

ACTION DENYING REZONE REQUEST

APPLICATION SUBMITTED BY: Beall & Company, LLC

APPLICATION SUBMISSION DATE: July 26, 2022

RE: Request for rezoning of a ±33.657-acre tract of land located at 1291 Virgil Langford Road and fronting Ga Hwy 316, the Oconee Connector, and Mars Hill Road, Oconee County, Georgia, (tax parcel no. C-01-045 and C-01-045B) from B1 PUD (General Business District) and B2 (Highway Business District) to B1 (General Business District) and B2 (Highway Business District) After consideration and a motion and second, the Oconee County Board of Commissioners does hereby deny the above-referenced request for rezoning.

This 7th of February, 2022.

OCONEE COUNTY BOARD OF COMMISSIONERS

BY: _____

John Daniell, Chairman

Mark Thomas, Member

Chuck Horton, Member

Amrey Harden, Member

Mark Saxon, Member

ATTEST:

Holly Stephenson
Holly Stephenson
Clerk, Board of Commissioners



**Planning Department
Oconee County, Georgia
STAFF REPORT**

REZONE CASE #: P22-0155

DATE: October 5, 2022

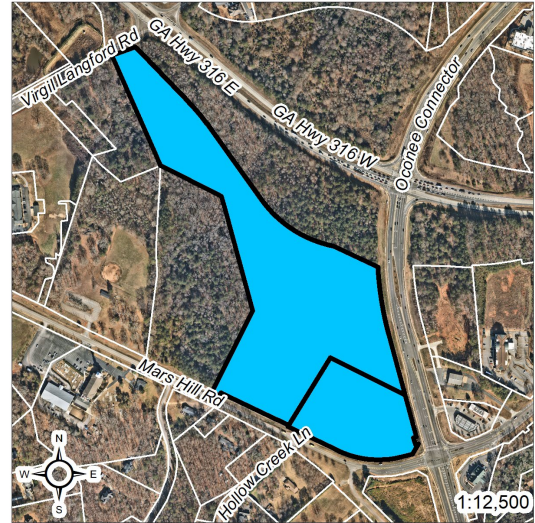
STAFF REPORT BY: Guy Herring (Director of Planning and Code Enforcement)

APPLICANT NAME: Beall & Company, LLC

PROPERTY OWNER: Deferred Tax, LLC

LOCATION: 1291 Virgil Langford Rd. and fronting on GA Highway 316, the Oconee Connector, and Mars Hill Road;
C-01-045 & C-01-045B

PARCEL SIZE: ±33.657 acres



EXISTING ZONING: B-1 PUD (General Business District Planned Unit Development) and B-2 (Highway Business District)

EXISTING LAND USE: Undeveloped B-1 PUD tract and undeveloped B-2 tract fronting on Oconee Connector & Mars Hill Road

FUTURE DEVELOPMENT MAP CHARACTER AREA DESIGNATION: Regional Center

ACTION REQUESTED: Rezone the property from B-1 PUD and B-2 to B-1 (General Business District) and B-2 (Highway Business District) in order to develop 3 B-2 zoned lots and 8 B-1 zoned lots for a total of 11 commercial lots to be available for future purchase.

STAFF RECOMMENDATION: Staff recommends conditional approval of this request.

DATE OF SCHEDULED HEARINGS

PLANNING COMMISSION: November 14, 2022

BOARD OF COMMISSIONERS: December 6, 2022

ATTACHMENTS:

- Application
- Narrative
- Architectural Renderings
- Zoning Impact Analysis
- Plat of Survey
- Concept Plan
- Water & Sewer Capacity Letter
- Traffic Impact Study

BACKGROUND INFORMATION & FINDINGS OF FACT

HISTORY

- The existing 26.802 acre parcel is zoned B-1 PUD in accordance with the rezone documents approved in 1992 (Rezone case #043). The original size of the parcel was 49.63 acres, but 22.828 acres were purchased by GDOT for proposed interchange improvements and for the Oconee Connector.
- In 1988, the Oconee County BOC rezoned parcel C01 045B from A-1 to B-2. This 6.55 acre parcel will be included in the proposed B-2 zoned area.
- The applicant's request is to rezone the B-1 PUD parcel to B-1 for 17.21 acres of the parcel and B-2 for 16.45 acres of the parcel in order to develop the commercial property.
- In 2021, the Oconee County BOC denied a rezone of +/- 46.87 acres for C 01 045, C 01 045B, and C 01 045D from R-1, B-1 PUD and B-2 to B-2.

SURROUNDING LAND USE AND ZONING

	EXISTING LAND USES	EXISTING ZONING
NORTH	Future DOT proposed ramp	None
SOUTH	Single-family residential, vacant land	AG (Agricultural District), AR (Agricultural Residential District), and B-2 (Highway Business District)
EAST	Business, fire station, vacant land	B-2 (Highway Business District)
WEST	Single-family residential	R-1 (Single-Family Residential District) and AG (Agricultural District)

PROPOSED DEVELOPMENT

- The proposed development includes 3 B-2 zoned lots and 8 B-1 zoned lots for a total of 11 commercial lots that will be available for purchase and construction in the future after satisfying all Oconee County requirements.
 - The 3 B-2 lots are proposed as follows:
 - Lot #1 – 10.89 acre lot to accommodate a 48,387 SF Publix supermarket/grocery store and 9,167 SF of attached and detached retail shops. Per the applicant, this proposed development is under contract.
 - Lot #2 – 2.15 acre lot that can accommodate up to 5,720 SF of upscale convenience store, per the applicant.
 - Lot #3 – 1.24 acre lot that can accommodate a 4,000 SF bank/financial services building per the applicant.
 - The 8 B-1 lots are proposed as follows:
 - Lot #4 – 1.42 acre lot that can accommodate a single-story 11,000 SF retail building.
 - Lot #5 – 0.80 acre lot that can accommodate a 3,500 SF fast-food single-story restaurant building.
 - Lot #6 – 1.29 acre lot that can accommodate a single story 11,610 SF retail building of allowed use.
 - Lot #7 – 1.41 acre lot that can accommodate a single story 12,690 SF building of B-1 retail/service use.
 - Lot #8 – 1.83 acre lot that can accommodate a single story 6,500 SF fast casual restaurant building.
 - Lot #9 – 1.31 acre lot that can accommodate a single story 10,000 SF building of B-1 retail/service use.
 - Lot #10 – 2.58 acre lot than can accommodate a 5,000 SF example car wash proposed use.
 - Lot #11 – 6.57 acre lot that can accommodate up to 59,130 SF of general office uses in up to three one and two-story buildings.
 - The development will include a stormwater management facility located in the southeast corner of the property.
 - The existing stormwater pond located on the property will be enlarged and enhanced to become an amenity as well as a functional stormwater management facility.

- Road improvements and utility extensions will be made to serve the development and comply with all local, state, and federal regulations.
- The development will be extensively landscaped including street trees placed throughout the project.
- All utilities in the development will be underground.
- Construction would begin at the end of 2022. Construction of the development's infrastructure would begin immediately upon approval of the construction plans. The site grading and infrastructure will take a minimum of 10-12 months to complete. Building construction on the 11 lots will require a minimum of approximately 3-4 years to complete.
- The projected project valuation is \$40.2 million.

PROPOSED TRAFFIC PROJECTIONS

- An approximate additional 17,781 ADT (average daily trips) are estimated with 1,137 AM peak hours and 1,722 PM peak hours (Trip Generation Manual, 10th Edition). The traffic projections are speculative as they are based upon building sizes and uses that are not yet designed. The trip generation projections were based on general office building, shopping center, shopping plaza, supermarket, drive-in bank, fast casual restaurant, fast-food restaurant, convenience store/gas station, and automobile car wash uses.

PUBLIC FACILITIES

Water:

- The project is proposed to utilize County water services.
- The Water Resources Department has indicated in a letter dated 07/21/2022 that potable water is available at this location.

Sewer:

- The project is proposed to utilize County sewer services.
- The Water Resources Department has indicated in a letter dated 07/21/2022 that wastewater treatment capacity is available for the project based on the requested sewer treatment capacity of 65,905 gpd.

Roads:

- Proposed access locations would include three access points on Mars Hill Road and one access point on the Oconee Connector. The driveway at the Oconee Connector will likely require a traffic signal.

ENVIRONMENTAL

- The property contains 2,435 linear feet of intermittent channel, 235 linear feet of ephemeral channels, 0.5 acres of wetlands, and 0.42 acres of open water.
- The U.S. Army Corps of Engineers issued a permit for this development on January 8, 2021.
- The GA EPD granted a stream buffer variance for the work on February 8, 2021.

COMMENTS FROM OTHER DEPARTMENTS & AGENCIES

OCONEE COUNTY PUBLIC WORKS DEPARTMENT

- All proposed improvements on Mars Hill Road will be installed to meet Oconee County standards.
- All proposed improvements on the Oconee Connector will be installed to meet Oconee County standards and GDOT standards where applicable.

OCONEE COUNTY WATER RESOURCES DEPARTMENT

- All at the owner's expense, the owner shall construct the improvements required by the County for public water and public wastewater services for the subject property and convey the same to the County, free of all liens. Said improvements shall include all on-site improvements and off-site improvements as required by the County to provide service to the subject property.

GEORGIA DEPARTMENT OF TRANSPORTATION

- No comments

TRANSPORTATION CONSULTANT

- At its expense, Owner shall make all right of way improvements and shall dedicate all rights of way which are required by the County after the County's review of Owner's development plans pursuant to the County's ordinances and regulations. All such improvements shall be shown on the preliminary site plan and site development plans for the project and no development permit shall be issued until Owner has agreed to such improvements and dedication.
-

STAFF ANALYSIS

THE ANALYSIS OF THE APPLICATION IS MADE BASED UPON THE "STANDARDS FOR REZONING CONSIDERATION" AS SET FORTH IN SECTION 1207.01 OF THE *OCONEE COUNTY UNIFIED DEVELOPMENT CODE*.

A. Whether the zoning proposal will permit a use that is suitable in view of the existing uses, development, and zoning of nearby property.

Nearby lots are predominantly zoned AG, AR, B-2, or R-1. Primary land uses in the area are a mixture of residential, commercial, and civic/institutional uses. There are compatible B-2 commercial uses that are adjacent to the subject lot. Staff holds that the proposed development is suitable view of the existing nearby development and zoning.

B. Whether the property to be rezoned has a reasonable economic use as currently zoned.

The property has a reasonable economic use for an General Business District and Highway Business District as currently zoned; however, the property is negatively impacted by the current B-1 PUD and B-2 plan as the acreage purchased by GDOT and used for the construction of the Oconee Connector have detracted from the acreage and development capacity of the original subject parcels.

C. The extent to which the zoning proposal promotes the health, safety, morals or general welfare of the public with consideration to:

i. Population density and effect on community facilities such as streets, schools, water, and sewer;

The current request proposes developing an 11-lot commercial development to be constructed in the previously undeveloped lot; a proportionate increase in demand for water and wastewater treatment are anticipated. Increased traffic generation is also anticipated, with an approximate 17,781 additional ADT. The development is also anticipated to significantly increase demand on local streets. Several conditions are suggested below in order to maintain traffic safety in light of future anticipated transportation improvements to the adjacent road network.

ii. Environmental impact;

Environmentally sensitive areas are known to exist on the site. The applicant has received approval for the development from the U.S. Army Corps of Engineers per documentation dated January 8, 2021 and from GA EPD on February 8, 2021. Stormwater management will be in compliance with Oconee County ordinances, according to the applicant.

iii. Effect on the existing use, usability and/or value of adjoining property.

The proposed development is in keeping with surrounding uses and is not anticipated to affect the existing use, usability, and/or value of adjoining property. The Unified Development Code requires that all commercial site lighting be "full cut-off" and directed away from residential areas and street rights-of way (UDC Sec. 306.04). The Mars Hill Overlay further restricts site lighting and prohibiting neon lighting and digital signs, requiring additional trees to be used in screening parking lots and truck loading areas, and restricting several high-intensity land uses that are otherwise allowed in the B-2 zoning district (UDC Sec. 206.04.d). Buffers including the zoning buffers, landscape buffers, overlay plantings, and vehicular screening buffers, would be required as shown on the concept plan. Several conditions are suggested below to further mitigate potential negative impacts of the development. Staff holds that, as conditioned below, the proposed commercial development should not have a significant negative effect on the use, usability and/or value of adjoining property.

D. The length of time the property has been vacant as zoned, considered in the context of land development in the vicinity of the property.

The subject parcels have remained vacant since being rezoned to R-1, B-1 PUD and B-2 in the late 1980s and early 1990s. While the directly adjacent properties have not changed land uses in the last 50 years, several properties in the nearby vicinity have been developed commercially, such as the QuikTrip gas station (2010) and First Madison Bank & Trust (2018) on Oconee Connector, the Springhill Suites hotel on

Daniels Bridge Road (2008), as well as several office buildings along Oconee Connector, Daniels Bridge Road, and Virgil Langford Road.

E. Consistency of the proposed use with the stated purpose of the zoning district that is being requested.

The purpose of the B-1 zoning district is to “provide an area for business and professional offices” and for “institutional uses such as hospitals, nursing homes, convalescent centers, institutional planned developments and clinics” (Unified Development Code Sec. 205.09). The purpose of the B-2 zoning district is to “serve those business activities generally oriented to the highways” (Unified Development Code Sec. 205.10). The specific lots must be developed according to the proposed uses shown on the concept plan and listed in the traffic impact analysis. Staff holds that the proposed commercial development is consistent with the stated purpose of the proposed zoning districts.

F. Whether there are other existing or changing conditions or land use patterns affecting the use and development of the property which give supporting grounds for either approval or disapproval of the zoning proposal.

The subject property’s location along two minor arterial roads (Oconee Connector and Mars Hill Road), Hwy 316 and close proximity to GA-10 Loop increases its suitability for higher-intensity commercial use and gives supporting grounds for approval of the zoning proposal.

G. Conformity with or divergence from the Future Development Map or the goals and objectives of the Oconee County Comprehensive Plan.

The subject property lies within the Regional Center Character Area as shown on the 2040 Character Areas Map. The 2018 Comprehensive Plan describes this “multi-use” Character Area as containing “regional-serving retail and commercial services, office complexes for medical and corporate offices, hotels, restaurants and entertainment facilities, higher-density residential planned developments, and single-family detached subdivisions” (2018 Comprehensive Plan p. 63). The Comprehensive Plan supports B-1 and B-2 zoning in this Character Area (2018 Comprehensive Plan p. 63). Several conditions are recommended below in order ensure conformity with the Comprehensive Plan’s recommended development strategies for this character area, which include the following:

- “Buffers to protect lower-density residential areas within and near the character that would be impacted by higher-density and commercial development of the Character Area;”
- “Where a gradual transition [of land use intensity] is impractical, major buffering between the development and adjacent uses or other solutions should be established through zoning and site plan restrictions;”
- “Plan for a community trail and sidewalk network that is as friendly to alternative modes of transportation as to the automobile” (2018 Comprehensive Plan p. 64).

Staff holds that as conditioned below the proposed development is in conformity with the Future Development Map and goals and objectives of the Oconee County Comprehensive Plan.

H. The availability of adequate sites for the proposed use in districts that permit such use.

It is likely that other B-1 and B-2-zoned properties exist in the county that would permit the requested commercial development use. However, the proposed use of the subject property aligns with adjacent commercial use and the future development plan for the property adequately to support rezoning to allow development of the proposed 11 commercial lots.

STAFF RECOMMENDATION & CONDITIONAL REQUIREMENTS

Based on Board of Commissioners policies, decision-making criteria, and standards outlined in the development codes of Oconee County, staff recommends conditional approval of this request subject to the following conditions to be fulfilled at the expense of the owner/developer:

1. Development design and structures shall meet or exceed the standards indicated on the concept plan, narrative, representative architectural sketches, and other documents submitted with the zoning application and attached hereto. This condition shall not construe approval of any standard that is not in conformity with the Unified Development Code.
2. The owner at their own expense shall construct the improvements required by the County for public water and public waste services for the subject property shall convey same to the County, free of all liens. Said improvements shall include all on-site improvements and such off-site improvements as are required by the County to provide service to subject property.
3. At its expense, Owner shall make all right of way improvements and shall dedicate all rights of way which are required by the County after the County’s review of Owner’s development plans pursuant to the County’s ordinances and regulations. All such improvements shall be shown on the preliminary site plan

and site development plans for the project and no development permit shall be issued until Owner has agreed to such improvements and dedication.

4. All dumpster enclosures shall be brick or stone and shall be architecturally compatible with the commercial buildings on site.
5. All service and truck loading areas shall be screened from public view by a six foot tall masonry wall with façade material to match the exterior of the principal building.
6. In addition to the required 10-foot wide vehicle use area screening and landscape strip along Mars Hill Road, a 25-foot wide structural buffer shall be provided including trees as specified in UDC Sec. 808.04.b.1.b and evergreen plant material as specified in UDC Sec. 808.04.b.3.d.
7. An internal sidewalk network shall connect all uses within the development to sidewalks along Oconee Connector and Mars Hill Road. Pedestrian connectivity shall be provided throughout the development, including raised decorative crosswalks. Final design of the sidewalk network shall be subject to the approval of the Planning Director and shall be shown on the preliminary plat and site development plans for each phase of the development.
8. Pedestrian facilities shall be provided connecting the development to Hollow Creek Lane.
9. Along the full length of the private drives in both phases of the development, no sidewalks shall be located within the 10-foot wide landscape strip/vehicle use area screening.
10. All stormwater management ponds shall be enclosed by black vinyl coated chain link fencing and screened on all sides by a 25-foot wide structural buffer including trees as specified in UDC Sec. 808.04.b.1.b and evergreen plant material as specified in UDC Sec. 808.04.b.3.d. Said buffer shall be provided in lieu of the required evergreen screening of UDC Sec. 116.03.b.5.
11. At the time of preliminary plat submittal, an updated traffic study shall be submitted to the Planning Department reflecting all applicable conditions of zoning and recommendations of County staff, GDOT and any third party review conducted on behalf of the County.
12. Proposed site driveway #1 along Oconee Connector shall be restricted to right-in right-out only, and a southbound dedicated right turn lane into the development shall be installed.
13. Proposed site driveways #2-4 along Mars Hill Road (as described in the traffic study dated 2/11/2022) shall be reduced to one full-access entrances and two right-in right-out entrance as follows: one roundabout shall be installed at Hollow Creek Lane and one right-in right-out entrance on Lot 1 and one right-in right-out entrance on Lot 2. The final entrance designs shall be subject to the approval of the Public Works Director and shall be shown on the preliminary plat and site development plans for each phase of the development.
14. For the entirety of the project's frontage along Mars Hill Road, Mars Hill Road shall be upgraded to County street design standards for arterial roads as outlined in UDC Article 10. Road improvements shall be shown on the preliminary plat and site development plans for each phase of the development.
15. A roundabout shall be installed at the intersection of the two interior private drives between Lot 1 and Lot 8 as shown on the submitted concept plan.
16. Inter-parcel access to adjacent properties shall be required in order facilitate future access from the development to Virgil Langford Road. Said inter-parcel access shall comply with UDC Sec. 608.02 and shall be shown on the preliminary site plan and site development plans for phase II.
17. The total building square footage of the development shall not exceed 186,713 square feet.
18. The development shall meet all standards of the Mars Hill Overlay District as outlined in UDC Sec. 206.04 unless otherwise approved by special exception variance.



OCONEE COUNTY ZONING CHANGE APPLICATION

Requested Action

B-1 PUD

☒ Rezoning from:

& B-2

to B-1

☐ Change in Conditions of Approval for Case #:

☐ Special Use Approval for:

NA

in the NA

Zoning District NA

Applicant

Name: Beall & Company, LLC (Ken Beall, member)

Address: 3651 Mars Hill Road Suite 1400

(No P.O. Boxes)

Watkinsville Georgia 30622

Telephone: 706-543-0907 706-318-5048

Applicant is (check one)

☐

the property owner

☒

Not the property owner (attach Property Owner's Authorization)

Applicant's Certification: I hereby certify that the information contained in and attached to this application is true and correct.

Signature: [Signature]

Date: 11-18-2021

Notarized: [Signature]

Property Owner

Name: DEFERRED TAX, LLC

Address: 1261 Hammond Creek Trail

(No P.O. Boxes)

Watkinaville, GA 30677

Telephone: 770.317.3000 (contact: Maxie Price)

maxieprice1@gmail.com

Property

Location: 1291 Virgil Langford Rd. and fronting on GA Hwy 316 and fronting on the Oconee Connector, and fronting on Mars Hill Road

Tax Parcel Number: C01 045 (26.802 ac.) & C01 045B (6.855 ac.)

Size (Acres): 33.657 Current Zoning B-1 PUD & B-2

Future Land Use Map --Character Area Designation: REGIONAL CENTER

Use

Current Use: undeveloped B-1 PUD tract and undeveloped B-2 tract fronting on Oconee Connector & Mars Hill Road

Proposed Use: Publix Shopping Village and Subdivision of commercial lots to accommodate future General Business uses

Attachments (check all that apply)

(PS - Previously Submitted)

- ☒ Property Owner's Authorization (if applicable)
- ☒ Application Fee
- ☒ Warranty Deed
- ☒ Typed Legal Description
- ☒ Plat of Survey
- ☒ Disclosures (Interest & Campaign Contributions)
- ☒ Zoning Impact Analysis

- ☒ Narrative (Complete Request Description)
- ☒ Concept Plan
- ☒ Attachments to the Concept Plan: See exhibits
- ☒ Water and/or Sewer Capacity Letter from Water Resources Dept.
- ☒ Representative Architecture/Photographs
- ☒ Proof all property taxes paid in full
- ☒ Other Attachments: _____

For Oconee County Staff Use Only

Date Received: _____ Date Accepted: _____

APPLICATION NUMBER

DRI Transmitted to RDC ☐ Date: _____ ☐ N/A

Planning Commission Date: _____

Review Submitted: _____ Location Map: _____

☐ Approval ☐ With Conditions ☐ Denial

Posted: _____ Ad: _____ Ad: _____

Board of Commissioners Date: _____

Application Withdrawn ☐ Date: _____

☐ Approval ☐ With Conditions ☐ Denial

DOCH# 001575
FILED IN OFFICE
02/21/2006 03:53 PM
BK:853 PG:376-380
ANGELA WATSON
CLERK OF SUPERIOR
COURT
OCONEE COUNTY
Angela Watson
REAL ESTATE TRANSFER TAX
PAID: \$0.00
Pl- 61108-2006-287

UPON RECORDING, PLEASE REMIT TO:
Max Olim, Esquire
Max Olim LLC
Suite 400
6100 Lake Forrest Drive, NW
Atlanta, GA 30328

QUITCLAIM DEED

STATE OF GEORGIA
COUNTY OF OCONEE

THIS INDENTURE, made the 21st day of February, in the year two thousand and six, between 316 Holding Group, a Georgia general partnership, James J. McDonald, Jr., Mary Beth McDonald and A. Paul Keller, Jr. of the County of Oconee, State of Georgia, as party or parties of the first part, hereinafter called Grantor, and DEFERRED TAX, LLC, as §1031 Qualified Exchange Intermediary for Maxie Price, LLC of the County of Walton, State of Georgia, as party or parties of the second part, hereinafter called Grantee (the words "Grantor" and "Grantee" to include their respective heirs, successors and assigns where the context requires or permits).

WITNESSETH that: Grantor, for and in consideration of the sum of one dollar (\$1.00) and other valuable consideration in hand paid at and before the sealing and delivery of these presents, the receipt whereof is hereby acknowledged, by these presents does hereby remise, convey and forever QUITCLAIM unto the said Grantee

All those tracts or parcels of land lying and being in the 1331st GM District of Oconee County, Georgia, and more particularly described on Exhibits "A," "B," "C" and "D" attached hereto.

TO HAVE AND TO HOLD the said described premises to Grantee, so that neither Grantor nor any person or persons claiming under Grantor shall at any time, by any means or ways, have, claim or demand any right or title to said premises or appurtenances, or any rights thereof.

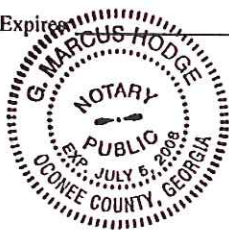
IN WITNESS WHEREOF, the Grantor has signed and sealed this deed, the day and year above written.

Signed, sealed and delivered in the presence of:

Lisa Patterson Culbertson
(Unofficial witness)

(Notary Public)

My Commission Expires



James J. McDonald, Jr. (Seal)
James J. McDonald, Jr.

Mary Beth McDonald (Seal)
Mary Beth McDonald

A. Paul Keller, Jr. (Seal)
A. Paul Keller, Jr.

316 Holding Group, a Georgia general partnership

By: *James R. Simpson* (SEAL)
James R. Simpson, Managing Partner



Case No.: 11870088

BK=853 PG=377

EXHIBIT "A"
(Property Description)

TRACT I

All that tract or parcel of land, containing 13.231 acres, more or less, situate, lying and being in the 1331st District, G.M., Oconee County, Georgia, being shown and delineated as "Tract 1-13.231 acres" according to a plat of survey entitled "Survey for: 316 Holding Group" dated May 7, 1998, prepared by Ray N. Woods, Registered Land Surveyor, said plat being incorporated herein by reference thereto, being more particularly described as follows:

TO FIND THE TRUE POINT OF BEGINNING, begin at an iron pin situate at the southwesterly corner of the intersection of the rights of way of Georgia Highway 316 (right of way varies) and Virgil Langford Road; running thence along the southerly side of Virgil Langford Road south 70 degrees 38 minutes 05 seconds west 152.21 feet to an iron pin; thence leaving the right of way of Virgil Langford Road and running thence south 23 degrees 51 minutes 36 seconds east 722.54 feet to an iron pin, which iron pin is the True Point of Beginning; running thence south 63 degrees 07 minutes 02 seconds east 409.91 feet to an iron pin; running thence south 15 degrees 14 minutes 03 seconds east 712.24 feet to an iron pin; running thence south 26 degrees 44 minutes 36 seconds west 545.17 feet to an iron pin located on the northerly side of Mars Hill Road; running thence along the northerly side of Mars Hill Road north 64 degrees 27 minutes 29 seconds west 437.56 feet to an iron pin; thence leaving the northerly side of Mars Hill Road and running north 07 degrees 25 minutes 22 seconds east 519.21 feet to an iron pin; running thence north 02 degrees 35 minutes 22 seconds west 156.66 feet to an iron pin; running thence north 03 degrees 08 minutes 08 seconds east 500.14 feet to the beginning iron pin and the True Point of Beginning.

EXHIBIT "B"
(Property Description)

TRACT II

All that tract or parcel of land, containing 26.803 acres, more or less, situate, lying and being in the 1331st District, G.M., Oconee County, Georgia, being shown and delineated as "Tract 2-26.803 acres" according to a plat of survey entitled "Survey for: 316 Holding Group" dated May 7, 1998, prepared by Ray N. Woods, Registered Land Surveyor, said plat being incorporated herein by reference thereto, being more particularly described as follows:

BEGINNING at an iron pin situate at the southwesterly corner of the intersection of the rights of way of Georgia Highway 316 (right of way varies) and Virgil Langford Road; running thence along the southerly side of Virgil Langford Road south 70 degrees 38 minutes 05 seconds west 152.21 feet to an iron pin; thence leaving the right of way of Virgil Langford Road and running thence south 23 degrees 51 minutes 36 seconds east 722.54 feet to an iron pin; running thence south 63 degrees 07 minutes 02 seconds east 409.91 feet to an iron pin; running thence south 15 degrees 14 minutes 03 seconds east 712.24 feet to an iron pin; running thence south 26 degrees 44 minutes 36 seconds west 545.17 feet to an iron pin located on the northerly side of Mars Hill Road; running thence along the northerly side of Mars Hill Road the following courses and distances: south 64 degrees 27 minutes 29 seconds east 51.79 feet, north 25 degrees 32 minutes 31 seconds east 20.00 feet and south 64 degrees 27 minutes 24 seconds east 449.47 feet; thence leaving the northerly side of Mars Hill Road and running north 31 degrees 34 minutes 03 seconds 474.47 feet to an iron pin; running thence south 63 degrees 36 minutes 54 seconds east 499.04 feet to a point; running thence south 63 degrees 36 minutes 54 seconds east 9.55 feet to the westerly side of Epps Bridge Road (Relocated); run thence along the westerly side of Epps Bridge Road (Relocated) the following courses and distances: north 14 degrees 52 minutes 27 seconds west 378.61 feet to a point and along a curve to the right an arc distance of 406.24 feet (said arc having a radius of 2009.92 feet and being subtended by a chord bearing north 09 degrees 05 minutes 01 seconds west and having a length of 405.55 feet) to the intersection of the westerly side of Epps Bridge Road (Relocated) with the southerly side of Georgia Highway 316; run thence along the southerly side of Georgia Highway 316 the following courses and distances: north 64 degrees 32 minutes 48 seconds west 290.89 feet, along a curve to the right an arc distance of 530.68 feet (said arc having a radius of 703.11 feet and being subtended by a chord bearing of north 57 degrees 10 minutes 16 seconds west and having a length of 518.17 feet), north 35 degrees 32 minutes 59 seconds west 557.13 feet, along a curve to the left an arc distance of 201.30 feet (said arc having a radius of 1045.92 feet and being subtended by a chord bearing north 41 degrees 03 minutes 48 seconds west and having a length of 200.99 feet) and north 43 degrees 52 minutes 27 seconds west 428.83 feet to the True Point of Beginning.

EXHIBIT "C"
(Property Description)

TRACT III

All that tract or parcel of land, containing 6.855 acres, more or less, situate, lying and being in the 1331st District, G.M., Oconee County, Georgia, being shown and delineated as "Tract 3-6.855 acres" according to a plat of survey entitled "Survey for: 316 Holding Group" dated May 7, 1998, prepared by Ray N. Woods, Registered Land Surveyor, said plat being incorporated herein by reference thereto, being more particularly described as follows:

TO FIND THE TRUE POINT OF BEGINNING, begin at a point located at the southwesterly intersection of the rights of way of Georgia Highway 316 (right of way varies) and Epps Bridge Road (Relocated) (right of way varies) and running thence along a curve along the westerly side of Epps Bridge Road (Relocated) south 09 degrees 05 minutes 01 seconds east 405.55 feet, said curve having a radius of 2009.92 feet an arc distance of 406.24 feet to a point; running thence south 14 degrees 52 minutes 27 seconds east 378.61 feet to a point, which is the True Point of Beginning; thence leaving the westerly side of Epps Bridge Road (Relocated) and running thence north 63 degrees 36 minutes 54 seconds west 9.55 feet to a point; running thence north 63 degrees 36 minutes 54 seconds west 499.04 feet to an iron pin; running thence south 31 degrees 34 minutes 03 seconds west 474.47 feet to a point; running thence south 31 degrees 34 minutes 03 seconds west 10.04 feet to a point located on the northeasterly side of Mars Hill Road; running thence south 64 degrees 28 minutes 07 seconds east 337.38 feet to a point; running thence along a curve south 84 degrees 40 minutes 15 seconds east 382.04 feet, said curve having a radius of 553.13 feet and an arc distance of 390.07 feet to a point; running thence north 75 degrees 07 minutes 33 seconds east 60.83 feet to a point; running thence north 30 degrees 07 minutes 33 seconds east 70.71 feet to a point located on the westerly side of Epps Bridge Road (Relocated); running thence along the westerly side of Epps Bridge Road (Relocated) north 14 degrees 52 minutes 27 seconds west 305.40 feet to the True Point of Beginning.

DOCH# 001575
FILED IN OFFICE
02/21/2006 03:53 PM
BK:853 PG:376-380
ANGELA WATSON
CLERK OF SUPERIOR
COURT
OCONEE COUNTY
Angela Watson
REAL ESTATE TRANSFER TAX
PAID: \$0.00
Pl- 61108-2006-287

UPON RECORDING, PLEASE REMIT TO:
Max Olim, Esquire
Max Olim LLC
Suite 400
6100 Lake Forrest Drive, NW
Atlanta, GA 30328

QUITCLAIM DEED

STATE OF GEORGIA
COUNTY OF OCONEE

THIS INDENTURE, made the 21st day of February, in the year two thousand and six, between 316 Holding Group, a Georgia general partnership, James J. McDonald, Jr., Mary Beth McDonald and A. Paul Keller, Jr. of the County of Oconee, State of Georgia, as party or parties of the first part, hereinafter called Grantor, and DEFERRED TAX, LLC, as §1031 Qualified Exchange Intermediary for Maxie Price, LLC of the County of Walton, State of Georgia, as party or parties of the second part, hereinafter called Grantee (the words "Grantor" and "Grantee" to include their respective heirs, successors and assigns where the context requires or permits).

WITNESSETH that: Grantor, for and in consideration of the sum of one dollar (\$1.00) and other valuable consideration in hand paid at and before the sealing and delivery of these presents, the receipt whereof is hereby acknowledged, by these presents does hereby remise, convey and forever QUITCLAIM unto the said Grantee

All those tracts or parcels of land lying and being in the 1331st GM District of Oconee County, Georgia, and more particularly described on Exhibits "A," "B," "C" and "D" attached hereto.

TO HAVE AND TO HOLD the said described premises to Grantee, so that neither Grantor nor any person or persons claiming under Grantor shall at any time, by any means or ways, have, claim or demand any right or title to said premises or appurtenances, or any rights thereof.

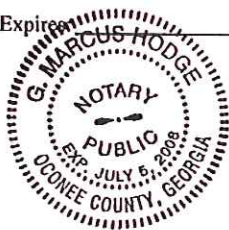
IN WITNESS WHEREOF, the Grantor has signed and sealed this deed, the day and year above written.

Signed, sealed and delivered in the presence of:

Lisa Patterson Culbertson
(Unofficial witness)

(Notary Public)

My Commission Expires



James J. McDonald, Jr. (Seal)
James J. McDonald, Jr.

Mary Beth McDonald (Seal)
Mary Beth McDonald

A. Paul Keller, Jr. (Seal)
A. Paul Keller, Jr.

316 Holding Group, a Georgia general partnership

By: *James R. Simpson* (SEAL)
James R. Simpson, Managing Partner



Case No.: 11870088

BK=853 PG=377

EXHIBIT "A"
(Property Description)

TRACT I

All that tract or parcel of land, containing 13.231 acres, more or less, situate, lying and being in the 1331st District, G.M., Oconee County, Georgia, being shown and delineated as "Tract 1-13.231 acres" according to a plat of survey entitled "Survey for: 316 Holding Group" dated May 7, 1998, prepared by Ray N. Woods, Registered Land Surveyor, said plat being incorporated herein by reference thereto, being more particularly described as follows:

TO FIND THE TRUE POINT OF BEGINNING, begin at an iron pin situate at the southwesterly corner of the intersection of the rights of way of Georgia Highway 316 (right of way varies) and Virgil Langford Road; running thence along the southerly side of Virgil Langford Road south 70 degrees 38 minutes 05 seconds west 152.21 feet to an iron pin; thence leaving the right of way of Virgil Langford Road and running thence south 23 degrees 51 minutes 36 seconds east 722.54 feet to an iron pin, which iron pin is the True Point of Beginning; running thence south 63 degrees 07 minutes 02 seconds east 409.91 feet to an iron pin; running thence south 15 degrees 14 minutes 03 seconds east 712.24 feet to an iron pin; running thence south 26 degrees 44 minutes 36 seconds west 545.17 feet to an iron pin located on the northerly side of Mars Hill Road; running thence along the northerly side of Mars Hill Road north 64 degrees 27 minutes 29 seconds west 437.56 feet to an iron pin; thence leaving the northerly side of Mars Hill Road and running north 07 degrees 25 minutes 22 seconds east 519.21 feet to an iron pin; running thence north 02 degrees 35 minutes 22 seconds west 156.66 feet to an iron pin; running thence north 03 degrees 08 minutes 08 seconds east 500.14 feet to the beginning iron pin and the True Point of Beginning.

EXHIBIT "B"
(Property Description)

TRACT II

All that tract or parcel of land, containing 26.803 acres, more or less, situate, lying and being in the 1331st District, G.M., Oconee County, Georgia, being shown and delineated as "Tract 2-26.803 acres" according to a plat of survey entitled "Survey for: 316 Holding Group" dated May 7, 1998, prepared by Ray N. Woods, Registered Land Surveyor, said plat being incorporated herein by reference thereto, being more particularly described as follows:

BEGINNING at an iron pin situate at the southwesterly corner of the intersection of the rights of way of Georgia Highway 316 (right of way varies) and Virgil Langford Road; running thence along the southerly side of Virgil Langford Road south 70 degrees 38 minutes 05 seconds west 152.21 feet to an iron pin; thence leaving the right of way of Virgil Langford Road and running thence south 23 degrees 51 minutes 36 seconds east 722.54 feet to an iron pin; running thence south 63 degrees 07 minutes 02 seconds east 409.91 feet to an iron pin; running thence south 15 degrees 14 minutes 03 seconds east 712.24 feet to an iron pin; running thence south 26 degrees 44 minutes 36 seconds west 545.17 feet to an iron pin located on the northerly side of Mars Hill Road; running thence along the northerly side of Mars Hill Road the following courses and distances: south 64 degrees 27 minutes 29 seconds east 51.79 feet, north 25 degrees 32 minutes 31 seconds east 20.00 feet and south 64 degrees 27 minutes 24 seconds east 449.47 feet; thence leaving the northerly side of Mars Hill Road and running north 31 degrees 34 minutes 03 seconds 474.47 feet to an iron pin; running thence south 63 degrees 36 minutes 54 seconds east 499.04 feet to a point; running thence south 63 degrees 36 minutes 54 seconds east 9.55 feet to the westerly side of Epps Bridge Road (Relocated); run thence along the westerly side of Epps Bridge Road (Relocated) the following courses and distances: north 14 degrees 52 minutes 27 seconds west 378.61 feet to a point and along a curve to the right an arc distance of 406.24 feet (said arc having a radius of 2009.92 feet and being subtended by a chord bearing north 09 degrees 05 minutes 01 seconds west and having a length of 405.55 feet) to the intersection of the westerly side of Epps Bridge Road (Relocated) with the southerly side of Georgia Highway 316; run thence along the southerly side of Georgia Highway 316 the following courses and distances: north 64 degrees 32 minutes 48 seconds west 290.89 feet, along a curve to the right an arc distance of 530.68 feet (said arc having a radius of 703.11 feet and being subtended by a chord bearing of north 57 degrees 10 minutes 16 seconds west and having a length of 518.17 feet), north 35 degrees 32 minutes 59 seconds west 557.13 feet, along a curve to the left an arc distance of 201.30 feet (said arc having a radius of 1045.92 feet and being subtended by a chord bearing north 41 degrees 03 minutes 48 seconds west and having a length of 200.99 feet) and north 43 degrees 52 minutes 27 seconds west 428.83 feet to the True Point of Beginning.

EXHIBIT "C"
(Property Description)

TRACT III

All that tract or parcel of land, containing 6.855 acres, more or less, situate, lying and being in the 1331st District, G.M., Oconee County, Georgia, being shown and delineated as "Tract 3-6.855 acres" according to a plat of survey entitled "Survey for: 316 Holding Group" dated May 7, 1998, prepared by Ray N. Woods, Registered Land Surveyor, said plat being incorporated herein by reference thereto, being more particularly described as follows:

TO FIND THE TRUE POINT OF BEGINNING, begin at a point located at the southwesterly intersection of the rights of way of Georgia Highway 316 (right of way varies) and Epps Bridge Road (Relocated) (right of way varies) and running thence along a curve along the westerly side of Epps Bridge Road (Relocated) south 09 degrees 05 minutes 01 seconds east 405.55 feet, said curve having a radius of 2009.92 feet an arc distance of 406.24 feet to a point; running thence south 14 degrees 52 minutes 27 seconds east 378.61 feet to a point, which is the True Point of Beginning; thence leaving the westerly side of Epps Bridge Road (Relocated) and running thence north 63 degrees 36 minutes 54 seconds west 9.55 feet to a point; running thence north 63 degrees 36 minutes 54 seconds west 499.04 feet to an iron pin; running thence south 31 degrees 34 minutes 03 seconds west 474.47 feet to a point; running thence south 31 degrees 34 minutes 03 seconds west 10.04 feet to a point located on the northeasterly side of Mars Hill Road; running thence south 64 degrees 28 minutes 07 seconds east 337.38 feet to a point; running thence along a curve south 84 degrees 40 minutes 15 seconds east 382.04 feet, said curve having a radius of 553.13 feet and an arc distance of 390.07 feet to a point; running thence north 75 degrees 07 minutes 33 seconds east 60.83 feet to a point; running thence north 30 degrees 07 minutes 33 seconds east 70.71 feet to a point located on the westerly side of Epps Bridge Road (Relocated); running thence along the westerly side of Epps Bridge Road (Relocated) north 14 degrees 52 minutes 27 seconds west 305.40 feet to the True Point of Beginning.

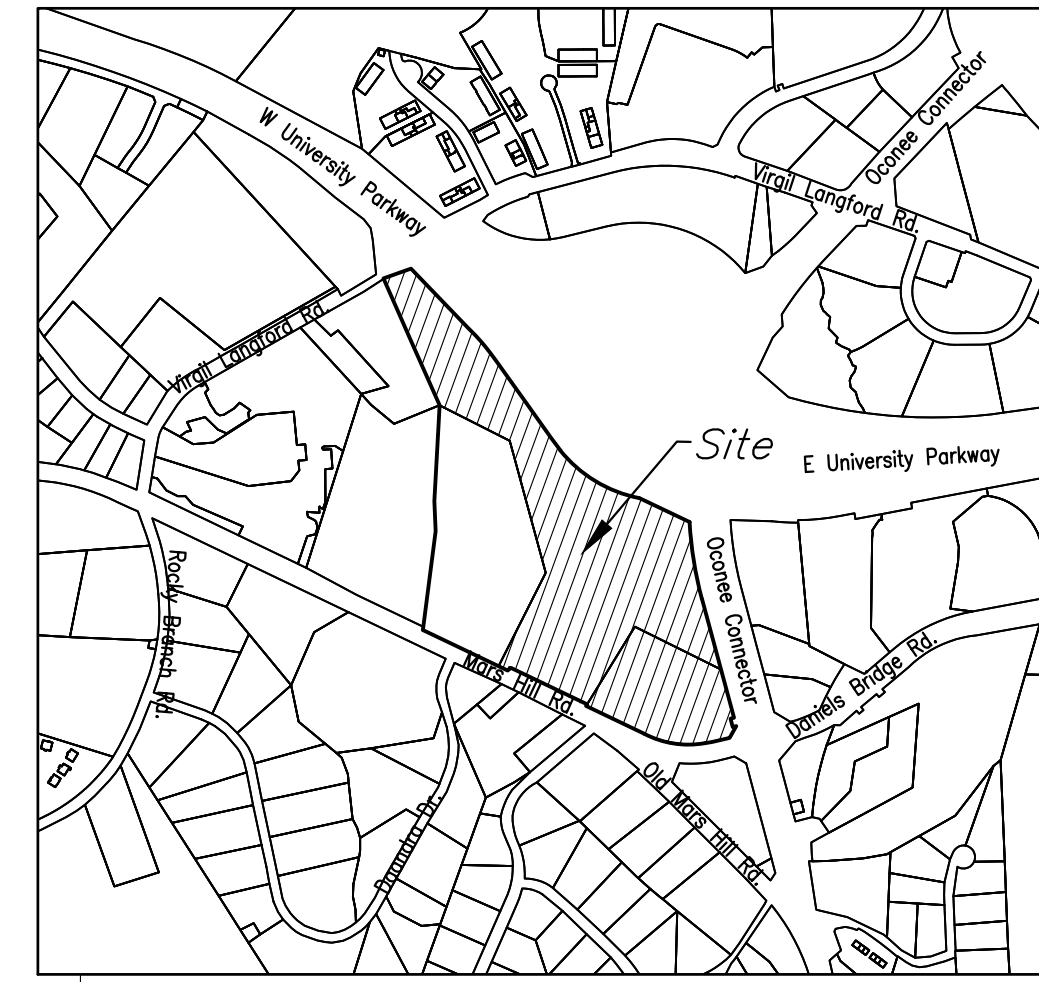
- General Notes:**
1. Lot acreages are approximate.
(see final plot for exact acreages).
 2. Lot dimensions are approximate.
(see final plot for metes and bounds).
 3. Boundary data from: Survey by Rochester & Associates, Inc.
 4. All existing utilities are approximately located.

EPU: Example Proposed Use

LINE	CHORD BEARING	CHORD	ARC	RADIUS
1	S41°03'48"E	200.99'	201.30'	1045.92'
2	S57°10'18"E	518.17'	530.68'	703.11'
3	S09°05'01"E	405.55'	406.24'	2009.92'
4	S30°07'33"W	70.71'		
5	S75°07'33"W	60.83'		
6	N84°40'15"W	382.04'	390.07'	553.13'
7	N31°34'06"E	10.04'		
8	S25°32'31"W	20.00'		
9	N02°35'49"W	156.59'		
10	N64°27'28"W	51.79'		

- NOTES
- 1) Storm Water Management shall be in accordance with Oconee County, state and other appropriate ordinances and regulations in effect at time of construction plan approval.
 - 2) Sign locations and/or permits are not included with these documents. Applications for sign permits are to be submitted separately to the Oconee Code Enforcement Department.
 - 3) Tree save areas are not illustrated on this rezone concept plan. Tree save areas will be determined by the limits of clearing on construction plans to be reviewed by Oconee County Development Review Committee.
 - 4) See Narrative for proposed Development Schedule
 - 5) Stopping sight distances (SDL & SDR) are labeled at intersections on plan.
 - 6) See Sheet 3 for Buffer Planting Details, notes, Street Cross Section detail, and Example Uses Exhibit.

Project Area And Percentage Of Coverage:			
Project Acreage:		33.66 ACRES	
Land Use	Area (SF)	Area (AC)	% of Total
Structures	186,713	4.29	12.73%
Asphalt/Curb/Gutter	734,857	16.87	50.12%
Sidewalk	34,848	0.80	2.38%
Total Project Impervious Cover		956,578 SF / 21.96 AC (65.24%)	
Total Project Pervious Cover		509,661 SF / 11.70 AC (34.76%)	



Site Location Map
Scale: 1"=1000'

Project Data:

Developer: Deferred Tax, LLC
1261 Hammond Creek Trail
Watkinsville, GA 30677

24 Hour Contact: Maxie Price
770-317-3000
maxieprice1@gmail.com

Authorized Agent: Beall & Company, LLC
3651 Mars Hill Road, Suite 1400
Watkinsville, GA 30677
706-543-0907

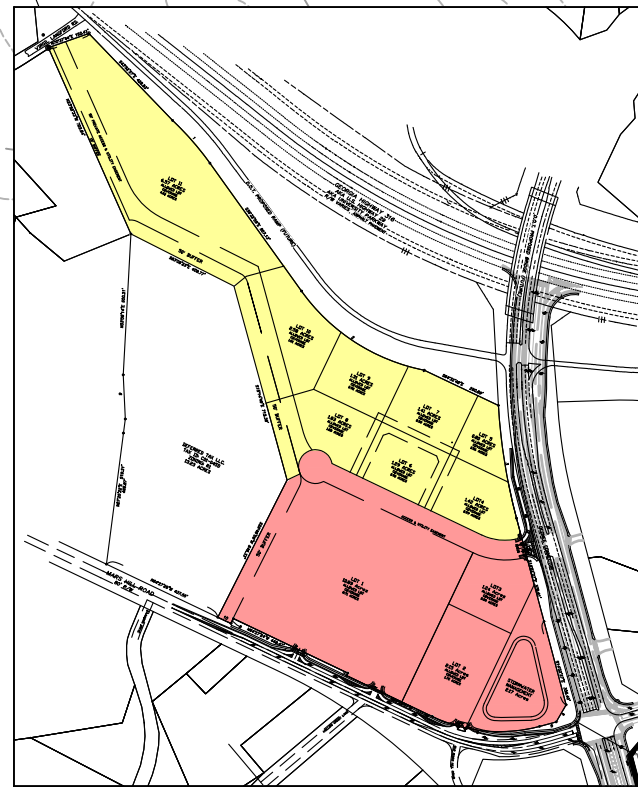
Tax Parcel(s)/Owner(s): C01045, C01045B,
26.802 AC
Deferred Tax, LLC
Zoned B-1 PUD & B-2
33.657 Acres

Project Acreage: 33.657 Acres
Contour Interval: 2 FT Oconee County GIS
Existing Zoning: B-1 PUD & B-2
Proposed Zoning: B-1 & B-2
Existing Use: Undeveloped
Proposed Use: Commercial Subdivision
Proposed Number of Lots: 9 B-1 Lots & 4 B-2 Lots (3+1 Stormwater Lot)
Proposed Lot Sizes: 0.80 - 10.89 Acres
Average Lot Size: 2.805 Acres
Building Setbacks:
Front - 20' (Adjacent to Right-of-Way)
Front - 10'
Rear - 10' (Adjacent to Right-of-Way)
Rear - 10' (Adjacent to Property Line)
Side - 10'

Max Building Height: B-1 Zoning: 35' B-2 Zoning: 55'
Maximum Lot Coverage: B-1 Zoning: 70% B-2 Zoning: 80%
(Per Oconee County Unified Development Code)

Sidewalks: Proposed Sidewalks are 5 FT Wide
Required Parking: See Exhibit 1, Sheet 3
Proposed Parking: See Exhibit 1, Sheet 3
Flood Plain: THIS TRACT OF LAND DOES NOT LIE WITHIN THE 100 YEAR FLOOD ZONE PER FIRM COMMUNITY PANEL #13219C00650, Dated September 2, 2009.

Environmental Areas: State waters do exist within 200 FT of the site.
Water Supply: Oconee County Water Resources
Sewage Disposal: Oconee County Water Resources
Proposed Utilities: POWER, GAS, WATER, SANITARY SEWER, INTERNET/TELEPHONE, CABLE
Solid Waste: BY PRIVATE CONTRACT SERVICE
Surface Drainage: Storm water will be directed via curb and gutter to a proposed storm sewer system and to proposed stormwater detention facilities on a per-lot basis. Most lots will require underground stormwater detention and water quality to achieve required parking counts. Modifications may be made as necessary. See Project Narrative for description of methods for maintaining any common area stormwater management facilities (1206.05.b.6).



PROPOSED ZONING LEGEND (NTS)

B-1 ZONING (GENERAL BUSINESS DISTRICT)

B-2 ZONING (HIGHWAY BUSINESS DISTRICT)

TREE PLANTING REQUIREMENTS & CALCULATIONS:

Landscape Strip Tree Requirements:
1 Large Tree per 40 LF of Landscape Strip Required
5,278 LF of Proposed Landscape Strip
Required Landscape Strip Large Trees = 132

855 LF of Proposed Landscape Strip (LOT 11 Access and Utility Easement)
Required Landscape Strip Large Trees = 21 (LOT 11 Access and Utility Easement)

Vehicular Use Area Screening & Landscape Requirements:

Required Vehicle Use Area Screening shall be in compliance as defined in section 206.04 d.(4) of Oconee County UDC. All vehicular use areas shall be landscaped in compliance with section 803.03 of Oconee County UDC. All outparcel lots shall comply with vehicular use area screening requirements as necessary during construction planning approval process.

1 Evergreen or Shade Tree per 25 LF of Landscape Area Required. 25% of the required trees must be Large Trees.
1086 LF of Proposed Landscape Area.

Lot 1 Vehicular Use Area Screening Requirements:

Required Total Evergreen or Shade Trees = 43
Portion Required to be Large Trees = 11
Note: Per Section 206.04 d.(4), Mars Hill Overlay District Parking Lot Screening and Landscaping supercedes sections 803 (VUA Screening) and 804 (Landscape Strips).

Landscape Buffer Tree Requirements:

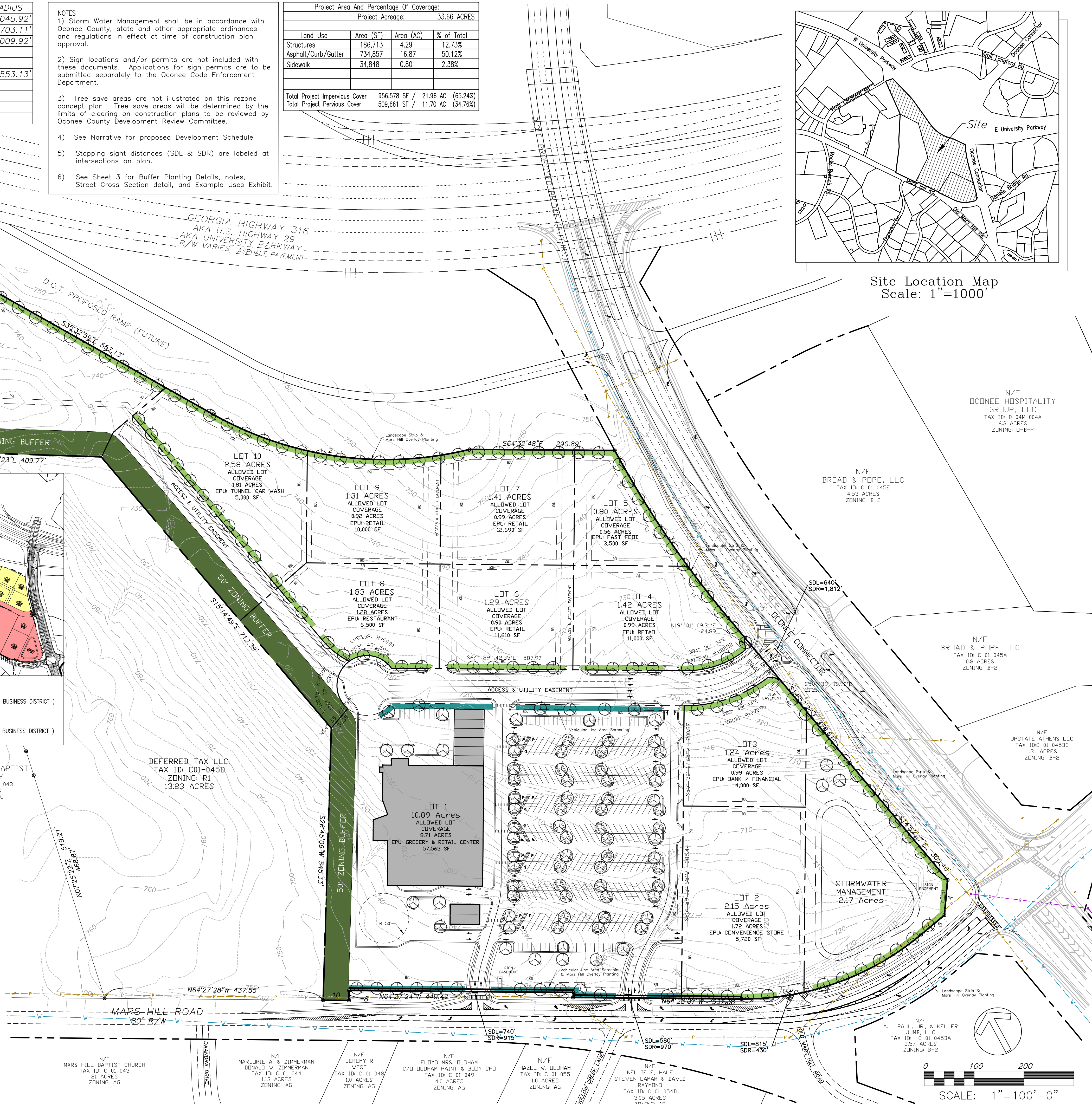
Required Buffers shall be in compliance as defined in section 206.04 d.(5) of Oconee County UDC.

1 Large Tree per 40 LF of Landscape Buffer Required
2390 LF of Proposed Landscape Buffers
Required Landscape Buffer Large Trees = 69

Mars Hill Road Tree Planting Plan:

Any applicable lots shall be in compliance with the Mars Hill Road Tree Planting Plan per section 206.04 d.(6) of Oconee County UDC.

LANDSCAPE AREA LEGEND



BEALL & COMPANY
LAND PLANNING
LANDSCAPE ARCHITECTURE
SITE ENGINEERING
3651 MARS HILL ROAD
SUITE 1400
WATKINSVILLE, GA 30677
(706) 543-0907
www.beallandcompany.com

DEFERRED TAX LLC
33.657 ACRES
TAX PARCEL: C 01 045 AND C 01 045B
1291 VIRGIL LANGFORD RD
OCONEE COUNTY, GEORGIA

OWNER(S)/PERMITTEE
DEFERRED TAX LLC
1261 HAMMOND CREEK TRAIL
WATKINSVILLE GA 30677

24 HOUR CONTACT:
MAXIE PRICE
MAXIEPRICE@GMAIL.COM

GEORGIA
REGISTERED
PROFESSIONAL
LANDSCAPE ARCHITECT
KENNETH A. BEALL
GSWCC LEVEL II
CERTIFICATION #025972

REVISION	DATE	DESCRIPTION
1	6/20/22	Original Rezoning Plan Submittal
2	7/25/22	Rezoning Plan Resubmittal
3	8/06/22	Rezoning Plan Resubmittal
4	8/17/22	Rezoning Plan Resubmittal

DRAWN BY: KGB
DESIGNED BY: KGB
CHECKED BY: KAB

REZONE CONCEPT PLAN
B-1 PUD & B-2 TO
B-1 & B-2

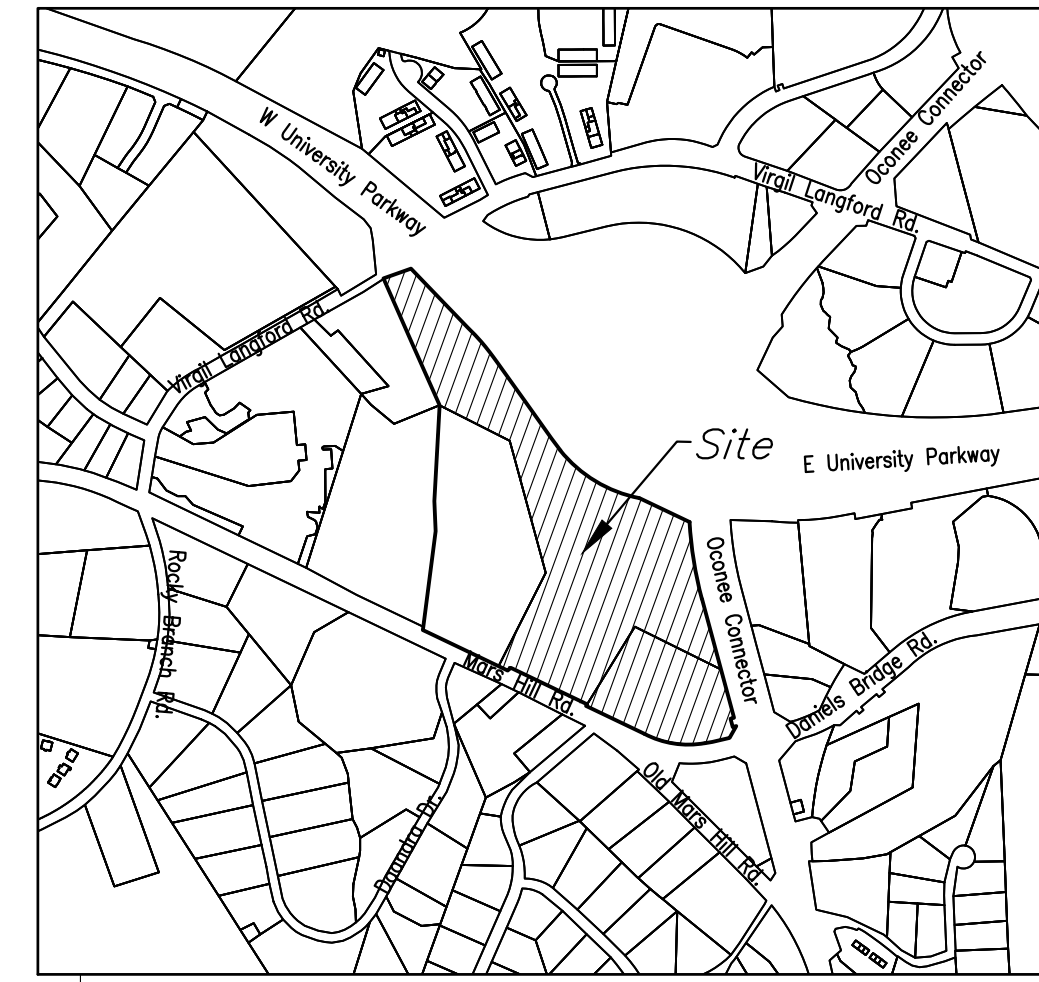
SHEET
24 MONTH STATUS
1
OF 3
DATE: 8/19/2022
JOB: 21-043
NOT RELEASED FOR CONSTRUCTION

- General Notes:**
1. Lot acreages are approximate.
(see final plat for exact acreages).
 2. Lot dimensions are approximate.
(see final plat for metes and bounds).
 3. Boundary data from: Survey by Rochester & Associates, Inc.
 4. All existing utilities are approximately located.

