

CITY ADMINISTRATOR

Michael E. Parks

PLANNING COMMISSION

Kim Skriba Carolyn Wade Bo Bland Silvia Barber Robert Yoe

PLANNING COMMISSION AGENDA March 19, 2025 1 Auburn Way 6:00 p.m.

CALL TO ORDER:

Approval of Agenda

Approval of Minutes – February 19, 2025

OLD BUSINESS:

 RZ-24-0000 the previously tabled application of MBC Developers, LLC c/o Andersen Tate & Carr, to rezone 100 Lyle Road (AU11 148) and 0 Main Street (AU11 031B), a combined 57.917± acres, from AG – Agricultural district to PUD – Planned Unit Development district for the purpose of developing the property with a 188-lot single-family detached subdivision

OTHER:

1. Presentation on Chapter 16.43 – Trees and Landscaping

ANNOUNCEMENTS

ADJOURNMENT

Agenda subject to change.



<u>Mayor</u> Richard E. Roquemore <u>City Council</u> Robert L. Vogel III Taylor Sisk Jamie Bradley Joshua Rowan

City Administrator Michael E. Parks

Planning & Zoning Commission Meeting Minutes February 19, 2025

The meeting was Called to order by Chairwoman Skriba

Appointment of officers was announced by Chairwoman. Bland nominated Kim Skriba as Chair, 2nd was made by Wade, all in favor. Nominee for Bland for Co-chair was made by Barber, 2nd, all in favor.

Chairwoman asked for approval of the agenda, motion made by Bland, 2nd was made by Yoe, all in favor.

Chairwoman asked for the approval of minutes from October 16, 2024, and Bland made the motion to approve, 2nd Yoe - all in favor, motion carried.

Chairwoman read the meeting procedures.

Chairwoman read old business:

Chairwoman announced case: *RZ-24-0000 the previously tabled application of MBC Developers, LLC c/o Andersen Tate & Carr, to rezone 100 Lyle Road (AU11 148) and 0 Main Street (AU11 031B), a combined 57.917± acres, from AG –Agricultural district to PUD – Planned Unit Development district for the purpose of developing the property with a 188-lot singlefamily detached subdivision*

Staff Presented: The applicant has requested to table until March 19, 2025, meeting.

Applicant representative: Melody Glouton representing Anderson, Tate & Carr 1960 Satellite Blvd., Duluth, GA requested the item to be tabled until the decisions have been made to the PUD text amendment that was initiated by the city.

Staff advised Chairwoman The public hearing was not opened before the applicant spoke, and advised if the members we going to table the item, then they could continue. Member Barber spoke and wanted to make a motion to deny, 2nd by Yoe. Staff suggest maybe looking at it from

a different perspective that the members are making recommendations that would be presented to the Mayor and Council that could be sent back to the Commission for additional consideration. The applicant is requesting to table the item to see what the conclusion is for the PUD Amendment that we should honor the applicant request.

Member Yoe spoke that the Council handled this request a month or so ago denying the previous request to amend the PUD Ordinance. Staff advised that the Council requested that the Contracted Planner review the current PUD since it had not been updated in a while & requested that the Planner review and update the outdated ordinance. This was a city-initiated amendment.

Chairwoman asked for a motion to approve the tabling, motion made by Bland, Barber & Yoe voted no, Wade no vote. The applicant representative got up to speak that they are requesting to table to determine how to move forward on the application once the PUD Text Amendment has been approved.

Staff and Applicant representative explained the City Council made the request to update the PUD text amendment and went over Point of Order for advertising Public Hearings for meetings in advance.

After further discussion between members, applicant representative and staff, a motion was made by Bland to table the case to the March 19, 2025, meeting, 2nd by Wade, Yoe and Barber voted no resulting in a tie. The Chairwoman broke the tie by voting yes to allow the tabling until the March 19 meeting.

New Business:

Chairwoman read FP-2001 Schmit + Associates requests consideration of final plat approval for Harmony Phase 2C for the development of 14 single-family lots in a CCD: City Center District.

Staff presented this as procedural for a plat that was previously approved in 2021. Yoe inquired about the tree plan, staff stated it was part of the original approval process. Bland made motion to approve with recommendations, 2 nd by Wade, all approved- motion passed.

Chairwoman read next item FP-2002 Clayton Properties Group, Inc. d.b.a. Chafin Land Development & Hill Shop Road, LLC, requests consideration of final plat approval for Kentmere Subdivision for the development of 386 single-family lots in a PSV: Planned Suburban Village district.

Staff presented this is procedural for a plat that was previous approved that was from 2021.

Motion was made to approve by Barber, 2 nd by Wade all in favor, motion passed Chairwoman read next item FP-2003 Clayton Properties Group, Inc. d.b.a. Chafin Land Development, requests

consideration of final plat approval for Summerlin Subdivision Phase One for the development of 116 single-family lots in a PSV: Planned Suburban Village district.

Staff presented this is procedural for a plat that was previously approved that was from 2021. Inquiries made by members about traffic study & fence as part of the original approval, Staff confirmed everything was completed. Motion made, 2nd, approved-passed.

Chairwoman read final case ZTA25-000 Proposed amendment to the City's Zoning Ordinance, 17.90.140 - PUD - Planned Unit Development District.

At the Direction of Mayor and Council, Planning staff reviewed the original ordinance that was written in the early 2000's. Staff's proposed amendment would update several sections, focusing the Residential uses and components permitted. The draft would set the density at 3 units per acre and provide for a minimum of 10 acres to allow for more unique projects on a smaller scale. Architectural standards were added to elevate the standards to make it a unique district. Included an amenity selection list with components that are required depending on the total number of units. Landscaping & Buffer requirements and developments are approved as a PUD are required to go to the Planning Commission and then onto Mayor and Council for final approval.

Members asked questions of staff regarding the draft ordinance.

Staff advised members that they could make recommendations to the current proposed text amendment and those changes would be presented to Mayor and Council and at that point Mayor and Council can also make their own recommendations.

Public Hearing opened for

Support of the PUD-none

Opposition:

Jill Deal, Lyle Rd., inquired about the items that the members have that list paragraphs, etc. Chairman advised that the agenda is posted on the city website under the Planning Commission, several commission members explained where she can go look at it, explained about the City of Auburn GA code of Ordinance. She had a Q & A with Commission members & staff. The Resident also inquired about apartments and buffering. Staff read the buffering requirements.

Commission Members made their recommended changes:

Section D, line item 1- destiny shall remain the same at 2.2- no increase, Strike- Remove multifamily residential under permitted uses Minimum lot size should be 7000 sf per acre Remove apartments & keep it at 10 acres for new development Staff were commended for the work done on the PUD text amendment. Motion to recommend approval was passed with changes listed above. Staff advised next meeting scheduled for March 19, 2025.

Motion made to adjourn, motion made, 2nd. Motion passed.



COMMUNITY DEVELOPMENT DEPARTMENT

CITY OF AUBURN 1 AUBURN WAY AUBURN, GA 30011 PHONE: 770-963-4002 www.cityofauburn-ga.org

CASE NUMBER:	RZ24-000
LOCATION:	100 Lyle Road & 0 Main Street
PARCEL NUMBER:	AU11 148 & AU11 031B
ACREAGE:	57.92±
CURRENT ZONING:	AG: Agricultural district
REQUEST:	Rezone to PUD: Planned Unit Development district
PROPOSED DEVELOPMENT:	172-unit attached and detached single-family housing
	development
FUTURE DEVELOPMENT MAP:	Single-Family Residential
STAFF RECOMMENDATION:	Approval with Staff Conditions
APPLICANT:	MBC Developers, LLC c/o Andersen Tate & Carr
	1960 Satellite Boulevard
	Duluth, GA 30097
CONTACT:	Melody Glouton
	mglouton@atclawfirm.com
	770.822.0900

SUMMARY

NOTE: On March 14, 2025 updated application materials were submitted in relation to this request in response to the amended PUD ordinance adopted by Mayor & Council the prior evening. This report has been updated to reflect the new application materials.

The applicant is requesting to rezone a combined 57.92± acre tract from AG: Agricultural (Sec. 17.90.010) to PUD: Planned Unit Development (Sec. 17.90.140) to construct a 172-unit, single-family development with 120 single-family detached dwellings and 52 front-entry attached (town house) dwellings. The development site, comprised of parcels AU11 148 and AU11 031B, is currently developed with a single-family residence and agricultural buildings. The proposed density of the development is 2.97 dwelling units per acre.

The submitted rezoning exhibit, dated March 14, 2025, shows the site being accessed by two entrances from Lyle Road, with the primary entrance being central to the development and a secondary entrance located east of the primary entrance. The internal street network of the site plan consists of a public street system with a 50-foot right-of-way serving both single-family detached and attached residential units. The streets are all interconnected, with the exception of two dead end street which provide frontage to lots 10

and 11 and lots 35 (partial), 36, and 37. Sec. 16.28.030 provides that dead end streets designed to have one end permanently closed shall provide a cul-de-sac turnaround. No variance from this standard has been included as part of this request.

The proposed development will contain single-family detached houses with minimum heated floor areas (HFA) of 2,000 square feet for single-story units and 2,400 square feet for two-story dwellings. The town houses are located internal to the development with the rear of the units located around a common area. The LOI does not provide the minimum heated floor area for the town house units. The applicant has provided the minimum lot standards as part of the submitted Letter of Intent (LOI), which is summarized below:

	Minimu	ım Building S	etback	Typical Lot Size	Minimum Heated	Proposed
	Front Yard	Side Yard	Rear Yard		Floor Area (HFA)	Quantity
Single-Family	20 feet	5 feet	25 feet	7,000 square feet	2,000 square feet	120
Detached					(single-story)	
					2,400 square feet	
					(two-story)	
Single-Family	22 feet	NA	Unknown	3,000 square feet	None provided in	52
Attached	from front				application	
	of unit to				materials.	
	sidewalk.					

<u>NOTE</u>: Where discrepancies exist between the submitted LOI and the provided rezoning exhibit the LOI shall rule.

Sec. 17.90.140.G.5 of the amended PUD: Planned Unit development ordinance provides the minimum dimensional standards for garages. Per this section the total width of garage doors on the front façade of an attached residence shall not exceed fifty-five percent (55%). As part of the LOI the applicant has noted they are requesting a concurrent variance from this standard to permit the garages for the single-family attached (town house) units to be sixty-two percent (62%), 16 feet, of the front façade.

The application includes an architectural overview and renderings for the proposed development. The LOI provides that exterior material appearances of houses will include brick, stacked stone, cedar shake, cementitious shake, and board and batten siding. The provided architectural renderings depict two-story residences with two-car, front-entry garages for both the single-family detached and attached units.

The rezoning concept depicts five-foot sidewalks on both sides of all internal roadways, providing pedestrian connectivity from Lyle Road throughout the development. The application depicts that open space will total 21.75± acres and consist of undisturbed buffering along the northeastern and southwestern development boundaries, and a central common area adjacent to the 52 town house units.

Additional development standards for the proposed residential development are provided below:

Requirement	Proposal	Compliance
Minimum Open Space	21.75± acres (37.6% of development) *	Compliant with Sec. 16.24.090
Resident Amenities	None provided	Deficient from the requirements of Sec. 17.90.140.H
Setbacks (External)		·

Front	25 feet (landscaped buffer)	None Required
Rear	N/A (stream buffer)	N/A
Side	50 feet (undisturbed buffer)	Compliant with Sec. 17.90.140.I

No resident amenities are identified in the LOI or on the submitted concept plan. The revised PUD ordinance in Sec. 17.90.140.I requires resident amenities in addition to the minimum open space requirements found in Sec. 16.240.090. The resident amenities are intended to be proportionate to proposed developments size and density and are intended to be programmed an active uses, rather than passive open space. No relief has been requested from this section and the existing concept plan could likely be updated to include these requirements in the central common area.

The application indicates that City of Auburn Public Works will provide water to the site and sewage will be provided by the Barrow County Water & Sewer Authority. To manage stormwater, two management areas will be constructed at opposite ends of the site, totaling 2.25± acres.

LAND USE AND COMPREHENSIVE PLAN ANALYSIS

The submitted rezoning proposal represents a fundamental change to the land use of the development site. Presently, the site is developed with one (1) single-family residence and accessory agricultural structures. The proposal will eliminate agricultural use of the site in place of higher density single-family residences. The site will be used as a residential subdivision and host a resident amenity area.

The development site is situated in a primarily residential vicinity. The table below summarizes the nearby zoning districts and land uses:

Direction	Zoning	Current Land Use	Future Land Use
Ν	AG: agricultural, R-100: single- family residential, MH: mobile home park	Agriculture, single- family housing, manufactured housing	Single-Family Residential, Agricultural
S	AG: agricultural, R-100: single- family residential	Agriculture, single- family housing.	Single-Family Residential
W	AG: agricultural, R-100: single- family residential	Agriculture, single- family housing, manufactured housing	Single-Family Residential, Agricultural
E	R-100: single-family residential, MH: mobile home park	Single-family housing, manufactured housing	Single-Family Residential

Pursuant to the <u>City of Auburn Comprehensive Plan</u>, 2023-2028, the development site is located within the Single-Family Residential Character Area. This Area is intended for "Conventional residential subdivisions, as well as conservation subdivisions, with supportive recreational amenities and small-scale public/institutional uses. Lot sizes range from 5,000 square feet to several acres. Includes low-impact civic space."

The present land use, very low-density residential and agricultural, does not align with the intent of the Character Area. The proposed PUD generally complies with the intent of this Character Area.

WETLANDS, STREAMS, AND FLOODPLAIN

The development site contains a stream, the buffer of which envelopes much of the land along the northeastern and southeastern property lines. Some of the far eastern portion of the site is within flood zone A, and a smaller portion is designated as flood zone X. The development does not depict any vertical development or impervious installations within the required 75-foot impervious buffer.

DEVELOPMENT REVIEW

The development shall be subject to the regulations described in the <u>Auburn Municipal Code</u>, unless relief has been explicitly granted as part of this application, and apply to and provide guidance for the development of lands within the incorporated areas of the city.

Approval of an erosion control plan from the Georgia Soil and Water Conservation Commission is required prior to land disturbance activity.

Approval of site plans from Barrow County Fire Marshal required.

TRANSPORTATION

The Georgia Department of Transportation (GDOT) does not maintain traffic counts for Lyle Road.

A traffic study was completed for the proposed development by SEI Engineering, Inc. on June 13, 2024. The study was conducted for a 188-unit residential development, congruent with the submitted concept. The study concludes that no improvements to the existing public road network are necessary to accommodate the development proposal, but advises that Main Street / Lyle Road be improved to City standards between its intersections with Autry Road and 6th Avenue.

ZONING ANALYSIS

17.170.030 - Standards governing exercise of the zoning power.

The city council finds that the following standards are relevant in balancing the interest in promoting the public health, safety, morality or general welfare against the right to the unrestricted use of property and shall govern the exercise of the zoning power:

(Language in bold is from the City of Auburn Zoning Ordinance. Bulleted information that is not bolded are factors known to staff that may apply to the Ordinance criteria.)

- A. Whether a proposed rezoning will permit a use that is suitable in view of the use and development of adjacent and nearby property;
 - Pursuant to the <u>City of Auburn Comprehensive Plan</u>, 2023-2028, the development site is located within the Single-Family Residential Character Area. This Area is intended for "Conventional residential subdivisions, as well as conservation subdivisions, with supportive recreational amenities and small-scale public/institutional uses. Lot sizes range from 5,000 square feet to several acres. Includes low-impact civic space."
 - The present land use, very low-density residential and agricultural, does not align with the intent of the Character Area. The proposed PUD generally complies with the intent of this Character Area.

B. Whether a proposed rezoning will adversely affect the existing use or usability of adjacent or nearby property;

 Surrounding uses include existing single-family residential housing to the north, east, and south, agriculture to the west and north, and manufactured housing to the north, east, and west. While the proposed residential subdivision may lead to increased traffic and greater demand for community services, any resulting impact on adjacent or nearby properties is expected to be minimal. These properties will remain usable, and the proposed development is generally compatible with the surrounding area.

