.00
C5	N02°07'00"W	115.00



SECTION 2 INFRASTRUCTURE NOTE
ALL NECESSARY INFRASTRUCTURE
WAS INSTALLED DURING SECTION 1
IN ANTICIPATION OF THIS AND
FUTURE DEVELOPMENT.

MAP 80 PARCEL 37.02
DANIEL J. HEDBERG AND WIFE,
PAMELA M. HEDBERG
BOOK 3612, PAGE 360

MAP 80 PARCEL 39.03
CORNEL JURICA
BOOK 1261, PAGE 901

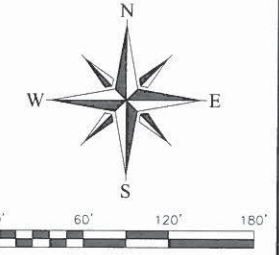
CALL BEFORE YOU DIG

811

CALL 811 NATIONWIDE

Know what's below. Call before you dig.

FOR THE CONTRACTOR'S RESPONSIBILITY TO CONTACT UTILITIES COMPANIES PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.



FRANKLIN PROJECT #:

- THE CITY OF FRANKLIN PROJECT NUMBER IS COF #4523

DEVELOPMENT	APPROVAL DATE	RK ZONED ACRES	SINGLE FAMILY DWELLING UNITS	MAIN BUILDING VILLAS	TOTAL DWELLING UNITS	LOT NUMBERS OF BUILDABLE UNITS	LOT DENSITY (UNITS/AC)	REMAINING ACREAGE	REMAINING DWELLINGS	
CONCEPT PLAN	9/8/09	14.88	3	94	27	124	1	8.33	0	—
REGULATING PLAN	3/25/10	14.88	3	94	27	124	1	8.33	0	—
SECTION 1	11/18/10	14.88	—	59	—	59	1	3.97	0	65
SECTION 2	TBD	14.88	—	18	10	87	1	5.84	0	37

DEVELOPMENT	APPROVAL DATE	RY ZONED ACRES	USE	PHASE TOTAL FLOOR AREA	ASSISTED LIVING FLOOR AREA	MEMORY CARE FLOOR AREA	VILLA FLOOR AREA	SINGLE FAMILY FLOOR AREA	PUD REMAINING TOTAL FLOOR AREA	PUD REMAINING IMPERVIOUS SURFACE	TOTAL IMPERVIOUS SURFACE	TOTAL TOTAL FLOOR AREA	TOTAL TOTAL S.F.
CONCEPT PLAN	9/8/09	14.88	ASSISTED LIVING FACILITY, VILLAS, SINGLE FAMILY	153,658	—	—	—	—	153,658	—	238,806	238,806	0.37
REGULATING PLAN	3/25/10	14.88	ASSISTED LIVING FACILITY, VILLAS, SINGLE FAMILY	153,658	—	—	—	—	153,658	—	238,806	238,806	0.37
SECTION 1	11/18/10	14.88	ASSISTED LIVING FACILITY, VILLAS, SINGLE FAMILY	74,303	74,303	—	—	—	74,303	79,355	140,059	140,059	0.22
SECTION 2	TBD	14.88	VILLAS, MEMORY CARE	32,761	—	9,548	23,213	—	107,064	46,594	46,764	186,823	0.29
SECTION 3	TBD	14.88	ASSISTED LIVING FACILITY, VILLAS	30,942	5,157	—	24,785	—	138,006	15,652	0	—	—
SECTION 4	TBD	14.88	VILLAS, SINGLE FAMILY	15,652	—	—	11,660	3,992	153,658	0	0	—	—


GOOD WORKS
UNLIMITED, LLC
Development, Design and Management of Senior Living Communities
2202 JEFFERSON COURT
FRANKLIN, TN 37064
615.790.7041 P/F


KLOBER
ENGINEERING SERVICES
SERVING CLIENTS WITH LAND AND ENVIRONMENTAL ENGINEERING PROJECTS SINCE 1972
1000 PLEASANT HILL DRIVE, SUITE 200, FRANKLIN, TN 37064
WWW.KLOBERENGINEERING.COM



DATE	DESCRIPTION
3/19/14	PRICING AND PERMITS

VILLA AND MEMORY CARE ADDITION FOR
Silver Grace
PUD SUBDIVISION, SITE PLAN, SECTION 2
300 CELEBRATION CIRCLE, FRANKLIN TN, 37067

DRAWING TITLE:
OVERALL PLAN

SCALE: 1"=60'

C1.2

APPENDIX E
TRIP GENERATION

TRIP GENERATION CALCULATIONS - Single-family Homes

The following calculations are based on the data compiled for ITE Land Use Code 210.

Average Daily Traffic

$$T = 9.52 (X)$$

$$T = 9.52 (199)$$

$$T = 1,894 \text{ vehicles}$$

$$\text{Enter} = 0.50 (1,894) = 947 \text{ vehicles}$$

$$\text{Exit} = 0.50 (1,894) = 947 \text{ vehicles}$$

AM traffic during peak hour of adjacent street

$$T = 0.75 (X)$$

$$T = 0.75 (199)$$

$$T = 149 \text{ vehicles}$$

$$\text{Enter} = 0.25 (149) = 37 \text{ vehicles}$$

$$\text{Exit} = 0.75 (149) = 112 \text{ vehicles}$$

PM traffic during peak hour of adjacent street

$$T = 1.00 (X)$$

$$T = 1.00 (199)$$

$$T = 199 \text{ vehicles}$$

$$\text{Enter} = 0.63 (199) = 125 \text{ vehicles}$$

$$\text{Exit} = 0.37 (199) = 74 \text{ vehicles}$$

APPENDIX F

RELEVANT PAGES FROM NCHRP REPORT 457:
ENGINEERING STUDY GUIDE FOR EVALUATING INTERSECTION IMPROVEMENTS

NCHRP

REPORT 457

Evaluating Intersection Improvements: An Engineering Study Guide

TRANSPORTATION RESEARCH BOARD

**NATIONAL
COOPERATIVE
HIGHWAY
RESEARCH
PROGRAM**

NATIONAL RESEARCH COUNCIL

can also indirectly reduce the delay to the left-turn or through movements by lessening their need to compete for service with the right-turn movement.

One disadvantage of adding a lane to the minor-road approach is that it may require reallocating the existing pavement or widening of the approach cross section. Sometimes the pavement width needed for the additional lane is available within the existing roadway cross section. In this instance, the only impact is a reallocation of the paved surface through modification of the pavement markings. However, in downtown settings this reallocation may require the removal of some curb parking stalls and can affect adjacent business significantly. Occasionally, the cross section must be widened to provide for the additional lane. If the needed lane width can be provided within the available right-of-way, the cost may be limited to that of construction. However, if additional right-of-way is needed, the costs of acquiring this property in urban settings can be high.

Guidance. The literature does not offer guidance regarding conditions where a second approach lane would benefit from the operation of a minor-road approach. However, the procedures in Chapter 17 of the *Highway Capacity Manual 2000* (15) can be used to identify major- and minor- road volume combinations that would benefit operationally from the provision of a second approach lane or bay. Bonneson and Fontaine (20) developed Figure 2-4 using these procedures and an assumed upper limit of 0.7 for the shared-lane, minor-road volume-to-capacity ratio.

Application. Figure 2-4 indicates the conditions that may justify the use of two approach lanes. Use of the information in this figure requires two types of data:

1. Major-road approach volume for the peak hour of the average day and
2. Minor-road turn movement volume for the peak hour of the average day (used to compute right-turn percentage).

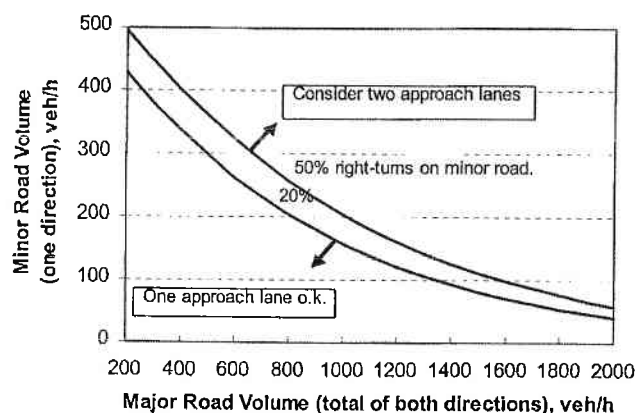


Figure 2-4. Guideline for determining minor-road approach geometry at two-way stop-controlled intersections.

Figure 2-4 would be used once for each minor-road approach to the intersection. The appropriate trend line would be identified on the basis of the percentage of right-turns on the subject minor-road approach. If the volume combination for the major and minor roads intersects above or to the right of this trend line, a second traffic lane should be considered for the subject minor-road approach. If a bay is selected for addition to the intersection, it should be long enough to store vehicles 95 percent of the time (i.e., the bay should not overflow more than 5 percent of the time). Techniques for estimating the 95th percentile storage length are provided in the section, [Increase the Length of the Turn Bay](#).

Add a Left-Turn Bay on the Major Road

Introduction. Provision of a left-turn bay on the major road to a two-way stop-controlled intersection can significantly improve operations and safety at the intersection. A left-turn bay effectively separates those vehicles that are slowing or stopped to turn from those vehicles in through traffic lanes. This separation minimizes turn-related crashes and eliminates unnecessary delay to through vehicles. Data reported by Neuman (21) indicate that the crash rate for unsignalized intersections can be reduced by 35 to 75 percent through the provision of a left-turn bay.

One disadvantage of adding a bay to the major-road approach is that it may require reallocating the existing pavement or widening of the approach cross section. Sometimes the pavement width needed for the additional lane is available within the existing roadway cross section. However, in downtown settings this reallocation may require the removal of some curb parking stalls and can affect adjacent business significantly. Occasionally, the cross section must be widened to provide for the turn bay. If the needed width can be provided within the available right-of-way, the cost may be limited to that of construction. However, if additional right-of-way is needed, the costs of acquiring this property in urban settings can be high.

Guidance. Neuman (21) suggests that the following guidelines should be used to determine when to provide a left-turn bay on the major road of a two-way stop-controlled intersection:

1. A left-turn lane should be considered at any median crossover on a divided, high-speed road.
2. A left-turn lane should be provided on the unstopped approach of a high-speed rural highway when it intersects with other arterials or collectors.
3. A left-turn lane is recommended on the unstopped approach of any intersection when the combination of intersection volumes intersect above or to the right of the appropriate trend line shown in Figure 2-5.

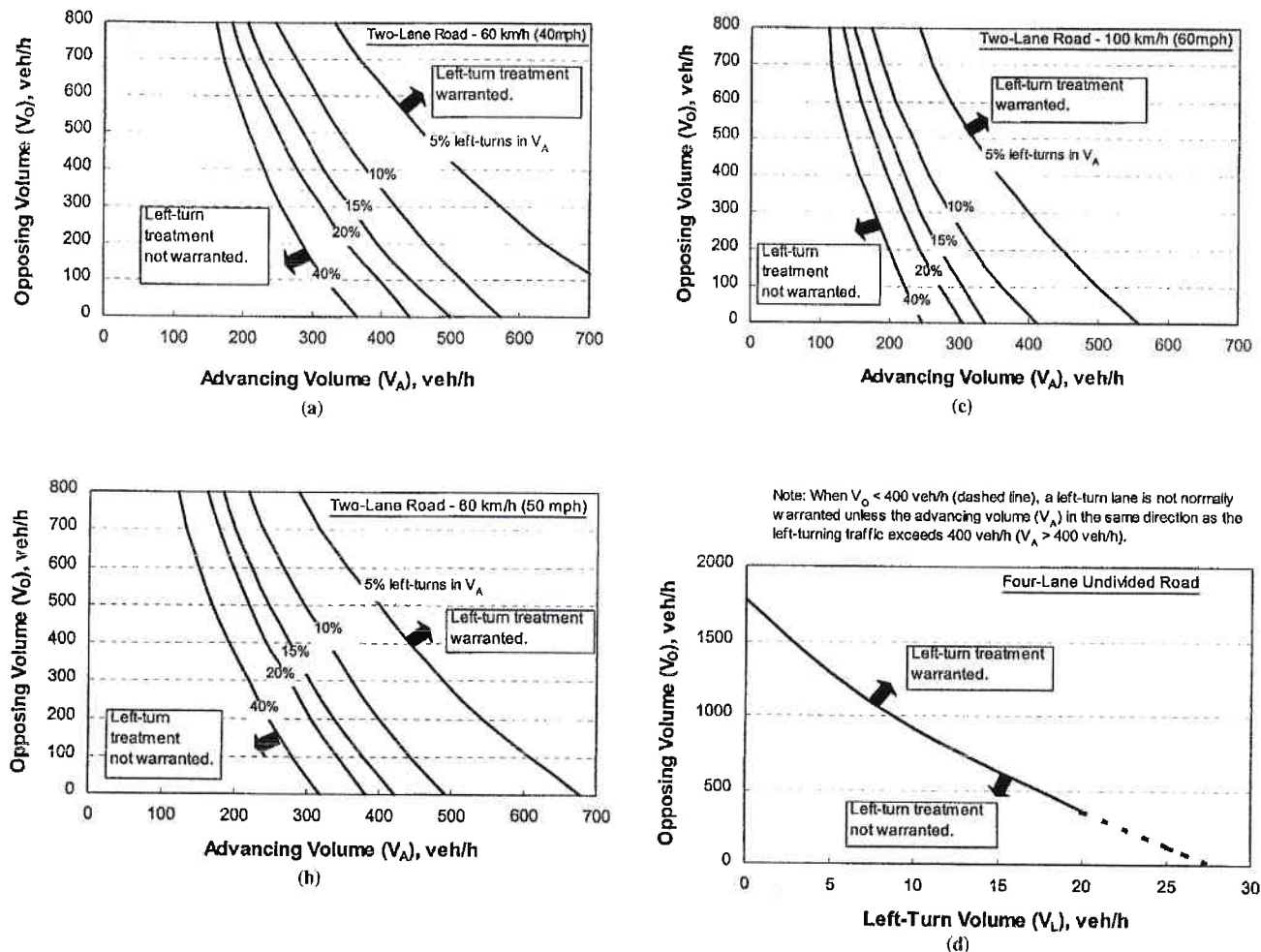


Figure 2-5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

Application. The guidance stated in the preceding section defines the conditions that may justify the provision of a left-turn bay. Application of this guidance requires two types of data:

1. Major-road turn movement volume for the peak hour of the average day and
2. Major-road 85th percentile speed (posted speed can be substituted if data are unavailable).

Use of Figure 2-5 requires determination of the opposing volume, the advancing volume, and the operating speed. The opposing volume should include only the right-turn and through movements on the approach across from (and heading in the opposite direction of) the subject major-road approach. The advancing volume should include the left-turn, right-turn, and through movements on the subject approach. The operating speed can be estimated as the 85th percentile speed. If the operating speed does not coincide with 60, 80, or 100 km/h (i.e., 40, 50, or 60 mph), then interpolation can

be used or, as a more conservative approach, the operating speed can be rounded up to the nearest speed for which a figure is provided.

In application, Figure 2-5 is used once for each major-road approach to the intersection. The appropriate trend line is identified on the basis of the percentage of left-turns on the subject major-road approach. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn bay should be considered for the subject approach. If a bay is included at the intersection, it should be long enough to store left-turn vehicles 99.5 percent of the time (i.e., the bay should not overflow more than 0.5 percent of the time). Techniques for estimating this storage length are provided in the section, [Increase the Length of the Turn Bay](#).

Add a Right-Turn Bay on the Major Road

Introduction. Provision of a right-turn bay on the major road to a two-way stop-controlled intersection can signifi-

cantly improve operations and safety at the intersection. A right-turn bay effectively separates those vehicles that are slowing or stopped to turn from those vehicles in the through traffic lanes. This separation minimizes turn-related collisions (e.g., angle, rear-end, and same-direction-sideswipe) and eliminates unnecessary delay to through vehicles.

One disadvantage of adding a bay to the major-road approach is that it may require reallocating the existing pavement or widening of the approach cross section. Sometimes the pavement width needed for the additional lane is available within the existing roadway cross section. However, in downtown settings this reallocation may require the removal of some curb parking stalls and can affect adjacent business significantly. Occasionally, the cross section must be widened to provide for the turn bay. If the needed width can be provided within the available right-of-way, the cost may be limited to that of construction. However, if additional right-of-way is needed, the costs of acquiring this property in urban settings can be high.

Guidance. Hasan and Stokes (22) developed guidelines for determining when to provide a right-turn bay on the major road of a two-way stop-controlled intersection. These guidelines were based on an evaluation of the operating and collision costs associated with the right-turn maneuver relative to the cost of constructing a right-turn bay. The operating costs included those of road-user fuel and delay. Separate guidelines were developed for two-lane and four-lane roadways. These guidelines are shown in Figure 2-6.

Application. The guidance described in the preceding section defines conditions that may justify the provision of a right-turn bay. Application of this guidance requires two types of data:

1. Major-road turn movement volume for the peak hour of the average day and
2. Major-road 85th percentile speed (posted speed can be substituted if data are unavailable).

Figure 2-6 should be consulted once for each major-road approach. If the combination of major-road approach volume and right-turn volume intersects above or to the right of the trend line corresponding to the major-road operating speed, then a right-turn bay is a viable alternative.

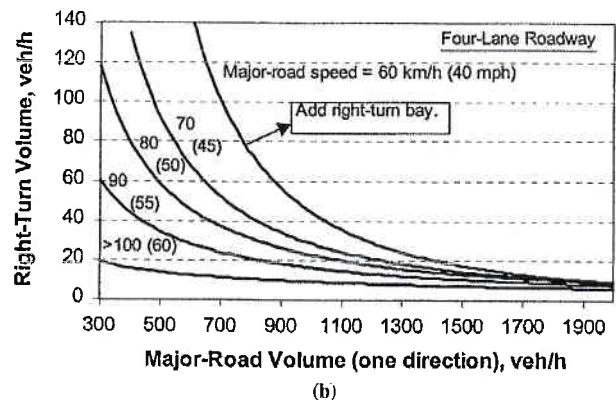
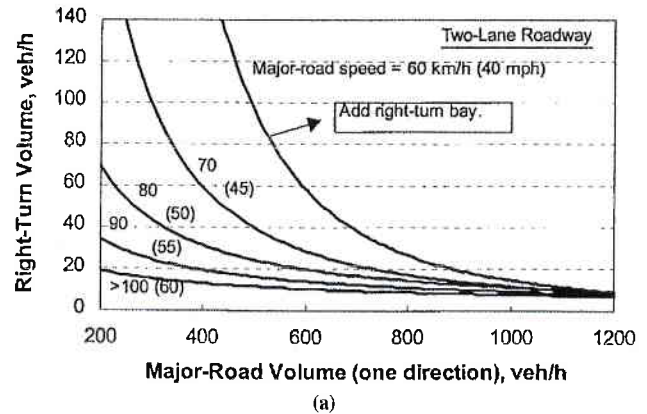


Figure 2-6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

Increase Length of Turn Bay

Introduction. Turn bay length can affect the safety and operation of the intersection approach significantly. This effect becomes more negative as the frequency with which vehicles exceed the available storage increases. Also, for unstopped approaches, this effect becomes more negative as more of the turning vehicle's deceleration occurs in the through lane, prior to the bay. The need to provide adequate storage length, deceleration length, or both is dependent on the type of approach control used and whether the vehicle is turning left or right. Table 2-13 identifies the appropriate bay

TABLE 2-13 Turn-bay length components at unsignalized intersections

Approach Control	Length Components	
	Left-Turn Bay	Right-Turn Bay
Unstopped	Storage Length + Deceleration Length	Deceleration Length
Stopped	Storage Length	Storage Length

A



TYPICAL HOME ELEVATION 'A'

- HOME STYLE WITH GARAGE ACCESSED FROM THE FRONT FACING STREET. GARAGE IS RECESSED A MINIMUM OF 10 FEET FROM THE FRONT ELEVATION AND DRIVEWAYS ARE A MINIMUM OF 22' FROM THE SIDEWALK.
- ONE TO TWO STORIES IN HEIGHT.
- MATERIALS INCLUDE BRICK, SIMULATED STONE, CEMENTATIOUS SIDING, AND ARCHITECTURAL SHINGLES.
- 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 CODES DIRECTOR OR THE PLANNING COMMISSION.
- ELEVATIONS SHOWN ARE TYPICAL FOR THIS DEVELOPMENT. FINAL DESIGN PLANS SHALL BE SUBMITTED WITH THE REQUEST FOR BUILDING PERMITS AND SHALL INDICATE COMPLIANCE WITH THE CITY OF FRANKLIN'S ARCHITECTURAL DESIGN STANDARDS; SPECIFICALLY THE REQUIREMENT FOR EXPOSED FOUNDATIONS OR WATER TABLES/ELEVATED FINISHED FLOORS AND GARAGE DOOR SEPARATION/MAXIMUM WIDTHS.
- BUILDINGS WITH SIDE ELEVATIONS FACING A PUBLIC RIGHT-OF-WAY SHALL HAVE WINDOWS AND ARCHITECTURAL FEATURES SIMILAR TO THE FRONT ELEVATION.
- SINGLE FAMILY HOME SQUARE FOOTAGE RANGE: 2200 SF TO 4500 SF
- THE FINISHED FLOOR ELEVATION OF THE FRONT FACADE TO BE A MINIMUM OF 18 INCHES ABOVE THE FINISHED GRADE.
- FRONT FACING GARAGES ARE REQUIRED TO HAVE GARAGE DOORS NO LARGER THAN 9' IN WIDTH WITH A 2' SEPARATION BETWEEN THE DOORS.

B



TYPICAL HOME ELEVATION 'B'

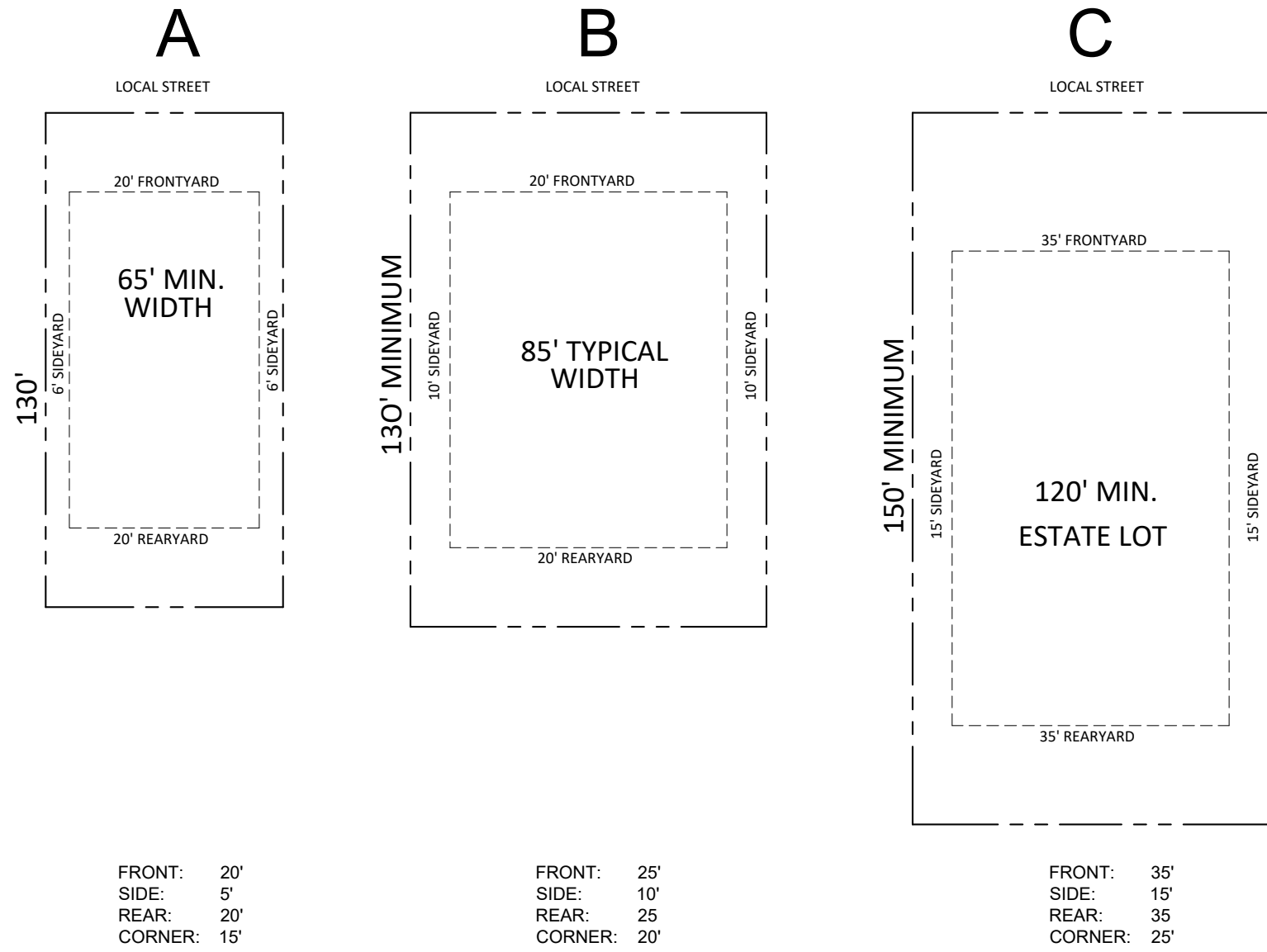
- HOME STYLE FOR LOTS WITH GARAGE ACCESSED FROM THE STREET WITH SIDE LOADED GARAGE.
- ONE TO TWO STORIES IN HEIGHT.
- MATERIALS INCLUDE BRICK, SIMULATED STONE, CEMENTATIOUS SIDING, AND ARCHITECTURAL SHINGLES.
- SIDE-LOADED GARAGES
- DRIVEWAY IS A MINIMUM OF 22' FROM THE SIDEWALK TO THE GARAGE DOORS.
- ALL TWO CAR GARAGES SHALL HAVE TWO GARAGE DOORS WITH A MAXIMUM WIDTH OF 9' WIDE WITH A 2 FOOT MINIMUM SEPARATION BETWEEN.
- 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 CODES DIRECTOR OR THE PLANNING COMMISSION.
- ELEVATIONS SHOWN ARE TYPICAL FOR THIS DEVELOPMENT. FINAL DESIGN PLANS SHALL BE SUBMITTED WITH THE REQUEST FOR BUILDING PERMITS AND SHALL INDICATE COMPLIANCE WITH THE CITY OF FRANKLIN'S ARCHITECTURAL DESIGN STANDARDS; SPECIFICALLY THE REQUIREMENT FOR EXPOSED FOUNDATIONS OR WATER TABLES/ELEVATED FINISHED FLOORS AND GARAGE DOOR SEPARATION/MAXIMUM WIDTHS.
- BUILDINGS WITH SIDE ELEVATIONS FACING A PUBLIC RIGHT-OF-WAY SHAL HAVE WINDOWS AND ARCHITECTURAL FEATURES SIMILAR TO THE FRONT ELEVATION.
- SINGLE FAMILY HOME SQUARE FOOTAGE RANGE: 2800 SF TO 5000 SF
- THE FINISHED FLOOR ELEVATION OF THE FRONT FACADE TO BE A MINIMUM OF 18 INCHES ABOVE THE FINISHED GRADE.

