



PLANNING COMMISSION MEETING

JUNE 1, 2023

ALPHARETTA CITY HALL
COUNCIL CHAMBERS
2 PARK PLAZA
6:30 PM

- I. **CALL TO ORDER**
- II. **ROLL CALL**
- III. **APPROVAL OF MEETING MINUTES**
 1. PC Meeting minutes 4-13-2023
- IV. **ITEMS FROM BOARD MEMBERS**
- V. **ITEMS FROM STAFF**
- VI. **PUBLIC HEARING**
 1. **MP-23-03 / V-23-10 Fulton Science Academy**

Consideration of a master plan amendment and variance to allow for the construction of several athletic fields (tennis and soccer) in conjunction with the Fulton Science Academy athletic program. A master plan amendment is requested to reduce building setbacks along Fanfare Way and a variance is requested to allow retaining walls in a building setback. The property is located at 3035 Fanfare Way and is legally described as being located in Land Lots 688, 689, and 700, 1st District, 2nd Section, Fulton County, Georgia.
 2. **UDC Text Amendment – Zoning Procedures Law**

Consideration of text amendments to the Unified Development Code (UDC) to amend procedures to ensure consistency with the Zoning Procedures Law of the State of Georgia.
- VII. **ADJOURNMENT**



Planning Commission Meeting
April 13, 2023
Department of Community Development
ALPHARETTA CITY HALL | 2 PARK PLAZA
6:30 PM

This summary is provided as a convenience and service to the public, media, and staff. It is not the intent to record proceedings verbatim. Any reproduction of this summary must include this notice. Public comments are noted as heard by Planning Commission, but not quoted or paraphrased. This document includes limited presentation by Planning Commission and invited speakers in summary form. The public is advised that the tapes recorded at said meeting are a matter of public record and are available upon request.

I. CALL TO ORDER

- Vice Chairman Brady called the meeting to order at 6:33 p.m.

II. ROLL CALL

- **Planning Commissioners present:**
 - Fergal Brady (Vice Chair)-Served as Chairman
 - Jill Reynolds
 - Karen Richard
 - William Perkins
 - Todd Stratton
 - Martine Zurinskas
- **Staff present:**
 - Kathi Cook, Director of Community Development & Economic Development
 - Michael Woodman, Planning + Development Services Manager
 - James Drinkard, Assistant City Administrator
 - Tracy Jackson, Planning + Zoning Coordinator

III. APPROVAL OF MEETING MINUTES

- ❖ Commissioner Richard offered a motion to approve the Planning Commission Meeting Minutes from March 2, 2023.
 - Commissioner Reynolds second the motion.
 - The motion was approved (6-0)

ITEMS FROM BOARD MEMBERS

IV. ITEMS FROM STAFF

V. PUBLIC HEARING

1. MP-23-01 Windward Park

- Planning & Development Services Manager, Woodman came forward to present this item.
- **Staff is recommending the following conditions:**
 1. The site shall be developed substantially similar to the site plan prepared by AEC, revised 1/9/23, except for modifications required to comply with the conditions below. However, lot yield depicted is not guaranteed and subject to meeting all City code requirements and conditions of zoning.
 2. Architectural style shall be representative of the submitted renderings prepared by Cooper Carry, dated 11/1/22, with final approval by DRB.
 3. Development regulations shall be as follows:
 - a. Commercial – Retail and restaurant uses shall be limited to no more than 31,400 square feet and shall be located in buildings that have at least one floor of non-retail uses, except that one freestanding retail building shall be permitted as depicted on Site 3. Freestanding retail building shall have a minimum height of 24'. First floor retail uses in the 'For-Sale' condominium building shall have a minimum height of 18'.
 - b. Office – Office use shall not exceed 500,000 square feet and building heights shall not exceed 8 stories.
 - c. 'For-Sale' Townhomes – Up to 100 'For-Sale' townhomes shall be permitted in up to 3 story buildings, depicted as Sites 4 & 5 on the site plan. Site 4 townhomes shall be constructed concurrently with retail/restaurant uses and a certificate of occupancy shall not be issued until a minimum 31,400 square feet of retail/restaurant use has been constructed or is substantially under construction, as determined by Staff. No more than 10% of units shall be rented as stated in the HOA documents.
 - d. 'For-Sale' Condominiums – Up to 130 'For-Sale' condominium units shall be permitted in a building up to 5 stories, depicted as Site 3 on the site plan. At-grade 'For-Sale' condominium units shall be limited to no more than 2 sides of the building and shall have walkouts with sidewalk connections. Active uses, such as commercial and office shall be required on storefront streets. No more than 10% of units shall be rented as stated in the HOA documents.
 - e. Parking Decks – Maximum 6 levels, substantially as depicted on the site plan prepared by AEC, revised 1/9/23, except that parking deck height shall not exceed the finished height of the building it serves. Parking decks visible from Windward Parkway, North Point Parkway and Georgia 400 shall be treated with comparable materials and finishes as the buildings they serve. Parking decks shall be screened from the street and 'For-Sale' townhomes with evergreen landscaping of sufficient size, as approved by