LINE	CHORD BEARING	CHORD	ARC	RADIUS
1	S41°03'48"E	200.99'	201.30'	1045.92'
2	S57°10'18"E	518.17'	530.68'	703.11'
3	S09°05'01"E	405.55'	406.24'	2009.92'
4	S30°07'33"W	70.71'		
5	S75°07'33"W	60.83'		
6	N84°40'15"W	382.04'	390.07'	553.13'
7	N31°34'06"E	10.04'		
8	S25°32'31"W	20.00'		
9	N02°35'49"W	156.59'		
10	N64°27'28"W	51.79'		

- NOTES**
- 1) Storm Water Management shall be in accordance with Oconee County, state and other appropriate ordinances and regulations in effect at time of construction plan approval.
 - 2) Sign locations and/or permits are not included with these documents. Applications for sign permits are to be submitted separately to the Oconee Code Enforcement Department.
 - 3) Tree save areas are not illustrated on this rezone concept plan. Tree save areas will be determined by the limits of clearing on construction plans to be reviewed by Oconee County Development Review Committee.
 - 4) See Narrative for proposed Development Schedule
 - 5) Stopping sight distances (SDL & SDR) are labeled at intersections on plan.
 - 6) See Sheet 3 for Buffer Planting Details, notes, Street Cross Section detail, and Example Uses Exhibit.

Project Area And Percentage Of Coverage:			
Project Acreage:		33.66 ACRES	
Land Use	Area (SF)	Area (AC)	% of Total
Structures	186,713	4.29	12.73%
Asphalt/Curb/Gutter	734,857	16.87	50.12%
Sidewalk	34,848	0.80	2.38%
Total Project Impervious Cover		956,578 SF / 21.96 AC (65.24%)	
Total Project Pervious Cover		509,661 SF / 11.70 AC (34.76%)	



Site Location Map
Scale: 1"=1000'

Project Data:

Developer: Deferred Tax, LLC
1261 Hammond Creek Trail
Watkinsville, GA 30677

24 Hour Contact: Maxie Price
770-317-3000
maxieprice1@gmail.com

Authorized Agent: Beall & Company, LLC
3651 Mars Hill Road, Suite 1400
Watkinsville, GA 30677
706-543-0907

Tax Parcel(s)/Owner(s): C01045, C01045B,
26.802 AC
Deferred Tax, LLC
Zoned B-1 PUD & B-2

Project Acreage: 33.657 Acres

Contour Interval: 2 FT Oconee County GIS

Existing Zoning: B-1 PUD & B-2

Proposed Zoning: B-1 & B-2

Existing Use: Undeveloped

Proposed Use: Commercial Subdivision

Proposed Number of Lots: 8 B-1 Lots & 4 B-2 Lots (3+1 Stormwater Lot)

Proposed Lot Sizes: 0.80-10.89 Acres

Average Lot Size: 2.805 Acres

Building Setbacks: Front - 20' (Adjacent to Right-of-Way)
Front - 10'
Rear - 10' (Adjacent to Right-of-Way)
Rear - 10' (Adjacent to Property Line)
Side - 10'

Max Building Height: B-1 Zoning: 35' B-2 Zoning: 55'

Maximum Lot Coverage: B-1 Zoning: 70% B-2 Zoning: 80%
(Per Oconee County Unified Development Code)

Sidewalks: Proposed Sidewalks are 5 FT Wide

Required Parking: See Exhibit 1, Sheet 3

Proposed Parking: See Exhibit 1, Sheet 3

Flood Plain: THIS TRACT OF LAND DOES NOT LIE WITHIN THE 100 YEAR FLOOD ZONE PER FIRM COMMUNITY PANEL #13219C00650, Dated September 2, 2009.

Environmental Areas: State waters do exist within 200 FT of the site.

Water Supply: Oconee County Water Resources

Sewage Disposal: Oconee County Water Resources

Proposed Utilities: POWER, GAS, WATER, SANITARY SEWER, INTERNET/TELEPHONE, CABLE

Solid Waste: BY PRIVATE CONTRACT SERVICE

Surface Drainage: Storm water will be directed via curb and gutter to a proposed storm sewer system and to proposed stormwater detention facilities on a per-lot basis. Most lots will require underground stormwater detention and water quality to achieve required parking counts. Modifications may be made as necessary. See Project Narrative for description of methods for maintaining any common area stormwater management facilities (1206.05.b.6).

TREE PLANTING REQUIREMENTS & CALCULATIONS:

Landscape Strip Tree Requirements:
1 Large Tree per 40 LF of Landscape Strip Required
5,278 LF of Proposed Landscape Strip
Required Landscape Strip Large Trees = 132

855 LF of Proposed Landscape Strip (LOT 11 Access and Utility Easement)
Required Landscape Strip Large Trees = 21 (LOT 11 Access and Utility Easement)

Vehicular Use Area Screening & Landscape Requirements:

Required Vehicle Use Area Screening shall be in compliance as defined in section 206.04 d.(4) of Oconee County UDC. All vehicular use areas shall be landscaped in compliance with section 803.03 of Oconee County UDC. All outparcel lots shall comply with vehicular use area screening requirements as necessary during construction planning approval process.

1 Evergreen or Shade Tree per 25 LF of Landscape Area Required. 25% of the required trees must be Large Trees.
1086 LF of Proposed Landscape Area.

Lot 1 Vehicular Use Area Screening Requirements:

Required Total Evergreen or Shade Trees = 43
Portion Required to be Large Trees = 11
Note: Per Section 206.04 d.(4), Mars Hill Overlay District Parking Lot Screening and Landscaping supercedes sections 803 (VUA Screening) and 804 (Landscape Strips).

Landscape Buffer Tree Requirements:

Required Buffers shall be in compliance as defined in section 206.04 d.(5) of Oconee County UDC.

1 Large Tree per 40 LF of Landscape Buffer Required

2390 LF of Proposed Landscape Buffers

Required Landscape Buffer Large Trees = 69

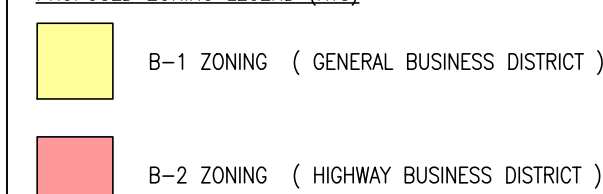
Mars Hill Road Tree Planting Plan:

Any applicable lots shall be in compliance with the Mars Hill Road Tree Planting Plan per section 206.04 d.(6) of Oconee County UDC.

LANDSCAPE AREA LEGEND



PROPOSED ZONING (LEGEND (NTS))



N/F
MARS HILL BAPTIST CHURCH
TAX ID: C 01 043
21 ACRES
ZONING: AG

DEFERRED TAX LLC
TAX ID: C01-045D
ZONING: R1
13.23 ACRES

N/F
MARS HILL BAPTIST CHURCH
TAX ID: C 01 043
21 ACRES
ZONING: AG

N/F
MARJORIE A. & ZIMMERMAN
DONALD W. ZIMMERMAN
TAX ID: C 01 044
113 ACRES
ZONING: AG

N/F
JEREMY R. WEST
TAX ID: C 01 048
1.0 ACRES
ZONING: AG

N/F
FLOYD MRS. OLDHAM
C/O OLDHAM PAINT & BODY SHD
TAX ID: C 01 049
4.0 ACRES
ZONING: AG

N/F
HAZEL W. OLDHAM
TAX ID: C 01 055
1.0 ACRES
ZONING: AG

N/F
NELLIE F. HALE
STEVEN LAMAR & DAVID
RAYMOND
TAX ID: C 01 054D
3.05 ACRES
ZONING: AR

0 100 200 300
SCALE: 1"=100'-0"

NOTICE: THESE DRAWINGS ARE INSTRUMENTS OF PROFESSIONAL SERVICE AND ARE PROTECTED BY COMMON LAW, STATUTORY, AND OTHER RESERVED RIGHTS INCLUDING COPYRIGHT. THESE DRAWINGS MAY NOT BE REPRODUCED OR USED FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF BEALL & COMPANY AND ASSOCIATED PROJECT CONSULTANTS.

BEALL & COMPANY
LAND PLANNING
LANDSCAPE ARCHITECTURE
SITE ENGINEERING
3651 MARS HILL ROAD
SUITE 1400
WATKINSVILLE, GA 30677
(706) 543-0907
www.beallandcompany.com

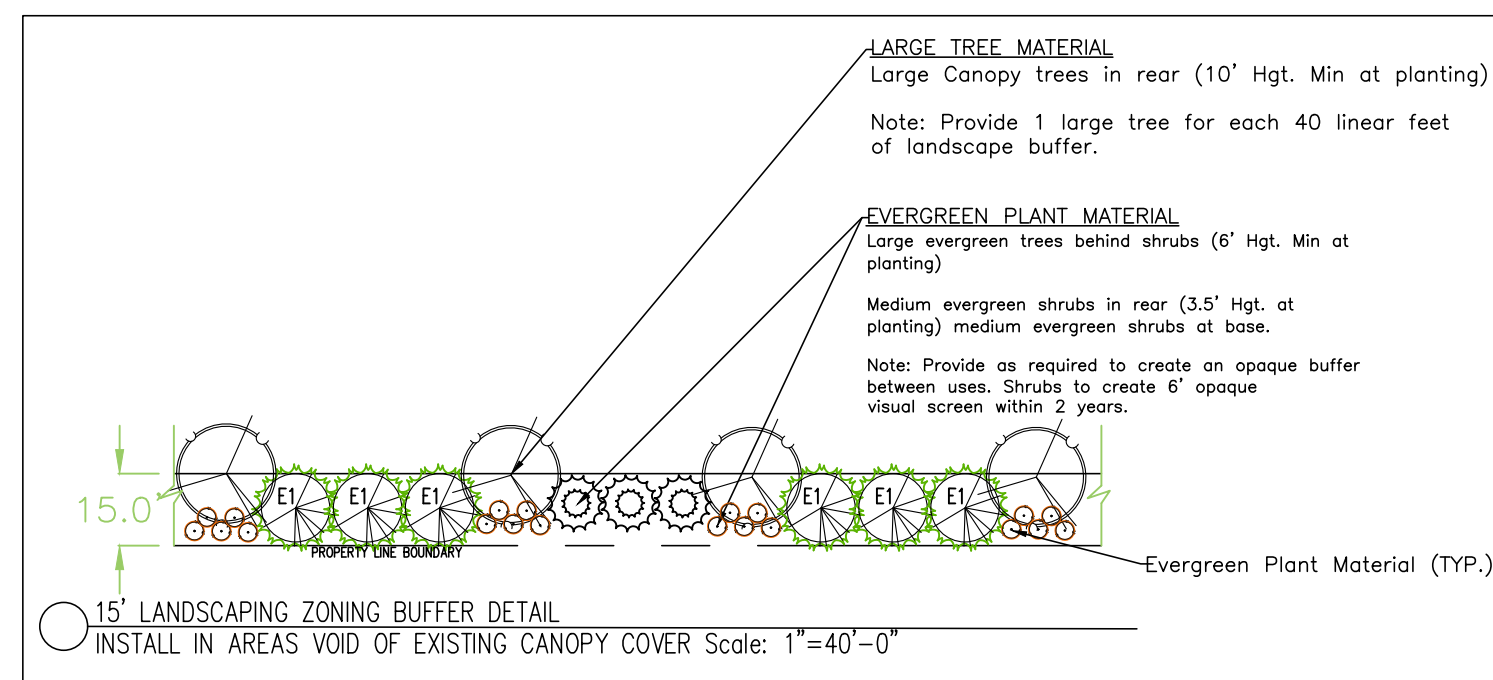
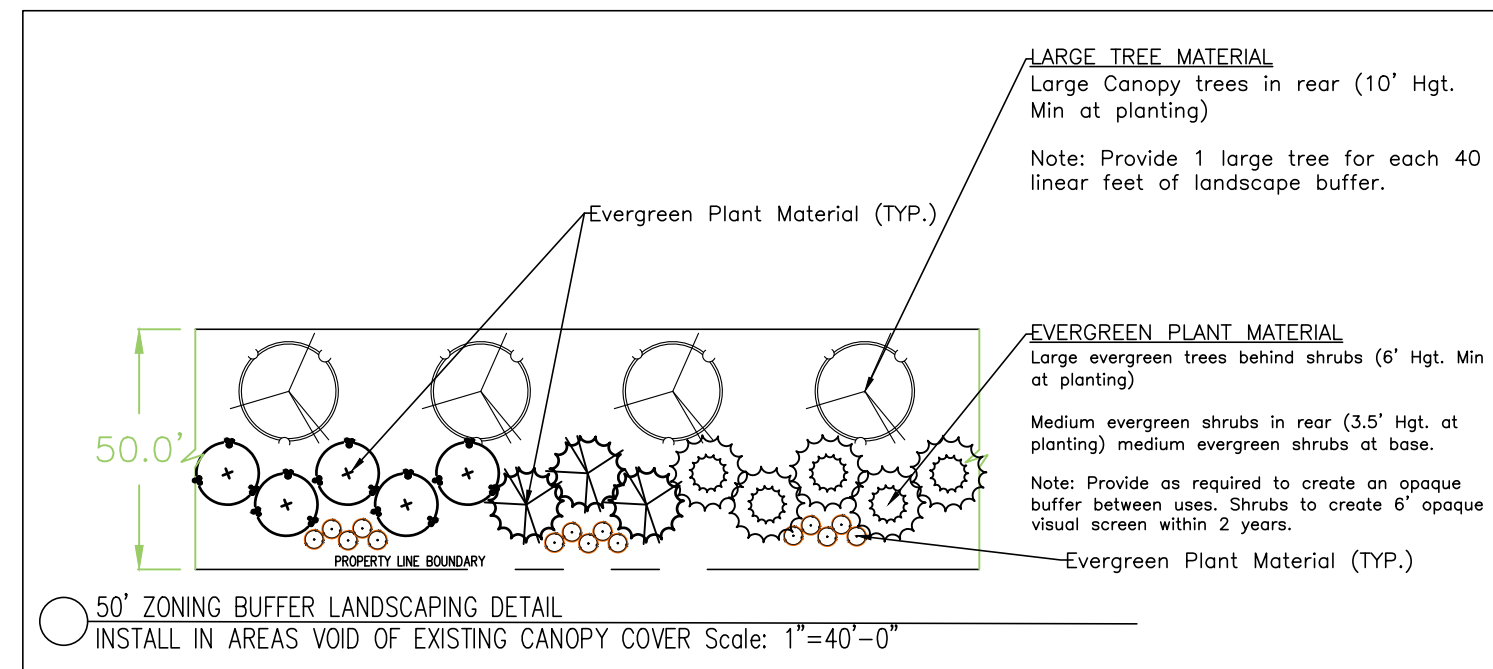
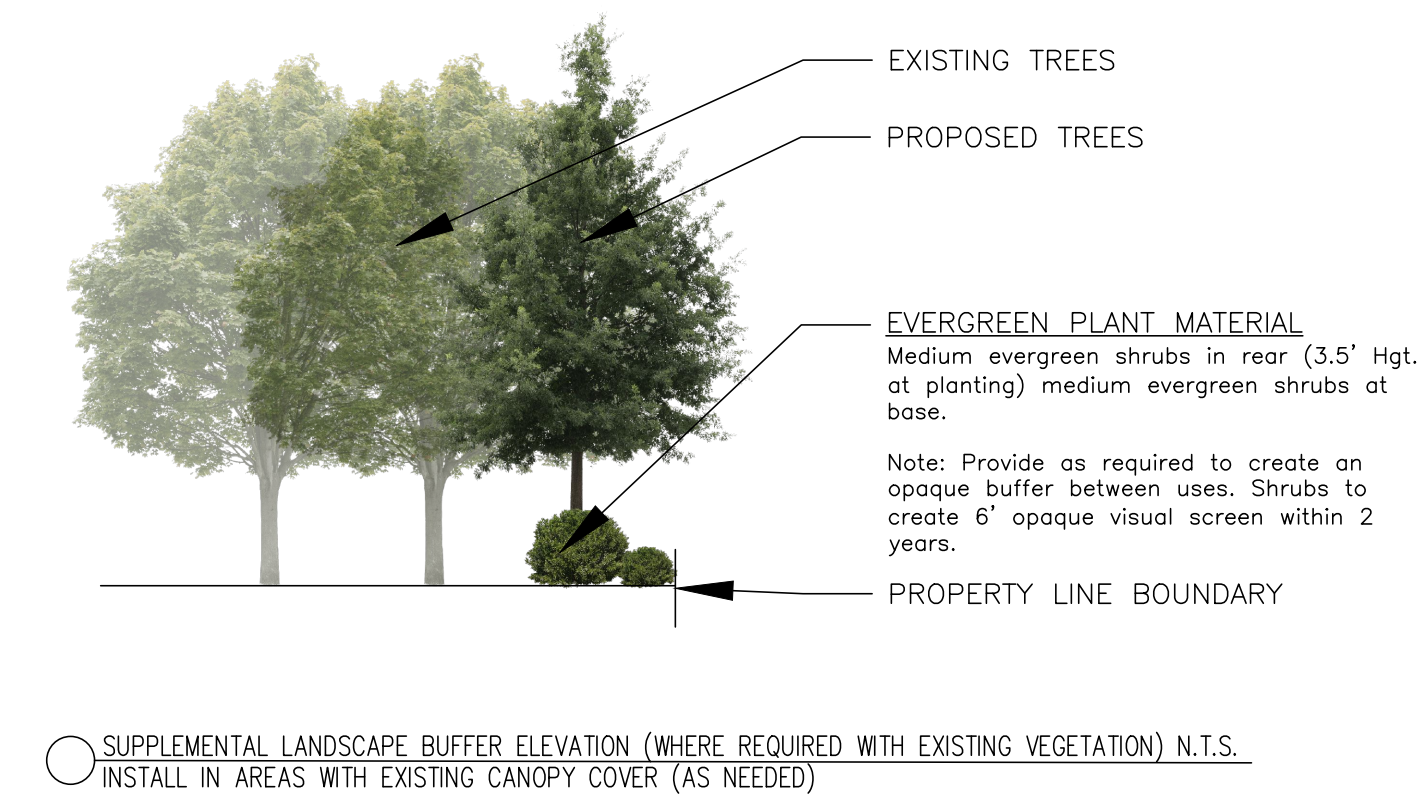
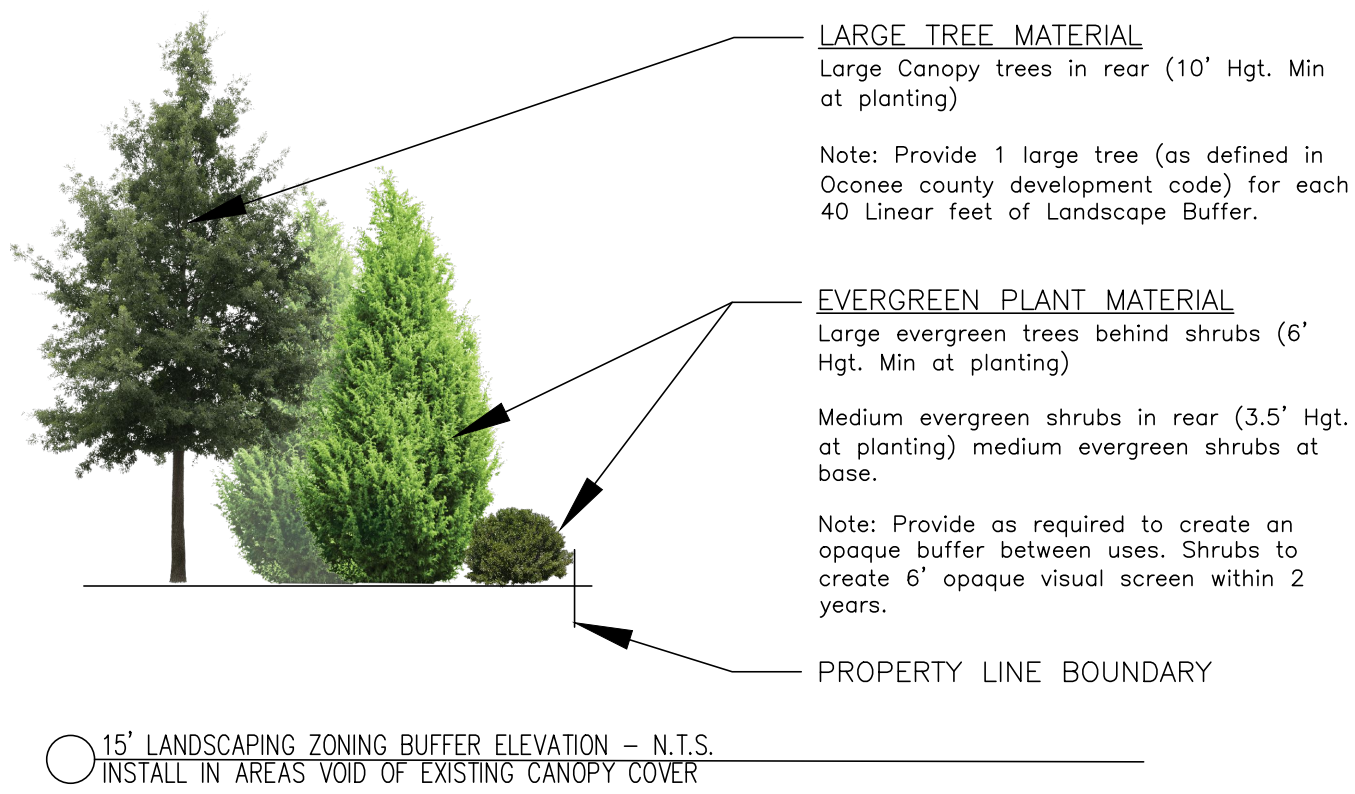
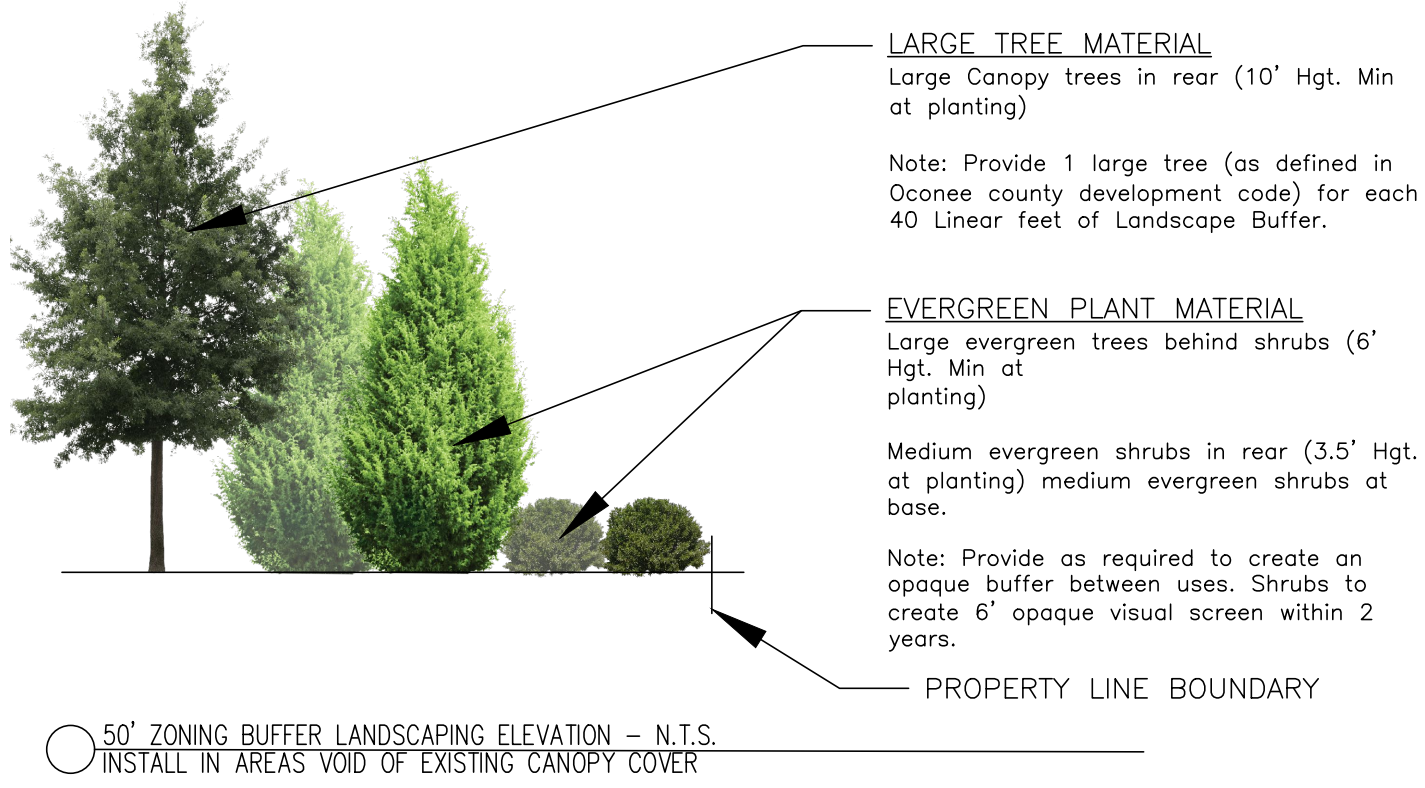
DEFERRED TAX LLC
33.657 ACRES
TAX PARCEL: C 01 045 AND C 01 045B
1291 VIRGIL LANGFORD RD
OCONEE COUNTY, GEORGIA

OWNER(S)/PERMITTEE
DEFERRED TAX LLC
1261 HAMMOND CREEK TRAIL
WATKINSVILLE GA 30677
24 HOUR CONTACT:
MAXIE PRICE
MAXIEPRICE1@GMAIL.COM

GEORGIA
REGISTERED
PROFESSIONAL
LANDSCAPE ARCHITECT
KENNETH A. BEALL
GSWCC LEVEL II
CERTIFICATION #025972

REVISION	DATE	DESCRIPTION
1	6/20/22	Original Rezoning Plan Submittal
2	7/25/22	Rezoning Plan Resubmittal
3	8/06/22	Rezoning Plan Resubmittal
4	8/17/22	Rezoning Plan Resubmittal

DRAWN BY: KGB
DESIGNED BY: KGB
CHECKED BY: KAB
REZONE CONCEPT PLAN
B-1 PUD & B-2 TO
B-1 & B-2
SHEET
60 MONTH STATUS
2
OF 3
DATE: 8/19/2022
JOB: 21-043
NOT RELEASED FOR CONSTRUCTION



STATISTICAL DATA: Deferred Tax, LLC Rezone Documents

- Total Land Area: 33,657 Acres
- Amount of Land to be used for public or semi-public uses: 4.64 Ac. (13.80% of site)
- Access/Utility Easements: 4.64 Ac. (13.80% of site)
- Amount of Land to be used for recreational or open space purposes: 11.70 Ac. (34.76% of site)
- Amount of land to be occupied by streets and parking areas: 18.07 Ac. (53.69% of site)
- Amount of any submerged or flood prone land within the project: 1.70 Ac. (5.05% of site)
- Total ground coverage and floor area of all buildings: ground coverage: 21.96 Ac. (65.24% of site) floor area: 4.29 Ac. (12.73% of site)
- Breakdown of the number and kinds of proposed buildings including square footage, and the number and range of lot sizes and proposed setback and yard dimensions for typical lots and/or building types:
 - Number of proposed buildings: 14
 - Kinds of proposed buildings: See EXHIBIT 1 for kinds of buildings
 - Size of individual buildings: 2500 SF to 55,063 SF
 - Range of building sizes: 11 commercial lots & 1 stormwater management lot
 - Total number of lots proposed: 2,805 Ac.
 - Average Lot Size: 0.80 Ac. to 10.89 Ac.
 - Range of Lot Sizes: see Rezone Concept Plan
 - Proposed setbacks:

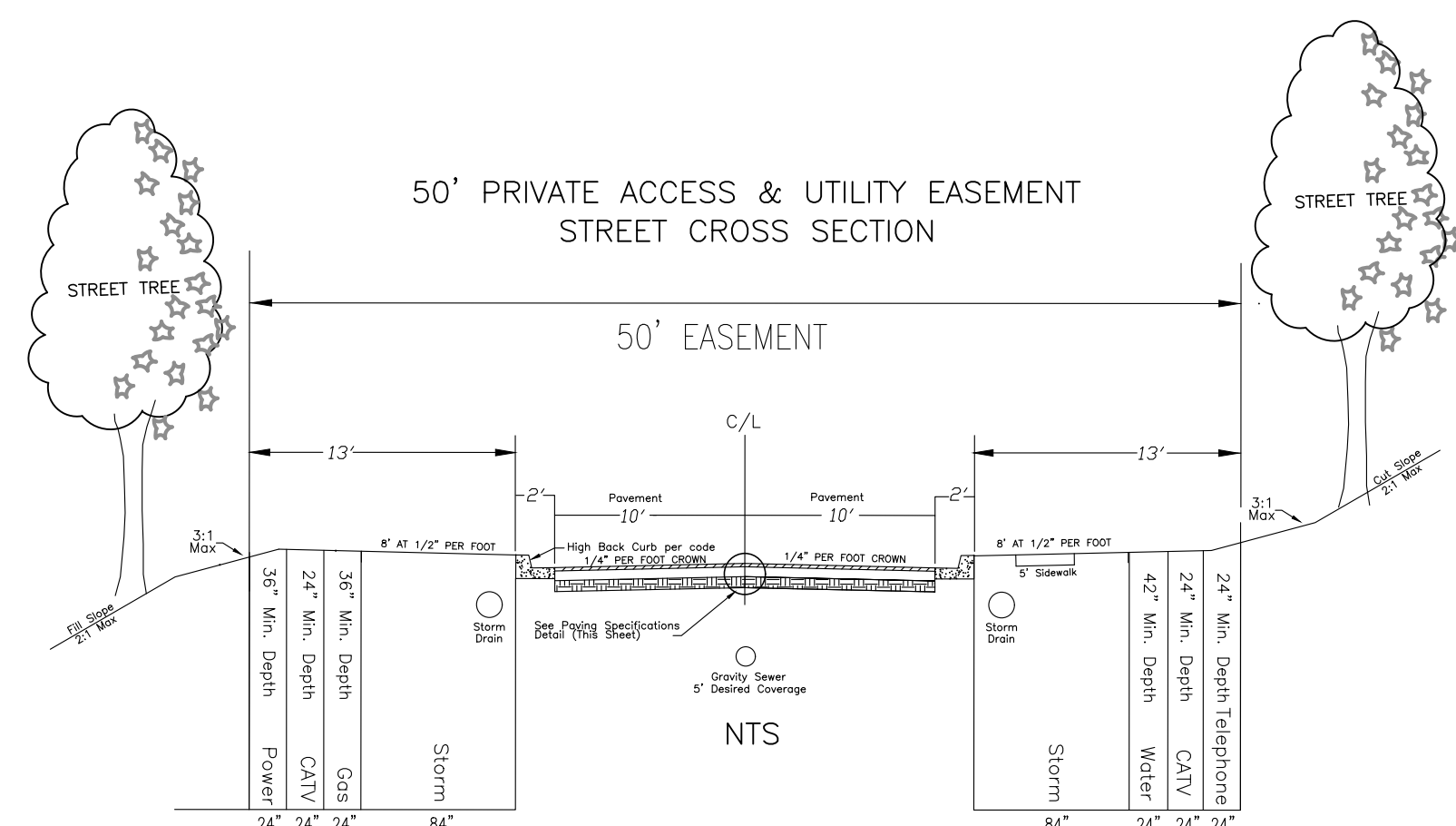
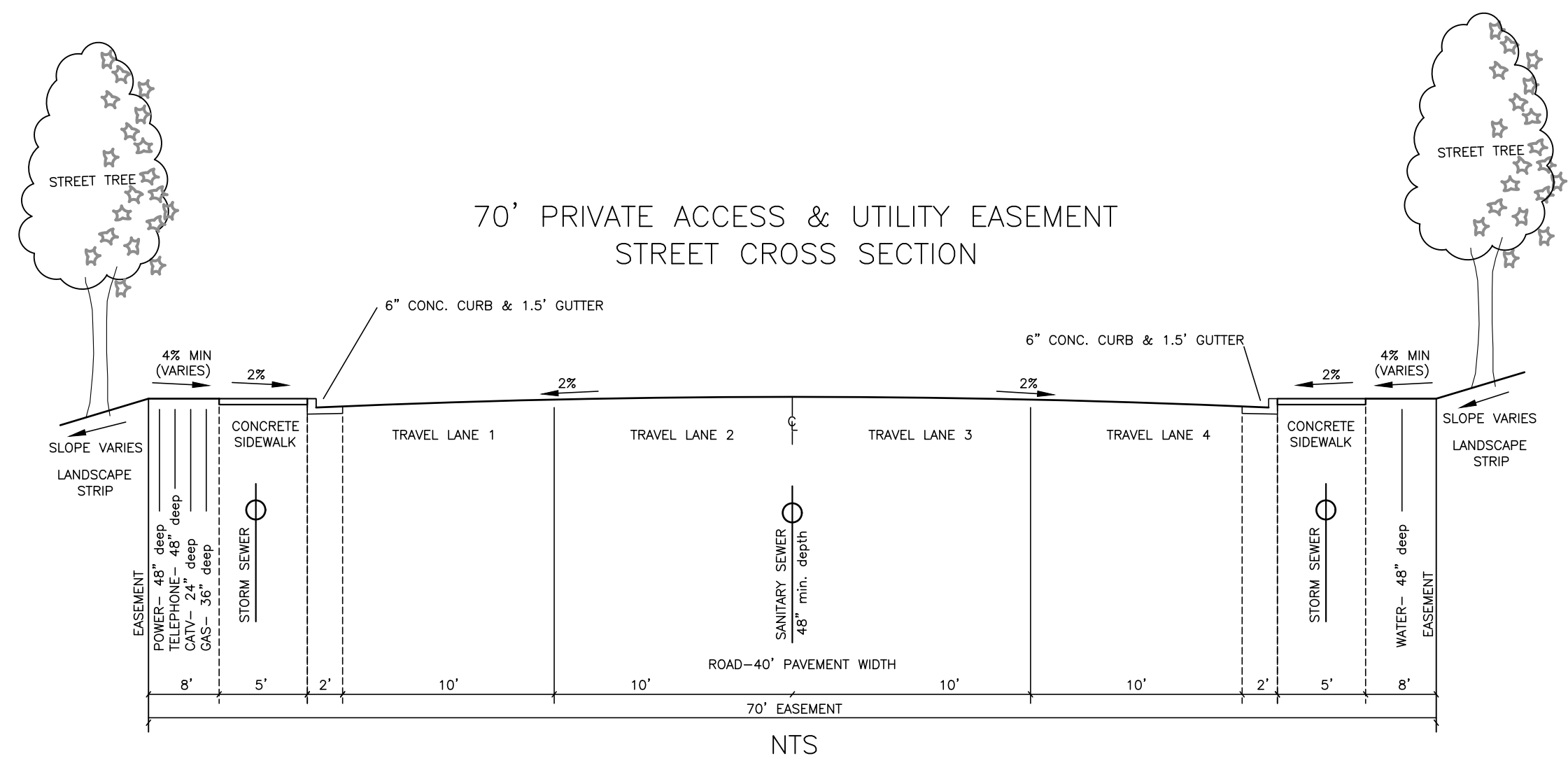


EXHIBIT 1: Example B-1 and B-2 Uses in Proposed Commercial Subdivision

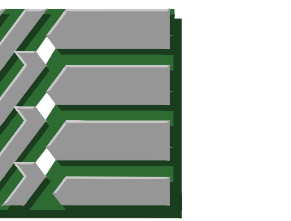
B-1 and B-2 COMMERCIAL SUBDIVISION Project Data				Table 6.1		Parking Required		Minimum Required		Maximum		Estimated Average Building & Lot Value	Allowable Maximum Coverage	Estimated Actual Coverage
Lot #	Acreage	zone	Building SF	Example Proposed Uses in District	Use	#/sf	Parking at 100%	Parking at 110%***	Parking at 110%***	Parking at 110%***	Parking at 110%***	Value	B-1 at 70% B-2 at 80%	
Storm Outlot	2.17	B-2	NA									\$0	1.52	0.00
1	10.89	B-2	57,563	Grocery & Retail Center*	b.40.i	5/1000	288	317				\$11,512,600	8.71	7.97
2	2.15	B-2	5,720	Convenience Store	b.1	1/300sf	19	21				\$1,287,000	1.72	1.57
3	1.24	B-2	4,000	Bank/Financial	b.9	4/1000	16	18				\$1,700,000	0.99	0.91
4	1.42	B-1	11,000	Retail	b.1	1/300sf	37	40				\$2,200,000	0.99	0.97
5	0.80	B-1	3,500	Restaurant (fast food)**	b.18g	10/1000	35	39				\$1,312,500	0.56	0.54
6	1.29	B-1	11,610	Retail	b.1	1/300sf	39	43				\$1,741,500	0.90	0.88
7	1.41	B-1	12,690	Retail	b.1	1/300sf	42	46				\$2,347,650	0.99	0.94
8	1.83	B-1	6,500	Restaurant	b.18d	10/1000	65	72				\$1,202,500	1.28	1.21
9	1.31	B-1	10,000	Retail	b.1	1/300sf	33	37				\$1,850,000	0.92	0.85
10	2.58	B-1	5,000	Tunnel Car Wash (SUP req'd)****	b.14	1+5/1000	26	29				\$1,750,000	1.81	1.73
11	6.57	B-1	59,130	General Office	b.36	3/1000	177	195				\$13,304,250	4.60	4.40
Totals	33.66		186,713				777	855				\$40,208,000	24.99	21.96
	<i>Acreage In Lots Total</i>		<i>Building Square Footage Total</i>				<i>Parking Space Total</i>	<i>Parking Space Total</i>				<i>Building & Lot Value Total</i>	<i>Maximum Coverage Total Ac.</i>	<i>Estimated Coverage</i>

*As of the date of the subject rezone submittal there is only one contract to purchase Lot #1 for a 57,563 square foot Grocery/Supermarket Retail Shopping Center. All other example uses and building square footage are speculative at this time. The Traffic Impact Analysis submitted along with the subject rezone petition is generally consistent with the building square footages listed in this exhibit with minor deviations.

**Restaurant (fast food) with Drive-thru if requested will require a Special Use Permit in the B-1 Mars Hill Overlay District.

***Maximum Parking allowed with administrative variance request.

****Tunnel Car Wash use will require a Special Use Permit in the Mars Hill Overlay District if requested.



BEALL & COMPANY

LAND PLANNING
LANDSCAPE ARCHITECTURE
SITE ENGINEERING

3651 MARS HILL ROAD
SUITE 1400
WATKINSVILLE, GA 30677
(706) 543-0907
www.beallandcompany.com

DEFERRED TAX LLC
33.657 ACRES
TAX PARCEL: C 01045 AND C 01045B
1291 VIRGIL LANGFORD RD
OCONEE COUNTY, GEORGIA

OWNER(S)/PERMITTEE

DEFERRED TAX, LLC
1261 HAMMOND CREEK TRAIL
WATKINSVILLE, GA 30677

24 HOUR CONTACT:

MANIE PRICE
MAXIEPRICE@GMAIL.COM



GSWCC LEVEL II
CERTIFICATION #025972

REVISION	DATE	DESCRIPTION
1	6/20/22	Original Rezone Plan Submittal
2	7/25/22	Rezone Plan Resubmittal
3	8/06/22	Rezone Plan Resubmittal
4	8/17/22	Rezone Plan Resubmittal

DRAWN BY: KGB
DESIGNED BY: KGB
CHECKED BY: KAB

REZONE CONCEPT PLAN
B-1 PUD & B-2 TO B-1 & B-2

SHEET

3
OF 3

DATE: 8/19/2022
JOB: 21-043

NOT RELEASED FOR CONSTRUCTION

NOTICE: THESE DRAWINGS ARE INSTRUMENTS OF PROFESSIONAL SERVICE AND ARE PROTECTED BY COMMON LAW, STATUTORY, AND OTHER RESERVED RIGHTS INCLUDING COPYRIGHT. THESE DRAWINGS MAY NOT BE REPRODUCED OR USED FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF BEALL AND COMPANY AND ASSOCIATED PROJECT CONSULTANTS.

PROPERTY OWNER'S
DISCLOSURE OF CAMPAIGN CONTRIBUTIONS
APPLICATION FOR REZONING

Pursuant to section 36-67A-1 et seq. of the Georgia Code Annotated, adopted by the Georgia General Assembly, effective July 1, 1986, the following disclosure is mandatory. When any applicant for rezoning action has made, within two years immediately preceding the filing of that applicant's application for the rezoning action, campaign contributions aggregating \$250.00 or more to a local government official, it shall be the duty of the applicant and the agent representing the applicant to file a disclosure report with the governing authority of the respective local government.

Any applicant for rezoning action knowingly failing to make any disclosure as required by Code Section 36-67 A-1 et seq. shall be guilty of a misdemeanor.

- A. Name of local government official to whom the campaign contribution or gift was made (or N/A if not applicable):

N/A

- B. The dollar amount of each campaign contribution made by the applicant to the local government official during the two years immediately preceding the filing of the application for the rezoning action and the date of each such contribution (or N/A if not applicable):

Amount: \$0.00

Date of contribution: N/A

- C. Enumeration and description of each gift having a value of \$250.00 or more made by the applicant to the local government official during the two years immediately preceding the filing of this application for rezoning (or N/A if not applicable).

\$0.00

Signature of owner:

Maxie Price

Date: 11.18.2021

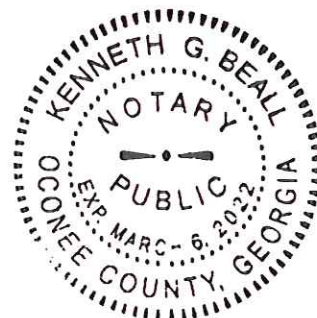
Signature of applicant:

Kenneth A. Beall

Date: 11.18.2021

Signature of Notary Public:

Date: 11/18/2021



DISCLOSURE OF INTEREST
APPLICATION FOR REZONING
OCONEE COUNTY, GEORGIA

To the best of my knowledge, no local government official, including members of the Planning Commission and members of the Board of the Commissions, has a property interest in any real property affected by a rezoning action or has a financial interest in any business entity which has a property interest, or has a member of his/her family having such an interest.

Signature of owner

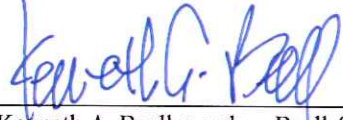
Date


Maxie Price, Manager DEFERRED TAX LLC

11.18.2021

Signature of Applicant

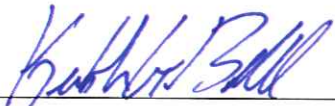
Date


Kenneth A. Beall member, Beall & Company, LLC

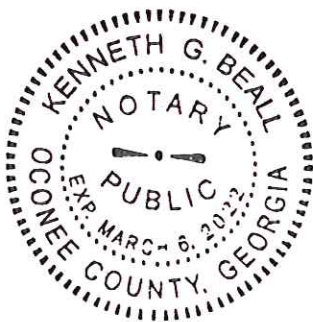
11.18.2021

Signature of Notary Public

Date



11/18/2021



Legal Description
Tract 1

All that tract or parcel of land lying and being in G.M.D 1331, Oconee County, Georgia and being more particularly described as follows:

Beginning at the mitered intersection of the Southwestern Right-of-Way of Oconee Connector, F.K.A. Epps Bridge Road (R/W varies) with the Northern Right-of-Way of Mars Hill Road (R/W varies); thence along the Right-of-way of said Mars Hill Road the following courses and distances: South 30°07'33" West, a distance of 70.71 feet to a point; thence South 75°07'33" West, a distance of 60.83 feet to a point; thence 390.07 feet along the arc of a curve to the right, having a radius of 553.13 feet and a bearing and distance of North 84°40'15" West, 382.04 feet to a point; thence North 64°28'07" West, a distance of 337.38 feet to a point; thence North 31°34'06" East, a distance of 10.04 feet to a point, being the **True Point of Beginning**; thence continuing along said Right-of-Way of Mars Hill Road North 64°27'24" West, a distance of 449.47 feet to a point; thence South 25°32'31" West, a distance of 20.00 feet to a point; thence North 64°27'28" West, a distance of 51.79 feet to a point; thence leaving said Right-of-Way and into the property now or formerly of Deferred Tax, LLC. North 26°45'06" East, a distance of 545.33 feet to a 1/2" rebar; thence North 15°14'49" West, a distance of 712.39 feet to a 1/2" rebar; thence North 63°08'23" West, a distance of 409.77 feet to an axle; thence along the property now or formerly of Havel W. Everett, North 23°52'33" West, a distance of 722.54 feet to a point on the Southern Right-of-Way of Virgil Langford Road (R/W varies); thence along said Right-of-Way North 70°37'44" East, a distance of 152.41 feet to a point on the Southwestern Right-of-Way of Georgia Highway 316, A.K.A. U.S. Highway 29, A.K.A. University Parkway (R/W varies); thence along said Right-of-Way the following courses and distances: South 43°52'27" East, a distance of 428.83 feet to a point; thence 201.30 feet along the arc of a curve to the right, having a radius of 1045.92 feet and a chord bearing and distance of South 41°03'48" East, 200.99 feet to a point; thence South 35°32'59" East, a distance of 557.13 feet to a point; thence 530.68 feet along the arc of a curve to the left, having a radius of 703.11 feet and a chord bearing and distance of South 57°10'18" East, 518.17 feet to a point; thence South 64°32'48" East, a distance of 290.89 feet to a point on the Western Right-of-Way of said Oconee Connector; thence along said Right-of-Way, 406.24 feet along the arc of a curve to the left, having a radius of 2009.92 feet and a chord bearing and distance of South 09°05'01" East, 405.55 feet to a point; thence South 14°52'27" East, a distance of 378.61 feet to a point; thence leaving said Right-of-Way and into the property now or formerly of Deferred Tax, LLC. North 63°36'58" West, a distance of 499.04 feet to a point; thence South 31°34'06" West, a distance of 474.47 feet to the **True Point of Beginning**.

Said tract contains 26.802 Acres.

Legal Description
Tract 2

All that tract or parcel of land lying and being in G.M.D 1331, Oconee County, Georgia and being more particularly described as follows:

Beginning at the mitered intersection of the Southwestern Right-of-Way of Oconee Connector, F.K.A. Epps Bridge Road (R/W varies) with the Northern Right-of-Way of Mars Hill Road (R/W varies); thence along the Right-of-way of said Mars Hill Road the following courses and distances: South 30°07'33" West, a distance of 70.71 feet to a point; thence South 75°07'33" West, a distance of 60.83 feet to a point; thence 390.07 feet along the arc of a curve to the right, having a radius of 553.13 feet and a bearing and distance of North 84°40'15" West, 382.04 feet to a point; thence North 64°28'07" West, a distance of 337.38 feet to a point; thence leaving said Right-of-Way and into the property now or formerly of Deferred Tax, LLC. North 31°34'06" East, a distance of 484.51 feet to a point; thence South 63°36'58" East, a distance of 499.04 feet to a point on the Southwestern Right-of-Way of said Oconee Connector; thence along said Right-of-Way South 14°52'27" East, a distance of 305.40 feet to the ***Point of Beginning***.

Said tract contains 6.855 Acres.

Narrative Description of the Rezone Request

REZONE FROM B-1 PUD & B-2 TO B-1 SUBDIVISION & B-2 PUBLIX SHOPPING CENTER SUBDIVISION LOCATED IN THE MARS HILL ROAD OVERLAY DISTRICT

Tax Parcels C01 045 (26.802 ac. B-1 PUD) & C01 045B (6.855 ac. B-2)

Parcels Owned By: DEFERRED TAX, LLC

Combined Parcel Acreage: 33.657 Acres

Oconee County Georgia

Narrative Zoning History

DEFERRED TAX, LLC currently owns 2 tracts of vacant and undeveloped land totaling 33.657 acres located at the NW corner of the Oconee Connector and Mars Hill Road in Oconee County GA.

The existing 26.802 acre parcel is presently zoned B-1 PUD in accordance with plans and related rezone documents approved by the Oconee Board of Commissioners on August 4, 1992 (see rezone No. 043). It is noteworthy that the original acreage of the 1992 B-1 PUD rezone was 49.63 acres. The prior acreage and binding plan did not contemplate additional acreage needed and purchased by GDOT for later proposed interchange improvements, nor did it contemplate addition acreage later determined to be necessary for the construction of what is now known as the OCONEE CONNECTOR (see B-1 PUD Overlay Exhibit). These *additional* acreages taken for the mentioned purposes have rendered the original *B-1 PUD Rezone Plan “unbuildable”*, therefore the primary purpose of the current rezone petition is to replace the ‘*unbuildable*’ B-1 PUD Rezone Plan with an updated B-1 Commercial Subdivision Rezone Plan on a 17.21 acre portion of the property and an updated B-2 Publix Shopping Village with two B-2 out-parcel lots and the storm-water management area located on the 16.45 acre balance of the subject 33.657 acres.

It is also noteworthy that on October 4, 1988 the Oconee County Board of Commissioners rezoned approximately 19.0 acres of tax parcel #C-1-45 from A-1 to B-2 Highway Business District for the purpose of developing a Shopping Center (see rezone No. 8340). The 6.855 acre parcel C01 045B is the remaining balance of said B-2 zoned property located at the NW corner of Mars Hill Road and the OCONEE CONNECTOR.

The subject parcels were purchased by **DEFERRED TAX, LLC** in February 2006 for future commercial development purposes.

The Site

The subject properties are bordered on the north by the *UNIVERSITY PARKWAY (aka SR 316)*; on the east by the *OCONEE CONNECTOR*; and on the south by *MARS HILL ROAD*. The R-1 zoned property fronting on *MARS HILL ROAD* adjacent to the west boundary of the site is also owned by **DEFERRED TAX, LLC** and is not a component of the subject request.

Neighboring approved uses include a future multi-story hotel and restaurant (B-2) on property to the east across the OCONEE CONNECTOR, QuickTrip convenience store (B-2) also to the east; United Community Bank (B-2) to the southeast across Daniells Bridge Road; and undeveloped B-2 zoned property owned by others at the corner of Mars Hill Road and the Oconee Connector; an existing assisted living and memory care facility (R-3) in the vicinity, along with Mars Hill Baptist Church (AG) to the south west; and assorted residential use (AG & AR) properties to the south

across Mars Hill Road (designated on the *Mars Hill Overlay* map as *Future Development Opportunity*).

The site is presently wooded in a mixture of pines and hardwoods. The topography drops gently from high ground at the northwest near the University Parkway along a natural drainage corridor to the southeast near the *OCONEE CONNECTOR* to a partially drained impoundment before entering a concrete box culvert installed by GDOT which drains the area towards the southeast.

The Development

The *Rezone Concept Plan* submitted with the rezone package illustrates a commercial subdivision of 3 B-2 zoned lots and 8 B-1 zoned lots for a total of 11 commercial lots which will be available for purchase and/or construction in accordance with the *Mars Hill Road Overlay District* once final platted. A storm-water management facility lot will also be constructed near the southeast corner of the property to address storm-water requirements for lots #1, 2, & 3. Underground storm-water management may be employed in other portions of the project as necessary to satisfy all requirements of the GSWMM. (Note: The existing remnant of the pond located on the property will be reshaped, enlarged, and enhanced to become a visual amenity for the area as well as a retention pond addressing stormwater detention, channel protection, water quality, and related items as necessary to satisfy NPDES requirements of the GA EPD.)

Road improvements and utility extensions will be made as necessary to serve the project and to comply with Oconee County, state, and federal regulations as applicable. Existing waterlines in the Mars Hill Road right-of-way will be extended through private access/utility easements throughout the project to provide service and fire protection. Sanitary sewer line and manholes constructed previously to the southeast corner of the site (see *Rezone Concept Plan*) will also be extended along the private access/utility easements throughout the project. Overhead power, telephone, and cable also exist in the right-of-way of the Old Mars Hill Road, and also in the right-of-way of the Oconee Connector, and also in the right-of-way of the new Mars Hill Road. These utilities will also be extended underground throughout the development.

Sidewalks and handicap ramps for barrier free access will be installed throughout the project. All utilities will be underground. Extensive landscaping including street trees will be installed throughout the development.

The project infrastructure will be developed in one phase over a 10 to 12-month period. Build-out of all of the future buildings is anticipated to last around 3-5 years as necessary to accommodate road improvements planned at the proposed interchange of *US Highway 316 / Oconee Connector* and also the *Virgil Langford Road Overpass at US Highway 316* as recently released for public input.

The original B-1 PUD zoning plan was approved in 1992 with a condition of 250,000 SF maximum building square footage. With less land now available the property owner accepts at this time a reduced total of 186,713 building square footage on the site (186,713 SF / 33.657 acres = 5,547 SF/acre), which is a reasonable allowable gross building square footage per acre density for the project.

Acreage To Be Zoned to B-2 for Commercial Subdivision

The current owner desires to develop the 16.45 acre portion of the property as a 3-lot B-2 subdivision of commercial lots available for purchase and development. At this time only one lot (Lot #1) in the proposed development is under contract with an end user, therefore, the site plan depicted is a true representation of the future development to occur on Lot #1. The site plans and uses depicted on all other proposed B-2 and B-1 lots are speculative at this time as is typical for rezone concept plans. See attached list of B-2 uses allowed on the other proposed B-2 lots in the subdivision.

B-2 Lot #1 - the 10.89± acre lot is planned to accommodate the 48,387 SF *Publix* supermarket/grocery store and 9,176 SF of attached and detached shops (48,387 SF + 9,176 SF = 57,563 square feet of building area), along with 288 minimum parking spaces and up to 317 maximum parking spaces, required *Mars Hill Overlay* district tree planting, vehicle use screen plantings, and related site development requirements.

Note: The maximum building size allowable in the B-1 zoning classification is 20,000 SF, therefore, a portion of the subject property (the majority of which is already zoned B-2) is to be rezoned B-2 as necessary to accommodate the 48,387 SF *Publix* Supermarket grocery store portion of the building and 9,176 SF of attached and detached retail use portions in the two buildings shown on lot #1.

B-2 Lot #2 - the 2.15 acre parcel fronting on *Mars Hill Road* adjacent to the corner stormwater management area can accommodate a 5,720 SF upscale convenience store built to the development standards of the *Mars Hill Road Overlay* district with up to 16 fueling positions, up to 22 parking spaces, and related vehicle use screening and landscaping.
(see Exhibit 1: Example B-1 and B-2 Uses in Proposed Commercial Subdivision for Lots #1 through #11);

B-2 Lot #3 - 1.24 acre parcel fronting on the Oconee Connector can accommodate a 4,000 SF Bank/Financial Services building and up to 18 parking spaces, vehicle use area screening, landscaping, and street tree planting in accordance with the Mars Hill Overlay district requirements;

Storm-water Management Outlot - this 2.17 acre area will be constructed to address storm-water management, water quality, channel protection, extreme flooding, and related NPDES and Oconee UDC requirements. Said facility will also be designed as a visual amenity located at this highly visible southern corner of the property.

Acreage To Be Zoned B-1 For Commercial Subdivision

The remaining 17.21 acres of the property is to be developed as 8 addition B-1 zoned commercial lots similar in character and appearance to other business developments in the area, but with future buildings to be constructed in accordance with the *Mars Hill Overlay* district design standards and regulations.

As earlier mentioned none of the proposed B-1 zoned lots are under contract to any end users therefore all “EPU’s” (*Example Proposed Uses*) and related building square footages are suggestive until such time that contracts are negotiated.

B-1 Lot #4 - 1.42 acres also fronting on the Oconee Connector and the primary entrance Drive to the project can accommodate a single-story 11,000 square foot retail building with 37 minimum parking spaces (40 maximum spaces), required landscaping, vehicle use screen planting and related site development requirements.

B-1 Lot #5 - 0.80 acres also fronting on the Oconee Connector, with access via private access/utility easements interior to the project, can accommodate a 3,500 square foot fast-food single-story restaurant building built in conformance with the *Mars Hill Overlay* district design standards, visible from the future off ramp of the University Parkway, with 35 minimum parking spaces (39 maximum spaces). Should a future lot purchaser desire for the proposed restaurant to provide “drive-thru” service then it would be the purchaser’s responsibility to request a *Special Use Permit* for that purpose to be approved by the *Oconee Board of Commissioners* at that time.

B-1 Lot #6 - 1.29 acres fronting on the primary entrance drive (private access/utility easement) can accommodate a single-story 11,610 square foot retail building of allowed uses, 39 minimum parking spaces (43 maximum spaces), vehicle use screen planting, landscaping and related site development requirements.

B-1 Lot #7 - 1.41 acres fronting on private access/utility easements and also visible from the University Parkway east bound exit ramp to the Oconee Connector, can accommodate a single-story 12,690 square foot building of B-1 retail/service uses, 42 minimum required parking spaces (46 maximum spaces), *Mars Hill Overlay* district tree plantings and required landscape strip plantings, vehicle use screen plantings, and related site development requirements.

B-1 Lot #8 - 1.83 acres fronting on the primary access/utility easement drive into the project can accommodate a single-story 6,500 square foot fast casual restaurant building built in accordance with the *Mars Hill Overlay* district design guidelines, 65 minimum required parking spaces (72 maximum spaces), required vehicle use screen planting, and related items.

B-1 Lot #9 - 1.31 acres fronting on private access/utility easements and also visible from the east bound off-ramp of the University Parkway, can accommodate a single-story 10,000 square foot building of B-1 retail/service uses, 33 minimum required parking spaces (37 maximum spaces, *Mars Hill Overlay* district tree plantings, landscape strip plantings, vehicle use screen plantings, and related development requirements.