C



TYPICAL HOME ELEVATION 'C'

- HOME STYLE FOR LOTS WITH GARAGE ACCESSED FROM THE STREET WITH SIDE LOADED GARAGE.
- ONE TO TWO STORIES IN HEIGHT.
- MATERIALS INCLUDE BRICK, SIMULATED STONE, CEMENTATIOUS SIDING, AND ARCHITECTURAL SHINGLES.
- SIDE-LOADED GARAGES
- DRIVEWAY IS A MINIMUM OF 22' FROM THE SIDEWALK TO THE GARAGE DOORS.
- ALL TWO CAR GARAGES SHALL HAVE TWO GARAGE DOORS WITH A MAXIMUM WIDTH OF 9' WIDE WITH A 2 FOOT MINIMUM SEPARATION BETWEEN.
- 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 CODES DIRECTOR OR THE PLANNING COMMISSION.
- ELEVATIONS SHOWN ARE TYPICAL FOR THIS DEVELOPMENT. FINAL DESIGN PLANS SHALL BE SUBMITTED WITH THE REQUEST FOR BUILDING PERMITS AND SHALL INDICATE COMPLIANCE WITH THE CITY OF FRANKLIN'S ARCHITECTURAL DESIGN STANDARDS; SPECIFICALLY THE REQUIREMENT FOR EXPOSED FOUNDATIONS OR WATER TABLES/ELEVATED FINISHED FLOORS AND GARAGE DOOR SEPARATION/MAXIMUM WIDTHS.
- BUILDINGS WITH SIDE ELEVATIONS FACING A PUBLIC RIGHT-OF-WAY SHAL HAVE WINDOWS AND ARCHITECTURAL FEATURES SIMILAR TO THE FRONT ELEVATION.
- SINGLE FAMILY HOME SQUARE FOOTAGE RANGE: 2800 SF TO 5000 SF
- THE FINISHED FLOOR ELEVATION OF THE FRONT FACADE TO BE A MINIMUM OF 18 INCHES ABOVE THE FINISHED GRADE.



TYPICAL LOT DIAGRAMS AND SETBACKS

The home elevations shown here are representative of the homes planned for Colletta Park. They are the basis for design review by the City of Franklin at the time of Site Plan Submittal. Based on my professional experience, the plans presented meet or exceed the design standards set forth by the City of Franklin.

Greg Gamble, Registered Landscape Architect.

DEVELOPMENT PLAN

COLLETTA PARK PUD SUBDIVISION

COF 6559

MAP 89, PARCEL 55.00

MAP 79M B, PARCEL 28.00

MAP 79M B, PARCEL 29.00

MAP 089, PARCEL 43.03

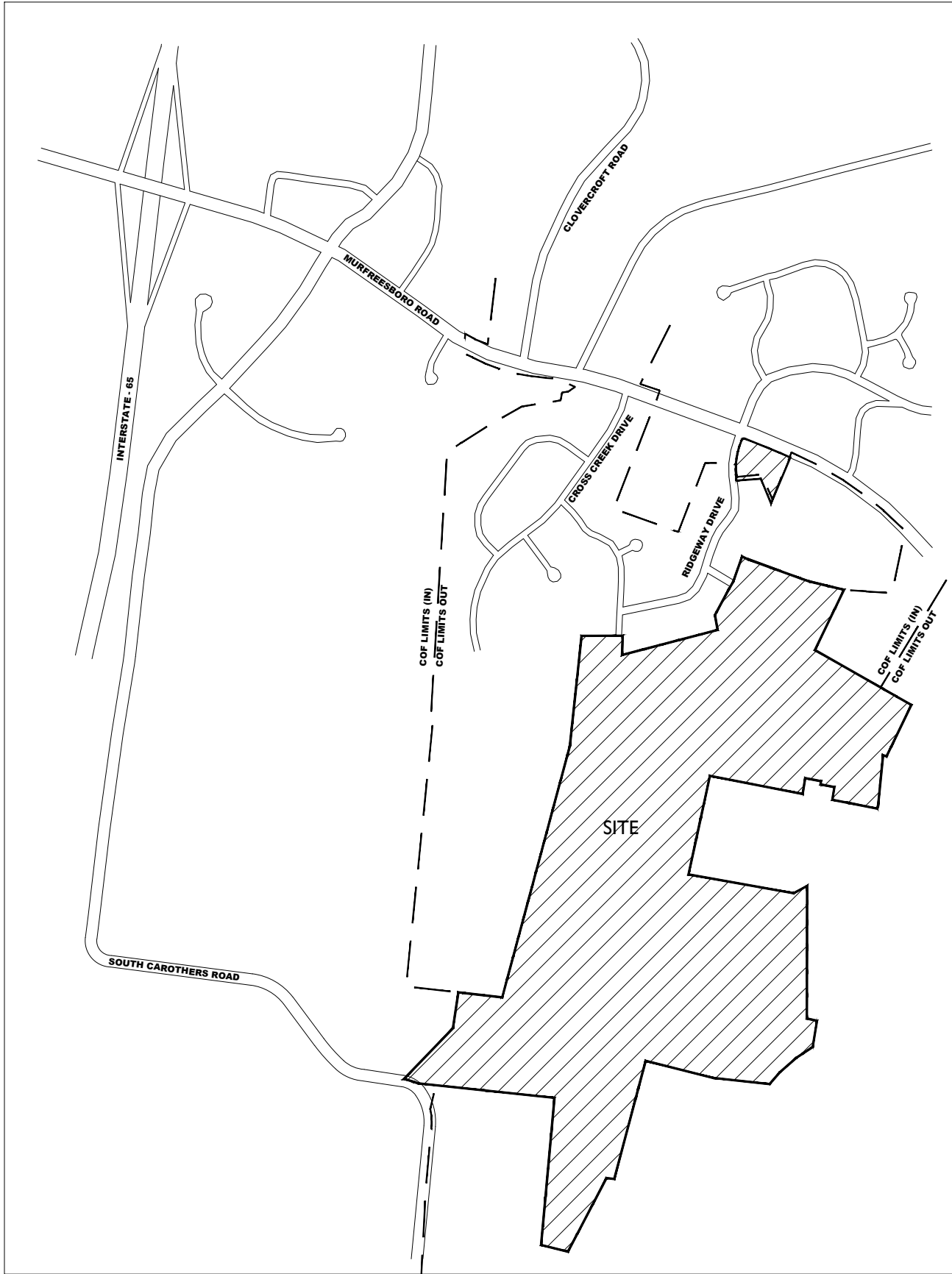
MAP 089, PARCEL 43.04

FRANKLIN, TENNESSEE

CIVIL DISTRICT 14

SHEET INDEX

- C 0.0 COVER SHEET
- C 1.0 NEIGHBORHOOD CONTEXT PLAN
- C 1.1 NEIGHBORHOOD CONTEXT PLAN
- C 1.2 OVERALL EXISTING CONDITIONS PLAN
- C 1.3 OVERALL EXISTING CONDITIONS PLAN
- C 2.0 DEVELOPMENT DEVELOPMENT PLAN
- C 2.1 DEVELOPMENT DEVELOPMENT PLAN
- C 2.3 TYPICAL ARCHITECTURE
- C 3.0 NORTH GRADING AND DRAINAGE PLAN
- C 3.1 SOUTH GRADING AND DRAINAGE PLAN
- C 4.0 NORTH ROW AND ACCESS PLAN
- C 4.1 SOUTH ROW AND ACCESS PLAN
- C 4.2 NORTH AUTOTURN PLAN
- C 4.3 SOUTH AUTOTURN PLAN
- C 5.0 NORTH UTILITY PLAN
- C 5.1 SOUTH UTILITY PLAN



REQUESTED MODIFICATIONS OF STANDARDS

COLLETTA PUD SUBDIVISION

MOS 1
#1. Modification of Standards Request for Zoning Ordinance Section 3.5.10(2)(d)(iii) SWCO-3 Standards

The applicant requests a Modification of Standards as it relates to the following item for the Seward Hall, Special Area 3: "new development shall be restricted to detached residential dwellings on lots with a minimum lot area of one to five acres." While this design criteria is appropriate for a portion of the proposed Colletta Park, it would not allow the development to appropriately transition to the high density development of the Carothers Parkway corridor. Approval of this MOS would allow the develop pattern in the proposed Colletta Park to transition between the two divergent, existing development patterns.

MOS 2
#2. Modification of Standards Request for Cul-de-sac length.

The applicant requests a Modification of Standards to permit a cul-de-sac longer than 500 feet and containing more than 20 lots in two locations. The first location is to the north with the roadway that ends at an emergency connection to Stanford Drive, and the second is located at the southern drive where future connection is planned to Carothers Road and to Simmons Ridge. Lots on the southern drive would require fire sprinklers if a second point of access is not made available prior to platting of the lots.

DESIGN MODIFICATION - CONNECTIVITY INDEX

Due to Williamson County's limitations on connectivity to Beacon Hill and Stanford Drive, existing development without access on the western boundary, and topographic constraints along Warren Road, the client requests a design modification for connectivity.

MODIFICATION OF STREET STANDARD

Applicant requests a right of way width of 50 feet. The new street standards require a 52' ROW. The street standards were updated during Colletta Park's design process. The difference between the two standards is a 5' tree planting zone in the 50' ROW and a 6' tree planting zone in the 52' ROW.

SPECIAL CONDITION

Colletta Park's northern connection to Stanford Drive is limited to emergency connection only. Colletta Park has a full access off of Carothers Road, and will participate in improving Carothers Road to a three-lane collector. Due to the limited roadway connections, the development will be restricted to a maximum of 138 platted lots prior to the development plan or preliminary plat approval of a second access to Carothers Road.

OWNER: 089 05500
ESTATE OF MARY ETTA ADAMS
32 COLONEL WINSTEAD DRIVE
BRENTWOOD, TN 37027
JOHN E. ADAMS, JR EXECUTOR
(615) 377-3219

OWNER: 079 MB 02800
GLENN R. ADAMS
PO BOX 680098
FRANKLIN, TN 37067

OWNER: 079 MB 02900
ROB G. ADAMS
PO BOX 680098
FRANKLIN, TN 37067

OWNER: 089 04303
WATKINS PATTIE SUE
4344 S CAROTHERS RD
FRANKLIN, TN 37064

OWNER: 089 04304
DURNIN GEORGE V
4350 S CAROTHERS RD
FRANKLIN, TN 37064

APPLICANT:
GAMBLE DESIGN COLLABORATIVE
144 SOUTHEAST PARKWAY
SUITE 200
FRANKLIN, TN 37064
615.975.5765
greggamble209@gmail.com
GREG GAMBLE

ENGINEER:
LAND SOLUTIONS COMPANY, LLC
2925 BERRY HILL DRIVE
NASHVILLE, TN 37204
615.300.8496
kevin@landsolutionsco.net
KEVIN ESTES

NOTE: AERIAL PHOTO, PARCEL LINES AND TOPOGRAPHIC INFORMATION
PROVIDED BY CITY OF FRANKLIN G.I.S.



LANDSCAPE ARCHITECT/PLANNER

GAMBLE DESIGN COLLABORATIVE
144 SOUTHEAST PARKWAY SUITE 200
FRANKLIN TN 37064
GREG GAMBLE, RLA (615) 975-5765
EMAIL ADDRESS: greggamble209@gmail.com



DEVELOPMENT PLAN

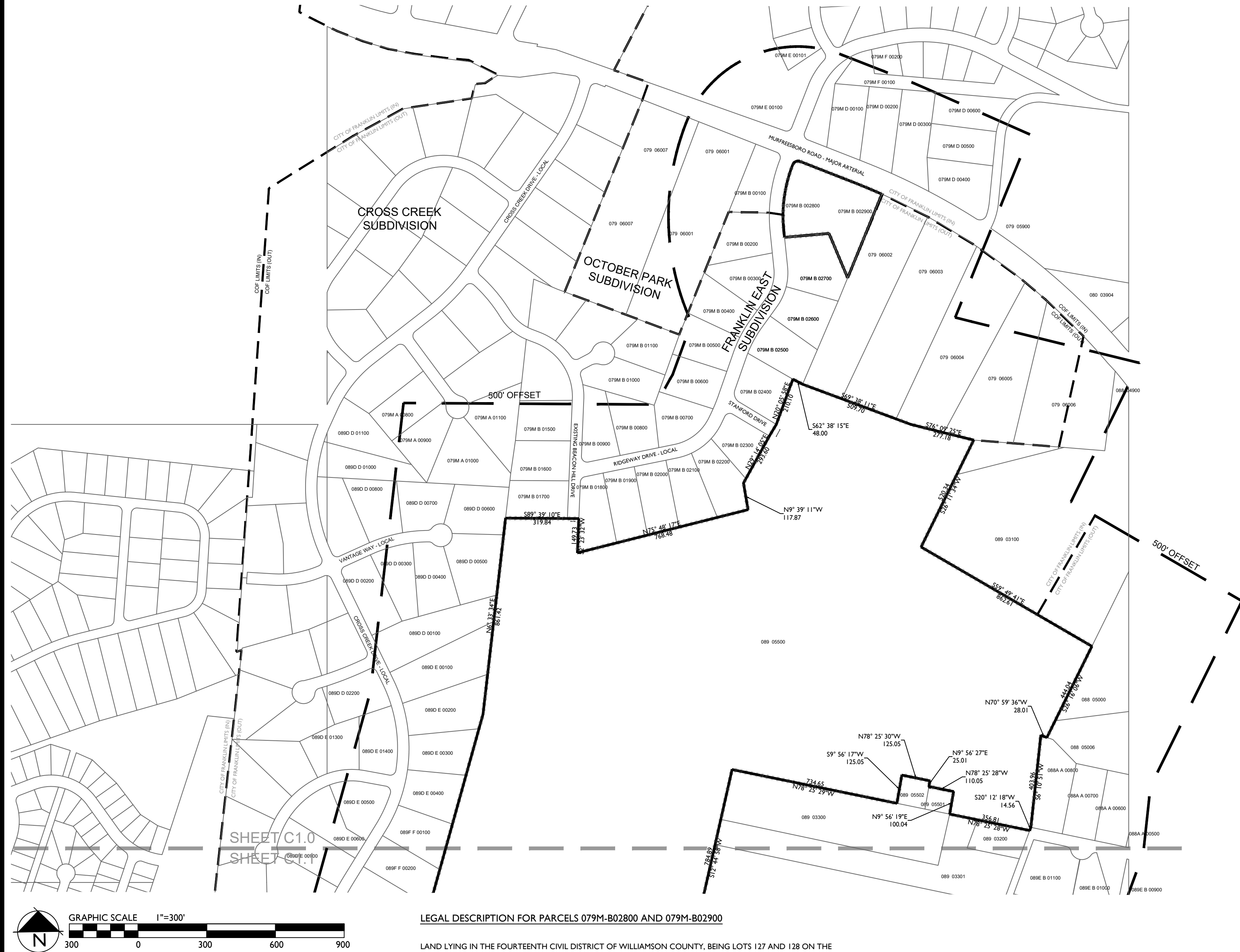
COLLETTA PARK PUD SUBDIVISION

COF # xxxx

FRANKLIN, TENNESSEE

SITE DATA:	
PROJECT NAME:	COLLETTA PARK PUD SUBDIVISION
PROJECT NUMBER:	6559
SUBDIVISION:	NA
LOT NUMBER:	
ADDRESS:	1101 RIDGEWAY DRIVE, MURFREESBORO ROAD FRANKLIN WILLIAMSON TENNESSEE
CITY:	
COUNTY:	
STATE:	
CIVIL DISTRICT:	14TH CIVIL DISTRICT
MAP, GROUP, PARCEL NUMBERS:	079 MB 002800 079 MB 002900 089 05500 089 04303 089 04304 R-1 MECO-6, SWCO-3
EXISTING ZONING:	NONE
CHARACTER AREA OVERLAY:	CONVENTIONAL
OTHER APPLICABLE OVERLAYS:	
APPLICABLE DEVELOPMENT STANDARD:	
TOTAL ACREAGE:	199 AC
TOTAL SQUARE FOOTAGE:	8,670,225

PRE-APPLICATION SUBMITTAL	SEPTEMBER 22, 2017
INITIAL SUBMITTAL	OCTOBER 9, 2017
RESUBMITTAL	NOVEMBER 2, 2017
RESUBMITTAL	
REVISION	-



LEGAL DESCRIPTION FOR PARCELS 079M-B02800 AND 079M-B02900

LAND LYING IN THE FOURTEENTH CIVIL DISTRICT OF WILLIAMSON COUNTY, BEING LOTS 127 AND 128 ON THE FINAL PLAT FOR SECTION 1 OF FRANKLIN EAST, OF RECORD IN PLAT BOOK 6, PAGE 91, REGISTER'S OFFICE OF WILLIAMSON COUNTY, TENNESSEE, AND CONTAINING 2.7 ACRES MORE OR LESS.

LEGAL DESCRIPTION FOR PARCELS 089-04303, 089-04304, & 089-05500

THE FOLLOWING LEGAL DESCRIPTION IS FOR LAND IN THE FOURTEENTH CIVIL DISTRICT OF WILLIAMSON COUNTY, LOCATED ON THE LANDS OF JAMES E. ADAMS, JR., OF RECORD IN DEED BOOK 2008, PAGE 702, R.O.W.C., TN, PATTI SUE WATKINS, OF RECORD IN DEED BOOK 6074, PAGE 249, R.O.W.C., TN, AND GEORGE V. DURNIN, OF RECORD IN DEED BOOK 1607, PAGE 1006, R.O.W.C., TN, AND MORE PARTICULARLY DESCRIBED IN AS FOLLOWS:

BEGINNING AT A POINT IN THE NORTH MARGIN OF SOUTH CAROTHERS ROAD, APPROXIMATELY 1650 FEET SOUTHEAST OF THE INTERSECTION OF FALCON CREEK DRIVE AND SAID SOUTH CAROTHERS ROAD;

THENCE, LEAVING THE NORTH MARGIN OF SAID SOUTH CAROTHERS ROAD, NORTH 44 DEGREES 04 MINUTES 29 SECONDS EAST, A DISTANCE OF 621.82 FEET TO A POINT;

THENCE NORTH 08 DEGREES 24 MINUTES 25 SECONDS EAST, A DISTANCE OF 222.13 FEET TO A POINT;

THENCE SOUTH 82 DEGREES 57 MINUTES 01 SECONDS EAST, A DISTANCE OF 297.62 FEET TO A POINT;

THENCE SOUTH 81 DEGREES 57 MINUTES 51 SECONDS EAST, A DISTANCE OF 10.49 FEET TO A POINT;

THENCE NORTH 15 DEGREES 32 MINUTES 59 SECONDS EAST, A DISTANCE OF 2,025.58 FEET TO A POINT;

THENCE NORTH 06 DEGREES 33 MINUTES 34 SECONDS EAST, A DISTANCE OF 861.42 FEET TO A POINT;

THENCE SOUTH 89 DEGREES 39 MINUTES 04 SECONDS EAST, A DISTANCE OF 319.84 FEET TO A POINT;

THENCE SOUTH 02 DEGREES 23 MINUTES 32 SECONDS WEST, A DISTANCE OF 149.73 FEET TO A POINT;

THENCE SOUTH 75 DEGREES 48 MINUTES 17 SECONDS EAST, A DISTANCE OF 768.48 FEET TO A POINT;

THENCE NORTH 09 DEGREES 39 MINUTES 11 SECONDS WEST, A DISTANCE OF 117.87 FEET TO A POINT;

THENCE NORTH 29 DEGREES 14 MINUTES 05 SECONDS EAST, A DISTANCE OF 293.60 FEET TO A POINT;

THENCE NORTH 20 DEGREES 05 MINUTES 58 SECONDS EAST, A DISTANCE OF 210.10 FEET TO A POINT;

THENCE SOUTH 62 DEGREES 38 MINUTES 15 SECONDS EAST, A DISTANCE OF 48.00 FEET TO A POINT;

THENCE SOUTH 69 DEGREES 38 MINUTES 11 SECONDS EAST, A DISTANCE OF 509.70 FEET TO A POINT;

THENCE SOUTH 76 DEGREES 09 MINUTES 25 SECONDS EAST, A DISTANCE OF 277.18 FEET TO A POINT;

THENCE SOUTH 26 DEGREES 11 MINUTES 34 SECONDS WEST, A DISTANCE OF 520.34 FEET TO A POINT;

THENCE SOUTH 59 DEGREES 49 MINUTES 41 SECONDS EAST, A DISTANCE OF 862.61 FEET TO A POINT;

THENCE SOUTH 26 DEGREES 16 MINUTES 06 SECONDS WEST, A DISTANCE OF 444.04 FEET TO A POINT;

THENCE NORTH 70 DEGREES 59 MINUTES 36 SECONDS WEST, A DISTANCE OF 28.01 FEET TO A POINT;

THENCE SOUTH 06 DEGREES 10 MINUTES 51 SECONDS WEST, A DISTANCE OF 403.96 FEET TO A POINT;

THENCE SOUTH 20 DEGREES 12 MINUTES 18 SECONDS WEST, A DISTANCE OF 14.56 FEET TO A POINT;

THENCE NORTH 78 DEGREES 25 MINUTES 28 SECONDS WEST, A DISTANCE OF 356.81 FEET TO A POINT;

THENCE NORTH 09 DEGREES 56 MINUTES 19 SECONDS EAST, A DISTANCE OF 100.04 FEET TO A POINT;

THENCE NORTH 78 DEGREES 25 MINUTES 28 SECONDS WEST, A DISTANCE OF 110.05 FEET TO A POINT;

THENCE NORTH 09 DEGREES 56 MINUTES 27 SECONDS EAST, A DISTANCE OF 25.01 FEET TO A POINT;

THENCE NORTH 78 DEGREES 25 MINUTES 30 SECONDS WEST, A DISTANCE OF 125.05 FEET TO A POINT;

THENCE SOUTH 09 DEGREES 54 MINUTES 17 SECONDS WEST, A DISTANCE OF 125.05 FEET TO A POINT;

THENCE NORTH 78 DEGREES 25 MINUTES 29 SECONDS WEST, A DISTANCE OF 734.65 FEET TO A POINT;

THENCE SOUTH 12 DEGREES 44 MINUTES 58 SECONDS WEST, A DISTANCE OF 784.89 FEET TO A POINT;

THENCE SOUTH 79 DEGREES 24 MINUTES 14 SECONDS EAST, A DISTANCE OF 830.08 FEET TO A POINT;

THENCE NORTH 62 DEGREES 28 MINUTES 37 SECONDS EAST, A DISTANCE OF 119.56 FEET TO A POINT;

THENCE SOUTH 00 DEGREES 37 MINUTES 45 SECONDS WEST, A DISTANCE OF 1,031.05 FEET TO A POINT;

THENCE SOUTH 76 DEGREES 33 MINUTES 22 SECONDS EAST, A DISTANCE OF 81.00 FEET TO A POINT;

THENCE SOUTH 09 DEGREES 52 MINUTES 41 SECONDS WEST, A DISTANCE OF 206.49 FEET TO A POINT;

THENCE SOUTH 57 DEGREES 04 MINUTES 46 SECONDS WEST, A DISTANCE OF 151.05 FEET TO A POINT;

THENCE SOUTH 49 DEGREES 16 MINUTES 17 SECONDS WEST, A DISTANCE OF 170.39 FEET TO A POINT;

THENCE SOUTH 41 DEGREES 39 MINUTES 12 SECONDS WEST, A DISTANCE OF 540.96 FEET TO A POINT;

THENCE NORTH 83 DEGREES 17 MINUTES 12 SECONDS WEST, A DISTANCE OF 441.91 FEET TO A POINT;

THENCE NORTH 75 DEGREES 19 MINUTES 30 SECONDS WEST, A DISTANCE OF 540.96 FEET TO A POINT;

THENCE SOUTH 15 DEGREES 23 MINUTES 08 SECONDS WEST, A DISTANCE OF 951.14 FEET TO A POINT;

THENCE NORTH 82 DEGREES 39 MINUTES 38 SECONDS WEST, A DISTANCE OF 60.79 FEET TO A POINT;

THENCE SOUTH 28 DEGREES 07 MINUTES 56 SECONDS WEST, A DISTANCE OF 646.53 FEET TO A POINT;

THENCE NORTH 75 DEGREES 15 MINUTES 25 SECONDS WEST, A DISTANCE OF 215.00 FEET TO A POINT;

THENCE NORTH 05 DEGREES 42 MINUTES 26 SECONDS EAST, A DISTANCE OF 1,148.85 FEET TO A POINT;

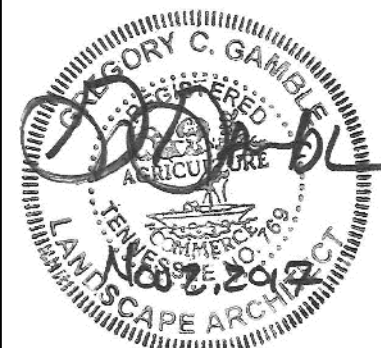
THENCE NORTH 83 DEGREES 24 MINUTES 21 SECONDS WEST, A DISTANCE OF 1,067.76 FEET TO A POINT, SAID POINT BEING IN THE NORTH MARGIN OF SAID SOUTH CAROTHERS ROAD;

THENCE, WITH THE NORTH MARGIN OF SAID SOUTH CAROTHERS ROAD, NORTH 71 DEGREES 12 MINUTES 54 SECONDS WEST, A DISTANCE OF 37.65 FEET TO A POINT;

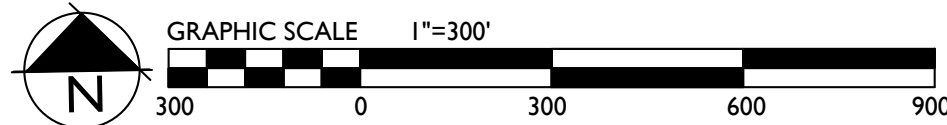
THENCE NORTH 73 DEGREES 31 MINUTES 47 SECONDS WEST, A DISTANCE OF 77.67 FEET TO THE POINT OF BEGINNING, AND CONTAINING 8,552,236.49 SQUARE FEET OR 196.33 ACRES MORE OR LESS.