DRB. Suitability of parking deck elevation, visibility and landscape screening shall be approved by DRB.

4. Site 3 buildings shall have a minimum 30' setback and minimum 20' landscape strip along North Point Parkway.
5. 'For-Sale' condominium building parking deck and service area shall be screened from North Point Parkway and Dryden Road with decorative walls and/or landscaping, as approved by DRB.
6. Buildings with retail uses facing Windward Parkway or North Point Parkway shall not exceed 200' in length, excluding the 'For-Sale' condominium building which has ground floor retail uses facing North Point Parkway.
7. Windward Park shall be limited to the following uses and further restricted by conditions of zoning:
 - a. Office
 - b. Service Retail
 - c. Restaurant (no drive thru, except as permitted in the 2015 conditions)
 - d. Residential – 'For-Sale', Attached.
8. Minimum parking requirements for 'For-Sale' condominium and townhome units shall be 2.5 spaces/unit and each townhome unit shall have a minimum 18' long driveway.
9. Retail storefront streets shall include landscaping in foundation planters and/or large planted decorative pots, as approved by DRB.
10. Developer shall make reasonable efforts to save the grouping of Sourwoods and an Oak at the northwest corner of North Point Parkway and Dryden Road, as approved by Staff.
11. Open space shall be developed as depicted on the site plan prepared by AEC, revised 1/9/23, including the amenities depicted on Sites 3, 4 and 5.
12. Swimming pool on Site 3 shall be screened from Safe Haven Place with a decorative wall or fencing and decorative landscaping, as approved by DRB.
13. Sculptures or focal point features placed at the corner of Windward Parkway and North Point Parkway and at project entrances along Windward Parkway and North Point Parkway shall require approval by the Cultural Arts Commission.
14. Retaining walls shall receive architectural façade treatment or be heavily landscaped. Retaining walls visible from developed areas exceeding 16' in height shall be terraced.
15. At least 1 rooftop amenity shall be required within the development. Restaurants shall include outdoor dining areas.
16. Trees, shrubs, and other landscaping planted with the initial installation of development infrastructure shall be assessed and any dead, dying or missing landscaping shall be replaced, as approved by Staff.
17. Areas between townhome driveways shall be landscaped with small trees and shrubs, as approved by DRB.
18. Conditions of zoning related to file #MP-15-04/V-15-08 Windward Point/Pod 66 shall remain in effect, except where modified by the conditions above.

- Kathryn Zickert came forward for the applicant to present a new layout and plan.

➤ **Planning Commission discussed the following:**

- What happened to the original plan (30 proposed condos) that were brought forward at the last meeting?
- Question regarding staff agreeing with changes to #13
- There was previously a water feature shown in the renderings, will we still be considering that?
- Are there any other condominium Lofts in Alpharetta?
- Can you identify the different open spaces?
- Ha the condos been defined as far as 1,2,3 bedrooms?
- What is the timeline on site 5.
- Is the pool exclusive to the townhomes?
- What are the amenities that will be provided?

- **Public Comment:**

- 3 Caravell Residents came forward with the following questions/concerns:
 - Will some of the properties be occupied before the build is complete?
 - Concern with over increased traffic patterns on the one lane roundabout
 - Concern about the green area on the property. What will be there?

➤ **Rebuttal**

- The applicant states that they are fully compliant and working to have signal lights installed and advises that there could be less traffic with no increase in density.

- ❖ Commissioner Richard offered a motion to approve item **(MP-23-01 Woodward Park)** subject to the 18 conditions with a change to condition 3C and change to condition 13 sculptures to be approved by Cultural Arts Commission.