C. Whether the property to be affected by a proposed rezoning has a reasonable economic use as currently zoned;

- Yes, the property has a reasonable economic use under its current AG: agriculture zoning. The AG district permits various economically viable uses, including farming, livestock operations, timber production, and low-density residential development. These allowable uses provide the property owner with multiple opportunities for economic return, demonstrating that the property is not without reasonable economic use in its current zoning designation.
- The AG district permits a density of 1 dwelling unit per 2 acres. The Comprehensive Plan has the parcel classified as Single Family Residential, which permits single-family homes at low to moderate densities: Lot sizes range from 5,000 square feet to several acres. It is likely that agricultural zoning district does not represent the highest and best use of the property and rezoning to a more intense residential district, consistent with the future land use map in the Comprehensive Plan, would better align with the goals, objectives, purpose, and intent of the plan.
- D. Whether the proposed rezoning will result in a use which will or could cause an excessive or burdensome use of existing streets, transportation facilities, utilities or schools;
 - The proposed development will increase demand on public services, including water, sewer, and adjacent public roads. However, this impact is not expected to be excessive or unmanageable.

E. Whether the proposed rezoning is in conformity with the policy and intent of the land use plan; and

- Yes, the proposed rezoning is generally in conformity with the policy and intent of the City of Auburn Comprehensive Plan (2023-2028). The development site is located within the Single-Family Residential Character Area, which supports conventional and conservation subdivisions with recreational amenities and low-impact civic spaces. While the current land use consists of very low-density residential and agricultural uses, which do not align with the Character Area's intent, the proposed PUD (Planned Unit Development) is consistent with the plan's vision for residential growth and development in this area.
- F. Whether there are other existing or changing conditions affecting the use and development of the property which give supporting grounds for either approval or disapproval of the proposed rezoning.
 - There are new or changing conditions outside of those anticipated by the Comprehensive Plan which justify approval or disapproval of the rezoning. As stated above, the existing AG zoning is likely not the highest and best use of the property. The proposed use of the site as a single family subdivision with a density of 2.97 dwelling units per acre is consistent with the future land use categories as it currently classified (Single Family Residential), which suggests lot sizes

ranging from 5,000 square feet to several acres.

17.90.140.D – Minimum Standards and Requirements.

All proposed PUD planned unit development district applications shall conform to the following specific requirements:

(Language in bold is from the City of Auburn Zoning Ordinance. Bulleted information that is not bolded are factors known to staff that may apply to the Ordinance criteria.)

- 1. The maximum density shall not exceed three (3.0) dwelling units per gross acre.
 - The applicant proposes an overall development density of 2.97 dwelling units per acre, which does not exceed the maximum allowable density of 3.0 dwelling units per acre pursuant to the current Ordinance.
- 2. The site must abut a public street for a distance of at least one hundred feet.
 - The development tract fronts Lyle Road for greater than 100 feet.
- 3. A registered engineer, architect, land surveyor or landscape architect shall prepare the plans required for inclusion in an application. The plans shall have their official registration seal.
 - The development plans have been submitted and sealed by a registered professional.
- 4. Sidewalks shall be required along both sides of all streets within a PUD. The construction standard of the required sidewalks are given in the city development regulations; however, the minimum width of all sidewalk along streets shall be five (5.0) feet.
 - Sidewalks on both sides of all internal roadways, and connecting to the Lyle Road right-ofway, are conceptualized, with widths of five (5) feet.
- 5. The site proposed for a PUD classification must contain an area of not less than ten (10) acres.
 - The development site measures 57.92 ± acres.

VARIANCE ANALYSIS

<u>17.150.060</u> - Variances may be granted in the individual cases of unnecessary hardship upon a finding that:

(Language in bold is from the City of Auburn Zoning Ordinance. Bulleted information that is not bolded are factors known to staff that may apply to the Ordinance criteria.)

- A. There are extraordinary and exceptional conditions pertaining to the particular property in question because of its size, shape or topography,
 - There are not extraordinary or exceptional conditions pertaining to the subject property due to its size, shape, or topography which necessitates the request to increase the maximum garage door width from 55% to 62% of the single-family attached (town house) units.
- B. The application of this title to this particular piece of property would create an unnecessary hardship,
 - The application of this standard should not create an unnecessary hardship though the applicant would have to revise the floorplans of the proposed town house units.
- C. Said conditions are peculiar to the particular piece of property involved,

- The conditions are not peculiar to the subject property as the applicant has proposed to town house product.
- D. Said conditions are not the result of any actions of the property owner, and
 - The need for a variance is the result of the floorplan for the town house units proposed by the applicant.
- E. Relief, if granted, would not cause substantial detriment to the public good nor impair the purposes or intent of this title.
- **F.** If granted, the variance would undermine the intent of the zoning ordinance. The maximum garage door width of 55% of the unit width was established to maintain an appropriate streetscape appearance, promote pedestrian-friendly design, and avoid excessive garage dominance on the façade of residential units.

STANDARDS GOVERNING THE EXERCISE OF ZONING

Suitability of Use

The proposed rezoning may permit a use that is suitable. The proposed use of the property for single-family housing aligns with the future land use designation of <u>Single-Family Residential</u>. This designation commands the development of residential subdivisions which include resident amenities on lots no less than 5,000 square feet in area. The smallest typical lot size in the proposed development is 7,500 square feet; meeting the minimum district requirements of the PUD.

Adverse Impacts

Recommended staff conditions could minimize potential impacts of this development on adjacent properties.

Impact on Public Facilities

An increase in traffic, utilities usage, stormwater runoff and the number of school-aged children could be anticipated from this request.

Conformity with Policies

The development may be compatible with the <u>Comprehensive Plan</u>, and the application materials do not identify a specific target population or age group.

Conditions Affecting Zoning

Development may be appropriate with staff recommended conditions.

COMMUNITY DEVELOPMENT DEPARTMENT RECOMMENDATION

Staff recommends **approval with conditions** of the request to rezone the site from AG: Agricultural to PUD: Planned Unit Development pursuant to the submitted rezoning application materials and rezoning exhibit dated March 14, 2025. Staff recommends the following zoning conditions be enforced upon the site:

 The site shall be developed in conformance with the submitted Letter of Intent and Rezoning Exhibit dated March 14, 2025 adopted as part of this rezoning action. However, alterations necessary to accommodate other conditions specified herein are permitted as determined by the Community Development Director. All other alterations are subject to the standards found in Sec. 17.90.140.K.

- 2. The Developer shall use a variety of techniques to avoid the monotonous appearance of identical houses. Such techniques may employ among others the use of differing front elevations, architectural styles, building exteriors, colors, setbacks or other similar techniques to provide a more aesthetically pleasing appearance to the subdivision. There shall be no vinyl siding permitted. No two (2) adjacent houses shall have front elevations which are visually the same; this distinction can be accomplished through a combination of color, materials, architectural features, and/or building massing.
- 3. Compliance with all City of Auburn Municipal Code unless otherwise provided within the adopted Rezoning Exhibit dated March 14, 2025 and Letter of Intent submitted herein and approved by Mayor & Council, including construction and design of all utilities and infrastructure. Unless explicitly requested in the Letter of Intent, and granted relief by Mayor & Council through a formal motion, no variances from these standards are permitted.
- 4. The development shall provide resident amenities in accordance with Sec. 17.90.140.H in addition to the requirements found 16.24.090.
- 5. A mandatory Homeowners Association (HOA) shall be established and shall be responsible for maintenance of all common facilities, open spaces, recreation areas, and street frontage landscaping. The 25 foot planted buffer along the Lyle Road frontage shall be professionally designed by the developer and maintained by the HOA and shall include decorative masonry entrance features. Landscape plans, entrance features, and fencing shall be subject to the review and approval of the Community Development Director.
- 6. Said HOA shall be incorporated which provides for building and grounds maintenance, repair, insurance, and working capital. Said association must also include declarations and by-laws includes rules and regulations which shall at a minimum regulate and control the following:
 - a. All grounds, including recreation areas and common areas.
 - b. Stormwater detention infrastructure maintenance.
 - c. Fence, wall, and sign maintenance.
- 7. Along the Lyle Road project frontage, a 25-foot-wide planted buffer shall be provided to screen the rear units from view; the Community Development Director, at their discretion, may permit an encroachment into this buffer to accommodate required improvements. The planted landscape buffer is subject to approval by the Community Development Director to ensure it provides adequate screening of the development.
- 8. Natural vegetation shall remain on the property until the issuance of a development permit.
- 9. Underground utilities shall be provided throughout the development.
- 10. Along the Lyle Road project frontage, sidewalks, with a minimum width of 5 feet, and streetlights shall be installed and constructed in accordance with the sidewalk construction and design standards specified in the code of ordinances.
- 11. The portion of Lyle Road, along the project frontage, shall be upgraded to meet the road construction and design standards outlined in the code of ordinances for substandard streets.

Staff recommends denial of the concurrent variance request to increase the maximum garage door width

from 55% to 62% of the single-family attached (town house) units given that no physical hardship has been demonstrated and granting the variance would undermine the intent of the zoning ordinance. The maximum garage door width of 55% of the unit width was established to maintain an appropriate streetscape appearance, promote pedestrian-friendly design, and avoid excessive garage dominance on the façade of residential units.

ANNEXATION & REZONING APPLICATION AN APPLICATION TO AMEND THE OFFICIAL ZONING MAP FOR THE CITY OF AUBURN, GA.

APPLICANT INFORMATION	PROPERTY OWNER INFORMATION		
NAME: MBC Developers, LLC c/o Andersen Tate & Carr	NAME: Donna J. Evans		
1960 Satellite Blvd ADDRESS: S-4000	ADDRESS: 100 Lyle Road		
CITY: Duluth	CITY: Auburn		
STATE: GA ZIP: 30097	STATE: GA ZIP: 30011		
PHONE: 770-822-0900	PHONE:		
EMAIL: mglouton@atclawfirm.com	EMAIL:		
CONTACT PERSON: Melody A. Glouton	PHONE: 770-822-0900		
EMAIL: mglouton@atclawfirm.com			

APPLICANT IS:	OWNER'S AGENT PF			
PRESENT ZONING DISTRICT(S): AG			REQUESTED ZONING DISTRICT: PUD	
PARCEL NUMBER(S): AU11 148 & AU11 031B		ACREAGE: 57.917		
ADDRESS OF PROPERTY: 100 Lyle Road, Auburn, GA				
PROPOSED DEVELOPMENT: Single Family Detached and Attached Dwellings				

RESIDENTIAL DEVELOPMENT	NON-RESIDENTIAL DEVELOPMENT
NO. OF LOTS/DWELLING UNITS: 172	NO. OF BUILDINGS/LOTS:
DWELLING UNIT SIZE (SQ.FT.): Per zoning Ordinance	TOTAL BUILDING SQ.FT.:
GROSS DENSITY: 2.97 upa	DENSITY:
NET DENSITY: 2.98 upa	

PLEASE ATTACHED A LETTER OF INTENT EXPLAINING PROPOSED DEVELOPMENT

REZONING APPLICANT'S CERTIFICATION

THE UNDERSIGNED BELOW IS AUTHORIZED TO MAKE THIS APPLICATION. THE UNDERSIGNED IS AWARE THAT NO APPLICATION OR REAPPLICATION AFFECTING THE SAME LAND SHALL BE ACTED UPON WITHIN 12 MONTHS FROM THE DATE OF LAST ACTION BY THE CITY COUNCIL UNLESS WAIVED BY THE CITY COUNCIL. IN NO CASE SHALL AN APPLICATION OR REAPPLICATION BE ACTED UPON IN LESS THAN SIX (6) MONTHS FROM THE DATE OF LAST ACTION BY THE CITY COUNCIL.

Melody A. Alouton SIGNATURE OF APPLICANT

3/14/25 DATE

Melody A. Glouton, Attorney for Applicant

PRINT NAME AND TITLE

SIGNATURE OF NOTARY PUBLIC

125 3

DATE



REZONING PROPERTY OWNER'S CERTIFICATION

THE UNDERSIGNED BELOW, OR AS ATTACHED, IS THE OWNER OF THE PROPERTY CONSIDERED IN THIS APPLICATION. THE UNDERSIGNED IS AWARE THAT NO APPLICATION OR REAPPLICATION AFFECTING THE SAME LAND SHALL BE ACTED UPON WITHIN 12 MONTHS FROM THE DATE OF LAST ACTION BY THE CITY COUNCIL UNLESS WAIVED BY THE CITY COUNCIL. IN NO CASE SHALL AN APPLICATION OR REAPPLICATION BE ACTED UPON IN LESS THAN SIX (6) MONTHS FROM THE DATE OF LAST ACTION BY THE CITY COUNCIL.

8-27-2024 DATE SIGNATURE OF PROPER OWNER

- 1ands

PRINT NAME AND TITLE

8.27.2024

Jennifer E. Mosher NOTARY PUBLIC Barrow County, Georgia My Commission Expires June 2028

SIGNATURE OF NOTARY PUBLIC

DATE

NOTARY SEAL

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CONFLICT OF INTEREST CERTIFICATION FOR REZONING

THE UNDERSIGNED BELOW, MAKING APPLICATION FOR A REZONING, HAS COMPLIED WITH THE OFFICIAL CODE OF GEORGIA SECTION 36-67A-1, ET. SEQ, CONFLICT OF INTEREST IN ZONING ACTIONS, AND HAS SUBMITTED OR ATTACHED THE REQUIRED INFORMATION ON THE FORMS PROVIDED.

12

8-2 2020

SIGNATURE OF PROPERTY OWNER

a PRINT NAME AND TITLE

SIGNATURE OF NOTARY PUBLIC

DATE

27.2024

NOTARY SEAL

My Commission Expi

Jennifer E. Mosh

NOTARY PUBLIC Barrow County, Geor

12028

DISCLOSURE OF CAMPAIGN CONTRIBUTIONS

HAVE YOU, WITHIN THE TWO YEARS IMMEDIATELY PRECEDING THE FILING OF THIS APPLICATION, MADE CAMPAIGN CONTRIBUTIONS AGGREGATING \$250.00 OR MORE TO A MEMBER OF THE CITY COUNCIL OR A MEMBER OF THE AUBURN PLANNING COMMISSION?

□ YES INO

Donna J. Evans

YOUR NAME

IF THE ANSWER IF YES, PLEASE COMPLETE THE FOLLOWING SECTION:

CONTRIBUTIONS (LIST ALL WHICH AGGREGATE TO \$250 OR MORE)	DATE CONTRIBUTION WAS MADE (WITHIN LAST TWO YEARS)
	CONTRIBUTIONS (LIST ALL WHICH AGGREGATE TO \$250 OR MORE)

ATTACHED ADDITIONAL SHEETS IF NECESSARY, TO DISCLOSE OR DESCRIBE ALL CONTRIBUTIONS.