B-1 Lot #10 - 2.58 acres fronting on a private access/utility easement which extends to the right-of-way of *Virgil Langford Road*. Said lot will be rezoned to accommodate allowed B-1 uses in a building constructed in accordance with the *Mars Hill Overlay* district design guidelines. The lot will be developed to include plantings in accordance with the *Mars Hill Overlay* district, landscape strip plantings and vehicle use plantings, along with a 50’ required zoning buffer where adjacent to undeveloped R-1 zoned properties. The lot can accommodate the 5,000 square foot example Tunnel Car Wash proposed use labeled and depicted on the *Rezone Concept Plan* along with the minimum 26 parking spaces (28 maximum spaces). This particular use (if desired by the lot purchaser) would require a *Special Use Permit* in the *Mars Hill Overlay* district which

would also require approval by the *Oconee Board of Commissioners* of a detailed specific site plan.

B-1 Lot #11 - 6.57 acres fronting on the private access easement which extends to the right-of-way of *Virgil Langford Road* and also abutting the east bound exit ramp from the *University Parkway* to the future *Oconee Connector interchange*. This lot can accommodate up to 59,130 square feet of general office uses in up to three one and two-story buildings built to the *Mars Hill Overlay* district design standards, along with up to 177 minimum required parking spaces and 195 maximum spaces (with administrative variance). Planting will be required on said lot in accordance with the *Mars Hill Overlay* district, as required in landscape strips, as required in vehicle use screen plantings, and as required in zoning buffers where adjacent to AG zoning.

The perimeter buffers can only be penetrated for access to adjoining properties and with utilities, in accordance with provisions of the Unified Development Code. Because the original approved PUD plan provided access to the *Virgil Langford Road* and because GDOT now desires additional acreage from the owner to construct the *Virgil Langford Overpass*, the petitioners are hopeful that access to the *Virgil Langford Road* through adjoining properties can in time be achieved if initially incorporated into GDOT's final design.

All parking areas will be positioned on respective lots in conformance with parking setback requirements.

(Note: See Exhibit 1: *Example B-1 and B-2 Uses in Proposed Commercial Subdivision* for Lot #1 - #11 attachment for range of approximate building sizes, building values, range of lots sizes, etc. These uses and building square footages match those labeled on the *Rezone Concept Plan* and those used by A&R Engineering, Inc. in the traffic impact analysis submitted to within 0.467%)

Buildings

The petitioner acknowledges the architectural requirements of the *Mars Hill Road Overlay* district of the Unified Development Code Sec. 206.04.d.(7)(a-g): The exterior building wall surfaces will be predominately (80 %); brick veneer, stone veneer; natural wood siding; or cement board siding; and the remaining 20% of each wall may be stucco. The future buildings as will vary in size based on the specific use and building size achievable on each lot. The petitioner would like to maintain some latitude in building size to be able to go down in size and up in size (while not exceeding the total maximum project square footage) as may be requested by potential tenants or end users.

All buildings will be built on individual lots in compliance with required building setbacks.

- The maximum example building square footage on the Rezone Concept Plan is: 186,713 SF
- The maximum building square footage used in the Traffic Impact Study is: 185,845 SF
- Total number of buildings proposed in the project is: 14 buildings
- Gross building square footage density per acre in the project is: 5,547 SF/ac
- Range of building sizes in the project is: 2500 SF to 55,063 SF

Note: See representative architecture exhibit for building styles; These exhibits will be revised as necessary to comply with required roof pitch, materials, visual relief, etc. of the *Mars Hill Overlay* district. See Exhibit #1 for range of approximate building sizes; price range; parking counts; etc.

Water Supply

Oconee county water mainlines exist within the rights-of-way of the OCONEE CONNECTOR, MARS HILL ROAD, and DANIELLS BRIDGE ROAD. New water mains will be extended from these existing water lines into and throughout the development as required for supply and fire protection in accordance with county regulations. Water capacity for the development has been requested via letter submitted to the Oconee Water Resources Department. Potable water for domestic and irrigation purposes is available per Water Resources letter dated July 21, 2022.

Sewage Disposal

Gravity sanitary sewer lines will be extended into the project as necessary from existing sanitary sewer lines located in the right-of-way of Oconee Connector. Sewer capacity for the development was requested via letter submitted to the Oconee Water Resources Department. See the attached letter from Oconee County Water Resources dated July 21, 2022 approving the requested sewer treatment capacity of 65,905 gpd (gallons per day).

Surface Water Drainage

Concrete curb & gutter, county approved pipe, grassed and natural waterways, and sheet flow will be employed to collect and divert storm-water to proposed detention/retention areas, infiltration, and water-quality basins. Post development run-off will be maintained at predevelopment rates for 2, 5, 10, 25, and 50 year events. Proposed storm-water management structures will be designed to achieve the required capacity and volume based on hydrological analysis to be performed and submitted with site improvement construction plans, and in accordance with provisions of the *Unified Development Code of Oconee County*. (NOTE: Storm water management in its final form will be addressed on individual lots #4 through #11 based on specific impervious surfaces necessary per lot. In some cases underground storm water detention and water quality will be required as necessary to accommodate the required parking counts based on specific uses. It may be possible and/or desirable in some instances to achieve open-air storm-water management areas on a limited basis in addition to the storm-water facility serving lots #1, 2, & 3.

Access

Proposed new streets and private access drives funded and constructed by the developer will provide access to all of the lots proposed in the development. The rezone concept plan illustrates four different access points to the project.

The primary access point to the development will be located at the proposed full commercial access median break on the *OCONEE CONNECTOR* as previously approved by GDOT Commissioner Mr. Wayne Shackelford by letter dated 02/19/1997 to Mr. Larry Walker (attached), and as recently re-affirmed by the current GDOT Chief Engineer, Meg B. Pirkle, P.E., by letter dated 04/06/2021 (attached). Mitigation recommendations by A&R Engineering for project access:

Oconee Connector @ Site Driveway 1 (Median Break) / Private Driveway:

- (a) Construct a left-turn lane for entering traffic to accommodate the queues
- (b) A preliminary evaluation of peak hour signal warrants at the site driveway 1 at Oconee Connector indicate that a traffic signal will be warranted. A&R recommends completing

- signal warrant analysis and if warranted, install a traffic signal at the site driveway intersection and coordinate the traffic signal with the adjacent signals.
- (c) Construct a right-turn lane for entering traffic.

Mars Hill Road

- (a) Construct a two-way-left-turn lane on Mars Hill Road from 200 feet west of the Old Mars Hill Road to 460 feet east of Daandra Drive to accommodate eastbound left-turning vehicles into site driveways
- (b) Construct right-turn lanes on Mars hill Road at all three driveways with 175' storage and 100 feet taper.

The driveway access to Mars Hill Road mentioned above will be provided to the property at three separate commercial access drives located on *Mars Hill Road* at locations approximately as illustrated on the rezone concept plan (two of which having been earlier negotiated by Mr. Larry Walker and referenced in the *Memorandum of Agreement* between the Oconee Board of Commissioners and "Owners" as executed in the MOA dated 07/29/1997, section 4.b. and Exhibit B (9-pages attached).

One of the two previously negotiated access points will occur opposite the *Old Mars Hill Road* existing intersection (aka Station #56 illustrated on Exhibit B noted above). Said driveway is proposed to be a right-in/right-out only.

The second of the two negotiated proposed driveway locations on *Mars Hill Road* serving the subject property is depicted approximately opposite from the existing *Hollow Creek Lane* intersection (as approximately noted as station #53 on Exhibit B noted above). Said driveway will serve as one of the primary access points for vehicles into the Publix Shopping Village from *Mars Hill Road*.

The third access drive proposed to serve the development is to be located slightly east of what was the original road proposed to serve the B-1 PUD project approved by zoning action in 1992. Said access will also serve as a primary access to the Publix Shopping Village for vehicles traveling on *Mars Hill Road*.

To provide for future access via *Virgil Langford Road* a private access & utility easement will be extended through lots #8, #10, and #11 to the existing right-of-way of *Virgil Langford Road*. Based on recently released illustrations of the proposed over-pass to be constructed at *Virgil Langford Road & Ga Hwy 316* it appears as though access to parcels fronting on *Virgil Langford Road* will be impractical unless limited to a suitable sight-distance beyond the overpass on the southern side of *Ga Hwy 316*. Said locations could then also serve as access to multiple parcels on both sides of *Virgil Langford Road*.

Trip Generation & Traffic Impact

(See updated *Full Traffic Impact Study for Mixed-Use Development on Oconee Connector*, Oconee County GA, prepared by A&R Engineering, Inc, Marietta GA dated 2/11/2022)

Note: All traffic impact studies prepared for proposed (not yet built) projects are speculative in nature until such time that true users and their quantified building sizes have been identified.

Trip generation estimates for the project were based on the rates and equations published in the 10th edition of the *Institute of Transportation Engineers (ITE) Trip Generation* report. The reference contains traffic volume count data collected at similar facilities nationwide.

The trip generation was based on the following ITE Land Uses: 710 – General Office Building, 820 – Shopping Center, 821 – Shopping Plaza, 850 – Supermarket, 912 – Drive-in Bank, 930 – Fast Casual Restaurant, 934 – Fast-food Restaurant, 945 – Convenience Store/Gas Station, 948 – Automobile Car Wash

Note: The total building square footage used in the A&R Engineering Traffic Impact Study dated 2/11/2022 (page 12) is 185,845 square feet of mixed use development; the total square footage use on the Rezone Concept Plan submitted on 8/17/2022 is 186,713 square feet of mixed use development (the Rezone Concept plan square footage number is 0.46% of the older square footage number used by A&R Engineering).

Insert Table 4 – TRIP GENERATION

TABLE 4 — TRIP GENERATION

Land Use	Size	AM Peak Hour			PM Peak Hour			24 Hour
		Enter	Exit	Total	Enter	Exit	Total	2-way
ITE 710 – General Office Building	59,040 sf	94	12	106	18	89	107	734
Mixed-Use Reduction		-13	-3	-16	-6	-15	-21	-136*
ITE 821 – Shopping Plaza (40-150k)	45,300 sf	99	61	160	196	213	409	4280
Mixed-Use Reduction		-1	-3	-4	-4	-2	-6	-36
Pass-by Trips (0%) 40%		0	0	0	-77	-84	-161	-1610*
ITE 850 – Supermarket	56,785 sf	95	67	162	244	245	489	5,275
Mixed-Use Reduction		-1	-4	-5	-5	-2	-7	-44
Pass-by Trips (0%) 24%		0	0	0	-57	-58	-115	-1150*
ITE 912 – Drive-in Bank	4,000 sf	23	17	40	42	42	84	401
Mixed-Use Reduction		0	0	0	0	0	0	-3
Pass-by Trips (29%) 35%		-7	-5	-12	-15	-15	-30	-140*
ITE 930 – Fast Casual Restaurant	6,500 sf	5	4	9	45	37	82	631
Mixed-Use Reduction		0	-1	-1	-1	0	-1	-5
Pass-by Trips (0%) 43%		0	0	0	-19	-16	-35	-271*
ITE 934 – Fast-Food Restaurant with Drive-Through Window	3,500 sf	79	77	156	60	56	116	1,636
Mixed-Use Reduction		0	-1	-1	-2	-1	-3	-14
Pass-by Trips (50%) 55%		-40	-38	-78	-32	-30	-62	-620*
ITE 945 – Convenience Store/Gas Station - GFA (4-5.5k)	16 pumps	216	217	433	182	182	364	4,114
Mixed-Use Reduction		-1	-4	-5	-3	-2	-5	-34
Pass-by Trips (76%) 75%		-163	-162	-325	-134	-135	-269	-2690*
ITE 948 – Automobile Car Wash	5,000 sf	35	36	71	35	36	71	710
Total Trips (without Reductions)		646	491	1137	822	900	1722	17781
New External Trips (with Reductions)		420	270	690	467	540	1007	11028

*Daily pass-by reduction estimated to be least of the applied PM peak hour pass-by rate or ten times the PM pass-by volume

Schedule

The petitioners plan to complete the zoning efforts on the subject property by mid November/December 2022. Construction of the project infrastructure will commence immediately upon approval of the construction plans. The site grading and infrastructure will require a minimum of 10-12 months and building construction on the 11 lots will require a minimum of approximately 3-4 years to complete as noted above.

Maintenance of Common Areas

A property owners association will be created to provide for mandatory fees to maintain, control, and insure common areas including but not limited to common facilities, project signs, and storm water management facilities within the project. Provisions for architectural control will also be specified in covenants documents.

Buffers

Street trees, perimeter landscape strips, zoning buffers, and vehicle use screening will be installed throughout the development in accordance with requirements of the *Mars Hill Road Overlay District* of the Unified Development Code of Oconee County.

The property contains a stream, jurisdictional wetlands (0.5 acres), and a remnant portion of a partially drained farm pond. The applicant has applied for and received all permits required by the U.S. Army Corps of Engineers and the Georgia Department of Natural Resources, Environmental Protection Division to mitigate the impacts of the proposed development of these environmental areas.

Specifically, the owner attaches a copy of Permit No. SAS-2019-00667 from the Corps of Engineers approving the Project proposed by the applicant, which impacts 2,660 LF of stream and 0.5 acre of wetland.

Applicant also attaches a copy of a letter dated 2/5/2021, from Richard E. Dunn, Director of the Environmental Protection Division, approving the request for a variance for encroachment on state waters as part of the proposed development on the property.

The Oconee County Unified Development Code considers the grant of the permit and variance described above as satisfying the requirements of Article 9, Environmental Protection, of the Code. Applicant has now taken all steps necessary to construct the Project described in the Application in compliance with federal, state and local statutes, regulations and ordinances.

Utilities

All utilities are proposed to be underground. Any overhead services that currently exist will be rerouted within the appropriate utility corridor acceptable to Oconee County and the affected utility company.

Proposed utilities are power, water, sanitary sewer, telephone, gas, cable & internet access.

Garbage/Solid Waste Collection

Solid waste collection will be handled by private contract service.

Public & Semi-public Areas

Waterline easements, drainage easements, access easements, and/or private road easements will be established and dedicated to the appropriate entity as needed. Easements for power, telephone, cable TV, and gas will be dedicated as required for specific utility construction and/or maintenance.

Outdoor Lighting

Full cut-off light fixtures on metal or fiberglass poles will be installed in accordance with provisions of the *Mars Hill Road Overlay* district to illuminate the development for safety and security in accordance with the regulations of Oconee County. These light standards will be oriented inward, down and away from any residential areas.

B-1 & B-2 Uses to be Allowed in the Project and Mars Hill Road Overlay District

See attached sheets.

Project Valuation

Based on a building square footage build-out allowance maximum of 186,713 SF and a finished average price of \$215.35/SF, then the total value of the project at build-out will be \$40,208,000.00.

Impact on the School System

This projected value above will positively enhance Oconee County's tax base and help ease the strain that other types of necessary development can place on social services and on the Oconee County school system.

The proposed plan will have a positive impact on the tax base and the school system since the project will generate no additional students; there will also be favorable initial and ongoing ripple economic impacts on the county and on the school system as a result of the requested zoning and commercial development of the property.

Based on \$9,494.00 per million in value, the annual taxes to be generated upon completion of the project at the 186,713 building square footage at build-out would amount to:

$$(\$40,208,000 \times \$9,494/\$1,000,000) = \$381,735.00 \text{ in county plus school taxes.}$$

(Note: The above mentioned figures do not include anticipated local and state sales taxes to be generated by the commercial development of the project.)

STATISTICAL DATA: Deferred Tax, LLC Rezone Documents

- a. Total Land Area: 33.657 Acres
- b. Amount of Land to be used for public or semi-public uses:
- Access/Utility Easements: 4.64 Ac. (13.80% of site)
- c. Amount of Land to be used for recreational or open space purposes: 11.70 Ac. (34.76% of site)
- d. Amount of land to be occupied by streets and parking areas: 18.07 Ac. (53.69% of site)
- e. Amount of any submerged or flood prone land within the project: 1.70 Ac. (5.05% of site)
- f. Total ground coverage and floor area of all buildings: ground coverage: 21.96 Ac. (65.24 % of site)
floor area: 4.29 Ac. (12.73% of site)
- g. Breakdown of the number and kinds of proposed buildings including square forage, and the number and range of lot sizes and proposed setback and yard dimensions for typical lots and/or building types:
- Number of proposed buildings: 14
 - Kinds of proposed buildings: See EXHIBIT 1 for kinds of buildings
 - Size of individual buildings: See EXHIBIT 1 for individual building sizes
 - Range of building sizes: 2500 SF to 55,063 SF
 - Total number of lots proposed: 11 commercial lots & 1 stormwater management lot
 - Average Lot Size: 2.805 Ac.
 - Range of Lot Sizes: 0.80 Ac. to 10.89 Ac.
 - Proposed setbacks: see Rezone Concept Plan

Rezone Concept Plan

The *Rezone Concept Plan* for the project has evolved since its original submittal.

The *Plan* is itself now a 3-sheet document. Plan Sheet #1 attempts to depict the anticipated development improvements to occur in approximately 24 months following the rezone approval by the Oconee Board of Commissioners. Those anticipated improvements would involve:

- (1) *Preliminary Plat* approval of the eleven lot commercial subdivision;
- (2) *Subdivision Infrastructure Construction Plans* approval and permitting of the commercial subdivision;
- (3) Construction staking and completion of all construction involving clearing, grading, erosion control, storm-water management, sanitary sewer, water system, power lines, required utilities, curbing, basing, testing, paving, striping, and signage;
- (4) Surveying, construction certification, bonding, *Final Plat* approval & recording;
- (5) *Civil/Site Development Construction Plans* approval for Lot #1 permits and development;
- (6) *Building Permit Plans* approval and construction of the buildings located on Lot #1

(7) Completion of all curbs, drives, utility services, landscaping, buffers, signage, off-site road improvements, and all items as necessary for issuance of a certificate of occupancy for the buildings on Lot #1.

Plan Sheet #2 attempts to depict the anticipated development improvements to occur during the next 36 months of a five year period. It is during this period that lots #2 through #11 would be purchased by end users to complete all permit requirements similar to those mentioned above and hopefully to complete the build-out of all building proposed on all lots in the development.

Plan Sheet #3 illustrates landscape buffer details, access/utility easement details, statistical data, and EXHIBIT 1 data to provide clarity to information labeled or depicted on Sheets #1 & #2.

EXHIBIT 1: Example B-1 and B-2 Uses in Proposed Commercial Subdivision

B-1 and B-2 COMMERCIAL SUBDIVISION Project Data

Lot #	Acreage	zone	Example Building SF	Example Proposed Uses in District	Table 6.1 Use	Parking #/sf	Minimum Required Parking at 100%	Max Parking at 110%***	Estimated Average Building & Lot Value \$215.35/SF	Allowable Maximum Coverage B-1 at 70% B-2 at 80%	Estimated Actual Coverage
Storm Outlot	2.17	B-2	NA				0	0	\$0	1.52	0.00
1	10.89	B-2	57,563	Grocery & Retail Center*	b.40.i	5/1000	288	317	\$11,512,600	8.71	7.97
2	2.15	B-2	5,720	Convenience Store	b.1	1/300sf	19	21	\$1,287,000	1.72	1.57
3	1.24	B-2	4,000	Bank/Financial	b.9	4/1000	16	18	\$1,700,000	0.99	0.91
4	1.42	B-1	11,000	Retail	b.1	1/300sf	37	40	\$2,200,000	0.99	0.97
5	0.80	B-1	3,500	Restaurant (fast food)**	b.18g	10/1000	35	39	\$1,312,500	0.56	0.54
6	1.29	B-1	11,610	Retail	b.1	1/300sf	39	43	\$1,741,500	0.90	0.88
7	1.41	B-1	12,690	Retail	b.1	1/300sf	42	46	\$2,347,650	0.99	0.94
8	1.83	B-1	6,500	Restaurant	b.18d	10/1000	65	72	\$1,202,500	1.28	1.21
9	1.31	B-1	10,000	Retail	b.1	1/300sf	33	37	\$1,850,000	0.92	0.85
10	2.58	B-1	5,000	Tunnel Car Wash (SUP req'd)****	b.14	1+5/1000	26	29	\$1,750,000	1.81	1.73
11	6.57	B-1	59,130	General Office	b.36	3/1000	177	195	\$13,304,250	4.60	4.40
Totals	33.66		186,713				777	855	\$40,208,000	24.99	21.96
	Acreage In Lots Total		Building Square Footage Total				Parking Space Total	Parking Space Total	Building & Lot Value Total	Maximum Coverage Total Ac.	Estimated Coverage

*As of the date of the subject rezone submittal there is only one contract to purchase Lot #1 for a 57,563 square foot Grocery/Supermarket Retail Shopping Center. All other example uses and building square footage are speculative at this time. The Traffic Impact Analysis submitted along with the subject rezone petition is generally consistent with the building square footages listed in this exhibit with minor deviations.

**Restaurant (fast food) with Drive-thru if requested will require a Special Use Permit in the B-1 Mars Hill Overlay District.

***Maximum Parking allowed with administrative variance request.

****Tunnel Car Wash use will require a Special Use Permit in the Mars Hill Overlay District if requested.

Deferred Tax, LLC Rezone

Highlighted Items are not allowed in the project.

similar to the principal building, including design, detail, finish material, and landscaping.

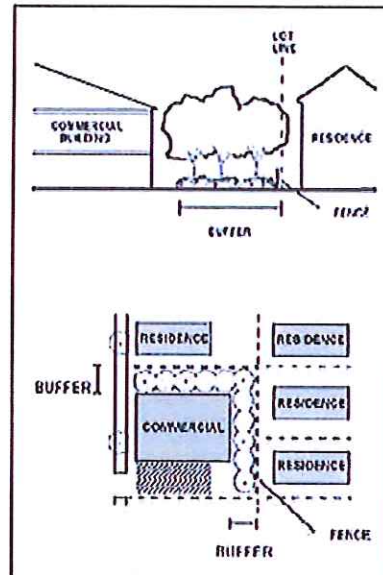
- (b) Service areas and dumpsters shall be visually screened from public view by a masonry wall or privacy fence at a minimum of 6 feet high, measured from finished grade. Any masonry wall used to screen service areas and dumpster areas shall be of such material so as to match the exterior of the principal building.
- (c) Each enclosure shall include a decorative opaque gate equal in height to the masonry wall or fence. The gate posts for the front gates to dumpster enclosures shall be located approximately 3 feet from the front of the enclosure wall to allow pedestrian access to the dumpster without opening and closing the gate. The gates shall remain closed at all times except during truck delivery or pick up or emptying of the dumpster container.
- (d) Service areas, delivery areas and dumpster areas shall be directed and located away from any residential side of the development and in no case shall they be located directly between the building and any residential lot.
- (e) No part of a dumpster or materials stored within the service area shall extend above the required masonry wall or fence.
- (f) Dumpsters must have drainage provisions to prevent runoff from the container enclosure onto public right-of-way or onto lands of others.
- (g) Where detached from the primary building, dumpster areas must be landscaped with a minimum 3 feet tall (at time of planting) evergreen hedge around the sides and rear of the enclosure.
- (h) Chain link, painted or unpainted concrete block walls and barbed wire are prohibited as part of a screening.

(5) Buffers and open space.

- (a) At least 20 percent of the lot must be vegetated open space that will allow the percolation of rainwater into the soil. Required buffer area may be used in determining this percentage.

d. Principal uses that are allowed by right in the B-1 zoning district are as follows:

- Assisted Living Facility
- Personal Care Homes, Group (up to 15 under care)
- Personal Care Homes, Congregate (more than 15 under care)
- Recombination Plat
- Traditional Subdivision
- Master Planned Development (MPD)
- Planned Unit Development (PUD)
- Corporate Management Offices
- Internet Publishing and Broadcasting
- Internet Service Providers and Web Search Portals
- Financial Investments and Related Activities, such as Portfolio Management and Investment Advice, and Securities and Commodity Brokerages.
- Lawyers, Notaries and Other Legal Services
- Accounting, Tax Preparation, Bookkeeping and Payroll Services



- Architectural, Engineering, Surveying and Related Services (except Testing Laboratories)
- Interior Design, Graphic Design and other Specialized Design Services
- Management, Scientific and Technical Consulting Services, including Executive Search and Management Consulting
- Veterinarian's Office, Clinic, and Animal Hospital
- Medical Offices of Physicians
- Medical Offices of Dentists
- Medical Offices of Optometrists, Chiropractors, Therapists and Other Health Specialists
- Promoters of Performing Arts, Sports and Similar Events
- Agents and Managers for Artists, Athletes, Entertainers and Other Public Figures
- Banks, Credit Unions and Savings Institutions
- Insurance Agencies, Brokerages and Other Insurance Related Activities
- Real Estate Office
- Day Care Center (more than 18 persons in care)
- Group Day Care Home (18 or fewer persons in care)
- Bed-and-Breakfast Inns
- General Automotive Repair
- Automotive Oil Change and Lubrication Shops
- Car Washes
- Electronic and Precision Equipment Repair and Maintenance
- Shoes and Leather Goods Repair and Maintenance
- Personal and Household Goods, including jewelry, garments, watches, musical instruments and bicycles Repair and Maintenance
- Barber Shops
- Beauty Salons
- Nail Salons
- Diet and Weight Reducing Centers
- Massage Therapy Establishment
- Saunas and Spas
- Tanning Salons
- Coin-Operated Laundries and Dry Cleaners
- Dry-Cleaning and Laundry Drop-Off Station
- Dry-Cleaning and Laundry Services (except Coin-Operated)
- Home Health Care Agencies
- Funeral Homes and Funeral Services
- Pet Care, Grooming and Training (except Veterinary Services and Pet Boarding Kennels)
- Photofinishing, One-Hour
- Automobile Commercial Parking Lots and Garages
- Consumer Electronics and Appliances Rental
- Formal Wear and Costume Rental

-
- Video Tape and Disc Rental
 - Home Health Equipment Rental
 - Recreational Goods Rental
 - Furniture, Party Supplies and Other Consumer Goods Rental
 - Document Preparation Services
 - Telemarketing Bureaus
 - Business Service Centers
 - Collection Agencies
 - Credit Bureaus
 - Court Reporting and Stenotype Services
 - Photocopying and Duplicating Services (Instant printing)
 - News Syndicates
 - Computer Systems Design and Related Services
 - Caterers and Other Special Food Services
 - Advertising, Public Relations and Related Services
 - Marketing Research and Public Opinion Polling
 - Photographic Studios and Commercial Photography
 - Office Administrative Services
 - Office Facilities Support Services
 - Employment Placement and Temporary Help Services
 - Travel Agencies, Tour Operators and Convention and Visitors Bureaus
 - Locksmiths
 - Construction Contractors, Builders and Developers, office only
 - Sports and Recreation Instruction
 - Exam Preparation and Tutoring
 - Automobile Driving Schools with Classroom and "On-The-Road" Training only
 - Libraries and Archives
 - Event Venues
 - Artist's Studios, except Taxidermists
 - Taxidermists
 - Museums
 - Historical Sites (Commercial)
 - Amusement and Theme Parks, Fairgrounds
 - Archery or Shooting Ranges
 - Batting Cages
 - Dog Parks, Pet Sitting Services
 - Fee Fishing Lakes
 - Fitness Centers, Health Clubs
 - Golf Course, with or without a Country Club
 - Golf Driving Ranges

- Neighborhood Recreation Centers (for profit), including Private Playgrounds, Tennis, Community Swimming Pools or Other Recreation Amenities
- Neighborhood Recreation Center that is a part of and serves a residential development but located on a separate lot.
- Private Undeveloped Parks and Other Open Space Amenities, including Squares, Greens and Pocket Parks
- Public Swimming Pools
- Recreational Day Camps
- Show Arenas for Horses (including Accessory Barns)
- Softball, Baseball, Football or Soccer Fields
- Tennis Clubs and Tennis Centers
- Automotive Parts, Accessories, and Tire Stores
- Furniture and Home Furnishings Stores
- Household Appliance Stores
- Radio, Television and Other Electronics Stores
- Computer and Software Stores
- Camera and Photographic Supplies Stores
- Home Centers & Hardware Stores
- Paint and Wallpaper Stores
- Wood or Ceramic Tile Flooring Stores
- Outdoor Power Equipment Stores
- Nursery and Garden Centers
- Supermarkets and Other Grocery (except Convenience) Stores
- Convenience Food Stores with fuel pumps
- Convenience Food Stores without fuel pumps
- Specialty Food Stores, including Meat, Fish, Fruit and Vegetable Markets, Candy Stores
- Beer and Wine Stores (excluding Liquor Sales)
- Retail Bakeries and Pastry Shops
- Pharmacies and Drug Stores
- Cosmetics, Beauty Supplies and Perfume Stores
- Eyeglasses and Other Optical Goods Stores
- Food (Health) Supplement Stores
- All Other Health and Personal Care Stores, such as hearing aids and convalescent supplies
- Gasoline Stations, Full Service
- Gasoline Stations with Convenience Stores, no repairs
- Clothing Stores
- Shoe Stores
- Jewelry Stores
- Luggage and Leather Goods Stores
- Sporting Goods Stores and Bicycle Shops
- Hobby, Toy and Game Stores

-
- Sewing, Needlework and Piece Goods Stores
 - Musical Instrument and Supplies Stores
 - Book Stores
 - News Dealers and Newsstands
 - Prerecorded Tape, Compact Disc and Record Stores
 - Department Stores
 - Dollar Stores
 - General Merchandise Stores
 - Variety Stores (Five and Dime)
 - Florists
 - Office Supplies and Stationery Stores
 - Gift, Novelty and Souvenir Stores
 - Used Merchandise Stores
 - Pet and Pet Supplies Stores
 - Art Dealers
 - Hot Tub Stores
 - Temporary Event: Retail Sales of Seasonal Items
 - Restaurants, Full-Service, Family Restaurants
 - Restaurants, Full-Service, Quality Restaurants
 - Restaurants, Limited-Service, Including Fast Food and Take-Out, without drive-through windows.
 - Cafeterias
 - Coffee Shop, Donut Shop, Ice Cream Parlor and Other Specialty Snack Shops.
 - Dressmakers and Tailors
 - Printing and Related Support Activities, except Photocopying and Duplicating Services (Instant printing)
 - Wholesale Trade, no Showrooms or Outdoor Storage
 - Interurban Bus Transportation and Bus Stations
 - Intercity Couriers (FedEx, UPS), package drop-off only
 - Telephone, Cellular and Other Wired or Wireless Telecommunications Carriers (except Satellite)
 - Alternate ("Stealth") Towers and Antennae
 - Additions to Existing Towers or Mounted on Nonresidential Building
 - Electric Power Transmission and Distribution Lines
 - Electric Power Transmission Substations
 - Natural Gas Distribution
 - Charitable Organization Offices
 - Fraternal Lodges, VFWs, Ethnic Associations and Other Civic and Social Organizations
 - Business, Professional, Labor, Political and Similar Organizations
 - Kidney Dialysis Centers
 - Freestanding Ambulatory Surgical and Emergency Centers

Deferred Tax, LLC Rezone

Highlighted Items are not allowed in the B2 District

- HMO Medical Centers
- Social Services Assistance, including Individual and Family Services

Sec. 205.10. **B-2 Highway Business District.**

- a. Purpose and intent of the B-2 zoning district.

The B-2 Highway Business District is intended to serve those business activities generally oriented to the highways.

- b. Uses allowed in the B-2 zoning district.

- (1) Principal uses that are allowed by right are listed in Sec 205.14(d) and on Table 2.1.
- (2) Principal uses that are allowed by Special Use approval are listed in Sec. 205.14(e) and on Table 2.1.
- (3) Accessory uses that are allowed by right or by Special Use approval are listed on Table 2.2.

- c. Special provisions applicable to the B-2 zoning district.

Restrictions that apply to particular uses allowed by right or Special Use approval are referenced on Table 2.1 and Table 2.2, and are contained in Article 3 of this Development Code.

- d. Principal uses that are allowed by right in the B-2 zoning district are as follows:

- Farmers Market (Wholesale)
- Recombination Plat
- Traditional Subdivision
- Master Planned Development (MPD)
- Planned Unit Development (PUD)
- Corporate Management Offices
- Newspaper, Periodical, Book and Directory Publishers
- Internet Publishing and Broadcasting
- Internet Service Providers and Web Search Portals
- Financial Investments and Related Activities, such as Portfolio Management and Investment Advice, and Securities and Commodity Brokerages.
- Lawyers, Notaries and Other Legal Services
- Accounting, Tax Preparation, Bookkeeping and Payroll Services
- Architectural, Engineering, Surveying and Related Services (except Testing Laboratories)
- Interior Design, Graphic Design and other Specialized Design Services
- Management, Scientific and Technical Consulting Services, including Executive Search and Management Consulting
- Veterinarian's Office, Clinic, and Animal Hospital
- Medical Offices of Physicians
- Medical Offices of Dentists
- Medical Offices of Optometrists, Chiropractors, Therapists and Other Health Specialists
- Banks, Credit Unions and Savings Institutions
- Insurance Agencies, Brokerages and Other Insurance Related Activities
- Real Estate Office
- Day Care Center (more than 18 persons in care)

- Group Day Care Home (18 or fewer persons in care)
- Hotels and Motels
- Bed-and-Breakfast Inns
- RV (Recreational Vehicle) Parks
- General Automotive Repair
- Automotive Exhaust System Repair
- Automotive Transmission Repair
- Automotive Body, Paint and Interior Repair and Maintenance
- Automotive Glass Replacement Shops
- Automotive Oil Change and Lubrication Shops
- Car Washes
- Electronic and Precision Equipment Repair and Maintenance
- Tractor and Other Farm Equipment Repairs and Maintenance
- Home and Garden Equipment Repair and Maintenance
- Home Appliance Repair and Maintenance
- Shoes and Leather Goods Repair and Maintenance
- Personal and Household Goods, including jewelry, garments, watches, musical instruments and bicycles Repair and Maintenance
- Barber Shops
- Beauty Salons
- Nail Salons
- Diet and Weight Reducing Centers
- Massage Therapy Establishment
- Saunas and Spas
- Tanning Salons
- Dry-Cleaning and Laundry Drop-Off Station
- Dry-Cleaning and Laundry Services (except Coin-Operated)
- Home Health Care Agencies
- Blood and Organ Banks
- Funeral Homes and Funeral Services
- Pet Care, Grooming and Training (except Veterinary Services and Pet Boarding Kennels)
- Pet Boarding Kennel
- Photofinishing, One-Hour
- Automobile Commercial Parking Lots and Garages
- Bail Bonding or Bondsperson Services
- Passenger Car Rental and Leasing
- Truck, Utility Trailer and RV (Recreational Vehicle) Rental and Leasing
- Consumer Electronics and Appliances Rental
- Formal Wear and Costume Rental
- Video Tape and Disc Rental

-
- Home Health Equipment Rental
 - Recreational Goods Rental
 - Furniture, Party Supplies and Other Consumer Goods Rental
 - General Equipment and Tool Rental Centers
 - Construction, Transportation, Mining and Forestry Machinery and Equipment Rental and Leasing
 - Office Computers, Copiers, Furniture and Other Machinery and Equipment Rental and Leasing
 - Document Preparation Services
 - Telemarketing Bureaus
 - Business Service Centers
 - Collection Agencies
 - Credit Bureaus
 - Court Reporting and Stenotype Services
 - Photocopying and Duplicating Services (instant printing)
 - News Syndicates
 - Computer Systems Design and Related Services
 - Caterers and Other Special Food Services
 - Advertising, Public Relations and Related Services
 - Marketing Research and Public Opinion Polling
 - Photographic Studios and Commercial Photography
 - Office Administrative Services
 - Office Facilities Support Services
 - Employment Placement and Temporary Help Services
 - Travel Agencies, Tour Operators and Convention and Visitors Bureaus
 - Packaging and Labeling Services
 - Locksmiths
 - Exterminating and Pest Control Services
 - Janitorial Services
 - Landscaping Services, under 3 acres
 - Landscaping Services, over 3 acres
 - Carpet and Upholstery Cleaning Services
 - Swimming Pool, Duct, Gutter and Drain Cleaning and Other Services to Buildings and Dwellings
 - Construction Contractors, Builders and Developers, office only
 - Construction Contractors, Builders and Developers, with outdoor storage
 - Carpentry Shop, Woodworking
 - Vocational Rehabilitation Services
 - Sports and Recreation Instruction
 - Exam Preparation and Tutoring
 - Automobile Driving Schools with Classroom and "On-The-Road" Training only

- Libraries and Archives
- Performing Arts Theaters: Drama, Dance, Music (except Adult Entertainment)
- Event Venues
- Artist's Studios, except Taxidermists
- Taxidermists
- Museums
- Historical Sites (Commercial)
- Motion Picture Theaters (except Drive-Ins)
- Amusement and Theme Parks, Fairgrounds
- Archery or Shooting Ranges
- Batting Cages
- Billiard and Pool Halls
- Bowling Centers
- Community Recreation Facility (non-profit) including YMCA, Senior Centers, Area-wide Recreation Center
- Dog Parks, Pet Sitting Services
- Fee Fishing Lakes
- Fitness Centers, Health Clubs
- Go-cart Concessions
- Golf Course, with or without a Country Club
- Golf Driving Ranges
- Ice or Roller Skating Rink
- Marinas
- Miniature Golf
- Neighborhood Recreation Centers (for profit), including Private Playgrounds, Tennis, Community Swimming Pools or Other Recreation Amenities
- Neighborhood Recreation Center that is a part of and serves a residential development but located on a separate lot.
- Private Undeveloped Parks and Other Open Space Amenities, including Squares, Greens and Pocket Parks
- Public Swimming Pools
- Recreational Day Camps
- Show Arenas for Horses (including Accessory Barns)
- Softball, Baseball, Football or Soccer Fields
- Tennis Clubs and Tennis Centers
- New Car Dealers
- Used Car Dealers
- Recreational Vehicle Dealers
- Motorcycle Dealers
- Boat Dealers
- All Other Motor Vehicle Dealers
- Automotive Parts, Accessories, and Tire Stores

-
- Furniture and Home Furnishings Stores
 - Household Appliance Stores
 - Radio, Television and Other Electronics Stores
 - Computer and Software Stores
 - Camera and Photographic Supplies Stores
 - Home Centers and Hardware Stores
 - Paint and Wallpaper Stores
 - Lumber Yards
 - Electrical, Heating or Plumbing Supply Stores
 - Wood or Ceramic Tile Flooring Stores
 - Other Building Material Dealers not listed above
 - Outdoor Power Equipment Stores
 - Nursery and Garden Centers
 - Supermarkets and Other Grocery (except Convenience) Stores
 - Convenience Food Stores with fuel pumps
 - Convenience Food Stores without fuel pumps
 - Specialty Food Stores, including Meat, Fish, Fruit and Vegetable Markets, Candy Stores
 - Beer and Wine Stores (excluding Liquor Sales)
 - Retail Bakeries and Pastry Shops
 - Pharmacies and Drug Stores
 - Cosmetics, Beauty Supplies and Perfume Stores
 - Eyeglasses and Other Optical Goods Stores
 - Food (Health) Supplement Stores
 - All Other Health and Personal Care Stores, such as hearing aids and convalescent supplies
 - Gasoline Stations, Full Service
 - Gasoline Stations with Convenience Stores, no repairs
 - Clothing Stores
 - Shoe Stores
 - Jewelry Stores
 - Luggage and Leather Goods Stores
 - Sporting Goods Stores and Bicycle Shops
 - Hobby, Toy and Game Stores
 - Sewing, Needlework and Piece Goods Stores
 - Musical Instrument and Supplies Stores
 - Book Stores
 - News Dealers and Newsstands
 - Prerecorded Tape, Compact Disc and Record Stores
 - Department Stores
 - Warehouse Clubs and Warehouse Supercenters
 - Dollar Stores

- General Merchandise Stores
- Variety Stores (Five and Dime)
- All Other General Merchandise Stores not listed above
- Florists
- Office Supplies and Stationery Stores
- Gift, Novelty and Souvenir Stores
- Used Merchandise Stores
- Pet and Pet Supplies Stores
- Art Dealers
- Manufactured (Mobile) Home Dealers
- Accessory Utility Structures, Prefabricated Sheds and Gazebo Dealers
- Farm Equipment and Implements
- Hot Tub Stores
- Auction Houses
- Miscellaneous Retailers not listed above
- Temporary Event: Retail Sales of Seasonal Items
- Restaurants, Full-Service, Family Restaurants
- Restaurants, Full-Service, Quality Restaurants
- Restaurants, Limited-Service, including Fast Food and Take-Out, with drive-through windows.
- Restaurants, Limited-Service, including Fast Food and Take-Out, without drive-through windows.
- Restaurants, Drive-In
- Cafeterias
- Coffee Shop, Donut Shop, Ice Cream Parlor and Other Specialty Snack Shops.
- Dressmakers and Tailors
- Printing and Related Support Activities, except Photocopying and Duplicating Services (instant printing)
- Wholesale Trade, no Showrooms or Outdoor Storage
- Vending Machine Operators
- General Freight Trucking, Local
- Specialized Freight (except Used Goods) Trucking, Local
- Interurban Bus Transportation and Bus Stations
- Taxi and Limousine Service
- School and Employee Bus Transportation
- Charter Bus Industry
- Special Needs Transportation
- Shuttle Services, Vanpools and Other Ground Passenger Transportation
- Intercity Couriers (FedEx, UPS), package drop-off only
- Local Messengers and Local Delivery
- Radio and Television Broadcasting Stations

-
- Telephone, Cellular and Other Wired or Wireless Telecommunications Carriers (except Satellite)
 - Alternate ("Stealth") Towers and Antennae
 - Additions to Existing Towers or Mounted on Nonresidential Building
 - Electric Power Transmission and Distribution Lines
 - Electric Power Transmission Substations
 - Natural Gas Distribution
 - Fraternal Lodges, VFWs, Ethnic Associations and Other Civic and Social Organizations
 - Business, Professional, Labor, Political and Similar Organizations
 - HMO Medical Centers
 - Kidney Dialysis Centers
 - Freestanding Ambulatory Surgical and Emergency Centers
 - General Medical and Surgical Hospitals
 - Social Services Assistance, including Individual and Family Services
 - Community Food and Housing, and Emergency and Other Relief Services
 - Cemeteries and Mausoleums
 - Private Schools: Kindergarten, Elementary and Secondary
 - Private Schools: Junior Colleges
 - Private Schools: Colleges and Universities
 - Private Schools: Religious Exempt Nonpublic Post-Secondary Institutions
- e. Principal uses that are allowed by Special Use approval in the B-2 zoning district are as follows:
- Residential Lofts in Mixed-Use Buildings
 - Pawnshop
 - Cigar and Tobacco Stores, including "Vape" Shops and Electronic Cigarette Stores
 - Tattoo Parlors
 - Other Personal Care Services not listed above
 - Ambulance Services
 - Outpatient Mental Health and Substance Abuse Centers
 - All Other Outpatient Care Centers
 - Other Personal Services not listed above
 - Other Commercial and Industrial Machinery and Equipment Rental and Leasing
 - Other Business Support Services not listed above
 - Temporary Event: Circus or Carnival
 - Temporary Event: Community Fair
 - Adult Entertainment
 - Zoos and Botanical Gardens
 - Motion Picture Theaters, Drive-In
 - Stadiums, Coliseums, Arenas and Amphitheaters
 - Racetracks
 - Other Spectator Sport Facilities

- Amusement Arcades
- Other Amusement and Recreation Uses not listed above
- Temporary Event: Swap Meets and Outdoor Markets
- Soaps and Other Detergent Manufacturing
- Mini-Warehouses and Self Storage Units
- Mini-Warehouses and Self Storage Units (Indoor)
- Self Self-storage of Recreational Vehicles, Campers and Boats
- Restaurants, 24-Hour
- General Freight Trucking, Long-Distance
- Truck Stops and Other Gasoline Stations
- Used Household and Office Goods Moving
- Specialized Freight (except Used Goods) Trucking, Long-Distance
- Motor Vehicle Towing and Wrecker Services
- Cable and Other Subscription Distribution
- Freestanding Towers and Antennae
- Community Scale Churches and Other Places of Worship
- Temporary Event: Religious Assemblies
- Crematories

Sec. 205.11. **OBP Office-Business Park District.**

- a. Purpose and intent of the OBP zoning district.

The OBP District is established to provide a location for offices, institutions, limited related business and service activities and limited industrial operations and processes in buildings of high character in attractive surroundings.

- b. Uses allowed in the OBP zoning district.

- (1) Principal uses that are allowed by right are listed in Sec. 205.16(d) and on Table 2.1
- (2) Principal uses that are allowed by Special Use approval are listed in Sec. 205.16(e) and on Table 2.1.
- (3) Accessory uses that are allowed by right or by Special Use approval are listed on Table 2.2.

- c. Special provisions applicable to the OBP zoning district.

Restrictions that apply to particular uses allowed by right or Special Use approval are referenced on Table 2.1 and Table 2.2, and are contained in Article 3 of this Development Code.

- d. Principal uses that are allowed by right in the OBP zoning district are as follows:

- Recombination Plat
- Traditional Subdivision
- Corporate Management Offices
- Newspaper, Periodical, Book and Directory Publishers
- Software Publishers
- Music Publishers
- Internet Publishing and Broadcasting
- Internet Service Providers and Web Search Portals



**OCONEE COUNTY PROPERTY OWNER AUTHORIZATION
FOR
APPLICATIONS**

I swear that I am the owner of the property located at (Address or Physical Description):
26.802 acre tract at 1291 Virgil Langford Road & 6.855 acre tract on Mars Hill & Oconee Conn.

Oconee County Georgia

Tax Parcel #: C 01 045 (26.802 Acres) and C 01 045B (6.855 Acres)

which is the subject matter of the attached application(s), as shown in the records of Oconee County, Georgia.

I authorize the person identified below to act as applicant or agent in the pursuit of the requested action or consideration of this property.

Name of Applicant or Agent: Beall & Company, LLC (Kenneth A. Beall, member)

Address (No. P.O. Boxes): 3651 Mars Hill Road – Suite 1400

City, State, & Zip Code: Watkinsville, Georgia 30677

Telephone Number: 706. 543.0907 (ext. 105) 706.318.5048 (cell)

SIGNATURE OF OWNER

Maxie Price, Manager

NAME OF OWNER (PLEASE PRINT): DEFERRED TAX, LLC

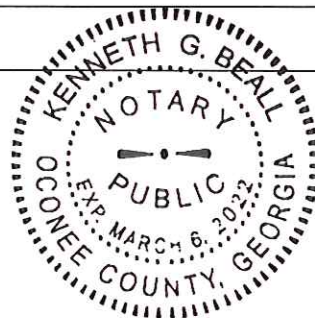
(IDENTIFY OFFICER POSITION OR MEMBER TITLE, IF APPLICABLE): 1261 Hammond Creek Trail, Watkinsville, GA 30677

DATE: _____

NOTARY SIGNATURE: Kenneth G. Beall

DATE: 11/18/2021

SEAL: _____



2021 Property Tax Statement

JENNIFER T. RIDDLE
Oconee County Tax Commissioner
PO BOX 106
WATKINSVILLE, GA 30677
oconeecountypay.com

MAKE CHECK/MONEY ORDER PAYABLE TO:
Oconee County Tax Commissioner

DEFERRED TAX, LLC
1261 HAMMOND CREEK TRAIL
WATKINSVILLE, GA 30677

RETURN THIS PORTION WITH PAYMENT

(Interest will be added per month if not paid by due date)

Bill No.	Due Date	Current Due	Prior Payment	Back Taxes	*Total Due*
2021-4344	11/15/2021	\$0.00	\$16132.12	\$0.00	Paid 11/09/2021

Map: C 01 045

Printed: 12/31/2021

Location: 1291 VIRGIL LANGFORD RD

Please note that taxes outstanding as of 11/15 (or applicable due date) will be subject to additional interest and penalties set forth by Georgia law.

If property tax remains unpaid, the Office of the Tax Commissioner has the right and responsibility to levy on the property for nonpayment (additional fees apply). This is considered a last resort tax collection and other collection methods are always preferred.

Please visit our website oconeecountypay.com for additional information and to make online payments.

JENNIFER T. RIDDLE
Oconee County Tax Commissioner
PO BOX 106
WATKINSVILLE, GA 30677
oconeecountypay.com

Phone: (706) 769-3917 Fax: (706) 769-3964



Tax Payer: DEFERRED TAX, LLC
Map Code: C 01 045 Real
Description: 853/376-385 & 389-391 36/192
Location: 1291 VIRGIL LANGFORD RD
Bill No: 2021-4344
District: 001

Building Value	Land Value	Acres	Fair Market Value	Due Date	Billing Date	Payment Good through	Exemptions	
0.00	1,742,130.00	26.8000	\$1,742,130.00	11/15/2021				
Entity	Adjusted FMV	Net Assessment	Exemptions	Taxable Value	Millage Rate	Gross Tax	Credit	Net Tax
COUNTY M&O	\$1,742,130	\$696,852	\$0	\$696,852	10.580000	\$7,372.69	\$0.00	\$7,372.69
INSURANCE PREMIUM ROLL BAC	\$1,742,130	\$696,852	\$0	\$696,852	-0.940000	\$0.00	-\$655.04	-\$655.04
SALES TAX ROLLBACK	\$1,742,130	\$696,852	\$0	\$696,852	-2.990000	\$0.00	-\$2,083.59	-\$2,083.59
SCHOOL M&O	\$1,742,130	\$696,852	\$0	\$696,852	16.500000	\$11,498.06	\$0.00	\$11,498.06
STATE TAX	\$1,742,130	\$696,852	\$0	\$696,852	0.000000	\$0.00	\$0.00	\$0.00
TOTALS					23.150000	\$18,870.75	-\$2,738.63	\$16,132.12

We accept partial payments. Outstanding balances as of the due date will accrue interest monthly and additional penalties. Payments can be made in person, by mail or online at oconeecountypay.com. We accept cash, check (e-check online-\$1.50), money order, and debit/credit cards. There is a service fee to pay with a card in the office or online. Please remit top portion to your mortgage company if applicable. Status of payment received may be verified online at oconeecountypay.com. Mortgage companies usually remit payment the first week of November.

Owner occupied residences may qualify for certain homestead exemptions. PERSONS OVER AGE 65 MAY BE ELIGIBLE FOR ADDITIONAL EXEMPTIONS (age 62 eligibility-net income less than \$10,000). The full law relating to each exemption must be referred in order to determine eligibility (details available at oconeecountypay.com or 706-769-3917). Applications for homestead exemptions must be received by April 1 each year. It is not necessary to refile for exemptions each year, unless there is a change in the property deed.

Current Due	\$16,132.12
Penalty	\$0.00
Interest	\$0.00
Other Fees	\$0.00
Previous Payments	\$16,132.12
Back Taxes	\$0.00
Total Due	\$0.00
Paid Date	11/09/2021

2021 Property Tax Statement

JENNIFER T. RIDDLE
Oconee County Tax Commissioner
PO BOX 106
WATKINSVILLE, GA 30677
oconeecountypay.com

MAKE CHECK/MONEY ORDER PAYABLE TO:
Oconee County Tax Commissioner

DEFERRED TAX, LLC
1261 HAMMOND CREEK TRAIL
WATKINSVILLE, GA 30677

RETURN THIS PORTION WITH PAYMENT

(Interest will be added per month if not paid by due date)

Bill No.	Due Date	Current Due	Prior Payment	Back Taxes	*Total Due*
2021-4345	11/15/2021	\$0.00	\$4126.02	\$0.00	Paid 11/09/2021

Map: C 01 045 B

Printed: 12/31/2021

Location: OCONEE CONNECTOR

Please note that taxes outstanding as of 11/15 (or applicable due date) will be subject to additional interest and penalties set forth by Georgia law.

If property tax remains unpaid, the Office of the Tax Commissioner has the right and responsibility to levy on the property for nonpayment (additional fees apply). This is considered a last resort tax collection and other collection methods are always preferred.

Please visit our website oconeecountypay.com for additional information and to make online payments.

JENNIFER T. RIDDLE
Oconee County Tax Commissioner
PO BOX 106
WATKINSVILLE, GA 30677
oconeecountypay.com

Phone: (706) 769-3917 Fax: (706) 769-3964



Tax Payer: DEFERRED TAX, LLC
Map Code: C 01 045 B Real
Description: 853/394-396 36/196
Location: OCONEE CONNECTOR
Bill No: 2021-4345
District: 001

Building Value	Land Value	Acres	Fair Market Value	Due Date	Billing Date	Payment Good through	Exemptions	
0.00	445,575.00	6.8400	\$445,575.00	11/15/2021				
Entity	Adjusted FMV	Net Assessment	Exemptions	Taxable Value	Millage Rate	Gross Tax	Credit	Net Tax
COUNTY M&O	\$445,575	\$178,230	\$0	\$178,230	10.580000	\$1,885.67	\$0.00	\$1,885.67
INSURANCE PREMIUM ROLL BAC	\$445,575	\$178,230	\$0	\$178,230	-0.940000	\$0.00	-\$167.54	-\$167.54
SALES TAX ROLLBACK	\$445,575	\$178,230	\$0	\$178,230	-2.990000	\$0.00	-\$532.91	-\$532.91
SCHOOL M&O	\$445,575	\$178,230	\$0	\$178,230	16.500000	\$2,940.80	\$0.00	\$2,940.80
STATE TAX	\$445,575	\$178,230	\$0	\$178,230	0.000000	\$0.00	\$0.00	\$0.00
TOTALS					23.150000	\$4,826.47	-\$700.45	\$4,126.02

We accept partial payments. Outstanding balances as of the due date will accrue interest monthly and additional penalties. Payments can be made in person, by mail or online at oconeecountypay.com. We accept cash, check (e-check online-\$1.50), money order, and debit/credit cards. There is a service fee to pay with a card in the office or online. Please remit top portion to your mortgage company if applicable. Status of payment received may be verified online at oconeecountypay.com. Mortgage companies usually remit payment the first week of November.

Owner occupied residences may qualify for certain homestead exemptions. PERSONS OVER AGE 65 MAY BE ELIGIBLE FOR ADDITIONAL EXEMPTIONS (age 62 eligibility-net income less than \$10,000). The full law relating to each exemption must be referred in order to determine eligibility (details available at oconeecountypay.com or 706-769-3917). Applications for homestead exemptions must be received by April 1 each year. It is not necessary to refile for exemptions each year, unless there is a change in the property deed.

Current Due	\$4,126.02
Penalty	\$0.00
Interest	\$0.00
Other Fees	\$0.00
Previous Payments	\$4,126.02
Back Taxes	\$0.00
Total Due	\$0.00
Paid Date	11/09/2021

ZONING IMPACT ANALYSIS

Standards for Rezone Consideration

(B-1 PUD & B-2 to B-1 & B2 Commercial Subdivision Rezone Petition)

33.657 Acre Parcel #C01 045 (26.802 acres) & Parcel C01 45B (6.855 acres)

- A. Consider whether the zoning proposal will permit a use that is suitable in view of existing uses, development, and zoning of nearby property:
The proposed B-1 uses on the subject acreage will be compatible with other commercial uses on neighboring B-2 and OIP developed and undeveloped properties.
- B. Consider whether the property to be rezoned has a reasonable economic use as currently zoned.
Due to the restrictive nature of the B-1 PUD binding site plan that exists on the property and the portions of the property that have been conveyed to the Georgia DOT for construction of the original Highway 316 construction, and due to the additional properties sold to the GDOT for the purpose of the construction of interchange improvements, and due to the donation of acreage to Oconee County for the purpose of construction of the OCONEE CONNECTOR, the property can no longer be developed under the current B1 PUD and B-2 plan without a new plan and new zoning classification for the property. If the property cannot be developed as zoned then one could argue then the value of of the property is significantly decreased.
- C. The extent to which the zoning proposal promotes the health, safety, morals or general welfare of the public with consideration to:
- (1) Population density and effect on community facilities such as streets, schools, water and sewer:
Roads presently serving the site and the general area will experience minimal impact over the current zoning impact; there will be minor increases in water and sewer usage over current allowed uses; most roadways in the area have already been or are currently being improved to handle increased traffic in the area; any commercial development plan will have a positive impact on the tax base and the school system since commercial uses generate no additional students; there will be favorable initial and ongoing ripple economic impacts on the county as a result of the proposed requested modifications to this property once developed.
- (2) Environmental impact: *Potential increase in storm-water runoff will be mitigated through the use of storm-water management areas in compliance with Oconee County ordinances; Water quality concerns will be mitigated through the use of filtration devices, infiltration structures, and water quality monitoring; Enhanced "best management practices" will be employed to address soil erosion/sediment control concerns. Environmental permits have already been issued by the GAEPD and by the US Army Corps of Engineers for the development of the property*
- (3) Effect on existing use, usability, and/or value of adjoining property:
There will be no negative effect on adjoining property values as a result of converting B-1 PUD and B2 zoning to B-1 and B2 zoning; B-1 and B-2, and other commercial developed properties exist in the area presently.
- D. Consider the length of time the property has been vacant as zoned, considered in the context of land development in the area in the vicinity of the property:
Road, sanitary sewer, and waterline improvements over the last 15 years in close proximity to the subject property have facilitated commercial development in the area.

- E. Consider the consistency of the proposed use with the stated purpose of the zoning district that is being requested: The proposed zoning is consistent with the stated purpose of the zoning district that is being requested.
- F. Whether there are other existing or changing conditions or land use patterns affecting the use and development of the property which give supporting grounds for either approval or disapproval of the zoning proposal: The subject property presently fronts on GDOT owned property acquired for the sole purpose of "on/off ramps "to/from" the OCONEE CONNECTOR / GA Highway 316 (University Parkway) acquired from the former owners of the property. The property acquired for the OCONEE CONNECTOR / UNIVERSITY PARKWAY interchange proposed for construction in 2024ish was purchased from the former owners of the subject property
- G. Consider the conformity with or divergence from the Future Development Map or the goals and objectives of the Oconee County Comprehensive Plan: The proposed zoning for the subject property is consistent with the Future Development Map and the objectives of the Regional Center classification of the Oconee County Comprehensive plan.
- H. Consider the availability of adequate sites for the proposed use in districts that permit such use: NA Not Applicable The subject property cannot be developed in accordance with the binding PUD plan which currently exists on the property.

EXHIBIT 1: Example B-1 and B-2 Uses in Proposed Commercial Subdivision
B-1 and B-2 COMMERCIAL SUBDIVISION Project Data

Lot #	Acreage	zone	Example Building SF	Example Uses	#/k	Required Parking at 100%	Max Parking at 110%	Building & Lot Value \$215.35/SF	Maximum Coverage B-1 at 70% B-2 at 80%
1	10.89	B-2	57,563	Grocery & Retail Center	5/k	288	317	\$11,512,600	8.71
2	2.15	B-2	5,720	Convenience Store	3.33/k	20	22	\$1,287,000	1.72
3	1.24	B-2	4,000	Bank/Financial	4/k	16	18	\$1,700,000	0.99
4	1.42	B-1	11,000	Retail	3.33/k	37	41	\$2,200,000	0.99
5	0.80	B-1	3,500	Restaurant (fast food)	10/k	35	39	\$1,312,500	0.56
6	1.29	B-1	11,610	Retail	3.33/k	39	43	\$1,741,500	0.90
7	1.41	B-1	12,690	Retail	3.33/k	42	46	\$2,347,650	0.99
8	1.83	B-1	6,500	Restaurant	10/k	65	72	\$1,202,500	1.28
9	1.31	B-1	10,000	Retail	3.33/k	33	37	\$1,850,000	0.92
10	2.58	B-1	5,000	Tunnel Car Wash (CUP req'd)	5/k	25	28	\$1,750,000	1.81
11	6.57	B-1	59,130	General Office	3/k	178	196	\$13,304,250	4.60
Storm Outlot	2.17	B-2	NA			0	0	\$0	1.52
Totals	33.66		186,713			778	856	\$40,208,000	23.47
	Acreage In Lots Total		Building Square Footage Total			Parking Space Total	Parking Space Total	Building & Lot Value Total	Maximum Coverage Total Ac.