1. The site shall be developed substantially similar to the site plan prepared by AEC, revised 1/9/23, except for modifications required to comply with the conditions below. However, lot yield depicted is not guaranteed and subject to meeting all City code requirements and conditions of zoning.
2. Architectural style shall be representative of the submitted renderings prepared by Cooper Carry, dated 11/1/22, with final approval by DRB.
3. Development regulations shall be as follows:
 - a. Commercial – Retail and restaurant uses shall be limited to no more than 31,400 square feet and shall be located in buildings that have at least one floor of non-retail uses, except that one freestanding retail building shall be permitted as depicted on Site 3. freestanding retail building shall have a minimum height of 24'. First floor retail uses in the 'For-Sale' condominium building shall have a minimum height of 18'.

- b. Office – Office use shall not exceed 500,000 square feet and building heights shall not exceed 8 stories.
 - c. 'For-Sale' Townhomes – Up to 100 'For-Sale' townhomes shall be permitted in up to 3 story buildings, depicted as Sites 4 & 5 on the site plan. The 1st 50 townhomes shall be built on Site 5. Starting with the 51st townhome, townhomes shall be constructed concurrently with retail/restaurant uses and a certificate of occupancy shall not be issued until a minimum 31,400 square feet of retail/restaurant use has been constructed or is substantially under construction, as determined by Staff. No more than 10% of units shall be rented as stated in the HOA documents.
 - d. 'For-Sale' Condominiums – Up to 130 'For-Sale' condominium units shall be permitted in a building up to 5 stories, depicted as Site 3 on the site plan. At-grade 'For-Sale' condominium units shall be limited to no more than 2 sides of the building and shall have walkouts with sidewalk connections. Active uses, such as commercial and office shall be required on storefront streets. No more than 10% of units shall be rented as stated in the HOA documents.
 - e. Parking Decks – Maximum 6 levels, substantially as depicted on the site plan prepared by AEC, revised 1/9/23, except that parking deck height shall not exceed the finished height of the building it serves. Parking decks visible from Windward Parkway, North Point Parkway and Georgia 400 shall be treated with comparable materials and finishes as the buildings they serve. Parking decks shall be screened from the street and 'For-Sale' townhomes with evergreen landscaping of sufficient size, as approved by DRB. Suitability of parking deck elevation, visibility and landscape screening shall be approved by DRB.
- 4. Site 3 buildings shall have a minimum 30' setback and minimum 20' landscape strip along North Point Parkway.
 - 5. 'For-Sale' condominium building parking deck and service area shall be screened from North Point Parkway and Dryden Road with decorative walls and/or landscaping, as approved by DRB.
 - 6. Buildings with retail uses facing Windward Parkway or North Point Parkway shall not exceed 200' in length, excluding the 'For-Sale' condominium building which has ground floor retail uses facing North Point Parkway.
 - 7. Windward Park shall be limited to the following uses and further restricted by conditions of zoning:
 - a. Office
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 - d. Residential – 'For-Sale', Attached.
 - 8. Minimum parking requirements for 'For-Sale' condominium and townhome units shall be 2.5 spaces/unit and each townhome unit shall have a minimum 18' long driveway.

9. Retail storefront streets shall include landscaping in foundation planters and/or large planted decorative pots, as approved by DRB.
10. Developer shall make reasonable efforts to save the grouping of Sourwoods and an Oak at the northwest corner of North Point Parkway and Dryden Road, as approved by Staff.
11. Open space shall be developed as depicted on the site plan prepared by AEC, revised 1/9/23, including the amenities depicted on Sites 3, 4 and 5.
12. Swimming pool on Site 3 shall be screened from Safe Haven Place with a decorative wall or fencing and decorative landscaping, as approved by DRB.
13. Sculptures and focal point features shall be provided per the 2015 conditions, subject to approval by the Cultural Arts Commission.
14. Retaining walls shall receive architectural façade treatment or be heavily landscaped. Retaining walls visible from developed areas exceeding 16' in height shall be terraced.
15. At least 1 rooftop amenity shall be required within the development. Restaurants shall include outdoor dining areas.
16. Trees, shrubs, and other landscaping planted with the initial installation of development infrastructure shall be assessed and any dead, dying or missing landscaping shall be replaced, as approved by Staff.
17. Areas between townhome driveways shall be landscaped with small trees and shrubs, as approved by DRB.
18. Conditions of zoning related to file #MP-15-04/V-15-08 Windward Point/Pod 66 shall remain in effect, except where modified by the conditions above.
 - Commissioner Stratton seconded the motion.
 - The motion was approved unanimously (6-0)

VI. ANNOUNCEMENTS

VII. ADJOURNMENT

- ❖ With there being no further items to consider or discuss Vice Chairman Brady adjourned the meeting at 7:52 P.M.