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LEGAL DESCRIPTION

All that tract or parcel of land lying and being in G.M.D. 1740, City of Auburn, Barrow County, Georgia and being more particularly described as follows:

Beginning at the intersection of the centerline of Lyle Road (a.k.a. Main Street) and the centerline of Third Street; THENCE continuing 492.66 feet along said centerline of Lyle Road in a southwesterly direction to a point; THENCE South 29 degrees 53 minutes 18 seconds East 20.00 feet to a point located on the southeasterly right-of-way of Lyle Road, said point being THE TRUE POINT OF BEGINNING;

THENCE South 38 degrees 54 minutes 23 seconds East for a distance of 506.56 feet to a point; THENCE South 39 degrees 07 minutes 00 seconds East for a distance of 262.17 feet to a point; THENCE South 39 degrees 42 minutes 12 seconds East for a distance of 260.91 feet to a point; THENCE South 37 degrees 12 minutes 14 seconds East for a distance of 117.42 feet to a point; THENCE South 36 degrees 22 minutes 35 seconds East for a distance of 96.06 feet to a point; THENCE South 36 degrees 22 minutes 35 seconds East for a distance of 72.20 feet to a point; THENCE South 21 degrees 24 minutes 35 seconds West for a distance of 272.51 feet to a point located in the centerline of a creek;

THENCE continuing along said centerline of creek the following 13 calls:

THENCE South 12 degrees 08 minutes 00 seconds East for a distance of 94.40 feet to a point; THENCE South 43 degrees 07 minutes 00 seconds East for a distance of 146.70 feet to a point; THENCE South 28 degrees 33 minutes 00 seconds West for a distance of 124.90 feet to a point; THENCE South 36 degrees 05 minutes 00 seconds West for a distance of 143.07 feet to a point; THENCE South 42 degrees 57 minutes 00 seconds West for a distance of 149.40 feet to a point; THENCE South 33 degrees 46 minutes 00 seconds West for a distance of 294.96 feet to a point; THENCE South 6 degrees 53 minutes 00 seconds West for a distance of 66.00 feet to a point; THENCE South 50 degrees 2 minutes 00 seconds West for a distance of 103.80 feet to a point; THENCE South 50 degrees 2 minutes 00 seconds West for a distance of 57.70 feet to a point; THENCE South 58 degrees 44 minutes 00 seconds West for a distance of 57.70 feet to a point; THENCE South 58 degrees 33 minutes 00 seconds West for a distance of 57.70 feet to a point; THENCE South 58 degrees 33 minutes 00 seconds West for a distance of 57.70 feet to a point; THENCE South 58 degrees 36 minutes 00 seconds West for a distance of 57.70 feet to a point; THENCE South 58 degrees 58 minutes 00 seconds West for a distance of 50.00 feet to a point; THENCE South 58 degrees 59 minutes 00 seconds West for a distance of 50.00 feet to a point; THENCE South 54 degrees 50 minutes 00 seconds West for a distance of 50.00 feet to a point; THENCE South 54 degrees 53 minutes 00 seconds West for a distance of 35.00 feet to a point; THENCE North 40 degrees 53 minutes 00 seconds West for a distance of 71.10 feet to a point; THENCE North 40 degrees 00 minutes 00 seconds West for a distance of 71.10 feet to a point;

THENCE North 56 degrees 11 minutes 00 seconds East for a distance of 385.80 feet to a point located on the southeasterly right-of-way of Lyle Road;

THENCE North 60 degrees 03 minutes 41 seconds East for a distance of 114.32 feet to a point; THENCE North 57 degrees 36 minutes 02 seconds East for a distance of 240.38 feet to a point; THENCE North 56 degrees 03 minutes 34 seconds East for a distance of 76.79 feet to a point; THENCE North 55 degrees 04 minutes 36 seconds East for a distance of 104.51 feet to a point; THENCE along an arc of cure to the left for an arc length of 490.73 feet having a radius of 7,691.74 feet and being subtended by a chord bearing North 58 degrees 05 minutes 33 seconds East for a distance of 490.65 feet to a point, said point being THE TRUE POINT OF BEGINNING.

The above-described tract contains an area of 57.917 acres.





ANDERSEN | TATE | CARR

March 14, 2025

LETTER OF INTENT AND JUSTIFICATION FOR REZONING

Rezoning Application City of Auburn Barrow County, Georgia

Applicant: MBC Developers, LLC

Rezoning Tract: Tax Parcel IDs AU11 031B and AU11 148 ±57.917 Acres of Land

Located at 100 Lyle Road, Auburn, Georgia From AG to PUD

Submitted for Applicant by:

Melody A. Glouton, Esq. ANDERSEN TATE & CARR, P.C. One Sugarloaf Centre 1960 Satellite Blvd. Suite 4000 Duluth, Georgia 30097 770.822.0900 mglouton@atclawfirm.com

Andersen, Tate & Carr, P.C. - One Sugarloaf Centre - Suite 4000 - 1960 Satellite Boulevard - Duluth GA 30097 - www.atclawfirm.com

I. INTRODUCTION

This Application for Rezoning is submitted for a 57.917-acre parcel of land located at 100 Lyle Road, just south of its intersection of Autry Road (hereinafter the "Property"). The Property is an assemblage of two tax parcels, with frontage on Lyle Road. The Property is currently zoned AG (Agricultural District) pursuant to the City of Auburn Zoning Ordinance (the "Zoning Ordinance"). The Applicant, MBC Developers, LLC (the "Applicant") now seeks approval to rezone the Property to PUD (Planned Unit Development District) in order to develop a distinctive and attractive development with single-family detached and attached homes.

This document is submitted as the Letter of Intent, Impact Analysis Statement, and other materials required by the Zoning Ordinance.

II. DESCRIPTION OF THE PROPERTY AND SURROUNDING AREA

The Property is a large tract fronting Lyle Road. It contains a personal residence and several accessory structures. The Property is mostly wooded and slopes southward toward a creek with floodplain. The surrounding zoning classifications and uses are as follows:

Location	Zoning
Proposed Site	PUD
North	AG and R-100
East	MH and R-100
South	R-100
West	AG



The Applicant is requesting the City of Auburn rezone the Property to allow for a planned unit development. The site is surrounded by other residential uses to include primarily R-100 zoning classifications.

As such, the Property is ideal for development as a residential community and will allow for the development of more housing.

As stated in the City of Auburn's 2018 Comprehensive Plan (the "Comprehensive Plan"), the Future Land Use Map identifies this area as single-family residential. The rezoning and development of the Property, as intended by the Applicant, will enhance the surrounding and existing area. Specifically, the proposed development of a planned unit development will provide additional housing options for residents.

III. PROJECT SUMMARY

As shown on the site plan prepared by Thomas & Hutton, dated March 14, 2025, and filed with this Application (hereinafter the "Site Plan"), the Applicant is proposing to rezone 57.917 acres from AG to PUD to accommodate the development of a planned unit development with 172 units. The Applicant proposes to develop the Property in compliance with the PUD zoning classification to allow for a more unique and creative community. As shown on the site plan, the development would consist of 120 single-family detached dwellings (on 7,500 square foot lots), and 52 front-entry attached (townhome) dwellings (on 3,000 square foot lots)¹. The minimum heated floor area for single-family detached residences will be 2,000 square feet for single-story dwellings, and 2,400 square feet for two-story dwellings. Pursuant to the ordinance, all residences would include a porch, deck, or patio measuring no less than 36 square feet in area. The development will also maintain the required 50-foot buffer along all abutting R-100 zoning districts. As referenced on the Site Plan, the typical lot layout for each type of housing unit is identified below:



The proposed development will consist of single-family detached and attached dwellings at a size, quality, and price point commensurate with or exceeding homes in the surrounding communities. Generally, the architectural style and composition of the exterior of the homes would consist of brick, stacked stone, cedar and/or cementitious shake, siding board, and batten or combinations thereof. The Applicant has included sample renderings with this submittal. The proposed development would be served by a primary full-access entrance and a secondary entrance for emergency vehicles as required by Barrow County Fire Marshall along Lyle Road, which

¹ To the extent necessary, the Applicant is seeking a concurrent variance from Section 17.90.140(G)(5)(c). The ordinance provides that "the total width of garage doors on the front façade of an attached residence shall not exceed fifty-five percent (55%)." However, the development of an attached dwelling on a 26-foot wide lot, with 16-foot garage doors, will result in approximately 62% coverage of the front façade.

would be landscaped and maintained by a Homeowners' Association. The proposed development would be serviced by Barrow County Water & Sewer Authority (sewer) and the City of Auburn Public Works (water).

The Applicant further submits that several community benefits would result in the property being developed under the City's PUD zoning classification. For example, the proposed development would increase the supply of housing in the area, which is currently in high demand. By providing more homes, the development can help alleviate the shortage of single-family detached housing and provide citizens with additional housing options. In summary, the requested zoning of PUD for development of a neighborhood is consistent with the Comprehensive Plan.

<u>PUD – Planned Unit Development District</u>

Pursuant to Section 17.90.140, the intent and purpose of a PUD zoning is to foster innovative developments that provide an innovative mix of residential land uses and development patterns which complement the existing fabric of Auburn. In addition, planned unit development may allow more flexible placement, arrangement and orientation of residential structures, active open spaces, and resident-focused amenities. The proposed development would provide attractive, high-end personal residences. Approximately 24 acres of the overall site will be preserved as open space, with the majority being used as amenity areas for the community.

IV. SITE IMPACT ANALYSIS

Pursuant to the Zoning Resolution, the Applicant submits its written responses to the impact analysis which shows that rezoning to PUD satisfies the "Standards Governing Exercise of the Zoning Power," as follows:

A) Whether a proposed rezoning will permit a use that is suitable in view of the use and development of adjacent and nearby property:

Yes. The proposed rezoning is consistent and suitable with the existing use and development of adjacent and nearby properties. The Property maintains frontage on Lyle Road. The proposed residential development is compatible with existing residential uses and will further diversify housing options in the surrounding area.

B) Whether a proposed rezoning will adversely affect the existing use or useability of adjacent or nearby property:

No, approval of the proposed rezoning will not adversely affect the existing use or usability of adjacent or nearby properties. The proposed development is compatible with the Comprehensive Plan and complimentary to adjacent and nearby uses.

C) Whether the property to be affected by a proposed rezoning has reasonable economic use as currently zoned:

The Applicant submits that due to the size, location, layout, topography, and natural features of the Subject Property, it does not have reasonable economic use as currently zoned.

D) Whether the proposed rezoning will result in a use which will or could cause an excessive or burdensome use of existing streets, transportation facilities, utilities, or schools:

No, approval of the proposed rezoning will not result in an excessive or burdensome use of the existing infrastructure systems. The Property has direct access to Lyle Road and is in close proximity to Atlanta Highway. Appropriate zoning conditions and site development requirements can mitigate any potential impacts on public facilities such as traffic, utility demand, stormwater, and schools.

E) Whether the proposed rezoning is in conformity with the policy and intent of the Land Use Plan:

Yes, the proposed Rezoning Application conforms with the policy and intent of the Comprehensive Plan and Future Land Use Map. The Subject Property is identified as single-family residential on the future land use map.

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

Yes. The proposed Rezoning achieves a goal of the Comprehensive Plan by proposing a development and site layout that serves as an opportunity to provide additional housing.

V. JUSTIFICATION FOR REZONING

The Applicant respectfully submits that "City of Auburn Zoning Ordinance" (the "Zoning Ordinance"), as amended from time to time, to the extent that it classifies the Property in any zoning district that would preclude development of a planned unit development with single-family detached and attached dwellings, under the PUD zoning classification, is unconstitutional as a taking of property, a denial of equal protection, an arbitrary and capricious act, and an unlawful delegation of authority under the specific constitutional provisions later set forth herein. Any existing inconsistent zoning of the Property pursuant to the Zoning Resolution deprives the Applicant and Property owner of any alternative reasonable use and development of the Property. Additionally, all other zoning classifications, including ones intervening between the existing classification and that requested herein, would deprive the Applicant and Property owner of any reasonable use and development of the Property. Further, any attempt by the Mayor and Council of the City of Auburn to impose greater restrictions upon the manner in which the Property will be developed than presently exist would be equally unlawful.

Accordingly, Applicant submits that the current zoning classification and any other zoning of the Property save for what has been requested as established in the Zoning Resolution constitute an arbitrary and unreasonable use of the zoning and police powers because they bear no substantial relationship to the public health, safety, morality or general welfare of the public and substantially harm the Applicant and Property owner. All inconsistent zoning classifications between the existing zoning and the zoning requested hereunder would constitute and arbitrary and unreasonable use of the zoning and police powers because they bear or would bear no substantial relationship to the public health, safety, morality, or general welfare of the public and would substantially harm the Applicant and Property owner. Further, the existing inconsistent zoning classification constitutes, and all zoning and plan classifications intervening between the existing inconsistent zoning classification and that required to develop this Project would constitute, a taking of the owner's private property without just compensation and without due process in violation of the Fifth Amendment and Fourteenth Amendment of the Constitution of the United States, and Article I, Section II, Paragraph I and Article I, Section Clauses of the Fourteenth Amendment to the Constitution of the United States.

Further, the Applicant respectfully submits that failure to approve the requested rezoning change would be unconstitutional and would discriminate in an arbitrary, capricious and unreasonable manner between the Applicant and Property owner and owners of similarly situated property in violation of Article I, Section III, Paragraph I of the Constitution of the State of Georgia and the Equal Protection Clause of the Fourteenth Amendment of the Constitution of the United States.

Finally, the Applicant respectfully submits that the Mayor and Council of the City of Auburn cannot lawfully impose more restrictive standards upon the development of the Property than presently exist, as to do so not only would constitute a taking of the Property as set forth above, but also would amount to an unlawful delegation of their authority, in response to neighborhood opposition, in violation of Article IX, Section IV, Paragraph II of the Georgia Constitution.

This Application meets favorably with the prescribed test set out by the Georgia Supreme Court to be used in establishing the constitutional balance between private property rights and zoning and planning as an expression of the government's police power. See Guhl v. Holcomb Bridge Road Corp., 238 Ga. 322 (1977).

VII. <u>CONCLUSION</u>

For the foregoing reasons, the Applicant respectfully requests that this Application to Rezone from AG to PUD for the development of a single-family community with detached and attached dwellings be approved. The Applicant welcomes the opportunity to meet with the City of Auburn Planning Department staff to answer any questions or to address any concerns relating to this Letter of Intent or supporting materials.

Respectfully submitted this 14th day of March, 2025.

ANDERSEN, TATE & CARR, P.C.

Melody A. Glouton

Melody A. Glouton, Esq.

Enclosures MAG/dwb













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Traffic Impact Study

Proposed Main Street / Lyle Road Residential Subdivision City of Auburn, Georgia

June 13, 2024



in collaboration with



Traffic Impact Study

Proposed Main Street / Lyle Road Residential Subdivision City of Auburn, Georgia

prepared for:

MBC Developers 5072 Bristol Industrial Way, Suite A Buford, Georgia 30518

June 13, 2024



in collaboration with



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Introduction

This study assesses the traffic impact of a proposed residential subdivision in the City of Auburn, Georgia. The site is located along the south side of Main Street between Autry Road and 3rd Street, as shown in Figure 1. The development will consist of 144 detached single-family homes and 44 attached townhomes which will be served by one full-movement access on Main Street. A secondary, emergency vehicle access will also be provided on Main Street.

The purpose of this traffic impact study is to determine existing traffic operating conditions in the vicinity of the proposed development, project future traffic volumes, assess the impact of the subject development, then develop conclusions and recommendations to mitigate the project traffic impact and ensure safe and efficient existing and future traffic conditions in the vicinity of the project.



Figure 1 – Site Location Map



Existing Traffic Conditions

Existing traffic operating conditions in the vicinity of the proposed development were assessed. The following is a description of existing transportation facilities, traffic volumes, and intersection operations.

Description of Existing Roadways

Main Street / Lyle Road is a two lane local street that begins to the northwest of the subject site at an all way stop sign controlled intersection at Autry Road (the fourth leg is the rear access to the Ingles retail center). From that intersection Lyle Road bends to the east, changes name to Main Street, passes the subject site, then bends back to the north, intersects 6th Avenue at an all-way stop sign controlled intersection, then a signalized intersection at Atlanta Highway (US 29 Business) (north of the intersection Main Street changes name to Mt Moriah Road). The terrain along Main Street / Lyle Road is level to gently rolling and the posted speed limit is 25 mph. The road is narrow with a rural cross-section with no sidewalks, shoulder, or curb-and-gutter and the pavement is in poor condition.

Pedestrian, Bicycle, and Transit Accessibility

There are no sidewalks along Main Street or Lyle Road or other local roadways. There is a sidewalk along the south side of US 29 Business and there are crosswalks and pedestrian signals on all approaches at the intersection of US 29 Business at Main Street. There are no dedicated bicycle lanes in this vicinity. There is no regularly scheduled mass transit within a reasonable walking distance of the proposed subdivision.

Existing Traffic Volumes

Existing full turning movement peak hour traffic volume counts were collected at the following intersections in the vicinity of the site:

- 1. Autry Road at Lyle Road / Ingles Access (all way stop)
- 2. Main Street at 6th Avenue / Bank Access (all way stop)
- 3. Atlanta Highway (US 29 Business) at Main Street / Mt Moriah Road (signal)

Figure 2 shows the locations of the counted intersections.