NOTE: As of the date of the subject rezone submittal there is only one contract to purchase Lot #1 for a 57,563 square foot Grocery/Retail Center Supermarket. All other example uses and building square footage are speculative at this time. The Traffic Impact Analysis submitted along with the subject rezone petition is generally consistent with the building square footages listed in this exhibit with minor deviations.



Oconee County Water Resources

Tim Durham, Director

Board of Commissioners

John Daniell, Chairman
Mark Thomas, Post 1
Chuck Horton, Post 2
Aurey Harden, Post 3
Mark Saxon, Post 4

July 21, 2022

Ken Beall, RLA
3651 Mars Hill Road
Suite 1400
Watkinsville, GA 30677

Re: C01045, C0145B, C0145D – Corner of Mars Hill Rd - Oconee Connector –Virgil Langford Road

Dear Ken,

Based on your email request for water and sewer capacity for the above referenced location we offer this letter of availability.

Water & Wastewater Capacity

Regarding *potable water*, potable water is available for domestic and irrigation purposes. Please provide the anticipated flow for both purposes. We note that an estimate of fire flow is not requested or provided. Our development files may contain nearby tests, if needed.

Regarding *wastewater treatment / sewer collection and transmission capacity*, we advise that the requested amount of 65,905 gpd of sewer treatment capacity is currently available at the Calls Creek Treatment Facility.

Availability

- The availability of water and sewer *does not guarantee connection*.
- Unforeseen drought conditions or wastewater treatment capacity limitations may affect or delay the issuance of permits or connections to the water and sewer systems.
- Availability is also subject to obtaining a satisfactory technical review of the applicable water and/or sewer extension application package during the construction plan review.

This Water and Sewer Availability Letter expires 1 year from the date of issuance.

Costs and Fees

All costs associated with this project for connecting to the existing water distribution system or sewer collection system is the responsibility of the Developer / Owner. Costs may include the following:

1291 GREENSBORO HIGHWAY ♦ PO Box 88 ♦ WATKINSVILLE, GEORGIA 30677
PHONE: 706.769.3960 ♦ FAX: 706.769.3997
tdurham@oconee.ga.us
www.oconeecounty.com

- Additional fire hydrants as requested by Fire Department
- Relocation of buried infrastructure to avoid road widening (ingress / egress lanes)
- Offsite gravity sewer extensions
- Private screening facilities to prevent future sewer blockage
- Upgrades of transmission facilities such as pumping stations
- Contributions to operation and maintenance costs such as odor control facilities,
- Other improvements as identified in the current Water and Sewer Improvement Plan.

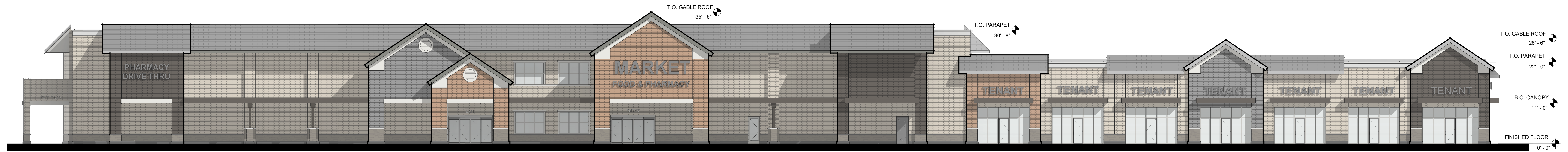
Payment of fees associated with a new connection must be received in compliance with the Water and Wastewater Systems Ordinance, as revised.

Please give us a call if further discussion or clarification is needed.

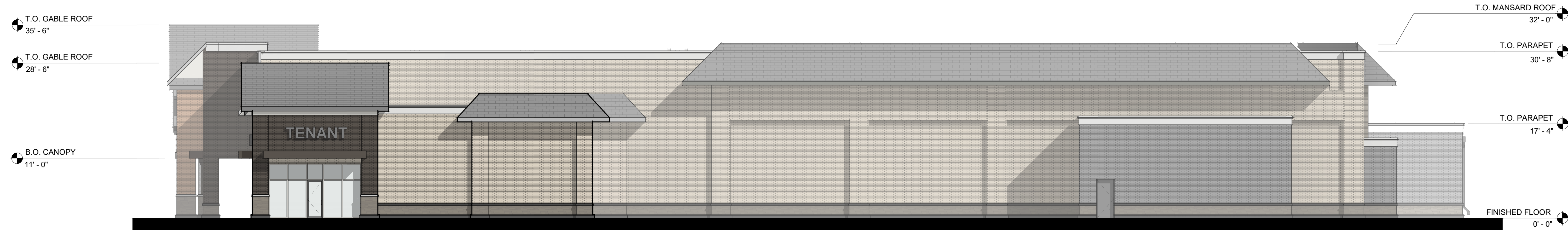
Sincerely,

A handwritten signature in black ink, appearing to read 'Tim Durham', with a long horizontal stroke extending to the right.

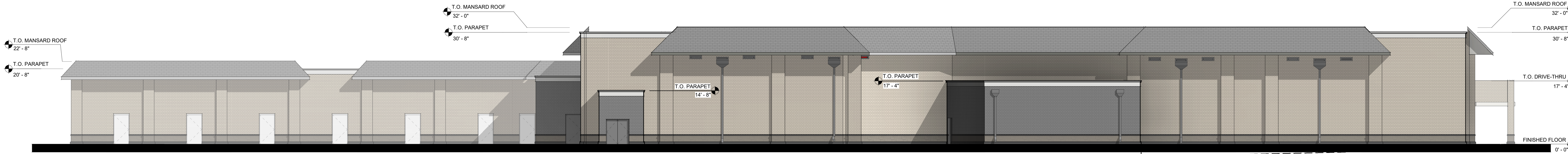
Tim Durham
Director



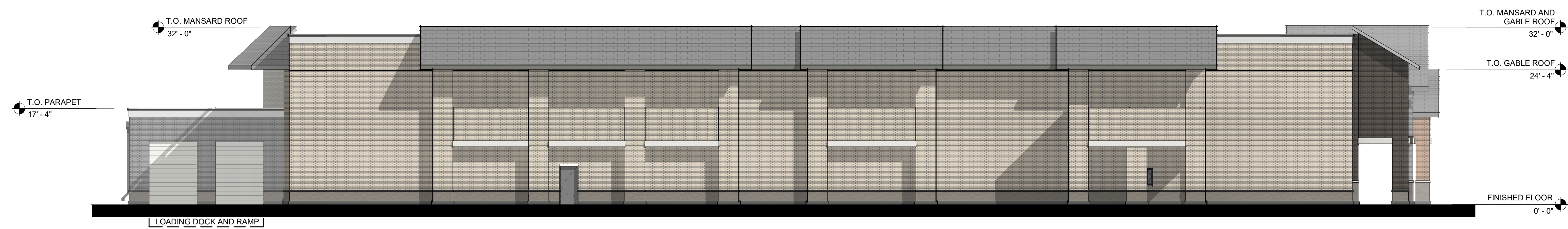
1 EAST ELEVATION
3/32" = 1'-0"



2 NORTH ELEVATION
3/32" = 1'-0"



3 WEST ELEVATION
3/32" = 1'-0"



4 SOUTH ELEVATION
3/32" = 1'-0"



RF-01
ARCHITECTURAL SHINGLES
GREY



PT-01
PEPPERCORN - SW 7674
HM DOORS
STEEL COLUMNS CLAD WITH PAINTED
CEMENTITIOUS BOARD - HARDIETRIM BOARD



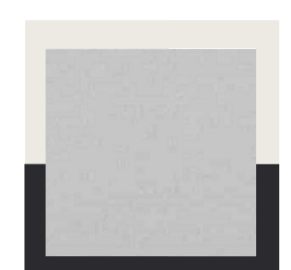
PT-03
ATTITUDE GRAY - SW 7060
PAINTED CONCRETE
METAL FASCIA & FLASHING



BR-01
CORAL SKYE TEXTURE SMOOTH
MODULAR SIZE
ACME BRICK



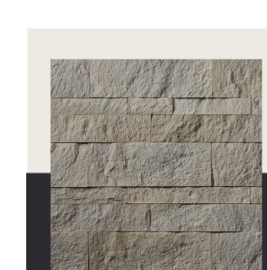
BR-03
GLACIER WHITE TEXTURE SMOOTH
MODULAR SIZE
ACME BRICK



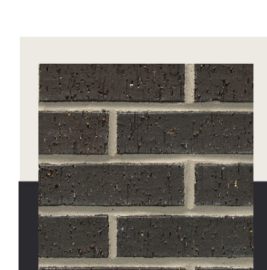
AL-01
CLEAR ANODIZED
STOREFRONT FRAMES



PT-02
PURE WHITE - SW 7005
STUCCO - MEDIUM TEXTURE



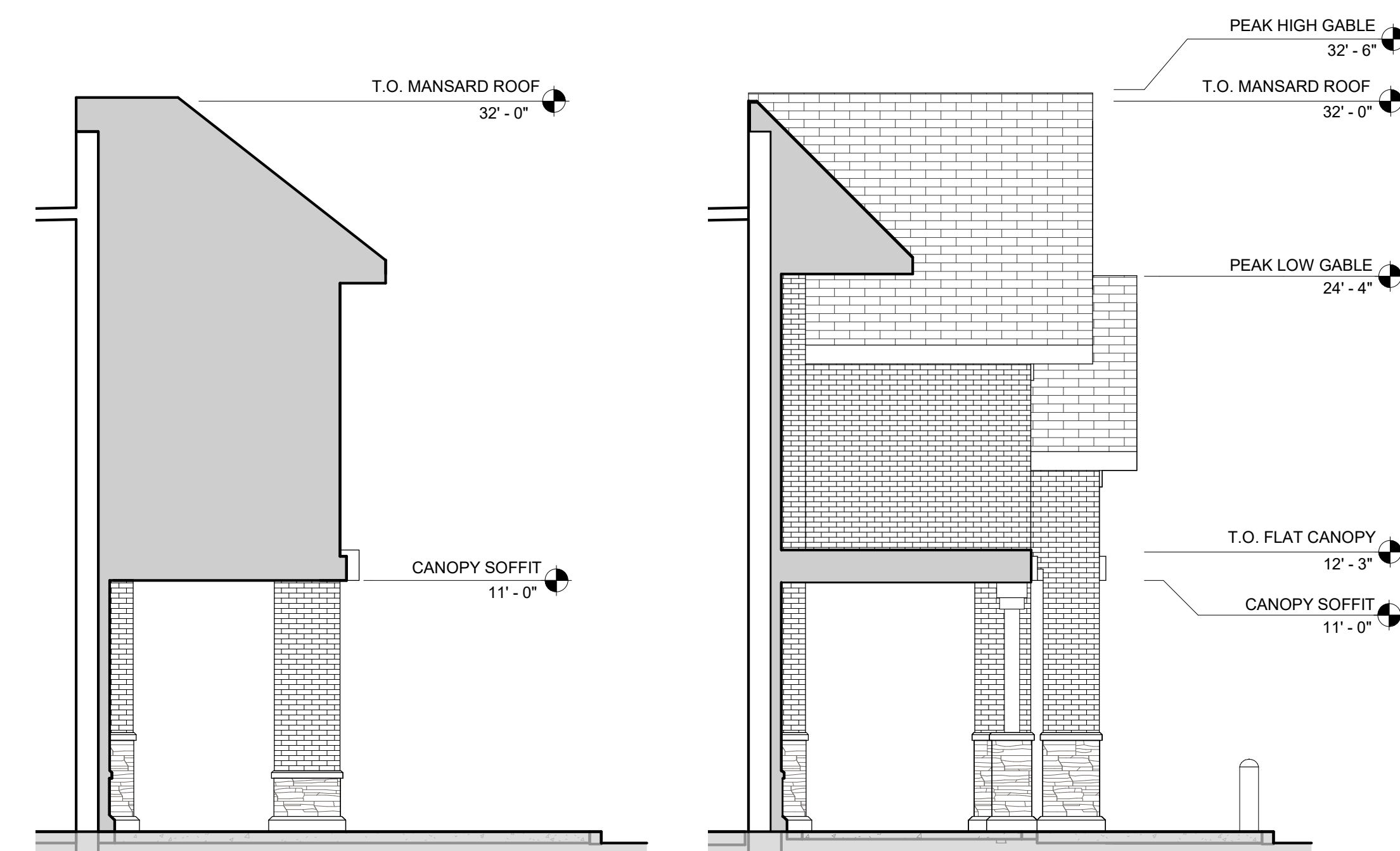
ST-01
HEWN STONE SPAN
CULTURED STONE



BR-02
WINCHESTER TEXTURE SMOOTH
MODULAR SIZE
ACME BRICK



BR-04
MARBEL GREY TEXTURE VELOUR
MODULAR SIZE
ACME BRICK



PUBLIX CANOPY SECTIONS



Deferred Tax, LLC Rezone - Representative Architecture



Deferred Tax< LLC Rezone - Representative Architecture



Deferred Tax, LLC Rezone - Representative Architecture

**TRAFFIC IMPACT STUDY
FOR
MIXED-USE DEVELOPMENT ON OCONEE CONNECTOR
ATHENS, GEORGIA**



Prepared for:

***Georgia General Snapfinger Development, LLC.
1261 Hammond Creel Trail
Watkinsville, GA 30677***

Prepared By:



A&R Engineering Inc.

2160 Kingston Court, Suite O
Marietta, GA 30067
Tel: (770) 690-9255 Fax: (770) 690-9210
www.areng.com

February 11, 2022
A & R Project # 21-226

TABLE OF CONTENTS

Item	Page
1.0 Introduction	1
2.0 Existing Facilities / Conditions.....	4
2.1 Roadway Facilities	4
2.1.1 US 78/US 29/SR 316 (University Parkway)	4
2.1.2 Oconee Connector	4
2.1.3 Mars Hill Road	4
2.1.4 Daniels Bridge Road	4
2.1.5 Rocky Branch Road.....	4
2.1.6 Virgil Langford Road	4
2.1.7 Old Mars Hill Road	5
2.1.8 Hollow Creek Lane	5
2.1.9 Daandra Drive	5
3.0 Study Methodology	6
3.1 Unsignalized Intersections	6
3.2 Signalized Intersections	7
4.0 Existing 2021 Traffic Analysis	8
4.1 Existing Traffic Volumes	8
4.2 Existing Traffic Operations	11
5.0 Proposed Development	12
5.1 Trip Generation	12
5.2 Trip Distribution	13
6.0 Future 2024 Traffic Analysis.....	17
6.1 Future “No-Build” Conditions	17
6.1.1 Annual Traffic Growth.....	17
6.2 Future “Build” Conditions	17
6.2.1 Auxiliary Lane Analysis	20
6.2.2 Future Traffic Operations.....	22
7.0 Conclusions and Recommendations.....	25
7.1 Site Access Configuration.....	26
7.2 Site Mitigation Improvements	26
Appendix	

LIST OF TABLES

Item	Page
Table 1 – Level-of-service Criteria for Unsignalized Intersections.....	6
Table 2 – Level-of-service Criteria for Signalized Intersections	7
Table 3 – Existing Intersection Operations	11
Table 4 – Trip Generation	13
Table 5 - GDOT Requirements for Left Turn Lanes	20
Table 6 - GDOT Requirements for Deceleration Lanes	21
Table 7 – Future “Build” Intersection Operations	22
Table 8 – Future Operations – At Site Driveway – With Traffic Signal.....	23

LIST OF FIGURES

Item	Page
Figure 1 – Location Map.....	3
Figure 2 – Existing Weekday Peak Hour Volumes.....	9
Figure 3 – Existing Traffic Control and Lane Geometry	10
Figure 4 – Site Plan.....	14
Figure 5 – Outer Leg Trip Distribution and Site Generated Peak Hour Volumes.....	15
Figure 6 – Site Peak Hour Pass-by Volumes.....	16
Figure 7 – Future (No-Build) Peak Hour Volumes	18
Figure 8 – Future (Build) Peak Hour Volumes.....	19
Figure 9 – Future Traffic Control and Lane Geometry	24

1.0 INTRODUCTION

The purpose of this study is to determine the traffic impact that will result from the proposed mixed-use development located in the northwest corner of the intersection of Oconee Connector at Mars Hill Road/Daniels Bridge Road in Athens, Georgia. The traffic analysis evaluates the current operations compared to the future conditions with the traffic generated by the development. The proposed development will consist of:

- Supermarket: 56,785 square feet
- Shopping Plaza: 45,300 square feet
- Super Convenience Store/Gas Station: 16 fueling positions
- Fast-Food Restaurant with Drive-Through Window: 3,500 square feet
- Fast Casual Restaurant: 6,500 square feet
- Automobile Car Wash: 5,000 square feet
- General Office Building: 59,040 square feet
- Drive-in Bank: 4,000 square feet



The development proposes access at the following locations:

- Site Driveway 1: Full-access driveway on Oconee Connector at the existing median break north of Mars Hill Road/Daniels Bridge Road
- Site Driveway 2: Right-in/right-out driveway on Mars Hill Road, aligned with Old Mars Hill Road
- Site Driveway 3: Full-access driveway on Mars Hill Road, aligned with Hollow Creek Lane
- Site Driveway 4: Full-access driveway on Mars Hill Road, west of Hollow Creek Lane

The AM and PM peak hours have been analyzed in this study. This study includes the evaluation of traffic operations at the intersections of:

- US 78/US 29/SR 316 (University Parkway) at Oconee Connector
- Oconee Connector at Site Driveway 1 (Midblock Median Opening)/Private Driveway
- Oconee Connector at Mars Hill Road/Daniels Bridge Road
- Mars Hill Road at Rocky Branch Road / Virgil Langford Road
- Mars Hill Road at Old Mars Hill Road/Site Driveway 2
- Mars Hill Road at Hollow Creek Lane/Site Driveway 3
- Mars Hill Road at Site Driveway 4
- Mars Hill Road at Daandra Drive

Recommendations to improve traffic operations have been identified as appropriate and are discussed in detail in the following sections of the report. The location of the development and the surrounding roadway network is shown in Figure 1.

⊕ Study Intersections



LOCATION MAP

FIGURE 1

A&R Engineering Inc.

2.0 EXISTING FACILITIES / CONDITIONS

2.1 Roadway Facilities

The following is a brief description of each of the roadway facilities located in proximity to the site:

2.1.1 US 78/US 29/SR 316 (University Parkway)

US 78/US 29/SR 316 (University Parkway) is an east-west, four-lane, median-divided roadway with a posted speed limit of 55 mph in the vicinity of the site. GDOT traffic counts (Station ID's 219-0259 & 219-0200) indicate that the daily traffic volume on US 78/US 29/SR 316 (University Parkway) in 2019 was 38,900 vehicles per day west of Jimmy Daniel Road and 28,800 vehicles per day north of SR Loop 10. GDOT classifies US 78/US 29/SR 316 (University Parkway) as an Urban Principal Arterial - Other roadway.

2.1.2 Oconee Connector

Oconee Connector is a north-south, four-lane, median-divided roadway with a posted speed limit of 45 mph in the vicinity of the site.

2.1.3 Mars Hill Road

Mars Hill Road is an east-west, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site. To the south of Daniels Road, Mars Hill Road is a north-south, four-lane, median-divided roadway. GDOT traffic counts (Station ID's 219-0209 & 219-0198) indicate that the daily traffic volume on Mars Hill Road in 2019 was 4,330 vehicles per day east of Long Road and 20,000 vehicles per day north of Hodges Mill Road. GDOT classifies Mars Hill Road as an Urban Minor Arterial roadway west of Oconee Connector and as an Urban Minor Collector south of Oconee Connector.

2.1.4 Daniels Bridge Road

Daniels Bridge Road is an east-west, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site. GDOT traffic counts (Station ID 219-0284) indicate that the daily traffic volume on Daniels Bridge Road in 2019 was 3,380 vehicles per day southeast of Magnolia Drive. GDOT classifies Daniels Bridge Road as an Urban Minor Collector roadway.

2.1.5 Rocky Branch Road

Rocky Branch Road is a north-south, two-lane, undivided roadway with a posted speed limit of 50 mph in the vicinity of the site.

2.1.6 Virgil Langford Road

Virgil Langford Road is a north-south, two-lane, undivided roadway with a posted speed limit of 30 mph in the vicinity of the site. GDOT traffic counts (Station ID 219-0286) indicate that the daily traffic volume on Virgil Langford Road in 2019 was 7,590 vehicles per day west of Oconee Connector. GDOT classifies Virgil Langford Road as an Urban Minor Arterial roadway.

2.1.7 Old Mars Hill Road

Old Mars Hill Road is a north-south, two-lane, undivided roadway with a posted speed limit of 35 mph in the vicinity of the site.

2.1.8 Hollow Creek Lane

Hollow Creek Lane is a north-south, two-lane, undivided roadway with a posted speed limit of 30 mph in the vicinity of the site.

2.1.9 Daandra Drive

Daandra Drive is a north-south, two-lane, undivided roadway with a posted speed limit of 30 mph in the vicinity of the site.

3.0 STUDY METHODOLOGY

In this study, the methodology used for evaluating traffic operations at each of the subject intersections is based on the criteria set forth in the Transportation Research Board's Highway Capacity Manual, 6th edition (HCM 6). Synchro software, which utilizes the HCM methodology, was used for the analysis. The following is a description of the methodology employed for the analysis of unsignalized and signalized intersections.

3.1 Unsignalized Intersections

For unsignalized intersections controlled by a stop sign on minor streets, the level-of-service (LOS) for motor vehicles with controlled movements is determined by the computed control delay according to the thresholds stated in Table 1 below. LOS is determined for each minor street movement (or shared movement), as well as major street left turns. LOS is not defined for the intersection as a whole or for major street approaches. The LOS of any controlled movement which experiences a volume to capacity ratio greater than 1 is designated as "F" regardless of the control delay.

Control delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the control delay for unsignalized intersections, such as the availability and distribution of gaps in the conflicting traffic stream, critical gaps, and follow-up time for a vehicle in the queue.

Level-of-service is assigned a letter designation from "A" through "F". Level-of-service "A" indicates excellent operations with little delay to motorists, while level-of-service "F" exists when there are insufficient gaps of acceptable size to allow vehicles on the side street to cross the main road without experiencing long total delays.

TABLE 1 — LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS		
Control Delay (sec/vehicle)	LOS by Volume-to-Capacity Ratio*	
	$v/c \leq 1.0$	$v/c \geq 1.0$
≤ 10	A	F
> 10 and ≤ 15	B	F
> 15 and ≤ 25	C	F
> 25 and ≤ 35	D	F
> 35 and ≤ 50	E	F
> 50	F	F

*The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection.

Source: Highway Capacity Manual, 6th edition, Exhibit 20-2 *LOS Criteria: Motorized Vehicle Mode*

3.2 Signalized Intersections

According to HCM procedures, LOS can be calculated for the entire intersection, each intersection approach, and each lane group. HCM uses control delay alone to characterize LOS for the entire intersection or an approach. Control delay per vehicle is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Both control delay and volume-to-capacity ratio are used to characterize LOS for a lane group. A volume-to-capacity ratio of 1.0 or more for a lane group indicates failure from capacity perspective. Therefore, such a lane group is assigned LOS F regardless of the amount of control delay.

Table 2 below summarizes the LOS criteria from HCM for motorized vehicles at signalized intersection.

TABLE 2 — LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS		
Control Delay (sec/vehicle)*	LOS for Lane Group by Volume-to-Capacity Ratio*	
	v/c ≤ 1.0	v/c ≥ 1.0
≤ 10	A	F
> 10 and ≤ 20	B	F
> 20 and ≤ 35	C	F
> 35 and ≤ 45	D	F
> 55 and ≤ 80	E	F
> 80	F	F

*For approach-based and intersection wide assessments, LOS is defined solely by control delay

Source: Highway Capacity Manual, 6th edition, Exhibit 19-8 *LOS Criteria: Motorized Vehicle Mode*

LOS A is typically assigned when the volume-to-capacity (v/c) ratio is low and either progression is exceptionally favorable, or the cycle length is very short. LOS B is typically assigned when the v/c ratio is low and either progression is highly favorable, or the cycle length is short. However, more vehicles are stopped than with LOS A. LOS C is typically assigned when progression is favorable, or the cycle length is moderate. Individual *cycle failures* (one or more queued vehicles are not able to depart because of insufficient capacity during the cycle) may begin to appear at this level. Many vehicles still pass through the intersection without stopping, but the number of vehicles stopping is significant. LOS D is typically assigned when the v/c ratio is high and either progression is ineffective, or the cycle length is long. There are many vehicle-stops and individual cycle failures are noticeable. LOS E is typically assigned when the v/c ratio is high, progression is very poor, the cycle length is long, and individual cycle failures are frequent. LOS F is typically assigned when the v/c ratio is very high, progression is very poor, the cycle length is long, and most cycles fail to clear the queue.

4.0 EXISTING 2021 TRAFFIC ANALYSIS




4.1 Existing Traffic Volumes

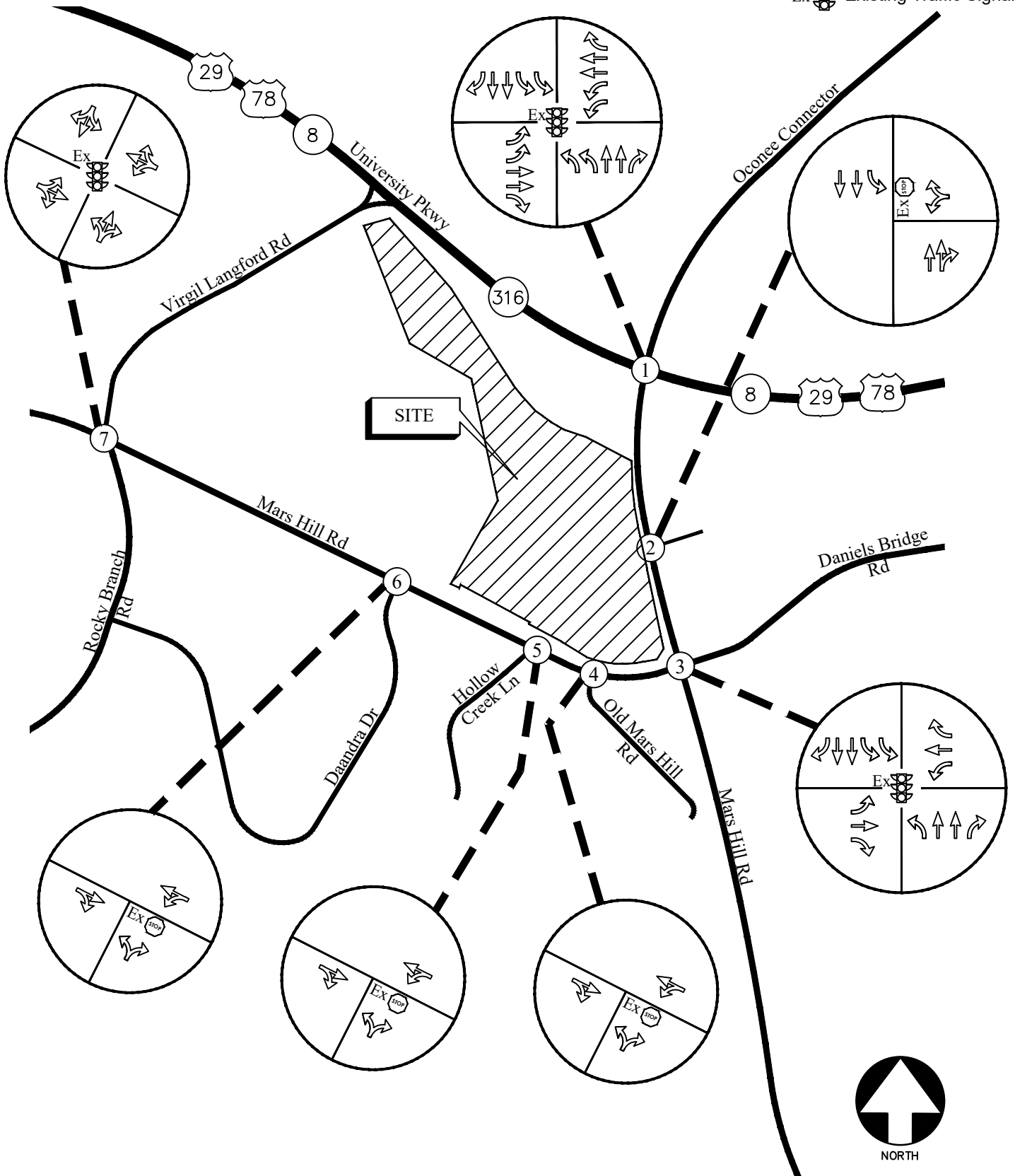
Existing traffic counts were obtained at the following study intersections:

- US 78/US 29/SR 316 (University Parkway) at Oconee Connector
- Oconee Connector at Midblock Median Opening / Private Driveway
- Oconee Connector at Mars Hill Road/Daniels Bridge Road
- Mars Hill Road at Old Mars Hill Road
- Mars Hill Road at Hollow Creek Lane
- Mars Hill Road at Daandra Drive
- Mars Hill Road at Rocky Branch Road / Virgil Langford Road

Turning movement counts were collected on Tuesday, December 14, 2021, during the AM and PM peak hours between 7:00am to 9:00am and 4:00pm to 6:00pm, respectively. The four consecutive 15-minute interval volumes that summed to produce the highest volume at the intersections were then determined. These volumes make up the peak hour traffic volumes for the intersections counted and are shown in Figure 2.

LEGEND

- Ex  Existing Signed Approach
-  Existing Lane Geometry
- Ex  Existing Traffic Signal



EXISTING TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 3

A&R Engineering Inc.

4.2 Existing Traffic Operations

Existing 2021 traffic operations were analyzed at the study intersections in accordance with the HCM methodology. The results of the analyses are shown in Table 3. The existing traffic control and lane geometry for the intersections are shown in Figure 3.

TABLE 3 — EXISTING INTERSECTION OPERATIONS				
Intersection		Traffic Control	LOS (Delay)	
			AM Peak Hour	PM Peak Hour
1	<u>US 78/SR 316 (University Pkwy) @ Oconee Conn</u>	Signalized	<u>E (63.5)</u>	<u>E (73.7)</u>
	-Eastbound Approach		D (44.5)	E (63.5)
	-Westbound Approach		D (62.8)	E (72.0)
	-Northbound Approach		F (99.3)	F (94.6)
	-Southbound Approach		F (81.0)	F (82.2)
2	<u>Oconee Conn @ (Median Break)</u>	Stop Controlled on WB Approach	A (0.0)	A (0.0)
	-Westbound Approach		C (15.1)	B (12.9)
3	<u>Oconee Conn @ Mars Hill Rd / Daniels Bridge Rd</u>	Signalized	<u>D (54.1)</u>	<u>D (39.2)</u>
	-Eastbound Approach		F (105.7)	E (76.4)
	-Westbound Approach		F (84.4)	E (69.0)
	-Northbound Approach		C (28.5)	C (22.1)
	-Southbound Approach		D (45.4)	C (33.9)
4	<u>Mars Hill Rd @ Old Mars Hill Rd</u>	Stop Controlled on NB Approach	A (0.0)	A (8.4)
	-Westbound Left		B (14.4)	B (11.4)
5	<u>Mars Hill Rd @ Hollow Creek Ln</u>	Stop Controlled on NB Approach	A (9.1)	A (8.4)
	-Westbound Left		C (16.7)	C (15.2)
6	<u>Mars Hill Rd @ Daandra Dr</u>	Stop Controlled on NB Approach	A (9.0)	A (8.4)
	-Westbound Left		C (17.7)	C (15.2)
7	<u>Mars Hill Rd @ Rocky Branch Rd / Virgil Langford Rd</u>	Signalized	<u>B (13.3)</u>	<u>B (12.8)</u>
	-Eastbound Left		B (10.7)	B (10.9)
	-Westbound Left		B (11.2)	B (11.6)
	-Northbound Approach		C (20.9)	B (16.1)
	-Southbound Approach		C (20.9)	B (17.0)

The results of existing traffic operations analysis indicate that the intersection of US 78/US 29/SR 316 (University Parkway) at Oconee Connector is currently operating at an overall levels-of-service “E” in both AM and PM peak hours. All other signalized intersections and stop-controlled approaches at unsignalized intersections are operating at satisfactory levels-of-service of “D” or better. These areas are addressed in the Future Traffic Operations section.

5.0 PROPOSED DEVELOPMENT

The proposed mixed-use development will be located in the northwest corner of the intersection of Oconee Connector at Mars Hill Road/Daniels Bridge Road in Athens, Georgia. A site plan is shown in Figure 4. The development will consist of:

- Supermarket: 56,785 square feet
- Shopping Plaza: 45,300 square feet
- Super Convenience Store/Gas Station: 16 fueling positions
- Fast-Food Restaurant with Drive-Through Window: 3,500 square feet
- Fast Casual Restaurant: 6,500 square feet
- Automobile Car Wash: 5,000 square feet
- General Office Building: 59,040 square feet
- Drive-in Bank: 4,000 square feet

The development proposes access at the following locations:

- Site Driveway 1: Full-access driveway on Oconee Connector at the existing median break north of Mars Hill Road/Daniels Bridge Road
- Site Driveway 2: Right-in/right-out driveway on Mars Hill Road, aligned with Old Mars Hill Road
- Site Driveway 3: Full-access driveway on Mars Hill Road, aligned with Hollow Creek Lane
- Site Driveway 4: Full-access driveway on Mars Hill Road, west of Hollow Creek Lane

5.1 Trip Generation

Trip generation estimates for the project were based on the rates and equations published in the 10th edition of the Institute of Transportation Engineers (ITE) Trip Generation report. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation was based on the following ITE Land Uses: 710 - *General Office Building*, 821 - *Shopping Plaza (40-150k)*, 850 - *Supermarket*, 820 - *Shopping Center*, 912 - *Drive-in Bank*, 930 - *Fast Casual Restaurant*, 934 - *Fast-Food Restaurant with Drive-Through Window*, 945 - *Convenience Store/Gas Station* and 948 - *Automobile Car Wash*. Due to the nature of the development, pass-by and mixed-use reductions have been applied per ITE standards. The calculated total trip generation for the proposed development is shown in Table 4.

TABLE 4 — TRIP GENERATION

Land Use	Size	AM Peak Hour			PM Peak Hour			24 Hour
		Enter	Exit	Total	Enter	Exit	Total	2-way
ITE 710 – General Office Building	59,040 sf	94	12	106	18	89	107	734
Mixed-Use Reduction		-13	-3	-16	-6	-15	-21	-136*
ITE 821 – Shopping Plaza (40-150k)	45,300 sf	99	61	160	196	213	409	4280
Mixed-Use Reduction		-1	-3	-4	-4	-2	-6	-36
Pass-by Trips (0%) 40%		0	0	0	-77	-84	-161	-1610*
ITE 850 – Supermarket	56,785 sf	95	67	162	244	245	489	5,275
Mixed-Use Reduction		-1	-4	-5	-5	-2	-7	-44
Pass-by Trips (0%) 24%		0	0	0	-57	-58	-115	-1150*
ITE 912 – Drive-in Bank	4,000 sf	23	17	40	42	42	84	401
Mixed-Use Reduction		0	0	0	0	0	0	-3
Pass-by Trips (29%) 35%		-7	-5	-12	-15	-15	-30	-140*
ITE 930 – Fast Casual Restaurant	6,500 sf	5	4	9	45	37	82	631
Mixed-Use Reduction		0	-1	-1	-1	0	-1	-5
Pass-by Trips (0%) 43%		0	0	0	-19	-16	-35	-271*
ITE 934 – Fast-Food Restaurant with Drive-Through Window	3,500 sf	79	77	156	60	56	116	1,636
Mixed-Use Reduction		0	-1	-1	-2	-1	-3	-14
Pass-by Trips (50%) 55%		-40	-38	-78	-32	-30	-62	-620*
ITE 945 – Convenience Store/Gas Station - GFA (4-5.5k)	16 pumps	216	217	433	182	182	364	4,114
Mixed-Use Reduction		-1	-4	-5	-3	-2	-5	-34
Pass-by Trips (76%) 75%		-163	-162	-325	-134	-135	-269	-2690*
ITE 948 – Automobile Car Wash	5,000 sf	35	36	71	35	36	71	710
Total Trips (without Reductions)		646	491	1137	822	900	1722	17781
New External Trips (with Reductions)		420	270	690	467	540	1007	11028

*Daily pass-by reduction estimated to be least of the applied PM peak hour pass-by rate or ten times the PM pass-by volume

5.2 Trip Distribution

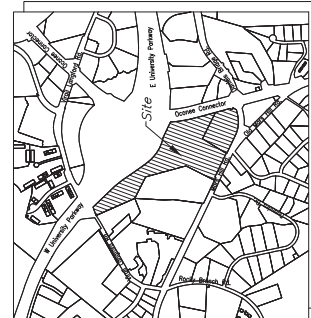
The trip distribution describes how traffic arrives and departs from the site. An overall trip distribution was developed for the site based on a review of the existing travel patterns in the area and the locations of major roadways and highways that will serve the development. The site-generated peak hour traffic volumes, shown in Table 4, were assigned to the study area intersections based on this distribution. The outer-leg distribution and AM and PM peak hour new traffic generated by the site are shown in Figure 5. Pass-by volumes have also been distributed based on existing travel patterns and are shown in Figure 6.

General Notes:

1. All dimensions are approximate.
2. (See final plat for exact dimensions).
3. Lot dimensions are approximate.
4. (See final plat for notes and bounds).
5. Boundary data from: Survey by Richman & Associates, Inc.
6. All existing utilities are approximately located.

LINE	CHORD	BEARING	CHORD	ARC	RADIUS
1	S41°03'48"E	201.94'	201.94'	1045.92'	
2	S57°10'18"E	518.17'	530.68'	703.11'	
3	S39°05'01"E	405.55'	406.24'	2009.92'	
4	S39°07'33"W	70.71'			
5	N84°40'15"W	382.04'	390.07'	553.13'	
6	N31°34'06"E	10.04'			
7	S25°32'31"W	20.00'			
8	N07°35'49"W	156.59'			
9	N64°27'28"W	51.79'			

- NOTES:
- 1) Stormwater Management shall be in accordance with the Georgia Stormwater Management Act (OCGA 10-10-1) and regulations in effect at time of construction plan.
 - 2) Site locations and/or permits are not included with these documents. Applications for site permits are to be submitted separately to the Oconee Code Enforcement Department.
 - 3) Tree save areas are not illustrated on this proposed concept plan. Tree save areas will be determined by the Oconee County Forestry Department and approved by the Oconee County Development Review Committee.
 - 4) See Narrative for proposed Development Schedule.



Site Location Map
Scale: 1"=1000'

DRAFT

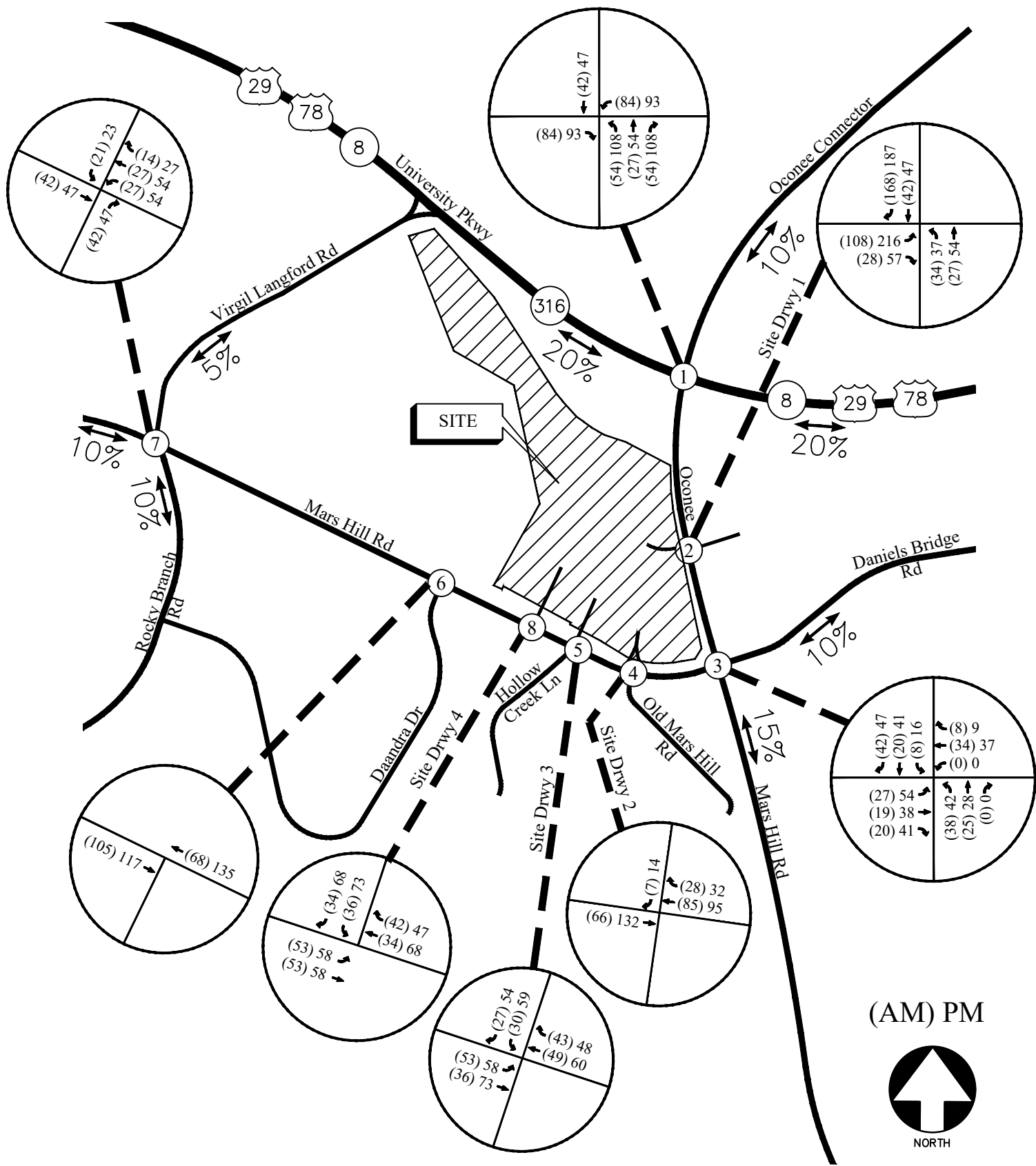
Project Data:

Developer: Deferred Tax, LLC
1291 Highway 216, Suite 100
Waynesville, NC 28787

24 Hour Contact: 770-317-3000

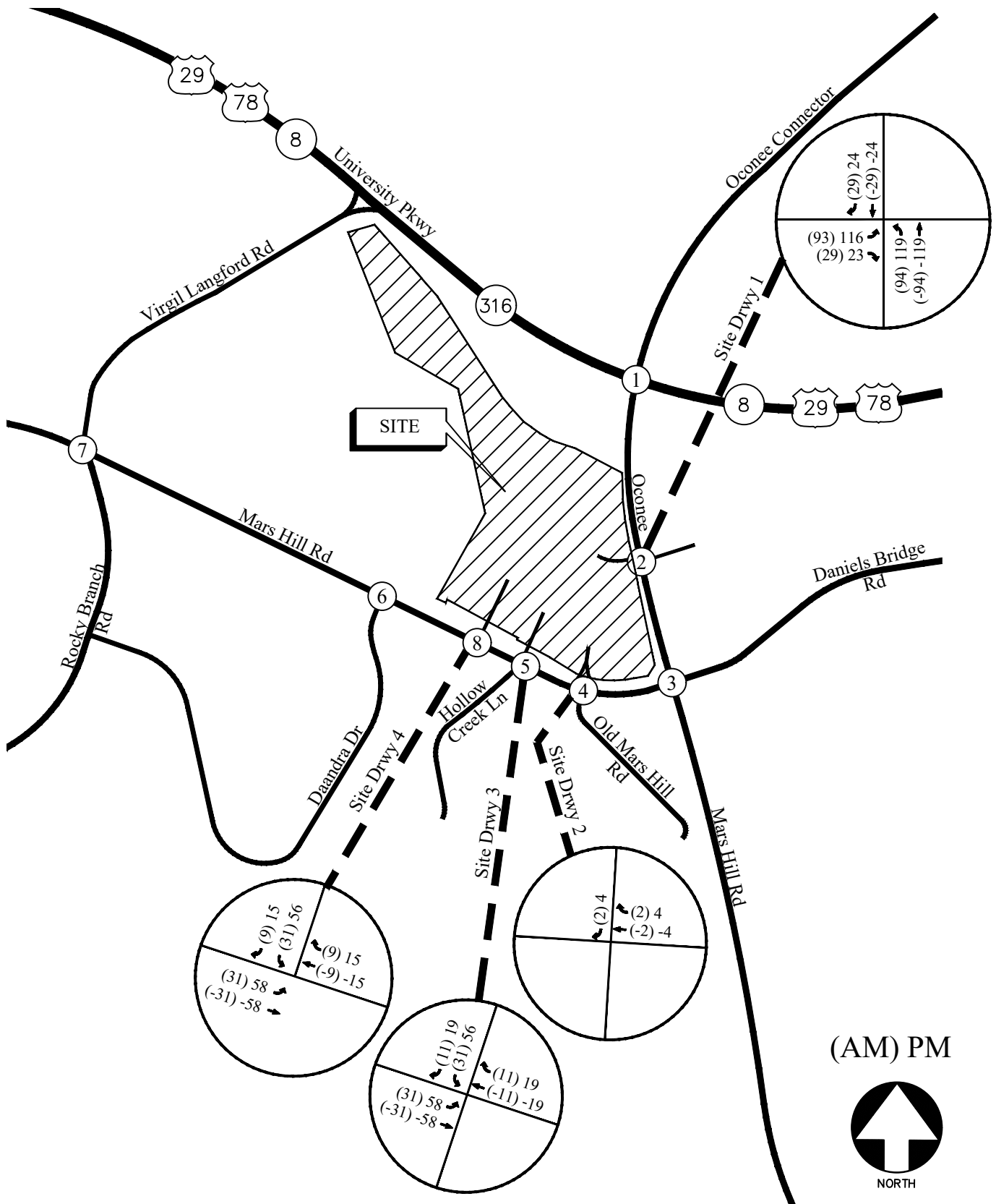
Authorized Agent: Deferred Tax, LLC
3361 Mares Hill Road, Suite 1400
Waynesville, NC 28787
770-317-3000

Tax Parcel(s)/Owner(s): 01045, 01048, 01049, 01050, 01051, 01052, 01053, 01054, 01055, 01056, 01057, 01058, 01059, 01060, 01061, 01062, 01063, 01064, 01065, 01066, 01067, 01068, 01069, 01070, 01071, 01072, 01073, 01074, 01075, 01076, 01077, 01078, 01079, 01080, 01081, 01082, 01083, 01084, 01085, 01086, 01087, 01088, 01089, 01090, 01091, 01092, 01093, 01094, 01095, 01096, 01097, 01098, 01099, 01100, 01101, 01102, 01103, 01104, 01105, 01106, 01107, 01108, 01109, 01110, 01111, 01112, 01113, 01114, 01115, 01116, 01117, 01118, 01119, 01120, 01121, 01122, 01123, 01124, 01125, 01126, 01127, 01128, 01129, 01130, 01131, 01132, 01133, 01134, 01135, 01136, 01137, 01138, 01139, 01140, 01141, 01142, 01143, 01144, 01145, 01146, 01147, 01148, 01149, 01150, 01151, 01152, 01153, 01154, 01155, 01156, 01157, 01158, 01159, 01160, 01161, 01162, 01163, 01164, 01165, 01166, 01167, 01168, 01169, 01170, 01171, 01172, 01173, 01174, 01175, 01176, 01177, 01178, 01179, 01180, 01181, 01182, 01183, 01184, 01185, 01186, 01187, 01188, 01189, 01190, 01191, 01192, 01193, 01194, 01195, 01196, 01197, 01198, 01199, 01200, 01201, 01202, 01203, 01204, 01205, 01206, 01207, 01208, 01209, 01210, 01211, 01212, 01213, 01214, 01215, 01216, 01217, 01218, 01219, 01220, 01221, 01222, 01223, 01224, 01225, 01226, 01227, 01228, 01229, 01230, 01231, 01232, 01233, 01234, 01235, 01236, 01237, 01238, 01239, 01240, 01241, 01242, 01243, 01244, 01245, 01246, 01247, 01248, 01249, 01250, 01251, 01252, 01253, 01254, 01255, 01256, 01257, 01258, 01259, 01260, 01261, 01262, 01263, 01264, 01265, 01266, 01267, 01268, 01269, 01270, 01271, 01272, 01273, 01274, 01275, 01276, 01277, 01278, 01279, 01280, 01281, 01282, 01283, 01284, 01285, 01286, 01287, 01288, 01289, 01290, 01291, 01292, 01293, 01294, 01295, 01296, 01297, 01298, 01299, 01300, 01301, 01302, 01303, 01304, 01305, 01306, 01307, 01308, 01309, 01310, 01311, 01312, 01313, 01314, 01315, 01316, 01317, 01318, 01319, 01320, 01321, 01322, 01323, 01324, 01325, 01326, 01327, 01328, 01329, 01330, 01331, 01332, 01333, 01334, 01335, 01336, 01337, 01338, 01339, 01340, 01341, 01342, 01343, 01344, 01345, 01346, 01347, 01348, 01349, 01350, 01351, 01352, 01353, 01354, 01355, 01356, 01357, 01358, 01359, 01360, 01361, 01362, 01363, 01364, 01365, 01366, 01367, 01368, 01369, 01370, 01371, 01372, 01373, 01374, 01375, 01376, 01377, 01378, 01379, 01380, 01381, 01382, 01383, 01384, 01385, 01386, 01387, 01388, 01389, 01390, 01391, 01392, 01393, 01394, 01395, 01396, 01397, 01398, 01399, 01400, 01401, 01402, 01403, 01404, 01405, 01406, 01407, 01408, 01409, 01410, 01411, 01412, 01413, 01414, 01415, 01416, 01417, 01418, 01419, 01420, 01421, 01422, 01423, 01424, 01425, 01426, 01427, 01428, 01429, 01430, 01431, 01432, 01433, 01434, 01435, 01436, 01437, 01438, 01439, 01440, 01441, 01442, 01443, 01444, 01445, 01446, 01447, 01448, 01449, 01450, 01451, 01452, 01453, 01454, 01455, 01456, 01457, 01458, 01459, 01460, 01461, 01462, 01463, 01464, 01465, 01466, 01467, 01468, 01469, 01470, 01471, 01472, 01473, 01474, 01475, 01476, 01477, 01478, 01479, 01480, 01481, 01482, 01483, 01484, 01485, 01486, 01487, 01488, 01489, 01490, 01491, 01492, 01493, 01494, 01495, 01496, 01497, 01498, 01499, 01500, 01501, 01502, 01503, 01504, 01505, 01506, 01507, 01508, 01509, 01510, 01511, 01512, 01513, 01514, 01515, 01516, 01517, 01518, 01519, 01520, 01521, 01522, 01523, 01524, 01525, 01526, 01527, 01528, 01529, 01530, 01531, 01532, 01533, 01534, 01535, 01536, 01537, 01538, 01539, 01540, 01541, 01542, 01543, 01544, 01545, 01546, 01547, 01548, 01549, 01550, 01551, 01552, 01553, 01554, 01555, 01556, 01557, 01558, 01559, 01560, 01561, 01562, 01563, 01564, 01565, 01566, 01567, 01568, 01569, 01570, 01571, 01572, 01573, 01574, 01575, 01576, 01577, 01578, 01579, 01580, 01581, 01582, 01583, 01584, 01585, 01586, 01587, 01588, 01589, 01590, 01591, 01592, 01593, 01594, 01595, 01596, 01597, 01598, 01599, 01600, 01601, 01602, 01603, 01604, 01605, 01606, 01607, 01608, 01609, 01610, 01611, 01612, 01613, 01614, 01615, 01616, 01617, 01618, 01619, 01620, 01621, 01622, 01623, 01624, 01625, 01626, 01627, 01628, 01629, 01630, 01631, 01632, 01633, 01634, 01635, 01636, 01637, 01638, 01639, 01640, 01641, 01642, 01643, 01644, 01645, 01646, 01647, 01648, 01649, 01650, 01651, 01652, 01653, 01654, 01655, 01656, 01657, 01658, 01659, 01660, 01661, 01662, 01663, 01664, 01665, 01666, 01667, 01668, 01669, 01670, 01671, 01672, 01673, 01674, 01675, 01676, 01677, 01678, 01679, 01680, 01681, 01682, 01683, 01684, 01685, 01686, 01687, 01688, 01689, 01690, 01691, 01692, 01693, 01694, 01695, 01696, 01697, 01698, 01699, 01700, 01701, 01702, 01703, 01704, 01705, 01706, 01707, 01708, 01709, 01710, 01711, 01712, 01713, 01714, 01715, 01716, 01717, 01718, 01719, 01720, 01721, 01722, 01723, 01724, 01725, 01726, 01727, 01728, 01729, 01730, 01731, 01732, 01733, 01734, 01735, 01736, 01737, 01738, 01739, 01740, 01741, 01742, 01743, 01744, 01745, 01746, 01747, 01748, 01749, 01750, 01751, 01752, 01753, 01754, 01755, 01756, 01757, 01758, 01759, 01760, 01761, 01762, 01763, 01764, 01765, 01766, 01767, 01768, 01769, 01770, 01771, 01772, 01773, 01774, 01775, 01776, 01777, 01778, 01779, 01780, 01781, 01782, 01783, 01784, 01785, 01786, 01787, 01788, 01789, 01790, 01791, 01792, 01793, 01794, 01795, 01796, 01797, 01798, 01799, 01800, 01801, 01802, 01803, 01804, 01805, 01806, 01807, 01808, 01809, 01810, 01811, 01812, 01813, 01814, 01815, 01816, 01817, 01818, 01819, 01820, 01821, 01822, 01823, 01824, 01825, 01826, 01827, 01828, 01829, 01830, 01831, 01832, 01833, 01834, 01835, 01836, 01837, 01838, 01839, 01840, 01841, 01842, 01843, 01844, 01845, 01846, 01847, 01848, 01849, 01850, 01851, 01852, 01853, 01854, 01855, 01856, 01857, 01858, 01859, 01860, 01861, 01862, 01863, 01864, 01865, 01866, 01867, 01868, 01869, 01870, 01871, 01872, 01873, 01874, 01875, 01876, 01877, 01878, 01879, 01880, 01881, 01882, 01883, 01884, 01885, 01886, 01887, 01888, 01889, 01890, 01891, 01892, 01893, 01894, 01895, 01896, 01897, 01898, 01899, 01900, 01901, 01902, 01903, 01904, 01905, 01906, 01907, 01908, 01909, 01910, 01911, 01912, 01913, 01914, 01915, 01916, 01917, 01918, 01919, 01920, 01921, 01922, 01923, 01924, 01925, 01926, 01927, 01928, 01929, 01930, 01931, 01932, 01933, 01934, 01935, 01936, 01937, 01938, 01939, 01940, 01941, 01942, 01943, 01944, 01945, 01946, 01947, 01948, 01949, 01950, 01951, 01952, 01953, 01954, 01955, 01956, 01957, 01958, 01959, 01960, 01961, 01962, 01963, 01964, 01965, 01966, 01967, 01968, 01969, 01970, 01971, 01972, 01973, 01974, 01975, 01976, 01977, 01978, 01979, 01980, 01981, 01982, 01983, 01984, 01985, 01986, 01987, 01988, 01989, 01990, 01991, 01992, 01993, 01994, 01995, 01996, 01997, 01998, 01999, 02000, 02001, 02002, 02003, 02004, 02005, 02006, 02007, 02008, 02009, 02010, 02011, 02012, 02013, 02014, 02015, 02016, 02017, 02018, 02019, 02020, 02021, 02022, 02023, 02024, 02025, 02026, 02027, 02028, 02029, 02030, 02031, 02032, 02033, 02034, 02035, 02036, 02037, 02038, 02039, 02040, 02041, 02042, 02043, 02044, 02045, 02046, 02047, 02048, 02049, 02050, 02051, 02052, 02053, 02054, 02055, 02056, 02057, 02058, 02059, 02060, 02061, 02062, 02063, 02064, 02065, 02066, 02067, 02068, 02069, 02070, 02071, 02072, 02073, 02074, 02075, 02076, 02077, 02078, 02079, 02080, 02081, 02082, 02083, 02084, 02085, 02086, 02087, 02088, 02089, 02090, 02091, 02092, 02093, 02094, 02095, 02096, 02097, 02098, 02099, 02100, 02101, 02102, 02103, 02104, 02105, 02106, 02107, 02108, 02109, 02110, 02111, 02112, 02113, 02114, 02115, 02116, 02117, 02118, 02119, 02120, 02121, 02122, 02123, 02124, 02125, 02126, 02127, 02128, 02129, 02130, 02131, 02132, 02133, 02134, 02135, 02136, 02137, 02138, 02139, 02140, 02141, 02142, 02143, 02144, 02145, 02146, 02147, 02148, 02149, 02150, 02151, 02152, 02153, 02154, 02155, 02156, 02157, 02158, 02159, 02160, 02161, 02162, 02163, 02164, 02165, 02166, 02167, 02168, 02169, 02170, 02171, 02172, 02173, 02174, 02175, 02176, 02177, 02178, 02179, 02180, 02181, 02182, 02183, 02184, 02185, 02186, 02187, 02188, 02189, 02190, 02191, 02192, 02193, 02194, 02195, 02196, 02197, 02198, 02199, 02200, 02201, 02202, 02203, 02204, 02205, 02206, 02207, 02208, 02209, 02210, 02211, 02212, 02213, 02214, 02215, 02216, 02217, 02218, 02219, 02220, 02221, 02222, 02223, 02224, 02225, 02226, 02227, 02228, 02229, 02230, 02231, 02232, 02233, 02234, 02235, 02236, 02237, 02238, 02239, 02240, 02241, 02242, 02243, 02244, 02245, 02246, 02247, 02248, 02249, 02250, 02251, 02252, 02253, 02254, 02255, 02256, 02257, 02258, 02259, 02260, 02261, 02262, 02263, 02264, 02265, 02266, 02267, 02268, 02269, 02270, 02271, 02272, 02273, 02274, 02275, 02276, 02277, 02278, 02279, 02280, 02281, 02282, 02283, 02284, 02285, 02286, 02287, 02288, 02289, 02290, 02291, 02292, 02293, 02294, 02295, 02296, 02297, 02298, 02299, 02300, 02301, 02302, 02303, 02304, 02305, 02306, 02307, 02308, 02309, 02310, 02311, 02312, 02313, 02314, 02315, 02316, 02317, 02318, 02319, 02320, 02321, 02322, 02323, 02324, 02325, 02326, 02327, 02328, 02329, 02330, 02331, 02332, 02333, 02334, 02335, 02336, 02337, 02338, 02339, 02340, 02341, 02342, 02343, 02344, 02345, 02346, 02347, 02348, 02349, 02350, 02351, 02352, 02353, 02354, 02355, 02356, 02357, 02358, 02359, 02360, 02361, 02362, 02363, 02364, 02365, 02366, 02367, 02368, 02369, 02370, 02371, 02372, 02373, 02374, 02375, 02376, 02377, 02378, 02379, 02380, 02381, 02382, 02383, 02384, 02385, 02386, 02387, 02388, 02389, 02390, 02391, 02392, 02393, 02394, 02395, 02396, 02397, 02398, 02399, 02400, 02401, 02402, 02403, 02404, 02405, 02406, 02407, 02408, 02409, 02410, 02411, 02412, 02413, 02414, 02415, 02416, 02417, 02418, 02419, 02420, 02421, 02422, 02423, 02424, 02425, 02426, 02427, 02428, 02429, 02430, 02431, 02432, 02433, 02434, 02435, 02436, 02437, 02438, 02439, 02440, 02441, 02442, 02443, 02444, 02445, 02446, 02447, 02448, 02449, 02450, 02451, 02452, 02453, 02454, 02455, 02456, 02457, 02458, 02459, 02460, 02461, 02462, 02463, 02464, 02465, 02466, 02467, 02468, 02469, 02470, 02471, 02472, 02473, 02474, 02475, 02476, 02477, 02478, 02479, 02480, 02481, 02482, 02483, 02484, 02485, 02486, 02487, 02488, 02489, 02490, 02491, 02492, 02493, 02494, 02495, 02496, 02497, 02498, 02499, 02500, 02501, 02502, 02503, 02504, 02505, 02506, 02507, 02508, 02509, 02510, 02511, 02512, 02513, 02514, 02515, 02516, 02517, 02518, 02519, 02520, 02521, 02522, 02523, 02524, 02525, 02526, 02527, 02528, 02529, 02530, 02531, 02532, 02533, 02534, 02535, 02536, 02537, 02538, 02539, 02540, 02541, 02542, 02543, 02544, 02545, 02546, 02547, 02548, 02549, 02550, 02551, 02552, 02553, 02554, 02555, 02556, 02557, 02558, 02559, 02560, 02561, 02562, 02563, 02564, 02565, 02566, 02567, 02568, 02569, 02570, 02571, 02572, 02573, 02574, 02575, 02576, 02577, 02578, 02579, 02580, 02581, 02582, 02583, 02584, 02585, 02586, 02587, 02588, 02589, 02590, 02591, 02592, 02593, 02594, 02595, 02596, 02597, 02598, 02599, 02600, 02601, 02602, 02603, 02604, 02605, 02606, 02607, 02608, 02609, 02610, 02611, 02612, 02613, 02614, 02615, 02616, 02617, 02618, 02619, 02620, 02621, 02622, 02623, 02624, 02625, 02626, 02627, 02628, 02629, 02630, 02631, 02632, 02633, 02634, 02635, 02636, 02637, 02638, 026



TRIP DISTRIBUTION AND SITE-GENERATED
WEEKDAY PEAK HOUR VOLUMES

FIGURE 5
A&R Engineering Inc.