Respectfully submitted,

Tracy Jackson

Tracy Jackson, Planning + Zoning Coordinator



CITY COUNCIL MEETING STAFF REPORT

SUBMITTING DEPARTMENT: COMMUNITY DEVELOPMENT

SUBMITTED BY: KATHI COOK

DRAFTED BY: MICHAEL WOODMAN

I. AGENDA ITEM TITLE: MP-23-03 FULTON SCIENCE ACADEMY

PLANNING COMMISSION: JUNE 1, 2023

CITY COUNCIL: JUNE 26, 2023

II. RECOMMENDATION:

Approve MP-23-03 Fulton Science Academy, subject to the following conditions:

1. Site shall be developed substantially as depicted on the site plan prepared by AEC, dated 4/3/23, with a reduced 10' setback in the area of the tennis courts. The remaining frontage along Fanfare Way shall have a 40' setback.
2. Building, landscape plan and lighting shall be approved by DRB.
3. Landscape strip along Fanfare Way shall be supplemented with evergreen landscape material to screen the site along Fanfare Way, as approved by DRB.
4. All site lighting, including lighting for athletic field/courts, shall comply with the City's Night Sky Ordinance, subject to final approval by DRB. Athletic field/courts lighting shall be turned off after 9:00 PM.
5. Developer shall provide the required decorative pedestrian lighting along the property frontage on Fanfare Way.
6. Developer shall assess site landscaping and replace dead, dying or missing landscape material, as approved by DRB.
7. If the proposed improvements impact areas with previous recompense trees, trees shall be replaced with new trees equal to the inches removed since the trees have grown, as approved by Staff.
8. Developer shall comply with the North Point Overlay EcoDistrict regulations, with final approval by Staff at LDP and/or building permit.
9. Developer shall be responsible for implementing the recommendations of the traffic study prepared by A & R Engineering, dated 5/22/2023, with final approval by Staff.
10. Property owner shall dedicate a 20' wide permanent easement to the City through the Georgia 400 buffer for the Alpha Loop project.
11. Property owner shall dedicate a 10' permanent easement to the City along the eastern property line to provide a connection between Maxwell Rd/Fanfare Way sidewalk and the Alpha Loop. Sidewalk connection through the easement will not be constructed until the Alpha Loop has been constructed.
12. All previous master plan regulations and conditions of zoning shall remain in effect.

III. REPORT IN BRIEF:

The applicant, Fulton Science Academy, is requesting a master plan amendment in order to expand the school's athletic program, including the construction of four (4) tennis courts, a soccer field, field house and concessions, parking and a 2nd project driveway. A master plan amendment is requested to modify development regulations, including a reduction of the setback along Fanfare Way to accommodate two (2) tennis courts and retaining walls. The subject property is located at 3035 Fanfare Way, at the southwest corner of Maxwell Road and Fanfare Way.

DISCUSSION

The submitted request, if approved, will allow for an expansion to the Fulton Science Academy's athletic program, including the construction of four (4) tennis courts, a soccer field, field house and concessions, parking and a 2nd project driveway. Fulton Science Academy is a pre-K through 12th grade private school with an enrollment of approximately 935 students. A master plan amendment is requested to modify development regulations,

including a reduction of the setback along Fanfare Way to accommodate two (2) tennis courts and retaining walls. The subject property is located at 3035 Fanfare Way, at the southwest corner of Maxwell Road and Fanfare Way.

The 18.5-acre property is zoned CUP (Community Unit Plan) and is subject to the Cousins Westside Master Plan. The property is designated as Pod O, which is approved for 'Education' use at up to 25,000 square feet per acre. Surrounding properties are zoned CUP to the north, east and west and LI (Light Industrial) to the northeast. Creekside at Westwood, Westwood Park and Honda are located to the north, Emblem Alpharetta is located to the west, Georgia 400 is located to the south and undeveloped Cousins Westside Pod P is located to the east.