Figure 2 – Traffic Volume Count Location Map

The intersection counts were collected on Tuesday, June 4, 2024 from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m. From the intersection turning movement count data, the highest four consecutive 15-minute interval volumes at each intersection, during each time period, were determined. The counts were collected during summer recess in area schools, which could affect typical volumes and travel patterns. The Georgia DOT provides recommended adjustment factors by month in their publication *Georgia's Traffic Monitoring Guide*, 2018. Table 7: Factor Groups, in that document, assigns a Factor Group of 4 to the area roadways, based on the description "urban/small urban major collectors, minor collectors, and locals". Table 4 in that document recommends a monthly adjustment factor 1.00 for June, which would not change the counted volumes. These existing counts are shown in Figure 3. The raw count data is found in Appendix A.









Existing Intersection Operations

Existing traffic operations were analyzed at the counted intersections using Synchro software, version 12, in accordance with the methodology presented in the Transportation Research Board's 2022 *Highway Capacity Manual* 7th Edition (*HCM 7*). This methodology is presented in Appendix B. The analysis was based on the existing volumes, lanes, and control. The results of the analysis are shown in Table 1. Computer printouts containing detailed results of the existing analysis are located in Appendix C. Levels of service and delays are provided for each overall intersection and for each controlled approach or movement. Locations that operate unacceptably (LOS E or LOS F) are presented in bold type.

	A.M. Pe	eak Hour	P.M. Pe	ak Hour
Intersection / Approach	LOS	Delay (s/veh)	LOS	Delay (s/veh)
1. Autry Road at Lyle Road / Ingles Access (all-way stop)	А	7.2	А	7.2
northbound approach (Lyle Rd)	А	7.1	А	7.1
southbound approach (Ingles access)	А	6.5	А	6.9
eastbound approach (Autry Rd)	А	7.3	А	7.3
westbound approach (Autry Rd)	А	7.0	А	7.3
2. Main Street at 6 th Avenue / Bank Access (all-way stop)	А	7.2	А	7.7
northbound approach (Main St)	А	7.0	А	7.1
southbound approach (Main St)	А	7.6	А	8.2
eastbound approach (bank access)	А	7.2	А	7.4
westbound approach (6 th Ave)	А	7.0	А	7.4
3. US 29 Business at Main Street / Mt Moriah Road (signal)	С	20.8	C	26.3
northbound approach (Main St)	В	16.7	С	20.5
southbound approach (Main St)	В	18.6	С	25.6
eastbound approach (US 29 Bus)	В	11.5	С	23.3
westbound approach (US 29 Bus)	С	27.5	С	30.8

Table 1 – Existing	Intersection	Operations
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The existing analysis reveals acceptable traffic operations at all study locations. Therefore, no mitigation is identified at any study intersection for the existing condition.



No-Build Traffic Conditions

A 2029 no-build condition was developed. This represents the traffic conditions that will exist in the future at the anticipated date of the build-out of the subdivision, but not including the project's trips. The purpose of the analysis of this condition is to isolate the traffic impacts of the proposed development from background growth in volumes that is expected to occur in the area while the project is under construction.

In order to develop no-build volumes, a background growth factor was developed based on a review of historic Georgia DOT AADT traffic counts, as shown in Table 2.

Year	Atlanta Hwy E of Main	Annual Growth	Atlanta Hwy E of 6th St	Annual Growth	Carl Midway Church E of Kilcrease	Annual Growth
Station ID	013-	0007	013-0	0009	013-7	7006
2018	18,000		15,600		1,920	
2019	18,800	4.4%	15,800	1.3%	1,960	2.1%
2020	17,300	-8.0%	17,900	13.3%	1,820	-7.1%
2021	19,100	10.4%	19,400	8.4%	1,930	6.0%
2022	19,500	2.1%	16,300	-16.0%	2,090	8.3%
avg growth		1.6%		0.9%		1.7%

Table 2 – Historic Georgia DOT Traffic Volume Counts and Annual Growth Rates

Growth in the area has fluctuated. Two of the three Georgia DOT count stations experienced a decrease in volumes between 2019 and 2020 which is considered an anomaly due to the pandemic. There was positive growth at all locations the following year, which is somewhat attributable to a return to pre-pandemic levels and not necessarily new growth. In the last year of the data there was an increase at two of the three count stations, but a -16.0% decrease on Atlanta Highway east of 6th Street. Overall there was a slight increasing trend at all three locations, ranging from 0.9% to 1.7%. Based on the growth trends identified in Table 2, and taking the pandemic into consideration, as well as the decrease on Atlanta Highway in the latest year of data, it was decided that a modest background annual growth rate of 2.0% could be expected on the roads in this study while the proposed subdivision is built-out. This equates to a 10.4% increase in volumes from existing to the anticipated 2029 project buildout year. The 10.4% background growth factor was applied to the counted trips at each study intersection to develop the 2029 no-build volumes.

Programmed Transportation Infrastructure Improvements

The Georgia DOT projects website was reviewed for transportation projects in the vicinity of the subject development. The following programmed (scheduled and funded) or planned (anticipated) transportation infrastructure project was identified:



Georgia DOT Project No. 0001816 – Grade Separation at CSX Railroad Tracks – This is a long-range (2052) project to grade separate certain intersections at the railroad crossings adjacent to Atlanta Highway. This project will occur well beyond the buildout date of the proposed subdivision and was, therefore, not included in the future modeling and analysis in this traffic study.

No-Build Intersection Operations

The no-build condition includes the no-build traffic volumes, as described above, applied to the existing lanes and control. The no-build volumes were entered into the Synchro 12 model and the 2029 no-build traffic operations were analyzed at each study intersection. The results of the no-build analysis are shown in Table 3. Computer printouts containing detailed results of the no-build analysis are located in Appendix D. Levels of service and delays are provided for each overall intersection and for each controlled approach or movement. Locations that operate unacceptably (LOS E or LOS F) are presented in bold type.

	A.M. Pe	ak Hour	P.M. Pe	ak Hour
Intersection / Approach	LOS	Delay (s/veh)	LOS	Delay (s/veh)
1. Autry Road at Lyle Road / Ingles Access (all-way stop)	А	7.2	А	7.2
northbound approach (Lyle Rd)	А	7.1	А	7.1
southbound approach (Ingles access)	A	6.5	А	7.0
eastbound approach (Autry Rd)	A	7.3	A	7.4
westbound approach (Autry Rd)	А	7.1	А	7.4
2. Main Street at 6 th Avenue / Bank Access (all-way stop)	А	7.2	А	7.8
northbound approach (Main St)	A	7.1	А	7.2
southbound approach (Main St)	А	7.7	А	8.3
eastbound approach (bank access)	A	7.2	А	7.4
westbound approach (6 th Ave)	А	7.0	А	7.5
3. US 29 Business at Main Street / Mt Moriah Road (signal)	C	22.0	С	31.7
northbound approach (Main St)	В	19.7	С	24.9
southbound approach (Main St)	C	22.2	С	33.0
eastbound approach (US 29 Bus)	В	11.0	С	27.4
westbound approach (US 29 Bus)	С	28.9	D	37.0

Table 3 – No-Build Intersection Operations

The no-build analysis reveals traffic operations comparable to the existing condition, with slight increases in delays. All locations will continue to operate acceptably in the no-build condition and no mitigation is identified at any study intersection.

Project Traffic Characteristics

This section describes the anticipated traffic characteristics of the proposed development, including a project description, how much traffic the project will generate, and where that traffic will travel.

Project Description

The proposed development is a residential subdivision which will consist of 144 detached single-family homes and 44 attached townhomes which will be served by one full-movement access on Main Street. A secondary, emergency vehicle access will also be provided on Main Street. The site plan is presented in Figure 4.



Figure 4 – Subdivision Site Plan

Trip Generation

Trip generation is an estimate of the number of entering and exiting vehicular trips that will be generated by the proposed development. The volume of traffic that will be generated by the project was calculated using the equations and rates in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition (the



current edition). ITE Land Use 210 – Single Family Detached Housing and ITE Land Use 215 – Single Family Attached Housing were chosen as representative of project. The trip generation for the project is presented in Table 4.

	ITE	Cizo	A.N	И. Peak Ho	our	P.N	И. Peak Ho	our	24-Hour
Land Use	Code	Size	In	Out	Total	In	Out	Total	2-Way
Single Family Detached	210	144 homes	26	78	104	88	52	140	1,412
Single Family Attached	215	44 homes	4	<u>13</u>	<u>17</u>	13	<u>9</u>	22	286
Project Totals		188 homes	30	91	121	101	61	162	1,698

Table 4 – Main Street / Lyle Road Subdivision Trip Generation

The proposed subdivision will generate 121 a.m. peak hour trips, 162 p.m. peak hour trips, and 1,698 weekday trips.

Trip Distribution and Assignment

The trip distribution percentages indicate what proportion of the subdivision's trips will travel to and from various directions. The trip distribution percentages for the subdivision were developed based on the locations and proximity of likely trip origins and destinations including regional employment centers, retail and offices in the area, nearby schools, other regional trip attractors, and the major routes of travel in the area. The project trips, shown in Table 4, were assigned to each study intersection and the project main access based on the distribution percentages. The trip distribution percentages and the total a.m. and p.m. peak hour trips expected to be generated by the proposed development are shown in Figure 5.



Figure 5 – Weekday A.M. and P.M. Peak Hour Project Trips and Distribution Percentages



Future Traffic Conditions

The future volumes consist of the no-build volumes plus the trips that will be generated by the proposed subdivision. The future volumes are shown in Figure 6.



Figure 6 – Future Weekday A.M. and P.M. Peak Hour Volumes

Auxiliary Lane Requirements at Project Access

The Code of Ordinances of the City of Auburn was reviewed to determine the standards for providing left and right turn lanes on Main Street at the project main access. The Code Title 16 – Development Regulations, Chapter 16.28 – Access and Right of Way Requirements; Street Improvements and Construction Requirements, Section 16.28.020 – Minimum Right-of-Way and Street Improvements, B – Project Access Improvements – Single Family Detached Subdivisions states:

1. When property that abuts upon an existing or proposed city road is to be developed or redeveloped as a single family detached or duplex subdivision and the city street will provide access to the property, project



access improvements to the city road (deceleration lanes, turn lanes, etc.) shall be provided by the developer as required in this chapter.

- 2. A deceleration lane shall be required to be provided at each subdivision street entrance that is provided street access to a collector street or arterial street. In the event a street has an existing or proposed median, and the developer desires to construct a median break to serve the subdivision, a left turn lane leading to the median break shall be required to be provided by the developer and shall meet the standards contained herein.
- 3. Deceleration lanes shall have a length of one hundred fifty feet, with an additional fifty foot taper length, a pavement width of twelve feet (exclusive of curb and gutter) and shall be provided with curb and gutter. Additional right-of-way to accommodate the deceleration lane and an eleven foot shoulder shall be dedicated by the developer to the city at no cost. Associated drainage improvements as deemed necessary by the construction of the deceleration lane shall also be required.
- 4. Other project access improvements may be required by the city upon the recommendation of the Department of Transportation for Barrow and/or Gwinnett County or the state of Georgia in order to ensure adequate site access, pedestrian access, convenience and safety to the motoring public.
- 5. The developer shall be responsible for the relocation of public or private utilities and drainage structures, as may be occasioned by the required project access improvements.

Main Street / Lyle Street is a local street and as such, the code does not require an eastbound deceleration lane on Main Street at the project access. Given the extremely low volumes on Main Street (projected for the future at eastbound through 4 vehicles and 15 vehicles in the a.m. and p.m. peak hours, respectively, and westbound through also at 4 vehicles and 15 vehicles in the a.m. and p.m. peak hours, respectively), this study agrees with this conclusion. For the same reason, a westbound left turn lane is not considered necessary on Main Street at the project access. The secondary access was assumed to be for emergency vehicle use only and, therefore, no turn lanes are recommended on Main Street at the secondary access.

It is recommended that the project main access be constructed with one entering lane and one exiting lane. The exiting approach should be controlled by side street stop sign and accompanying stop bar.

Future Intersection Operations

An operational analysis was performed for the anticipated future project build-out at the study intersections. No analysis was performed at the project main access because the through volumes on Main Street are very low, as presented above, and the project access is expected to operate with minimal delays. Table 5 presents the results of the future analysis. Computer printouts containing detailed results of the future analysis are located in Appendix E. Levels of service and delays are provided for each overall intersection and for each controlled approach or movement. Locations that operate unacceptably (LOS E or LOS F) are presented in bold type.



	A.M. Pe	ak Hour	P.M. Pe	ak Hour
Intersection / Approach	LOS	Delay (s/veh)	LOS	Delay (s/veh)
1. Autry Road at Lyle Road / Ingles Access (all-way stop)	А	7.3	А	7.5
northbound approach (Lyle Rd)	А	7.1	А	7.2
southbound approach (Ingles access)	А	6.8	А	7.2
eastbound approach (Autry Rd)	А	7.5	А	7.5
westbound approach (Autry Rd)	А	7.4	А	7.9
2. Main Street at 6 th Avenue / Bank Access (all-way stop)	А	7.7	А	8.5
northbound approach (Main St)	А	7.9	А	7.9
southbound approach (Main St)	А	7.9	А	9.0
eastbound approach (bank access)	А	7.6	А	7.8
westbound approach (6 th Ave)	А	7.5	А	8.2
3. US 29 Business at Main Street / Mt Moriah Road (signal)	C	22.2	D	36.7
northbound approach (Main St)	C	21.6	С	26.3
southbound approach (Main St)	С	22.2	D	36.9
eastbound approach (US 29 Bus)	В	11.4	D	37.3
westbound approach (US 29 Bus)	С	28.7	D	38.3

Table 5 – Future Intersection Operations

The future analysis with the addition of the proposed subdivision's trips reveals a slight deterioration in operations at each study intersection, with all locations continuing to operate acceptably. Therefore, no mitigation is identified as a consequence of the proposed subdivision.



13

Conclusions and Recommendations

This study assesses the traffic impact of a proposed residential subdivision in the City of Auburn. The site is located along the south side of Main Street between Autry Road and 3rd Street. The development will consist of 144 detached single-family homes and 44 attached townhomes which will be served by one full-movement access on Main Street. A secondary, emergency vehicle access will also be provided on Main Street. The following are the findings and recommendations of this study:

- 1. The existing analysis reveals acceptable traffic operations at all study locations. Therefore, no mitigation is identified at any study intersection for the existing condition.
- 2. Traffic volume growth in this area has been a mix of positive and negative. An annual growth rate of 2.0%, applied for five years, for a total of 10.4% growth, was used in developing future volume projections.
- 3. The no-build analysis reveals operations comparable to the existing condition, with slight increases in delays. All locations will continue to operate acceptably in the no-build condition and no mitigation is identified at any study intersection.
- 4. The proposed subdivision will generate 121 a.m. peak hour trips, 162 p.m. peak hour trips, and 1,698 weekday trips.
- 5. The future analysis with the addition of the proposed subdivision's trips reveals a slight deterioration in operations at the study intersections. However, all study intersections will operate acceptably and no mitigation is recommended as a consequence of the proposed development.
- 6. No exclusive left or right turn lanes are required by City Code on Main Street at the main project access and none are recommended by this study.
- 7. The main subdivision access should be built with one entering lane and one exiting lane and the exiting approach should be controlled by side street stop sign and accompanying stop bar.
- 8. Main Street / Lyle Road is very narrow and the pavement is in poor condition. Improving this road from Autry Road to 6th Avenue to City standards, is advised.
- 9. The project civil/site engineer should comply with all applicable design standards including sight distances, turn lane storage and taper lengths (when applicable), turn radii, driveway widths, islands, angles with the adjacent roadways, and grades.