500' NEIGHBORS LIST:

PARCEL ID	OWNER ADDRESS	OWNER	QTY	STATE	ZIP	ZONE	CHARACTER AREA	LAND-USE	DEV STANDARD
089--05500	MURFREESBORO RD	ADAMS JAMES E JR	Shanwood	TN	37027	MGA-1	SW-00-3	Vacant	Conventional
079--06003	MURFREESBORO RD	FRENZEL G CHARLES	Franklin	TN	37067	MGA-1	SW-00-3	Vacant	Conventional
079--06004	4091 MURFREESBORO RD	FRENZEL GERALD CHARLES JR	Franklin	TN	37067	MGA-1	SW-00-3	Residential	Conventional
079--06005	4085 MURFREESBORO RD	GOOD WALTER EARLE SR	Franklin	TN	37067	MGA-1	SW-00-3	Residential	Conventional
079M-A00900	109 HOLLOW CT	HAI BROOKS TRESA L	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-A01000	113 HOLLOW CT	KEENAN COLM	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-A01100	115 HOLLOW CT	LUNA JONES W	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02000	1104 RIDGEWAY DR	PFEIFFER LEONARD M	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02000	1108 RIDGEWAY DR	BRADSHAW ANTHONY	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02000	1112 RIDGEWAY DR	FERGUSON MATTHEW ALLEN	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02000	1114 RIDGEWAY DR	LAMBERT OLIVER J	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02000	1206 RIDGEWAY DR	O'CONNELL PHILLIP	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02000	1208 RIDGEWAY DR	RUEA KATHRYN L	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02000	1210 RIDGEWAY DR	HANNIGAN PAUL D	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B01500	2001 BEACON HILL DR	WILLIS WADE A	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B01600	1986 BEACON HILL DR	PRUITT JAY R	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B01700	1991 BEACON HILL DR	CAPLEN BRIAN GEORGE	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B01900	1211 RIDGEWAY DR	SLINGERLAND RUTH	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B01900	1209 RIDGEWAY DR	BRITTON THOMAS DAVID	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02000	1207 RIDGEWAY DR	SHOEMAKE JULIUS S	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02100	1205 RIDGEWAY DR	PACKARD DONALD A	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02200	1203 RIDGEWAY DR	OWENS MICHAEL A	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02300	1101 STANFORD DR	BURNS WILLIAM C JR	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02400	1115 RIDGEWAY DR	MOEHLE MARK A	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02500	1111 RIDGEWAY DR	VEACH WILLIAM DENNIS	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02600	1109 RIDGEWAY DR	ANDERS CARROLL SCOTT	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
079M-B02700	1106 RIDGEWAY DR	GOERZEN LAURIE	Franklin	TN	37067	NC	SW-00-3	Residential	Conventional
088--04900	4115 MURFREESBORO RD	WRIGHT GLEN EFFERSON	Franklin	TN	37067	MGA-1	SW-00-2	Residential	Either
088--05000	1986 CEDARHURST DR	MOELL TROY A	Thompson Station	TN	37179	MGA-1	SW-00-3	Est. Residential	Conventional
088--05001	4115 MURFREESBORO RD	CHURCH ST DUNSTONS EPISCOPAL	Franklin	TN	37210	MGA-1	SW-00-2	Residential	Either
088--05002	1972 CEDARHURST DR	MOELL TROY A	Franklin	TN	37067	MGA-1	SW-00-2	Residential	Either
088--05006	1982 CEDARHURST DR	SLAUGHTER JAMES C	Franklin	TN	37067	MGA-1	SW-00-3	Residential	Conventional
088--05007	MURFREESBORO RD	CEMETERY HOLY CROSS MARSHALL	Franklin	TN	37067	MGA-1	SW-00-3	Civic	Conventional
088--05008	MURFREESBORO RD	CEMETERY MARSHALL	Franklin	TN	37067	MGA-1	SW-00-3	Civic	Conventional
088A-A00500	4208 WARREN RD	POMEROY DAVE GLENN JR	Franklin	TN	37067	MGA-1	SW-00-3	Residential	Conventional
088A-A00600	4211 WARREN RD	DOSUNMU BASIL OLUWAJIDE	Franklin	TN	37067	MGA-1	SW-00-3	Residential	Conventional
088A-A00700	4213 WARREN RD	PORTER JERRI L	Franklin	TN	37067	MGA-1	SW-00-3	Residential	Conventional
088A-A00800	4215 WARREN RD	ROBERTS HAL M	Franklin	TN	37067	MGA-1	SW-00-3	Residential	Conventional
089--03000	4340 S CAROTHERS RD	GLASS JEAN MARIE GILES	Franklin	TN	37067	R-1 (COF)	MECO-6	Agriculture	Conventional
089--03001	4336 S CAROTHERS RD	GLASS HARRY GREGORY	Franklin	TN	37067	R-1 (COF)	MECO-6	Residential	Conventional
089--03100	4113 MURFREESBORO RD	MOELL TROY A	Thompson Station	TN	37179	MGA-1	SW-00-3	Est. Residential	Conventional
089--03200	4217 WARREN RD	HICKERSON LOU WILLIE	Franklin	TN	37067	MGA-1	SW-00-3	Residential	Conventional
089--03300	4221 WARREN RD	HICKERSON ROBERT JR	Franklin	TN	37064	MGA-1	SW-00-3	Est. Residential	Conventional
089--03301	4223 WARREN RD	HICKERSON LOU WILLIE	Franklin	TN	37067	MGA-1	SW-00-3	Vacant	Conventional
089--03500	4289 WARREN RD	KING WILLIAM ROBERT	Franklin	TN	37067	MGA-1	SW-00-3	Agriculture	Conventional
089--03501	4240 WARREN RD	HUMPHREY ROALD	Franklin	TN	37067	MGA-1	SW-00-3	Est. Residential	Conventional
089--03502	4244 WARREN RD	OFMAN LEE	Franklin	TN	37067	MGA-1	SW-00-3	Est. Residential	Conventional
089--03503	4248 WARREN RD	LASTER KELLY D	Franklin	TN	37067	MGA-1	SW-00-3	Est. Residential	Conventional
089--03504	4252 WARREN RD	SKAGGS FRANK P IV	Franklin	TN	37067	MGA-1	SW-00-3	Residential	Conventional
089--03505	4256 WARREN RD	KANDEL MARY E REVOCABLE TRUST	Franklin	TN	37067	MGA-1	SW-00-3	Est. Residential	Conventional
089--03506	4260 WARREN RD	DESANGE DEBEE T	Franklin	TN	37067	MGA-1	SW-00-3	Est. Residential	Conventional
089--03507	4264 WARREN RD	HOOD JONATHAN S	Franklin	TN	37067	MGA-1	SW-00-3	Est. Residential	Conventional
089--03508	4268 WARREN RD	MCGRATH ROBERT PAUL	Franklin	TN	37067	MGA-1	SW-00-3	Est. Residential	Conventional
089--03509	4272 WARREN RD	GREGUS JOSEPH A	Franklin	TN	37067	MGA-1	SW-00-3	Residential	Conventional
089--03600	4276 WARREN RD	HOOD JAMES ROBERT	Franklin	TN	37067	MGA-1	SW-00-3	Agriculture	Conventional
089--03602	4281 WARREN RD	PEREZ ANDRES	Franklin	TN	37067	MGA-1	SW-00-3	Est. Residential	Conventional
089--03607	4287 WARREN RD	HOOD JAMES ROBERT JR	Franklin	TN	37067	MGA-1	SW-00-3	Est. Residential	Conventional
089--03608	4283 WARREN RD	MOORE JERRY ADDISON JR	Franklin	TN	37067	MGA-1	SW-00-3	Est. Residential	Conventional
089--03700	4403 S CAROTHERS RD	SIMMONS RIDGE JOINT VENTURE	Franklin	TN	37067	R-2 (COF)	MECO-6	Agriculture	Conventional
089--03800	4376 S CAROTHERS RD	SMITH STERLING C	Franklin	TN	37067	MGA-1	SW-00-3	Open Space	Conventional
089--03801	S CAROTHERS RD	SMITH STERLING C	Franklin	TN	37064	MGA-1	SW-00-3	Vacant	Conventional
089--03900	4372 S CAROTHERS RD	REDEL BERNHARD	Franklin	TN	37064	MGA-1	SW-00-3	Residential	Conventional
089--04000	4384 S CAROTHERS RD	HEITHCOCK JAMES S	Franklin	TN	37064	MGA-1	SW-00-3	Mixed Use	Conventional
089--04200	4352 S CAROTHERS RD	ANDERSON WILMA JUNE TRUST	Franklin	TN	37064	MGA-1	SW-00-3	Est. Residential	Conventional
089--04301	S CAROTHERS RD	LOOKWOOD DEXTER	Franklin	TN	37067	R-2 (COF)	MECO-6	Agriculture	Conventional
089--04302	4346 S CAROTHERS RD	PEDEEN RALPH H JR	Franklin	TN	37064	MGA-1	SW-00-3	Est. Residential	Conventional
089--04303	4348 S CAROTHERS RD	WATKINS PATTI SUE	Franklin	TN	37064	MGA-1	SW-00-3	Est. Residential	Conventional
089--04304	4350 S CAROTHERS RD	DURNIN GEORGE V	Franklin	TN	37064	MGA-1	SW-00-3	Agriculture	Conventional
089--04400	4341 S CAROTHERS RD	RUSSELL ROBERT	Franklin	TN	37067	ER	MECO-6	Agriculture	Conventional
089--05501	WARREN RD	MILCROFTON UTILITY DIST	Franklin	TN	37064	MGA-1	SW-00-3	Utilities	Conventional



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- NOTES:
1. PARCEL LINES PROVIDED BY CITY OF FRANKLIN G.I.S.
 2. SITE BOUNDARY PROVIDED BY LAND SOLUTIONS COMPANY

089-08502	MURFREESBORO RD	MILCROFTON UTILITY DIST	Franklin	TN	37084 MGA-1	SWCO-3	Utilities	Conventional
089D-000100	1149 CROSS CREEK DR	CRANSTON WALTER KEITH	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-000200	213 VANTAGE WAY	CHRISTOFFERSEN B MICHON	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-000300	209 VANTAGE WAY	MURPHY JOHN L	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-000400	205 VANTAGE WAY	WEL MICHAEL P	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-000500	201 VANTAGE WAY	RAMOS TIFFANY A	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-000600	200 VANTAGE WAY	JORDAN MARGARET	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-000700	204 VANTAGE WAY	JOHNSON VAIL	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-000800	208 VANTAGE WAY	BEASLEY EVERETT L JR	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-001000	1137 CROSS CREEK DR	HASSLER MICHAEL C	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-001100	1133 CROSS CREEK DR	OKERSON C ALBERT	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-002200	301 RIDGETOP CT	LINDLEY MATTHEW	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-003100	1153 CROSS CREEK DR	BRASIEL MIKE T	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-003200	1157 CROSS CREEK DR	SLEASON ALAN R	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-003300	1159 CROSS CREEK DR	YOUNG CLAYTON S	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-003400	1163 CROSS CREEK DR	MINCHEW ALAN B	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-003500	1162 CROSS CREEK DR	PRUITT TIMOTHY A	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-003600	409 CROSS CREEK CT	CASE STEVEN H	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-003700	409 CROSS CREEK CT	EVANS MICHAEL D	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-003800	1174 CROSS CREEK DR	WOOD CHARLES A JR	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-001400	404 CROSS CREEK CT	JOHNSON DAVID E	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089D-001500	400 CROSS CREEK CT	DONAHUE JOHN JR	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089E-A-00100	4229 WARREN RD	HEINSON HEATHER	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-A-00200	4233 WARREN RD	REINFRIED DANA	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-A-00300	4237 WARREN RD	SILMORE JOE H	Franklin	TN	37068 MGA-1	SWCO-3	Residential	Conventional
089E-A-00400	4241 WARREN RD	EBB DANIEL KENT	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-A-00500	4245 WARREN RD	KUEKER MICHAEL	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-A-00600	4249 WARREN RD	ALINSON JOHN E	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-A-00700	4253 WARREN RD	THOMPSON TIMOTHY W	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-A-00800	4257 WARREN RD	ROMEO CLAUDIO	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-A-00900	WARREN RD	VALLEY VIEW DEV INC	Franklin	TN	37064 MGA-1	SWCO-3	Vacant	Conventional
089E-B-00100	4259 WARREN RD	COGILAN PATRICK W	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-B-00200	4261 WARREN CT	WOMERSLEY MORRIS K	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-B-00300	4210 WARREN CT	EDGE SAMUEL S	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-B-00400	4206 WARREN CT	BROWN ROGER LEE	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-B-00500	4202 WARREN CT	REEVES TOMMY L	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-B-00600	4200 WARREN RD	CARLAND ROBERT MORGAN	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-B-00700	4218 WARREN RD	CAMERON JAMES	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089E-B-001100	4216 WARREN RD	NEWMAN ANDREW J	Franklin	TN	37067 MGA-1	SWCO-3	Residential	Conventional
089F-F-00100	1176 CROSS CREEK DR	SYBERT JAMES G	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-00200	1178 CROSS CREEK DR	MONTEATH DAVID B	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-00300	1182 CROSS CREEK DR	HELTON MICHAEL GLENN	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-00400	504 BILTMORE CT	DEBOLT SHARON L	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-00500	505 BILTMORE CT	HORECKA DANIEL P	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-00600	501 BILTMORE CT	JOSLIN REBECCA P	Franklin	TN	37064 NC	SWCO-3	Residential	Conventional
089F-F-00700	1190 CROSS CREEK DR	JAMISON ZACHARY	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-00800	1191 CROSS CREEK DR	SYLVIS LAWRENCE G	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-00900	1187 CROSS CREEK DR	BYRNE DANIEL W	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-01000	1183 CROSS CREEK DR	BARNE PHILIP H JR	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-01100	1181 CROSS CREEK DR	WARDEN MARK ALAN	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-01200	1177 CROSS CREEK DR	BORUM MARTIN	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-01300	1175 CROSS CREEK DR	HODGES D BROOKS III	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-01400	1173 CROSS CREEK DR	COOTS EDWARD B	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-01500	1169 CROSS CREEK DR	LAWMORE CAROL S TR	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-01600	1167 CROSS CREEK DR	CAUDILL MAX T	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
089F-F-01700	1165 CROSS CREEK DR	WACKETT TROY A	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
079-08002	MURFREESBORO RD	KRANTZ ANNE J FREEMAN	Franklin	TN	37067 MGA-1	SWCO-3	Vacant	Conventional
079-08001	4356 S CAROTHERS RD	ROSS BILLY H TR	Franklin	TN	37064 MGA-1	SWCO-3	Est. Residential	Conventional
079M-B-00400	1110 RIDGEWAY DR	BUTLER GINA L	Franklin	TN	37067 NC	SWCO-3	Residential	Conventional
079-03400	4225 WARREN RD	GARTHERS DANIEL T JR	Franklin	TN	37067 MGA-1	SWCO-3	Est. Residential	Conventional
079M-B-00100	1100 RIDGEWAY DR	DEBAR LAND CO LLC	Franklin	TN	37067 SD-R	SWCO-3	Residential	Conventional
079-08001	MURFREESBORO RD	DEBAR LAND CO LLC	Franklin	TN	37067 SD-R	SWCO-3	Residential	Conventional
079-08007	MURFREESBORO RD	DEBAR LAND CO LLC	Franklin	TN	37067 SD-R	SWCO-3	Residential	Conventional
079-05900	4100 MURFREESBORO RD	FOUNTAINS OF FRANKLIN LLC	Franklin	TN	37064 SD-X	SWCO-3	Multi-Family	Conventional
079M-D-00100	4088 MURFREESBORO RD	BETTS CHRISTOPHER E	Franklin	TN	37067 R-1 (COF)	SWCO-3	Residential	Either
079M-D-00200	4072 MURFREESBORO RD	SALAZAR MARY ELLIN	Franklin	TN	37067 R-1 (COF)	SWCO-3	Residential	Either
079M-D-00300	4076 MURFREESBORO RD	BOZEMAN H ANDREW	Franklin	TN	37067 R-1 (COF)	SWCO-3	Residential	Either
079M-D-00400	107 CHESTER STEPHENS CT	CAVENDER DAVID O	Franklin	TN	37067 R-1 (COF)	SWCO-3	Residential	Either
079M-D-00500	111 CHESTER STEPHENS CT	MCGUIRE W GARY AND JANE M REV TRUST	Franklin	TN	37067 R-1 (COF)	SWCO-3	Residential	Either
079M-D-00600	115 CHESTER STEPHENS CT	TAYLOR ROBERT P AND JAN J TAYLOR REV	Franklin	TN	37067 R-1 (COF)	SWCO-3	Residential	Either
079M-E-00101	209 SPRINGHOUSE CIR	AWAD GEORGE	Franklin	TN	37067 R-1 (COF)	SWCO-3	Residential	Either
079M-E-00105	CHESTER STEPHENS RD	CALDWELL EST HOMEOWNERS ASSOC INC	Nashville	TN	37202 R-1 (COF)	SWCO-3	Open Space	Either
079M-F-00200	102 CHESTER STEPHENS RD	BERLEY THOMAS	Franklin	TN	37067 R-1 (COF)	SWCO-2	Residential	Either
079M-F-00100	CHESTER STEPHENS RD	CALDWELL EST HOMEOWNERS ASSOC INC	Nashville	TN	37067 R-1 (COF)	SWCO-2	Open Space	Either
079M-B-02800	1101 RIDGEWAY DR	ADAMS R GLENN	Franklin	TN	37067 R-1 (COF)	SWCO-2	Open Space	Either
079M-B-02900	MURFREESBORO RD	ADAMS ROB G	Franklin	TN	37067 R-1 (COF)	SWCO-2	Open Space	Either

COLLETTA PARK PUD SUBDIVISION
DEVELOPMENT PLAN
Franklin, Williamson County, Tennessee



Revision	Date
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NEIGHBORHOOD
CONTEXT PLAN

C1.1
COF 6559



NOTES:

- 1. THERE ARE NO FLOODPLAINS EXISTING ON THE SITE BASED ON FEMA MAP 47187C0220F & 47187C0214F.
- 3. AERIAL PHOTO, PARCEL LINES AND TOPOGRAPHIC INFORMATION PROVIDED BY CITY OF FRANKLIN G.I.S.
- 4. SITE BOUNDARY CALLS PROVIDED BY LAND SOLUTIONS COMPANY.
- 5. NO THIRD PARTY MINERAL RIGHTS ARE ASSOCIATED WITH THIS PROPERTY.

EXISTING TREE CANOPY

BASED ON AERIAL PHOTOGRAPHS OF THE PROPERTY THE EXISTING TREE CANOPY IS APPROXIMATELY 138 ACRES WHICH IS 69.4% OF THE TOTAL SITE

TREE CANOPY DATA

TREE AREA	EXISTING
TREE A	20,501 SF
TREE B	184,595 SF
TREE C	5,661,025 SF
TREE D	152,235 SF
TOTAL SF	6,018,356 SF

EXISTING TREE CANOPY: 6,018,356 SF
6,018,356 SF / 8,670,225 SF = .694 (69.4%) OF TOTAL SITE

REQUIRED CANOPY PRESERVATION =
36% OF TOTAL CANOPY
6,018,356 SF * 36% = 2,166,608 SF

LEGEND

- [Cross-hatch pattern] SLOPES 14%-20%
- [Dense cross-hatch pattern] SLOPES >20%
- [Stippled pattern] EXISTING TREE CANOPY
- [Diagonal line pattern] STREAM BUFFER

Map Unit Symbol	Map Unit Name
ArB	Armour silt loam, 2 to 5 percent slopes
ArB2	Armour silt loam, 2 to 5 percent slopes, eroded
ArC	Armour silt loam, 5 to 12 percent slopes
ArC2	Armour silt loam, 5 to 12 percent slopes, eroded
BrB2	Braxton cherty silt loam, 2 to 5 percent slopes, eroded
BrC2	Braxton cherty silt loam, 5 to 12 percent slopes, eroded
BsC3	Braxton cherty silty clay loam, 5 to 12 percent slopes, severely eroded
BsD3	Braxton cherty silty clay loam, 12 to 20 percent slopes, severely eroded
CkC	Culleoka silt loam, 5 to 12 percent slopes
CkD	Culleoka silt loam, 12 to 20 percent slopes
CkD3	Culleoka silt loam, 12 to 20 percent slopes, severely eroded
CkE	Culleoka silt loam, 20 to 35 percent slopes
CkE3	Culleoka silt loam, 20 to 35 percent slopes, severely eroded
Eq	Egum silt loam, phosphatic
Gu	Gullied land
HcC3	Hampshire silty clay loam, 5 to 12 percent slopes, severely eroded
HeB2	Hampshire-colbert silt loams, 2 to 5 percent slopes, eroded
HeC2	Hampshire-colbert silt loams, 5 to 12 percent slopes, eroded
HhC3	Hampshire-colbert silty clay loams, 5 to 12 percent slopes, severely eroded
Hu	Huntington silt loam, phosphatic
InD3	Inman silty clay loam, 12 to 20 percent slopes, severely eroded
Lp	Lindell silt loam, 0 to 2 percent slopes, occasionally flooded
MbC2	Maury silt loam, 5 to 12 percent slopes, eroded
MnE	Mimosa-Rock outcrop complex, 20 to 40 percent slopes
MoD	Ashwood-Mimosa-Rock outcrop complex, 5 to 15 percent slopes
Rc	Rockland
SrC3	Stiversville clay loam, 5 to 12 percent slopes, severely eroded
SrD3	Stiversville clay loam, 12 to 20 percent slopes, severely eroded
StB2	Stiversville silt loam, 2 to 5 percent slopes, eroded
StC2	Stiversville silt loam, 5 to 12 percent slopes, eroded
StD2	Stiversville silt loam, 12 to 20 percent slopes, eroded
TvD	Talbott very rocky soils, 2 to 15 percent slopes

EXISTING STORMWATER MANAGEMENT SUMMARY

TOTAL PROPERTY AREA = 199 ACRES
TOTAL PROPOSED DISTURBED AREA = 143.51 ACRES

SOIL TYPES: 54.6% TYPE A SOIL
25.8% TYPE B SOIL
17.2% TYPE C SOIL
0.0% TYPE D SOIL
2.4% NON-SOIL AREAS

STORMWATER NARRATIVES

BASIN A:
STORMWATER IS CURRENTLY ROUTED BY WAY OF WET WEATHER CONVEYANCES TO THE NORTHEAST CORNER OF THE SITE, WHERE IT FLOWS INTO A BLUE-LINE STREAM OFFSITE.
BASIN AREA: 53.2 AC.
OUTFALL ELEVATION: 737'

BASIN B:
STORMWATER IS CURRENTLY COLLECTED IN A POND ON THE WEST SIDE OF THE SITE WHERE IT IS CARRIED OFF SITE BY A BLUE-LINE STREAM.
BASIN AREA: 32.7 AC.
OUTFALL ELEVATION: 740'

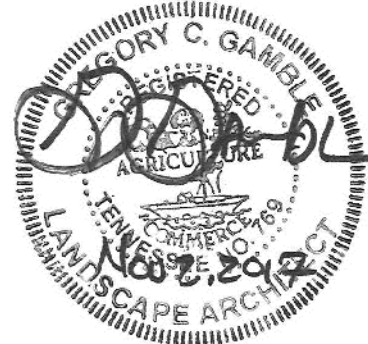
BASIN C:
STORMWATER IS CURRENTLY ROUTED BY WAY OF A BLUE-LINE STREAM TO THE FAR WEST PROPERTY LINE. THIS BASIN IS AN EXTENSION OF THE PREVIOUS, BASIN B.
BASIN AREA: 80.9 AC.
OUTFALL ELEVATION: 694'

BASIN D:
STORMWATER IS CURRENTLY ROUTED BY WAY OF WET WEATHER CONVEYANCES TO THE SOUTH OF THE SITE ALONG S CAROTHERS ROAD, WHERE IT EVENTUALLY FLOWS INTO THE SAME STREAM AS THE FOLLOWING, BASIN E.
BASIN AREA: 15.2 AC.
OUTFALL ELEVATION: 726'

BASIN E:
STORMWATER IS CURRENTLY ROUTED BY WAY OF WET WEATHER CONVEYANCES TO THE SOUTH SIDE OF THE SITE AND EVENTUALLY FLOWS INTO THE SAME STREAM AS THE PREVIOUS, BASIN D. A BLUE-LINE STREAM COMES ONTO THIS BASIN FROM THE NORTHEAST BUT ENDS IN AN EXISTING SINK-HOLE AND DRY POND, WHICH LIES TO THE NORTHEAST OF WHERE LOTS ARE TO BE DEVELOPED.
BASIN AREA: 167.0 AC.
OUTFALL ELEVATION: 673'

COLLETTA PARK PUD SUBDIVISION
DEVELOPMENT PLAN

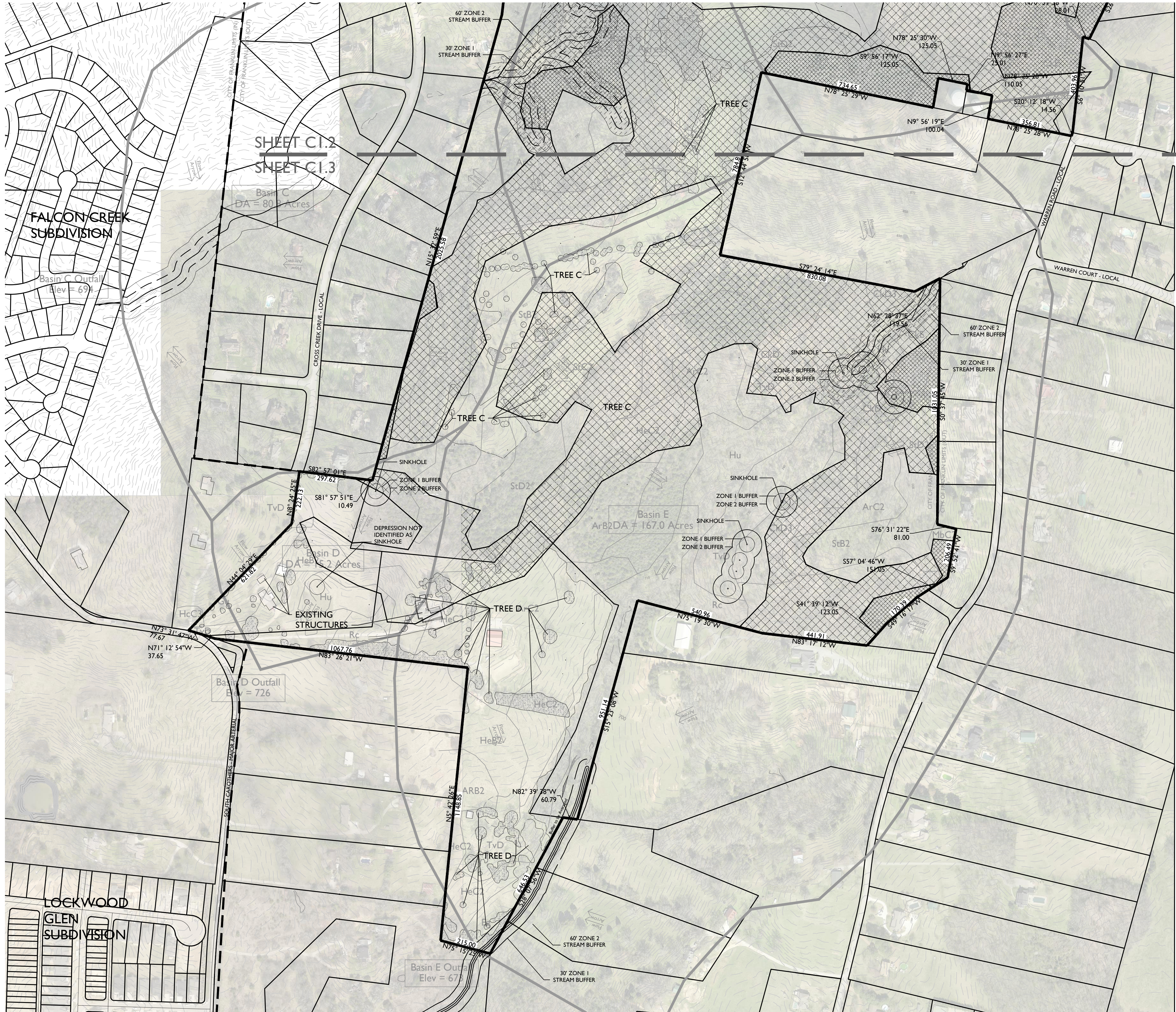
Franklin, Williamson County, Tennessee



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OVERALL
EXISTING
CONDITIONS

C1.2
COF 6559



NOTES:

1. THERE ARE NO FLOODPLAINS EXISTING ON THE SITE BASED ON FEMA MAP 47187C0220F & 47187C0214F.
2. AERIAL PHOTO, PARCEL LINES AND TOPOGRAPHIC INFORMATION PROVIDED BY CITY OF FRANKLIN G.I.S.
3. SITE BOUNDARY CALLS PROVIDED BY LAND SOLUTIONS COMPANY.
4. NO THIRD PARTY MINERAL RIGHTS ARE ASSOCIATED WITH THIS PROPERTY.