The 220-acre Cousins Westside Master Plan was approved in 2003 and includes a horizontal mix of uses, including residential, office, retail/restaurant, senior living, education center, and amphitheater. Permitted uses and development regulations are established for each pod within the master plan. Pod P development regulations require a 40' setback along Fanfare Way. The applicant requests a ten-foot (10') setback along Fanfare Parkway to accommodate two (2) tennis courts and retaining walls. The eight-foot (8') retaining walls sit below the grade of Fanfare Way by approximately five and a half feet (5.5') and will not be visible from the street.

SITE PLAN

The submitted site plan depicts a soccer field, four (4) tennis courts, a fieldhouse with observatory, concessions, additional parking, and a new curb cut and driveway to the west and behind the existing school. The proposed setback along Fanfare Way for the tennis courts is ten feet (10'), which includes the required ten-foot (10') landscape strip. The site has significant topography with the tennis courts situated approximately twelve feet (12') below the grade of Fanfare Way and the soccer field situated approximately 27' below the grade of Fanfare Way. Because the site drops off from Fanfare Way, eight-foot (8') retaining walls are proposed along the north side of the two (2) tennis courts closest to Fanfare Way.

The property has been cleared and graded in the area of the proposed expansion. However, there are several smaller trees that will be removed due to conflicts with the proposed improvements. Most of the impacted trees are Pines, but there are a few hardwoods. In addition, some of the impacted trees are recompense trees resulting from previous tree removal. Those trees, if removed, will need to be recompensed else on the property.

The site plan depicts a new full access curb cut on the northwest side of the property which is aligned with an opposing driveway for Emblem Alpharetta. A total of 191 parking spaces are proposed for the school, which includes 41 new parking spaces along the new driveway and near the existing parking lot on the south side of the school. The Unified Development Code (UDC) requires one (1) parking space for each classroom (55) and administrative offices (19), five (5) guest spaces, and one (1) space for every four (4) high school students (145), for a total of 116 parking spaces.

ATHLETIC FIELD LIGHTING

Tennis court light poles are nineteen feet (19') tall with the light fixture located approximately eight feet (8') above the grade of Fanfare Way. Twenty-four (24) light poles are proposed for the four (4) tennis courts. Soccer field light poles are 50' tall with the light fixture located approximately 25' above the grade of Fanfare Way. Four (4) light poles are proposed for the soccer field. According to the applicant, lighting for the tennis courts and soccer field will be used between the hours of 4:00 PM – 8:00 PM and will be turned off no later than 9:00 PM. The City's Night Sky Ordinance requires no more than one (1.0) footcandle as measured at the property line (including rights-of-way) where abutting residential uses. A photometric plan was submitted by the applicant which depicts footcandles less than one (1.0) as measured at the property line along Fanfare Way. There are higher footcandle readings near this property line; however, that is due to the photometric software not reading topography. Given

the close proximity of residential uses to the applicant's proposed expansion, athletic field/court lighting should be turned off no later than 9:00 PM.

TRAFFIC

The applicant submitted an updated traffic study which accounts for the proposed athletic field expansion. The trip generation table shows that 1,172 AM Peak Hour trips and 259 PM Peak Hour trips would be generated for the private school which has an overall enrollment of 935 students with high school students comprised of approximately 145 students. In addition, the applicant's letter of intent indicates that the need for four (4) tennis courts is related to a desire to host tournaments. According to the applicant, tennis and soccer matches will occur between 4:00 PM and 8:00 PM on weekdays. Tournaments would typically occur over Friday – Saturday during the timeframe referenced above.

The traffic study's conclusions indicate that the applicant's proposal will not significantly impact the area road network and will improve the operation at some intersections due to the additional site driveway. The study includes recommendations related to access configuration at the two (2) site driveways. The City's on-call traffic consultant reviewed the applicant's traffic study and does not agree with the methodology used by the applicant's traffic engineer. The City provided comments to the applicant but no additional quantitative analysis was provided to understand the impact to the roads and whether or not capacity exists.

STANDARDS FOR MASTER PLAN AMENDMENTS

The Planning Commission and the City Council shall consider the following standards in considering a rezoning application, giving due weight or priority to those factors particularly appropriate to the circumstances of each application:

- a. Whether the zoning proposal will permit a use that is suitable in view of the zoning use and development of adjacent and nearby property.