Appendix A

Traffic Count Data



Lyle Road / Main Street Subdivision Traffic Impact Study City of Auburn, Georgia

June 2024

Intersection: 1. Autry Road at Lyle Road / Ingles Access

Weekday A.M. Peak Hour	Northbound Lyle Road				Southbound Ingles Access				Eastbound Autry Road				Westbound Autry Road			
	L	т	R	Tot	L	т	R	Tot	L	т	R	Tot	L	т	R	Tot
Counted Volumes (Tuesday, June 4, 2024 7:15-8:15)	2	1	1	4	0	0	3	3	13	27	2	42	2	9	2	13
GDOT Monthly Adjustment Factor	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Existing Adjusted Volumes	2	1	1	4	0	0	3	3	13	27	2	42	2	9	2	13
Annual Background Growth to 2029	10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%	
2029 No-Build Volumes	2	1	1	4	0	0	3	3	14	30	2	46	2	10	2	14
Lyle Road / Main Street Subdivision Trips	0	3	27	30	0	1	0	1	0	0	0	0	9	0	0	9
2029 Build Volumes	2	4	28	34	0	1	3	4	14	30	2	46	11	10	2	23

Weekday P.M. Peak Hour		Northboun	Ind Lyle Road Southbound Ingles Access Eastbound Autry Road Westbound Autry Roa							Autry Road						
	L	т	R	Tot	L	Т	R	Tot	L	т	R	Tot	L	т	R	Tot
Counted Volumes (Tuesday, June 4, 2024 4:30-5:30)	3	7	4	14	0	10	12	22	8	13	0	21	4	20	0	24
GDOT Monthly Adjustment Factor	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Existing Adjusted Volumes	3	7	4	14	0	10	12	22	8	13	0	21	4	20	0	24
Annual Background Growth to 2029	10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%	
2029 No-Build Volumes	3	8	4	15	0	11	13	24	9	14	0	23	4	22	0	26
Lyle Road / Main Street Subdivision Trips	0	2	18	20	0	3	0	3	0	0	0	0	30	0	0	30
2029 Build Volumes	3	10	22	35	0	14	13	27	9	14	0	23	34	22	0	56

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Lyle Road / Main Street Subdivision Traffic Impact Study City of Auburn, Georgia

June 2024

Intersection: 2. Main Street at 6th Avenue / Bank Access

Weekday A.M. Peak Hour		Northbound Main Street So					Southbound Main Street			Eastbound	Bank Access		Westbound 6th Avenue			
	L	Т	R	Tot	L	Т	R	Tot	L	Т	R	Tot	L	Т	R	Tot
Counted Volumes (Tuesday, June 4, 2024 7:00-8:00)	0	6	5	11	34	0	1	35	0	1	0	1	4	1	79	84
GDOT Monthly Adjustment Factor	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Existing Adjusted Volumes	0	6	5	11	34	0	1	35	0	1	0	1	4	1	79	84
Annual Background Growth to 2029	10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%	
2029 No-Build Volumes	0	7	6	12	38	0	1	39	0	1	0	1	4	1	87	93
Lyle Road / Main Street Subdivision Trips	0	52	9	61	0	17	0	17	0	0	0	0	3	0	0	3
2029 Build Volumes	0	59	15	73	38	17	1	56	0	1	0	1	7	1	87	96

Weekday P.M. Peak Hour	Northbound Main Street			t	Southbound Main Street				Eastbound Bank Access				Westbound 6th Avenue			
	L	т	R	Tot	L	т	R	Tot	L	т	R	Tot	L	т	R	Tot
Counted Volumes (Tuesday, June 4, 2024 4:30-5:30)	1	5	11	17	97	2	1	100	0	6	1	7	9	2	93	104
GDOT Monthly Adjustment Factor	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Existing Adjusted Volumes	1	5	11	17	97	2	1	100	0	6	1	7	9	2	93	104
Annual Background Growth to 2029	10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%	
2029 No-Build Volumes	1	6	12	19	107	2	1	110	0	7	1	8	10	2	103	115
Lyle Road / Main Street Subdivision Trips	0	35	6	41	0	58	0	58	0	0	0	0	10	0	0	10
2029 Build Volumes	1	41	18	60	107	60	1	168	0	7	1	8	20	2	103	125

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Lyle Road / Main Street Subdivision Traffic Impact Study City of Auburn, Georgia

June 2024

Intersection: 3. US 29 Business (Atlanta Highway) at Main Street / Mt Moriah Road

Weekday A.M. Peak Hour	I	Northbound	Main Stree	t	So	uthbound N	It Moriah Re	oad		Eastbound	US 29 Bus			Westboun	d US 29 Bus	
	L	т	R	Tot	L	т	R	Tot	L	т	R	Tot	L	т	R	Tot
Counted Volumes (Tuesday, June 4, 2024 7:15-8:15)	37	47	0	84	116	22	29	167	20	392	11	423	1	555	117	673
GDOT Monthly Adjustment Factor	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Existing Adjusted Volumes	37	47	0	84	116	22	29	167	20	392	11	423	1	555	117	673
Annual Background Growth to 2029	10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%	
2029 No-Build Volumes	41	52	0	93	128	24	32	184	22	433	12	467	1	613	129	743
Lyle Road / Main Street Subdivision Trips	9	25	18	52	0	8	0	8	0	0	3	3	6	0	0	6
2029 Build Volumes	50	77	18	145	128	32	32	192	22	433	15	470	7	613	129	749

Weekday P.M. Peak Hour	1	Northbound	Main Stree	t	Sou	uthbound N	At Moriah Ro	oad		Eastbound	US 29 Bus			Westboun	d US 29 Bus	
	L	т	R	Tot	L	т	R	Tot	L	т	R	Tot	L	т	R	Tot
Counted Volumes (Tuesday, June 4, 2024 4:15-5:15)	47	46	3	96	154	55	41	250	41	725	27	793	3	604	109	716
GDOT Monthly Adjustment Factor	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Existing Adjusted Volumes	47	46	3	96	154	55	41	250	41	725	27	793	3	604	109	716
Annual Background Growth to 2029	10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%		10.4%	10.4%	10.4%	
2029 No-Build Volumes	52	51	3	106	170	61	45	276	45	800	30	875	3	667	120	790
Lyle Road / Main Street Subdivision Trips	6	17	12	35	0	28	0	28	0	0	10	10	20	0	0	20
2029 Build Volumes	58	68	15	141	170	89	45	304	45	800	40	885	23	667	120	810

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TMC Data Autry Rd @ Lyle Rd Auburn, GA 7-9 AM | 4-6 PM File Name : 48980001 Site Code : 48980001 Start Date : 6/4/2024 Page No : 1

							Gr	oups P	rinted	- Cars, B	suses a	nd Tru	ıcks								
		A	Autry H	Rd			A	Autry I	Rd			Pri	vate D	rwy]	Lyle R	d		
		No	rthbou	und			So	uthbou	nd			E	astbou	nd			W	estbou	nd		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	2	5	1	0	8	0	4	0	0	4	0	0	0	0	0	1	0	0	0	1	13
07:15 AM	1	7	0	0	8	0	1	1	0	2	0	0	1	0	1	1	1	1	0	3	14
07:30 AM	6	3	1	0	10	1	4	0	0	5	0	0	0	0	0	1	0	0	0	1	16
07:45 AM	4	10	0	0	14	1	2	0	0	3	0	0	1	0	1	0	0	0	0	0	18
Total	13	25	2	0	40	2	11	1	0	14	0	0	2	0	2	3	1	1	0	5	61
08:00 AM	2	7	1	0	10	0	2	1	0	3	0	0	1	0	1	0	0	0	0	0	14
08:15 AM	1	6	0	0	7	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	9
08:30 AM	2	6	0	0	8	0	3	0	0	3	1	0	1	0	2	0	1	0	0	1	14
08:45 AM	1	2	1	0	4	0	2	1	0	3	0	1	3	0	4	0	0	0	0	0	11
Total	6	21	2	0	29	0	8	2	0	10	1	1	5	0	7	0	1	1	0	2	48
*** BREAK	***																				
04:00 PM	1	2	0	0	3	0	5	1	0	6	0	3	3	0	6	0	1	0	0	1	16
04:15 PM	3	1	0	0	4	0	4	0	0	4	1	2	1	0	4	0	0	0	0	0	12
04:30 PM	4	4	0	0	8	2	9	0	0	11	0	4	2	0	6	0	2	1	0	3	28
04:45 PM	1	3	0	0	4	1	6	0	0	7	0	1	4	0	5	0	0	1	0	1	17
Total	9	10	0	0	19	3	24	1	0	28	1	10	10	0	21	0	3	2	0	5	73
05:00 PM	2	3	0	0	5	1	1	0	0	2	0	1	2	0	3	3	2	1	0	6	16
05:15 PM	1	3	0	0	4	0	4	0	0	4	0	4	4	0	8	0	3	1	0	4	20
05:30 PM	0	3	0	0	3	1	7	0	0	8	1	3	2	0	6	0	2	0	0	2	19
05:45 PM	2	4	0	0	6	1	5	1	0	7	0	0	5	0	5	0	1	0	0	1	19
Total	5	13	0	0	18	3	17	1	0	21	1	8	13	0	22	3	8	2	0	13	74
Grand Total	33	69	4	0	106	8	60	5	0	73	3	19	30	0	52	6	13	6	0	25	256
Apprch %	31.1	65.1	3.8	0		11	82.2	6.8	0		5.8	36.5	57.7	0		24	52	24	0		
Total %	12.9	27	1.6	0	41.4	3.1	23.4	2	0	28.5	1.2	7.4	11.7	0	20.3	2.3	5.1	2.3	0	9.8	

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TMC Data Autry Rd @ Lyle Rd Auburn, GA 7-9 AM | 4-6 PM File Name : 48980001 Site Code : 48980001 Start Date : 6/4/2024 Page No : 2

		A	Autry I	Rd			A	Autry I	Rd			Pri	vate D	rwy				Lyle R	d]
		No	rthbou	ınd			So	uthbou	ind			E	astbou	nd			W	estbou	nd		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysi	is From 0'	7:00 AM	to 08:45 A	AM - Peak	1 of 1																
Peak Hour for	r Entire	Inters	ection 1	Begins	at 07:15	AM															
07:15 AM	1	7	0	0	8	0	1	1	0	2	0	0	1	0	1	1	1	1	0	3	14
07:30 AM	6	3	1	0	10	1	4	0	0	5	0	0	0	0	0	1	0	0	0	1	16
07:45 AM	4	10	0	0	14	1	2	0	0	3	0	0	1	0	1	0	0	0	0	0	18
08:00 AM	2	7	1	0	10	0	2	1	0	3	0	0	1	0	1	0	0	0	0	0	14
Total Volume	13	27	2	0	42	2	9	2	0	13	0	0	3	0	3	2	1	1	0	4	62
% App. Total		64.3				15.4	69.2	15.4													
PHF	.542	.675	.500	.000	.750	.500	.563	.500	.000	.650	.000	.000	.750	.000	.750	.500	.250	.250	.000	.333	.861



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TMC Data Autry Rd @ Lyle Rd Auburn, GA 7-9 AM | 4-6 PM File Name : 48980001 Site Code : 48980001 Start Date : 6/4/2024 Page No : 3

		A	Autry l orthbou	Rd 1nd			A	Autry H uthbou	Rd Ind			Pri Ea	vate D astbou	rwy nd			w	Lyle R estbou	d nd		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analys	is From 0	4:00 PM t	o 05:45 P	M - Peak	1 of 1																
Peak Hour fo	r Entire	Interse	ection 1	Begins	at 04:30	PM															
04:30 PM	4	4	0	0	8	2	9	0	0	11	0	4	2	0	6	0	2	1	0	3	28
04:45 PM	1	3	0	0	4	1	6	0	0	7	0	1	4	0	5	0	0	1	0	1	17
05:00 PM	2	3	0	0	5	1	1	0	0	2	0	1	2	0	3	3	2	1	0	6	16
05:15 PM	1	3	0	0	4	0	4	0	0	4	0	4	4	0	8	0	3	1	0	4	20
Total Volume	8	13	0	0	21	4	20	0	0	24	0	10	12	0	22	3	7	4	0	14	81
% App. Total	38.1	61.9				16.7	83.3					45.5	54.5			21.4		28.6			
PHF	.500	.813	.000	.000	.656	.500	.556	.000	.000	.545	.000	.625	.750	.000	.688	.250	.583	1.00	.000	.583	.723



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TMC Data Main St @ 6th Ave Auburn, GA 7-9 AM | 4-6 PM

File Name : 48980002 Site Code : 48980002 Start Date : 6/4/2024 Page No : 1

							Gre	oups P	rinted	- Cars, E	Buses a	nd Tru	icks								
			Main S	St]	Main S	St			Pri	vate D	rwy				6th Av	e		
		No	orthbou	ind			So	uthbou	nd	_		Ea	stbou	nd			W	estbou	nd	_	
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	2	0	0	2	6	0	0	0	6	0	0	0	0	0	1	0	22	0	23	31
07:15 AM	0	0	1	0	1	5	0	1	0	6	0	1	0	0	1	0	1	27	0	28	36
07:30 AM	0	2	3	0	5	12	0	0	0	12	0	0	0	0	0	2	0	19	0	21	38
07:45 AM	0	2	1	0	3	11	0	0	0	11	0	0	0	0	0	1	0	11	0	12	26
Total	0	6	5	0	11	34	0	1	0	35	0	1	0	0	1	4	1	79	0	84	131
08:00 AM	0	1	2	0	3	6	0	0	0	6	0	0	0	0	0	1	0	19	0	20	29
08:15 AM	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	1	10	0	11	18
08:30 AM	0	0	1	0	1	8	1	0	0	9	0	0	0	0	0	0	0	10	0	10	20
08:45 AM	0	2	1	0	3	5	0	0	0	5	0	0	0	0	0	1	0	11	0	12	20
Total	0	3	4	0	7	26	1	0	0	27	0	0	0	0	0	2	1	50	0	53	87
*** BREAK	***																				
04:00 PM	1	1	3	0	5	19	0	0	0	19	1	5	0	0	6	2	1	14	0	17	47
04:15 PM	0	0	2	0	2	14	1	0	0	15	1	5	0	0	6	1	1	19	0	21	44
04:30 PM	0	0	5	0	5	18	0	0	0	18	0	2	0	0	2	2	0	35	0	37	62
04:45 PM	1	1	0	0	2	27	1	0	0	28	0	0	0	0	0	1	1	19	0	21	51
Total	2	2	10	0	14	78	2	0	0	80	2	12	0	0	14	6	3	87	0	96	204
05:00 PM	0	2	2	0	4	25	1	0	0	26	0	3	0	0	3	2	1	21	0	24	57
05:15 PM	0	2	4	0	6	27	0	1	0	28	0	1	1	0	2	4	0	18	0	22	58
05:30 PM	0	2	2	0	4	21	0	0	0	21	0	1	0	0	1	1	0	13	0	14	40
05:45 PM	0	1	0	0	1	15	0	1	0	16	0	2	0	0	2	1	0	13	0	14	33
Total	0	7	8	0	15	88	1	2	0	91	0	7	1	0	8	8	1	65	0	74	188
Grand Total	2	18	27	0	47	226	4	3	0	233	2	20	1	0	23	20	6	281	0	307	610
Apprch %	4.3	38.3	57.4	0		97	1.7	1.3	0		8.7	87	4.3	0		6.5	2	91.5	0		
Total %	0.3	3	4.4	0	7.7	37	0.7	0.5	0	38.2	0.3	3.3	0.2	0	3.8	3.3	1	46.1	0	50.3	

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TMC Data Main St @ 6th Ave Auburn, GA 7-9 AM | 4-6 PM File Name : 48980002 Site Code : 48980002 Start Date : 6/4/2024 Page No : 2