EXISTING TREE CANOPY

BASED ON AERIAL PHOTOGRAPHS OF THE PROPERTY THE EXISTING TREE CANOPY IS APPROXIMATELY 138 ACRES WHICH IS 69.4% OF THE TOTAL SITE

TREE CANOPY DATA

TREE AREA	EXISTING
TREE A	20,501 SF
TREE B	184,595 SF
TREE C	5,661,025 SF
TREE D	152,235 SF
TOTAL SF	6,018,356 SF

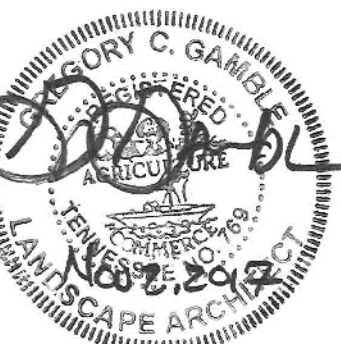
EXISTING TREE CANOPY: 6,018,356 SF
6,018,356 SF / 8,670,225 SF = .694 (69.4%) OF TOTAL SITE

REQUIRED CANOPY PRESERVATION =
36% OF TOTAL CANOPY
6,018,356 SF * 36% = 2,166,608 SF

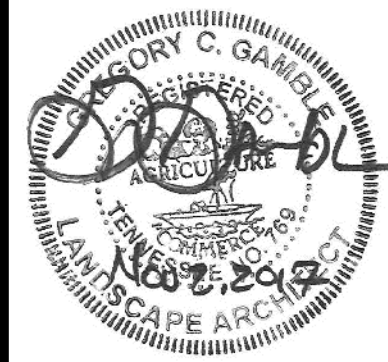
LEGEND

	SLOPES 14%-20%
	SLOPES >20%
	EXISTING TREE CANOPY
	STREAM BUFFER

Map Unit Symbol	Map Unit Name
ArB	Armour silt loam, 2 to 5 percent slopes
ArB2	Armour silt loam, 2 to 5 percent slopes, eroded
ArC	Armour silt loam, 5 to 12 percent slopes
ArC2	Armour silt loam, 5 to 12 percent slopes, eroded
BrB2	Braxton cherty silt loam, 2 to 5 percent slopes, eroded
BrC2	Braxton cherty silt loam, 5 to 12 percent slopes, eroded
BsC3	Braxton cherty silty clay loam, 5 to 12 percent slopes, severely eroded
BsD3	Braxton cherty silty clay loam, 12 to 20 percent slopes, severely eroded
CkC	Culleoka silt loam, 5 to 12 percent slopes
CkD	Culleoka silt loam, 12 to 20 percent slopes
CkD3	Culleoka silt loam, 12 to 20 percent slopes, severely eroded
CkE	Culleoka silt loam, 20 to 35 percent slopes
CkE3	Culleoka silt loam, 20 to 35 percent slopes, severely eroded
Eg	Egum silt loam, phosphatic
Gu	Gullied land
HcC3	Hampshire silty clay loam, 5 to 12 percent slopes, severely eroded
HeB2	Hampshire-colbert silt loams, 2 to 5 percent slopes, eroded
HeC2	Hampshire-colbert silt loams, 5 to 12 percent slopes, eroded
HhC3	Hampshire-colbert silty clay loams, 5 to 12 percent slopes, severely eroded
Hu	Huntington silt loam, phosphatic
Ind3	Inman silty clay loam, 12 to 20 percent slopes, severely eroded
Lp	Lundell silt loam, 0 to 2 percent slopes, occasionally flooded
MbC2	Maury silt loam, 5 to 12 percent slopes, eroded
MNE	Mimosa-Rock outcrop complex, 20 to 40 percent slopes
MoD	Ashwood-Mimosa-Rock outcrop complex, 5 to 15 percent slopes
Rc	Rockland
SrC3	Stiversville clay loam, 5 to 12 percent slopes, severely eroded
SrD3	Stiversville clay loam, 12 to 20 percent slopes, severely eroded
SrB2	Stiversville silt loam, 2 to 5 percent slopes, eroded
SrC2	Stiversville silt loam, 5 to 12 percent slopes, eroded
SrD2	Stiversville silt loam, 12 to 20 percent slopes, eroded
TvD	Talbott very rocky soils, 2 to 15 percent slopes



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DEVELOPMENT
PLAN

C2.0
COF 6559

REQUESTED MODIFICATIONS OF STANDARDS COLLETTA PARK PUD SUBDIVISION

MOS 1

#1. Modification of Standards Request for Zoning Ordinance Section 3.5.10(2)(d)(iii) SWCO-3 Standards

The applicant requests a Modification of Standards as it relates to the following item for the Seward Hall, Special Area 3: "new development shall be restricted to detached residential dwellings on lots with a minimum lot area of one to five acres." While this design criteria is appropriate for a portion of the proposed Colletta Park, it would not allow the development to appropriately transition to the high density development of the Carothers Parkway corridor. Approval of this MOS would allow the develop pattern in the proposed Colletta Park to transition between the two divergent, existing development patterns.

MOS 2

#2. Modification of Standards Request for Cul-de-sac length.

The applicant requests a Modification of Standards to permit a cul-de-sac longer than 500 feet and containing more than 20 lots in two locations. The first location is to the north with the roadway that ends at an emergency connection to Stanford Drive, and the second is located at the southern drive where future connection is planned to Carothers Road and to Simmons Ridge. Lots on the southern drive would require fire sprinklers if a second point of access is not made available prior to platting of the lots.

DESIGN MODIFICATION - CONNECTIVITY INDEX

Due to Williamson County's limitations on connectivity to Beacon Hill and Stanford Drive, existing development without access on the western boundary, and topographic constraints along Warren Road, the client requests a design modification for connectivity.

MODIFICATION OF STREET STANDARD

Applicant requests a right of way width of 50 feet. The new street standards require a 52' ROW. The street standards were updated during Colletta Park's design process. The difference between the two standards is a 5' tree planting zone in the 50' ROW and a 6' tree planting zone in the 52' ROW.

SPECIAL CONDITION

Colletta Park's northern connection to Stanford Drive is limited to emergency connection only. Colletta Park has a full access off of Carothers Road, and will participate in improving Carothers Road to a three-lane collector. Due to the limited roadway connections, the development will be restricted to a maximum of 138 plated lots prior to the development plan or preliminary plat approval of a second access to Carothers Road.

OPEN SPACE REQUIREMENT CHART:

MINIMUM OPEN SPACE REQUIREMENT: 15%
SITE AREA: 199 AC
OPEN SPACE ACREAGE REQUIRED: 29.85 AC
FORMAL OPEN SPACE REQUIRED: 34% (10.15 AC)
INFORMAL OPEN SPACE REQUIRED: 66% (19.70 AC)

OPEN SPACE PROVIDED:

KEY	CLASSIFICATION	TYPE	AREA OF OPEN SPACE
1001	FORMAL	PARK	117,867 SF (2.77 AC)
1002	INFORMAL	GREEN BELT	101,543 SF (2.33 AC)
1003	INFORMAL	GREEN BELT	78,859 SF (1.81 AC)
2001	INFORMAL	GREEN BELT	103,006 SF (2.38 AC)
2002	FORMAL	PARK	73,988 SF (1.70 AC)
2003	INFORMAL	GREEN BELT	337,171 SF (7.74 AC)
3001	INFORMAL	GREEN BELT	264,097 SF (6.06 AC)
3002	FORMAL	PARK	29,014 SF (0.67 AC)
3003	FORMAL	PARK	55,350 SF (1.27 AC)
3004	INFORMAL	GREEN BELT	1,421,137 SF (32.62 AC)
4001	INFORMAL	GREEN BELT	2,718 SF (0.06 AC)
4002	INFORMAL	GREEN BELT	2,700 SF (0.06 AC)
5001	INFORMAL	GREEN BELT	41,619 SF (0.96 AC)
5002	FORMAL	PARK	19,189 SF (0.44 AC)
6001	INFORMAL	GREEN BELT	7,668 SF (0.18 AC)
6002	FORMAL	ALLENITY	153,833 SF (3.53 AC)
6003	INFORMAL	GREEN BELT	10,655 SF (0.24 AC)
6004	INFORMAL	GREEN BELT	17,961 SF (0.41 AC)
7001	INFORMAL	GREEN BELT	73,281 SF (1.68 AC)
7002	INFORMAL	GREEN BELT	48,923 SF (1.12 AC)
7003	INFORMAL	GREEN BELT	123,477 SF (2.83 AC)

NON-BUILDABLE LOTS:

KEY	AREA
1	151,589 SF (3.48 AC)
2	46,074 SF (1.06 AC)
3	35,722 SF (0.82 AC)

TOTAL NON-BUILDABLE LOT AREA: 5.36 AC

TOTAL FORMAL OPEN SPACE PROVIDED: 10.32 AC

TOTAL INFORMAL OPEN SPACE PROVIDED: 60.48 AC

TOTAL OPEN SPACE PROVIDED: 70.80 AC (35.6%)

LOCAL COMPATIBILITY:

COLLETTA PARK IS LOCATED IN THE SINGLE FAMILY CHARACTER AREA OF ENVISION FRANKLIN. THE CHARACTER OF THE SURROUNDING AREA IS ALSO SINGLE FAMILY HOMES.

CHARACTER AREA: SINGLE FAMILY

APPLICABLE DEVELOPMENT STANDARD: CONVENTIONAL

- THE EXISTING USES ADJACENT TO THE PROPOSED NEIGHBORHOOD IN FRANKLIN EAST, CROSS CREEK, AND ON WARREN ROAD ARE SINGLE FAMILY DETACHED HOMES ON LARGE LOTS. THE EXISTING NEIGHBORHOODS ARE LOCATED OUTSIDE OF THE CITY OF FRANKLIN AND WERE DEVELOPED PRIOR TO PUBLIC SEWER BEING AVAILABLE. LOTS OF EQUAL SIZE ARE PROPOSED ADJACENT TO THESE SUBDIVISIONS.
- THE LAND USE PLAN FOR THIS SPECIAL AREA STATES THAT THERE ARE "MANY AREAS THAT ARE ENVIRONMENTALLY SENSITIVE". THE PROPOSED DEVELOPMENT PLAN PRESERVES SIGNIFICANT QUANTITIES OF OPEN SPACE BOTH AS A BUFFER TO ADJOINING USES AS WELL AS TO PROTECT ENVIRONMENTALLY SENSITIVE AREAS.
- THE LAND USE PLAN STATES THAT NEW GROWTH SHALL BE ENCOURAGED ONLY IN AREAS WHERE ADEQUATE PUBLIC WATER, SEWER AND STREETS ARE PLANNED. THE APPLICANT HAS PROPOSED EXTENDING THE PUBLIC SEWER TO THE SOUTH WHERE A MAIN INTERCEPTOR IS LOCATED IN THE CAROTHERS ROAD CORRIDOR, AND TO THE NORTH WHERE A MAIN INTERCEPTOR IS LOCATED ADJACENT TO OCTOBER PARK SUBDIVISION.
- THE LAND USE PLAN STIPULATES THAT SMALLER LOTS SHOULD NOT BE LOCATED ON THE EXTERIOR OF A PROPOSED DEVELOPMENT ADJACENT TO OR ACROSS THE STREET FROM LARGER LOTS OF AN EXISTING DEVELOPMENT. THE PROPOSED PLAN PROPOSES SINGLE FAMILY HOME LOTS ON LOTS COMPARABLE IN SIZE TO ADJOINING USES AND ARE SEPARATED FROM THEM BY OPEN SPACE BUFFERS. THE PROPOSED DEVELOPMENT TRANSITIONS SOUTH TO SMALLER LOTS IN PROXIMITY TO THE CAROTHERS ROAD CORRIDOR.
- THE PROPOSED DEVELOPMENT INCORPORATES A NUMBER OF OPEN SPACES THAT ARE PROPOSED TO BE DEVELOPED INTO ACTIVE USE SPACES AND WILL QUALIFY AS FORMAL OPEN SPACES.
- PRESERVED AREAS AT THE PERIMETER OF THE SITE WILL BE DEVELOPED WITH WALKING TRAILS OF VARYING DEGREES OF DIFFICULTY FOR USE BY THE RESIDENTS.
- THIS PLAN REFLECTS THE CONTEMPORARY DEVELOPMENT PATTERNS OF THE CITY OF FRANKLIN AND IS CONSISTENT WITH MANY SIMILAR NEIGHBORHOODS THAT HAVE OCCURRED IN PROXIMITY TO COUNTY SUBDIVISIONS BUILT PRIOR TO PUBLIC SEWER AVAILABILITY AS THE CITY HAS ANNEXED NEW AREAS FOR GROWTH.

LANDUSE PLAN COMPLIANCE/ DESIGN CONCEPTS AND STANDARDS:

COLLETTA PARK IS A SINGLE FAMILY DETACHED RESIDENTIAL SUBDIVISION WHICH OFFERS A VARIETY OF LOT SIZES AND HOUSING OPTIONS. ACCESSSED IS PROPOSED FROM STANFORD DRIVE AT THE NORTH AND CAROTHERS ROAD AT THE SOUTH.

THE DESIGN STANDARDS PERMIT CONVENTIONAL DEVELOPMENT FORMS WITH TRANSITIONAL FEATURES TO MINIMIZE IMPACT ON THE EXISTING DEVELOPED PROPERTY. ENVISION FRANKLIN DESCRIBES THIS CHARACTER AREA AS SINGLE FAMILY. WITHIN THIS CHARACTER AREA, NEW LOTS ADJACENT TO EXISTING LOTS MUST BE OF EQUAL SIZE.

THE PROPOSED PLAN INCLUDES TRAFFIC CALMING SOLUTIONS ON STANFORD DRIVE AND RIDGEWAY DRIVE. THESE TRAFFIC CALMING CONCEPTS REQUIRE APPROVAL BY WILLIAMSON COUNTY. THESE INCLUDE REDUCING TRAFFIC SPEED, NARROWING THE TRAVEL LANES, PROVIDING PEDESTRIAN PATHS, AND INSTALLING SPEED HUMPS.

SMALLER LOTS ARE PLANNED TO THE SOUTH AS THE NEIGHBORHOOD APPROACHES CAROTHERS ROAD. THE LOTS ARE IN KEEPING WITH THE SIZE AND DENSITIES OF LOCKWOOD GLEN. THE TOTAL LOT DENSITY IS ONE UNIT PER ACRE.

SITE DATA:

PROJECT NAME:	COLLETTA PARK PUD SUBDIVISION
PROJECT NUMBER:	6559
SUBDIVISION:	NA
LOT NUMBER:	
ADDRESS:	1101 RIDGEWAY DRIVE, MURFREESBORO ROAD FRANKLIN WILLIAMSON TENNESSEE 14TH CIVIL DISTRICT 079 MB 0280 079 MB 02900 089 05500 089 04303 089 04304 R-1
CITY:	
COUNTY:	
STATE:	
CIVIL DISTRICT:	
MAP, GROUP, PARCEL NUMBERS:	
EXISTING ZONING:	
CHARACTER AREA OVERLAY:	MECO-6, SWCO-3
OTHER APPLICABLE OVERLAYS:	NONE
APPLICABLE DEVELOPMENT STANDARD:	CONVENTIONAL
TOTAL ACREAGE:	199 AC
TOTAL SQUARE FOOTAGE:	8,670,225 SF
MINIMUM REQUIRED SETBACKS:	SEE LOT DIAGRAMS - SHEET C2.2
FRONT YARD:	MINIMUM SETBACKS
REAR YARD:	ARE ESTABLISHED
SIDE YARD:	AS PART OF THE P.U.D.
APPLICANT:	GAMBLE DESIGN COLLABORATIVE 144 SOUTH EAST PARKWAY SUITE 200 FRANKLIN, TN 37064 615.975.5765 greggambledesign@gmail.com GREG GAMBLE
OFFICE PHONE:	
EMAIL ADDRESS:	
CONTACT:	
BUILDING SQUARE FOOTAGE:	N/A
BUILDING HEIGHT:	2 STORY
LANDSCAPE SURFACE RATIO:	0.40
MINIMUM LANDSCAPE SURFACE RATIO:	0.30
MINIMUM PARKING REQUIREMENT:	2 SPACES PER SINGLE FAMILY HOME
MAXIMUM PARKING LIMIT:	N/A
EXISTING PARKING:	N/A
RESIDENTIAL DENSITY:	1.00 DUA
TREE CANOPY:	138.1 AC, 69.4 % OF EXISTING SITE
PARKLAND DEDICATION:	FEE IN LIEU (\$541,487.60) 35 @ 1200 SF/HOME = 42,000 SF 184 @ 600 SF/HOME = 98,400 SF

OPEN SPACE:

OVERALL DENSITY:

NONRESIDENTIAL SQUARE FOOTAGE:

TOTAL ACREAGE BY USE, PER SECTION:

TREE CANOPY RETENTION:

TREE AREA	EXISTING	REMOVED	RETAINED
TREE A	20,501 SF	0 SF	20,501 SF
TREE B	184,989 SF	126,918 SF	57,671 SF
TREE C	5,661,025 SF	3,605,008 SF	2,056,017 SF
TREE D	162,235 SF	108,317 SF	43,918 SF

TOTAL 6,018,356 SF 3,522,441 SF 2,178,113 SF

TREE CANOPY DATA

EXISTING TREE CANOPY: 6,018,356 SF

6,018,356 SF / 8,670,225 SF = 69.4% (69.4% OF TOTAL SITE)

REQUIRED CANOPY PRESERVATION =

38% OF TOTAL CANOPY

6,018,356 SF * 38% = 2,166,608 SF

PROVIDED CANOPY PRESERVED =

2,178,113 SF (36.2%) OF TOTAL EXISTING CANOPY

TREE PRESERVATION AREA

STREAM BUFFER

60' STREAM BUFFER

STATEMENT OF IMPACTS:

WATER

WATER SERVICE WILL BE PROVIDED BY MILCROFTON UTILITY DISTRICT.

199 X 350 GPD = 69,650 GPD

SEWER:

SEWER SERVICE WILL BE PROVIDED BY THE CITY OF FRANKLIN. FOR THE PORTION OF THE SITE IN THE MAYS CREEK BASIN, CONNECTION TO THE SEWER MAIN WILL BE MADE IN SIMMONS RIDGE TO THE SOUTH. FOR THE PORTION OF THE SITE IN THE WATKINS CREEK BASIN, CONNECTION WILL BE MADE TO THE NORTH TO THE SEWER MAIN IN OCTOBER PARK ON RIDGEWAY DRIVE.

REFURBISHED (REUSE) WATER FACILITIES:

NOT AVAILABLE

STREET NETWORK:

AS SHOWN ON THE MAJOR THOROUGHFARE PLAN - SEE SHEET C 4.0 OVERALL ROW AND ACCESS PLAN INCLUDING CONNECTIVITY ELEMENTS.

THE SITE IS LOCATED SOUTH OF HIGHWAY 96 EAST WHICH IS CLASSIFIED AS A MAJOR ARTERIAL. ACCESS TO THE NORTHERN PORTION OF COLLETTA PARK IS PROVIDED BY LOCAL STREETS VIA RIDGEWAY DRIVE AND STANFORD ROAD.

THE SOUTHERN PORTION OF COLLETTA PARK WILL HAVE CONNECTIONS TO SOUTH CAROTHERS ROAD.

FUTURE ROAD CONNECTIONS ARE PROVIDED. A FULL TRAFFIC IMPACT STUDY PREPARED BY FISCHBACH TRAFFIC GROUP, LLC AND REVIEWED BY A THIRD PARTY, LLC, ENGINEERING PROVIDES GREATER DETAIL OF THE OVERALL IMPACT OF THE DEVELOPMENT ON THE EXISTING ROAD NETWORK.

DRAINAGE FACILITIES:

THE PROPERTY HAS THREE PRIMARY DRAINAGE BASINS. ONE DRAINS NORTH TO WATKINS CREEK. ONE DRAINS WEST THROUGH CROSS CREEK SUBDIVISION AND ONE DRAINS SOUTH TOWARDS SOUTH CAROTHERS ROAD.

POLICE AND FIRE DEPT:

FRANKLIN FIRE DEPT STATION #2 - 2.1 MILES DRIVING DISTANCE

COLUMBIA AVE. POLICE STATION - 2.7 MILES DRIVING DISTANCE

RECREATIONAL FACILITIES:

LIBERTY PARK - 3.0 MILES DRIVING DISTANCE

PROJECTED STUDENT POPULATION:

199 HOMES X .64 STUDENTS = 128 PROJECTED STUDENTS

REFUSE COLLECTION:

PROVIDED BY THE CITY OF FRANKLIN SOLID WASTE.

RESTRICTIVE COVENANTS:

A HOME OWNERS ASSOCIATION WILL BE ESTABLISHED PRIOR TO THE FIRST OCCUPANCY OF RESIDENTS. THE HOA WILL REGULATE ARCHITECTURAL STANDARDS AND THE MAINTENANCE OF THE COMMUNITY. THE HOA WILL MAINTAIN ALL COMMON OPEN SPACE AND RECREATIONAL AREAS.

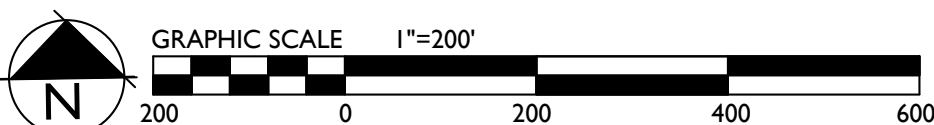
NOTE: AS ACCESS POINTS AND IMPACTS TO THE STREET NETWORK ARE DETERMINED, THE STATEMENT OF IMPACTS MAY NEED TO BE REVISED



SLOPES 14%-20%

SLOPES >20%

* CRITICAL LOTS (CONTAINING SLOPES OVER 14%)



COLLETTA PARK PUD SUBDIVISION
DEVELOPMENT PLAN
Franklin, Williamson County, Tennessee



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DEVELOPMENT
PLAN

C2.1
COF 6559



PRELIMINARY STORMWATER MANAGEMENT SUMMARY

Total Property Area = 196.33 Acres
Total Disturbed Area = 130.30 Acres

Soil Types: 54.6% Type A Soil
25.8% Type B Soil
17.2% Type C Soil
0.0% Type D Soil
0.4% Non-Soil Areas

AREA NO.	TOTAL (AC)	EST. IMP. (AC)	TREATMENT TYPE	PRELIM. SF	DETENTION
1	7.6	0.0	BYPASS	---	BYPASS
2	14.1	2.5	BIO 2	6,500	POND 1
3	26.6	3.6	BIO 3	10,500	POND 1
4	11.7	2.4	BIO 4	5,500	BYPASS
5	8.3	2.1	BIO 5	4,500	BYPASS
6	9.9	1.7	BIO 6	4,500	POND 4



Grading & Drainage General Notes

- 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.
- 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.
- 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.
- Drainage facilities including, but not limited to, culverts, detention basins and ditches, as well as the roadway sub-grade, base stone and binder & surface course 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.
- 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.

Post-Treatment Stormwater Narrative
Stormwater to be treated via a combination of Bioretention, and Detention Ponds and then released into a Stream or Wet Weather Conveyance.

Statement of Impact
Post-Construction Stormwater will have no additional impact on the surrounding drainage basins. Stormwater BMPs will be used to maintain or decrease existing stormwater flows.

Stream Buffer Note:
There shall be no mowing, clearing, grading, construction, storage, or disturbance of vegetation except as permitted by the City Engineer, or his designee.

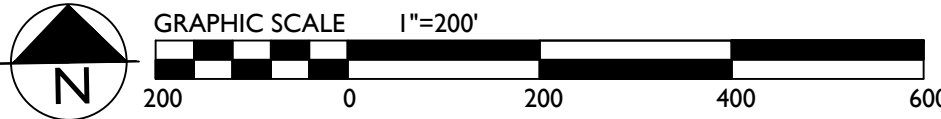
Grading & Drainage Data Chart
Site Area: 196.33 Ac.
Impervious Area: 28.41 Ac.
Disturbed Area: 130.30 Ac.