SITE PEAK HOUR PASS-BY VOLUMES

FIGURE 6
A&R Engineering Inc.

6.0 FUTURE 2024 TRAFFIC ANALYSIS

The future 2024 traffic operations are analyzed for the “Build” and “No-Build” conditions.

6.1 Future “No-Build” Conditions

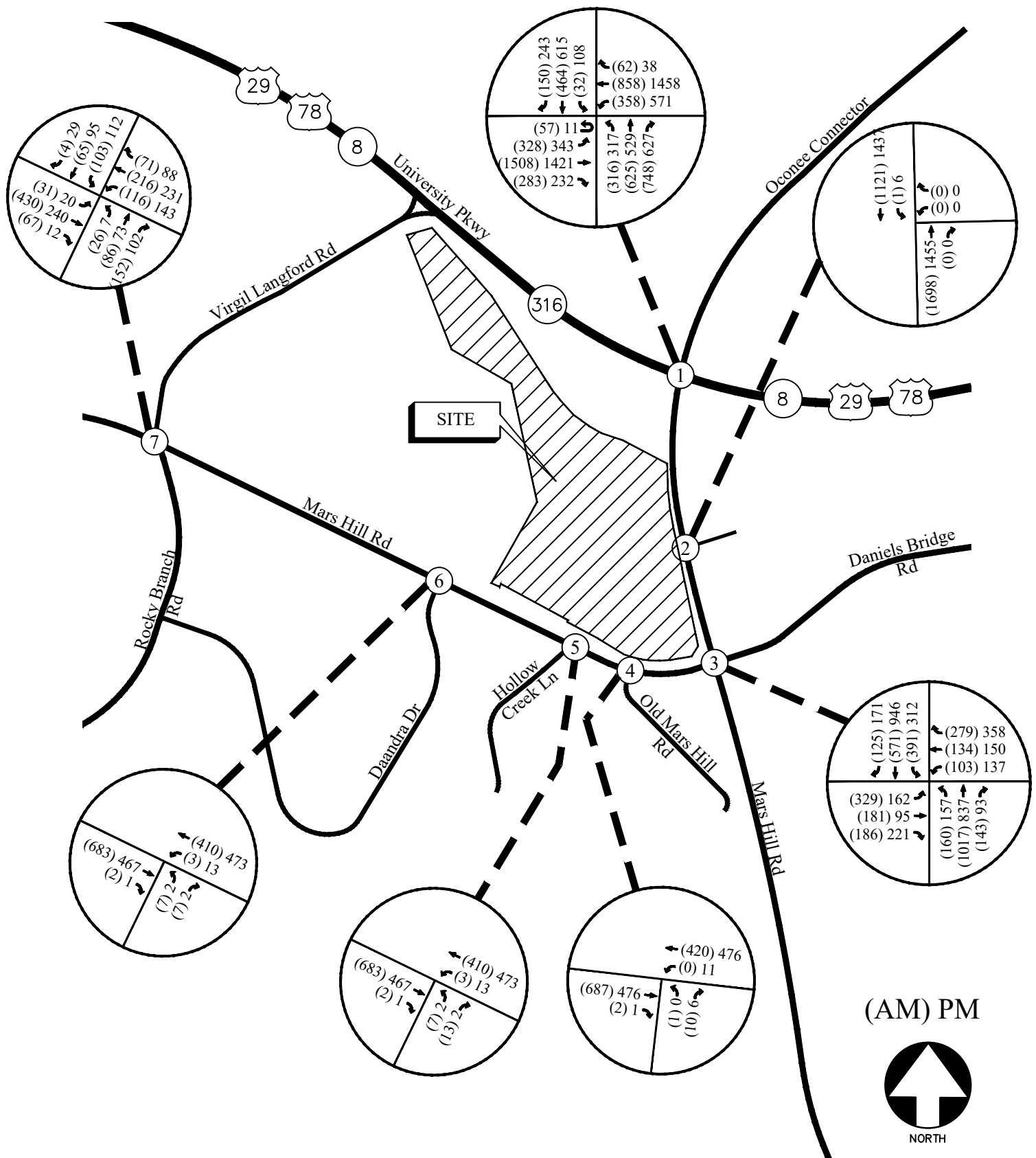
The “No-Build” (or background) conditions provide an assessment of how traffic will operate in the study horizon year without the study site being developed as proposed, with projected increases in through traffic volumes due to normal annual growth. The Future “No-Build” volumes consist of the existing traffic volumes (Figure 2) plus increases for annual growth of through traffic.

6.1.1 Annual Traffic Growth

In order to evaluate future traffic operations in this area, a projection of normal traffic growth was applied to the existing volumes. The Georgia Department of Transportation recorded average daily traffic volumes at several locations in the vicinity of the site. Reviewing the growth over the last three years revealed growth of approximately 4% in the area. This growth factor was applied to the existing traffic volumes between collector and arterial roadways in order to estimate the future year traffic volumes prior to the addition of site-generated traffic. The resulting Future “No-Build” volumes on the roadway are shown in Figure 7.

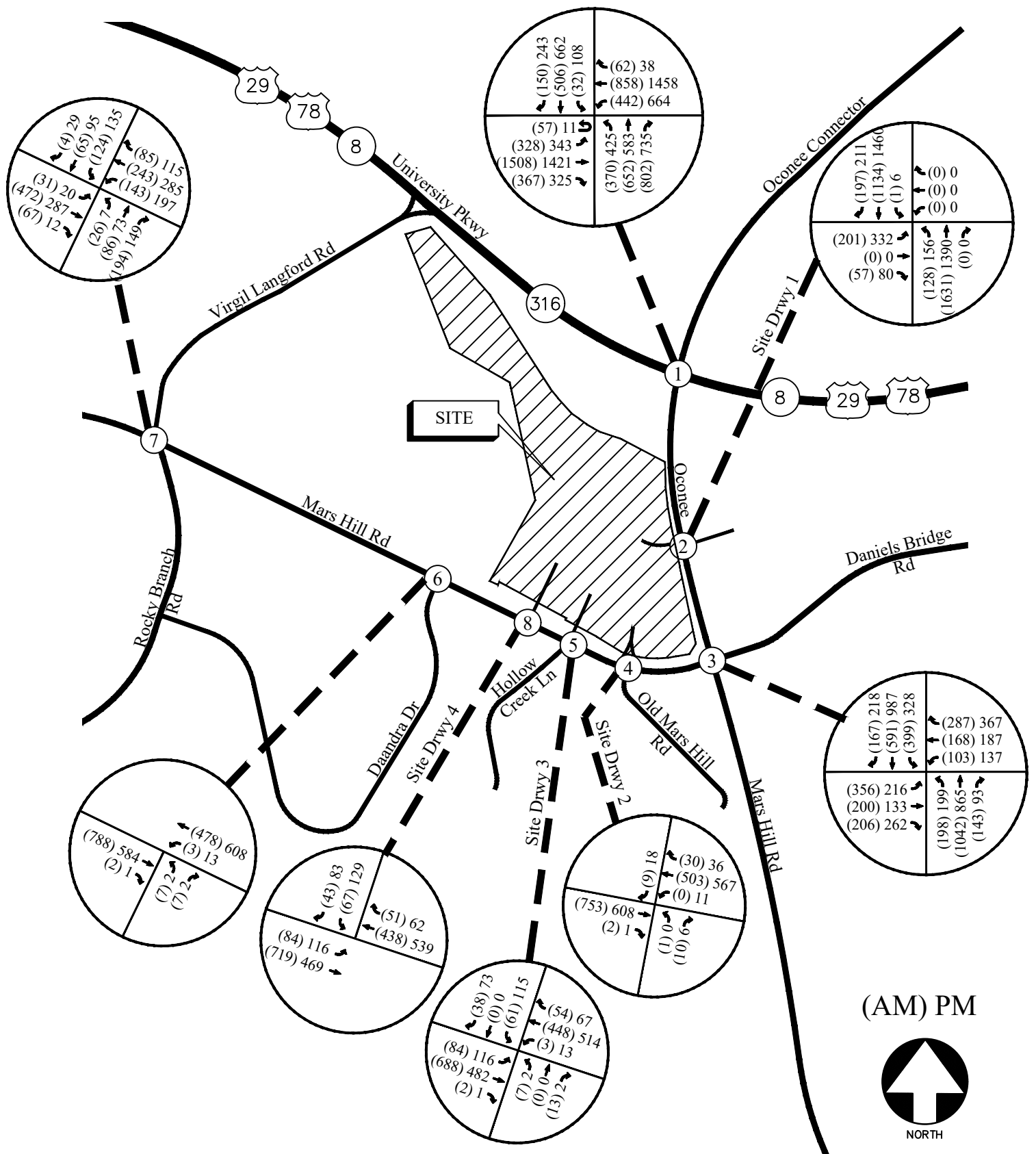
6.2 Future “Build” Conditions

The “Build” or development conditions include the estimated background traffic from the “No-Build” conditions plus the added traffic from the proposed development. In order to evaluate future traffic operations in this area, the additional traffic volumes from the site (Figure 5) and pass-by volumes (Figure 6) were added to base traffic volumes (Figure 7) to calculate the future traffic volumes after the construction of the development. These total future “Build” traffic volumes are shown in Figure 8.



FUTURE (NO-BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 7
A&R Engineering Inc.



FUTURE (BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 8
A&R Engineering Inc.

6.2.1 Auxiliary Lane Analysis

Included below are analyses for left-turn lanes and deceleration lanes for all site driveways per GDOT standards. The analyses below are based off the trip distribution included in Section 5.2. According to the trip distribution, the 24-hour two-way volume entering and exiting of the site is 18,321 vehicles.

6.2.1.1 Left Turn Lane Analysis

According to GDOT standards, for a four-lane roadway with AADT's greater than 10,000 vehicles and for a two-lane roadway with AADT's less than 6,000 vehicles, the threshold of daily site generated left-turn volume to warrant a left-turn lane is 250 vehicles for speed limit 45 mph. The projected left-turn volume per day for the proposed driveways is shown in Table 5.

Intersection	Left turn traffic (% total entering)	Left turn / Roadway Direction	Left-turn Volume (vehicle/day)	Roadway Speed/ # lanes / ADT	GDOT Threshold (vehicle/day)	Warrant met?
Oconee Conn @ Site Drwy 1 (Median Break)	8.0%	Oconee Conn (Northbound)	700 Total trips-mixed use reduction ÷ $2 \times 0.08 =$ $(17,781-272) \div 2 \times 0.08 = 700$	45 mph / 4-Lane, >10,000	250	Yes
Mars Hill Road @ Hollow Creek Lane/ Site Drwy 3	12.5%	Mars Hill Road (Eastbound)	1,094 Total trips-mixed use reduction ÷ $2 \times 0.125 =$ $(17,781-272) \div 2 \times 0.125 = 1,094$	45 mph / 2-lane/ <6,000	250	Yes
Mars Hill Road @ Site Drwy 4	12.5%	Mars Hill Road (Eastbound)	1,094 Total trips-mixed use reduction ÷ $2 \times 0.125 =$ $(17,781-272) \div 2 \times 0.125 = 1,094$	45 mph / 2-lane/ <6,000	250	Yes

A northbound left turn lane is warranted on Oconee Connector at site driveway 1. Left turn lanes are also warranted at site driveway 3 and site driveway 4 on Mars Hill Road.

6.2.1.2 Deceleration Turn Lane Analysis

For four lane roadways with AADT's greater than 10,000 vehicles and a posted speed limit of 45 mph, the threshold of daily site generated right-turn volume to warrant a right-turn lane is 75 vehicles. For two lane roadways with AADT's less than 6,000 vehicles and a posted speed limit of 45 mph, the threshold of daily site generated right-turn volume to warrant a right-turn lane is 150 vehicles. The projected right-turn volume per day for the proposed driveway is shown in Table 6.

TABLE 6 - GDOT REQUIREMENTS FOR DECELERATION LANES						
Intersection	Right-turn traffic (% total entering)	Right turn / Roadway Direction	Right-turn Volume (vehicle/day)	Roadway Speed/ # lanes / ADT	GDOT Threshold (vehicle/day)	Warrant met?
Oconee Conn @ Site Drwy 1 (Median Break)	40%	Oconee Conn (Southbound)	3,502 Total trips-mixed use reduction $\div 2 \times 0.40 =$ $(17,781-272) \div 2 \times 0.40 = 3,502$	45 mph / 4-Lane, >10,000	75	Yes
Mars Hill Road @ Old Mars Hill Rd / Site Drwy 2 (RIRO)	6.8%	Mars Hill Road (Westbound)	613 Total trips-mixed use reduction $\div 2 \times 0.07 =$ $(17,781-272) \div 2 \times 0.07 = 613$	45 mph / 2-lane/ <6,000	150	Yes
Mars Hill Road @ Hollow Creek Ln/ Site Drwy 3	10.3%	Mars Hill Road (Westbound)	875 Total trips-mixed use reduction $\div 2 \times 0.10 =$ $(17,781-272) \div 2 \times 0.10 = 875$	45 mph / 2-lane/ <6,000	150	Yes
Mars Hill Road @ Site Drwy 4	10.0%	Mars Hill Road (Westbound)	875 Total trips-mixed use reduction $\div 2 \times 0.10 =$ $(17,781-272) \div 2 \times 0.10 = 875$	45 mph / 2-lane/ <6,000	150	Yes

Deceleration lanes are warranted at site driveway 1 on Oconee Connector. Deceleration lanes are also warranted at site driveway 2, site driveway 3 and site driveway 4 on Mars Hill Road per GDOT standards.

6.2.2 Future Traffic Operations

The future “No-Build” and “Build” traffic operations were analyzed using the volumes in Figure 7 and Figure 8, respectively. The results of the future traffic operations analysis are shown in Table 7. Recommendations on traffic control and lane geometry are shown graphically in Figure 9.

TABLE 7 — FUTURE “BUILD” INTERSECTION OPERATIONS					
Intersection		LOS (Delay)			
		NO-BUILD		BUILD	
		AM Peak	PM Peak	AM Peak	PM Peak
1	<u>US 78SR 316 (University Pkwy) @ Oconee Conn</u>	<u>E (76.2)</u>	<u>F (103.1)</u>	<u>F (95.2)</u>	<u>F (129.8)</u>
	-Eastbound Approach	D (53.6)	F (101.2)	D (52.8)	F (114.6)
	-Westbound Approach	F (98.5)	F (107.2)	F (144.7)	F (140.4)
	-Northbound Approach	F (97.7)	F (115.3)	F (143.4)	F (175.0)
	-Southbound Approach	F (80.1)	F (82.8)	E (62.1)	F (82.7)
2	<u>Oconee Conn @ Site Driveway 1(Median Break)</u>				
	-Eastbound Approach	-	-	F (*)	F (*)
	-Northbound Left	-	-	C (17.6)	D (29.7)
	-Southbound Left	C (17.3)	B (14.3)	C (16.4)	B (13.7)
3	<u>Oconee Conn @ Mars Hill Rd / Daniels Bridge Rd</u>	<u>E (64.1)</u>	<u>D (41.6)</u>	<u>E (66.8)</u>	<u>D (46.3)</u>
	-Eastbound Approach	F (145.9)	E (79.6)	F (142.6)	F (80.2)
	-Westbound Approach	F (85.0)	E (70.5)	F (82.5)	E (76.0)
	-Northbound Approach	C (31.5)	C (24.9)	D (36.2)	C (29.5)
	-Southbound Approach	D (46.5)	D (35.9)	D (49.8)	D (39.3)
4	<u>Mars Hill Rd @ Old Mars Hill Rd/ Site Driveway 2</u>				
	-Westbound Left	A (0.0)	A (8.6)	A (0.0)	A (9.2)
	-Northbound Approach	C (15.7)	B (12.0)	C (16.3)	B (13.6)
	-Southbound Approach	-	-	B (12.2)	B (13.3)
5	<u>Mars Hill Rd @ Hollow Creek Ln/Site Driveway 3</u>				
	-Eastbound Left	-	-	A (9.0)	A (9.7)
	-Westbound Left	A (9.4)	A (8.6)	A (9.4)	A (8.6)
	-Northbound Approach	C (19.1)	C (16.8)	D (31.9)	E (37.3)
	-Southbound Approach	-	-	F (126.7)	F (*)
6	<u>Mars Hill Rd @ Daandra Dr</u>				
	-Westbound Left	A (9.3)	A (8.6)	A (9.8)	A (9.0)
	-Northbound Approach	C (20.3)	C (16.8)	C (24.8)	C (21.9)
7	<u>Mars Hill Rd@ Rocky Branch Rd/Virgil Langford Rd</u>	<u>B (14.1)</u>	<u>B (13.2)</u>	<u>C (22.8)</u>	<u>B (16.1)</u>
	-Eastbound Left	B (10.8)	B (10.8)	B (14.8)	B (12.5)
	-Westbound Left	B (11.6)	B (11.7)	B (17.1)	B (14.8)
	-Northbound Approach	C (24.2)	B (17.7)	D (37.0)	C (20.2)
	-Southbound Approach	C (23.5)	B (18.0)	D (37.9)	B (20.0)
8	<u>Mars Hill Rd @ Site Driveway 4</u>				
	-Eastbound Left	-	-	A (9.0)	A (9.8)
	-Southbound Approach			C (24.4)	E (48.0)

* Delay exceeds 300 seconds

The results of the future “No-Build” traffic operations analysis indicate that the intersection of US 78/SR 316 at Oconee Connector will operate at level-of-service (LOS) “F” in the PM peak hours. The intersection of Oconee Connector @ Mars Hill Road/Daniels Bridge Road will operate at level-of-service “E”. All other signalized intersections and stopped-controlled approaches at un-signalized intersections will be operating at satisfactory levels-of-service “D” or better.

The results of the future “Build” traffic operations analysis indicate the following:

US78/SR 316 @ Oconee Connector:

This intersection will operate at LOS “F” in both AM and PM peak hours with some increase in delays. All approaches to the intersections have dual left-turn lanes and right-turn lanes. Three of the approaches have raised islands. With the heavy intersecting traffic at the intersection, no improvements will help improve the LOS except a grade separation like the adjacent intersections of US78/SR 316 at Athens Perimeter in the west and US 10 (Monroe Highway) at in east. The GDOT project to construct an interchange at this intersection will improve the operations considerably.

Oconee Connector @ Site Driveway 1:

The eastbound Site driveway 1 approach at the unsignalized intersection of Oconee Connector at the median break will experience considerable long delays of over 300 seconds because of the heavy through traffic on Oconee Connector. A preliminary evaluation of signal warrants during peak hours indicated that the intersection volumes will warrant installation of a traffic signal. We have also evaluated this intersection with a traffic signal and the results of the analysis, as given in Table 8 below show that the signalized driveway intersection will operate at a satisfactory LOS “A” and LOS “B” in AM and PM peak hours, respectively.

TABLE 8 — FUTURE OPERATIONS — AT SITE DRIVEWAY — WITH TRAFFIC SIGNAL					
Intersection		Future Condition: LOS (Delay)			
		BUILD – No Signal		BUILD with Signal	
		AM Peak	PM Peak	AM Peak	PM Peak
2	Oconee Conn @ Site Driveway 1(Median Break)			A (9.0)	B (18.4)
	-Eastbound Approach	F (*)	F (*)	E (77.9)	E (74.2)
	-Westbound Approach	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	-Northbound Left/Approach	C (17.6)	D (29.7)	A (0.9)	B (10.2)
	-Southbound Left/Approach	C (16.4)	B (13.7)	A (6.2)	B (12.2)

* Delay exceeds 300 seconds

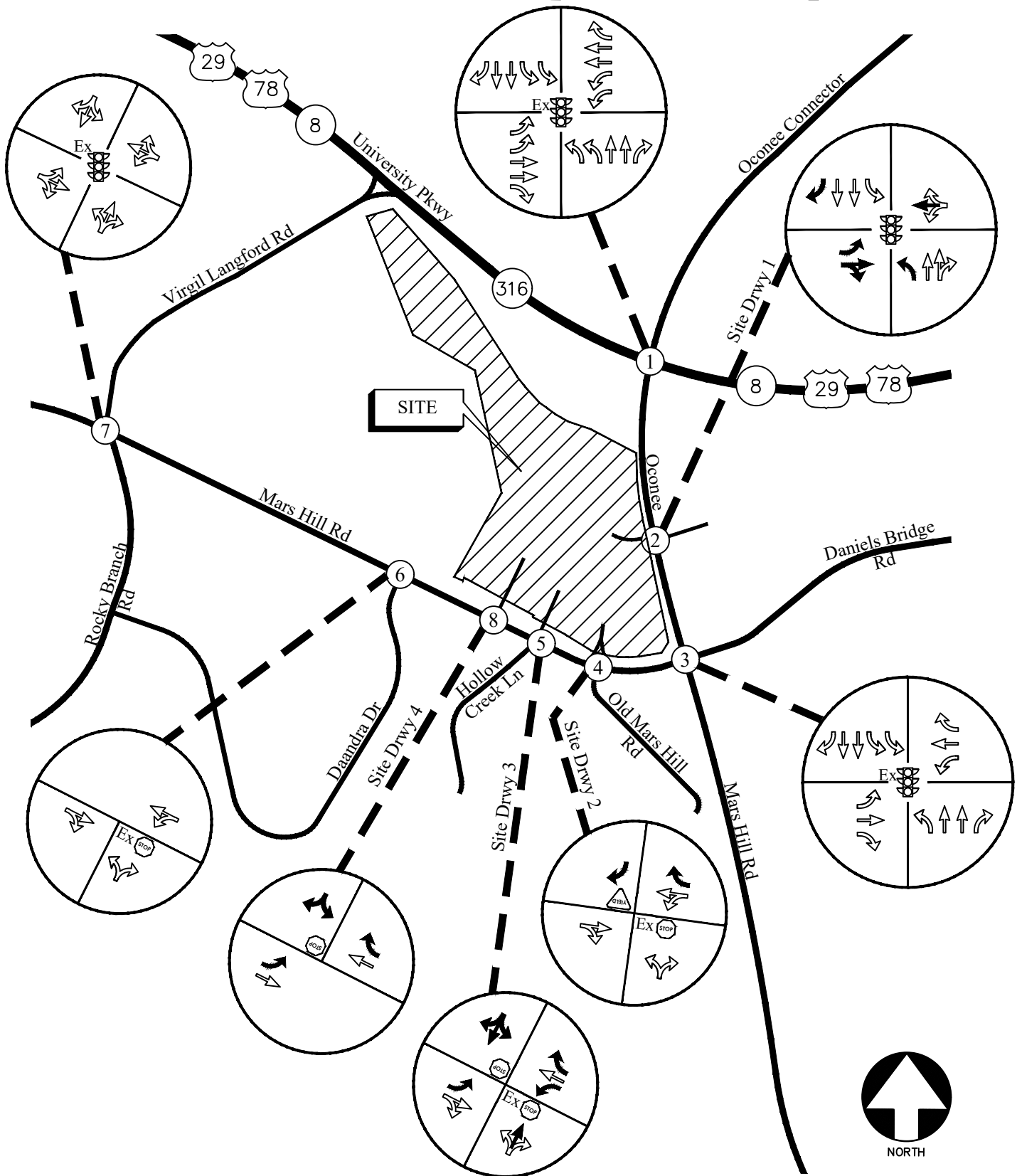
Oconee Connector @ Mars Hill Road:

The intersection of Oconee Conn @ Mars Hill Road /Daniels Bridge Road will continue to operate at level-of-service “E” in the AM peak hour with marginal increase in delays from “No-Build” conditions.

The stop-controlled driveway approach on Mars Hills Road at Hollow Creek Drive will operate at LOS “F” in both AM and PM peak hours. It is not uncommon for stop-controlled streets to experience longer delays turning left on main road due to the wait times in finding gaps in through traffic. All other signalized intersections and stop-controlled approaches at the un-signalized intersections will operate at satisfactory levels of service.

LEGEND

- | | | | |
|----|--------------------------|------|--------------------------|
| Ex | Existing Signed Approach | STOP | Proposed Signed Approach |
| | Existing Lane Geometry | | Proposed Lane Geometry |
| Ex | Existing Traffic Signal | | Proposed Traffic Signal |



FUTURE TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 9

A&R Engineering Inc.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study is to determine the traffic impact that will result from the proposed mixed-use development located in the northwest corner of the intersection of Oconee Connector at Mars Hill Road/Daniels Bridge Road in Athens, Georgia. The traffic analysis evaluates the current operations compared to the future conditions with the traffic generated by the development. The proposed development will consist of:

- Supermarket: 56,785 square feet
- Shopping Plaza: 45,300 square feet
- Super Convenience Store/Gas Station: 16 fueling positions
- Fast-Food Restaurant with Drive-Through Window: 3,500 square feet
- Fast Casual Restaurant: 6,500 square feet
- Automobile Car Wash: 5,000 square feet
- General Office Building: 59,040 square feet
- Drive-in Bank: 4,000 square feet

The development proposes access at the following locations:

- Site Driveway 1: Full-access driveway on Oconee Connector at the existing median break north of Mars Hill Road/Daniels Bridge Road
- Site Driveway 2: Right-in/right-out driveway on Mars Hill Road, aligned with Old Mars Hill Road
- Site Driveway 3: Full-access driveway on Mars Hill Road, aligned with Hollow Creek Lane
- Site Driveway 4: Full-access driveway on Mars Hill Road, west of Hollow Creek Lane

The AM and PM peak hours have been analyzed in this study. Including the site access points, this study includes the evaluation of traffic operations at the intersections of:

- US 78/US 29/SR 316 (University Parkway) at Oconee Connector
- Oconee Connector at Site Driveway 1 (Midblock Median Opening)/Private Driveway
- Oconee Connector at Mars Hill Road/Daniels Bridge Road
- Mars Hill Road at Rocky Branch Road / Virgil Langford Road
- Mars Hill Road at Old Mars Hill Road/Site Driveway 2
- Mars Hill Road at Hollow Creek Lane/Site Driveway 3
- Mars Hill Road at Site Driveway 4
- Mars Hill Road at Daandra Drive

The analysis included the evaluation of Future operations for “No-Build” and “Build” conditions. The results of the analysis are listed below:

7.1 Site Access Configuration

The following access configuration is recommended for the proposed site driveway intersections:

Site Driveway 1: Full-access driveway on Oconee Connector at the existing median break north of Mars Hill Road/Daniels Bridge Road

- One entering and one exiting lane
- To be signalized.
- Left turn lane and deceleration lane for entering traffic.
- Provide adequate sight distance per AASHTO standards.

Site Driveway 2: Right-in/right-out driveway on Mars Hill Road, aligned with Old Mars Hill Road

- One entering and one exiting lane
- Stop-sign controlled on the driveway approach with Mars Hill Road remaining free flow.
- Provide adequate sight distance per AASHTO standards.
- Deceleration lane for entering traffic.

Site Driveway 3: Full-access eastern driveway on Mars Hill Road, aligned with Hollow Creek Lane

- One entering and one exiting lane
- Stop-sign controlled on the driveway approach with Mars Hill Road remaining free flow.
- Provide adequate sight distance per AASHTO standards.
- A two-way-left-turn lane for entering traffic.
- Deceleration lane for entering traffic.

Site Driveway 3: Full-access western driveway on Mars Hill Road, west of Hollow Creek Lane

- One entering and one exiting lane
- Stop-sign controlled on the driveway approach with Mars Hill Road remaining free flow.
- Provide adequate sight distance per AASHTO standards.
- A two-way-left-turn lane for entering traffic.
- Deceleration lane for entering traffic

7.2 Site Mitigation Improvements

Improvements that are identified as mitigation improvements address deficiencies that are caused by site traffic and can be identified as related to the proposed development. A summary of the site improvements is provided below.

Oconee Connector @ Site Driveway 1(Median Break) /Private Driveway

- Construct a left-turn lane for entering traffic to accommodate the queues.
- A preliminary evaluation of peak hour signal warrants at the site driveway 1 at Oconee Connector indicate that a traffic signal will be warranted. We recommend completing a signal warrant analysis and if warranted, install a traffic signal at the site driveway intersection and coordinate the traffic signal with the adjacent signals.
- Construct a right-turn lane for entering traffic.

Mars Hill Road

- Construct a two-way-left-turn lane on Mars Hill Road from 200 feet west of Old Mars Hill Road to 460 feet east of Daandra Drive to accommodate eastbound left-turning vehicles into site driveways.
- Construct right-turn lanes on Mars Hill Road at all three driveways with 175 feet storage and 100 feet taper.

Appendix

Existing Intersection Traffic Counts	
Linear Regression of Daily Traffic.....	
Existing Intersection Analysis.....	
Future “No-Build” Intersection Analysis	
Future “Build” Intersection Analysis	
Traffic Volume Worksheets	

EXISTING INTERSECTION TRAFFIC COUNTS

A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

SR 316 @ Oconee Connector

7-9 am | 4-6 pm

File Name : 20210439

Site Code : 20210439

Start Date : 12/14/2021

Page No : 1

Groups Printed- Cars,Buses & Trucks

	Oconee Connector Northbound				Oconee Connector Southbound				SR 316 Eastbound					SR 316 Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	38	61	70	169	3	73	41	117	54	273	52	2	381	39	176	10	225	892
07:15 AM	63	113	139	315	5	91	29	125	74	345	55	9	483	65	180	8	253	1176
07:30 AM	78	166	177	421	7	110	38	155	62	343	87	15	507	104	190	16	310	1393
07:45 AM	68	144	192	404	9	122	39	170	83	333	55	15	486	81	196	15	292	1352
Total	247	484	578	1309	24	396	147	567	273	1294	249	41	1857	289	742	49	1080	4813
08:00 AM	73	135	160	368	8	91	28	127	74	325	56	12	467	70	200	16	286	1248
08:15 AM	43	142	138	323	17	90	19	126	87	253	71	9	420	64	158	14	236	1105
08:30 AM	68	100	126	294	11	87	30	128	74	243	58	11	386	81	166	10	257	1065
08:45 AM	61	93	117	271	14	79	39	132	66	253	61	13	393	71	171	19	261	1057
Total	245	470	541	1256	50	347	116	513	301	1074	246	45	1666	286	695	59	1040	4475
*** BREAK ***																		
04:00 PM	81	100	108	289	15	129	61	205	63	260	59	2	384	125	258	13	396	1274
04:15 PM	62	112	112	286	27	138	62	227	72	325	40	4	441	133	314	6	453	1407
04:30 PM	77	113	132	322	21	135	58	214	79	314	55	1	449	134	305	10	449	1434
04:45 PM	62	104	149	315	25	134	39	198	85	316	43	3	447	122	325	7	454	1414
Total	282	429	501	1212	88	536	220	844	299	1215	197	10	1721	514	1202	36	1752	5529
05:00 PM	82	143	167	392	23	142	58	223	70	314	69	2	455	121	358	11	490	1560
05:15 PM	59	86	125	270	19	140	60	219	71	301	51	1	424	137	348	3	488	1401
05:30 PM	63	104	128	295	26	145	61	232	81	307	47	0	435	137	309	11	457	1419
05:45 PM	54	101	109	264	18	130	75	223	63	266	30	0	359	133	282	12	427	1273
Total	258	434	529	1221	86	557	254	897	285	1188	197	3	1673	528	1297	37	1862	5653
Grand Total	1032	1817	2149	4998	248	1836	737	2821	1158	4771	889	99	6917	1617	3936	181	5734	20470
Apprch %	20.6	36.4	43		8.8	65.1	26.1		16.7	69	12.9	1.4		28.2	68.6	3.2		
Total %	5	8.9	10.5	24.4	1.2	9	3.6	13.8	5.7	23.3	4.3	0.5	33.8	7.9	19.2	0.9	28	

A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

SR 316 @ Oconee Connector

7-9 am | 4-6 pm

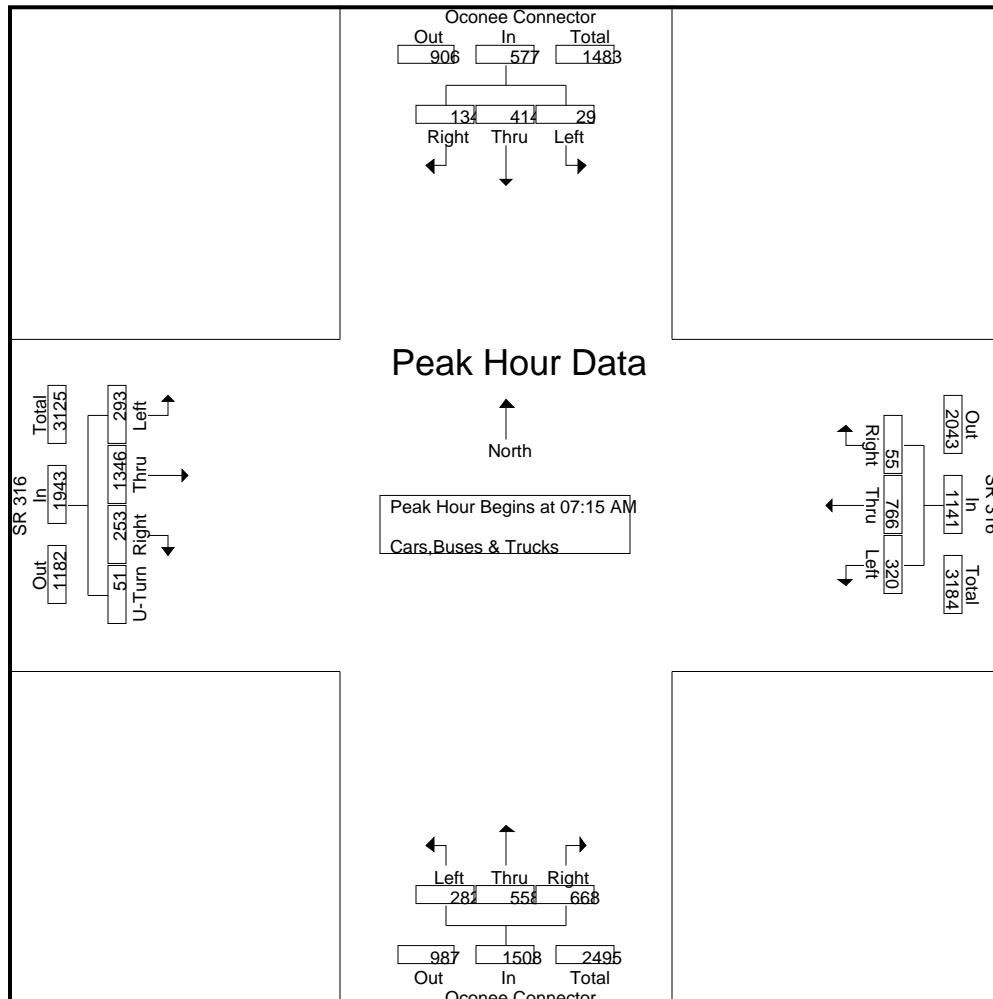
File Name : 20210439

Site Code : 20210439

Start Date : 12/14/2021

Page No : 2

	Oconee Connector Northbound				Oconee Connector Southbound				SR 316 Eastbound					SR 316 Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:15 AM																		
07:15 AM	63	113	139	315	5	91	29	125	74	345	55	9	483	65	180	8	253	1176
07:30 AM	78	166	177	421	7	110	38	155	62	343	87	15	507	104	190	16	310	1393
07:45 AM	68	144	192	404	9	122	39	170	83	333	55	15	486	81	196	15	292	1352
08:00 AM	73	135	160	368	8	91	28	127	74	325	56	12	467	70	200	16	286	1248
Total Volume	282	558	668	1508	29	414	134	577	293	1346	253	51	1943	320	766	55	1141	5169
% App. Total	18.7	37	44.3		5	71.8	23.2		15.1	69.3	13	2.6		28	67.1	4.8		
PHF	.904	.840	.870	.895	.806	.848	.859	.849	.883	.975	.727	.850	.958	.769	.958	.859	.920	.928



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

SR 316 @ Oconee Connector

7-9 am | 4-6 pm

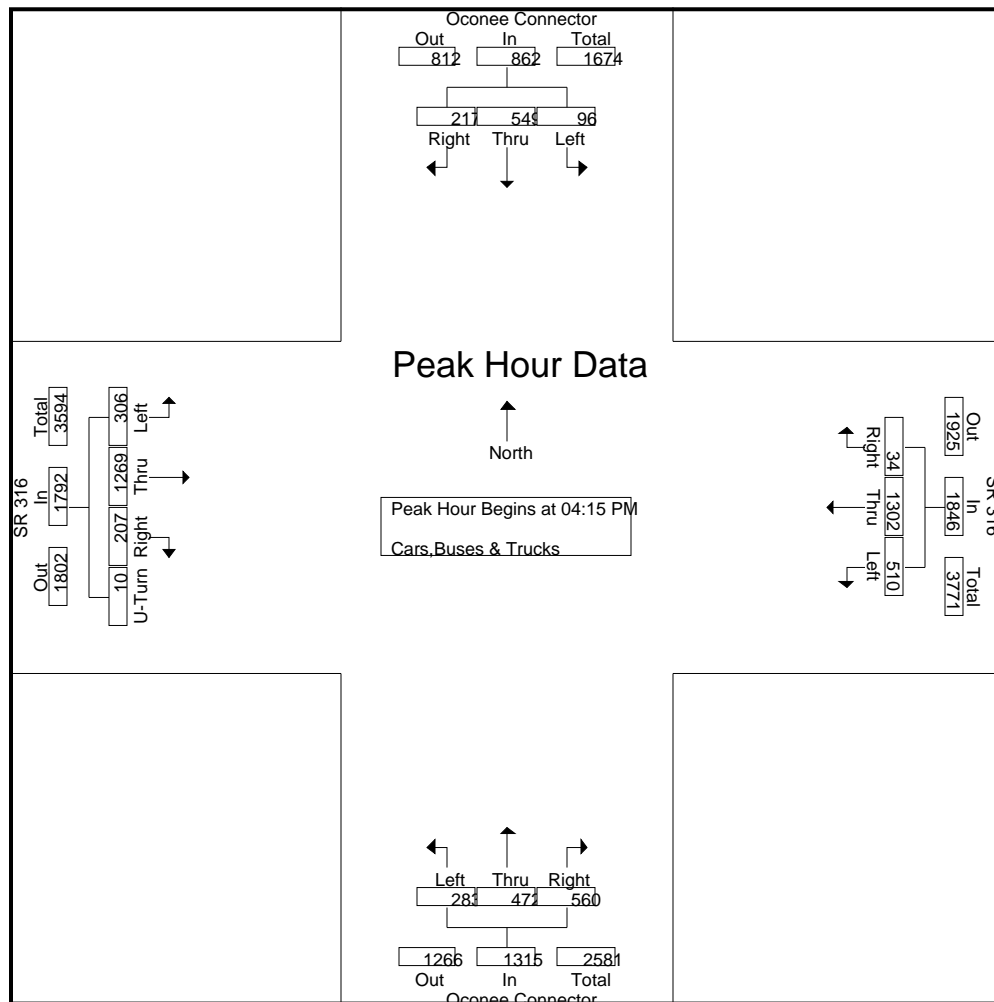
File Name : 20210439

Site Code : 20210439

Start Date : 12/14/2021

Page No : 3

	Oconee Connector Northbound				Oconee Connector Southbound				SR 316 Eastbound					SR 316 Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:15 PM																		
04:15 PM	62	112	112	286	27	138	62	227	72	325	40	4	441	133	314	6	453	1407
04:30 PM	77	113	132	322	21	135	58	214	79	314	55	1	449	134	305	10	449	1434
04:45 PM	62	104	149	315	25	134	39	198	85	316	43	3	447	122	325	7	454	1414
05:00 PM	82	143	167	392	23	142	58	223	70	314	69	2	455	121	358	11	490	1560
Total Volume	283	472	560	1315	96	549	217	862	306	1269	207	10	1792	510	1302	34	1846	5815
% App. Total	21.5	35.9	42.6		11.1	63.7	25.2		17.1	70.8	11.6	0.6		27.6	70.5	1.8		
PHF	.863	.825	.838	.839	.889	.967	.875	.949	.900	.976	.750	.625	.985	.951	.909	.773	.942	.932



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Oconee Connector @ Mars Hill Rd -

Daniells Bridge Rd

7-9 am | 4-6 pm

File Name : 20210442

Site Code : 20210442

Start Date : 12/14/2021

Page No : 1

Groups Printed- Cars,Buses & Trucks

	Mars Hill Rd Northbound				Oconee Connector Southbound				Mars Hill Rd Eastbound				Daniells Bridge Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	25	123	18	166	50	111	11	172	25	8	28	61	23	9	26	58	457
07:15 AM	34	203	30	267	73	116	20	209	70	24	38	132	27	33	43	103	711
07:30 AM	44	262	35	341	86	160	39	285	78	41	49	168	21	39	74	134	928
07:45 AM	33	202	31	266	105	132	32	269	72	51	43	166	24	31	76	131	832
Total	136	790	114	1040	314	519	102	935	245	124	158	527	95	112	219	426	2928
08:00 AM	32	241	32	305	85	102	21	208	74	46	36	156	20	17	56	93	762
08:15 AM	25	176	25	226	78	110	32	220	48	22	35	105	24	13	53	90	641
08:30 AM	33	180	26	239	64	130	13	207	53	19	40	112	18	19	56	93	651
08:45 AM	33	179	15	227	57	146	20	223	49	3	32	84	18	9	41	68	602
Total	123	776	98	997	284	488	86	858	224	90	143	457	80	58	206	344	2656
*** BREAK ***																	
04:00 PM	40	185	24	249	66	230	33	329	23	15	43	81	28	20	71	119	778
04:15 PM	29	176	25	230	49	192	36	277	22	14	50	86	28	30	80	138	731
04:30 PM	35	192	17	244	76	216	33	325	27	14	48	89	24	31	70	125	783
04:45 PM	36	184	21	241	68	201	32	301	45	20	51	116	34	38	98	170	828
Total	140	737	87	964	259	839	134	1232	117	63	192	372	114	119	319	552	3120
05:00 PM	47	207	27	281	70	209	44	323	37	29	63	129	29	39	90	158	891
05:15 PM	22	164	18	204	65	219	44	328	36	22	35	93	35	26	62	123	748
05:30 PM	39	186	25	250	53	240	41	334	40	14	38	92	24	27	56	107	783
05:45 PM	33	177	15	225	62	202	47	311	29	17	32	78	14	12	48	74	688
Total	141	734	85	960	250	870	176	1296	142	82	168	392	102	104	256	462	3110
Grand Total	540	3037	384	3961	1107	2716	498	4321	728	359	661	1748	391	393	1000	1784	11814
Apprch %	13.6	76.7	9.7		25.6	62.9	11.5		41.6	20.5	37.8		21.9	22	56.1		
Total %	4.6	25.7	3.3	33.5	9.4	23	4.2	36.6	6.2	3	5.6	14.8	3.3	3.3	8.5	15.1	

A & R Engineering, Inc.

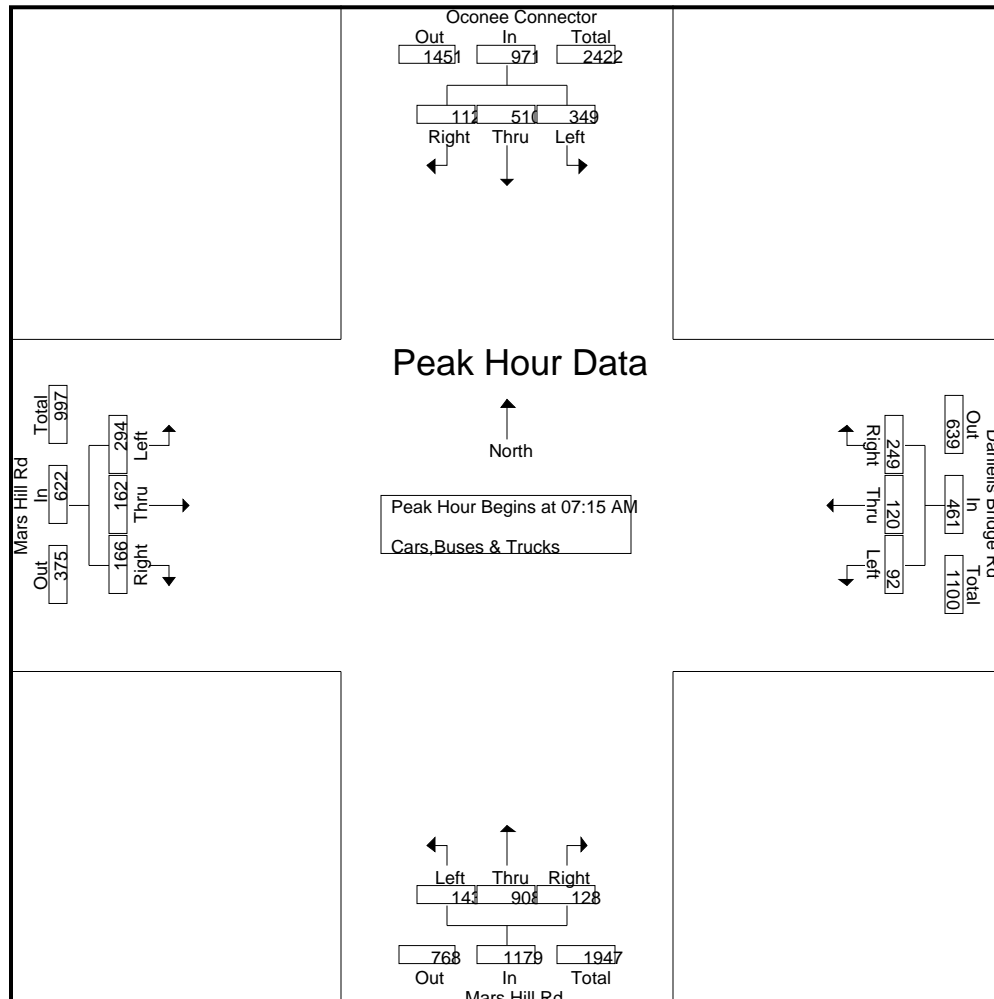
2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Oconee Connector @ Mars Hill Rd -
Daniells Bridge Rd
7-9 am | 4-6 pm

File Name : 20210442
Site Code : 20210442
Start Date : 12/14/2021
Page No : 2

	Mars Hill Rd Northbound				Oconee Connector Southbound				Mars Hill Rd Eastbound				Daniells Bridge Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	34	203	30	267	73	116	20	209	70	24	38	132	27	33	43	103	711
07:30 AM	44	262	35	341	86	160	39	285	78	41	49	168	21	39	74	134	928
07:45 AM	33	202	31	266	105	132	32	269	72	51	43	166	24	31	76	131	832
08:00 AM	32	241	32	305	85	102	21	208	74	46	36	156	20	17	56	93	762
Total Volume	143	908	128	1179	349	510	112	971	294	162	166	622	92	120	249	461	3233
% App. Total	12.1	77	10.9		35.9	52.5	11.5		47.3	26	26.7		20	26	54		
PHF	.813	.866	.914	.864	.831	.797	.718	.852	.942	.794	.847	.926	.852	.769	.819	.860	.871



A & R Engineering, Inc.

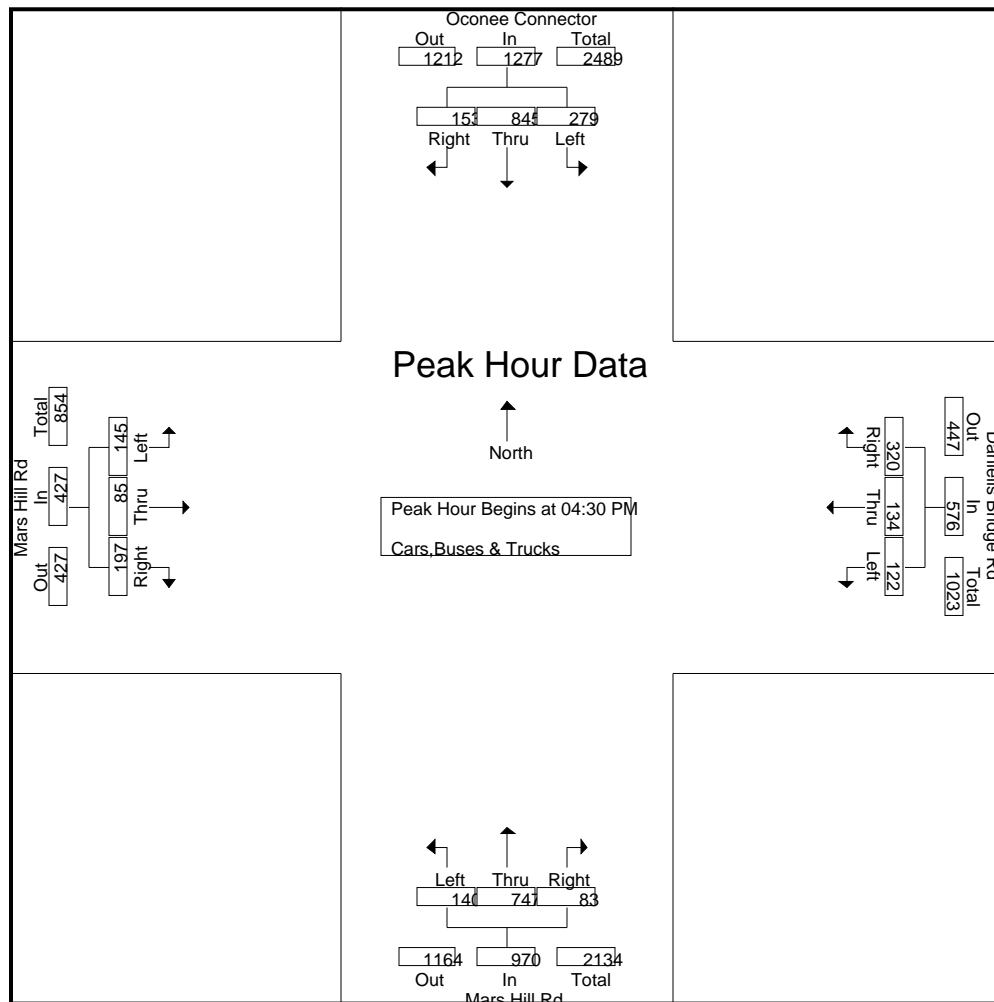
2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Oconee Connector @ Mars Hill Rd -
Daniells Bridge Rd
7-9 am | 4-6 pm

File Name : 20210442
Site Code : 20210442
Start Date : 12/14/2021
Page No : 3

	Mars Hill Rd Northbound				Oconee Connector Southbound				Mars Hill Rd Eastbound				Daniells Bridge Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	35	192	17	244	76	216	33	325	27	14	48	89	24	31	70	125	783
04:45 PM	36	184	21	241	68	201	32	301	45	20	51	116	34	38	98	170	828
05:00 PM	47	207	27	281	70	209	44	323	37	29	63	129	29	39	90	158	891
05:15 PM	22	164	18	204	65	219	44	328	36	22	35	93	35	26	62	123	748
Total Volume	140	747	83	970	279	845	153	1277	145	85	197	427	122	134	320	576	3250
% App. Total	14.4	77	8.6		21.8	66.2	12		34	19.9	46.1		21.2	23.3	55.6		
PHF	.745	.902	.769	.863	.918	.965	.869	.973	.806	.733	.782	.828	.871	.859	.816	.847	.912



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Rocky Branch Rd -

Virgil Langford Rd

7-9 am | 4-6 pm

File Name : 20210441

Site Code : 20210441

Start Date : 12/14/2021

Page No : 1

Groups Printed- Cars,Buses & Trucks

	Rocky Branch Rd Northbound				Virgil Langford Rd Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	4	9	14	4	0	1	5	4	27	1	32	4	15	4	23	74
07:15 AM	0	7	20	27	10	3	2	15	0	46	8	54	7	34	6	47	143
07:30 AM	8	12	28	48	18	6	1	25	9	84	12	105	29	52	13	94	272
07:45 AM	8	16	40	64	33	19	1	53	5	111	22	138	32	68	16	116	371
Total	17	39	97	153	65	28	5	98	18	268	43	329	72	169	39	280	860
08:00 AM	4	24	38	66	27	27	1	55	10	99	23	132	24	51	18	93	346
08:15 AM	3	25	30	58	14	6	1	21	4	90	3	97	19	22	16	57	233
08:30 AM	0	16	34	50	15	4	2	21	3	46	0	49	21	28	11	60	180
08:45 AM	1	10	27	38	24	5	4	33	4	61	2	67	16	34	10	60	198
Total	8	75	129	212	80	42	8	130	21	296	28	345	80	135	55	270	957
*** BREAK ***																	
04:00 PM	1	25	27	53	21	10	5	36	6	43	1	50	26	33	18	77	216
04:15 PM	1	10	15	26	19	15	2	36	7	43	3	53	25	49	17	91	206
04:30 PM	4	17	15	36	23	24	2	49	3	49	4	56	27	45	15	87	228
04:45 PM	1	22	17	40	27	25	3	55	5	43	5	53	27	38	13	78	226
Total	7	74	74	155	90	74	12	176	21	178	13	212	105	165	63	333	876
05:00 PM	3	18	26	47	21	18	7	46	7	65	4	76	26	53	21	100	269
05:15 PM	2	13	21	36	41	16	7	64	2	55	2	59	31	68	29	128	287
05:30 PM	1	17	25	43	19	30	5	54	4	51	3	58	36	38	14	88	243
05:45 PM	0	17	19	36	19	21	7	47	5	43	2	50	35	47	15	97	230
Total	6	65	91	162	100	85	26	211	18	214	11	243	128	206	79	413	1029
Grand Total	38	253	391	682	335	229	51	615	78	956	95	1129	385	675	236	1296	3722
Apprch %	5.6	37.1	57.3		54.5	37.2	8.3		6.9	84.7	8.4		29.7	52.1	18.2		
Total %	1	6.8	10.5	18.3	9	6.2	1.4	16.5	2.1	25.7	2.6	30.3	10.3	18.1	6.3	34.8	

A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Rocky Branch Rd -

Virgil Langford Rd

7-9 am | 4-6 pm

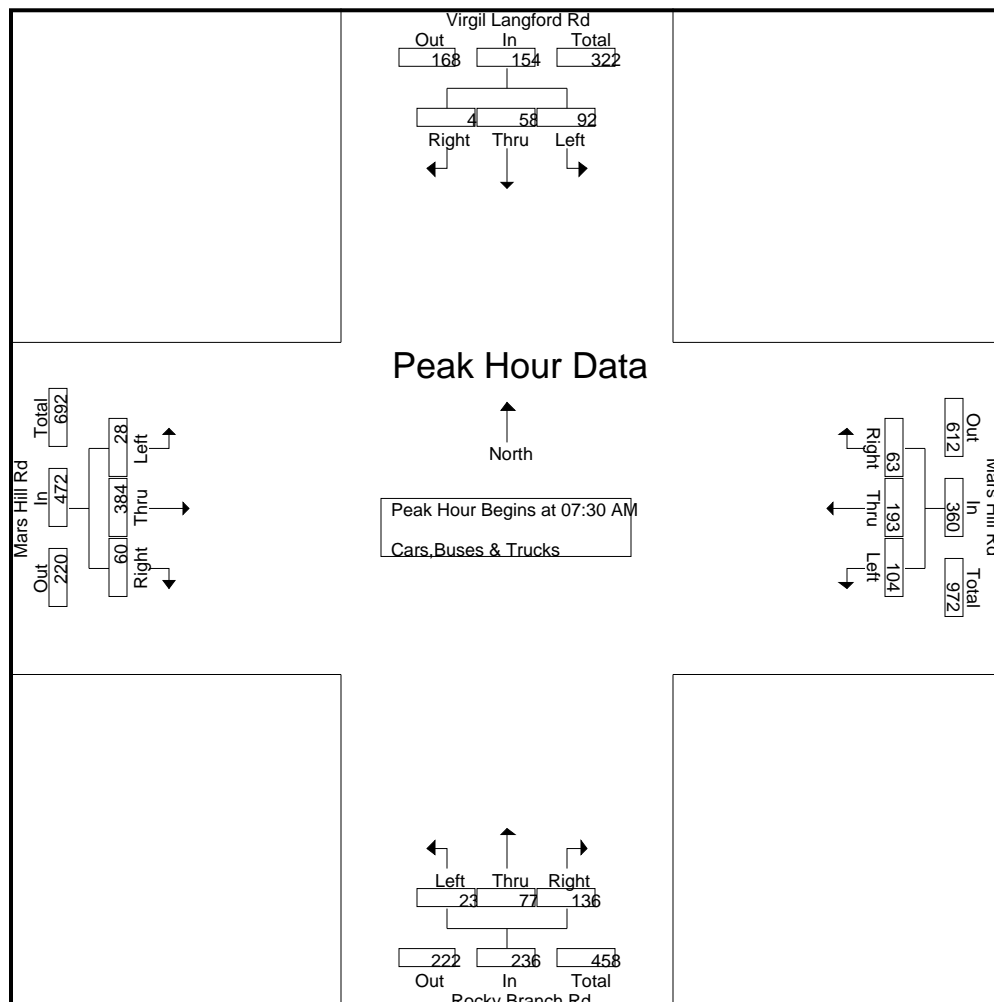
File Name : 20210441

Site Code : 20210441

Start Date : 12/14/2021

Page No : 2

	Rocky Branch Rd Northbound				Virgil Langford Rd Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	8	12	28	48	18	6	1	25	9	84	12	105	29	52	13	94	272
07:45 AM	8	16	40	64	33	19	1	53	5	111	22	138	32	68	16	116	371
08:00 AM	4	24	38	66	27	27	1	55	10	99	23	132	24	51	18	93	346
08:15 AM	3	25	30	58	14	6	1	21	4	90	3	97	19	22	16	57	233
Total Volume	23	77	136	236	92	58	4	154	28	384	60	472	104	193	63	360	1222
% App. Total	9.7	32.6	57.6		59.7	37.7	2.6		5.9	81.4	12.7		28.9	53.6	17.5		
PHF	.719	.770	.850	.894	.697	.537	1.00	.700	.700	.865	.652	.855	.813	.710	.875	.776	.823