			Main S	St				Main S	St			Pri	vate D	rwy				6th Av	e		
		No	rthbou	ınd			So	ıthbou	nd			E	astbou	nd			W	estbou	nd		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysi	is From 0	7:00 AM t	to 08:45 A	AM - Peak	1 of 1																
Peak Hour for	r Entire	Interse	ection 1	Begins a	at 07:00	AM															
07:00 AM	0	2	0	0	2	6	0	0	0	6	0	0	0	0	0	1	0	22	0	23	31
07:15 AM	0	0	1	0	1	5	0	1	0	6	0	1	0	0	1	0	1	27	0	28	36
07:30 AM	0	2	3	0	5	12	0	0	0	12	0	0	0	0	0	2	0	19	0	21	38
07:45 AM	0	2	1	0	3	11	0	0	0	11	0	0	0	0	0	1	0	11	0	12	26
Total Volume	0	6	5	0	11	34	0	1	0	35	0	1	0	0	1	4	1	79	0	84	131
% App. Total		54.5	45.5			97.1															
PHF	.000	.750	.417	.000	.550	.708	.000	.250	.000	.729	.000	.250	.000	.000	.250	.500	.250	.731	.000	.750	.862



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TMC Data Main St @ 6th Ave Auburn, GA 7-9 AM | 4-6 PM File Name : 48980002 Site Code : 48980002 Start Date : 6/4/2024 Page No : 3

			Main S	St				Main S	St			Pri	ivate D	rwy				6th Av	e		
		No	orthbou	ınd			So	uthbou	ind			E	astbou	nd			W	estbou	nd		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysi	is From 04	4:00 PM t	to 05:45 P	M - Peak	1 of 1																
Peak Hour for	r Entire	e Inters	ection 1	Begins	at 04:30	PM															
04:30 PM	0	0	5	0	5	18	0	0	0	18	0	2	0	0	2	2	0	35	0	37	62
04:45 PM	1	1	0	0	2	27	1	0	0	28	0	0	0	0	0	1	1	19	0	21	51
05:00 PM	0	2	2	0	4	25	1	0	0	26	0	3	0	0	3	2	1	21	0	24	57
05:15 PM	0	2	4	0	6	27	0	1	0	28	0	1	1	0	2	4	0	18	0	22	58
Total Volume	1	5	11	0	17	97	2	1	0	100	0	6	1	0	7	9	2	93	0	104	228
% App. Total		29.4	64.7									85.7	14.3					89.4			
PHF	.250	.625	.550	.000	.708	.898	.500	.250	.000	.893	.000	.500	.250	.000	.583	.563	.500	.664	.000	.703	.919



Reliable Traffic Data Services Tel: (770) 578-8158 | Fax: (770) 578-8159

TMC Data Atlanta Hwy (US29 Bus) @ Main St Auburn, GA 7-9 AM | 4-6 PM

File Name	: 48980003
Site Code	: 48980003
Start Date	: 6/4/2024
Page No	: 1

							Gr	oups P	rinted	- Cars, E	uses a	nd Tru	ucks								
]	Main S	St			Mt	Moria	h Rd		At	lanta H	Hwy (U	S29 Bi	ıs)	Atl	anta I	łwy (U	S29 B	us)	
		No	rthbou	ınd			So	uthbou	nd			E	astbou	nd	-		W	estbou	nd		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	8	13	1	0	22	27	4	7	0	38	8	67	2	0	77	0	165	21	0	186	323
07:15 AM	12	14	0	0	26	27	3	6	0	36	5	101	1	0	107	1	152	29	0	182	351
07:30 AM	7	13	0	0	20	25	8	9	0	42	4	102	2	0	108	0	141	27	0	168	338
07:45 AM	10	10	0	0	20	32	6	6	0	44	6	93	5	0	104	0	133	30	0	163	331
Total	37	50	1	0	88	111	21	28	0	160	23	363	10	0	396	1	591	107	0	699	1343
08:00 AM	8	10	0	0	18	32	5	8	0	45	5	96	3	0	104	0	129	31	0	160	327
08:15 AM	10	6	0	0	16	26	3	5	0	34	3	85	3	0	91	0	148	26	0	174	315
08:30 AM	3	4	0	0	7	35	5	4	0	44	7	89	3	0	99	1	130	25	0	156	306
08:45 AM	11	4	0	0	15	33	2	11	0	46	5	84	4	0	93	2	103	23	0	128	282
Total	32	24	0	0	56	126	15	28	0	169	20	354	13	0	387	3	510	105	0	618	1230
*** BREAK	***																				
								_			_		_		100						
04:00 PM	6	9	2	0	17	36	12	7	0	55	5	177	7	0	189	0	155	23	0	178	439
04:15 PM	8	10	0	0	18	38	8	13	0	59	7	184	7	0	198	2	161	26	0	189	464
04:30 PM	15	16	1	0	32	40	11	6	0	57	10	162	4	0	176	0	165	30	0	195	460
<u>04:45 PM</u>	14			0	24	38		12	0	72	10	190		0	207	0	122	28	0	150	453
Total	43	44	4	0	91	152	53	38	0	243	32	713	25	0	770	2	603	107	0	712	1816
05 00 DM	10	1.1	1	0	22	20	1.4	10	0	(0)	1.4	100	0	0	212		150	25	0	100	470
05:00 PM	10	11	1	0	22	38	14	10	0	62	14	189	9	0	212	1	156	25	0	182	478
05:15 PM	6	12	1	0	19	42	18	12	0	12	10	169	10	0	189	2	151	29	0	182	462
05:30 PM	8	9	2	0	19	35	13	16	0	64	12	191	10	0	213	0	135	31	0	166	462
<u>05:45 PM</u>	9	3		0	13	58		17	0	- 77	12	147		0	164	0	101	21	0	122	3/6
Total	33	35	5	0	13	1/3	57	45	0	275	48	696	34	0	//8	3	543	106	0	652	1//8
G 15 1	145	152	10	0	200	5.00	140	120	0	0.47	102		00	0	0001	0	22.17	105	0	0.001	(107
Grand Total	145	155	10	0	308	562	146	139	0	847	125	2126	82	0	2551	9	2247	425	0	2681	616/
Appren %	4/.1	49.7	3.2	0	-	06.4	17.2	16.4	0	127	5.5	91.2	5.5	0	27.0	0.3	85.8	15.9	0	12.5	
Total %	2.4	2.5	0.2	0	5	9.1	2.4	2.3	0	13.7	2	34.5	1.3	0	37.8	0.1	36.4	6.9	0	43.5	

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TMC Data Atlanta Hwy (US29 Bus) @ Main St Auburn, GA 7-9 AM | 4-6 PM

File Name : 48980003 Site Code : 48980003 Start Date : 6/4/2024 Page No : 2

			Main S	St			Mt	Moria	h Rd		At	anta I	łwy (U	S29 B	us)	At	anta I	łwy (U	S29 Bi	1S)]
		No	rthbou	ınd			So	uthbou	ind			E	astbou	nd			W	estbou	nd		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysi	is From 07	:00 AM 1	to 08:45 A	AM - Peak	1 of 1																
Peak Hour for	r Entire	Interse	ection 1	Begins a	at 07:15	AM															
07:15 AM	12	14	0	0	26	27	3	6	0	36	5	101	1	0	107	1	152	29	0	182	351
07:30 AM	7	13	0	0	20	25	8	9	0	42	4	102	2	0	108	0	141	27	0	168	338
07:45 AM	10	10	0	0	20	32	6	6	0	44	6	93	5	0	104	0	133	30	0	163	331
08:00 AM	8	10	0	0	18	32	5	8	0	45	5	96	3	0	104	0	129	31	0	160	327
Total Volume	37	47	0	0	84	116	22	29	0	167	20	392	11	0	423	1	555	117	0	673	1347
% App. Total						69.5	13.2	17.4				92.7					82.5	17.4			
PHF	.771	.839	.000	.000	.808	.906	.688	.806	.000	.928	.833	.961	.550	.000	.979	.250	.913	.944	.000	.924	.959



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TMC Data Atlanta Hwy (US29 Bus) @ Main St Auburn, GA 7-9 AM | 4-6 PM

 File Name
 : 48980003

 Site Code
 : 48980003

 Start Date
 : 6/4/2024

 Page No
 : 3

]	Main S	St			Mt	Moria	h Rd		At	anta H	łwy (U	S29 B	us)	Atl	anta H	łwy (U	S29 B	us)]
		No	rthbou	ınd			Sou	ıthbou	nd			E	astbou	nd			W	estbou	nd		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysi	is From 04	4:00 PM t	o 05:45 P	M - Peak	1 of 1																
Peak Hour for	r Entire	Interse	ection 1	Begins	at 04:15	PM															
04:15 PM	8	10	0	0	18	38	8	13	0	59	7	184	7	0	198	2	161	26	0	189	464
04:30 PM	15	16	1	0	32	40	11	6	0	57	10	162	4	0	176	0	165	30	0	195	460
04:45 PM	14	9	1	0	24	38	22	12	0	72	10	190	7	0	207	0	122	28	0	150	453
05:00 PM	10	11	1	0	22	38	14	10	0	62	14	189	9	0	212	1	156	25	0	182	478
Total Volume	47	46	3	0	96	154	55	41	0	250	41	725	27	0	793	3	604	109	0	716	1855
% App. Total		47.9				61.6		16.4				91.4					84.4	15.2			
PHF	.783	.719	.750	.000	.750	.963	.625	.788	.000	.868	.732	.954	.750	.000	.935	.375	.915	.908	.000	.918	.970



Appendix B

Intersection Analysis Methodology



Intersection Analysis Methodology

The methodology used for evaluating traffic operations at intersections is presented in the Transportation Research Board's 2022 *Highway Capacity Manual*, 7th Edition (HCM 7). Synchro 12 software, which emulates the HCM 7 methodology, was used for all analyses. The following is an overview of the methodology employed for the analysis of signalized intersections and roundabouts and stop-sign controlled (unsignalized) intersections. Levels of service (LOS) are assigned letters A through F. LOS A indicates operations with very low control delay while LOS F describes operations with high control delay. LOS F is considered to be unacceptable by most drivers, while LOS E is typically considered to be the limit of acceptable delay.

Signalized Intersections and Roundabouts – Level of service for a signalized intersection and a roundabout is defined in terms of control delay per vehicle. For signalized intersections and roundabouts, a composite intersection level of service is determined. The thresholds for each level of service are higher for signalized intersections and roundabouts than for unsignalized intersections. This is attributable to a variety of factors including expectation and acceptance of higher delays at signals/roundabouts, and the fact that drivers can relax when waiting at a signal as opposed to having to remain attentive as they proceed through the unsignalized intersection. The level of service criteria for signalized intersections and roundabouts are shown in Table A.

Control Delay (s/veh)	LOS
≤ 10	A
$>$ 10 and \leq 20	В
> 20 and ≤ 35	С
> 35 and ≤ 55	D
> 55 and ≤ 80	E
> 80	F

Table A – Level of Service Criteria for Signalized Intersections and Roundabouts

Source: Highway Capacity Manual 7

Unsignalized Intersections – Level of service for an unsignalized intersection is defined in terms of control delay per vehicle. Control delay is that portion of delay attributable to the control device and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The delays at unsignalized intersections are based on gap acceptance theory, factoring in availability of gaps, usefulness of the gaps, and the priority of right-of-way given to each traffic stream. The level of service criteria for unsignalized intersections are presented in Table B.

Table B – Leve	l of Service	Criteria for	[.] Unsignalized	Intersections
----------------	--------------	--------------	---------------------------	---------------

Control Delay (s/veh)	LOS
0 - 10	A
> 10 and ≤ 15	В
> 15 and ≤ 25	С
> 25 and ≤ 35	D
$>$ 35 and \leq 50	E
> 50	F

Source: Highway Capacity Manual 7



Appendix C

Existing Intersection Operational Analysis



Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	А

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Vol, veh/h	13	27	2	2	9	2	2	1	1	0	0	3
Future Vol, veh/h	13	27	2	2	9	2	2	1	1	0	0	3
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.33	0.33	0.33	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	36	3	3	14	3	6	3	3	0	0	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB				SB	
Opposing Approach	WB			EB			SB				NB	
Opposing Lanes	1			1			1				1	
Conflicting Approach Left	SB			NB			EB				WB	
Conflicting Lanes Left	1			1			1				1	
Conflicting Approach Right	NB			SB			WB				EB	
Conflicting Lanes Right	1			1			1				1	
HCM Control Delay, s/veh	7.3			7			7.1				6.5	
HCM LOS	А			А			А				А	

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	50%	31%	15%	0%	
Vol Thru, %	25%	64%	69%	0%	
Vol Right, %	25%	5%	15%	100%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	4	42	13	3	
LT Vol	2	13	2	0	
Through Vol	1	27	9	0	
RT Vol	1	2	2	3	
Lane Flow Rate	12	56	20	4	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.014	0.062	0.022	0.004	
Departure Headway (Hd)	4.02	4.012	3.944	3.475	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	889	896	909	1026	
Service Time	2.051	2.021	1.96	1.509	
HCM Lane V/C Ratio	0.013	0.063	0.022	0.004	
HCM Control Delay, s/veh	7.1	7.3	7	6.5	
HCM Lane LOS	А	А	А	А	
HCM 95th-tile Q	0	0.2	0.1	0	

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	А

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Vol, veh/h	0	1	0	4	1	79	0	6	5	34	0	1
Future Vol, veh/h	0	1	0	4	1	79	0	6	5	34	0	1
Peak Hour Factor	0.25	0.25	0.25	0.75	0.75	0.75	0.55	0.55	0.55	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	4	0	5	1	105	0	11	9	47	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach		EB		WB				NB		SB		
Opposing Approach		WB		EB				SB		NB		
Opposing Lanes		1		1				1		1		
Conflicting Approach Left		SB		NB				EB		WB		
Conflicting Lanes Left		1		1				1		1		
Conflicting Approach Right		NB		SB				WB		EB		
Conflicting Lanes Right		1		1				1		1		
HCM Control Delay, s/veh		7.2		7				7		7.6		
HCM LOS		А		А				А		А		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	0%	0%	5%	97%	
Vol Thru, %	55%	100%	1%	0%	
Vol Right, %	45%	0%	94%	3%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	11	1	84	35	
LT Vol	0	0	4	34	
Through Vol	6	1	1	0	
RT Vol	5	0	79	1	
Lane Flow Rate	20	4	112	48	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.022	0.005	0.109	0.058	
Departure Headway (Hd)	3.902	4.139	3.501	4.331	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	915	860	1019	828	
Service Time	1.935	2.185	1.539	2.354	
HCM Lane V/C Ratio	0.022	0.005	0.11	0.058	
HCM Control Delay, s/veh	7	7.2	7	7.6	
HCM Lane LOS	А	А	А	А	
HCM 95th-tile Q	0.1	0	0.4	0.2	

Lyle / Main Subdivision Auburn 3: Main St/Mt Moriah Rd & US 29 Bus

existing a.m.