Impervious Area Calculations:
The impervious area assumed for each lot type includes building, patio, & driveway.

65' Lot Type: 89 units x 3600 sq.ft. = 7.36 Ac.
85-90' Lot Type: 59 units x 4550 sq.ft. = 6.16 Ac.
100' Lot Type: 51 units x 8500 sq.ft. = 9.95 Ac.

ROW Area (includes road & sidewalks) = 17.23 Ac.

Tennessee State Plane Coordinate System
Zone 5301, Fipzone 4100; NAD 83 Datum



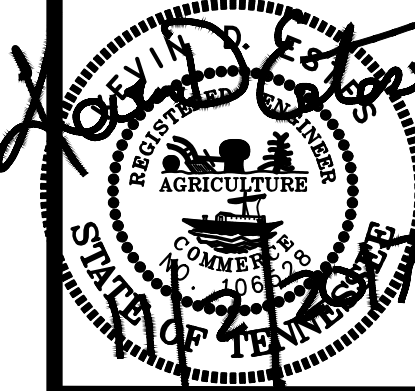
COF XXXX

Revisions:

Drawing Notes:

GDC
GAMBLE
DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND
LANDSCAPE ARCHITECTURE
Date: JUNE 2, 2017

COLLETTA PARK PUD SUBDIVISION
DEVELOPMENT PLAN
Franklin, Williamson County, Tennessee



GAMBLE DESIGN COLLABORATIVE
144 SOUTHEAST PARKWAY
SUITE 230
FRANKLIN, TENNESSEE 37064
GREG GAMBLE
greggamble209@gmail.com
615.975.5765

NORTH
GRADING &
DRAINAGE
PLAN

C 3.0

PRELIMINARY STORMWATER MANAGEMENT SUMMARY

Total Property Area = 196.33 Acres
Total Disturbed Area = 130.30 Acres

Soil Types: 54.6% Type A Soil
25.8% Type B Soil
17.2% Type C Soil
0.0% Type D Soil
0.4% Non-Soil Areas

AREA NO.	TOTAL (AC)	EST. IMP. (AC)	TREATMENT TYPE	PRELIM. SF	DETENTION
7	7.1	2.4	BIO 7	4,500	POND 2
8	8.6	3.1	BIO 8	5,500	POND 2
9	6.9	2.3	BIO 9	4,500	POND 2
10	5.1	1.9	BIO 10	3,500	POND 2
11	13.4	3.7	BIO 11	7,500	POND 3
12	7.5	1.6	BIO 12	4,000	BYPASS
13	6.9	1.1	BIO 13	3,000	BYPASS



Grading & Drainage General Notes

- 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.
- 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.
- 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.
- 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.
- 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.

Post-Treatment Stormwater Narrative
Stormwater to be treated via a combination of Bioretention, and Detention Ponds and then released into a Stream or Wet Weather Conveyance.

Statement of Impact
Post-Construction Stormwater will have no additional impact on the surrounding drainage basins. Stormwater BMPs will be used to maintain or decrease existing stormwater flows.

Stream Buffer Note:
There shall be no mowing, clearing, grading, construction, storage, or disturbance of vegetation except as permitted by the City Engineer, or his designee.

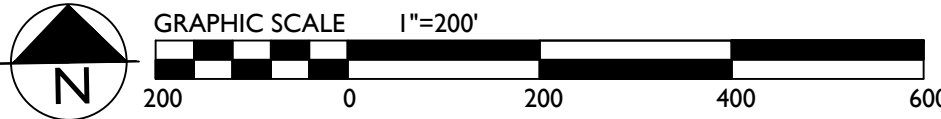
Grading & Drainage Data Chart
Site Area: 196.33 Ac.
Impervious Area: 28.41 Ac.
Disturbed Area: 130.30 Ac.

Impervious Area Calculations:
The impervious area assumed for each lot type includes building, patio, & driveway.

65' Lot Type: 89 units x 3600 sq.ft. = 7.36 Ac.
85-90' Lot Type: 59 units x 4550 sq.ft. = 6.16 Ac.
100' Lot Type: 51 units x 8500 sq.ft. = 9.95 Ac.

ROW Area (includes road & sidewalks) = 17.23 Ac.

Tennessee State Plane Coordinate System
Zone 5301, Fipzone 4100; NAD 83 Datum



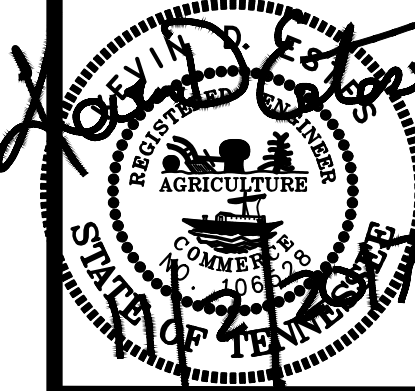
COF XXXX

Revisions:

Drawing Notes:

GDC
GAMBLE
DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND
LANDSCAPE ARCHITECTURE
Date: JUNE 2, 2017

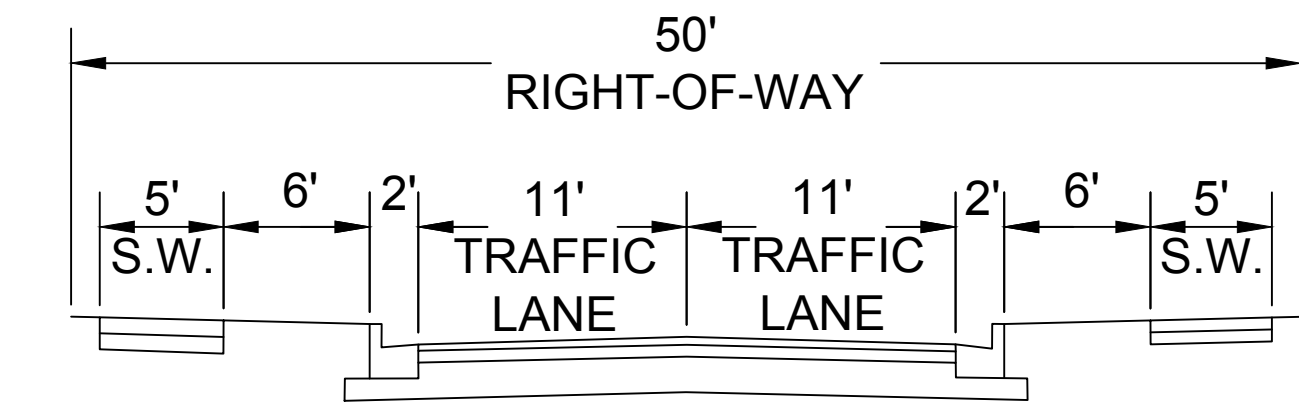
COLLETTA PARK PUD SUBDIVISION
DEVELOPMENT PLAN
Franklin, Williamson County, Tennessee



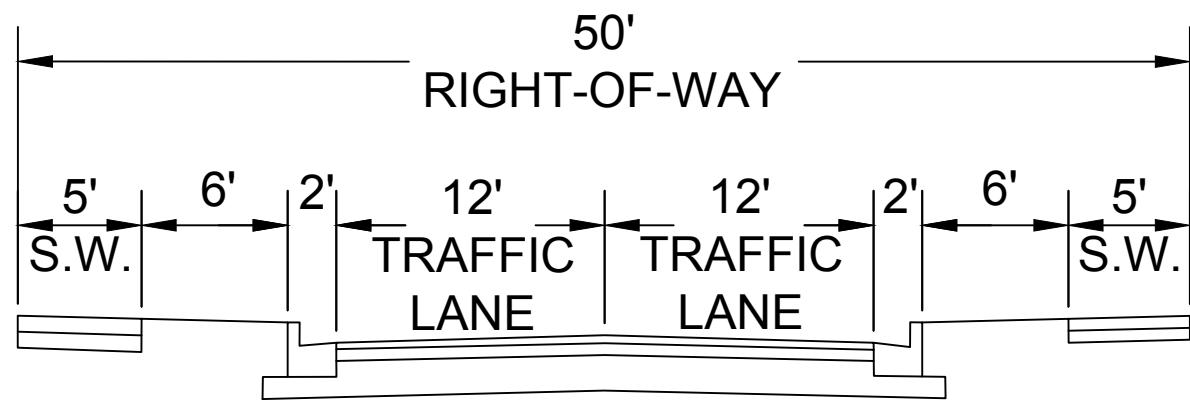
GAMBLE DESIGN COLLABORATIVE
144 SOUTHEAST PARKWAY
SUITE 230
FRANKLIN, TENNESSEE 37064
GREG GAMBLE
greggamble209@gmail.com
615.975.5765

SOUTH
GRADING &
DRAINAGE
PLAN

C 3.1



2-LANE INTERMEDIATE AND LOW VOLUME STREET



2-LANE HIGH VOLUME STREET



Statement of Impacts
The proposed Colletta Park development is located between Major Arterial Murfreesboro Road and Minor Collector S Carothers Road. The northern portion of the site consists of 37 homes and will connect to Murfreesboro Road via Local Roads Stanford Drive and Ridgeway Drive. The southern portion of the site consists of 162 homes and will connect directly to the S Carothers Road existing 90 degree curve.

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The proposed Colletta Park development is expected to generate 37 trips entering and 112 trips exiting during AM peak hours; 125 trips entering and 74 trips exiting during PM peak hour.

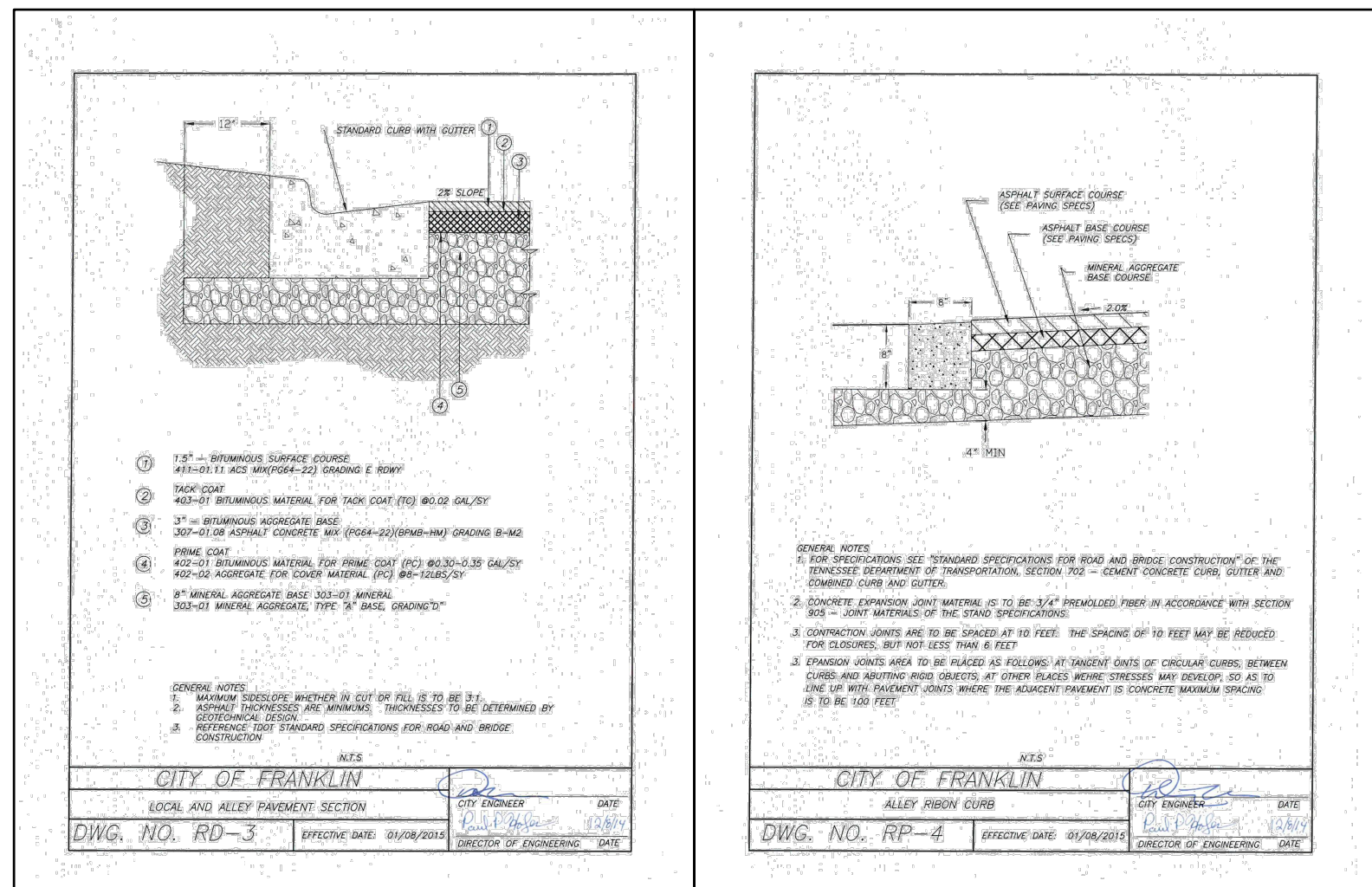
- R.O.W & Access General Notes**
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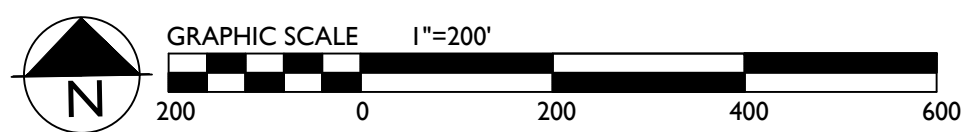
R.O.W. & Access Data Chart:
Daily Trip Generation: 1,854 veh per day
Peak Hour Trip Generation: 199 veh per hour
Traffic Impact Study Required: Yes
Circulation Plan Required:

Connectivity Index: 1.50
Links (●): 24
Nodes (*): 16
24/16 = 1.50

Without Connection to Existing Stanford Drive
Connectivity Index: 1.41
Links (●): 24
Nodes (*): 17
24/17 = 1.41



Tennessee State Plane Coordinate System
Zone 5301, Fipzone 4100; NAD 83 Datum



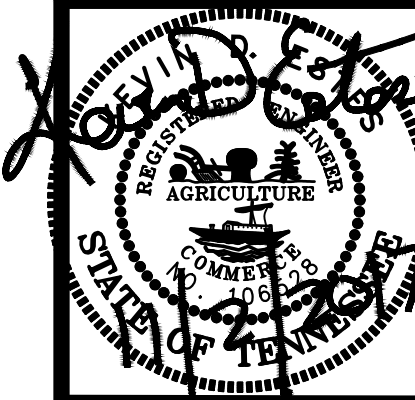
COF XXXX

Revisions:

Drawing Notes:

GDC
GAMBLE
DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND
LANDSCAPE ARCHITECTURE
Date: JUNE 2, 2017

COLLETTA PARK PUD SUBDIVISION
DEVELOPMENT PLAN
Franklin, Williamson County, Tennessee



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144 SOUTHEAST PARKWAY
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ggamble209@gmail.com
615.975.5765

NORTH
ROW &
ACCESS
PLAN

C 4.0

C 4.1

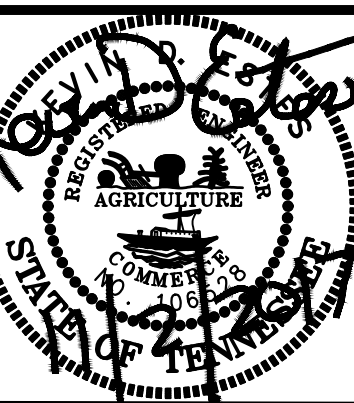
Revisions:

Drawing Notes:



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COLLETTA PARK PUD SUBDIVISION
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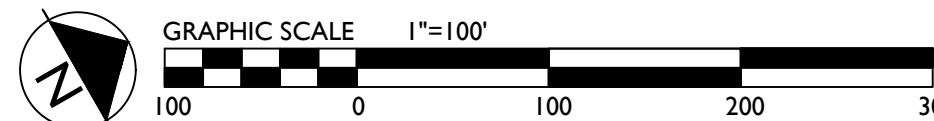
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NORTH
TRAVEL
PATH

C 4.2

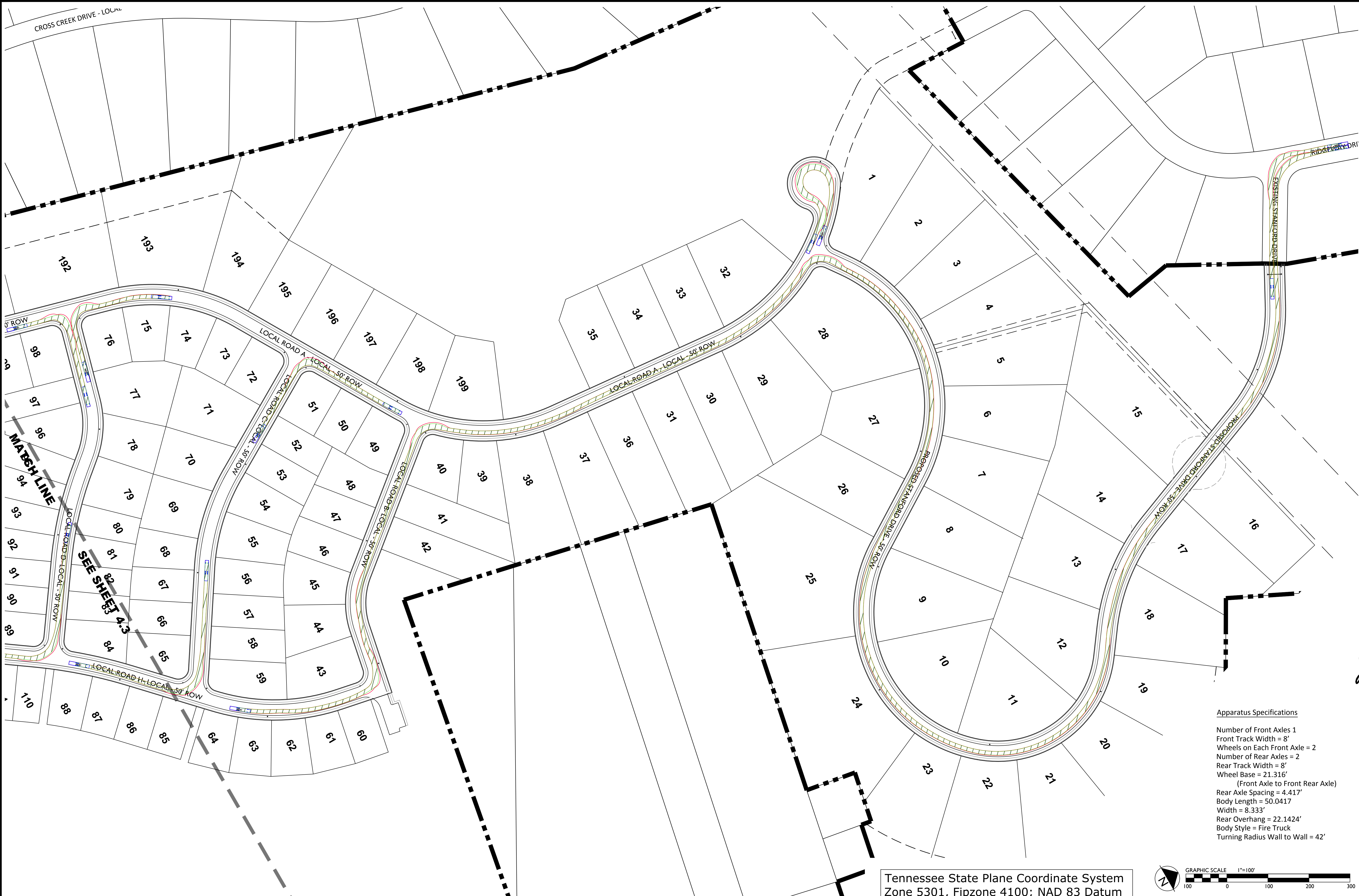
Apparatus Specifications

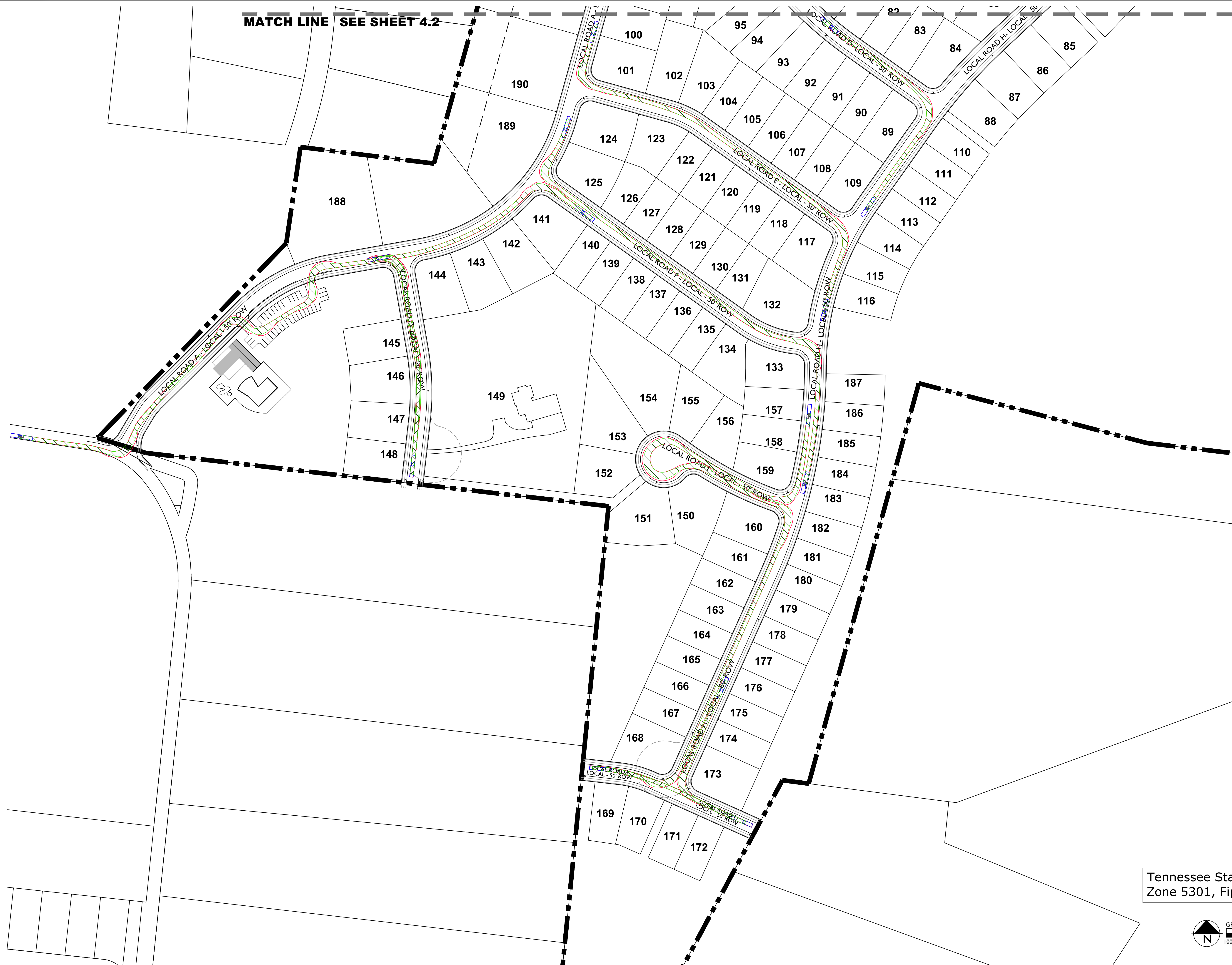
Number of Front Axles 1
Front Track Width = 8'
Wheels on Each Front Axle = 2
Number of Rear Axles = 2
Rear Track Width = 8'
Wheel Base = 21.316'
(Front Axle to Front Rear Axle)
Rear Axle Spacing = 4.417'
Body Length = 50.0417'
Width = 8.333'
Rear Overhang = 22.1424'
Body Style = Fire Truck
Turning Radius Wall to Wall = 42'



Tennessee State Plane Coordinate System
Zone 5301, Fipzone 4100; NAD 83 Datum

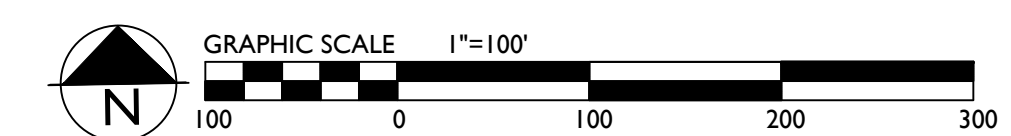
COF XXXX





MATCH LINE SEE SHEET 4.2

Tennessee State Plane Coordinate System
Zone 5301, Fipzone 4100; NAD 83 Datum



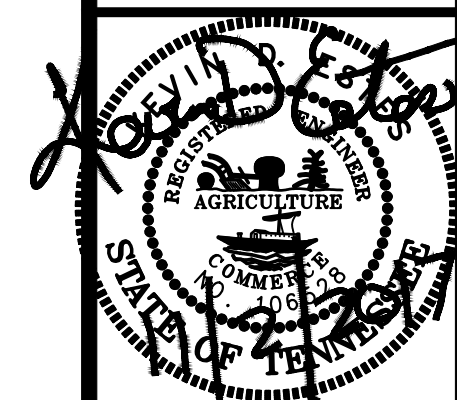
COF XXXX

Revisions:

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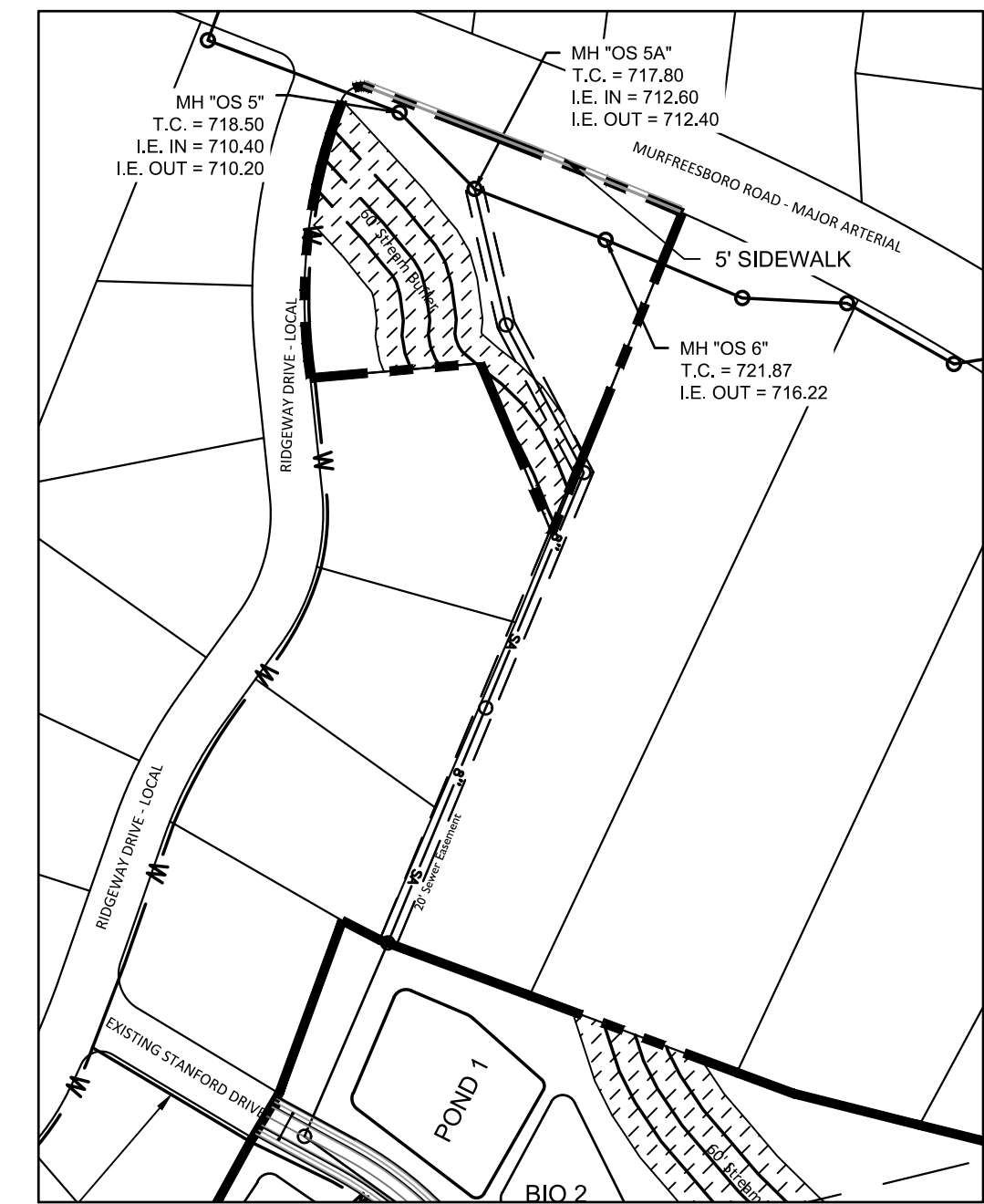
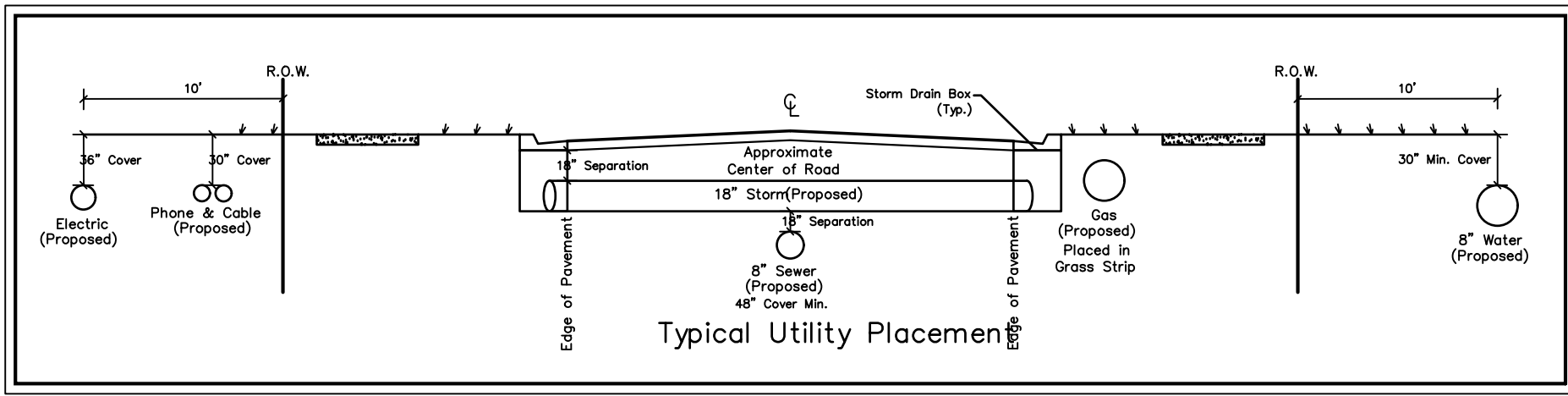
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SOUTH
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PATH

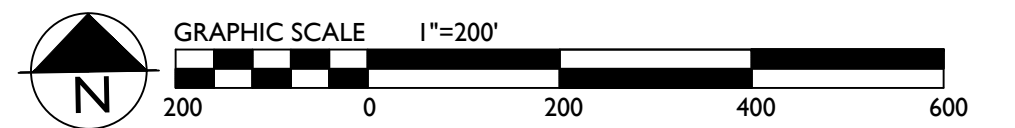
C 4.3



Sewer Connection at Murfreesboro Road
SCALE: 1"=200'



Tennessee State Plane Coordinate System
Zone 5301, Fipzone 4100; NAD 83 Datum



COF XXXX

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.
 8. Location of Water Line is approximate. True location of water line, fire hydrants, water valves, etc. to be designed by Microfton Utility District during sectional Site Plan phase of development.
 9. When required, permanent exclusive easements must be provided with a minimum width of 20 feet. Easement width requirements are as follow:
 1. 0'-12' depth requires 20' easement.
 2. 13'-20' depth requires 30' easement.
 3. Depths greater than 20' requires prior approval.A minimum 10-foot wide temporary construction easement on each side of the permanent easement must also be provided. No trees shall be planted within the permanent easements.
- Water Service Provided by:
Microfton Utility District
633 Arno Road
Franklin, TN 37064
615-794-5947
- Sewer Service Provided by:
Water Management
124 Lumber Drive
Franklin, TN 37064
615-794-4554
- Water & Sewer Data Chart
Water: Unit Flow in GPD: 350 GPD per [unit]
Number of Units: 199
Total Flow in GPD: 69,650 GPD
- Sewer (to October Park) Unit Flow in GPD: 350 GPD per [unit]
Number of Units: 37
Total Flow in GPD: 12,950 GPD
- Sewer (Simmons Ridge) Unit Flow in GPD: 350 GPD per [unit]
Number of Units: 162
Total Flow in GPD: 56,700 GPD
- Stream Buffer Note:
There shall be no mowing, clearing, grading, construction, storage, or disturbance of vegetation except as permitted by the City Engineer, or his designee.

Water Service Provided by:
Microfton Utility District
633 Arno Road
Franklin, TN 37064
615-794-5947

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124 Lumber Drive
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Water & Sewer Data Chart
Water: Unit Flow in GPD: 350 GPD per [unit]
Number of Units: 199
Total Flow in GPD: 69,650 GPD

Sewer (to October Park) Unit Flow in GPD: 350 GPD per [unit]
Number of Units: 37
Total Flow in GPD: 12,950 GPD

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Number of Units: 162
Total Flow in GPD: 56,700 GPD

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Revisions:

Drawing Notes:



COLLETTA PARK PUD SUBDIVISION DEVELOPMENT PLAN

Franklin, Williamson County, Tennessee



GAMBLE DESIGN COLLABORATIVE
144 SOUTHEAST PARKWAY
SUITE 230
FRANKLIN, TENNESSEE 37064
GREG GAMBLE
greggamble209@gmail.com
615.975.5765

NORTH UTILITY PLAN

C 5.0

COF XXXX

A



TYPICAL HOME ELEVATION 'A'

- HOME STYLE WITH GARAGE ACCESSED FROM THE FRONT FACING STREET. GARAGE IS RECESSED A MINIMUM OF 10 FEET FROM THE FRONT ELEVATION AND DRIVEWAYS ARE A MINIMUM OF 22' FROM THE SIDEWALK.
- ONE TO TWO STORIES IN HEIGHT.
- MATERIALS INCLUDE BRICK, SIMULATED STONE, CEMENTATIOUS SIDING, AND ARCHITECTURAL SHINGLES.
- 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 CODES DIRECTOR OR THE PLANNING COMMISSION.
- ELEVATIONS SHOWN ARE TYPICAL FOR THIS DEVELOPMENT. FINAL DESIGN PLANS SHALL BE SUBMITTED WITH THE REQUEST FOR BUILDING PERMITS AND SHALL INDICATE COMPLIANCE WITH THE CITY OF FRANKLIN'S ARCHITECTURAL DESIGN STANDARDS, SPECIFICALLY THE REQUIREMENT FOR EXPOSED FOUNDATIONS OR WATER TABLES/ELEVATED FINISHED FLOORS AND GARAGE DOOR SEPARATION/MAXIMUM WIDTHS.
- BUILDINGS WITH SIDE ELEVATIONS FACING A PUBLIC RIGHT-OF-WAY SHALL HAVE WINDOWS AND ARCHITECTURAL FEATURES SIMILAR TO THE FRONT ELEVATION.
- SINGLE FAMILY HOME SQUARE FOOTAGE RANGE: 2200 SF TO 4500 SF
- THE FINISHED FLOOR ELEVATION OF THE FRONT FACADE TO BE A MINIMUM OF 18 INCHES ABOVE THE FINISHED GRADE.
- FRONT FACING GARAGES ARE REQUIRED TO HAVE GARAGE DOORS NO LARGER THAN 9' IN WIDTH WITH A 2' SEPARATION BETWEEN THE DOORS.

B



TYPICAL HOME ELEVATION 'B'

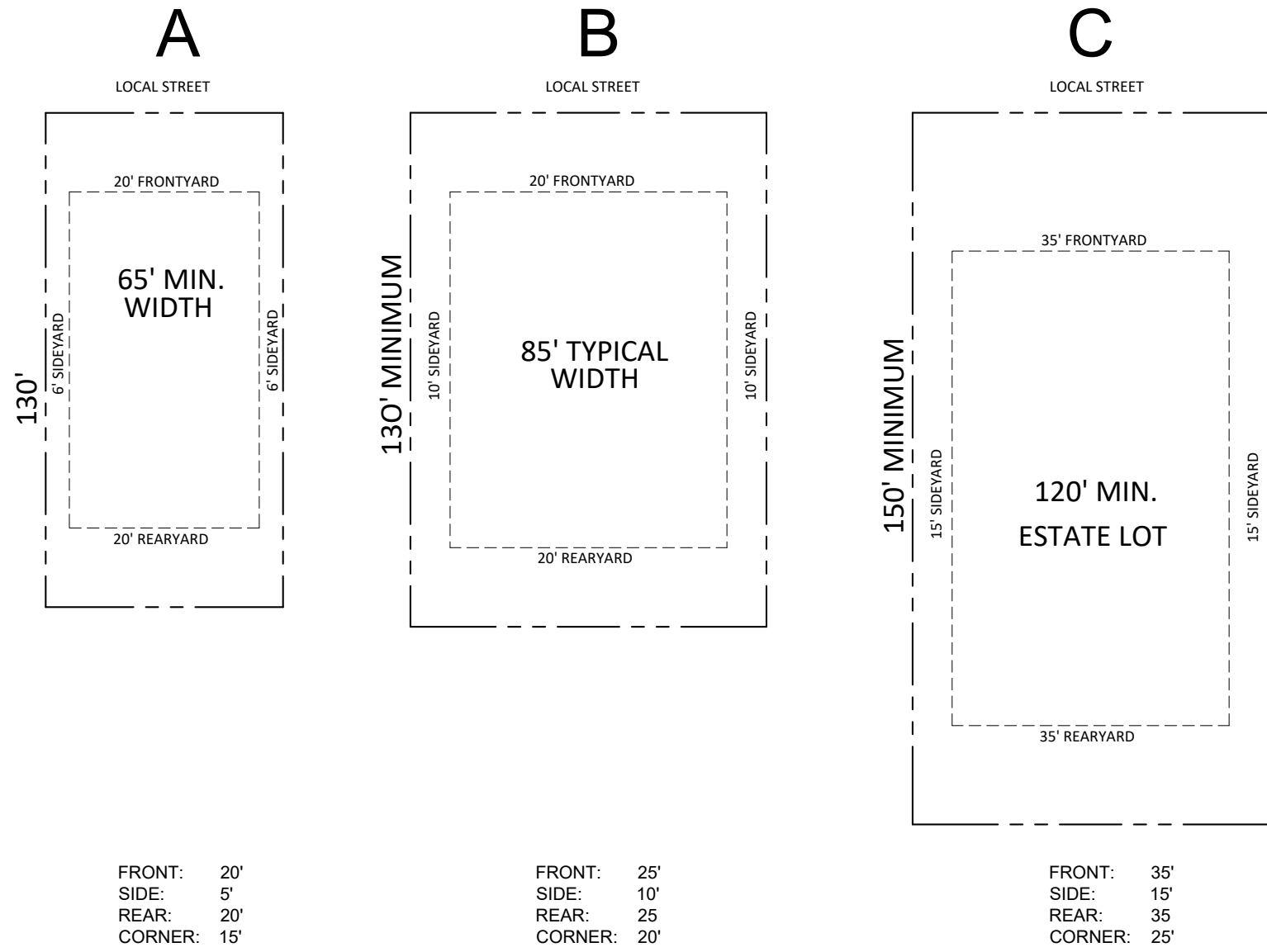
- HOME STYLE FOR LOTS WITH GARAGE ACCESSED FROM THE STREET WITH SIDE LOADED GARAGE.
- ONE TO TWO STORIES IN HEIGHT.
- MATERIALS INCLUDE BRICK, SIMULATED STONE, CEMENTATIOUS SIDING, AND ARCHITECTURAL SHINGLES.
- SIDE-LOADED GARAGES
- DRIVEWAY IS A MINIMUM OF 22' FROM THE SIDEWALK TO THE GARAGE DOORS.
- ALL TWO CAR GARAGES SHALL HAVE TWO GARAGE DOORS WITH A MAXIMUM WIDTH OF 9' WIDE WITH A 2 FOOT MINIMUM SEPARATION BETWEEN.
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- THE FINISHED FLOOR ELEVATION OF THE FRONT FACADE TO BE A MINIMUM OF 18 INCHES ABOVE THE FINISHED GRADE.

C



TYPICAL HOME ELEVATION 'C'

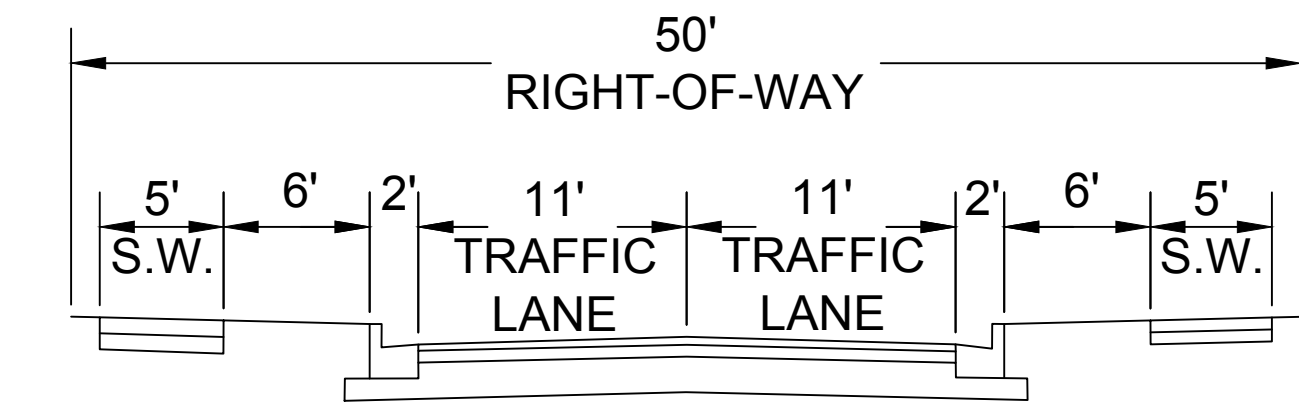
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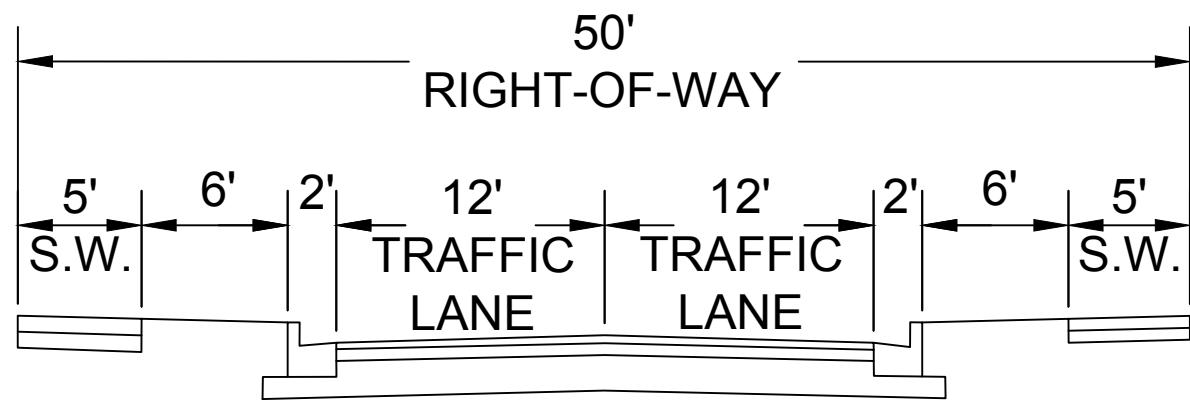
TYPICAL LOT DIAGRAMS AND SETBACKS

The home elevations shown here are representative of the homes planned for Colletta Park. They are the basis for design review by the City of Franklin at the time of Site Plan Submittal. Based on my professional experience, the plans presented meet or exceed the design standards set forth by the City of Franklin.

Greg Gamble, Registered Landscape Architect.



2-LANE INTERMEDIATE AND LOW VOLUME STREET



2-LANE HIGH VOLUME STREET



Statement of Impacts
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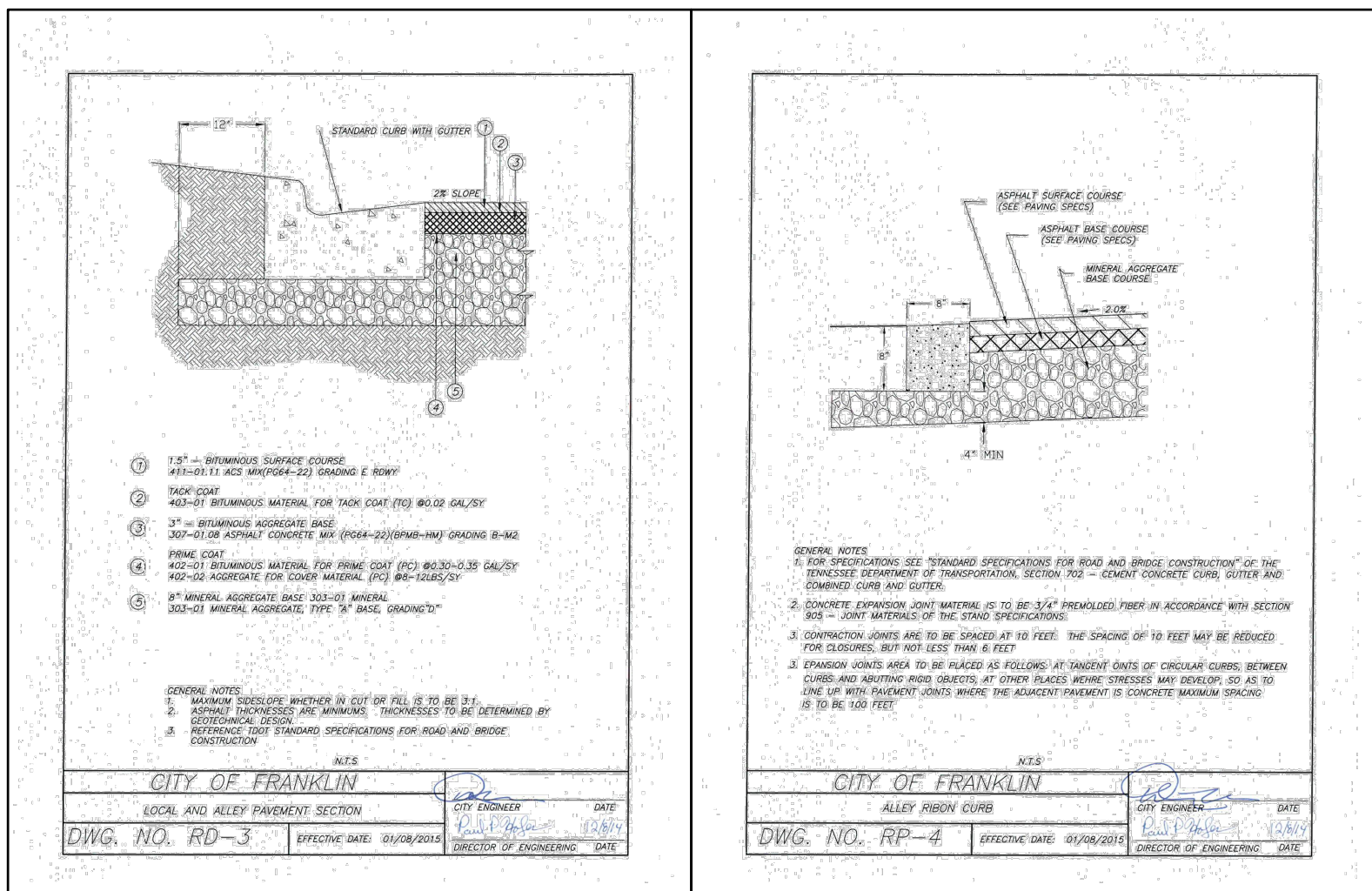
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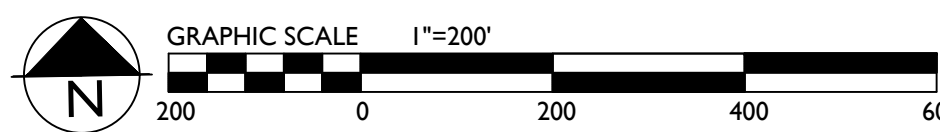
R.O.W. & Access Data Chart:
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Peak Hour Trip Generation: 199 veh per hour
Traffic Impact Study Required: Yes
Circulation Plan Required:

Connectivity Index: 1.50
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Nodes (*): 16
24/16 = 1.50

Without Connection to Existing Stanford Drive
Connectivity Index: 1.41
Links (●): 24
Nodes (*): 17
24/17 = 1.41



Tennessee State Plane Coordinate System
Zone 5301, Fipzone 4100; NAD 83 Datum



COF XXXX

Revisions:

Drawing Notes:

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Date: JUNE 2, 2017

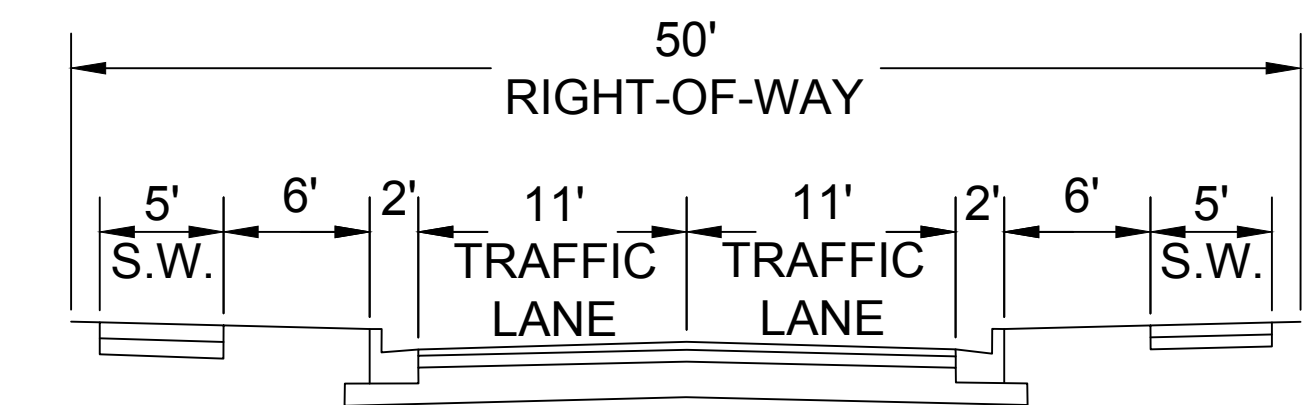
COLLETTA PARK PUD SUBDIVISION
DEVELOPMENT PLAN
Franklin, Williamson County, Tennessee



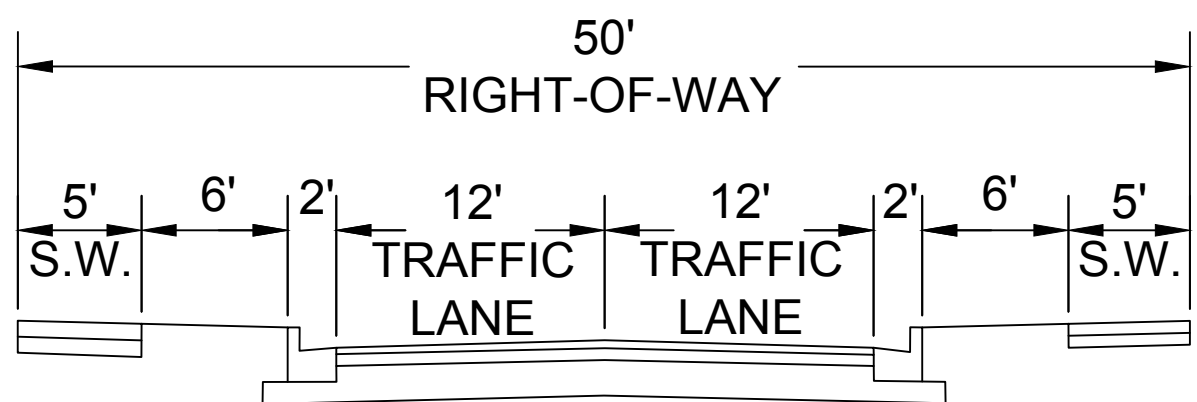
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NORTH
ROW &
ACCESS
PLAN

C 4.0



2-LANE INTERMEDIATE AND LOW VOLUME STREET



2-LANE HIGH VOLUME STREET

DESIGN MODIFICATION - CONNECTIVITY INDEX
DUE TO WILLIAMSON COUNTY'S LIMITATIONS ON
CONNECTIVITY TO BEACON HILL AND STANFORD
DRIVE, EXISTING DEVELOPMENT WITHOUT
ACCESS ON THE WESTERN BOUNDARY, AND
TOPOGRAPHIC CONSTRAINTS ALONG WARREN
ROAD, THE CLIENT REQUESTS A DESIGN
MODIFICATION FOR CONNECTIVITY.