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Rocky Branch Rd -

Virgil Langford Rd

7-9 am | 4-6 pm

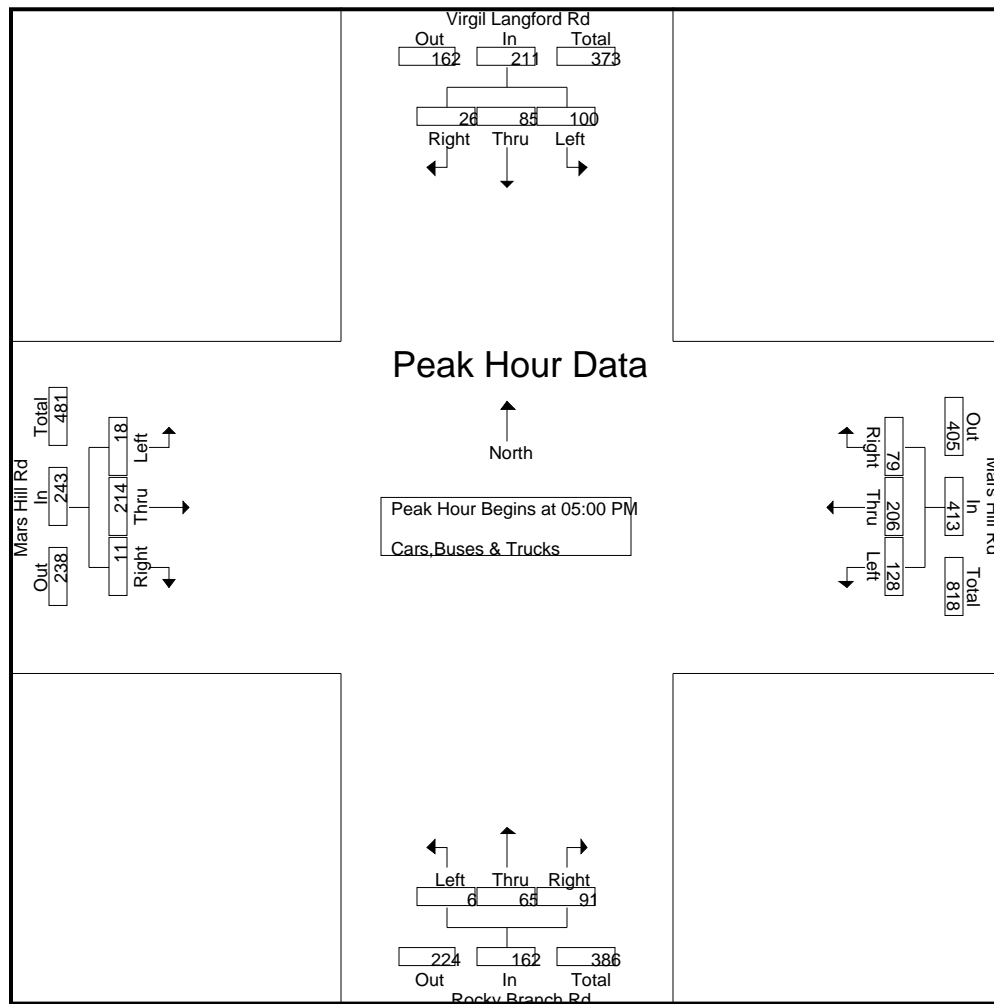
File Name : 20210441

Site Code : 20210441

Start Date : 12/14/2021

Page No : 3

	Rocky Branch Rd Northbound				Virgil Langford Rd Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	3	18	26	47	21	18	7	46	7	65	4	76	26	53	21	100	269
05:15 PM	2	13	21	36	41	16	7	64	2	55	2	59	31	68	29	128	287
05:30 PM	1	17	25	43	19	30	5	54	4	51	3	58	36	38	14	88	243
05:45 PM	0	17	19	36	19	21	7	47	5	43	2	50	35	47	15	97	230
Total Volume	6	65	91	162	100	85	26	211	18	214	11	243	128	206	79	413	1029
% App. Total	3.7	40.1	56.2		47.4	40.3	12.3		7.4	88.1	4.5		31	49.9	19.1		
PHF	.500	.903	.875	.862	.610	.708	.929	.824	.643	.823	.688	.799	.889	.757	.681	.807	.896



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Dandra Dr

7-9 am | 4-6 pm

File Name : 20210445

Site Code : 20210444

Start Date : 12/14/2021

Page No : 1

Groups Printed- Cars,Buses & Trucks

	Dandra Dr Northbound				Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	0	0	0	0	0	60	0	60	0	47	0	47	108
07:15 AM	2	0	1	3	0	0	0	0	0	132	0	132	0	82	0	82	217
07:30 AM	2	0	1	3	0	0	0	0	0	161	1	162	0	121	0	121	286
07:45 AM	1	0	3	4	0	0	0	0	0	164	1	165	1	95	0	96	265
Total	5	0	6	11	0	0	0	0	0	517	2	519	1	345	0	346	876
08:00 AM	1	0	1	2	0	0	0	0	0	153	0	153	2	68	0	70	225
08:15 AM	1	0	1	2	0	0	0	0	0	103	1	104	2	70	0	72	178
08:30 AM	1	0	0	1	0	0	0	0	0	110	0	110	0	65	0	65	176
08:45 AM	0	0	0	0	0	0	0	0	0	72	0	72	2	62	0	64	136
Total	3	0	2	5	0	0	0	0	0	438	1	439	6	265	0	271	715
*** BREAK ***																	
04:00 PM	1	0	1	2	0	0	0	0	0	80	3	83	0	91	0	91	176
04:15 PM	1	0	1	2	0	0	0	0	0	86	0	86	0	90	0	90	178
04:30 PM	0	0	0	0	0	0	0	0	0	95	0	95	1	89	0	90	185
04:45 PM	0	0	0	0	0	0	0	0	0	101	0	101	6	104	0	110	211
Total	2	0	2	4	0	0	0	0	0	362	3	365	7	374	0	381	750
05:00 PM	0	0	0	0	0	0	0	0	0	125	1	126	2	124	0	126	252
05:15 PM	1	0	2	3	0	0	0	0	0	87	0	87	2	89	0	91	181
05:30 PM	1	0	0	1	0	0	0	0	0	104	0	104	2	105	0	107	212
05:45 PM	1	0	1	2	0	0	0	0	0	91	1	92	4	92	0	96	190
Total	3	0	3	6	0	0	0	0	0	407	2	409	10	410	0	420	835
Grand Total	13	0	13	26	0	0	0	0	0	1724	8	1732	24	1394	0	1418	3176
Apprch %	50	0	50		0	0	0		0	99.5	0.5		1.7	98.3	0		
Total %	0.4	0	0.4	0.8	0	0	0	0	0	54.3	0.3	54.5	0.8	43.9	0	44.6	

A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Dandra Dr

7-9 am | 4-6 pm

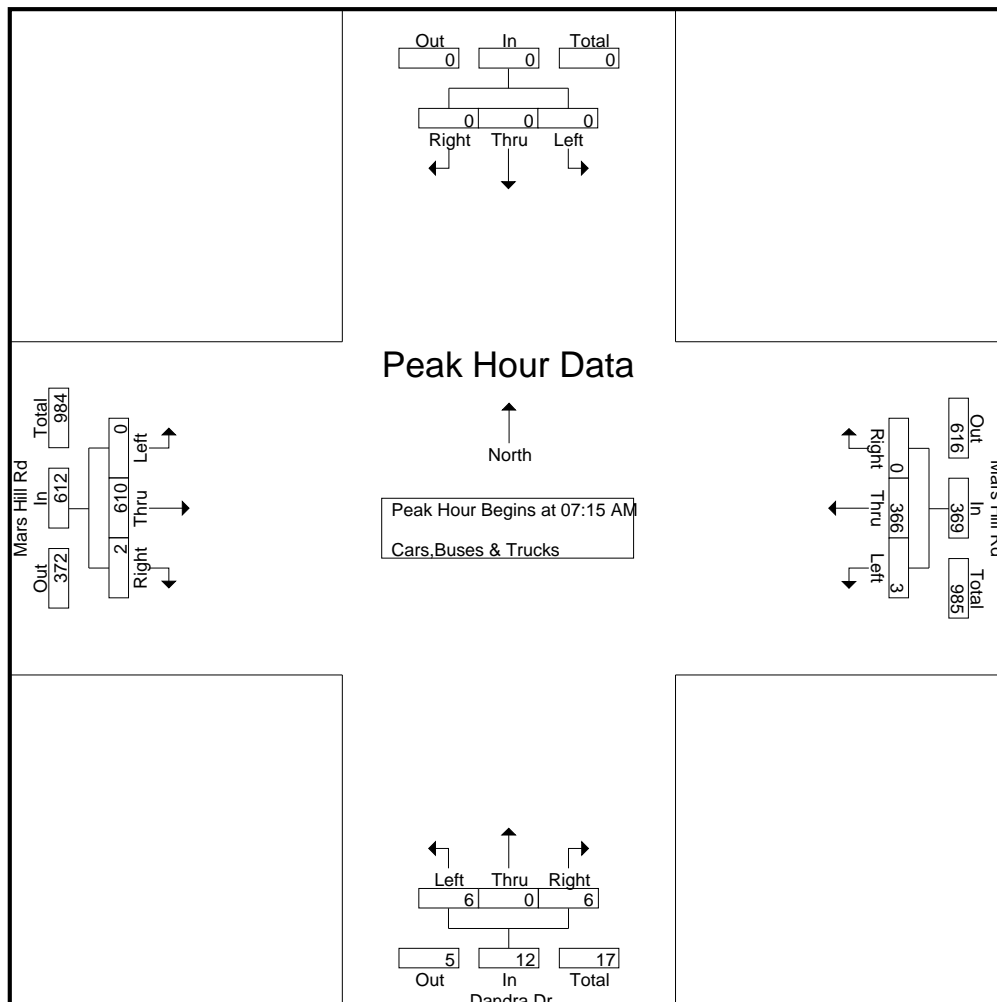
File Name : 20210445

Site Code : 20210444

Start Date : 12/14/2021

Page No : 2

	Dandra Dr Northbound				Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	2	0	1	3	0	0	0	0	0	132	0	132	0	82	0	82	217
07:30 AM	2	0	1	3	0	0	0	0	0	161	1	162	0	121	0	121	286
07:45 AM	1	0	3	4	0	0	0	0	0	164	1	165	1	95	0	96	265
08:00 AM	1	0	1	2	0	0	0	0	0	153	0	153	2	68	0	70	225
Total Volume	6	0	6	12	0	0	0	0	0	610	2	612	3	366	0	369	993
% App. Total	50	0	50		0	0	0		0	99.7	0.3		0.8	99.2	0		
PHF	.750	.000	.500	.750	.000	.000	.000	.000	.000	.930	.500	.927	.375	.756	.000	.762	.868



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Dandra Dr

7-9 am | 4-6 pm

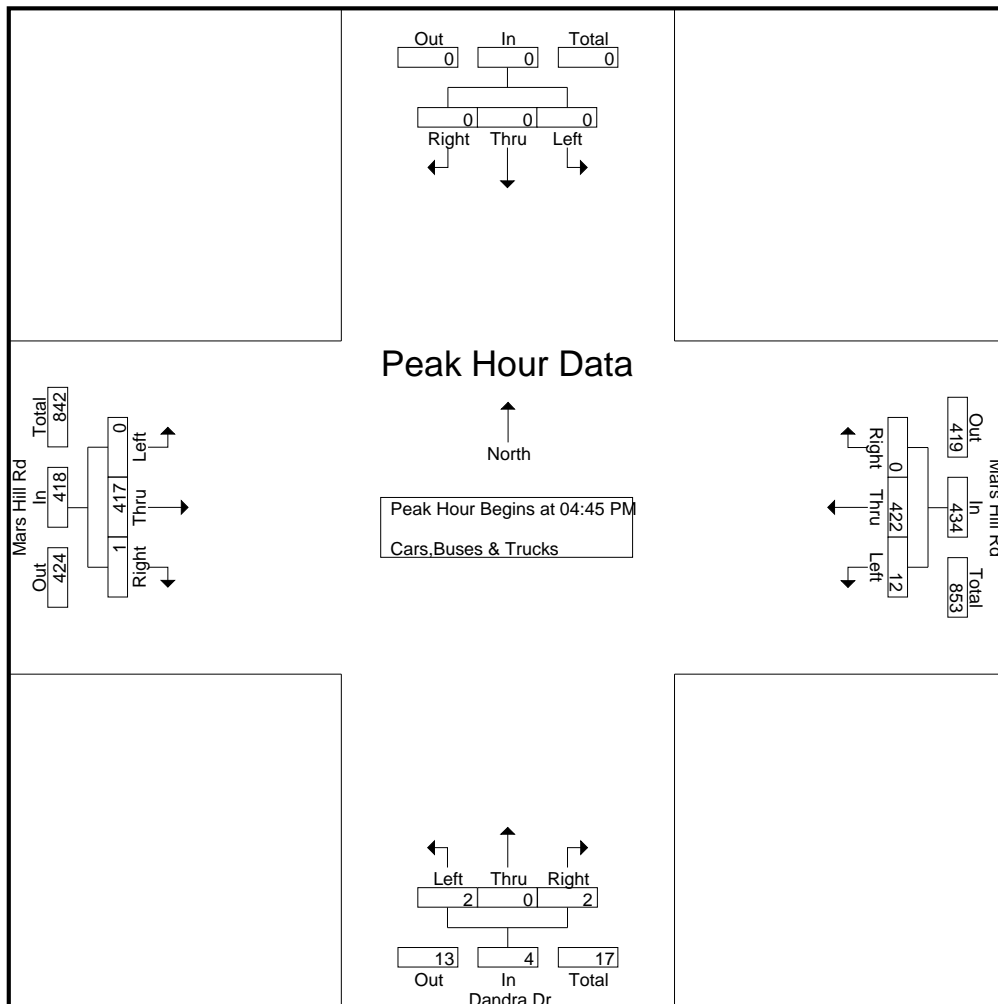
File Name : 20210445

Site Code : 20210444

Start Date : 12/14/2021

Page No : 3

	Dandra Dr Northbound				Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	101	0	101	6	104	0	110	211
05:00 PM	0	0	0	0	0	0	0	0	0	125	1	126	2	124	0	126	252
05:15 PM	1	0	2	3	0	0	0	0	0	87	0	87	2	89	0	91	181
05:30 PM	1	0	0	1	0	0	0	0	0	104	0	104	2	105	0	107	212
Total Volume	2	0	2	4	0	0	0	0	0	417	1	418	12	422	0	434	856
% App. Total	50	0	50		0	0	0		0	99.8	0.2		2.8	97.2	0		
PHF	.500	.000	.250	.333	.000	.000	.000	.000	.000	.834	.250	.829	.500	.851	.000	.861	.849



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Hollow Creek Ln

7-9 am | 4-6 pm

File Name : 20210444

Site Code : 20210444

Start Date : 12/14/2021

Page No : 1

Groups Printed- Cars,Buses & Trucks

	Hollow Creek Ln Northbound				Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	2	2	0	0	0	0	0	60	0	60	0	47	0	47	109
07:15 AM	2	0	3	5	0	0	0	0	0	132	0	132	0	82	0	82	219
07:30 AM	2	0	5	7	0	0	0	0	0	161	1	162	0	121	0	121	290
07:45 AM	1	0	3	4	0	0	0	0	0	164	1	165	1	95	0	96	265
Total	5	0	13	18	0	0	0	0	0	517	2	519	1	345	0	346	883
08:00 AM	1	0	1	2	0	0	0	0	0	153	0	153	2	68	0	70	225
08:15 AM	1	0	1	2	0	0	0	0	0	103	1	104	2	70	0	72	178
08:30 AM	1	0	0	1	0	0	0	0	0	110	0	110	0	65	0	65	176
08:45 AM	0	0	0	0	0	0	0	0	0	72	0	72	2	62	0	64	136
Total	3	0	2	5	0	0	0	0	0	438	1	439	6	265	0	271	715
*** BREAK ***																	
04:00 PM	1	0	1	2	0	0	0	0	0	80	3	83	0	91	0	91	176
04:15 PM	1	0	5	6	0	0	0	0	0	86	0	86	0	90	0	90	182
04:30 PM	0	0	0	0	0	0	0	0	0	95	0	95	1	89	0	90	185
04:45 PM	0	0	0	0	0	0	0	0	0	101	0	101	6	104	0	110	211
Total	2	0	6	8	0	0	0	0	0	362	3	365	7	374	0	381	754
05:00 PM	0	0	0	0	0	0	0	0	0	125	1	126	2	124	0	126	252
05:15 PM	1	0	2	3	0	0	0	0	0	87	0	87	2	89	0	91	181
05:30 PM	1	0	0	1	0	0	0	0	0	104	0	104	2	105	0	107	212
05:45 PM	1	0	1	2	0	0	0	0	0	91	1	92	4	92	0	96	190
Total	3	0	3	6	0	0	0	0	0	407	2	409	10	410	0	420	835
Grand Total	13	0	24	37	0	0	0	0	0	1724	8	1732	24	1394	0	1418	3187
Apprch %	35.1	0	64.9		0	0	0		0	99.5	0.5		1.7	98.3	0		
Total %	0.4	0	0.8	1.2	0	0	0	0	0	54.1	0.3	54.3	0.8	43.7	0	44.5	

A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Hollow Creek Ln

7-9 am | 4-6 pm

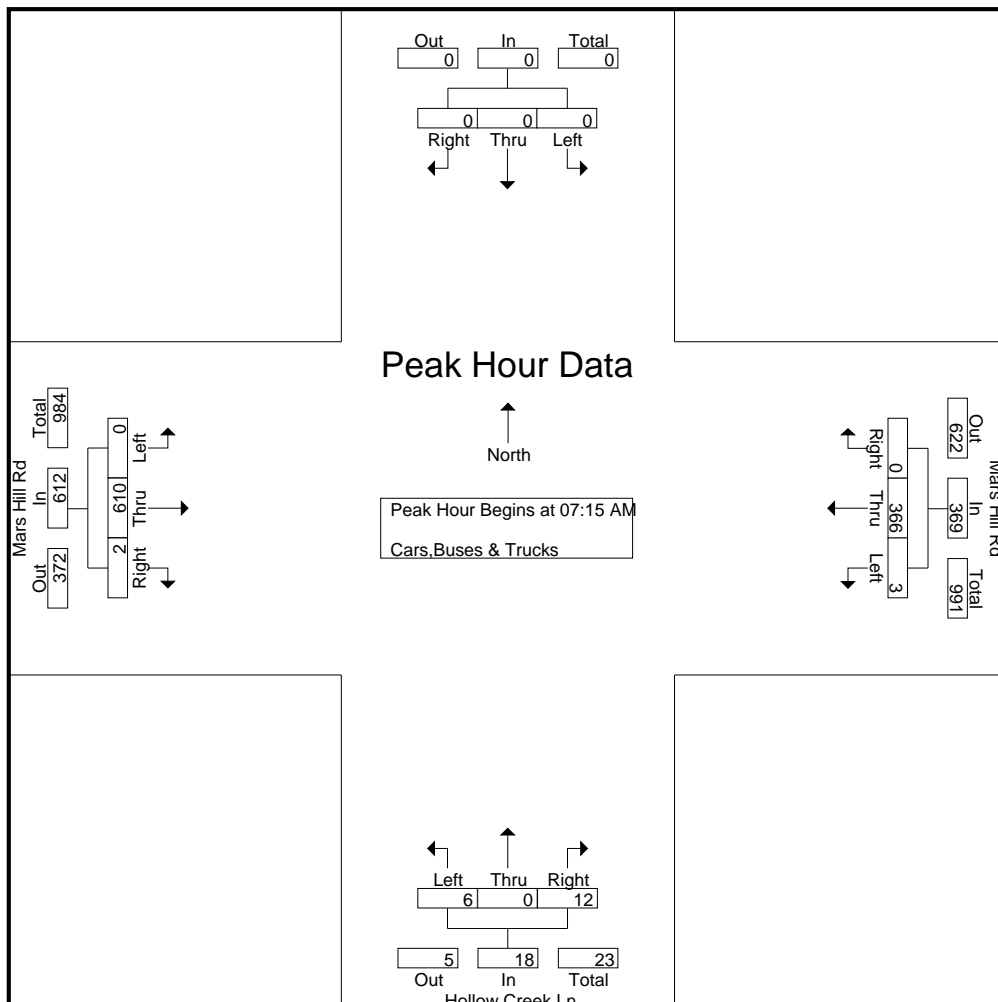
File Name : 20210444

Site Code : 20210444

Start Date : 12/14/2021

Page No : 2

	Hollow Creek Ln Northbound				Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	2	0	3	5	0	0	0	0	0	132	0	132	0	82	0	82	219
07:30 AM	2	0	5	7	0	0	0	0	0	161	1	162	0	121	0	121	290
07:45 AM	1	0	3	4	0	0	0	0	0	164	1	165	1	95	0	96	265
08:00 AM	1	0	1	2	0	0	0	0	0	153	0	153	2	68	0	70	225
Total Volume	6	0	12	18	0	0	0	0	0	610	2	612	3	366	0	369	999
% App. Total	33.3	0	66.7		0	0	0		0	99.7	0.3		0.8	99.2	0		
PHF	.750	.000	.600	.643	.000	.000	.000	.000	.000	.930	.500	.927	.375	.756	.000	.762	.861



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Hollow Creek Ln

7-9 am | 4-6 pm

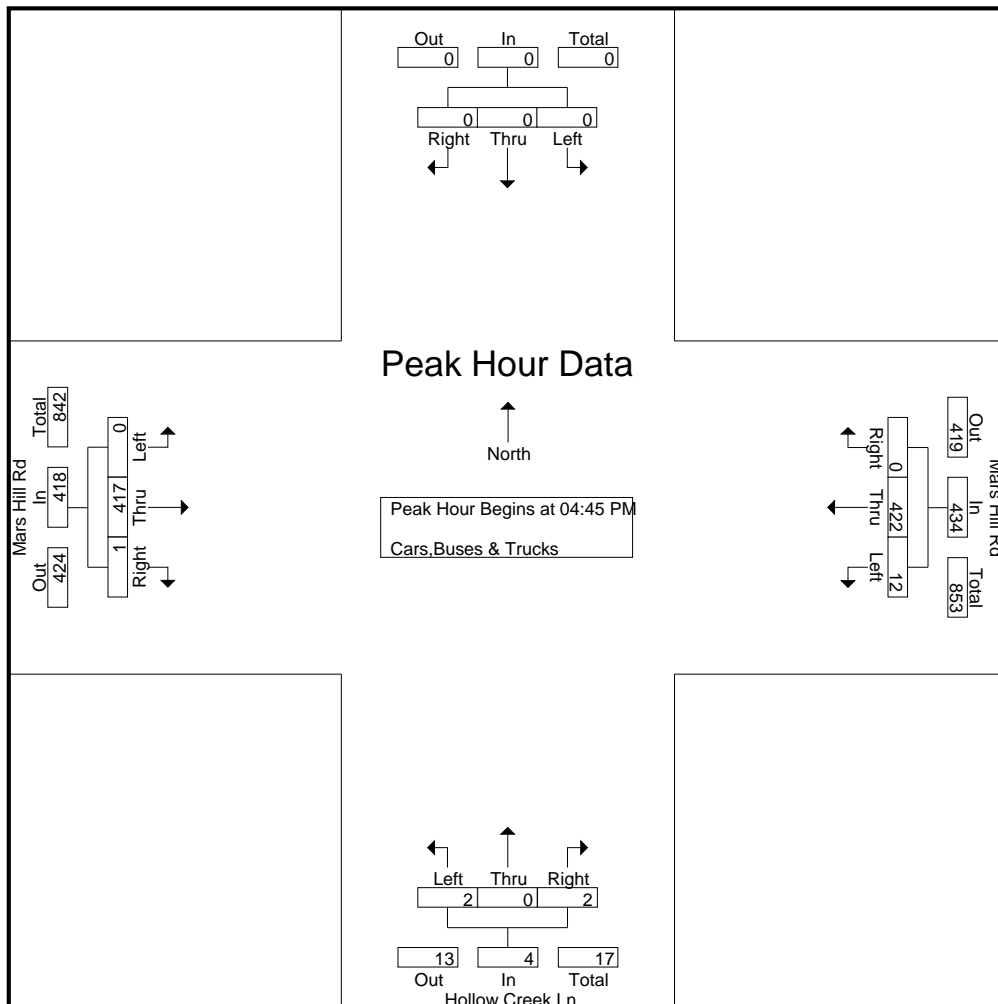
File Name : 20210444

Site Code : 20210444

Start Date : 12/14/2021

Page No : 3

	Hollow Creek Ln Northbound				Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	101	0	101	6	104	0	110	211
05:00 PM	0	0	0	0	0	0	0	0	0	125	1	126	2	124	0	126	252
05:15 PM	1	0	2	3	0	0	0	0	0	87	0	87	2	89	0	91	181
05:30 PM	1	0	0	1	0	0	0	0	0	104	0	104	2	105	0	107	212
Total Volume	2	0	2	4	0	0	0	0	0	417	1	418	12	422	0	434	856
% App. Total	50	0	50		0	0	0		0	99.8	0.2		2.8	97.2	0		
PHF	.500	.000	.250	.333	.000	.000	.000	.000	.000	.834	.250	.829	.500	.851	.000	.861	.849



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Oconee Connector @ Midblock Median Break

7-9 am | 4-6 pm

File Name : 20210443

Site Code : 20210443

Start Date : 12/14/2021

Page No : 1

Groups Printed- Cars,Buses & Trucks

	Oconee Connector Northbound				Oconee Connector Southbound				Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	169	0	169	0	164	0	164	0	0	0	0	0	0	0	0	333
07:15 AM	0	315	0	315	0	211	0	211	0	0	0	0	0	0	0	0	526
07:30 AM	0	421	0	421	0	301	0	301	0	0	0	0	0	0	0	0	722
07:45 AM	0	404	0	404	0	258	0	258	0	0	0	0	0	0	0	0	662
Total	0	1309	0	1309	0	934	0	934	0	0	0	0	0	0	0	0	2243
08:00 AM	0	368	0	368	0	217	0	217	0	0	0	0	0	0	0	0	585
08:15 AM	0	323	0	323	1	225	0	226	0	0	0	0	0	0	0	0	549
08:30 AM	0	294	0	294	2	226	0	228	0	0	0	0	0	0	0	0	522
08:45 AM	0	271	0	271	2	211	0	213	0	0	0	0	0	0	0	0	484
Total	0	1256	0	1256	5	879	0	884	0	0	0	0	0	0	0	0	2140
*** BREAK ***																	
04:00 PM	0	289	0	289	1	313	0	314	0	0	0	0	0	0	0	0	603
04:15 PM	0	286	0	286	1	311	0	312	0	0	0	0	0	0	0	0	598
04:30 PM	0	322	0	322	3	324	0	327	0	0	0	0	0	0	0	0	649
04:45 PM	0	315	0	315	1	299	0	300	0	0	0	0	0	0	0	0	615
Total	0	1212	0	1212	6	1247	0	1253	0	0	0	0	0	0	0	0	2465
05:00 PM	0	392	0	392	0	332	0	332	0	0	0	0	0	0	0	0	724
05:15 PM	0	270	0	270	1	328	0	329	0	0	0	0	0	0	0	0	599
05:30 PM	0	295	0	295	0	329	0	329	0	0	0	0	0	0	0	0	624
05:45 PM	0	264	0	264	0	293	0	293	0	0	0	0	0	0	0	0	557
Total	0	1221	0	1221	1	1282	0	1283	0	0	0	0	0	0	0	0	2504
Grand Total	0	4998	0	4998	12	4342	0	4354	0	0	0	0	0	0	0	0	9352
Apprch %	0	100	0		0.3	99.7	0		0	0	0		0	0	0		
Total %	0	53.4	0	53.4	0.1	46.4	0	46.6	0	0	0		0	0	0		

A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Oconee Connector @ Midblock Median Break

7-9 am | 4-6 pm

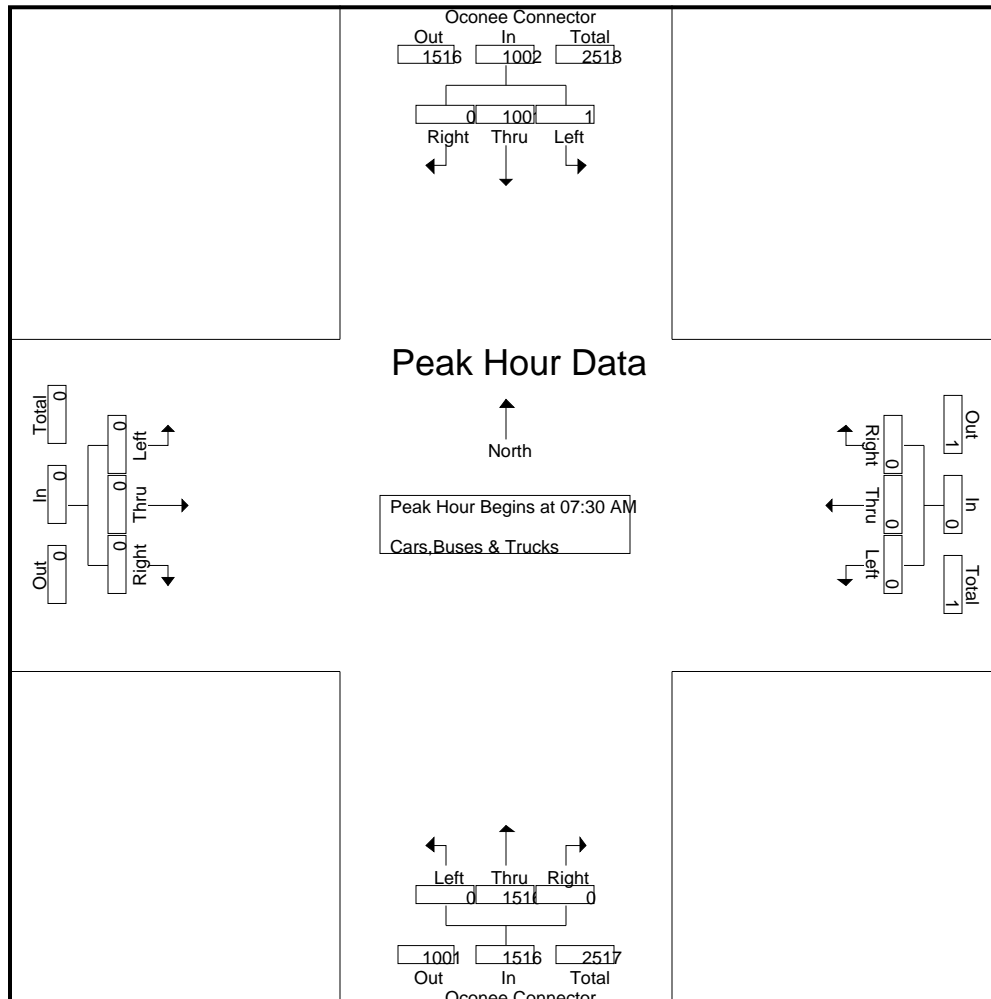
File Name : 20210443

Site Code : 20210443

Start Date : 12/14/2021

Page No : 2

	Oconee Connector Northbound				Oconee Connector Southbound				Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	421	0	421	0	301	0	301	0	0	0	0	0	0	0	0	722
07:45 AM	0	404	0	404	0	258	0	258	0	0	0	0	0	0	0	0	662
08:00 AM	0	368	0	368	0	217	0	217	0	0	0	0	0	0	0	0	585
08:15 AM	0	323	0	323	1	225	0	226	0	0	0	0	0	0	0	0	549
Total Volume	0	1516	0	1516	1	1001	0	1002	0	0	0	0	0	0	0	0	2518
% App. Total	0	100	0		0.1	99.9	0		0	0	0	0	0	0	0	0	
PHF	.000	.900	.000	.900	.250	.831	.000	.832	.000	.000	.000	.000	.000	.000	.000	.000	.872



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Oconee Connector @ Midblock Median Break

7-9 am | 4-6 pm

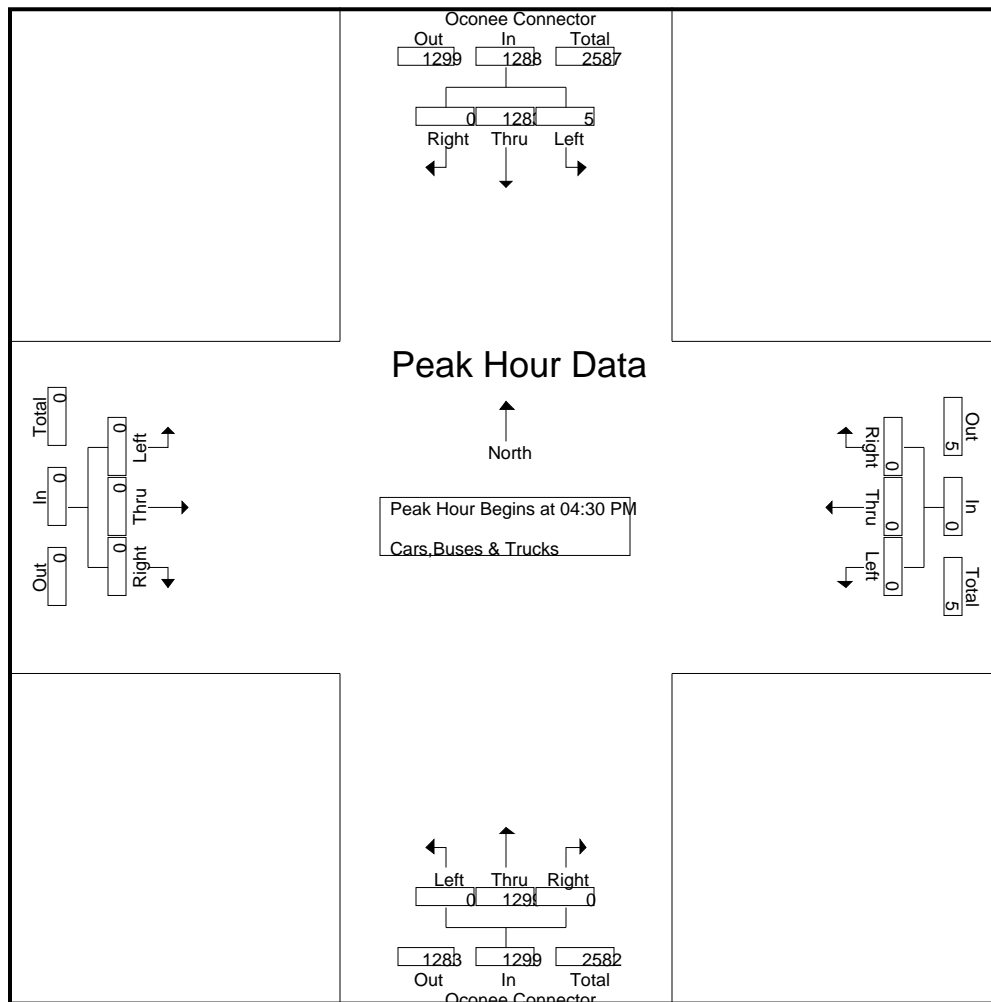
File Name : 20210443

Site Code : 20210443

Start Date : 12/14/2021

Page No : 3

	Oconee Connector Northbound				Oconee Connector Southbound				Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	322	0	322	3	324	0	327	0	0	0	0	0	0	0	0	649
04:45 PM	0	315	0	315	1	299	0	300	0	0	0	0	0	0	0	0	615
05:00 PM	0	392	0	392	0	332	0	332	0	0	0	0	0	0	0	0	724
05:15 PM	0	270	0	270	1	328	0	329	0	0	0	0	0	0	0	0	599
Total Volume	0	1299	0	1299	5	1283	0	1288	0	0	0	0	0	0	0	0	2587
% App. Total	0	100	0		0.4	99.6	0		0	0	0	0	0	0	0		
PHF	.000	.828	.000	.828	.417	.966	.000	.970	.000	.000	.000	.000	.000	.000	.000	.000	.893



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Old Mars Hill Rd

7-9 am | 4-6 pm

File Name : 20210440

Site Code : 20210440

Start Date : 12/14/2021

Page No : 1

Groups Printed- Cars,Buses & Trucks

	Old Mars Hill Rd Northbound				Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	0	0	0	0	0	60	1	61	0	45	0	45	107
07:15 AM	0	0	1	1	0	0	0	0	0	131	0	131	0	87	0	87	219
07:30 AM	1	0	3	4	0	0	0	0	0	165	0	165	0	122	0	122	291
07:45 AM	0	0	2	2	0	0	0	0	0	164	2	166	0	96	0	96	264
Total	1	0	7	8	0	0	0	0	0	520	3	523	0	350	0	350	881
08:00 AM	0	0	3	3	0	0	0	0	0	153	0	153	0	70	0	70	226
08:15 AM	0	0	2	2	0	0	0	0	0	103	0	103	0	70	0	70	175
08:30 AM	1	0	2	3	0	0	0	0	0	110	0	110	1	64	0	65	178
08:45 AM	0	0	3	3	0	0	0	0	0	81	0	81	1	61	0	62	146
Total	1	0	10	11	0	0	0	0	0	447	0	447	2	265	0	267	725
*** BREAK ***																	
04:00 PM	1	0	1	2	0	0	0	0	0	80	0	80	1	92	0	93	175
04:15 PM	1	0	1	2	0	0	0	0	0	85	1	86	1	94	0	95	183
04:30 PM	0	0	1	1	0	0	0	0	0	88	2	90	1	98	0	99	190
04:45 PM	0	0	0	0	0	0	0	0	0	116	0	116	3	103	0	106	222
Total	2	0	3	5	0	0	0	0	0	369	3	372	6	387	0	393	770
05:00 PM	0	0	0	0	0	0	0	0	0	129	0	129	2	128	0	130	259
05:15 PM	0	0	3	3	0	0	0	0	0	90	1	91	2	90	0	92	186
05:30 PM	0	0	2	2	0	0	0	0	0	90	0	90	3	104	0	107	199
05:45 PM	0	0	2	2	0	0	0	0	0	76	0	76	0	92	0	92	170
Total	0	0	7	7	0	0	0	0	0	385	1	386	7	414	0	421	814
Grand Total	4	0	27	31	0	0	0	0	0	1721	7	1728	15	1416	0	1431	3190
Apprch %	12.9	0	87.1		0	0	0		0	99.6	0.4		1	99	0		
Total %	0.1	0	0.8	1	0	0	0	0	0	53.9	0.2	54.2	0.5	44.4	0	44.9	

A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Old Mars Hill Rd

7-9 am | 4-6 pm

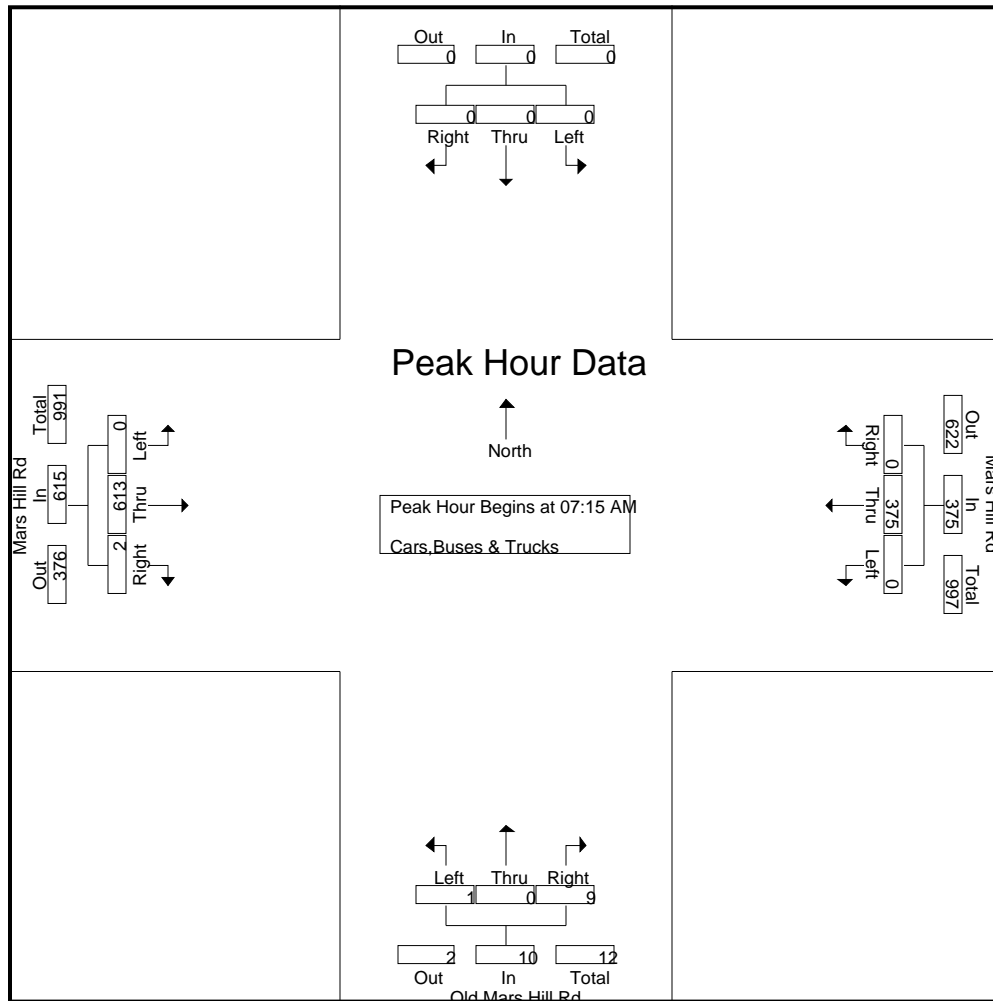
File Name : 20210440

Site Code : 20210440

Start Date : 12/14/2021

Page No : 2

	Old Mars Hill Rd Northbound				Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	1	1	0	0	0	0	0	131	0	131	0	87	0	87	219
07:30 AM	1	0	3	4	0	0	0	0	0	165	0	165	0	122	0	122	291
07:45 AM	0	0	2	2	0	0	0	0	0	164	2	166	0	96	0	96	264
08:00 AM	0	0	3	3	0	0	0	0	0	153	0	153	0	70	0	70	226
Total Volume	1	0	9	10	0	0	0	0	0	613	2	615	0	375	0	375	1000
% App. Total	10	0	90		0	0	0		0	99.7	0.3		0	100	0		
PHF	.250	.000	.750	.625	.000	.000	.000	.000	.000	.929	.250	.926	.000	.768	.000	.768	.859



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Mars Hill Rd @ Old Mars Hill Rd

7-9 am | 4-6 pm

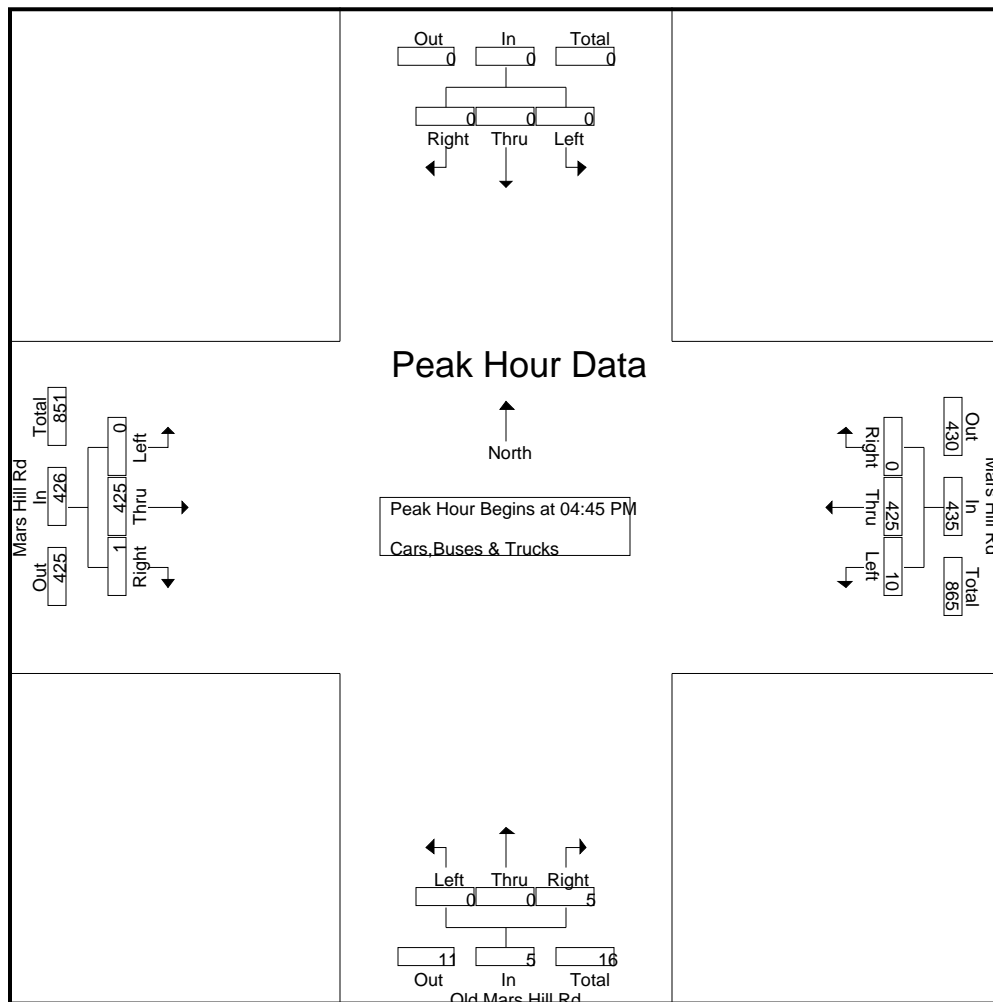
File Name : 20210440

Site Code : 20210440

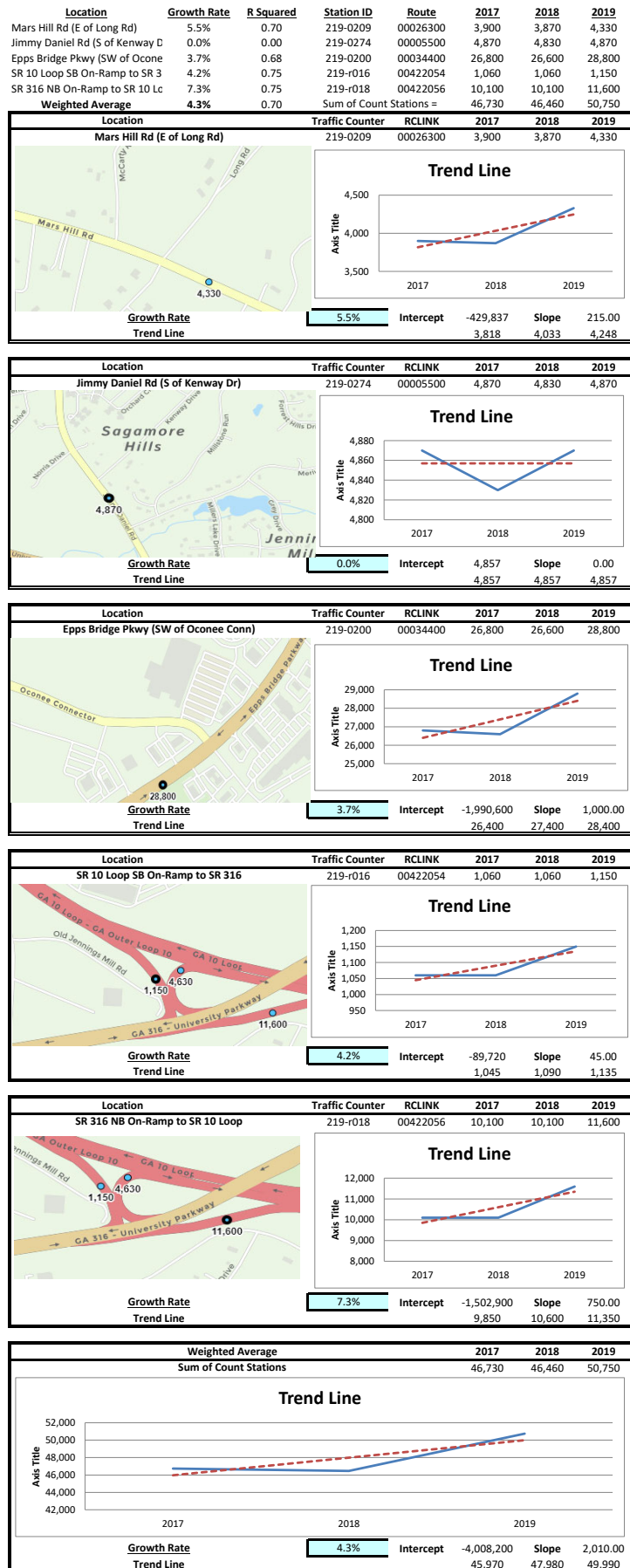
Start Date : 12/14/2021

Page No : 3

	Old Mars Hill Rd Northbound				Southbound				Mars Hill Rd Eastbound				Mars Hill Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	116	0	116	3	103	0	106	222
05:00 PM	0	0	0	0	0	0	0	0	0	129	0	129	2	128	0	130	259
05:15 PM	0	0	3	3	0	0	0	0	0	90	1	91	2	90	0	92	186
05:30 PM	0	0	2	2	0	0	0	0	0	90	0	90	3	104	0	107	199
Total Volume	0	0	5	5	0	0	0	0	0	425	1	426	10	425	0	435	866
% App. Total	0	0	100		0	0	0		0	99.8	0.2		2.3	97.7	0		
PHF	.000	.000	.417	.417	.000	.000	.000	.000	.000	.824	.250	.826	.833	.830	.000	.837	.836



LINEAR REGRESSION OF DAILY TRAFFIC



EXISTING INTERSECTION ANALYSIS

Timings

Existing AM

1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

02/09/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔	↔↔	↑↑	↔	↔↔	↑↑	↔	↔↔	↑↑	↔
Traffic Volume (vph)	344	1346	253	320	766	55	282	558	668	29	414	134
Future Volume (vph)	344	1346	253	320	766	55	282	558	668	29	414	134
Lane Group Flow (vph)	370	1447	272	344	824	59	303	600	718	31	445	144
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	47.5	47.5	15.0	40.5	40.5	15.0	46.5	46.5	15.0	54.5	54.5
Total Split (s)	34.0	80.0	80.0	23.0	69.0	69.0	22.0	62.0	62.0	15.0	55.0	55.0
Total Split (%)	18.9%	44.4%	44.4%	12.8%	38.3%	38.3%	12.2%	34.4%	34.4%	8.3%	30.6%	30.6%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.81	1.03	0.35	0.88	0.62	0.08	0.99	0.56	1.09	0.24	0.52	0.29
Control Delay	89.0	83.3	7.1	99.6	47.0	0.2	115.3	48.0	90.9	87.6	60.1	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	0.0
Total Delay	89.0	83.3	7.1	99.6	47.0	0.2	115.3	48.0	90.9	87.6	60.1	7.7
Queue Length 50th (ft)	222	~972	25	211	418	0	177	337	~747	18	236	0
Queue Length 95th (ft)	277	#1109	92	#331	522	0	m#270	m391	m#950	39	293	55
Internal Link Dist (ft)		2420			2942			932			2634	
Turn Bay Length (ft)	385		600	445		280	310		330	365		450
Base Capacity (vph)	531	1399	781	392	1333	702	305	1079	658	176	945	530
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	1.03	0.35	0.88	0.62	0.08	0.99	0.56	1.09	0.18	0.47	0.27

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 17 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ 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: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)



HCM 6th Signalized Intersection Summary

1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

Existing AM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	1346	253	320	766	55	282	558	668	29	414	134
Future Volume (veh/h)	344	1346	253	320	766	55	282	558	668	29	414	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1781	1826	1826	1781	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	370	1447	272	344	824	0	303	600	0	31	445	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	8	5	5	8	5	5	5	5	5	5	5
Cap, veh/h	417	1837	840	328	1747		309	749		74	507	
Arrive On Green	0.12	0.54	0.54	0.10	0.52	0.00	0.03	0.07	0.00	0.02	0.15	0.00
Sat Flow, veh/h	3374	3385	1547	3374	3385	1547	3374	3469	1547	3374	3469	1547
Grp Volume(v), veh/h	370	1447	272	344	824	0	303	600	0	31	445	0
Grp Sat Flow(s),veh/h/ln	1687	1692	1547	1687	1692	1547	1687	1735	1547	1687	1735	1547
Q Serve(g_s), s	19.4	61.5	17.6	17.5	28.0	0.0	16.2	30.7	0.0	1.6	22.6	0.0
Cycle Q Clear(g_c), s	19.4	61.5	17.6	17.5	28.0	0.0	16.2	30.7	0.0	1.6	22.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	417	1837	840	328	1747		309	749		74	507	
V/C Ratio(X)	0.89	0.79	0.32	1.05	0.47		0.98	0.80		0.42	0.88	
Avail Cap(c_a), veh/h	534	1837	840	328	1747		309	1089		178	954	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	77.6	32.9	22.8	81.3	27.8	0.0	87.1	79.8	0.0	86.9	75.3	0.0
Incr Delay (d2), s/veh	13.8	3.5	1.0	63.1	0.9	0.0	45.5	2.8	0.0	3.8	5.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	24.7	6.6	10.3	11.2	0.0	9.3	14.7	0.0	0.7	10.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.4	36.4	23.9	144.3	28.8	0.0	132.6	82.5	0.0	90.7	80.3	0.0
LnGrp LOS	F	D	C	F	C		F	F		F	F	
Approach Vol, veh/h	2089				1168			A		903		A
Approach Delay, s/veh	44.5				62.8			99.3		81.0		
Approach LOS	D				E			F		F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.0	103.2	22.0	31.8	27.8	98.4	9.4	44.4				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	17.5	74.5	16.5	49.5	28.5	63.5	9.5	56.5				
Max Q Clear Time (g_c+I1), s	19.5	63.5	18.2	24.6	21.4	30.0	3.6	32.7				
Green Ext Time (p_c), s	0.0	10.8	0.0	1.7	0.8	23.5	0.0	2.4				





Intersection Summary

HCM 6th Ctrl Delay	63.5
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

























Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1516	0	1	1001
Future Vol, veh/h	0	0	1516	0	1	1001
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	5	2	2	5
Mvmt Flow	0	0	1743	0	1	1151
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2321	872	0	0	1743	0
Stage 1	1743	-	-	-	-	-
Stage 2	578	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	31	294	-	-	357	-
Stage 1	126	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	31	294	-	-	357	-
Mov Cap-2 Maneuver	31	-	-	-	-	-
Stage 1	126	-	-	-	-	-
Stage 2	522	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		357	-	
HCM Lane V/C Ratio	-	-		0.003	-	
HCM Control Delay (s)	-	-		0	15.1	
HCM Lane LOS	-	-		A	C	
HCM 95th %tile Q(veh)	-	-		0	-	

Timings

3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

Existing AM

02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	162	166	92	120	249	143	908	128	349	510	112
Future Volume (vph)	294	162	166	92	120	249	143	908	128	349	510	112
Lane Group Flow (vph)	338	186	191	106	138	286	164	1044	147	401	586	129
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	51.5	51.5	15.0	44.5	44.5	15.0	33.5	33.5	15.0	33.5	33.5
Total Split (s)	31.0	60.5	60.5	15.0	44.5	44.5	16.0	72.5	72.5	32.0	88.5	88.5
Total Split (%)	17.2%	33.6%	33.6%	8.3%	24.7%	24.7%	8.9%	40.3%	40.3%	17.8%	49.2%	49.2%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	1.04	0.52	0.42	0.49	0.72	0.73	0.33	0.61	0.17	0.85	0.30	0.13
Control Delay	116.2	69.9	9.4	60.2	97.6	23.4	15.3	35.9	4.1	60.8	41.4	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.2	69.9	9.4	60.2	97.6	23.4	15.3	35.9	4.1	60.8	41.4	17.8
Queue Length 50th (ft)	~379	200	0	97	161	35	69	474	0	233	331	63
Queue Length 95th (ft)	#467	265	62	142	225	124	109	561	38	m288	387	m106
Internal Link Dist (ft)		423			735			1619			579	
Turn Bay Length (ft)	155		240	280		280	405		435	355		335
Base Capacity (vph)	325	569	616	217	403	541	500	1701	858	505	1982	967
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.33	0.31	0.49	0.34	0.53	0.33	0.61	0.17	0.79	0.30	0.13

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 60 (33%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

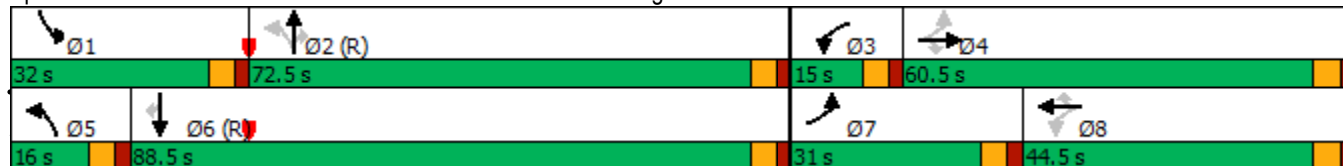
Queue shown is maximum after two cycles.