	۶	-	7	1	+	*	1	t	1	5	ţ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	3	ţ,		7	ţ,			4			4	
Traffic Volume (veh/h)	20	392	11	1	555	117	37	47	0	116	22	29
Future Volume (veh/h)	20	392	11	1	555	117	37	47	0	116	22	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adi(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	
Adi Sat Flow, veh/h/ln	1870	1811	1870	1870	1811	1870	1870	1870	1870	1870	1870	1870
Adi Flow Rate, veh/h	20	400	11	1	603	127	46	58	0	125	24	31
Peak Hour Factor	0.98	0.98	0.98	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Percent Heavy Veh. %	2	6	2	2	6	2	2	2	2	2	2	2
Cap. veh/h	209	842	23	436	664	140	273	315	0	393	78	78
Arrive On Green	0.02	0.48	0.48	0.00	0.46	0.46	0.30	0.30	0.00	0.30	0.30	0.30
Sat Flow, veh/h	1781	1754	48	1781	1451	306	629	1041	0	974	257	256
Grp Volume(v), veh/h	20	0	411	1	0	730	104	0	0	180	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1802	1781	0	1756	1670	0	0	1487	0	0
Q Serve(q s), s	0.4	0.0	9.6	0.0	0.0	24.1	0.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(q c), s	0.4	0.0	9.6	0.0	0.0	24.1	2.6	0.0	0.0	5.5	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.17	0.44		0.00	0.69		0.17
Lane Grp Cap(c), veh/h	209	0	865	436	0	804	589	0	0	548	0	0
V/C Ratio(X)	0.10	0.00	0.48	0.00	0.00	0.91	0.18	0.00	0.00	0.33	0.00	0.00
Avail Cap(c a), veh/h	313	0	938	579	0	914	589	0	0	548	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.3	0.0	10.9	9.7	0.0	15.7	16.1	0.0	0.0	17.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.0	0.0	11.8	0.7	0.0	0.0	1.6	0.0	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	0.0	3.0	0.0	0.0	9.9	1.1	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh	า											
LnGrp Delay(d), s/veh	13.5	0.0	11.4	9.7	0.0	27.5	16.7	0.0	0.0	18.6	0.0	0.0
LnGrp LOS	В		В	А		С	В			В		
Approach Vol. veh/h		431			731			104			180	
Approach Delay, s/veh		11.5			27.5			16.7			18.6	
Approach LOS		В			С			В			В	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.4	4.6	34.5		23.4	6.0	33.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.9	5.1	32.5		18.9	5.1	32.5				
Max Q Clear Time (q c+l1), s		4.6	2.0	11.6		7.5	2.4	26.1				
Green Ext Time (p_c), s		0.4	0.0	2.2		0.7	0.0	2.5				
Intersection Summary												
HCM 7th Control Delay, s/veh			20.8									
HCM 7th LOS			С									

7.2		
А		
	7.2 A	7.2 A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Vol, veh/h	8	13	0	4	20	0	3	7	4	0	10	12
Future Vol, veh/h	8	13	0	4	20	0	3	7	4	0	10	12
Peak Hour Factor	0.66	0.66	0.66	0.55	0.55	0.55	0.58	0.58	0.58	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	20	0	7	36	0	5	12	7	0	14	17
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB				SB	
Opposing Approach	WB			EB			SB				NB	
Opposing Lanes	1			1			1				1	
Conflicting Approach Left	SB			NB			EB				WB	
Conflicting Lanes Left	1			1			1				1	
Conflicting Approach Right	NB			SB			WB				EB	
Conflicting Lanes Right	1			1			1				1	
HCM Control Delay, s/veh	7.3			7.3			7.1				6.9	
HCM LOS	А			А			А				А	

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	21%	38%	17%	0%	
Vol Thru, %	50%	62%	83%	45%	
Vol Right, %	29%	0%	0%	55%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	14	21	24	22	
LT Vol	3	8	4	0	
Through Vol	7	13	20	10	
RT Vol	4	0	0	12	
Lane Flow Rate	24	32	44	32	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.027	0.037	0.05	0.033	
Departure Headway (Hd)	3.96	4.139	4.087	3.755	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	900	864	875	948	
Service Time	2.003	2.17	2.116	1.799	
HCM Lane V/C Ratio	0.027	0.037	0.05	0.034	
HCM Control Delay, s/veh	7.1	7.3	7.3	6.9	
HCM Lane LOS	А	А	А	А	
HCM 95th-tile Q	0.1	0.1	0.2	0.1	

Intersection		
Intersection Delay, s/veh	7.7	
Intersection LOS	А	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Vol, veh/h	0	6	1	9	2	93	1	5	11	97	2	1
Future Vol, veh/h	0	6	1	9	2	93	1	5	11	97	2	1
Peak Hour Factor	0.58	0.58	0.58	0.70	0.70	0.70	0.71	0.71	0.71	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	10	2	13	3	133	1	7	15	109	2	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach		EB		WB			NB			SB		
Opposing Approach		WB		EB			SB			NB		
Opposing Lanes		1		1			1			1		
Conflicting Approach Left		SB		NB			EB			WB		
Conflicting Lanes Left		1		1			1			1		
Conflicting Approach Right		NB		SB			WB			EB		
Conflicting Lanes Right		1		1			1			1		
HCM Control Delay, s/veh		7.4		7.4			7.1			8.2		
HCM LOS		А		А			А			А		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	6%	0%	9%	97%	
Vol Thru, %	29%	86%	2%	2%	
Vol Right, %	65%	14%	89%	1%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	17	7	104	100	
LT Vol	1	0	9	97	
Through Vol	5	6	2	2	
RT Vol	11	1	93	1	
Lane Flow Rate	24	12	149	112	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.026	0.014	0.151	0.138	
Departure Headway (Hd)	3.925	4.304	3.659	4.421	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	900	837	964	808	
Service Time	2.003	2.304	1.745	2.468	
HCM Lane V/C Ratio	0.027	0.014	0.155	0.139	
HCM Control Delay, s/veh	7.1	7.4	7.4	8.2	
HCM Lane LOS	А	А	А	А	
HCM 95th-tile Q	0.1	0	0.5	0.5	

Lyle / Main Subdivision Auburn 3: Main St/Mt Moriah Rd & US 29 Bus

existing p.m.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	î,		7	ţ,			4			4	
Traffic Volume (veh/h)	41	725	27	3	604	109	47	46	3	154	55	41
Future Volume (veh/h)	41	725	27	3	604	109	47	46	3	154	55	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1811	1870	1870	1811	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	771	29	3	657	118	63	61	4	177	63	47
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.75	0.75	0.75	0.87	0.87	0.87
Percent Heavy Veh, %	2	6	2	2	6	2	2	2	2	2	2	2
Cap, veh/h	217	891	34	190	714	128	275	246	14	343	119	75
Arrive On Green	0.04	0.51	0.51	0.00	0.48	0.48	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	1734	65	1781	1494	268	676	824	48	885	397	251
Grp Volume(v), veh/h	44	0	800	3	0	775	128	0	0	287	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1799	1781	0	1763	1548	0	0	1534	0	0
Q Serve(q s), s	0.9	0.0	28.6	0.1	0.0	30.1	0.0	0.0	0.0	7.0	0.0	0.0
Cycle Q Clear(q c), s	0.9	0.0	28.6	0.1	0.0	30.1	4.2	0.0	0.0	11.3	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.15	0.49		0.03	0.62		0.16
Lane Grp Cap(c), veh/h	217	0	924	190	0	842	535	0	0	537	0	0
V/C Ratio(X)	0.20	0.00	0.87	0.02	0.00	0.92	0.24	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	269	0	968	306	0	948	535	0	0	537	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.3	0.0	15.6	14.5	0.0	17.9	19.5	0.0	0.0	21.8	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	8.0	0.0	0.0	13.0	1.1	0.0	0.0	3.8	0.0	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	0.3	0.0	11.2	0.0	0.0	12.8	1.7	0.0	0.0	4.5	0.0	0.0
Unsig. Movement Delay, s/veh	ı											
LnGrp Delay(d), s/veh	15.8	0.0	23.7	14.5	0.0	30.9	20.5	0.0	0.0	25.6	0.0	0.0
LnGrp LOS	В		С	В		С	С			С		
Approach Vol. veh/h		844			778			128			287	
Approach Delay, s/veh		23.3			30.8			20.5			25.6	
Approach LOS		С			С			С			С	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.4	4.8	42.2		26.4	7.5	39.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		21.9	5.1	39.5		21.9	5.1	39.5				
Max Q Clear Time (q c+l1), s		6.2	2.1	30.6		13.3	2.9	32.1				
Green Ext Time (p_c), s		0.5	0.0	3.5		1.0	0.0	3.0				
Intersection Summary												
HCM 7th Control Delay, s/veh			26.3									
HCM 7th LOS			С									
Appendix D

No-Build Intersection Operational Analysis



ntersection	
ntersection Delay, s/veh	7.2
ntersection LOS	А

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	14	30	2	2	10	2	2	1	1	0	0	3
Future Vol, veh/h	14	30	2	2	10	2	2	1	1	0	0	3
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.33	0.33	0.33	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	40	3	3	15	3	6	3	3	0	0	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB				SB	
Opposing Approach	WB			EB			SB				NB	
Opposing Lanes	1			1			1				1	
Conflicting Approach Left	SB			NB			EB				WB	
Conflicting Lanes Left	1			1			1				1	
Conflicting Approach Right	NB			SB			WB				EB	
Conflicting Lanes Right	1			1			1				1	
HCM Control Delay, s/veh	7.3			7.1			7.1				6.5	
HCM LOS	А			А			А				А	

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	50%	30%	14%	0%	
Vol Thru, %	25%	65%	71%	0%	
Vol Right, %	25%	4%	14%	100%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	4	46	14	3	
LT Vol	2	14	2	0	
Through Vol	1	30	10	0	
RT Vol	1	2	2	3	
Lane Flow Rate	12	61	22	4	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.014	0.068	0.024	0.004	
Departure Headway (Hd)	4.032	4.014	3.952	3.487	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	885	895	907	1022	
Service Time	2.067	2.024	1.969	1.524	
HCM Lane V/C Ratio	0.014	0.068	0.024	0.004	
HCM Control Delay, s/veh	7.1	7.3	7.1	6.5	
HCM Lane LOS	А	А	А	А	
HCM 95th-tile Q	0	0.2	0.1	0	

Intersection	
intersection Delay, s/veh	7.2
ntersection LOS	А

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	0	1	0	4	1	87	0	7	6	38	0	1
Future Vol, veh/h	0	1	0	4	1	87	0	7	6	38	0	1
Peak Hour Factor	0.25	0.25	0.25	0.75	0.75	0.75	0.55	0.55	0.55	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	4	0	5	1	116	0	13	11	52	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach		EB		WB				NB		SB		
Opposing Approach		WB		EB				SB		NB		
Opposing Lanes		1		1				1		1		
Conflicting Approach Left		SB		NB				EB		WB		
Conflicting Lanes Left		1		1				1		1		
Conflicting Approach Right		NB		SB				WB		EB		
Conflicting Lanes Right		1		1				1		1		
HCM Control Delay, s/veh		7.2		7				7.1		7.7		
HCM LOS		А		А				А		А		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	0%	0%	4%	97%	
Vol Thru, %	54%	100%	1%	0%	
Vol Right, %	46%	0%	95%	3%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	13	1	92	39	
LT Vol	0	0	4	38	
Through Vol	7	1	1	0	
RT Vol	6	0	87	1	
Lane Flow Rate	24	4	123	53	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.026	0.005	0.12	0.065	
Departure Headway (Hd)	3.919	4.161	3.511	4.354	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	910	854	1014	822	
Service Time	1.959	2.216	1.556	2.382	
HCM Lane V/C Ratio	0.026	0.005	0.121	0.064	
HCM Control Delay, s/veh	7.1	7.2	7	7.7	
HCM Lane LOS	А	А	А	А	
HCM 95th-tile Q	0.1	0	0.4	0.2	

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	T.		7	T.			4			4	
Traffic Volume (veh/h)	22	433	12	1	613	129	41	52	0	128	24	32
Future Volume (veh/h)	22	433	12	1	613	129	41	52	0	128	24	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1811	1870	1870	1811	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	442	12	1	666	140	51	64	0	138	26	34
Peak Hour Factor	0.98	0.98	0.98	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Percent Heavy Veh, %	2	6	2	2	6	2	2	2	2	2	2	2
Cap, veh/h	199	915	25	446	722	152	253	290	0	364	71	71
Arrive On Green	0.03	0.52	0.52	0.00	0.50	0.50	0.28	0.28	0.00	0.28	0.28	0.28
Sat Flow, veh/h	1781	1755	48	1781	1451	305	633	1042	0	984	254	257
Grp Volume(v), veh/h	22	0	454	1	0	806	115	0	0	198	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1803	1781	0	1756	1676	0	0	1495	0	0
Q Serve(g_s), s	0.4	0.0	10.9	0.0	0.0	28.9	0.0	0.0	0.0	3.6	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	10.9	0.0	0.0	28.9	3.2	0.0	0.0	6.9	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.17	0.44		0.00	0.70		0.17
Lane Grp Cap(c), veh/h	199	0	940	446	0	874	543	0	0	506	0	0
V/C Ratio(X)	0.11	0.00	0.48	0.00	0.00	0.92	0.21	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	288	0	996	577	0	970	543	0	0	506	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.2	0.0	10.4	9.2	0.0	15.8	18.8	0.0	0.0	20.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.0	0.0	13.1	0.9	0.0	0.0	2.3	0.0	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/In	0.1	0.0	3.4	0.0	0.0	12.0	1.4	0.0	0.0	2.7	0.0	0.0
Unsig. Movement Delay, s/vel	h											
LnGrp Delay(d), s/veh	14.4	0.0	10.8	9.2	0.0	28.9	19.7	0.0	0.0	22.2	0.0	0.0
LnGrp LOS	В		В	А		С	В			С		
Approach Vol, veh/h		476			807			115			198	
Approach Delay, s/veh		11.0			28.9			19.7			22.2	
Approach LOS		В			С			В			С	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.4	4.6	39.9		23.4	6.2	38.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.9	5.1	37.5		18.9	5.1	37.5				
Max Q Clear Time (g_c+l1), s		5.2	2.0	12.9		8.9	2.4	30.9				
Green Ext Time (p_c), s		0.4	0.0	2.6		0.7	0.0	2.9				
Intersection Summary												
HCM 7th Control Delay, s/veh			22.0									
HCM 7th LOS			С									

ntersection	
ntersection Delay, s/veh	7.2
ntersection LOS	А

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	9	14	0	4	22	0	3	8	4	0	11	13
Future Vol, veh/h	9	14	0	4	22	0	3	8	4	0	11	13
Peak Hour Factor	0.66	0.66	0.66	0.55	0.55	0.55	0.58	0.58	0.58	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	21	0	7	40	0	5	14	7	0	16	19
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB				SB	
Opposing Approach	WB			EB			SB				NB	
Opposing Lanes	1			1			1				1	
Conflicting Approach Left	SB			NB			EB				WB	
Conflicting Lanes Left	1			1			1				1	
Conflicting Approach Right	NB			SB			WB				EB	
Conflicting Lanes Right	1			1			1				1	
HCM Control Delay, s/veh	7.4			7.4			7.1				7	
HCM LOS	А			А			А				А	

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	20%	39%	15%	0%	
Vol Thru, %	53%	61%	85%	46%	
Vol Right, %	27%	0%	0%	54%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	15	23	26	24	
LT Vol	3	9	4	0	
Through Vol	8	14	22	11	
RT Vol	4	0	0	13	
Lane Flow Rate	26	35	47	35	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.029	0.04	0.054	0.036	
Departure Headway (Hd)	3.983	4.154	4.097	3.771	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	894	860	873	944	
Service Time	2.028	2.186	2.126	1.817	
HCM Lane V/C Ratio	0.029	0.041	0.054	0.037	
HCM Control Delay, s/veh	7.1	7.4	7.4	7	
HCM Lane LOS	А	А	А	А	
HCM 95th-tile Q	0.1	0.1	0.2	0.1	

Intersection Delay, s/veh 7.8 Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Vol, veh/h	0	7	1	10	2	103	1	6	12	107	2	1
Future Vol, veh/h	0	7	1	10	2	103	1	6	12	107	2	1
Peak Hour Factor	0.58	0.58	0.58	0.70	0.70	0.70	0.71	0.71	0.71	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	2	14	3	147	1	8	17	120	2	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach		EB		WB			NB			SB		
Opposing Approach		WB		EB			SB			NB		
Opposing Lanes		1		1			1			1		
Conflicting Approach Left		SB		NB			EB			WB		
Conflicting Lanes Left		1		1			1			1		
Conflicting Approach Right		NB		SB			WB			EB		
Conflicting Lanes Right		1		1			1			1		
HCM Control Delay, s/veh		7.4		7.5			7.2			8.3		
HCM LOS		А		А			А			А		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	5%	0%	9%	97%	
Vol Thru, %	32%	88%	2%	2%	
Vol Right, %	63%	13%	90%	1%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	19	8	115	110	
LT Vol	1	0	10	107	
Through Vol	6	7	2	2	
RT Vol	12	1	103	1	
Lane Flow Rate	27	14	164	124	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.03	0.017	0.168	0.153	
Departure Headway (Hd)	3.972	4.368	3.684	4.454	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	886	824	954	800	
Service Time	2.065	2.368	1.783	2.512	
HCM Lane V/C Ratio	0.03	0.017	0.172	0.155	
HCM Control Delay, s/veh	7.2	7.4	7.5	8.3	
HCM Lane LOS	А	А	А	А	
HCM 95th-tile Q	0.1	0.1	0.6	0.5	