Statement of Impacts
The proposed Colletta Park development is located between Major Arterial Murfreesboro Road and Minor Collector S Carothers Road. The northern portion of the site consists of 37 homes and will connect to Murfreesboro Road via Local Roads Stanford Drive and Ridgeway Drive. The southern portion of the site consists of 162 homes and will connect directly to the S Carothers Road existing 90 degree curve.

Impact on Local Streets
The proposed Colletta Park development is expected to generate 37 trips entering and 112 trips exiting during AM peak hours; 125 trips entering and 74 trips exiting during PM peak hour.

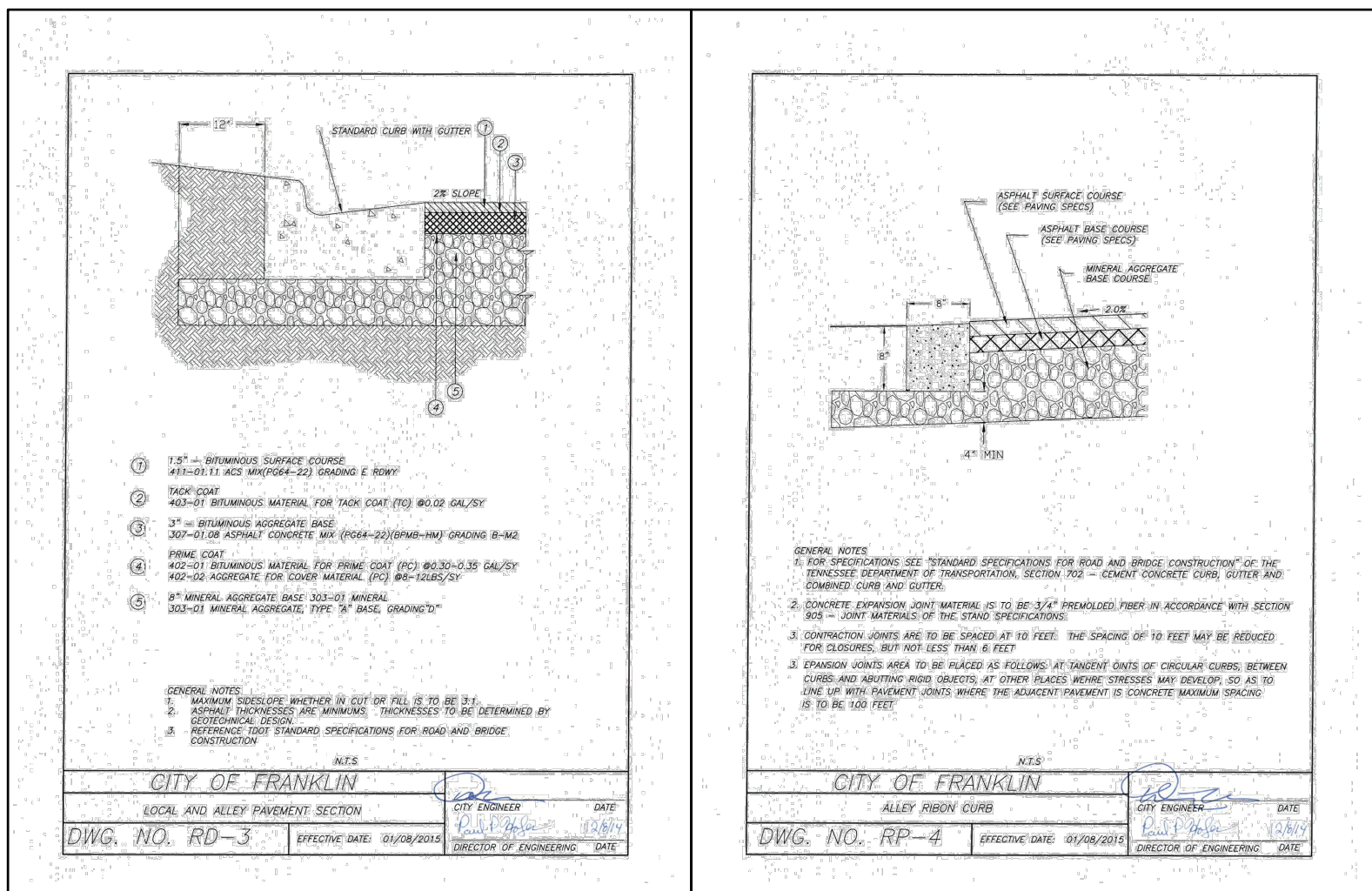
- R.O.W & Access General Notes**
1. Prior to beginning any construction, the Developer and/or Contractor, shall obtain all necessary permits as required by law. Such permits may include, but are not limited to, those required by State of Tennessee, Williamson County and other City of Franklin agencies.
 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.

Stream Buffer Note:
There shall be no mowing, clearing, grading, construction, storage, or disturbance of vegetation except as permitted by the City Engineer, or his designee.

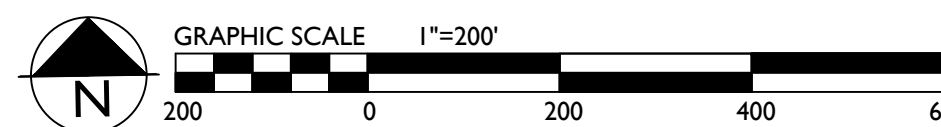
R.O.W. & Access Data Chart:
Daily Trip Generation: 1,254 veh per day
Peak Hour Trip Generation: 199 veh per hour
Traffic Impact Study Required: Yes
Circulation Plan Required:

Connectivity Index: 1.50
Links (●): 24
Nodes (*): 16
24/16 = 1.50

Without Connection to Existing Stanford Drive
Connectivity Index: 1.41
Links (●): 24
Nodes (*): 17
24/17 = 1.41



Tennessee State Plane Coordinate System
Zone 5301, Fipzone 4100; NAD 83 Datum



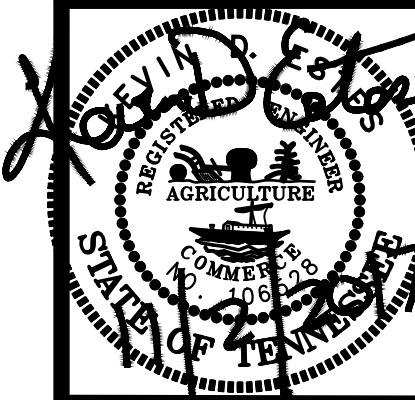
COF XXXX

Revisions:

Drawing Notes:

GDC
GAMBLE
DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND
LANDSCAPE ARCHITECTURE
Date: JUNE 2, 2017

COLLETTA PARK PUD SUBDIVISION
DEVELOPMENT PLAN
Franklin, Williamson County, Tennessee



GAMBLE DESIGN COLLABORATIVE
144 SOUTHEAST PARKWAY
SUITE 230
FRANKLIN, TENNESSEE 37064
GREG GAMBLE
greggamble209@gmail.com
615.975.5765

SOUTH
ROW &
ACCESS
PLAN

C 4.1



Revision	Date
△	
△	
△	
△	

**REQUESTED MODIFICATIONS OF STANDARDS
COLLETTA PARK PUD SUBDIVISION**

MOS 1

#1. Modification of Standards Request for Zoning Ordinance Section 3.5.10(2)(d)(iii) SWCO-3 Standards

The applicant requests a Modification of Standards as it relates to the following item for the Seward Hall, Special Area 3: "new development shall be restricted to detached residential dwellings on lots with a minimum lot area of one to five acres." While this design criteria is appropriate for a portion of the proposed Colletta Park, it would not allow the development to appropriately transition to the high density development of the Carothers Parkway corridor. Approval of this MOS would allow the develop pattern in the proposed Colletta Park to transition between the two divergent, existing development patterns.

MOS 2

#2. Modification of Standards Request for Cul-de-sac length.
The applicant requests a Modification of Standards to permit a cul-de-sac longer than 500 feet and containing more than 20 lots in two locations. The first location is to the north with the roadway that ends at an emergency connection to Stanford Drive, and the second is located at the southern drive where future connection is planned to Carothers Road and to Simmons Ridge. Lots on the southern drive would require fire sprinklers if a second point of access is not made available prior to platting of the lots.

DESIGN MODIFICATION - CONNECTIVITY INDEX

Due to Williamson County's limitations on connectivity to Beacon Hill and Stanford Drive, existing development without access on the western boundary, and topographic constraints along Warren Road, the client requests a design modification for connectivity.

MODIFICATION OF STREET STANDARD

Applicant requests a right of way width of 50 feet. The new street standards require a 52' ROW. The street standards were updated during Colletta Park's design process. The difference between the two standards is a 5' tree planting zone in the 50' ROW and a 6' tree planting zone in the 52' ROW.

SPECIAL CONDITION

Colletta Park's northern connection to Stanford Drive is limited to emergency connection only. Colletta Park has a full access off of Carothers Road, and will participate in improving Carothers Road to a three-lane collector. Due to the limited roadway connections, the development will be restricted to a maximum of 138 platd lots prior to the development plan or preliminary plat approval of a second access to Carothers Road.

OPEN SPACE REQUIREMENT CHART:

MINIMUM OPEN SPACE REQUIREMENT: 15%
SITE AREA: 199 AC
OPEN SPACE ACREAGE REQUIRED: 29.85 AC
FORMAL OPEN SPACE REQUIRED: 34% (10.15 AC)
INFORMAL OPEN SPACE REQUIRED: 66% (19.70 AC)

OPEN SPACE PROVIDED:

KEY	CLASSIFICATION	TYPE	AREA OF OPEN SPACE
1001	FORMAL	PARK	117,867 SF (2.77 AC)
1002	INFORMAL	GREEN BELT	101,543 SF (2.33 AC)
1003	INFORMAL	GREEN BELT	78,859 SF (1.81 AC)
2001	INFORMAL	GREEN BELT	103,006 SF (2.38 AC)
2002	FORMAL	PARK	73,988 SF (1.70 AC)
2003	INFORMAL	GREEN BELT	337,171 SF (7.74 AC)
3001	INFORMAL	GREEN BELT	264,097 SF (6.06 AC)
3002	FORMAL	PARK	29,014 SF (0.67 AC)
3003	FORMAL	PARK	55,350 SF (1.27 AC)
3004	INFORMAL	GREEN BELT	1,421,137 SF (32.62 AC)
4001	INFORMAL	GREEN BELT	2,718 SF (0.06 AC)
4002	INFORMAL	GREEN BELT	2,700 SF (0.06 AC)
5001	INFORMAL	GREEN BELT	41,619 SF (0.96 AC)
5002	FORMAL	PARK	19,189 SF (0.44 AC)
6001	INFORMAL	GREEN BELT	7,668 SF (0.18 AC)
6002	FORMAL	ALLENITY	153,833 SF (3.53 AC)
6003	INFORMAL	GREEN BELT	10,655 SF (0.24 AC)
6004	INFORMAL	GREEN BELT	17,961 SF (0.41 AC)
7001	INFORMAL	GREEN BELT	73,281 SF (1.68 AC)
7002	INFORMAL	GREEN BELT	48,923 SF (1.12 AC)
7003	INFORMAL	GREEN BELT	123,477 SF (2.83 AC)

NON-BUILDABLE LOTS:

KEY	AREA
1	151,589 SF (3.48 AC)
2	46,074 SF (1.06 AC)
3	35,722 SF (0.82 AC)

TOTAL NON-BUILDABLE LOT AREA: 5.36 AC
TOTAL FORMAL OPEN SPACE PROVIDED: 10.32 AC
TOTAL INFORMAL OPEN SPACE PROVIDED: 60.48 AC
TOTAL OPEN SPACE PROVIDED: 70.80 AC (35.6%)

LOCAL COMPATIBILITY:

COLLETTA PARK IS LOCATED IN THE SINGLE FAMILY CHARACTER AREA OF ENVISION FRANKLIN. THE CHARACTER OF THE SURROUNDING AREA IS ALSO SINGLE FAMILY HOMES.

CHARACTER AREA: SINGLE FAMILY
APPLICABLE DEVELOPMENT STANDARD: CONVENTIONAL

- THE EXISTING USES ADJACENT TO THE PROPOSED NEIGHBORHOOD IN FRANKLIN EAST, CROSS CREEK, AND ON WARREN ROAD ARE SINGLE FAMILY DETACHED HOMES ON LARGE LOTS. THE EXISTING NEIGHBORHOODS ARE LOCATED OUTSIDE OF THE CITY OF FRANKLIN AND WERE DEVELOPED PRIOR TO PUBLIC SEWER BEING AVAILABLE. LOTS OF EQUAL SIZE ARE PROPOSED ADJACENT TO THESE SUBDIVISIONS.
- THE LAND USE PLAN FOR THIS SPECIAL AREA STATES THAT THERE ARE "MANY AREAS THAT ARE ENVIRONMENTALLY SENSITIVE". THE PROPOSED DEVELOPMENT PLAN PRESERVES SIGNIFICANT QUANTITIES OF OPEN SPACE BOTH AS A BUFFER TO ADJOINING USES AS WELL AS TO PROTECT ENVIRONMENTALLY SENSITIVE AREAS.
- THE LAND USE PLAN STATES THAT NEW GROWTH SHALL BE ENCOURAGED ONLY IN AREAS WHERE ADEQUATE PUBLIC WATER, SEWER AND STREETS ARE PLANNED. THE APPLICANT HAS PROPOSED EXTENDING THE PUBLIC SEWER TO THE SOUTH WHERE A MAIN INTERCEPTOR IS LOCATED IN THE CAROTHERS ROAD CORRIDOR, AND TO THE NORTH WHERE A MAIN INTERCEPTOR IS LOCATED ADJACENT TO OCTOBER PARK SUBDIVISION.
- THE LAND USE PLAN STIPULATES THAT SMALLER LOTS SHOULD NOT BE LOCATED ON THE EXTERIOR OF A PROPOSED DEVELOPMENT ADJACENT TO OR ACROSS THE STREET FROM LARGER LOTS OF AN EXISTING DEVELOPMENT. THE PROPOSED PLAN PROPOSES SINGLE FAMILY HOME LOTS ON LOTS COMPARABLE IN SIZE TO ADJOINING USES AND ARE SEPARATED FROM THEM BY OPEN SPACE BUFFERS. THE PROPOSED DEVELOPMENT TRANSITIONS SOUTH TO SMALLER LOTS IN PROXIMITY TO THE CAROTHERS ROAD CORRIDOR.
- THE PROPOSED DEVELOPMENT INCORPORATES A NUMBER OF OPEN SPACES THAT ARE PROPOSED TO BE DEVELOPED INTO ACTIVE USE SPACES AND WILL QUALIFY AS FORMAL OPEN SPACES.
- PRESERVED AREAS AT THE PERIMETER OF THE SITE WILL BE DEVELOPED WITH WALKING TRAILS OF VARYING DEGREES OF DIFFICULTY FOR USE BY THE RESIDENTS.
- THIS PLAN REFLECTS THE CONTEMPORARY DEVELOPMENT PATTERNS OF THE CITY OF FRANKLIN AND IS CONSISTENT WITH MANY SIMILAR NEIGHBORHOODS THAT HAVE OCCURRED IN PROXIMITY TO COUNTY SUBDIVISIONS BUILT PRIOR TO PUBLIC SEWER AVAILABILITY AS THE CITY HAS ANNEXED NEW AREAS FOR GROWTH.

LANDUSE PLAN COMPLIANCE/ DESIGN CONCEPTS AND STANDARDS:

COLLETTA PARK IS A SINGLE FAMILY DETACHED RESIDENTIAL SUBDIVISION WHICH OFFERS A VARIETY OF LOT SIZES AND HOUSING OPTIONS. ACCESSSED IS PROPOSED FROM STANFORD DRIVE AT THE NORTH AND CAROTHERS ROAD AT THE SOUTH.

THE DESIGN STANDARDS PERMIT CONVENTIONAL DEVELOPMENT FORMS WITH TRANSITIONAL FEATURES TO MINIMIZE IMPACT ON THE EXISTING DEVELOPED PROPERTY. ENVISION FRANKLIN DESCRIBES THIS CHARACTER AREA AS SINGLE FAMILY. WITHIN THIS CHARACTER AREA, NEW LOTS ADJACENT TO EXISTING LOTS MUST BE OF EQUAL SIZE.

THE PROPOSED PLAN INCLUDES TRAFFIC CALMING SOLUTIONS ON STANFORD DRIVE AND RIDGEWAY DRIVE. THESE TRAFFIC CALMING CONCEPTS REQUIRE APPROVAL BY WILLIAMSON COUNTY. THESE INCLUDE REDUCING TRAFFIC SPEED, NARROWING THE TRAVEL LANES, PROVIDING PEDESTRIAN PATHS, AND INSTALLING SPEED HUMPS.

SMALLER LOTS ARE PLANNED TO THE SOUTH AS THE NEIGHBORHOOD APPROACHES CAROTHERS ROAD. THE LOTS ARE IN KEEPING WITH THE SIZE AND DENSITIES OF LOCKWOOD GLEN. THE TOTAL LOT DENSITY IS ONE UNIT PER ACRE.

SITE DATA:

PROJECT NAME:	COLLETTA PARK PUD SUBDIVISION
PROJECT NUMBER:	6559
SUBDIVISION:	NA
LOT NUMBER:	
ADDRESS:	1101 RIDGEWAY DRIVE, MURFREESBORO ROAD, FRANKLIN, WILLIAMSON, TENNESSEE
CITY:	FRANKLIN
COUNTY:	WILLIAMSON
STATE:	TENNESSEE
CIVIL DISTRICT:	14TH CIVIL DISTRICT
MAP, GROUP, PARCEL NUMBERS:	079 MB 02800, 079 MB 02900, 089 05500, 089 04303, 089 04304
EXISTING ZONING:	R-1
CHARACTER AREA OVERLAY:	MECO-6, SWCO-3
OTHER APPLICABLE OVERLAYS:	NONE
APPLICABLE DEVELOPMENT STANDARD:	CONVENTIONAL
TOTAL ACREAGE:	199 AC
TOTAL SQUARE FOOTAGE:	8,670,225 SF
MINIMUM REQUIRED SETBACKS:	SEE LOT DIAGRAMS - SHEET C2.2
FRONT YARD:	MINIMUM SETBACKS
REAR YARD:	ARE ESTABLISHED
SIDE YARD:	AS PART OF THE P.U.D.
APPLICANT:	GAMBLE DESIGN COLLABORATIVE
ADDRESS:	144 SOUTH EAST PARKWAY SUITE 200, FRANKLIN, TN 37064
OFFICE PHONE:	615.975.5765
EMAIL ADDRESS:	greggambledesign@gmail.com
CONTACT:	GREG GAMBLE
BUILDING SQUARE FOOTAGE:	N/A
BUILDING HEIGHT:	2 STORY
LANDSCAPE SURFACE RATIO:	0.40
MINIMUM LANDSCAPE SURFACE RATIO:	0.30
MINIMUM PARKING REQUIREMENT:	2 SPACES PER SINGLE FAMILY HOME
MAXIMUM PARKING LIMIT:	N/A
EXISTING PARKING:	N/A
RESIDENTIAL DENSITY:	1.00 DUA
TREE CANOPY:	138.1 AC, 69.4 % OF EXISTING SITE
PARKLAND DEDICATION:	FEE IN LIEU (\$541,487.60)

OPEN SPACE: 29.85 AC (15%) TOTAL REQUIRED
164 @ 600 SF/HOME = 98,400 SF
10.15 AC FORMAL REQ.
19.70 AC INFORMAL REQ.

OVERALL DENSITY: 1.00 UNITS/AC
NET DENSITY (MINUS ROW): 1.10 UNITS/AC
NET DENSITY (MINUS ROW AND STREAM BUFFERS): 1.17 UNITS/AC
NUMBER OF RESIDENTIAL UNITS BY USE TYPE: 199 SINGLE FAMILY HOMES

NONRESIDENTIAL SQUARE FOOTAGE: 123.21 AC RESIDENTIAL
70.80 AC OPEN SPACE
TOTAL ACREAGE BY USE, ENTIRE SITE: 4.99 AC NON-BUILDABLE LOTS

TOTAL ACREAGE BY USE, PER SECTION:	SECTION 1
	35.24 AC RESIDENTIAL (24 UNITS)
	6.85 AC OPEN SPACE
	SECTION 2
	12.4 AC RESIDENTIAL (13 UNITS)
	11.8 AC OPEN SPACE
	SECTION 3
	8.69 AC RESIDENTIAL (21 UNITS)
	40.60 AC OPEN SPACE
	SECTION 4
	20.34 AC RESIDENTIAL (51 UNITS)
	0.12 AC OPEN SPACE
	SECTION 5
	11.72 AC RESIDENTIAL (38 UNITS)
	1.36 AC OPEN SPACE
	SECTION 6
	11.04 AC RESIDENTIAL (29 UNITS)
	4.19 AC OPEN SPACE
	SECTION 7
	5.06 AC RESIDENTIAL (23 UNITS)
	5.63 AC OPEN SPACE

TREE CANOPY RETENTION:

TREE AREA	EXISTING	REMOVED	RETAINED
TREE A	20,501 SF	0 SF	20,501 SF
TREE B	184,989 SF	126,918 SF	57,671 SF
TREE C	5,661,025 SF	3,605,008 SF	2,056,017 SF
TREE D	162,235 SF	108,317 SF	43,918 SF
TOTAL	6,018,356 SF	3,522,441 SF	2,178,113 SF

TREE CANOPY DATA

EXISTING TREE CANOPY: 6,018,356 SF
6,018,356 SF / 8,670,225 SF = 69.4% (69.4% OF TOTAL SITE)

REQUIRED CANOPY PRESERVATION = 36% OF TOTAL CANOPY
6,018,356 SF * 36% = 2,166,608 SF

PROVIDED CANOPY PRESERVED = 2,178,113 SF (36.2%) OF TOTAL EXISTING CANOPY

TREE PRESERVATION AREA

STREAM BUFFER

60' STREAM BUFFER

STATEMENT OF IMPACTS:

WATER:
WATER SERVICE WILL BE PROVIDED BY MILCROFTON UTILITY DISTRICT.
199 X 350 GPD = 69,650 GPD

SEWER:
SEWER SERVICE WILL BE PROVIDED BY THE CITY OF FRANKLIN. FOR THE PORTION OF THE SITE IN THE MAYS CREEK BASIN, CONNECTION TO THE SEWER MAIN WILL BE MADE IN SIMMONS RIDGE TO THE SOUTH. FOR THE PORTION OF THE SITE IN THE WATKINS CREEK BASIN, CONNECTION WILL BE MADE TO THE NORTH TO THE SEWER MAIN IN OCTOBER PARK ON RIDGEWAY DRIVE.

REFURBISHED (REUSE) WATER FACILITIES:
NOT AVAILABLE

STREET NETWORK:
AS SHOWN ON THE MAJOR THOROUGHFARE PLAN - SEE SHEET C 4.0 OVERALL ROW AND ACCESS PLAN INCLUDING CONNECTIVITY ELEMENTS.

THE SITE IS LOCATED SOUTH OF HIGHWAY 96 EAST WHICH IS CLASSIFIED AS A MAJOR ARTERIAL. ACCESS TO THE NORTHERN PORTION OF COLLETTA PARK IS PROVIDED BY LOCAL STREETS VIA RIDGEWAY DRIVE AND STANFORD ROAD.

THE SOUTHERN PORTION OF COLLETTA PARK WILL HAVE CONNECTIONS TO SOUTH CAROTHERS ROAD.

FUTURE ROAD CONNECTIONS ARE PROVIDED. A FULL TRAFFIC IMPACT STUDY PREPARED BY FISCHBACH TRAFFIC GROUP, LLC AND REVIEWED BY A THIRD PARTY, LLC ENGINEERING, PROVIDES GREATER DETAIL OF THE OVERALL IMPACT OF THE DEVELOPMENT ON THE EXISTING ROAD NETWORK.

DRAINAGE FACILITIES:
THE PROPERTY HAS THREE PRIMARY DRAINAGE BASINS. ONE DRAINS NORTH TO WATKINS CREEK. ONE DRAINS WEST THROUGH CROSS CREEK SUBDIVISION AND ONE DRAINS SOUTH TOWARDS SOUTH CAROTHERS ROAD.

POLICE AND FIRE DEPT:
FRANKLIN FIRE DEPT STATION #2 - 2.1 MILES DRIVING DISTANCE
COLUMBIA AVE. POLICE STATION - 2.7 MILES DRIVING DISTANCE

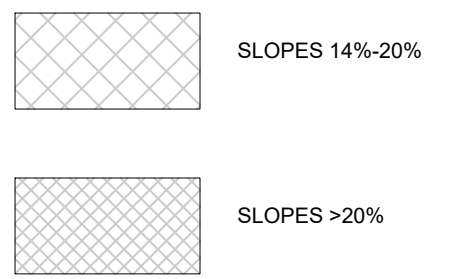
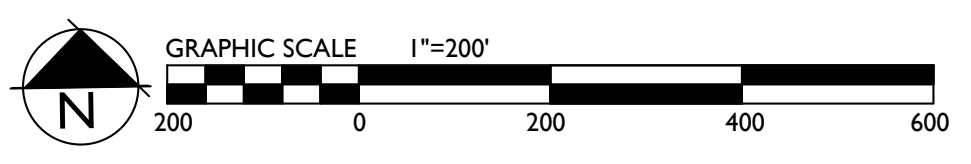
RECREATIONAL FACILITIES:
LIBERTY PARK - 3.0 MILES DRIVING DISTANCE

PROJECTED STUDENT POPULATION:
199 HOMES X .64 STUDENTS = 128 PROJECTED STUDENTS

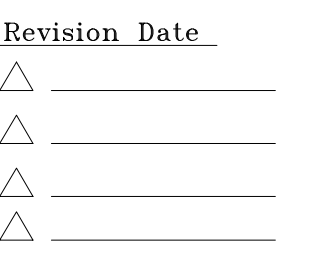
REFUSE COLLECTION:
PROVIDED BY THE CITY OF FRANKLIN SOLID WASTE.