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: 3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd



HCM 6th Signalized Intersection Summary

3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

Existing AM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	162	166	92	120	249	143	908	128	349	510	112
Future Volume (veh/h)	294	162	166	92	120	249	143	908	128	349	510	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1826	1870	1870	1826	1870
Adj Flow Rate, veh/h	338	186	191	106	138	0	164	1044	147	401	586	129
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	309	327	277	218	161		515	1808	826	445	2067	944
Arrive On Green	0.14	0.17	0.17	0.05	0.09	0.00	0.05	0.52	0.52	0.13	0.60	0.60
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3469	1585	3456	3469	1585
Grp Volume(v), veh/h	338	186	191	106	138	0	164	1044	147	401	586	129
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1735	1585	1728	1735	1585
Q Serve(g_s), s	25.5	16.4	20.3	9.5	13.1	0.0	7.7	37.1	8.8	20.6	14.8	6.4
Cycle Q Clear(g_c), s	25.5	16.4	20.3	9.5	13.1	0.0	7.7	37.1	8.8	20.6	14.8	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	309	327	277	218	161		515	1808	826	445	2067	944
V/C Ratio(X)	1.09	0.57	0.69	0.49	0.86		0.32	0.58	0.18	0.90	0.28	0.14
Avail Cap(c_a), veh/h	309	571	484	218	405		522	1808	826	509	2067	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.2	68.0	69.7	71.0	81.2	0.0	17.9	29.5	22.7	77.3	17.7	16.0
Incr Delay (d2), s/veh	78.9	1.6	3.0	1.7	12.3	0.0	0.4	1.4	0.5	17.5	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	7.9	8.4	4.5	6.8	0.0	3.2	15.5	3.4	10.2	6.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	144.1	69.6	72.7	72.7	93.4	0.0	18.2	30.9	23.2	94.8	18.0	16.3
LnGrp LOS	F	E	E	E	F		B	C	C	F	B	B
Approach Vol, veh/h	715			244			A			1355		
Approach Delay, s/veh	105.7			84.4			28.5			45.4		
Approach LOS	F			F			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.7	99.3	15.0	37.0	15.3	112.7	31.0	21.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	26.5	67.0	9.5	55.0	10.5	83.0	25.5	39.0				
Max Q Clear Time (g_c+I1), s	22.6	39.1	11.5	22.3	9.7	16.8	27.5	15.1				
Green Ext Time (p_c), s	0.6	23.4	0.0	1.3	0.0	23.4	0.0	0.4				




Intersection Summary




HCM 6th Ctrl Delay 54.1
HCM 6th LOS D




Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	613	2	0	375	1	9
Future Vol, veh/h	613	2	0	375	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	713	2	0	436	1	10
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	715	0	1150	714
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	436	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	885	-	219	431
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	652	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	885	-	219	431
Mov Cap-2 Maneuver	-	-	-	-	219	-
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	652	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		14.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	393	-	-	885	-	
HCM Lane V/C Ratio	0.03	-	-	-	-	
HCM Control Delay (s)	14.4	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	610	2	3	366	6	12
Future Vol, veh/h	610	2	3	366	6	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	709	2	3	426	7	14
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	711	0	1142	710
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	432	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	888	-	222	434
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	655	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	888	-	221	434
Mov Cap-2 Maneuver	-	-	-	-	221	-
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	652	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.1		16.7		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	328	-	-	888	-	
HCM Lane V/C Ratio	0.064	-	-	0.004	-	
HCM Control Delay (s)	16.7	-	-	9.1	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

























Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	610	2	3	366	6	6
Future Vol, veh/h	610	2	3	366	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	701	2	3	421	7	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	703	0	1129	702
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	427	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	895	-	226	438
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	658	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	895	-	225	438
Mov Cap-2 Maneuver	-	-	-	-	225	-
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	655	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		17.7	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	297	-	-	895	-	
HCM Lane V/C Ratio	0.046	-	-	0.004	-	
HCM Control Delay (s)	17.7	-	-	9	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Timings

Existing AM

7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	384	60	104	193	63	23	77	136	92	58	4
Future Volume (vph)	28	384	60	104	193	63	23	77	136	92	58	4
Lane Group Flow (vph)	34	468	73	127	235	77	28	94	166	112	71	5
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases		2			6		4	4		8	8	
Permitted Phases	2		2	6		6			4			8
Detector Phase	2	2	2	6	6	6	4	4	4	8	8	8
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	5.0
Minimum Split (s)	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	93.0	93.0	93.0	93.0	93.0	93.0	37.0	37.0	37.0	35.0	35.0	35.0
Total Split (%)	56.4%	56.4%	56.4%	56.4%	56.4%	56.4%	22.4%	22.4%	22.4%	21.2%	21.2%	21.2%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
v/c Ratio	0.08	0.67	0.12	0.54	0.34	0.12	0.10	0.32	0.43	0.37	0.22	0.02
Control Delay	12.8	20.8	6.2	24.7	14.8	4.1	26.1	28.6	9.2	28.4	26.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	20.8	6.2	24.7	14.8	4.1	26.1	28.6	9.2	28.4	26.0	0.0
Queue Length 50th (ft)	7	129	4	33	55	0	8	29	0	35	22	0
Queue Length 95th (ft)	23	225	24	82	107	19	31	76	38	86	59	0
Internal Link Dist (ft)		1410			1708			1111			1035	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	1129	1845	1568	622	1845	1568	970	1022	943	909	957	839
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.25	0.05	0.20	0.13	0.05	0.03	0.09	0.18	0.12	0.07	0.01

Intersection Summary

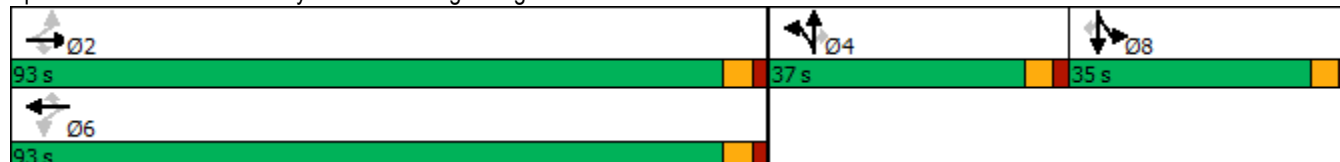
Cycle Length: 165

Actuated Cycle Length: 59.3

Natural Cycle: 70

























Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd



HCM 6th Signalized Intersection Summary
7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

Existing AM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	384	60	104	193	63	23	77	136	92	58	4
Future Volume (veh/h)	28	384	60	104	193	63	23	77	136	92	58	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	34	468	73	127	235	77	28	94	0	112	71	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	513	784	665	350	784	665	189	199		206	217	
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.11	0.11	0.00	0.12	0.12	0.00
Sat Flow, veh/h	1059	1856	1572	858	1856	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	34	468	73	127	235	77	28	94	0	112	71	0
Grp Sat Flow(s),veh/h/ln	1059	1856	1572	858	1856	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.0	9.1	1.3	6.3	3.9	1.4	0.7	2.2	0.0	2.8	1.6	0.0
Cycle Q Clear(g_c), s	4.9	9.1	1.3	15.4	3.9	1.4	0.7	2.2	0.0	2.8	1.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	513	784	665	350	784	665	189	199		206	217	
V/C Ratio(X)	0.07	0.60	0.11	0.36	0.30	0.12	0.15	0.47		0.54	0.33	
Avail Cap(c_a), veh/h	2051	3478	2948	1595	3478	2948	1193	1252		1117	1173	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.5	10.4	8.2	16.3	8.9	8.2	18.9	19.6	0.0	19.4	18.9	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.1	0.6	0.2	0.1	0.4	1.7	0.0	2.2	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.6	0.3	1.0	1.1	0.3	0.2	0.9	0.0	1.2	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	11.1	8.2	17.0	9.1	8.3	19.3	21.3	0.0	21.7	19.8	0.0
LnGrp LOS	B	B	A	B	A	A	B	C		C	B	
Approach Vol, veh/h	575			439			122			183		
Approach Delay, s/veh	10.7			11.2			20.9			20.9		
Approach LOS	B			B			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	25.2			10.5			25.2			10.9		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	87.5			31.5			87.5			29.5		
Max Q Clear Time (g_c+I1), s	11.1			4.2			17.4			4.8		
Green Ext Time (p_c), s	3.3			0.5			2.4			0.7		

Intersection Summary

HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

Existing PM

1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

02/09/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (vph)	326	1269	207	510	1302	34	283	472	560	96	549	217
Future Volume (vph)	326	1269	207	510	1302	34	283	472	560	96	549	217
Lane Group Flow (vph)	351	1365	223	548	1400	37	304	508	602	103	590	233
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	47.5	47.5	15.0	40.5	40.5	15.0	46.5	46.5	15.0	54.5	54.5
Total Split (s)	24.0	73.5	73.5	32.0	81.5	81.5	20.0	59.5	59.5	15.0	54.5	54.5
Total Split (%)	13.3%	40.8%	40.8%	17.8%	45.3%	45.3%	11.1%	33.1%	33.1%	8.3%	30.3%	30.3%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.95	1.08	0.33	1.02	0.98	0.05	1.13	0.51	0.97	0.61	0.66	0.42
Control Delay	112.4	102.1	11.5	116.0	69.8	0.1	158.4	49.0	59.7	99.0	63.4	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.4	102.1	11.5	116.0	69.8	0.1	158.4	49.0	59.7	99.0	63.4	10.2
Queue Length 50th (ft)	~226	~944	41	~381	863	0	~215	273	486	62	325	17
Queue Length 95th (ft)	#338	#1083	111	#507	#1032	0	#316	339	#743	98	395	94
Internal Link Dist (ft)		2420			2942			932			2634	
Turn Bay Length (ft)	385		600	445		280	310		330	365		450
Base Capacity (vph)	370	1262	686	535	1428	703	268	1031	633	176	935	574
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.08	0.33	1.02	0.98	0.05	1.13	0.49	0.95	0.59	0.63	0.41

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 129 (72%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

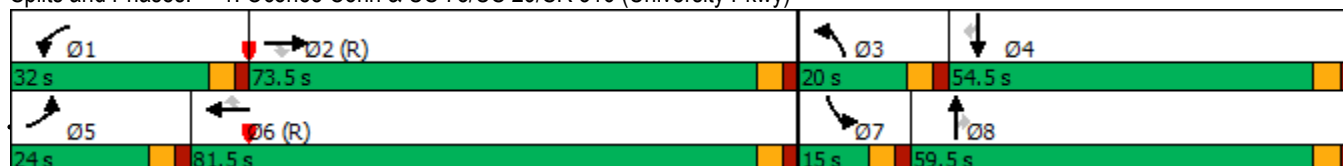
~ Volume exceeds capacity, queue is theoretically infinite.

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: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)



































HCM 6th Signalized Intersection Summary

Existing PM

1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

02/09/2022

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 		 	 		 	 		 	 		
Traffic Volume (veh/h)	326	1269	207	510	1302	34	283	472	560	96	549	217	
Future Volume (veh/h)	326	1269	207	510	1302	34	283	472	560	96	549	217	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1826	1781	1826	1826	1781	1826	1826	1826	1826	1826	1826	1826	
Adj Flow Rate, veh/h	351	1365	223	548	1400	0	304	508	0	103	590	0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Percent Heavy Veh, %	5	8	5	5	8	5	5	5	5	5	5	5	
Cap, veh/h	347	1559	713	497	1710		272	793		139	657		
Arrive On Green	0.10	0.46	0.46	0.15	0.51	0.00	0.13	0.38	0.00	0.04	0.19	0.00	
Sat Flow, veh/h	3374	3385	1547	3374	3385	1547	3374	3469	1547	3374	3469	1547	
Grp Volume(v), veh/h	351	1365	223	548	1400	0	304	508	0	103	590	0	
Grp Sat Flow(s),veh/h/ln	1687	1692	1547	1687	1692	1547	1687	1735	1547	1687	1735	1547	
Q Serve(g_s), s	18.5	65.6	16.3	26.5	62.8	0.0	14.5	21.6	0.0	5.4	29.9	0.0	
Cycle Q Clear(g_c), s	18.5	65.6	16.3	26.5	62.8	0.0	14.5	21.6	0.0	5.4	29.9	0.0	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	347	1559	713	497	1710		272	793		139	657		
V/C Ratio(X)	1.01	0.88	0.31	1.10	0.82		1.12	0.64		0.74	0.90		
Avail Cap(c_a), veh/h	347	1559	713	497	1710		272	1041		178	944		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	80.8	43.9	30.6	76.8	37.6	0.0	77.9	49.6	0.0	85.3	71.3	0.0	
Incr Delay (d2), s/veh	51.5	7.2	1.1	71.6	4.5	0.0	90.3	0.9	0.0	11.3	8.4	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	10.4	27.8	6.3	16.2	25.8	0.0	9.3	8.5	0.0	2.6	13.9	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	132.2	51.1	31.7	148.4	42.1	0.0	168.2	50.5	0.0	96.6	79.7	0.0	
LnGrp LOS	F	D	C	F	D		F	D		F	E		
Approach Vol, veh/h	1939				1948		A	812		A	693		A
Approach Delay, s/veh	63.5				72.0			94.6			82.2		
Approach LOS	E				E			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	32.0	88.4	20.0	39.6	24.0	96.4	12.9	46.6					
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5					
Max Green Setting (Gmax), s	26.5	68.0	14.5	49.0	18.5	76.0	9.5	54.0					
Max Q Clear Time (g_c+I1), s	28.5	67.6	16.5	31.9	20.5	64.8	7.4	23.6					
Green Ext Time (p_c), s	0.0	0.4	0.0	2.2	0.0	10.9	0.1	2.0					

Intersection Summary





HCM 6th Ctrl Delay 73.7

HCM 6th LOS E

Notes

























User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1299	0	5	1283
Future Vol, veh/h	0	0	1299	0	5	1283
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	5	2	2	2
Mvmt Flow	0	0	1460	0	6	1442
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2193	730	0	0	1460	0
Stage 1	1460	-	-	-	-	-
Stage 2	733	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	39	365	-	-	459	-
Stage 1	180	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	38	365	-	-	459	-
Mov Cap-2 Maneuver	38	-	-	-	-	-
Stage 1	180	-	-	-	-	-
Stage 2	430	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0.1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	459	-	
HCM Lane V/C Ratio	-	-	-	0.012	-	
HCM Control Delay (s)	-	-	0	12.9	-	
HCM Lane LOS	-	-	A	B	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Timings 3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

Existing PM
02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	85	197	122	134	320	140	747	83	279	845	153
Future Volume (vph)	145	85	197	122	134	320	140	747	83	279	845	153
Lane Group Flow (vph)	159	93	216	134	147	352	154	821	91	307	929	168
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	51.5	51.5	15.0	44.5	44.5	15.0	33.5	33.5	15.0	33.5	33.5
Total Split (s)	19.0	55.0	55.0	17.0	53.0	53.0	23.0	75.0	75.0	33.0	85.0	85.0
Total Split (%)	10.6%	30.6%	30.6%	9.4%	29.4%	29.4%	12.8%	41.7%	41.7%	18.3%	47.2%	47.2%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.77	0.42	0.57	0.54	0.72	0.78	0.38	0.42	0.09	0.75	0.42	0.16
Control Delay	85.6	77.8	13.6	68.9	97.0	24.1	12.0	23.2	1.7	53.5	30.6	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.6	77.8	13.6	68.9	97.0	24.1	12.0	23.2	1.7	53.5	30.6	10.2
Queue Length 50th (ft)	164	104	0	136	171	44	51	277	0	178	410	53
Queue Length 95th (ft)	232	162	83	198	245	165	89	383	18	m217	m483	m96
Internal Link Dist (ft)		423			735			1619			579	
Turn Bay Length (ft)	155		240	280		280	405		435	355		335
Base Capacity (vph)	207	512	591	246	491	647	476	1977	959	524	2186	1067
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.18	0.37	0.54	0.30	0.54	0.32	0.42	0.09	0.59	0.42	0.16

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 16 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

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

























Splits and Phases: 3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

				
Ø1	Ø2 (R)		Ø3	Ø4
33 s	75 s		17 s	55 s
				
Ø5	Ø6 (R)		Ø7	Ø8
23 s	85 s		19 s	53 s

HCM 6th Signalized Intersection Summary

3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

Existing PM
02/09/2022




												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	85	197	122	134	320	140	747	83	279	845	153
Future Volume (veh/h)	145	85	197	122	134	320	140	747	83	279	845	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1826	1870	1870	1826	1870
Adj Flow Rate, veh/h	159	93	216	134	147	0	154	821	91	307	929	168
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	256	282	239	268	262		371	1942	887	356	2128	972
Arrive On Green	0.08	0.15	0.15	0.06	0.14	0.00	0.05	0.56	0.56	0.10	0.61	0.61
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3469	1585	3456	3469	1585
Grp Volume(v), veh/h	159	93	216	134	147	0	154	821	91	307	929	168
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1735	1585	1728	1735	1585
Q Serve(g_s), s	13.5	8.0	24.1	11.5	13.2	0.0	6.7	24.6	4.8	15.7	25.5	8.3
Cycle Q Clear(g_c), s	13.5	8.0	24.1	11.5	13.2	0.0	6.7	24.6	4.8	15.7	25.5	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	256	282	239	268	262		371	1942	887	356	2128	972
V/C Ratio(X)	0.62	0.33	0.90	0.50	0.56		0.42	0.42	0.10	0.86	0.44	0.17
Avail Cap(c_a), veh/h	256	514	436	268	494		456	1942	887	528	2128	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.8	68.3	75.1	61.9	72.3	0.0	16.0	22.8	18.5	79.5	18.4	15.0
Incr Delay (d2), s/veh	4.5	0.7	11.9	1.4	1.9	0.0	0.7	0.7	0.2	9.4	0.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	3.9	10.5	5.4	6.4	0.0	2.8	10.1	1.8	7.4	10.2	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.3	69.0	87.0	63.3	74.2	0.0	16.8	23.5	18.7	88.8	19.0	15.4
LnGrp LOS	E	E	F	E	E		B	C	B	F	B	B
Approach Vol, veh/h	468			281			A			1066		
Approach Delay, s/veh	76.4			69.0			22.1			33.9		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.1	106.3	17.0	32.7	14.4	115.9	19.0	30.7				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	27.5	69.5	11.5	49.5	17.5	79.5	13.5	47.5				
Max Q Clear Time (g_c+I1), s	17.7	26.6	13.5	26.1	8.7	27.5	15.5	15.2				
Green Ext Time (p_c), s	0.8	27.0	0.0	1.1	0.3	35.5	0.0	0.4				




Intersection Summary




HCM 6th Ctrl Delay	39.2
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

























Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	425	1	10	425	0	5
Future Vol, veh/h	425	1	10	425	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	506	1	12	506	0	6
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	507	0	1037	507
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	530	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1058	-	256	566
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1058	-	252	566
Mov Cap-2 Maneuver	-	-	-	-	252	-
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	581	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		11.4	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	566	-	-	1058	-	
HCM Lane V/C Ratio	0.011	-	-	0.011	-	
HCM Control Delay (s)	11.4	-	-	8.4	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	417	1	12	422	2	2
Future Vol, veh/h	417	1	12	422	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	491	1	14	496	2	2
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	492	0	1016	492
Stage 1	-	-	-	-	492	-
Stage 2	-	-	-	-	524	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1071	-	264	577
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	594	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1071	-	259	577
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	583	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		15.2	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	358	-	-	1071	-	
HCM Lane V/C Ratio	0.013	-	-	0.013	-	
HCM Control Delay (s)	15.2	-	-	8.4	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	417	1	12	422	2	2
Future Vol, veh/h	417	1	12	422	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	491	1	14	496	2	2
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	492	0	1016	492
Stage 1	-	-	-	-	492	-
Stage 2	-	-	-	-	524	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1071	-	264	577
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	594	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1071	-	259	577
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	583	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.2		15.2		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	358	-	-	1071	-	
HCM Lane V/C Ratio	0.013	-	-	0.013	-	
HCM Control Delay (s)	15.2	-	-	8.4	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Timings
7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

Existing PM
02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	214	11	128	206	79	6	65	91	100	85	26
Future Volume (vph)	18	214	11	128	206	79	6	65	91	100	85	26
Lane Group Flow (vph)	20	238	12	142	229	88	7	72	101	111	94	29
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases		2			6		4	4		8	8	
Permitted Phases	2		2	6		6			4			8
Detector Phase	2	2	2	6	6	6	4	4	4	8	8	8
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	5.0
Minimum Split (s)	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	85.0	85.0	85.0	85.0	85.0	85.0	40.0	40.0	40.0	44.0	44.0	44.0
Total Split (%)	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	23.7%	23.7%	23.7%	26.0%	26.0%	26.0%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
v/c Ratio	0.06	0.46	0.03	0.45	0.44	0.18	0.02	0.24	0.29	0.33	0.26	0.08
Control Delay	13.5	17.6	0.1	19.6	17.3	5.9	19.5	21.3	8.2	21.0	20.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	17.6	0.1	19.6	17.3	5.9	19.5	21.3	8.2	21.0	20.0	4.0
Queue Length 50th (ft)	4	51	0	31	49	2	2	17	0	25	21	0
Queue Length 95th (ft)	17	116	0	80	111	27	12	54	34	73	63	10
Internal Link Dist (ft)		1410			1708			1111			1035	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	1136	1845	1568	1127	1845	1568	1315	1385	1202	1459	1537	1315
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.13	0.01	0.13	0.12	0.06	0.01	0.05	0.08	0.08	0.06	0.02

Intersection Summary

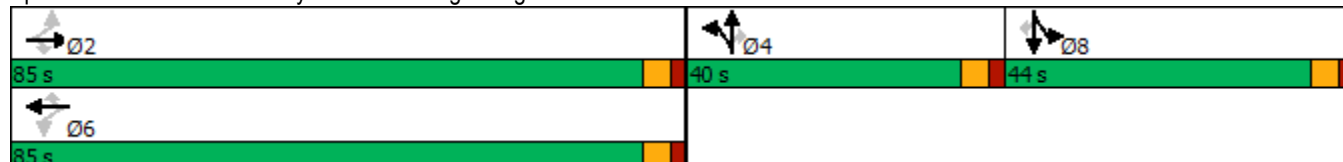
Cycle Length: 169

Actuated Cycle Length: 47.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

























Splits and Phases: 7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd



HCM 6th Signalized Intersection Summary

7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

Existing PM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	214	11	128	206	79	6	65	91	100	85	26
Future Volume (veh/h)	18	214	11	128	206	79	6	65	91	100	85	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	238	12	142	229	88	7	72	0	111	94	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	420	592	502	430	592	502	226	237		231	243	
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.13	0.13	0.00	0.13	0.13	0.00
Sat Flow, veh/h	1054	1856	1572	1121	1856	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	20	238	12	142	229	88	7	72	0	111	94	0
Grp Sat Flow(s),veh/h/ln	1054	1856	1572	1121	1856	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	0.6	3.9	0.2	4.4	3.7	1.6	0.1	1.4	0.0	2.3	1.8	0.0
Cycle Q Clear(g_c), s	4.3	3.9	0.2	8.3	3.7	1.6	0.1	1.4	0.0	2.3	1.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	420	592	502	430	592	502	226	237		231	243	
V/C Ratio(X)	0.05	0.40	0.02	0.33	0.39	0.18	0.03	0.30		0.48	0.39	
Avail Cap(c_a), veh/h	2227	3773	3197	2351	3773	3197	1559	1637		1740	1827	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.0	10.4	9.1	13.7	10.3	9.6	14.9	15.5	0.0	15.8	15.6	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.4	0.4	0.2	0.1	0.7	0.0	1.5	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	0.0	0.9	1.1	0.4	0.0	0.5	0.0	0.9	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	10.8	9.1	14.1	10.8	9.8	15.0	16.2	0.0	17.3	16.6	0.0
LnGrp LOS	B	B	A	B	B	A	B	B		B	B	
Approach Vol, veh/h	270			459			79			A		
Approach Delay, s/veh	10.9			11.6			16.1			17.0		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	18.0			10.5			18.0			10.6		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	79.5			34.5			79.5			38.5		
Max Q Clear Time (g_c+I1), s	6.3			3.4			10.3			4.3		
Green Ext Time (p_c), s	1.4			0.3			2.1			0.8		

Intersection Summary

HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

























**FUTURE “NO-BUILD” INTERSECTION
ANALYSIS**

Timings

No-Build AM

1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	385	1508	283	358	858	62	316	625	748	32	464	150
Future Volume (vph)	385	1508	283	358	858	62	316	625	748	32	464	150
Lane Group Flow (vph)	414	1622	304	385	923	67	340	672	804	34	499	161
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	47.5	47.5	15.0	40.5	40.5	15.0	46.5	46.5	15.0	54.5	54.5
Total Split (s)	31.0	80.0	80.0	21.0	70.0	70.0	24.0	64.0	64.0	15.0	55.0	55.0
Total Split (%)	17.2%	44.4%	44.4%	11.7%	38.9%	38.9%	13.3%	35.6%	35.6%	8.3%	30.6%	30.6%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.87	1.17	0.39	1.05	0.72	0.10	0.99	0.60	1.23	0.25	0.58	0.32
Control Delay	93.9	131.6	9.0	131.2	52.5	0.3	109.1	47.4	143.1	87.8	61.7	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.9	131.6	9.0	131.2	52.5	0.3	109.1	47.4	143.1	87.8	61.7	8.1
Queue Length 50th (ft)	247	~1196	42	~278	510	0	201	381	~969	20	270	0
Queue Length 95th (ft)	#336	#1331	120	#413	597	0	m#281	m396	m#733	41	330	62
Internal Link Dist (ft)		2420			2942			932			2634	
Turn Bay Length (ft)	385		600	445		280	310		330	365		450
Base Capacity (vph)	489	1383	780	368	1276	678	342	1117	655	176	945	539
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	1.17	0.39	1.05	0.72	0.10	0.99	0.60	1.23	0.19	0.53	0.30

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 18 (10%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

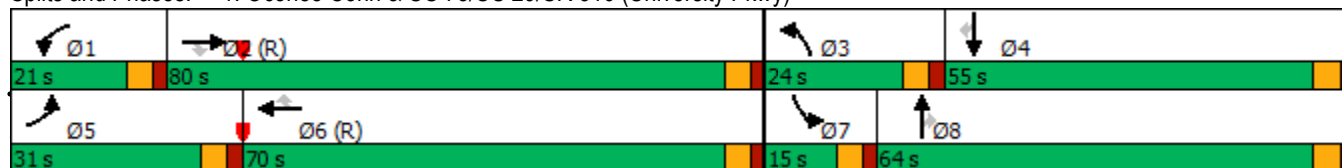
Queue shown is maximum after two cycles.

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: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)



HCM 6th Signalized Intersection Summary

1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

No-Build AM
02/09/2022

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	385	1508	283	358	858	62	316	625	748	32	464	150	
Future Volume (veh/h)	385	1508	283	358	858	62	316	625	748	32	464	150	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1826	1781	1826	1826	1781	1826	1826	1826	1826	1826	1826	1826	
Adj Flow Rate, veh/h	414	1622	304	385	923	0	340	672	0	34	499	0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Percent Heavy Veh, %	5	8	5	5	8	5	5	5	5	5	5	5	
Cap, veh/h	452	1782	815	291	1620		347	841		77	563		
Arrive On Green	0.13	0.53	0.53	0.09	0.48	0.00	0.03	0.08	0.00	0.02	0.16	0.00	
Sat Flow, veh/h	3374	3385	1547	3374	3385	1547	3374	3469	1547	3374	3469	1547	
Grp Volume(v), veh/h	414	1622	304	385	923	0	340	672	0	34	499	0	
Grp Sat Flow(s),veh/h/ln	1687	1692	1547	1687	1692	1547	1687	1735	1547	1687	1735	1547	
Q Serve(g_s), s	21.8	78.4	20.8	15.5	35.2	0.0	18.1	34.3	0.0	1.8	25.3	0.0	
Cycle Q Clear(g_c), s	21.8	78.4	20.8	15.5	35.2	0.0	18.1	34.3	0.0	1.8	25.3	0.0	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	452	1782	815	291	1620		347	841		77	563		
V/C Ratio(X)	0.92	0.91	0.37	1.33	0.57		0.98	0.80		0.44	0.89		
Avail Cap(c_a), veh/h	478	1782	815	291	1620		347	1127		178	954		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	76.9	38.7	25.1	82.3	33.6	0.0	86.8	78.5	0.0	86.8	73.7	0.0	
Incr Delay (d2), s/veh	21.8	8.5	1.3	168.3	1.5	0.0	43.0	3.0	0.0	4.0	5.6	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	10.6	32.8	7.9	13.4	14.3	0.0	10.4	16.4	0.0	0.8	11.6	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	98.7	47.2	26.4	250.6	35.1	0.0	129.7	81.5	0.0	90.8	79.4	0.0	
LnGrp LOS	F	D	C	F	D		F	F		F	E		
Approach Vol, veh/h	2340				1308		A	1012		A	533		A
Approach Delay, s/veh	53.6				98.5			97.7			80.1		
Approach LOS	D				F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	21.0	100.3	24.0	34.7	29.6	91.7	9.6	49.1					
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5					
Max Green Setting (Gmax), s	15.5	74.5	18.5	49.5	25.5	64.5	9.5	58.5					
Max Q Clear Time (g_c+I1), s	17.5	80.4	20.1	27.3	23.8	37.2	3.8	36.3					
Green Ext Time (p_c), s	0.0	0.0	0.0	1.9	0.3	21.6	0.0	2.7					

Intersection Summary





HCM 6th Ctrl Delay	76.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

























Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1698	0	1	1121
Future Vol, veh/h	0	0	1698	0	1	1121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	5	2	2	5
Mvmt Flow	0	0	1952	0	1	1289
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2599	976	0	0	1952	0
Stage 1	1952	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	20	251	-	-	295	-
Stage 1	97	-	-	-	-	-
Stage 2	483	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	20	251	-	-	295	-
Mov Cap-2 Maneuver	20	-	-	-	-	-
Stage 1	97	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	295	-	
HCM Lane V/C Ratio	-	-	-	0.004	-	
HCM Control Delay (s)	-	-	0	17.3	-	
HCM Lane LOS	-	-	A	C	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Timings

3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

No-Build AM
02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	329	181	186	103	134	279	160	1017	143	391	571	125
Future Volume (vph)	329	181	186	103	134	279	160	1017	143	391	571	125
Lane Group Flow (vph)	378	208	214	118	154	321	184	1169	164	449	656	139
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	51.5	51.5	15.0	44.5	44.5	15.0	33.5	33.5	15.0	33.5	33.5
Total Split (s)	29.0	58.5	58.5	15.0	44.5	44.5	18.0	73.5	73.5	33.0	88.5	88.5
Total Split (%)	16.1%	32.5%	32.5%	8.3%	24.7%	24.7%	10.0%	40.8%	40.8%	18.3%	49.2%	49.2%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	1.24	0.59	0.45	0.52	0.73	0.80	0.39	0.70	0.19	0.89	0.33	0.14
Control Delay	179.0	72.6	9.3	61.7	96.2	34.1	16.1	39.7	4.7	61.5	38.4	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	179.0	72.6	9.3	61.7	96.2	34.1	16.1	39.7	4.7	61.5	38.4	15.4
Queue Length 50th (ft)	~459	227	0	110	179	85	77	564	4	231	374	50
Queue Length 95th (ft)	#586	293	63	155	244	183	124	670	46	m308	m412	m110
Internal Link Dist (ft)		423			735			1619			579	
Turn Bay Length (ft)	155		240	280		280	405		435	355		335
Base Capacity (vph)	305	548	617	225	403	537	487	1674	852	524	1961	962
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.24	0.38	0.35	0.52	0.38	0.60	0.38	0.70	0.19	0.86	0.33	0.14

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 56 (31%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

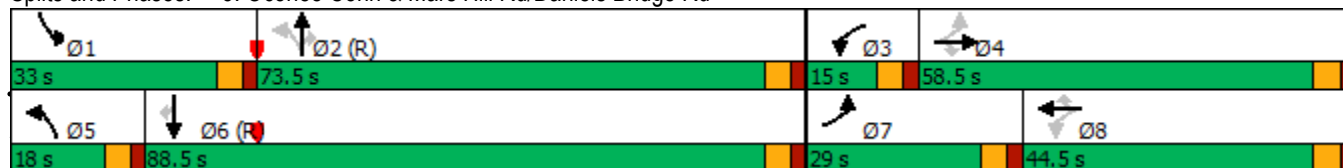
Queue shown is maximum after two cycles.

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: 3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd



HCM 6th Signalized Intersection Summary

3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

No-Build AM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	329	181	186	103	134	279	160	1017	143	391	571	125
Future Volume (veh/h)	329	181	186	103	134	279	160	1017	143	391	571	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1826	1870	1870	1826	1870
Adj Flow Rate, veh/h	378	208	214	118	154	0	184	1169	164	449	656	139
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	289	322	273	200	177		488	1772	809	490	2053	938
Arrive On Green	0.13	0.17	0.17	0.05	0.09	0.00	0.06	0.51	0.51	0.14	0.59	0.59
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3469	1585	3456	3469	1585
Grp Volume(v), veh/h	378	208	214	118	154	0	184	1169	164	449	656	139
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1735	1585	1728	1735	1585
Q Serve(g_s), s	23.5	18.6	23.3	9.5	14.6	0.0	8.9	44.8	10.2	23.1	17.1	7.1
Cycle Q Clear(g_c), s	23.5	18.6	23.3	9.5	14.6	0.0	8.9	44.8	10.2	23.1	17.1	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	289	322	273	200	177		488	1772	809	490	2053	938
V/C Ratio(X)	1.31	0.64	0.78	0.59	0.87		0.38	0.66	0.20	0.92	0.32	0.15
Avail Cap(c_a), veh/h	289	551	467	200	405		503	1772	809	528	2053	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.2	69.4	71.3	70.8	80.4	0.0	18.4	32.5	24.0	76.2	18.5	16.5
Incr Delay (d2), s/veh	161.1	2.2	4.9	4.5	12.2	0.0	0.5	1.9	0.6	20.0	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	9.0	9.7	5.4	7.6	0.0	3.7	18.9	3.9	11.5	6.9	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	226.3	71.5	76.2	75.2	92.6	0.0	18.9	34.4	24.6	96.1	18.9	16.8
LnGrp LOS	F	E	E	E	F		B	C	C	F	B	B
Approach Vol, veh/h	800			272			A			1517		
Approach Delay, s/veh	145.9			85.0			31.5			46.5		
Approach LOS	F			F			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.0	97.4	15.0	36.5	16.5	112.0	29.0	22.5				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	27.5	68.0	9.5	53.0	12.5	83.0	23.5	39.0				
Max Q Clear Time (g_c+I1), s	25.1	46.8	11.5	25.3	10.9	19.1	25.5	16.6				
Green Ext Time (p_c), s	0.5	19.2	0.0	1.5	0.1	26.8	0.0	0.4				




Intersection Summary




HCM 6th Ctrl Delay 64.1
HCM 6th LOS E




Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	687	2	0	420	1	10
Future Vol, veh/h	687	2	0	420	1	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	799	2	0	488	1	12
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	801	0	1288	800
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	488	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	822	-	181	385
Stage 1	-	-	-	-	442	-
Stage 2	-	-	-	-	617	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	822	-	181	385
Mov Cap-2 Maneuver	-	-	-	-	181	-
Stage 1	-	-	-	-	442	-
Stage 2	-	-	-	-	617	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		15.7	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	349	-	-	822	-	
HCM Lane V/C Ratio	0.037	-	-	-	-	
HCM Control Delay (s)	15.7	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	683	2	3	410	7	13
Future Vol, veh/h	683	2	3	410	7	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	794	2	3	477	8	15
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	796	0	1278	795
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	483	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	826	-	183	388
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	620	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	826	-	182	388
Mov Cap-2 Maneuver	-	-	-	-	182	-
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	617	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.1		19.1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	278	-	-	826	-	
HCM Lane V/C Ratio	0.084	-	-	0.004	-	
HCM Control Delay (s)	19.1	-	-	9.4	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	683	2	3	410	7	7
Future Vol, veh/h	683	2	3	410	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	785	2	3	471	8	8

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	787	0	1263	786
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	477	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	832	-	187	392
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	624	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	832	-	186	392
Mov Cap-2 Maneuver	-	-	-	-	186	-
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	621	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	20.3
HCM LOS			C

























Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	252	-	-	832	-
HCM Lane V/C Ratio	0.064	-	-	0.004	-
HCM Control Delay (s)	20.3	-	-	9.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Timings

7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

No-Build AM

02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	430	67	116	216	71	26	86	152	103	65	4
Future Volume (vph)	31	430	67	116	216	71	26	86	152	103	65	4
Lane Group Flow (vph)	38	524	82	141	263	87	32	105	185	126	79	5
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases		2			6		4	4		8	8	
Permitted Phases	2		2	6		6			4			8
Detector Phase	2	2	2	6	6	6	4	4	4	8	8	8
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	5.0
Minimum Split (s)	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	90.0	90.0	90.0	90.0	90.0	90.0	34.0	34.0	34.0	33.0	33.0	33.0
Total Split (%)	57.3%	57.3%	57.3%	57.3%	57.3%	57.3%	21.7%	21.7%	21.7%	21.0%	21.0%	21.0%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
v/c Ratio	0.09	0.71	0.12	0.66	0.35	0.13	0.12	0.37	0.46	0.42	0.25	0.02
Control Delay	13.1	22.3	6.3	33.1	15.2	4.3	28.8	31.9	9.6	31.7	28.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	22.3	6.3	33.1	15.2	4.3	28.8	31.9	9.6	31.7	28.6	0.0
Queue Length 50th (ft)	9	158	6	41	66	1	11	36	0	43	26	0
Queue Length 95th (ft)	26	272	27	106	126	21	37	91	42	103	70	0
Internal Link Dist (ft)		1410			1708			1111			1035	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	1052	1829	1555	528	1829	1555	816	859	829	787	829	742
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.29	0.05	0.27	0.14	0.06	0.04	0.12	0.22	0.16	0.10	0.01

Intersection Summary

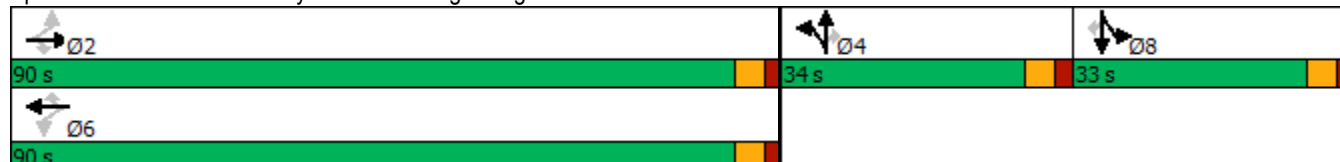
Cycle Length: 157

Actuated Cycle Length: 64.4

Natural Cycle: 80

























Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd



HCM 6th Signalized Intersection Summary
7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

No-Build AM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	430	67	116	216	71	26	86	152	103	65	4
Future Volume (veh/h)	31	430	67	116	216	71	26	86	152	103	65	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1870
Adj Flow Rate, veh/h	38	524	82	141	263	87	32	105	0	126	79	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	2
Cap, veh/h	520	857	727	340	857	727	180	189		212	222	
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.10	0.10	0.00	0.12	0.12	0.00
Sat Flow, veh/h	1023	1856	1572	808	1856	1572	1767	1856	1572	1767	1856	1585
Grp Volume(v), veh/h	38	524	82	141	263	87	32	105	0	126	79	0
Grp Sat Flow(s),veh/h/ln	1023	1856	1572	808	1856	1572	1767	1856	1572	1767	1856	1585
Q Serve(g_s), s	1.3	11.0	1.5	8.3	4.6	1.6	0.9	2.8	0.0	3.5	2.0	0.0
Cycle Q Clear(g_c), s	5.9	11.0	1.5	19.3	4.6	1.6	0.9	2.8	0.0	3.5	2.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	520	857	727	340	857	727	180	189		212	222	
V/C Ratio(X)	0.07	0.61	0.11	0.41	0.31	0.12	0.18	0.56		0.60	0.36	
Avail Cap(c_a), veh/h	1704	3005	2547	1275	3005	2547	965	1014		931	978	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.6	10.5	8.0	17.8	8.8	8.0	21.4	22.3	0.0	21.8	21.1	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.1	0.8	0.2	0.1	0.5	2.5	0.0	2.7	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.3	0.4	1.3	1.3	0.4	0.3	1.2	0.0	1.5	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.7	11.2	8.0	18.6	9.0	8.1	21.9	24.8	0.0	24.4	22.1	0.0
LnGrp LOS	B	B	A	B	A	A	C	C		C	C	
Approach Vol, veh/h	644			491			137			205		
Approach Delay, s/veh	10.8			11.6			24.2			23.5		
Approach LOS	B			B			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	29.6			10.8			29.6			11.8		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	84.5			28.5			84.5			27.5		
Max Q Clear Time (g_c+I1), s	13.0			4.8			21.3			5.5		
Green Ext Time (p_c), s	3.8			0.5			2.8			0.7		

Intersection Summary

HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Notes

























Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

No-Build PM

02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	354	1421	232	571	1458	38	317	529	627	108	615	243
Future Volume (vph)	354	1421	232	571	1458	38	317	529	627	108	615	243
Lane Group Flow (vph)	381	1528	249	614	1568	41	341	569	674	116	661	261
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	47.5	47.5	15.0	40.5	40.5	15.0	46.5	46.5	15.0	54.5	54.5
Total Split (s)	21.0	74.5	74.5	30.0	83.5	83.5	21.0	60.5	60.5	15.0	54.5	54.5
Total Split (%)	11.7%	41.4%	41.4%	16.7%	46.4%	46.4%	11.7%	33.6%	33.6%	8.3%	30.3%	30.3%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	1.31	1.19	0.36	1.34	1.08	0.06	1.19	0.54	1.08	0.68	0.71	0.48
Control Delay	219.3	141.8	14.2	222.4	96.9	0.2	172.8	48.0	91.5	103.5	64.1	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	219.3	141.8	14.2	222.4	96.9	0.2	172.8	48.0	91.5	103.5	64.1	20.1
Queue Length 50th (ft)	~299	~1142	64	~487	~1085	0	~250	312	~700	70	373	78
Queue Length 95th (ft)	#414	#1278	142	#616	#1221	0	m#350	m355	#464	109	449	174
Internal Link Dist (ft)		2420			2942			932			2634	
Turn Bay Length (ft)	385		600	445		280	310		330	365		450
Base Capacity (vph)	291	1281	691	458	1448	731	287	1050	623	176	935	548
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	1.19	0.36	1.34	1.08	0.06	1.19	0.54	1.08	0.66	0.71	0.48

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 121 (67%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

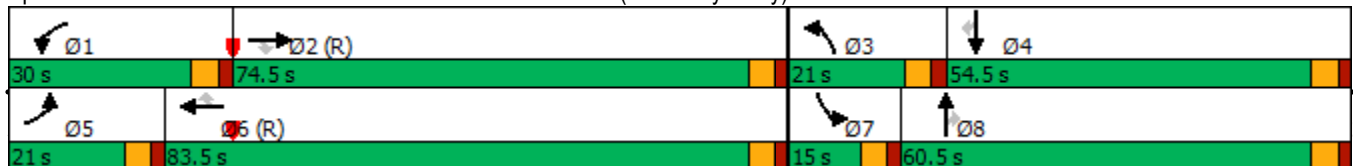
Queue shown is maximum after two cycles.

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: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)



HCM 6th Signalized Intersection Summary

1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

No-Build PM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	354	1421	232	571	1458	38	317	529	627	108	615	243
Future Volume (veh/h)	354	1421	232	571	1458	38	317	529	627	108	615	243
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1781	1826	1826	1781	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	381	1528	249	614	1568	0	341	569	0	116	661	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	8	5	5	8	5	5	5	5	5	5	5
Cap, veh/h	291	1509	690	459	1678		291	870		153	728	
Arrive On Green	0.09	0.45	0.45	0.14	0.50	0.00	0.06	0.17	0.00	0.05	0.21	0.00
Sat Flow, veh/h	3374	3385	1547	3374	3385	1547	3374	3469	1547	3374	3469	1547
Grp Volume(v), veh/h	381	1528	249	614	1568	0	341	569	0	116	661	0
Grp Sat Flow(s),veh/h/ln	1687	1692	1547	1687	1692	1547	1687	1735	1547	1687	1735	1547
Q Serve(g_s), s	15.5	80.2	19.1	24.5	78.3	0.0	15.5	27.6	0.0	6.1	33.5	0.0
Cycle Q Clear(g_c), s	15.5	80.2	19.1	24.5	78.3	0.0	15.5	27.6	0.0	6.1	33.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	291	1509	690	459	1678		291	870		153	728	
V/C Ratio(X)	1.31	1.01	0.36	1.34	0.93		1.17	0.65		0.76	0.91	
Avail Cap(c_a), veh/h	291	1509	690	459	1678		291	1060		178	944	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	82.3	49.9	33.0	77.8	42.6	0.0	84.8	67.6	0.0	85.0	69.4	0.0
Incr Delay (d2), s/veh	162.7	26.4	1.5	165.9	11.1	0.0	108.4	1.1	0.0	14.9	10.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.2	37.8	7.4	21.0	33.6	0.0	11.3	12.7	0.0	3.0	15.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	244.9	76.3	34.4	243.7	53.8	0.0	193.2	68.6	0.0	99.9	79.8	0.0
LnGrp LOS	F	F	C	F	D		F	E		F	E	
Approach Vol, veh/h	2158			2182			910			777		
Approach Delay, s/veh	101.2			107.2			115.3			82.8		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	85.7	21.0	43.3	21.0	94.7	13.6	50.6				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	24.5	69.0	15.5	49.0	15.5	78.0	9.5	55.0				
Max Q Clear Time (g_c+I1), s	26.5	82.2	17.5	35.5	17.5	80.3	8.1	29.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	2.3	0.0	0.0	0.0	2.3				





Intersection Summary

HCM 6th Ctrl Delay 103.1
HCM 6th LOS F

Notes

























User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1455	0	6	1437
Future Vol, veh/h	0	0	1455	0	6	1437
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	5	2	2	5
Mvmt Flow	0	0	1635	0	7	1615
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2457	818	0	0	1635	0
Stage 1	1635	-	-	-	-	-
Stage 2	822	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	25	319	-	-	393	-
Stage 1	144	-	-	-	-	-
Stage 2	392	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	25	319	-	-	393	-
Mov Cap-2 Maneuver	25	-	-	-	-	-
Stage 1	144	-	-	-	-	-
Stage 2	385	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0.1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	393	-	
HCM Lane V/C Ratio	-	-	-	0.017	-	
HCM Control Delay (s)	-	-	0	14.3	-	
HCM Lane LOS	-	-	A	B	-	
HCM 95th %tile Q(veh)	-	-	-	0.1	-	

Timings 3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

No-Build PM
02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	95	221	137	150	358	157	837	93	312	946	171
Future Volume (vph)	162	95	221	137	150	358	157	837	93	312	946	171
Lane Group Flow (vph)	178	104	243	151	165	393	173	920	102	343	1040	188
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	51.5	51.5	15.0	44.5	44.5	15.0	33.5	33.5	15.0	33.5	33.5
Total Split (s)	18.0	54.0	54.0	15.0	51.0	51.0	26.0	78.0	78.0	33.0	85.0	85.0
Total Split (%)	10.0%	30.0%	30.0%	8.3%	28.3%	28.3%	14.4%	43.3%	43.3%	18.3%	47.2%	47.2%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.86	0.39	0.56	0.61	0.70	0.87	0.48	0.48	0.11	0.78	0.49	0.18
Control Delay	95.7	72.4	11.5	70.8	89.8	39.4	15.3	27.1	3.1	51.4	40.9	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.7	72.4	11.5	70.8	89.8	39.4	15.3	27.1	3.1	51.4	40.9	14.8
Queue Length 50th (ft)	185	114	0	154	192	131	59	335	0	189	544	88
Queue Length 95th (ft)	#242	166	81	208	257	255	114	490	28	m221	m562	m114
Internal Link Dist (ft)		423			735			1619			579	
Turn Bay Length (ft)	155		240	280		280	405		435	355		335
Base Capacity (vph)	207	501	604	249	470	616	448	1903	927	524	2123	1045
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.21	0.40	0.61	0.35	0.64	0.39	0.48	0.11	0.65	0.49	0.18

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

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

Natural Cycle: 125

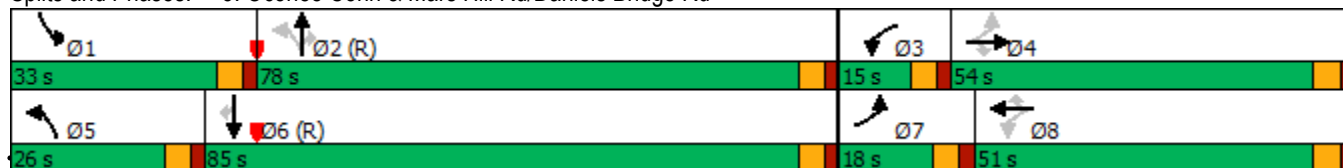
Control Type: Actuated-Coordinated

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: 3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd



























A&R Engineering, Inc.

Synchro 11 Report
Page 4

HCM 6th Signalized Intersection Summary

3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

No-Build PM
02/09/2022




												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	95	221	137	150	358	157	837	93	312	946	171
Future Volume (veh/h)	162	95	221	137	150	358	157	837	93	312	946	171
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1826	1870	1870	1826	1870
Adj Flow Rate, veh/h	178	104	243	151	165	0	173	920	102	343	1040	188
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	248	315	267	257	283		335	1885	861	392	2084	952
Arrive On Green	0.07	0.17	0.17	0.05	0.15	0.00	0.06	0.54	0.54	0.11	0.60	0.60
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3469	1585	3456	3469	1585
Grp Volume(v), veh/h	178	104	243	151	165	0	173	920	102	343	1040	188
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1735	1585	1728	1735	1585
Q Serve(g_s), s	12.5	8.8	27.1	9.5	14.8	0.0	7.8	29.7	5.7	17.6	30.8	9.7
Cycle Q Clear(g_c), s	12.5	8.8	27.1	9.5	14.8	0.0	7.8	29.7	5.7	17.6	30.8	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	315	267	257	283		335	1885	861	392	2084	952
V/C Ratio(X)	0.72	0.33	0.91	0.59	0.58		0.52	0.49	0.12	0.87	0.50	0.20
Avail Cap(c_a), veh/h	248	504	427	257	473		438	1885	861	528	2084	952
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.2	65.9	73.6	64.3	71.1	0.0	17.9	25.5	20.1	78.5	20.5	16.3
Incr Delay (d2), s/veh	9.5	0.6	16.1	3.4	1.9	0.0	1.2	0.9	0.3	11.9	0.9	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.2	12.1	1.9	7.2	0.0	3.3	12.3	2.2	8.4	12.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.7	66.6	89.6	67.7	73.0	0.0	19.1	26.4	20.3	90.5	21.4	16.7
LnGrp LOS	E	E	F	E	E		B	C	C	F	C	B
Approach Vol, veh/h	525			316			A			1195		
Approach Delay, s/veh	79.6			70.5			24.9			35.9		
Approach LOS	E			E			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.9	103.3	15.0	35.8	15.6	113.6	18.0	32.8				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	27.5	72.5	9.5	48.5	20.5	79.5	12.5	45.5				
Max Q Clear Time (g_c+I1), s	19.6	31.7	11.5	29.1	9.8	32.8	14.5	16.8				
Green Ext Time (p_c), s	0.8	28.9	0.0	1.2	0.4	36.2	0.0	0.5				




Intersection Summary

HCM 6th Ctrl Delay	41.6
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.




Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	476	1	11	476	0	6
Future Vol, veh/h	476	1	11	476	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	567	1	13	567	0	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	568	0	1161	568
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	593	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1004	-	216	522
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	552	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1004	-	212	522
Mov Cap-2 Maneuver	-	-	-	-	212	-
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	542	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		12	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	522	-	-	1004	-	
HCM Lane V/C Ratio	0.014	-	-	0.013	-	
HCM Control Delay (s)	12	-	-	8.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	467	1	13	473	2	2
Future Vol, veh/h	467	1	13	473	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	549	1	15	556	2	2

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	550	0	1136	550
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	586	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1020	-	223	535
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	556	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1020	-	218	535
Mov Cap-2 Maneuver	-	-	-	-	218	-
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	544	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	16.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	310	-	-	1020	-
HCM Lane V/C Ratio	0.015	-	-	0.015	-
HCM Control Delay (s)	16.8	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	467	1	13	473	2	2
Future Vol, veh/h	467	1	13	473	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	549	1	15	556	2	2

























Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	550	0	1136	550
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	586	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1020	-	223	535
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	556	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1020	-	218	535
Mov Cap-2 Maneuver	-	-	-	-	218	-
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	544	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	16.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	310	-	-	1020	-
HCM Lane V/C Ratio	0.015	-	-	0.015	-
HCM Control Delay (s)	16.8	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Timings 7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

No-Build PM
02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	240	12	143	231	88	7	73	102	112	95	29
Future Volume (vph)	20	240	12	143	231	88	7	73	102	112	95	29
Lane Group Flow (vph)	22	267	13	159	257	98	8	81	113	124	106	32
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases		2			6		4	4		8	8	
Permitted Phases	2		2	6		6			4			8
Detector Phase	2	2	2	6	6	6	4	4	4	8	8	8
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	5.0
Minimum Split (s)	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	87.0	87.0	87.0	87.0	87.0	87.0	38.0	38.0	38.0	44.0	44.0	44.0
Total Split (%)	51.5%	51.5%	51.5%	51.5%	51.5%	51.5%	22.5%	22.5%	22.5%	26.0%	26.0%	26.0%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
v/c Ratio	0.07	0.48	0.03	0.50	0.46	0.19	0.03	0.27	0.32	0.36	0.30	0.09
Control Delay	13.7	17.9	0.1	21.1	17.6	6.3	21.4	23.6	8.5	23.1	21.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	17.9	0.1	21.1	17.6	6.3	21.4	23.6	8.5	23.1	21.9	4.8
Queue Length 50th (ft)	4	61	0	37	58	4	2	20	0	31	26	0
Queue Length 95th (ft)	19	135	0	96	130	32	13	64	38	87	76	13
Internal Link Dist (ft)		1410			1708			1111			1035	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	1087	1845	1568	1057	1845	1568	1163	1224	1078	1377	1450	1244
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.14	0.01	0.15	0.14	0.06	0.01	0.07	0.10	0.09	0.07	0.03

Intersection Summary

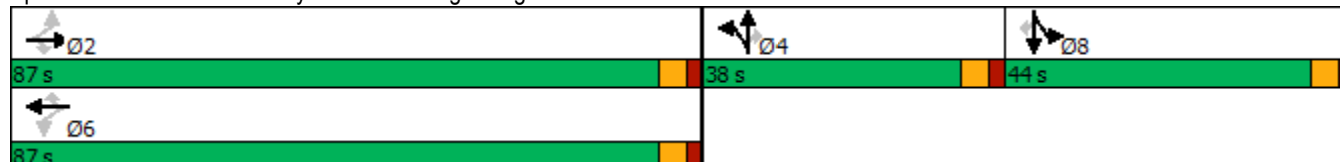
Cycle Length: 169

Actuated Cycle Length: 50.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

























Splits and Phases: 7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd



HCM 6th Signalized Intersection Summary

7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

No-Build PM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	240	12	143	231	88	7	73	102	112	95	29
Future Volume (veh/h)	20	240	12	143	231	88	7	73	102	112	95	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	267	13	159	257	98	8	81	0	124	106	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	420	644	546	432	644	546	212	223		241	253	
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.12	0.12	0.00	0.14	0.14	0.00
Sat Flow, veh/h	1018	1856	1572	1090	1856	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	22	267	13	159	257	98	8	81	0	124	106	0
Grp Sat Flow(s),veh/h/ln	1018	1856	1572	1090	1856	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	0.7	4.6	0.2	5.4	4.4	1.8	0.2	1.7	0.0	2.7	2.2	0.0
Cycle Q Clear(g_c), s	5.1	4.6	0.2	10.0	4.4	1.8	0.2	1.7	0.0	2.7	2.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	420	644	546	432	644	546	212	223		241	253	
V/C Ratio(X)	0.05	0.41	0.02	0.37	0.40	0.18	0.04	0.36		0.52	0.42	
Avail Cap(c_a), veh/h	2061	3635	3080	2189	3635	3080	1380	1449		1635	1717	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.2	10.4	8.9	14.2	10.3	9.5	16.2	16.8	0.0	16.7	16.5	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.5	0.4	0.2	0.1	1.0	0.0	1.7	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.3	0.1	1.0	1.3	0.4	0.1	0.6	0.0	1.1	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	10.8	9.0	14.7	10.7	9.6	16.2	17.8	0.0	18.4	17.6	0.0
LnGrp LOS	B	B	A	B	B	A	B	B		B	B	
Approach Vol, veh/h	302			514			89			230		
Approach Delay, s/veh	10.8			11.7			17.7			18.0		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	19.9			10.5			19.9			11.2		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	81.5			32.5			81.5			38.5		
Max Q Clear Time (g_c+I1), s	7.1			3.7			12.0			4.7		
Green Ext Time (p_c), s	1.6			0.3			2.5			1.0		









Intersection Summary

HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

FUTURE “BUILD” INTERSECTION ANALYSIS

Intersection												
Int Delay, s/veh	641.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	201	0	57	0	0	0	128	1631	0	1	1134	197
Future Vol, veh/h	201	0	57	0	0	0	128	1631	0	1	1134	197
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	55	-	-	-	-	-	235	-	-	250	-	175
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	5	2	2	2	2
Mvmt Flow	231	0	66	0	0	0	147	1875	0	1	1303	226
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2537	3474	652	2823	3700	938	1529	0	0	1875	0	0
Stage 1	1305	1305	-	2169	2169	-	-	-	-	-	-	-
Stage 2	1232	2169	-	654	1531	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 14	6	411	8	5	266	432	-	-	317	-	-
Stage 1	~ 169	228	-	48	85	-	-	-	-	-	-	-
Stage 2	~ 188	85	-	422	177	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 10	4	411	5	3	266	432	-	-	317	-	-
Mov Cap-2 Maneuver	~ 10	4	-	5	3	-	-	-	-	-	-	-
Stage 1	~ 112	227	-	32	56	-	-	-	-	-	-	-
Stage 2	~ 124	56	-	354	176	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	8319.7		0		1.3		0					
HCM LOS	F		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	432	-	-	10	411	-	317	-	-			
HCM Lane V/C Ratio	0.341	-	-	23.103	0.159	-	0.004	-	-			
HCM Control Delay (s)	17.6	-	-	10674.6	15.4	0	16.4	-	-			
HCM Lane LOS	C	-	-	F	C	A	C	-	-			
HCM 95th %tile Q(veh)	1.5	-	-	30.5	0.6	-	0	-	-			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	3158.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			↕		↰	↱		↰	↱	↰
Traffic Vol, veh/h	332	0	80	0	0	0	156	1390	0	6	1460	211
Future Vol, veh/h	332	0	80	0	0	0	156	1390	0	6	1460	211
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	55	-	-	-	-	-	235	-	-	250	-	175
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	5	2	2	5	2
Mvmt Flow	373	0	90	0	0	0	175	1562	0	7	1640	237

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2785	3566	820	2746	3803	781	1877	0	0	1562	0	0
Stage 1	1654	1654	-	1912	1912	-	-	-	-	-	-	-
Stage 2	1131	1912	-	834	1891	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 9	6	318	9	4	338	316	-	-	419	-	-
Stage 1	~ 102	154	-	70	114	-	-	-	-	-	-	-
Stage 2	~ 217	114	-	329	117	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 5	3	318	4	2	338	316	-	-	419	-	-
Mov Cap-2 Maneuver	~ 5	3	-	4	2	-	-	-	-	-	-	-
Stage 1	~ 45	151	-	31	51	-	-	-	-	-	-	-
Stage 2	~ 97	51	-	232	115	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay \$	2785.3	0	3	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	316	-	-	5	318	-	419	-	-
HCM Lane V/C Ratio	0.555	-	-	74.607	0.283	-	0.016	-	-
HCM Control Delay (s)	29.7	-	-	34562.4	20.7	0	13.7	-	-
HCM Lane LOS	D	-	-	F	C	A	B	-	-
HCM 95th %tile Q(veh)	3.2	-	-	48.9	1.1	-	0	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

**FUTURE “BUILD” INTERSECTION ANALYSIS
(WITH IMPROVEMENTS)**

Timings

Future Build AM

1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

02/09/2022

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑	↗	↖↖	↑↑	↗	↖↖	↑↑	↗	↖↖	↑↑	↗
Traffic Volume (vph)	385	1508	367	442	858	62	370	652	802	32	506	150
Future Volume (vph)	385	1508	367	442	858	62	370	652	802	32	506	150
Lane Group Flow (vph)	414	1622	395	475	923	67	398	701	862	34	544	161
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	47.5	47.5	15.0	40.5	40.5	15.0	46.5	46.5	15.0	54.5	54.5
Total Split (s)	24.0	55.5	55.5	18.0	49.5	49.5	17.0	56.5	56.5	15.0	54.5	54.5
Total Split (%)	16.6%	38.3%	38.3%	12.4%	34.1%	34.1%	11.7%	39.0%	39.0%	10.3%	37.6%	37.6%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.87	1.41	0.58	1.20	0.86	0.11	1.51	0.58	1.19	0.21	0.52	0.28
Control Delay	79.1	225.1	18.5	162.7	56.3	0.4	289.9	40.6	125.9	69.1	43.1	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.1	225.1	18.5	162.7	56.3	0.4	289.9	40.6	125.9	69.1	43.1	6.0
Queue Length 50th (ft)	199	~1077	119	~304	442	0	~268	283	~794	16	218	0
Queue Length 95th (ft)	#301	#1217	229	#438	#564	0	#377	350	#1054	35	272	52
Internal Link Dist (ft)		2420			2942			932			2634	
Turn Bay Length (ft)	385		600	445		280	310		330	365		450
Base Capacity (vph)	478	1152	684	397	1070	589	264	1209	726	218	1161	626
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	1.41	0.58	1.20	0.86	0.11	1.51	0.58	1.19	0.16	0.47	0.26

Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 145

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

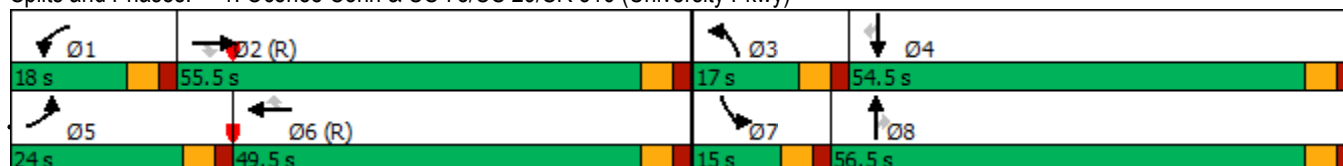
~ Volume exceeds capacity, queue is theoretically infinite.