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	T.		7	T.			4			4	
Traffic Volume (veh/h)	45	800	30	3	667	120	52	51	3	170	61	45
Future Volume (veh/h)	45	800	30	3	667	120	52	51	3	170	61	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1811	1870	1870	1811	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	851	32	3	725	130	69	68	4	195	70	52
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.75	0.75	0.75	0.87	0.87	0.87
Percent Heavy Veh, %	2	6	2	2	6	2	2	2	2	2	2	2
Cap, veh/h	189	950	36	162	766	137	255	234	12	328	104	71
Arrive On Green	0.04	0.55	0.55	0.00	0.51	0.51	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1781	1734	65	1781	1495	268	662	804	43	894	358	246
Grp Volume(v), veh/h	48	0	883	3	0	855	141	0	0	317	0	0
Grp Sat Flow(s).veh/h/ln	1781	0	1799	1781	0	1763	1509	0	0	1498	0	0
Q Serve(g s), s	1.0	0.0	37.3	0.1	0.0	39.4	0.0	0.0	0.0	10.2	0.0	0.0
Cycle Q Clear(g_c), s	1.0	0.0	37.3	0.1	0.0	39.4	5.9	0.0	0.0	16.0	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.15	0.49		0.03	0.62		0.16
Lane Grp Cap(c), veh/h	189	0	986	162	0	903	501	0	0	503	0	0
V/C Ratio(X)	0.25	0.00	0.90	0.02	0.00	0.95	0.28	0.00	0.00	0.63	0.00	0.00
Avail Cap(c a), veh/h	224	0	986	261	0	957	501	0	0	503	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.6	0.0	17.2	16.9	0.0	19.8	23.5	0.0	0.0	27.1	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	10.7	0.0	0.0	17.2	1.4	0.0	0.0	5.9	0.0	0.0
Initial Q Delav(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	0.0	15.4	0.0	0.0	17.7	2.3	0.0	0.0	6.3	0.0	0.0
Unsig. Movement Delay, s/ve	h	0.0		0.0	0.0			0.0	0.0	0.0	0.0	0.0
LnGrp Delav(d), s/veh		0.0	27.9	17.0	0.0	37.0	24.9	0.0	0.0	33.0	0.0	0.0
LnGrp LOS	B	0.0	C	B	0.0	D	C	0.0	0.0	С	0.0	0.0
Approach Vol. veh/h		931			858		•	141		•	317	
Approach Delay, s/yeh		27.4			37.0			24.9			33.0	
Approach LOS		C			D			24.5 C			С.00	
Timer Assigned Dec		0	2	Α	2	C	7	0			0	
Timer - Assigned Phs		2	3	4		0	70	8				
Phs Duration (G+Y+Rc), s		29.4	4.8	51.4		29.4	7.9	48.4				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		24.9	5.1	46.5		24.9	5.1	46.5				
wax Q Clear Time (g_c+11), s		7.9	2.1	39.3		18.0	3.0	41.4				
Green Ext Time (p_c), s		0.6	0.0	3.4		1.0	0.0	2.5				
Intersection Summary												
HCM 7th Control Delay, s/veh	1		31.7									
HCM 7th LOS			С									

Appendix E

Future Intersection Operational Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Vol, veh/h	14	30	2	11	10	2	2	4	28	0	1	3
Future Vol, veh/h	14	30	2	11	10	2	2	4	28	0	1	3
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.33	0.33	0.33	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	40	3	17	15	3	6	12	85	0	1	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB				SB	
Opposing Approach	WB			EB			SB				NB	
Opposing Lanes	1			1			1				1	
Conflicting Approach Left	SB			NB			EB				WB	
Conflicting Lanes Left	1			1			1				1	
Conflicting Approach Right	NB			SB			WB				EB	
Conflicting Lanes Right	1			1			1				1	
HCM Control Delay, s/veh	7.5			7.4			7.1				6.8	
HCM LOS	А			А			А				А	

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	6%	30%	48%	0%	
Vol Thru, %	12%	65%	43%	25%	
Vol Right, %	82%	4%	9%	75%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	34	46	23	4	
LT Vol	2	14	11	0	
Through Vol	4	30	10	1	
RT Vol	28	2	2	3	
Lane Flow Rate	103	61	35	5	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.104	0.071	0.041	0.006	
Departure Headway (Hd)	3.623	4.186	4.216	3.731	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	982	854	847	949	
Service Time	1.674	2.22	2.255	1.792	
HCM Lane V/C Ratio	0.105	0.071	0.041	0.005	
HCM Control Delay, s/veh	7.1	7.5	7.4	6.8	
HCM Lane LOS	А	А	А	А	
HCM 95th-tile Q	0.3	0.2	0.1	0	

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Vol, veh/h	0	1	0	7	1	87	0	59	15	38	17	1
Future Vol, veh/h	0	1	0	7	1	87	0	59	15	38	17	1
Peak Hour Factor	0.25	0.25	0.25	0.75	0.75	0.75	0.55	0.55	0.55	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	4	0	9	1	116	0	107	27	52	23	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach		EB		WB				NB		SB		
Opposing Approach		WB		EB				SB		NB		
Opposing Lanes		1		1				1		1		
Conflicting Approach Left		SB		NB				EB		WB		
Conflicting Lanes Left		1		1				1		1		
Conflicting Approach Right		NB		SB				WB		EB		
Conflicting Lanes Right		1		1				1		1		
HCM Control Delay, s/veh		7.6		7.5				7.9		7.9		
HCM LOS		А		А				А		А		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	7%	68%
Vol Thru, %	80%	100%	1%	30%
Vol Right, %	20%	0%	92%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	74	1	95	56
LT Vol	0	0	7	38
Through Vol	59	1	1	17
RT Vol	15	0	87	1
Lane Flow Rate	135	4	127	77
Geometry Grp	1	1	1	1
Degree of Util (X)	0.153	0.005	0.136	0.094
Departure Headway (Hd)	4.101	4.534	3.876	4.395
Convergence, Y/N	Yes	Yes	Yes	Yes
Сар	865	793	931	806
Service Time	2.172	2.538	1.876	2.472
HCM Lane V/C Ratio	0.156	0.005	0.136	0.096
HCM Control Delay, s/veh	7.9	7.6	7.5	7.9
HCM Lane LOS	А	А	А	А
HCM 95th-tile Q	0.5	0	0.5	0.3

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	T.		7	T.			4			4	
Traffic Volume (veh/h)	22	433	15	7	613	129	50	77	18	128	32	32
Future Volume (veh/h)	22	433	15	7	613	129	50	77	18	128	32	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	
Adi Sat Flow, veh/h/ln	1870	1811	1870	1870	1811	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	442	15	8	666	140	62	95	22	138	34	34
Peak Hour Factor	0.98	0.98	0.98	0.92	0.92	0.92	0.81	0.81	0.81	0.93	0.93	0.93
Percent Heavy Veh, %	2	6	2	2	6	2	2	2	2	2	2	2
Cap, veh/h	199	892	30	448	722	152	200	285	58	348	86	68
Arrive On Green	0.03	0.51	0.51	0.01	0.50	0.50	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1781	1741	59	1781	1451	305	462	1023	208	931	308	245
Grp Volume(v), veh/h	22	0	457	8	0	806	179	0	0	206	0	0
Grp Sat Flow(s) veh/h/ln	1781	0	1800	1781	0	1756	1693	0	0	1485	0	0
Q Serve(q_s), s	0.4	0.0	11.3	0.2	0.0	28.9	0.0	0.0	0.0	1.7	0.0	0.0
Cycle Q Clear(q, c), s	0.4	0.0	11.3	0.2	0.0	28.9	5.3	0.0	0.0	7.0	0.0	0.0
Prop In Lane	1.00	0.0	0.03	1.00	0.0	0.17	0.35	0.0	0.12	0.67	0.0	0.17
Lane Grp Cap(c), veh/h	199	0	922	448	0	874	543	0	0	502	0	0
V/C Ratio(X)	0.11	0.00	0.50	0.02	0.00	0.92	0.33	0.00	0.00	0.41	0.00	0.00
Avail Cap(c, a) veh/h	288	0.00	995	564	0.00	970	543	0	0.00	502	0.00	0.00
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d) s/veh	14.2	0.0	10.8	9.0	0.0	15.8	19.6	0.0	0.0	20.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.0	0.0	13.1	16	0.0	0.0	2.5	0.0	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
% $BackOfO(50\%)$ veh/ln	0.0	0.0	3.6	0.0	0.0	12.0	2.3	0.0	0.0	2.8	0.0	0.0
Unsig Movement Delay s/ve	h	0.0	0.0	0.0	0.0	12.0	2.0	0.0	0.0	2.0	0.0	0.0
InGro Delav(d) s/veh	14.4	0.0	11.2	91	0.0	28.9	21.2	0.0	0.0	22.6	0.0	0.0
LnGrp LOS	B	0.0	B	Α	0.0	20.0 C	C	0.0	0.0	C	0.0	0.0
Approach Vol. veh/h		479	<u> </u>	73	814	0	<u> </u>	179		0	206	
Approach Delay, s/yeh		11 /			28.7			21.2			200	
Approach LOS		B			20.7 C			C			22.0 C	
Timer - Assigned Phs		2	ર	Δ		6	7	8				
The Duration (C+V+Do) of		23 /	52	30.3		23.4	62	38.3				
Change Deried (V, Bo)		25.4	J.Z	39.5		25.4	0.2	30.5				
Max Croop Sotting (Cmax)		4.0	4.5	4.J		4.0	4.5	4.0				
Max O Clear Time (a. a.11) a		10.9 7.2	ວ. I ງາ	07.0 12.2		10.9	0.1 0.4	31.5				
iviax Q Glear Time (g_c+11), S		1.3	2.2	13.3		9.0	2.4	30.9				
Green Ext Time (p_c), s		0.7	0.0	2.0		0.0	0.0	2.9				
Intersection Summary			00.0									
HUM 7th Control Delay, s/veh	1		22.2									

Intersection Delay, s/veh 7.5 Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Vol, veh/h	9	14	0	34	22	0	3	10	22	0	14	13
Future Vol, veh/h	9	14	0	34	22	0	3	10	22	0	14	13
Peak Hour Factor	0.66	0.66	0.66	0.55	0.55	0.55	0.58	0.58	0.58	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	21	0	62	40	0	5	17	38	0	20	19
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB				SB	
Opposing Approach	WB			EB			SB				NB	
Opposing Lanes	1			1			1				1	
Conflicting Approach Left	SB			NB			EB				WB	
Conflicting Lanes Left	1			1			1				1	
Conflicting Approach Right	NB			SB			WB				EB	
Conflicting Lanes Right	1			1			1				1	
HCM Control Delay, s/veh	7.5			7.9			7.2				7.2	
HCM LOS	А			А			А				А	

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	9%	39%	61%	0%	
Vol Thru, %	29%	61%	39%	52%	
Vol Right, %	63%	0%	0%	48%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	35	23	56	27	
LT Vol	3	9	34	0	
Through Vol	10	14	22	14	
RT Vol	22	0	0	13	
Lane Flow Rate	60	35	102	39	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.064	0.041	0.12	0.043	
Departure Headway (Hd)	3.841	4.265	4.256	3.93	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	918	833	839	897	
Service Time	1.924	2.326	2.3	2.014	
HCM Lane V/C Ratio	0.065	0.042	0.122	0.043	
HCM Control Delay, s/veh	7.2	7.5	7.9	7.2	
HCM Lane LOS	А	А	А	А	
HCM 95th-tile Q	0.2	0.1	0.4	0.1	

Intersection Delay, s/veh 8.5 Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Vol, veh/h	0	7	1	20	2	103	1	41	18	107	60	1
Future Vol, veh/h	0	7	1	20	2	103	1	41	18	107	60	1
Peak Hour Factor	0.58	0.58	0.58	0.70	0.70	0.70	0.71	0.71	0.71	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	2	29	3	147	1	58	25	120	67	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach		EB		WB			NB			SB		
Opposing Approach		WB		EB			SB			NB		
Opposing Lanes		1		1			1			1		
Conflicting Approach Left		SB		NB			EB			WB		
Conflicting Lanes Left		1		1			1			1		
Conflicting Approach Right		NB		SB			WB			EB		
Conflicting Lanes Right		1		1			1			1		
HCM Control Delay, s/veh		7.8		8.2			7.9			9		
HCM LOS		А		А			А			А		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	0%	16%	64%
Vol Thru, %	68%	88%	2%	36%
Vol Right, %	30%	13%	82%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	8	125	168
LT Vol	1	0	20	107
Through Vol	41	7	2	60
RT Vol	18	1	103	1
Lane Flow Rate	85	14	179	189
Geometry Grp	1	1	1	1
Degree of Util (X)	0.103	0.018	0.205	0.239
Departure Headway (Hd)	4.389	4.693	4.125	4.567
Convergence, Y/N	Yes	Yes	Yes	Yes
Сар	817	763	871	787
Service Time	2.414	2.718	2.14	2.589
HCM Lane V/C Ratio	0.104	0.018	0.206	0.24
HCM Control Delay, s/veh	7.9	7.8	8.2	9
HCM Lane LOS	А	А	А	А
HCM 95th-tile Q	0.3	0.1	0.8	0.9

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	T.		5	T.			4			\$	
Traffic Volume (veh/h)	45	800	40	23	667	120	58	68	15	170	89	45
Future Volume (veh/h)	45	800	40	23	667	120	58	68	15	170	89	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1811	1870	1870	1811	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	851	43	25	725	130	77	91	20	195	102	52
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.75	0.75	0.75	0.87	0.87	0.87
Percent Heavy Veh, %	2	6	2	2	6	2	2	2	2	2	2	2
Cap, veh/h	184	893	45	160	761	136	215	239	47	295	132	63
Arrive On Green	0.04	0.52	0.52	0.03	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	1709	86	1781	1495	268	528	810	159	780	447	215
Grp Volume(v), veh/h	48	0	894	25	0	855	188	0	0	349	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1796	1781	0	1763	1498	0	0	1442	0	0
Q Serve(g s), s	1.1	0.0	40.9	0.6	0.0	40.0	0.0	0.0	0.0	11.3	0.0	0.0
Cycle Q Clear(g c), s	1.1	0.0	40.9	0.6	0.0	40.0	8.3	0.0	0.0	19.5	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.15	0.41		0.11	0.56		0.15
Lane Grp Cap(c), veh/h	184	0	938	160	0	897	501	0	0	491	0	0
V/C Ratio(X)	0.26	0.00	0.95	0.16	0.00	0.95	0.38	0.00	0.00	0.71	0.00	0.00
Avail Cap(c a), veh/h	219	0	954	219	0	937	501	0	0	491	0	0
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.0	0.0	19.6	19.0	0.0	20.2	24.2	0.0	0.0	28.4	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	18.6	0.4	0.0	18.6	2.1	0.0	0.0	8.5	0.0	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/In	0.4	0.0	18.9	0.2	0.0	18.3	3.2	0.0	0.0	7.5	0.0	0.0
Unsig. Movement Delay, s/vel	า											
LnGrp Delay(d), s/veh	19.8	0.0	38.3	19.4	0.0	38.9	26.3	0.0	0.0	36.9	0.0	0.0
LnGrp LOS	В		D	В		D	С			D		
Approach Vol, veh/h		942			880			188			349	
Approach Delay, s/veh		37.3			38.3			26.3			36.9	
Approach LOS		D			D			С			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.0	6.8	49.6		30.0	7.9	48.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		25.5	5.1	45.9		25.5	5.1	45.9				
Max Q Clear Time (q c+l1), s		10.3	2.6	42.9		21.5	3.1	42.0				
Green Ext Time (p_c), s		0.9	0.0	1.7		0.8	0.0	2.0				
Intersection Summary												
HCM 7th Control Delay, s/veh			36.7									
HCM 7th LOS			D									