RESTRICTIVE COVENANTS:
A HOME OWNERS ASSOCIATION WILL BE ESTABLISHED PRIOR TO THE FIRST OCCUPANCY OF RESIDENTS. THE HOA WILL REGULATE ARCHITECTURAL STANDARDS AND THE MAINTENANCE OF THE COMMUNITY. THE HOA WILL MAINTAIN ALL COMMON OPEN SPACE AND RECREATIONAL AREAS.

NOTE: AS ACCESS POINTS AND IMPACTS TO THE STREET NETWORK ARE DETERMINED, THE STATEMENT OF IMPACTS MAY NEED TO BE REVISED



* CRITICAL LOTS (CONTAINING SLOPES OVER 14%)



C2.1
COF 6559



Downtown Parking Capacity & Management Study: Recommendations Outline

BOMA



VOLKERT



WALKER
PARKING CONSULTANTS

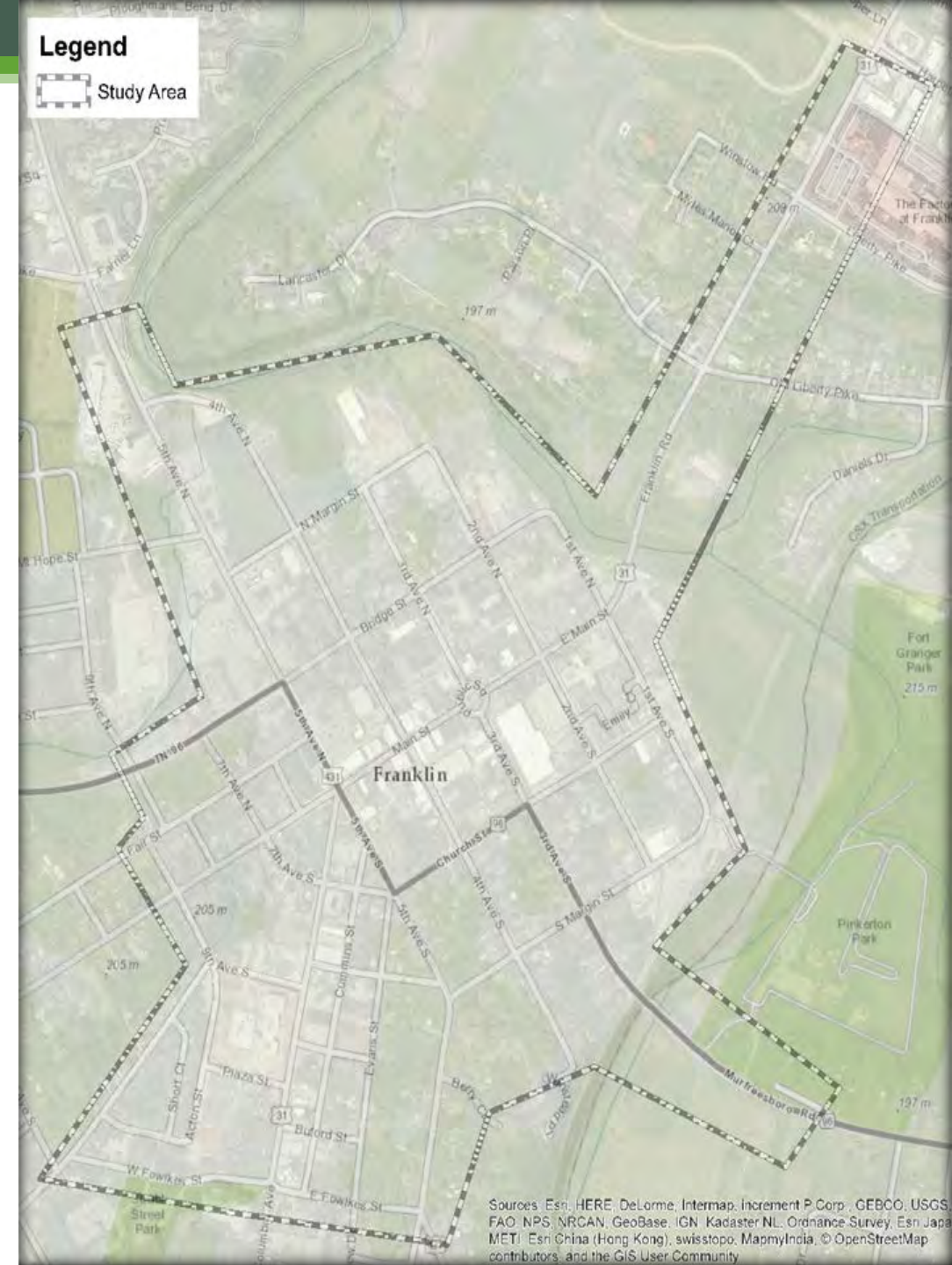
Today's Agenda

- Project Overview & Status
- Draft Recommendations
 - Infrastructure
 - Management
 - Operations
- Next Steps
- Questions/Open Discussion



Purpose

- Provide the City, Businesses, Shoppers, Diners, Workers, Churches, Tourists, and Citizens with:
 - Clear understanding of the existing parking infrastructure.
 - Projections of anticipated parking demand in the downtown area.
 - Identification of parking infrastructure and operational needs.



Schedule & Process



Draft Recommendations

Three-pronged approach:

1. **Parking Infrastructure**
2. **Parking Management**
3. **Parking Operations**



Draft Recommendations

Three-pronged approach:

- 1. Parking Infrastructure**
2. Parking Management
3. Parking Operations



Draft Recommendations: Parking Infrastructure

- On-street Striping Plan
 - Implement the Striping Plan
Create Mobility Hubs along Main Street (loss of 4 spaces) for ride-sharing, transit, loading shared space.
 - Install mid-block crossing on 4th Avenue at garage with signage



Draft Recommendations: Parking Infrastructure

- Surface Parking (Free):

Locations within proximity of:

- 2nd Avenue North at North Margin Street (short-term)
- 5th Avenue North at North Margin Street (short-term)
- 1st Avenue South at South Margin Street (long-term)

New Surface Lot Policies

- Bus Parking Spaces to be included (also suggest bus parking agreement with Factory management group)
- Primary locations for employee parking
- Implement Parking Study policies for Valet, Wayfinding, & Technology
- Walkable, but connected with transit

Draft Recommendations: Parking Infrastructure

New Surface Lots Location Map



Draft Recommendations: Parking Infrastructure

New Surface Lots



Draft Recommendations: Parking Infrastructure

- Garage Parking:

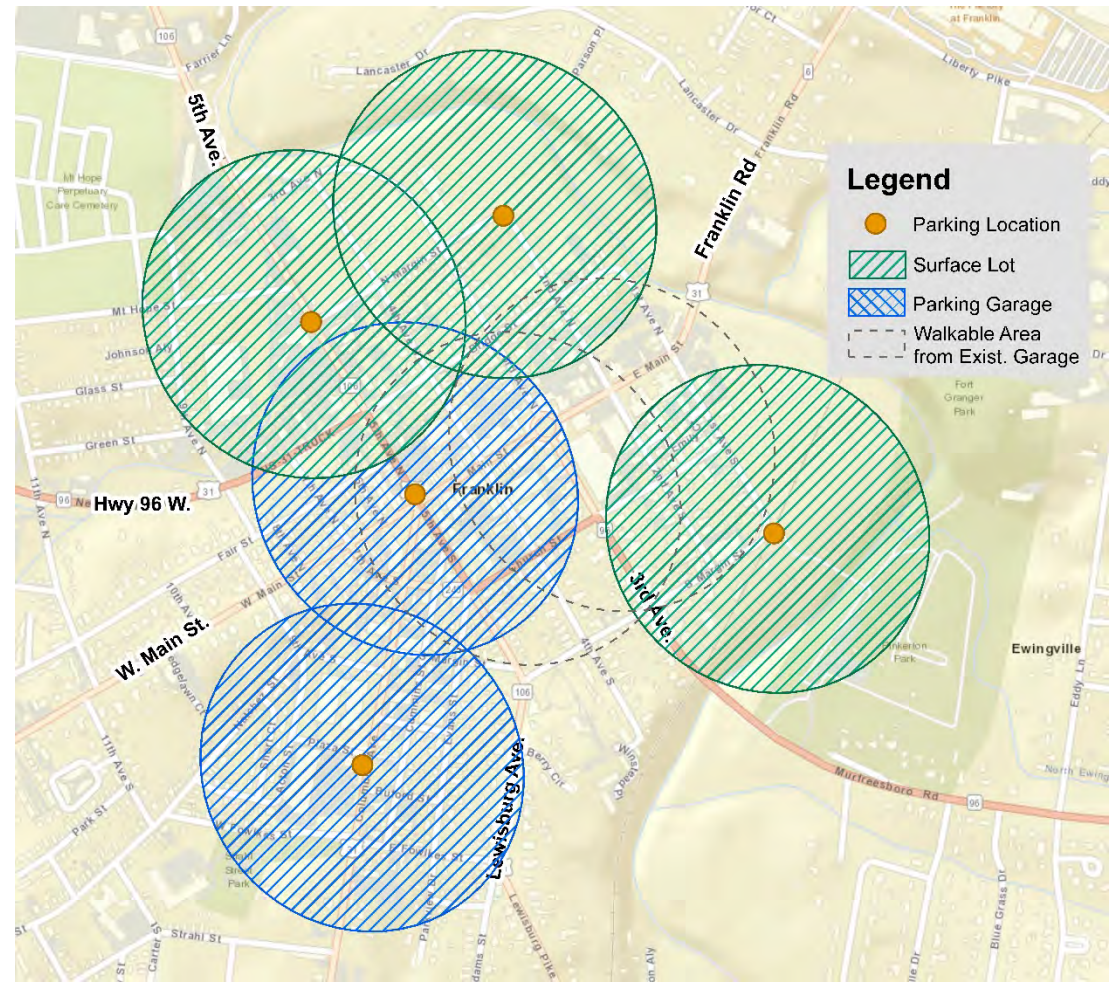
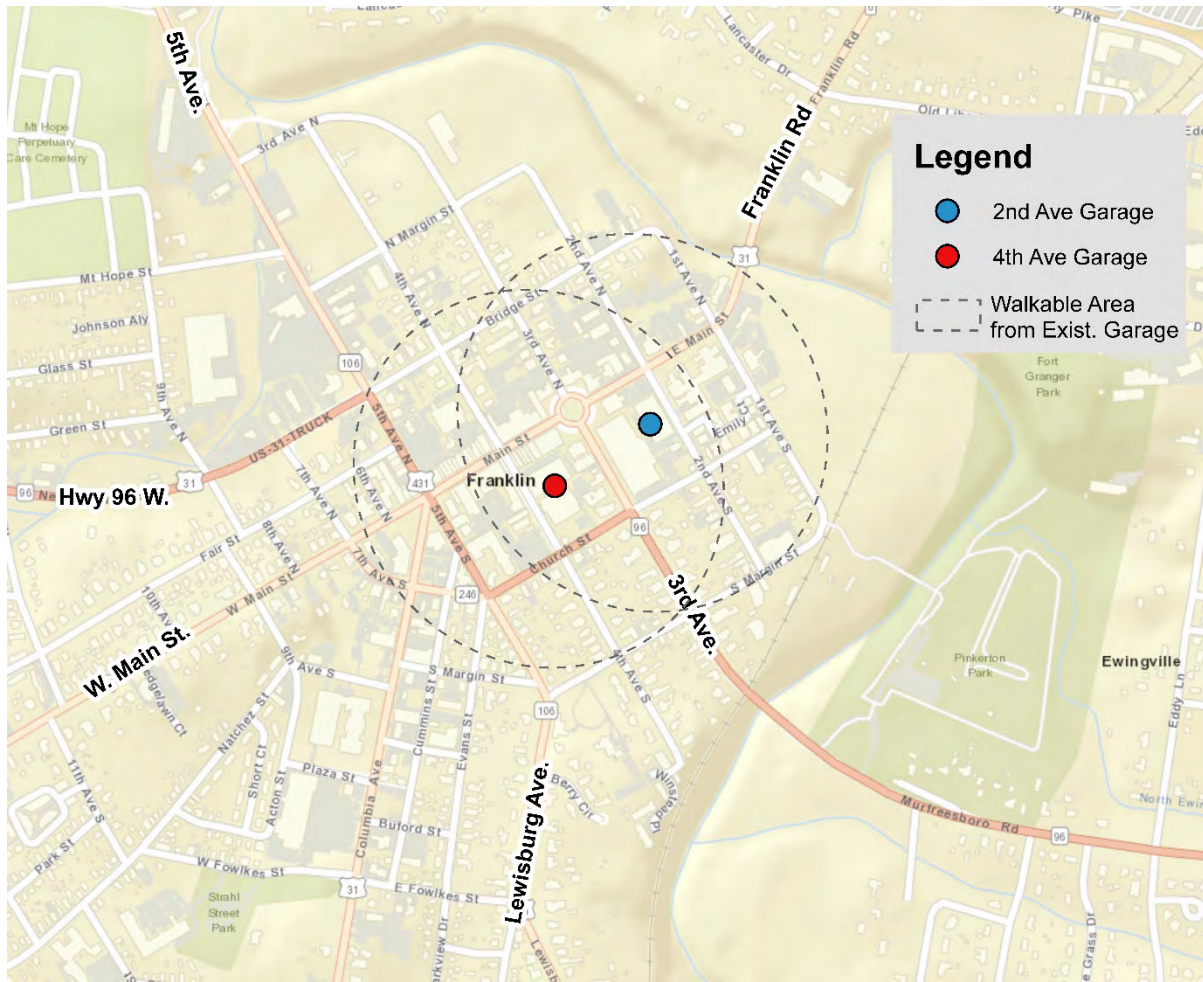
Locations in proximity to:

- Near Term: 5th Avenue North at Main Street (Approximately \$25,000 per space)
- Long Term: Plaza Street at Columbia Avenue (Public/Private partnership or the City should work to acquire space for a public garage.)

New Garage Policies

- Study increasing parking capacity with any new City Hall development proposal
- Primary locations for customers, patrons, & visitors
- Implement Parking Study policies for Valet, Wayfinding, & Technology
- Walkable, but connected with transit

Draft Recommendations: Parking Infrastructure



Draft Recommendations

Three-pronged approach:

1. Parking Infrastructure
2. **Parking Management**
3. Parking Operations

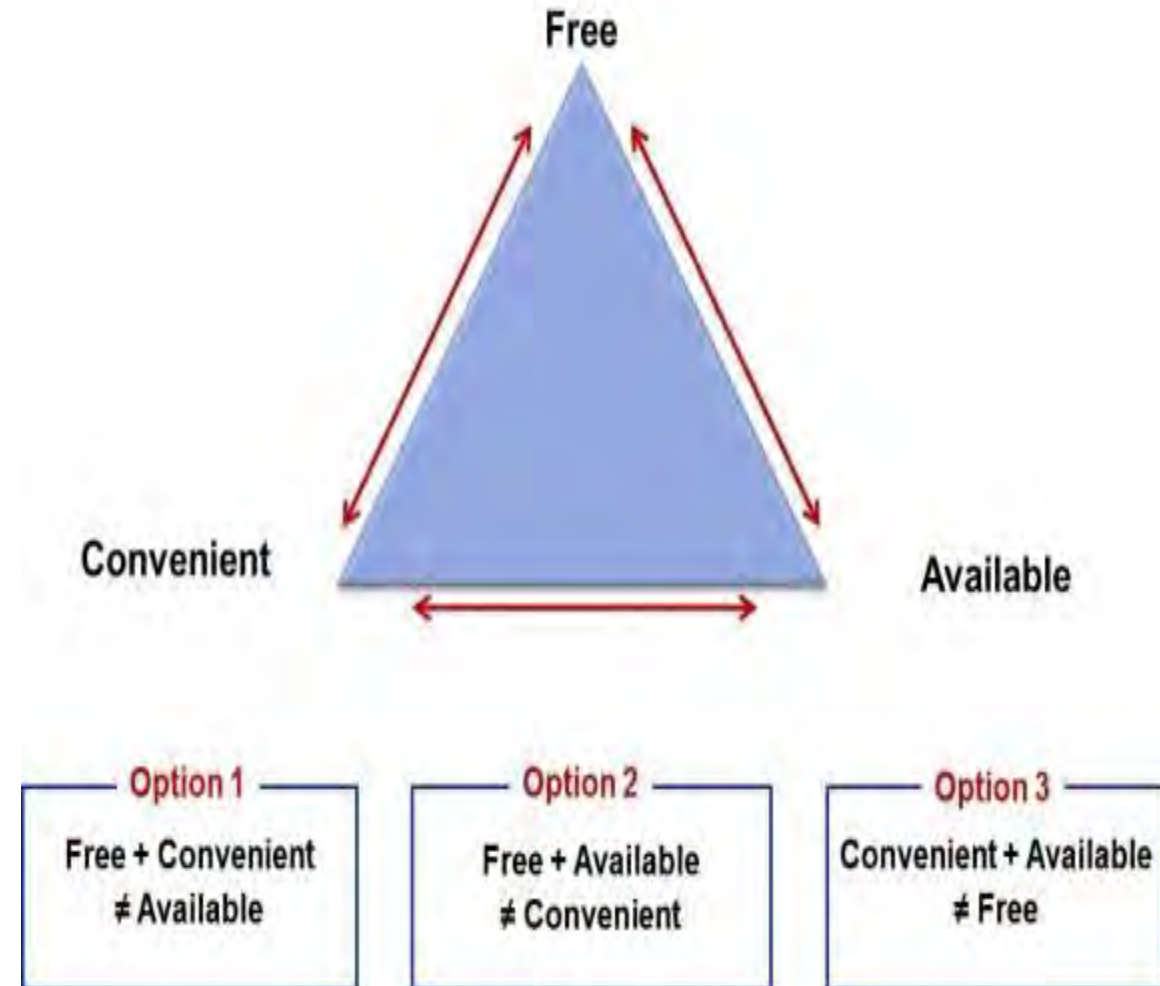


Draft Recommendations: Parking Management

- Parking Authority (short-term)
 - City should create a Parking Authority with broad scope:
 - Parking professional to run & operate
 - Enforcement of downtown parking
 - Funded via revenues from paid parking & enforcement
 - Public-Private Partnership possibilities
 - Oversee the downtown valet system
 - Support creation of private parking options & innovations (surface lots, garages that are part of larger developments, technology, apps, etc)

Draft Recommendations: Parking Management

- Paid Parking:
 - Recent institution of private, paid parking lots within Downtown core
 - Different areas of Downtown require different Parking Management options
 - Recommendations tailored to specific areas



Draft Recommendations: Parking Management

- Payment Structure
 - On-Street
 - Convenient + Available ≠ Free
 - Phased roll-out of payment locations:

Location	1 st Hour	Price/Hour thereafter
<u>Phase 1:</u> Main Street	Free	\$2.00
<u>Phase 2:</u> Streets Intersecting Main Street 1 Block in either direction	Free	\$2.00
<u>Phase 3:</u> All other Streets	Free	\$1.50

Draft Recommendations: Parking Management

▫ Garages

- Convenient + Available ≠ Free
- Conversion to paid in concert with On-street. Garages become paid parking in Phase 2 of On-street roll out
- Parking Authority should coordinate with specific stakeholders on designated parking areas in existing garages prior to implementation

Duration	Price
0-1 hour	Free
1-2 hours	\$1.00
2-3 hours	\$2.00
3-4 hours	\$3.00
4+ hours	\$7.00

Draft Recommendations: Parking Management

- New Surface Lots
 - Free + Available ≠ Convenient
 - Locations for longer-term, specialized users & employees/employers
 - Walkable to most of Downtown Core, but connected to transit (recommend a connector loop similar to the Music City Circuit with frequent services times)



Draft Recommendations: Parking Management

- Enforcement
 - Organized under Parking Authority
 - 9 am – 9 pm enforcement timeframe
 - Downtown Ambassador: Partnership with CVB Ambassador & DFA Greeter programs, while COF remains enforcement.
 - Graduated Violations:

# of Violations	Fee Prior to Notice	Fee After Notice (Issued 30 days after violation)
1st Violation	Warning	Not Applicable
2nd Violation	\$35	\$50
3rd Violation	\$50	\$100
4th Violation	\$100	\$200

Draft Recommendations: Parking Management

- Residential Permit Program (Neighborhood Driven)
 - To protect downtown residential blocks from employees or visitor/patron parkers, a permit system could be instituted at a neighborhoods/block request:
 - Set up to be neighborhood driven, not imposed by City
 - Partnership between residents, DFA, & City
 - Parking Authority to administer

Draft Recommendations: Parking Management

- Policy Changes
 - Zoning:
 - Clarify zoning standards for exemption of existing uses & square footage by adding specific guidance for: tenant build outs, COs, business license, etc.
 - Require new square footage -for any use and/or building- to provide/account for parking
 - Require Change of Use to provide/account for parking
 - Codify the ULI Shared Parking framework as the basis for shared parking (discreet vs shared parking)
 - Explore an In-Lieu of Parking Fee Option
 - Look to identified Best Practices (Greenville, SC; Burlington, VT; Beaufort, SC)

Draft Recommendations: Parking Management

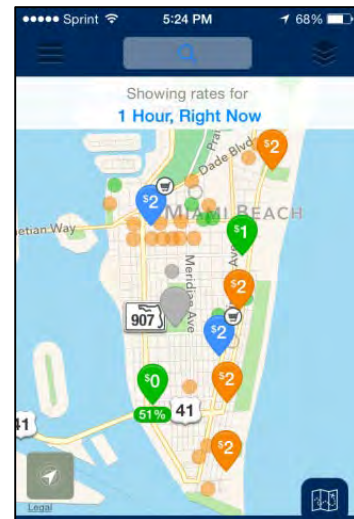
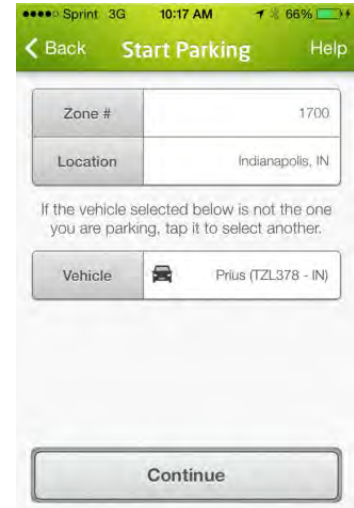
- Policy Changes
 - Valet/Ride Share (zoning & Municipal Code revisions)
 - Parking Authority should control- for overall oversight (accounting of spaces & allocation), enforcement, and contracting authority/agreements
 - Pause any new agreements until Parking Authority is enacted and/or new parking facilities are built. Parking Authority should review existing valet agreements (Special Permits) and make recommendations to BOMA on any updates to existing valet agreements.
 - Limit portion of reserved parking spaces in public garages (per ULI reserved parking in the shared parking analysis)
 - Continue to permit in limited zones (CFCO Special Areas 1 & 2)
 - Valet/Ride Share drop-offs:
 - Prohibit in any travel lane or striped on-street parking space
 - Not permitted along Main Street (Until revised Streetscape)
 - Require a plan & agreements to be on-file & up-to-date with PA
 - A Valet Parking Attendant must be on duty during business hours

Draft Recommendations: Parking Management

- Policy Changes
 - Loading Zones
 - Big issues with big impacts
 - Creation of a partnership study between COF & DFA/Main Street/Business Owners to work through more comprehensive solution
 - Interim Recommendations:
 - Increase enforcement and monitoring of safety issues (blocking accesses/fire lanes)
 - Enforce vehicle class limits
 - Create permitting system to ensure off-peak loading times (require a working group with business/delivery services to determine locations & logistics)

Draft Recommendations: Parking Management

- Technology Recommendations
 - Pay-by-Phone Capabilities
 - Allows notifications to remind user that meter is expiring
 - Ability to pay for parking while walking to destination and extend meter without revisiting the space
 - Ability to have no actual meters distracting from the streetscape in the downtown if desired or could have as an added service, along side meters.



Draft Recommendations: Parking Management

- Technology Recommendations
 - Smart Parking Meters
 - Option along side pay-by-phone or as a stand alone system for paid on-street parking
 - Allow for credit card payment
 - Solar powered
 - Ability to have different costs for different hours of duration to encourage off-street parking for longer durations
 - Utilize multi-space meters to accommodate an entire block face
 - Can be managed from a central computer

Draft Recommendations: Parking Management

- Technology Recommendations
 - Automated Parking Guidance Systems (APGS)
 - Allows patrons and visitors to see not only where parking is available but also how much is in a particular garage
 - Creates more efficient garage as every space can be filled
 - Acts as an added service to those parking



Draft Recommendations

Three-pronged approach:

1. **Parking Infrastructure**
2. **Parking Management**
3. **Parking Operations**



Draft Recommendations: Parking Operations

- Wayfinding
 - Partner with DFA on updating wayfinding within Study Area
 - Comprehensive Wayfinding essential for successful parking functionality



Draft Recommendations: Parking Operations

- Safety
 - Lighting, regular foot patrols, add call boxes at new facilities
 - Upgrades to pedestrian safety infrastructure



Questions + Discussion

Thank you for your time!



Overview of Parking Study Recommendations

Parking Study - Immediate Recommendations	Description
Evaluate and Update Title 15 - Motor Vehicles, Traffic and Parking within Municipal Code	Reduce the parking time from four consecutive hours to two consecutive hours for on-street parking. Evaluate current fee structure associated with parking violations. Complete an overall review of Title 15.
Pedestrian Improvements - 4th Ave South	Install a brick cross walk on 4th Ave South at the existing garage/alley.
Pavement Marking Upgrades	Updating the pavement marking on all city streets to have designated parking and no parking spaces marked within the public right-of-way.

Parking - Short Term Recommendations	Project Description
Surface Parking Lot Land Acquisition	Pursue the acquisition of land within the NE and SE area of the downtown area to accommodate a future public surface parking lot.
Metered Parking - On Street	Evaluate phasing, potential revenue and feasibility associated with metering on-street parking within the downtown area.
Metered Parking - Structured Parking	Evaluate phasing, potential revenue and feasibility associated with metering parking garages within the downtown area.

Parking - Mid Term Recommendations	Project Description
Columbia Ave - Parking Garage	Pursue the acquisition of land and the construction of structure Parking Garage along Columbia Ave.
5th Ave North and Main Street - Parking Garage	Pursue the acquisition of land and the construction of structure Parking Garage near 5th Ave North and Main Street.
Construction of Surface Parking lots	As part of the CIP process the board should prioritize the construction of a surface parking lots in the NE and SE area of the downtown area.

Parking - Long Term Recommendations	Project Description
Parking Authority	Evaluate the pros and cons associated with a Parking Authority and determine the best way to manage parking long term within the downtown area.