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: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)



HCM 6th Signalized Intersection Summary
1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

Future Build AM
02/09/2022

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	385	1508	367	442	858	62	370	652	802	32	506	150	
Future Volume (veh/h)	385	1508	367	442	858	62	370	652	802	32	506	150	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1826	1781	1826	1826	1781	1826	1826	1826	1826	1826	1826	1826	
Adj Flow Rate, veh/h	414	1622	395	475	923	0	398	701	0	34	544	0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Percent Heavy Veh, %	5	8	5	5	8	5	5	5	5	5	5	5	
Cap, veh/h	430	1699	777	291	1559		268	814		87	628		
Arrive On Green	0.13	0.50	0.50	0.09	0.46	0.00	0.08	0.23	0.00	0.03	0.18	0.00	
Sat Flow, veh/h	3374	3385	1547	3374	3385	1547	3374	3469	1547	3374	3469	1547	
Grp Volume(v), veh/h	414	1622	395	475	923	0	398	701	0	34	544	0	
Grp Sat Flow(s),veh/h/ln	1687	1692	1547	1687	1692	1547	1687	1735	1547	1687	1735	1547	
Q Serve(g_s), s	17.7	66.5	24.8	12.5	29.3	0.0	11.5	28.1	0.0	1.4	22.1	0.0	
Cycle Q Clear(g_c), s	17.7	66.5	24.8	12.5	29.3	0.0	11.5	28.1	0.0	1.4	22.1	0.0	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	430	1699	777	291	1559		268	814		87	628		
V/C Ratio(X)	0.96	0.95	0.51	1.63	0.59		1.49	0.86		0.39	0.87		
Avail Cap(c_a), veh/h	430	1699	777	291	1559		268	1220		221	1172		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.59	0.59	0.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	62.9	34.5	24.2	66.3	29.0	0.0	66.8	53.2	0.0	69.5	57.7	0.0	
Incr Delay (d2), s/veh	33.6	13.5	2.4	300.1	1.7	0.0	230.9	2.6	0.0	2.9	3.8	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	9.3	28.2	9.3	17.3	11.6	0.0	13.4	12.3	0.0	0.6	9.8	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	96.5	48.0	26.5	366.4	30.7	0.0	297.6	55.8	0.0	72.4	61.5	0.0	
LnGrp LOS	F	D	C	F	C		F	E		E	E		
Approach Vol, veh/h	2431			1398			A			1099			A
Approach Delay, s/veh	52.8			144.7			143.4			62.1			
Approach LOS	D			F			F			E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	18.0	78.3	17.0	31.7	24.0	72.3	9.2	39.5					
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5					
Max Green Setting (Gmax), s	12.5	50.0	11.5	49.0	18.5	44.0	9.5	51.0					
Max Q Clear Time (g_c+I1), s	14.5	68.5	13.5	24.1	19.7	31.3	3.4	30.1					
Green Ext Time (p_c), s	0.0	0.0	0.0	2.1	0.0	10.9	0.0	2.8					

Intersection Summary

HCM 6th Ctrl Delay	95.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: Oconee Conn & Private Drwy

Future Build AM
02/09/2022



Lane Group	EBL	EBT	NBL	NBT	SBL	SBT	SBR	Ø8
Lane Configurations								
Traffic Volume (vph)	201	0	128	1631	1	1134	197	
Future Volume (vph)	201	0	128	1631	1	1134	197	
Lane Group Flow (vph)	231	66	147	1875	1	1303	226	
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	
Protected Phases		4		2		6		8
Permitted Phases	4		2		6		6	
Detector Phase	4	4	2	2	6	6	6	
Switch Phase								
Minimum Initial (s)	6.0	6.0	15.0	15.0	15.0	15.0	15.0	5.0
Minimum Split (s)	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	47.0	47.0	133.0	133.0	133.0	133.0	133.0	47.0
Total Split (%)	26.1%	26.1%	73.9%	73.9%	73.9%	73.9%	73.9%	26%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min	C-Min	None
v/c Ratio	0.87	0.18	0.60	0.73	0.01	0.50	0.18	
Control Delay	100.7	4.0	11.5	6.5	8.0	10.4	2.1	
Queue Delay	0.0	0.0	0.0	1.9	0.0	0.3	0.0	
Total Delay	100.7	4.0	11.5	8.5	8.0	10.8	2.1	
Queue Length 50th (ft)	267	0	10	72	0	304	13	
Queue Length 95th (ft)	348	14	m43	m182	2	384	39	
Internal Link Dist (ft)		263		579		932		
Turn Bay Length (ft)	55		235		250		175	
Base Capacity (vph)	325	438	247	2581	105	2581	1233	
Starvation Cap Reductn	0	0	0	521	0	627	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.71	0.15	0.60	0.91	0.01	0.67	0.18	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

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

Natural Cycle: 80

Control Type: Actuated-Coordinated





















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

Splits and Phases: 2: Oconee Conn & Private Drwy



HCM 6th Signalized Intersection Summary 2: Oconee Conn & Private Drwy

























Future Build AM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	0	57	0	0	0	128	1631	0	1	1134	197
Future Volume (veh/h)	201	0	57	0	0	0	128	1631	0	1	1134	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1826	1870	1870	1826	1870
Adj Flow Rate, veh/h	231	0	66	0	0	0	147	1875	0	1	1303	226
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	298	0	229	0	270	0	268	2756	0	233	2756	1259
Arrive On Green	0.14	0.00	0.14	0.00	0.00	0.00	1.00	1.00	0.00	0.79	0.79	0.79
Sat Flow, veh/h	1781	0	1585	0	1870	0	340	3561	0	243	3469	1585
Grp Volume(v), veh/h	231	0	66	0	0	0	147	1875	0	1	1303	226
Grp Sat Flow(s),veh/h/ln	1781	0	1585	0	1870	0	340	1735	0	243	1735	1585
Q Serve(g_s), s	22.9	0.0	6.7	0.0	0.0	0.0	26.6	0.0	0.0	0.2	22.3	6.2
Cycle Q Clear(g_c), s	22.9	0.0	6.7	0.0	0.0	0.0	48.8	0.0	0.0	0.2	22.3	6.2
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	298	0	229	0	270	0	268	2756	0	233	2756	1259
V/C Ratio(X)	0.78	0.00	0.29	0.00	0.00	0.00	0.55	0.68	0.00	0.00	0.47	0.18
Avail Cap(c_a), veh/h	451	0	365	0	431	0	268	2756	0	233	2756	1259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	0.00	0.36	0.36	0.00	0.56	0.56	0.56
Uniform Delay (d), s/veh	75.7	0.0	68.7	0.0	0.0	0.0	3.8	0.0	0.0	3.8	6.1	4.4
Incr Delay (d2), s/veh	4.7	0.0	0.7	0.0	0.0	0.0	2.9	0.5	0.0	0.0	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	0.0	2.8	0.0	0.0	0.0	1.3	0.2	0.0	0.0	7.1	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.4	0.0	69.4	0.0	0.0	0.0	6.7	0.5	0.0	3.8	6.4	4.6
LnGrp LOS	F	A	E	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h	297			0			2022			1530		
Approach Delay, s/veh	77.9			0.0			0.9			6.2		
Approach LOS	E						A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	148.5			31.5			148.5			31.5		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	127.5			41.5			127.5			41.5		
Max Q Clear Time (g_c+I1), s	50.8			24.9			24.3			0.0		
Green Ext Time (p_c), s	75.1			1.1			82.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay				9.0								
HCM 6th LOS				A								
Notes												
User approved ignoring U-Turning movement.												

Timings

3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

Future Build AM
02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	200	206	103	168	287	198	1042	143	399	591	167
Future Volume (vph)	356	200	206	103	168	287	198	1042	143	399	591	167
Lane Group Flow (vph)	409	230	237	118	193	330	228	1198	164	459	679	192
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	51.5	51.5	15.0	44.5	44.5	15.0	33.5	33.5	15.0	33.5	33.5
Total Split (s)	31.0	60.5	60.5	15.0	44.5	44.5	24.0	73.5	73.5	31.0	80.5	80.5
Total Split (%)	17.2%	33.6%	33.6%	8.3%	24.7%	24.7%	13.3%	40.8%	40.8%	17.2%	44.7%	44.7%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	1.27	0.55	0.44	0.48	0.77	0.81	0.49	0.76	0.20	0.95	0.38	0.21
Control Delay	186.3	66.4	8.0	55.2	94.6	38.9	19.7	45.1	5.6	114.5	24.0	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	186.3	66.4	8.0	55.2	94.6	39.0	19.7	45.6	5.6	114.5	24.0	2.6
Queue Length 50th (ft)	~516	244	0	105	224	127	109	611	6	295	175	0
Queue Length 95th (ft)	#653	308	62	146	292	223	169	730	51	#378	199	29
Internal Link Dist (ft)		423			735			1619			579	
Turn Bay Length (ft)	155		240	280		280	405		435	355		335
Base Capacity (vph)	322	569	648	247	403	519	496	1582	811	486	1782	913
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	6	0	108	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.27	0.40	0.37	0.48	0.48	0.64	0.46	0.81	0.20	0.94	0.38	0.21

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

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

Natural Cycle: 145

Control Type: Actuated-Coordinated

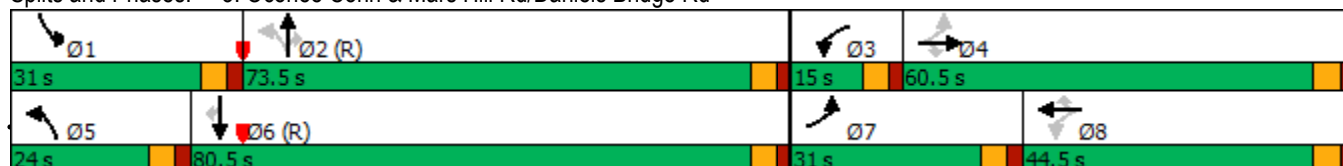
~ Volume exceeds capacity, queue is theoretically infinite.

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: 3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd



HCM 6th Signalized Intersection Summary

3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

Future Build AM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	356	200	206	103	168	287	198	1042	143	399	591	167
Future Volume (veh/h)	356	200	206	103	168	287	198	1042	143	399	591	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1826	1870	1870	1826	1870
Adj Flow Rate, veh/h	409	230	237	118	193	0	228	1198	164	459	679	192
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	309	383	324	220	216		453	1661	759	490	1882	860
Arrive On Green	0.14	0.20	0.20	0.05	0.12	0.00	0.08	0.48	0.48	0.14	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3469	1585	3456	3469	1585
Grp Volume(v), veh/h	409	230	237	118	193	0	228	1198	164	459	679	192
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1735	1585	1728	1735	1585
Q Serve(g_s), s	25.5	20.1	25.2	9.5	18.3	0.0	11.7	49.5	10.8	23.7	20.0	11.3
Cycle Q Clear(g_c), s	25.5	20.1	25.2	9.5	18.3	0.0	11.7	49.5	10.8	23.7	20.0	11.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	309	383	324	220	216		453	1661	759	490	1882	860
V/C Ratio(X)	1.32	0.60	0.73	0.54	0.89		0.50	0.72	0.22	0.94	0.36	0.22
Avail Cap(c_a), veh/h	309	571	484	220	405		497	1661	759	490	1882	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	60.9	64.9	66.9	67.2	78.5	0.0	20.6	37.4	27.3	76.5	23.4	21.4
Incr Delay (d2), s/veh	166.5	1.5	3.2	2.5	11.9	0.0	0.9	2.7	0.7	23.2	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.6	9.6	10.4	5.1	9.5	0.0	5.0	21.2	4.3	12.0	8.3	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	227.4	66.4	70.1	69.7	90.4	0.0	21.5	40.1	27.9	99.7	23.9	21.9
LnGrp LOS	F	E	E	E	F		C	D	C	F	C	C
Approach Vol, veh/h	876			311			A			1330		
Approach Delay, s/veh	142.6			82.5			36.2			49.8		
Approach LOS	F			F			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.0	91.7	15.0	42.3	19.5	103.2	31.0	26.3				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	25.5	68.0	9.5	55.0	18.5	75.0	25.5	39.0				
Max Q Clear Time (g_c+I1), s	25.7	51.5	11.5	27.2	13.7	22.0	27.5	20.3				
Green Ext Time (p_c), s	0.0	15.3	0.0	1.7	0.3	26.4	0.0	0.5				

Intersection Summary

HCM 6th Ctrl Delay 66.8







HCM 6th LOS E

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.




Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↱	↱		↱				↱
Traffic Vol, veh/h	0	753	2	0	503	30	1	0	10	0	0	9
Future Vol, veh/h	0	753	2	0	503	30	1	0	10	0	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	175	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	876	2	0	585	35	1	0	12	0	0	10
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	878	0	0	1462	1462	877	-	-	585
Stage 1	-	-	-	-	-	-	877	877	-	-	-	-
Stage 2	-	-	-	-	-	-	585	585	-	-	-	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	769	-	-	107	129	348	0	0	511
Stage 1	0	-	-	-	-	-	343	366	-	0	0	-
Stage 2	0	-	-	-	-	-	497	498	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	769	-	-	105	129	348	-	-	511
Mov Cap-2 Maneuver	-	-	-	-	-	-	230	249	-	-	-	-
Stage 1	-	-	-	-	-	-	343	366	-	-	-	-
Stage 2	-	-	-	-	-	-	487	498	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			16.3			12.2		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	332	-	-	769	-	-	511					
HCM Lane V/C Ratio	0.039	-	-	-	-	-	0.02					
HCM Control Delay (s)	16.3	-	-	0	-	-	12.2					
HCM Lane LOS	C	-	-	A	-	-	B					
HCM 95th %tile Q(veh)	0.1	-	-	0	-	-	0.1					

Intersection												
Int Delay, s/veh	10											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	84	688	2	3	448	54	7	0	13	61	0	38
Future Vol, veh/h	84	688	2	3	448	54	7	0	13	61	0	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	235	-	-	-	-	175	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	98	800	2	3	521	63	8	0	15	71	0	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	584	0	0	802	0	0	1578	1587	801	1532	1525	521
Stage 1	-	-	-	-	-	-	997	997	-	527	527	-
Stage 2	-	-	-	-	-	-	581	590	-	1005	998	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	991	-	-	822	-	-	89	108	384	95	118	555
Stage 1	-	-	-	-	-	-	294	322	-	535	528	-
Stage 2	-	-	-	-	-	-	499	495	-	291	322	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	991	-	-	822	-	-	75	97	384	84	106	555
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	97	-	84	106	-
Stage 1	-	-	-	-	-	-	265	290	-	482	525	-
Stage 2	-	-	-	-	-	-	457	493	-	252	290	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.1			31.9			126.7		
HCM LOS							D			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	157	991	-	-	822	-	-	125
HCM Lane V/C Ratio	0.148	0.099	-	-	0.004	-	-	0.921
HCM Control Delay (s)	31.9	9	-	-	9.4	0	-	126.7
HCM Lane LOS	D	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)	0.5	0.3	-	-	0	-	-	6

























Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	788	2	3	478	7	7
Future Vol, veh/h	788	2	3	478	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	906	2	3	549	8	8
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	908	0	1462	907
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	555	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	750	-	142	334
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	575	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	750	-	141	334
Mov Cap-2 Maneuver	-	-	-	-	141	-
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	572	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		24.8	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	198	-	-	750	-	
HCM Lane V/C Ratio	0.081	-	-	0.005	-	
HCM Control Delay (s)	24.8	-	-	9.8	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Timings

7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

Future Build AM

02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	472	67	143	243	85	26	86	194	124	65	4
Future Volume (vph)	31	472	67	143	243	85	26	86	194	124	65	4
Lane Group Flow (vph)	38	576	82	174	296	104	32	105	237	151	79	5
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases		2			6		4	4		8	8	
Permitted Phases	2		2	6		6			4			8
Detector Phase	2	2	2	6	6	6	4	4	4	8	8	8
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	5.0
Minimum Split (s)	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	78.0	78.0	78.0	78.0	78.0	78.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	59.1%	59.1%	59.1%	59.1%	59.1%	59.1%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min	Min
v/c Ratio	0.09	0.73	0.12	0.85	0.37	0.14	0.13	0.39	0.55	0.50	0.25	0.02
Control Delay	13.2	23.0	5.1	55.7	15.4	3.4	34.6	37.8	10.8	37.3	32.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	23.0	5.1	55.7	15.4	3.4	34.6	37.8	10.8	37.3	32.7	0.0
Queue Length 50th (ft)	9	186	4	61	78	0	11	39	0	55	28	0
Queue Length 95th (ft)	29	339	25	166	156	20	45	111	48	147	84	0
Internal Link Dist (ft)		1410			1708			1111			1035	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	903	1684	1437	434	1684	1440	570	600	670	570	600	554
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.34	0.06	0.40	0.18	0.07	0.06	0.17	0.35	0.26	0.13	0.01

Intersection Summary

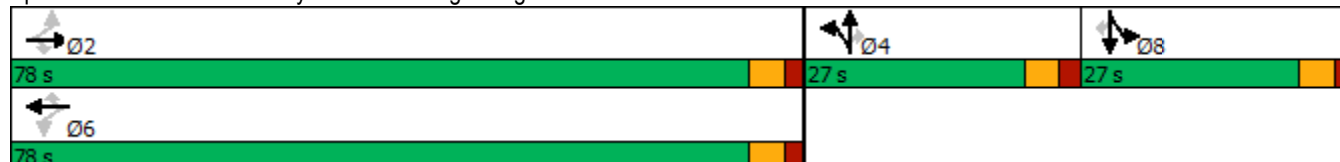
Cycle Length: 132

Actuated Cycle Length: 72.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

























Splits and Phases: 7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd









HCM 6th Signalized Intersection Summary

7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

Future Build AM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	472	67	143	243	85	26	86	194	124	65	4
Future Volume (veh/h)	31	472	67	143	243	85	26	86	194	124	65	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	38	576	82	174	296	104	32	105	237	151	79	5
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	486	931	789	302	931	789	319	335	284	204	214	181
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.18	0.18	0.18	0.12	0.12	0.12
Sat Flow, veh/h	977	1856	1572	770	1856	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	38	576	82	174	296	104	32	105	237	151	79	5
Grp Sat Flow(s),veh/h/ln	977	1856	1572	770	1856	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	2.0	18.3	2.2	17.2	7.7	2.9	1.2	4.0	11.8	6.7	3.2	0.2
Cycle Q Clear(g_c), s	9.7	18.3	2.2	35.4	7.7	2.9	1.2	4.0	11.8	6.7	3.2	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	486	931	789	302	931	789	319	335	284	204	214	181
V/C Ratio(X)	0.08	0.62	0.10	0.58	0.32	0.13	0.10	0.31	0.84	0.74	0.37	0.03
Avail Cap(c_a), veh/h	866	1653	1401	601	1653	1401	467	490	415	467	490	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	14.7	10.7	27.5	12.0	10.8	27.8	29.0	32.2	34.8	33.3	31.9
Incr Delay (d2), s/veh	0.1	0.7	0.1	1.7	0.2	0.1	0.1	0.5	9.4	5.2	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.6	0.7	3.0	2.8	0.9	0.5	1.7	4.9	3.1	1.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	15.3	10.7	29.2	12.2	10.9	28.0	29.5	41.6	40.0	34.3	32.0
LnGrp LOS	B	B	B	C	B	B	C	C	D	D	C	C
Approach Vol, veh/h	696			574			374			235		
Approach Delay, s/veh	14.8			17.1			37.0			37.9		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	46.3			20.2			46.3			14.9		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	72.5			21.5			72.5			21.5		
Max Q Clear Time (g_c+I1), s	20.3			13.8			37.4			8.7		
Green Ext Time (p_c), s	4.3			0.8			3.4			0.7		
Intersection Summary												
HCM 6th Ctrl Delay	22.8											
HCM 6th LOS	C											

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	84	719	438	51	67	43
Future Vol, veh/h	84	719	438	51	67	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	235	-	-	175	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	836	509	59	78	50

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	568	0	0 1541 509
Stage 1	-	-	- 509 -
Stage 2	-	-	- 1032 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1004	-	- 127 564
Stage 1	-	-	- 604 -
Stage 2	-	-	- 344 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1004	-	- 115 564
Mov Cap-2 Maneuver	-	-	- 241 -
Stage 1	-	-	- 545 -
Stage 2	-	-	- 344 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	24.4
HCM LOS	C		

























Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1004	-	-	-	311
HCM Lane V/C Ratio	0.097	-	-	-	0.411
HCM Control Delay (s)	9	-	-	-	24.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.9

Timings

Future Build PM

1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	354	1421	325	664	1458	38	425	583	735	108	662	243
Future Volume (vph)	354	1421	325	664	1458	38	425	583	735	108	662	243
Lane Group Flow (vph)	381	1528	349	714	1568	41	457	627	790	116	712	261
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	47.5	47.5	15.0	40.5	40.5	15.0	46.5	46.5	15.0	54.5	54.5
Total Split (s)	21.0	72.5	72.5	31.0	82.5	82.5	22.0	61.5	61.5	15.0	54.5	54.5
Total Split (%)	11.7%	40.3%	40.3%	17.2%	45.8%	45.8%	12.2%	34.2%	34.2%	8.3%	30.3%	30.3%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	1.31	1.23	0.51	1.50	1.10	0.06	1.50	0.59	1.24	0.68	0.77	0.48
Control Delay	219.3	156.5	24.3	282.9	102.1	0.2	279.6	56.5	153.5	103.5	66.7	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	219.3	156.5	24.3	282.9	102.1	0.2	279.6	56.5	153.5	103.5	66.7	20.1
Queue Length 50th (ft)	~299	~1165	163	~602	~1097	0	~388	350	~858	70	410	78
Queue Length 95th (ft)	#414	#1302	268	#735	#1232	0	m#468	m398	m#1083	109	489	174
Internal Link Dist (ft)		2420			2942			932			2634	
Turn Bay Length (ft)	385		600	445		280	310		330	365		450
Base Capacity (vph)	291	1244	679	476	1430	723	305	1069	639	176	935	548
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	12	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	1.23	0.52	1.50	1.10	0.06	1.50	0.59	1.24	0.66	0.76	0.48

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ 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: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)



HCM 6th Signalized Intersection Summary
1: Oconee Conn & US 78/US 29/SR 316 (University Pkwy)

Future Build PM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	354	1421	325	664	1458	38	425	583	735	108	662	243
Future Volume (veh/h)	354	1421	325	664	1458	38	425	583	735	108	662	243
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1781	1826	1826	1781	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	381	1528	349	714	1568	0	457	627	0	116	712	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	8	5	5	8	5	5	5	5	5	5	5
Cap, veh/h	291	1423	650	478	1611		309	939		153	778	
Arrive On Green	0.09	0.42	0.42	0.14	0.48	0.00	0.03	0.09	0.00	0.05	0.22	0.00
Sat Flow, veh/h	3374	3385	1547	3374	3385	1547	3374	3469	1547	3374	3469	1547
Grp Volume(v), veh/h	381	1528	349	714	1568	0	457	627	0	116	712	0
Grp Sat Flow(s),veh/h/ln	1687	1692	1547	1687	1692	1547	1687	1735	1547	1687	1735	1547
Q Serve(g_s), s	15.5	75.7	30.4	25.5	81.4	0.0	16.5	31.5	0.0	6.1	36.1	0.0
Cycle Q Clear(g_c), s	15.5	75.7	30.4	25.5	81.4	0.0	16.5	31.5	0.0	6.1	36.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	291	1423	650	478	1611		309	939		153	778	
V/C Ratio(X)	1.31	1.07	0.54	1.49	0.97		1.48	0.67		0.76	0.92	
Avail Cap(c_a), veh/h	291	1423	650	478	1611		309	1079		178	944	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.59	0.59	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	82.3	52.2	39.1	77.2	46.1	0.0	87.3	74.1	0.0	85.0	68.2	0.0
Incr Delay (d2), s/veh	162.7	46.5	3.2	233.1	17.0	0.0	225.2	0.8	0.0	14.9	11.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.2	39.9	12.0	26.3	36.2	0.0	17.2	14.9	0.0	3.0	17.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	244.9	98.7	42.2	310.4	63.0	0.0	312.4	74.9	0.0	99.9	79.9	0.0
LnGrp LOS	F	F	D	F	E		F	E		F	E	
Approach Vol, veh/h	2258			2282			1084			828		
Approach Delay, s/veh	114.6			140.4			175.0			82.7		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.0	81.2	22.0	45.8	21.0	91.2	13.6	54.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	25.5	67.0	16.5	49.0	15.5	77.0	9.5	56.0				
Max Q Clear Time (g_c+I1), s	27.5	77.7	18.5	38.1	17.5	83.4	8.1	33.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	2.3	0.0	0.0	0.0	2.5				

Intersection Summary

HCM 6th Ctrl Delay	129.8
HCM 6th LOS	F

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

2: Oconee Conn & Private Drwy

Future Build PM
02/09/2022



Lane Group	EBL	EBT	NBL	NBT	SBL	SBT	SBR	Ø8
Lane Configurations								
Traffic Volume (vph)	332	0	156	1390	6	1460	211	
Future Volume (vph)	332	0	156	1390	6	1460	211	
Lane Group Flow (vph)	373	90	175	1562	7	1640	237	
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	
Protected Phases		4		2		6		8
Permitted Phases	4		2		6		6	
Detector Phase	4	4	2	2	6	6	6	
Switch Phase								
Minimum Initial (s)	6.0	6.0	15.0	15.0	15.0	15.0	15.0	5.0
Minimum Split (s)	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	45.0	45.0	135.0	135.0	135.0	135.0	135.0	45.0
Total Split (%)	25.0%	25.0%	75.0%	75.0%	75.0%	75.0%	75.0%	25%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min	C-Min	None
v/c Ratio	1.21	0.23	1.27	0.63	0.05	0.66	0.20	
Control Delay	175.8	28.2	184.1	11.0	13.5	29.5	7.8	
Queue Delay	0.0	0.0	0.0	0.7	0.0	1.3	0.0	
Total Delay	175.8	28.2	184.1	11.7	13.5	30.8	7.8	
Queue Length 50th (ft)	~534	37	~229	578	4	785	89	
Queue Length 95th (ft)	#742	91	m#411	191	m5	m747	m126	
Internal Link Dist (ft)		263		579		932		
Turn Bay Length (ft)	55		235		250		175	
Base Capacity (vph)	309	387	138	2473	155	2473	1182	
Starvation Cap Reductn	0	0	0	513	0	572	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.21	0.23	1.27	0.80	0.05	0.86	0.20	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

~ 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: 2: Oconee Conn & Private Drwy



HCM 6th Signalized Intersection Summary

























2: Oconee Conn & Private Drwy

Future Build PM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	332	0	80	0	0	0	156	1390	0	6	1460	211
Future Volume (veh/h)	332	0	80	0	0	0	156	1390	0	6	1460	211
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1826	1870	1870	1826	1870
Adj Flow Rate, veh/h	373	0	90	0	0	0	175	1562	0	7	1640	237
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	429	0	346	0	409	0	154	2499	0	277	2499	1142
Arrive On Green	0.22	0.00	0.22	0.00	0.00	0.00	1.00	1.00	0.00	0.72	0.72	0.72
Sat Flow, veh/h	1781	0	1585	0	1870	0	243	3561	0	330	3469	1585
Grp Volume(v), veh/h	373	0	90	0	0	0	175	1562	0	7	1640	237
Grp Sat Flow(s),veh/h/ln	1781	0	1585	0	1870	0	243	1735	0	330	1735	1585
Q Serve(g_s), s	37.3	0.0	8.5	0.0	0.0	0.0	84.6	0.0	0.0	1.1	45.1	8.8
Cycle Q Clear(g_c), s	37.3	0.0	8.5	0.0	0.0	0.0	129.7	0.0	0.0	1.1	45.1	8.8
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	429	0	346	0	409	0	154	2499	0	277	2499	1142
V/C Ratio(X)	0.87	0.00	0.26	0.00	0.00	0.00	1.14	0.62	0.00	0.03	0.66	0.21
Avail Cap(c_a), veh/h	431	0	348	0	410	0	154	2499	0	277	2499	1142
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.68	0.68	0.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	69.5	0.0	58.3	0.0	0.0	0.0	33.5	0.0	0.0	7.2	13.3	8.3
Incr Delay (d2), s/veh	17.1	0.0	0.4	0.0	0.0	0.0	101.2	0.8	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.2	0.0	3.5	0.0	0.0	0.0	11.3	0.3	0.0	0.1	16.3	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.6	0.0	58.7	0.0	0.0	0.0	134.7	0.8	0.0	7.2	13.5	8.3
LnGrp LOS	F	A	E	A	A	A	F	A	A	A	B	A
Approach Vol, veh/h	463		0				1737				1884	
Approach Delay, s/veh	81.2		0.0				14.3				12.8	
Approach LOS	F						B				B	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	135.2		44.8		135.2		44.8					
Change Period (Y+Rc), s	5.5		5.5		5.5		5.5					
Max Green Setting (Gmax), s	129.5		39.5		129.5		39.5					
Max Q Clear Time (g_c+I1), s	131.7		39.3		47.1		0.0					
Green Ext Time (p_c), s	0.0		0.1		77.4		0.0					
Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									
Notes												

Timings 3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

Future Build PM
02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	133	262	137	187	367	199	865	93	328	987	218
Future Volume (vph)	216	133	262	137	187	367	199	865	93	328	987	218
Lane Group Flow (vph)	237	146	288	151	205	403	219	951	102	360	1085	240
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	51.5	51.5	15.0	44.5	44.5	15.0	33.5	33.5	15.0	33.5	33.5
Total Split (s)	26.0	57.8	57.8	15.0	46.8	46.8	30.0	75.2	75.2	32.0	77.2	77.2
Total Split (%)	14.4%	32.1%	32.1%	8.3%	26.0%	26.0%	16.7%	41.8%	41.8%	17.8%	42.9%	42.9%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.87	0.39	0.52	0.56	0.77	0.84	0.65	0.56	0.12	0.81	0.60	0.26
Control Delay	81.8	63.7	8.7	61.6	92.5	35.4	24.3	35.2	3.6	89.9	20.1	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.4	0.0
Total Delay	81.8	63.7	8.7	61.6	92.5	35.5	24.3	35.3	3.6	89.9	20.6	4.9
Queue Length 50th (ft)	233	152	0	141	238	132	98	412	0	227	232	29
Queue Length 95th (ft)	#321	211	81	193	315	262	164	553	30	289	378	49
Internal Link Dist (ft)		423			735			1619			579	
Turn Bay Length (ft)	155		240	280		280	405		435	355		335
Base Capacity (vph)	275	541	664	270	427	591	404	1691	837	505	1804	926
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	282	0
Spillback Cap Reductn	0	0	0	0	0	5	0	70	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.27	0.43	0.56	0.48	0.69	0.54	0.59	0.12	0.71	0.71	0.26

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

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

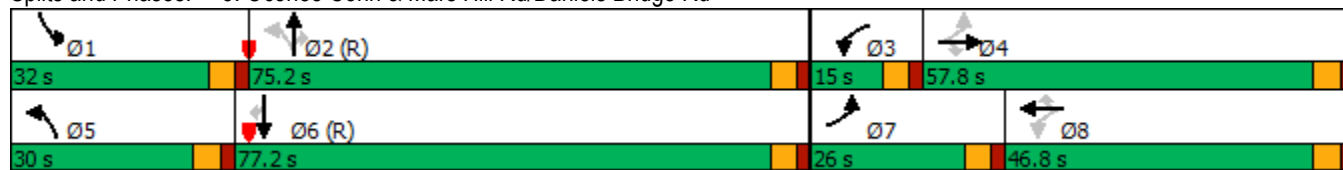
Natural Cycle: 125

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

























Splits and Phases: 3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd



HCM 6th Signalized Intersection Summary

3: Oconee Conn & Mars Hill Rd/Daniels Bridge Rd

Future Build PM
02/09/2022






												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	133	262	137	187	367	199	865	93	328	987	218
Future Volume (veh/h)	216	133	262	137	187	367	199	865	93	328	987	218
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1826	1870	1870	1826	1870
Adj Flow Rate, veh/h	237	146	288	151	205	0	219	951	102	360	1085	240
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	5	2	2	5	2
Cap, veh/h	278	369	313	258	255		315	1768	808	407	1925	880
Arrive On Green	0.11	0.20	0.20	0.05	0.14	0.00	0.07	0.51	0.51	0.12	0.55	0.55
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3469	1585	3456	3469	1585
Grp Volume(v), veh/h	237	146	288	151	205	0	219	951	102	360	1085	240
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1735	1585	1728	1735	1585
Q Serve(g_s), s	20.4	12.2	32.1	9.5	19.1	0.0	10.5	33.3	6.1	18.5	36.5	14.3
Cycle Q Clear(g_c), s	20.4	12.2	32.1	9.5	19.1	0.0	10.5	33.3	6.1	18.5	36.5	14.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	278	369	313	258	255		315	1768	808	407	1925	880
V/C Ratio(X)	0.85	0.40	0.92	0.59	0.80		0.69	0.54	0.13	0.88	0.56	0.27
Avail Cap(c_a), veh/h	278	543	461	258	429		428	1768	808	509	1925	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.70	0.70	0.70
Uniform Delay (d), s/veh	58.2	62.9	70.8	65.5	75.4	0.0	22.6	29.8	23.1	78.2	25.9	21.0
Incr Delay (d2), s/veh	21.6	0.7	18.2	3.4	5.9	0.0	3.0	1.2	0.3	10.6	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	5.9	14.4	1.8	9.5	0.0	4.6	14.0	2.4	8.7	15.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.8	63.6	89.0	68.9	81.3	0.0	25.6	31.0	23.4	88.8	26.8	21.5
LnGrp LOS	E	E	F	E	F		C	C	C	F	C	C
Approach Vol, veh/h	671			356			A			1272		
Approach Delay, s/veh	80.2			76.0			29.5			39.3		
Approach LOS	F			E			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.7	97.3	15.0	41.0	18.6	105.4	26.0	30.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	26.5	69.7	9.5	52.3	24.5	71.7	20.5	41.3				
Max Q Clear Time (g_c+I1), s	20.5	35.3	11.5	34.1	12.5	38.5	22.4	21.1				
Green Ext Time (p_c), s	0.7	26.0	0.0	1.5	0.5	28.2	0.0	0.6				








Intersection Summary

HCM 6th Ctrl Delay	46.3
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	608	1	11	567	36	0	0	6	0	0	18
Future Vol, veh/h	0	608	1	11	567	36	0	0	6	0	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	175	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	724	1	13	675	43	0	0	7	0	0	21
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	725	0	0	1426	1426	725	-	-	675
Stage 1	-	-	-	-	-	-	725	725	-	-	-	-
Stage 2	-	-	-	-	-	-	701	701	-	-	-	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	878	-	-	113	135	425	0	0	454
Stage 1	0	-	-	-	-	-	416	430	-	0	0	-
Stage 2	0	-	-	-	-	-	429	441	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	878	-	-	106	132	425	-	-	454
Mov Cap-2 Maneuver	-	-	-	-	-	-	234	256	-	-	-	-
Stage 1	-	-	-	-	-	-	416	430	-	-	-	-
Stage 2	-	-	-	-	-	-	399	430	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			13.6			13.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	425	-	-	878	-	-	454					
HCM Lane V/C Ratio	0.017	-	-	0.015	-	-	0.047					
HCM Control Delay (s)	13.6	-	-	9.2	0	-	13.3					
HCM Lane LOS	B	-	-	A	A	-	B					
HCM 95th %tile Q(veh)	0.1	-	-	0	-	-	0.1					

Intersection												
Int Delay, s/veh	54.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	116	482	1	13	514	67	2	0	2	115	0	73
Future Vol, veh/h	116	482	1	13	514	67	2	0	2	115	0	73
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	235	-	-	-	-	175	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	136	567	1	15	605	79	2	0	2	135	0	86

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	684	0	0	568	0	0	1558	1554	568	1476	1475	605
Stage 1	-	-	-	-	-	-	840	840	-	635	635	-
Stage 2	-	-	-	-	-	-	718	714	-	841	840	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	909	-	-	1004	-	-	91	113	522	~ 104	126	498
Stage 1	-	-	-	-	-	-	360	381	-	467	472	-
Stage 2	-	-	-	-	-	-	420	435	-	359	381	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	909	-	-	1004	-	-	65	94	522	~ 90	105	498
Mov Cap-2 Maneuver	-	-	-	-	-	-	65	94	-	~ 90	105	-
Stage 1	-	-	-	-	-	-	306	324	-	397	461	-
Stage 2	-	-	-	-	-	-	339	425	-	304	324	-




Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.9			0.2			37.3			\$ 393.3		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	116	909	-	-	1004	-	-	132
HCM Lane V/C Ratio	0.041	0.15	-	-	0.015	-	-	1.676
HCM Control Delay (s)	37.3	9.7	-	-	8.6	0		\$ 393.3
HCM Lane LOS	E	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)	0.1	0.5	-	-	0	-	-	16.3

Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined							*: All major volume in platoon			

Intersection

Int Delay, s/veh 0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	584	1	13	608	2	2
Future Vol, veh/h	584	1	13	608	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	687	1	15	715	2	2

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	688
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	906
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	906
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	21.9
HCM LOS			C

























Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	218	-	-	906	-
HCM Lane V/C Ratio	0.022	-	-	0.017	-
HCM Control Delay (s)	21.9	-	-	9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Timings

7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

Future Build PM

02/09/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	287	12	197	285	115	7	73	149	135	95	29
Future Volume (vph)	20	287	12	197	285	115	7	73	149	135	95	29
Lane Group Flow (vph)	22	319	13	219	317	128	8	81	166	150	106	32
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	4	4	4	8	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	5.0
Minimum Split (s)	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%
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	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
v/c Ratio	0.07	0.54	0.02	0.73	0.53	0.21	0.03	0.29	0.44	0.44	0.30	0.08
Control Delay	14.9	19.3	0.1	35.9	19.3	4.5	19.3	22.4	8.4	22.4	19.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	19.3	0.1	35.9	19.3	4.5	19.3	22.4	8.4	22.4	19.7	0.4
Queue Length 50th (ft)	4	74	0	55	73	0	2	21	0	39	27	0
Queue Length 95th (ft)	20	168	0	#179	167	30	12	56	42	85	63	0
Internal Link Dist (ft)		1410			1708			1111			1035	
Turn Bay Length (ft)	100		100	100		100	100		100	100		100
Base Capacity (vph)	301	593	596	299	593	596	564	593	617	564	593	596
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.54	0.02	0.73	0.53	0.21	0.01	0.14	0.27	0.27	0.18	0.05

Intersection Summary

Cycle Length: 64.5

Actuated Cycle Length: 50.1





Natural Cycle: 70

Control Type: Actuated-Uncoordinated

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

























Queue shown is maximum after two cycles.







Splits and Phases: 7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

		
21.5 s	21.5 s	21.5 s
		
		21.5 s

HCM 6th Signalized Intersection Summary
7: Rocky Branch Rd/Virgil Langford Rd & Mars Hill Rd

Future Build PM
02/09/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	287	12	197	285	115	7	73	149	135	95	29
Future Volume (veh/h)	20	287	12	197	285	115	7	73	149	135	95	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	22	319	13	219	317	128	8	81	166	150	106	32
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	355	643	545	375	643	545	275	289	245	248	260	220
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.16	0.16	0.16	0.14	0.14	0.14
Sat Flow, veh/h	937	1856	1572	1040	1856	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	22	319	13	219	317	128	8	81	166	150	106	32
Grp Sat Flow(s),veh/h/ln	937	1856	1572	1040	1856	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	0.9	6.3	0.3	9.7	6.2	2.7	0.2	1.8	4.6	3.7	2.4	0.8
Cycle Q Clear(g_c), s	7.1	6.3	0.3	16.0	6.2	2.7	0.2	1.8	4.6	3.7	2.4	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	643	545	375	643	545	275	289	245	248	260	220
V/C Ratio(X)	0.06	0.50	0.02	0.58	0.49	0.23	0.03	0.28	0.68	0.61	0.41	0.15
Avail Cap(c_a), veh/h	355	643	545	375	643	545	612	643	545	612	643	545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	11.9	9.9	18.2	11.9	10.7	16.5	17.2	18.4	18.6	18.1	17.4
Incr Delay (d2), s/veh	0.1	0.6	0.0	2.3	0.6	0.2	0.0	0.5	3.3	2.4	1.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.0	0.1	2.1	1.9	0.7	0.1	0.6	1.5	1.5	1.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	12.5	10.0	20.5	12.5	10.9	16.6	17.7	21.6	21.0	19.1	17.7
LnGrp LOS	B	B	A	C	B	B	B	B	C	C	B	B
Approach Vol, veh/h	354			664			255			288		
Approach Delay, s/veh	12.5			14.8			20.2			20.0		
Approach LOS	B			B			C			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	12.7			21.5			12.0			21.5		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	16.0			16.0			16.0			16.0		
Max Q Clear Time (g_c+I1), s	6.6			9.1			5.7			18.0		
Green Ext Time (p_c), s	0.6			1.0			0.8			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	16.1											
HCM 6th LOS	B											

Intersection						
Int Delay, s/veh	7.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	116	469	539	62	129	83
Future Vol, veh/h	116	469	539	62	129	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	235	-	-	175	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	136	552	634	73	152	90
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	707	0	-	0	1458	634
Stage 1	-	-	-	-	634	-
Stage 2	-	-	-	-	824	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	891	-	-	- ~	143	479
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	431	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	891	-	-	- ~	121	479
Mov Cap-2 Maneuver	-	-	-	-	256	-
Stage 1	-	-	-	-	448	-
Stage 2	-	-	-	-	431	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.9	0		48		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	891	-	-	-	310	
HCM Lane V/C Ratio	0.153	-	-	-	0.781	
HCM Control Delay (s)	9.8	-	-	-	48	
HCM Lane LOS	A	-	-	-	E	
HCM 95th %tile Q(veh)	0.5	-	-	-	6.2	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

TRAFFIC VOLUME WORKSHEETS

21-226 - Publix Shopping Village & Commercial Subdivision - TIS

Traffic Volumes

A&R Engineering
February 2022

1. US 78 @ Oconee

A.M. Peak Hour

Condition	Oconee Connector						US 78/US 29/SR 316 (University Pkwy)						US 78/US 29/SR 316 (University Pkwy)					
	Northbound						Southbound						Eastbound					
	U	L	T	R	Tot		U	L	T	R	Tot		U	L	T	R	Tot	
Existing 2021 Traffic Counts:	0	282	558	668	1508		0	29	414	134	577		51	293	1346	253	1943	
Growth Factor (%):	4	4	4	4			4	4	4	4			4	4	4	4		
No-Build 2024 Volumes:	0	316	625	748	1689		0	32	464	150	646		57	328	1508	283	2176	
Total New Trips:	0	54	27	54	135		0	0	42	0	42		0	0	0	84	84	
Pass-by Trips:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Future 2024 Traffic Volumes:	0	370	652	802	1824		0	32	506	150	688		57	328	1508	367	2260	

P.M. Peak Hour

Condition	Oconee Connector						US 78/US 29/SR 316 (University Pkwy)						US 78/US 29/SR 316 (University Pkwy)					
	Northbound						Southbound						Eastbound					
	U	L	T	R	Tot		U	L	T	R	Tot		U	L	T	R	Tot	
Existing 2021 Traffic Counts:	0	283	472	560	1315		0	96	549	217	862		10	306	1269	207	1792	
Growth Factor (%):	4	4	4	4			4	4	4	4			4	4	4	4		
No-Build 2024 Volumes:	0	317	529	627	1473		0	108	615	243	966		11	343	1421	232	2007	
Total New Trips:	0	108	54	108	270		0	0	47	0	47		0	0	0	93	93	
Pass-by Trips:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Future 2024 Traffic Volumes:	0	425	583	735	1743		0	108	662	243	1013		11	343	1421	325	2100	

21-226 - Publix Shopping Village & Commercial Subdivision - TIS
Traffic Volumes

A&R Engineering
 February 2022

2. Oconee @ M Median Break
A.M. Peak Hour

Condition	Oconee Connector						Oconee Connector						Site Driveway 1						Private Driveway					
	Northbound			Southbound			Northbound			Southbound			Eastbound			Westbound			Eastbound			Westbound		
	U	L	T	R	Tot		U	L	T	R	Tot		U	L	T	R	Tot		U	L	T	R	Tot	
Existing 2021 Traffic Counts:	0	0	1516	0	1516		0	1	1001	0	1002		0	0	0	0	0		0	0	0	0	0	
Growth Factor (%):	4	4	4	4			4	4	4	4			4	4	4	4			4	4	4	4		
No-Build 2024 Volumes:	0	0	1698	0	1698		0	1	1121	0	1122		0	0	0	0	0		0	0	0	0	0	
Total New Trips:	0	34	27	0	61		0	0	42	168	210		0	108	0	28	136		0	0	0	0	0	
Pass-by Trips:	0	94	-94	0	0		0	0	-29	29	0		0	93	0	29	122		0	0	0	0	0	
Future 2024 Traffic Volumes:	0	128	1631	0	1759		0	1	1134	197	1332		0	201	0	57	258		0	0	0	0	0	

P.M. Peak Hour

Condition	Oconee Connector						Oconee Connector						Site Driveway 1						Private Driveway					
	Northbound			Southbound			Northbound			Southbound			Eastbound			Westbound			Eastbound			Westbound		
	U	L	T	R	Tot		U	L	T	R	Tot		U	L	T	R	Tot		U	L	T	R	Tot	
Existing 2021 Traffic Counts:	0	0	1299	0	1299		0	5	1283	0	1288		0	0	0	0	0		0	0	0	0	0	
Growth Factor (%):	4	4	4	4			4	4	4	4			4	4	4	4			4	4	4	4		
No-Build 2024 Volumes:	0	0	1455	0	1455		0	6	1437	0	1443		0	0	0	0	0		0	0	0	0	0	
Total New Trips:	0	37	54	0	91		0	0	47	187	234		0	216	0	57	273		0	0	0	0	0	
Pass-by Trips:	0	119	-119	0	0		0	0	-24	24	0		0	116	0	23	139		0	0	0	0	0	
Future 2024 Traffic Volumes:	0	156	1390	0	1546		0	6	1460	211	1677		0	332	0	80	412		0	0	0	0	0	

21-226 - Publix Shopping Village & Commercial Subdivision - TIS
Traffic Volumes

A&R Engineering
 February 2022

3. Oconee @ Mars Hill

A.M. Peak Hour

Condition	Mars Hill Road					Oconee Connector					Mars Hill Road					Daniels Bridge Road				
	Northbound					Southbound					Eastbound					Westbound				
	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2021 Traffic Counts:	0	143	908	128	1179	0	349	510	112	971	0	294	162	166	622	0	92	120	249	461
Growth Factor (%):	4	4	4	4		4	4	4	4		4	4	4	4		4	4	4	4	
No-Build 2024 Volumes:	0	160	1017	143	1320	0	391	571	125	1087	0	329	181	186	696	0	103	134	279	516
Total New Trips:	0	38	25	0	63	0	8	20	42	70	0	27	19	20	66	0	0	34	8	42
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2024 Traffic Volumes:	0	198	1042	143	1383	0	399	591	167	1157	0	356	200	206	762	0	103	168	287	558

P.M. Peak Hour

Condition	Mars Hill Road					Oconee Connector					Mars Hill Road					Daniels Bridge Road				
	Northbound					Southbound					Eastbound					Westbound				
	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2021 Traffic Counts:	0	140	747	83	970	0	279	845	153	1277	0	145	85	197	427	0	122	134	320	576
Growth Factor (%):	4	4	4	4		4	4	4	4		4	4	4	4		4	4	4	4	
No-Build 2024 Volumes:	0	157	837	93	1087	0	312	946	171	1429	0	162	95	221	478	0	137	150	358	645
Total New Trips:	0	42	28	0	70	0	16	41	47	104	0	54	38	41	133	0	0	37	9	46
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2024 Traffic Volumes:	0	199	865	93	1157	0	328	987	218	1533	0	216	133	262	611	0	137	187	367	691

21-226 - Publix Shopping Village & Commercial Subdivision - TIS
Traffic Volumes

A&R Engineering
 February 2022

4. Mars Hill @ Old Mars Hill
A.M. Peak Hour

Condition	Old Mars Hill Road					Site Driveway 4 (Right-In/Right-Out)					Mars Hill Road					Mars Hill Road				
	Northbound					Southbound					Eastbound					Westbound				
	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2021 Traffic Counts:	0	1	0	9	10	0	0	0	0	0	0	0	613	2	615	0	0	375	0	375
Growth Factor (%):	4	4	4	4		4	4	4	4		4	4	4	4		4	4	4	4	
No-Build 2024 Volumes:	0	1	0	10	11	0	0	0	0	0	0	0	687	2	689	0	0	420	0	420
Total New Trips:	0	0	0	0	0	0	0	0	0	7	0	0	66	0	66	0	0	85	28	113
Pass-by Trips:	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	-2	2	0
Future 2024 Traffic Volumes:	0	1	0	10	11	0	0	0	0	9	0	0	753	2	755	0	0	503	30	533

P.M. Peak Hour

Condition	Old Mars Hill Road					Site Driveway 4 (Right-In/Right-Out)					Mars Hill Road					Mars Hill Road				
	Northbound					Southbound					Eastbound					Westbound				
	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2021 Traffic Counts:	0	0	0	5	5	0	0	0	0	0	0	0	425	1	426	0	10	425	0	435
Growth Factor (%):	4	4	4	4		4	4	4	4		4	4	4	4		4	4	4	4	
No-Build 2024 Volumes:	0	0	0	6	6	0	0	0	0	0	0	0	476	1	477	0	11	476	0	487
Total New Trips:	0	0	0	0	0	0	0	0	14	14	0	0	132	0	132	0	0	95	32	127
Pass-by Trips:	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	-4	4	0
Future 2024 Traffic Volumes:	0	0	0	6	6	0	0	0	18	18	0	0	608	1	609	0	11	567	36	614

21-226 - Publix Shopping Village & Commercial Subdivision - TIS
Traffic Volumes

A&R Engineering
 February 2022

5. Mars Hill @ Hollow Creek

A.M. Peak Hour

Condition	Hollow Creek Lane					Site Driveway I (Eastern)					Mars Hill Road					Mars Hill Road				
	Northbound					Southbound					Eastbound					Westbound				
	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2021 Traffic Counts:	0	6	0	12	18	0	0	0	0	0	0	0	610	2	612	0	3	366	0	369
Growth Factor (%):	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
No-Build 2024 Volumes:	0	7	0	13	20	0	0	0	0	0	0	0	683	2	685	0	3	410	0	413
Total New Trips:	0	0	0	0	0	0	30	0	27	57	0	53	36	0	89	0	0	49	43	92
Pass-by Trips:	0	0	0	0	0	0	31	0	11	42	0	31	-31	0	0	0	0	-11	11	0
Future 2024 Traffic Volumes:	0	7	0	13	20	0	61	0	38	99	0	84	688	2	774	0	3	448	54	505

P.M. Peak Hour

Condition	Hollow Creek Lane					Site Driveway I (Eastern)					Mars Hill Road					Mars Hill Road				
	Northbound					Southbound					Eastbound					Westbound				
	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2021 Traffic Counts:	0	2	0	2	4	0	0	0	0	0	0	0	417	1	418	0	12	422	0	434
Growth Factor (%):	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
No-Build 2024 Volumes:	0	2	0	2	4	0	0	0	0	0	0	0	467	1	468	0	13	473	0	486
Total New Trips:	0	0	0	0	0	0	59	0	54	113	0	58	73	0	131	0	0	60	48	108
Pass-by Trips:	0	0	0	0	0	0	56	0	19	75	0	58	-58	0	0	0	0	-19	19	0
Future 2024 Traffic Volumes:	0	2	0	2	4	0	115	0	73	188	0	116	482	1	599	0	13	514	67	594

21-226 - Publix Shopping Village & Commercial Subdivision - TIS
Traffic Volumes

A&R Engineering
 February 2022

6. Mars Hill @ Daandra
A.M. Peak Hour

Condition	Daandra Drive						-						Mars Hill Road						Mars Hill Road					
	Northbound						Southbound						Eastbound						Westbound					
	U	L	T	R	Tot		U	L	T	R	Tot		U	L	T	R	Tot		U	L	T	R	Tot	
Existing 2021 Traffic Counts:	0	6	0	6	12		0	0	0	0	0		0	0	610	2	612		0	3	366	0	369	
Growth Factor (%):	4	4	4	4			4	4	4	4			4	4	4	4			4	4	4	4		
No-Build 2024 Volumes:	0	7	0	7	14		0	0	0	0	0		0	0	683	2	685		0	3	410	0	413	
Total New Trips:	0	0	0	0	0		0	0	0	0	0		0	0	105	0	105		0	0	68	0	68	
Pass-by Trips:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Future 2024 Traffic Volumes:	0	7	0	7	14		0	0	0	0	0		0	0	788	2	790		0	3	478	0	481	

P.M. Peak Hour

Condition	Daandra Drive						-						Mars Hill Road						Mars Hill Road					
	Northbound						Southbound						Eastbound						Westbound					
	U	L	T	R	Tot		U	L	T	R	Tot		U	L	T	R	Tot		U	L	T	R	Tot	
Existing 2021 Traffic Counts:	0	2	0	2	4		0	0	0	0	0		0	0	417	1	418		0	12	422	0	434	
Growth Factor (%):	4	4	4	4			4	4	4	4			4	4	4	4			4	4	4	4		
No-Build 2024 Volumes:	0	2	0	2	4		0	0	0	0	0		0	0	467	1	468		0	13	473	0	486	
Total New Trips:	0	0	0	0	0		0	0	0	0	0		0	0	117	0	117		0	0	135	0	135	
Pass-by Trips:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Future 2024 Traffic Volumes:	0	2	0	2	4		0	0	0	0	0		0	0	584	1	585		0	13	608	0	621	

21-226 - Publix Shopping Village & Commercial Subdivision - TIS
Traffic Volumes

A&R Engineering
 February 2022

7. Mars Hill @ Rocky Branch
A.M. Peak Hour

Condition	Rocky Branch Road					Virgil Langford Road					Mars Hill Road					Mars Hill Road				
	Northbound					Southbound					Eastbound					Westbound				
	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2021 Traffic Counts:	0	23	77	136	236	0	92	58	4	154	0	28	384	60	472	0	104	193	63	360
Growth Factor (%):	4	4	4	4		4	4	4	4		4	4	4	4		4	4	4	4	
No-Build 2024 Volumes:	0	26	86	152	264	0	103	65	4	172	0	31	430	67	528	0	116	216	71	403
Total New Trips:	0	0	0	42	42	0	21	0	0	21	0	0	42	0	42	0	27	27	14	68
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2024 Traffic Volumes:	0	26	86	194	306	0	124	65	4	193	0	31	472	67	570	0	143	243	85	471

P.M. Peak Hour

Condition	Rocky Branch Road					Virgil Langford Road					Mars Hill Road					Mars Hill Road				
	Northbound					Southbound					Eastbound					Westbound				
	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2021 Traffic Counts:	0	6	65	91	162	0	100	85	26	211	0	18	214	11	243	0	128	206	79	413
Growth Factor (%):	4	4	4	4		4	4	4	4		4	4	4	4		4	4	4	4	
No-Build 2024 Volumes:	0	7	73	102	182	0	112	95	29	236	0	20	240	12	272	0	143	231	88	462
Total New Trips:	0	0	0	47	47	0	23	0	0	23	0	0	47	0	47	0	54	54	27	135
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2024 Traffic Volumes:	0	7	73	149	229	0	135	95	29	259	0	20	287	12	319	0	197	285	115	597

21-226 - Publix Shopping Village & Commercial Subdivision - TIS
Traffic Volumes

A&R Engineering
 February 2022

8. Mars Hill @ Drwy 4 (W)
A.M. Peak Hour

Condition	Northbound				Southbound				Mars Hill Road Eastbound				Mars Hill Road Westbound			
	-				Site Driveway 3 (Western)											
	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	Tot
Existing 2021 Traffic Counts:	0	0	0	0	0	0	0	0	0	0	0	0	622	0	622	0
Growth Factor (%):	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
No-Build 2024 Volumes:	0	0	0	0	0	0	0	0	0	0	0	0	697	0	697	0
Total New Trips:	0	0	0	0	0	0	36	0	34	70	0	53	53	0	106	0
Pass-by Trips:	0	0	0	0	0	0	31	0	9	40	0	31	-31	0	0	0
Future 2024 Traffic Volumes:	0	0	0	0	0	0	67	0	43	110	0	84	719	0	803	0

P.M. Peak Hour

Condition	Northbound				Southbound				Mars Hill Road Eastbound				Mars Hill Road Westbound			
	-				Site Driveway 3 (Western)											
	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	Tot
Existing 2021 Traffic Counts:	0	0	0	0	0	0	0	0	0	0	0	0	419	0	419	0
Growth Factor (%):	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
No-Build 2024 Volumes:	0	0	0	0	0	0	0	0	0	0	0	0	469	0	469	0
Total New Trips:	0	0	0	0	0	0	73	0	68	141	0	58	58	0	116	0
Pass-by Trips:	0	0	0	0	0	0	56	0	15	71	0	58	-58	0	0	0
Future 2024 Traffic Volumes:	0	0	0	0	0	0	129	0	83	212	0	116	469	0	585	0