Response: The zoning proposal represents an expansion of a use that is permitted within the master plan land use designation of the property. The site is situated approximately thirteen and a half feet (13.5') below the grade of Fanfare Way and the landscape strip will help screen the courts from Fanfare Way. If approved, the request to reduce the setback along Fanfare Way should be limited to the area of the two (2) tennis courts and retaining walls.

- b. Whether the zoning proposal will adversely affect the existing use or usability of adjacent or nearby property.

Response: The proposed development would not adversely affect adjacent and nearby properties. The site's topography helps shield the athletic field lighting from adjacent residential properties and the student population is unchanged with the proposed athletic program expansion.

- c. Whether the zoning proposal will adversely affect the natural environment.

Response: Most of the property has been cleared and graded limiting opportunities for tree saves. If approved, impacted areas with previous recompense trees shall be replaced onsite.

- d. Whether there are substantial reasons why the property cannot or should not be used as currently zoned.

Response: The subject property could be used as currently zoned but would likely result in the loss of two (2) tennis courts. The master plan amendment would not have significant impacts on surrounding properties due to the subject property being located well below the grade of Fanfare Way. The difference in topography helps screen the athletic field/courts from the public right-of-way and diffuse light from impacting nearby residential uses. If approved, conditions are recommended requiring evergreen screening in the landscape strip along Fanfare Way, as well as time limitations on athletic field/courts lighting.

e. Whether the zoning proposal will result in a use that will or could cause an excessive or burdensome use of public facilities or services, including but not limited to existing streets and transportation facilities, schools, water or sewer utilities, and police or fire protection.

Response: The zoning proposal has no impact on student enrollment; therefore, there should be minimal impact on public facilities and services. Sufficient capacity exists on the area road network to support the additional vehicular trips generated from the athletic program expansion.

f. Whether the zoning proposal is supported by new or changing conditions not anticipated or reflected in the existing zoning on the property.

Response: Not applicable.

g. Whether the zoning proposal reflects a reasonable balance between the promotion of the public health, safety, morality, or general welfare against the right to unrestricted use of property.

Response: The zoning proposal reflects a reasonable balance. The proposal represents an expansion of a use that is permitted within the master plan land use designation of the property and the student enrollment is unchanged.

h. Whether there are substantial reasons why the property cannot be used in accordance with existing zoning.

Response: The subject property could be used as currently zoned but would likely result in the loss of two (2) tennis courts. The master plan amendment would not have significant impacts on surrounding properties due to the subject property being located well below the grade of Fanfare Way. The difference in topography helps screen the athletic field/courts from the public right-of-way and diffuse light from impacting nearby residential uses. If approved, conditions are recommended requiring evergreen screening in the landscape strip along Fanfare Way, as well as time limitations on athletic field/courts lighting.

i. The extent to which the zoning proposal is consistent with the Comprehensive Plan.

Response: The zoning proposal is consistent with the comprehensive land use plan designation of the subject property, which is 'Mixed Use'.

CONCURRENCES

Staff has reviewed the applicant's proposal against the review criteria for a master plan amendment. The zoning proposal represents an expansion of a use that is already permitted within the master plan and the school enrollment is unchanged. The site's topography helps offset any impacts to surrounding properties. If approved, conditions are recommended limiting the setback reduction to the tennis courts and retaining walls, requiring evergreen screening in the landscape strip along Fanfare Way, and placing time limitations on the use of athletic field/courts lighting.

CITIZEN PARTICIPATION PLAN

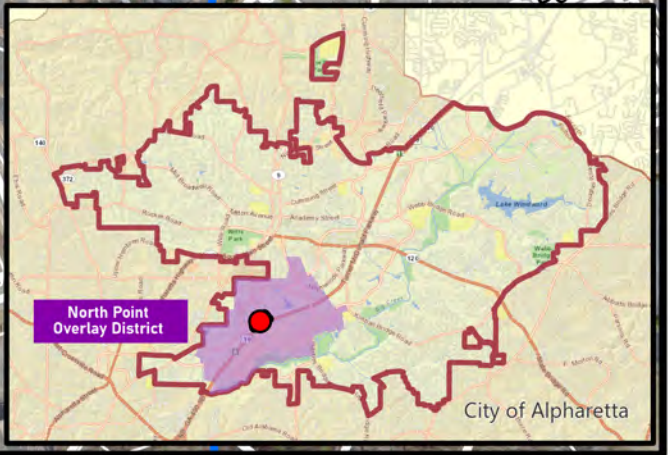
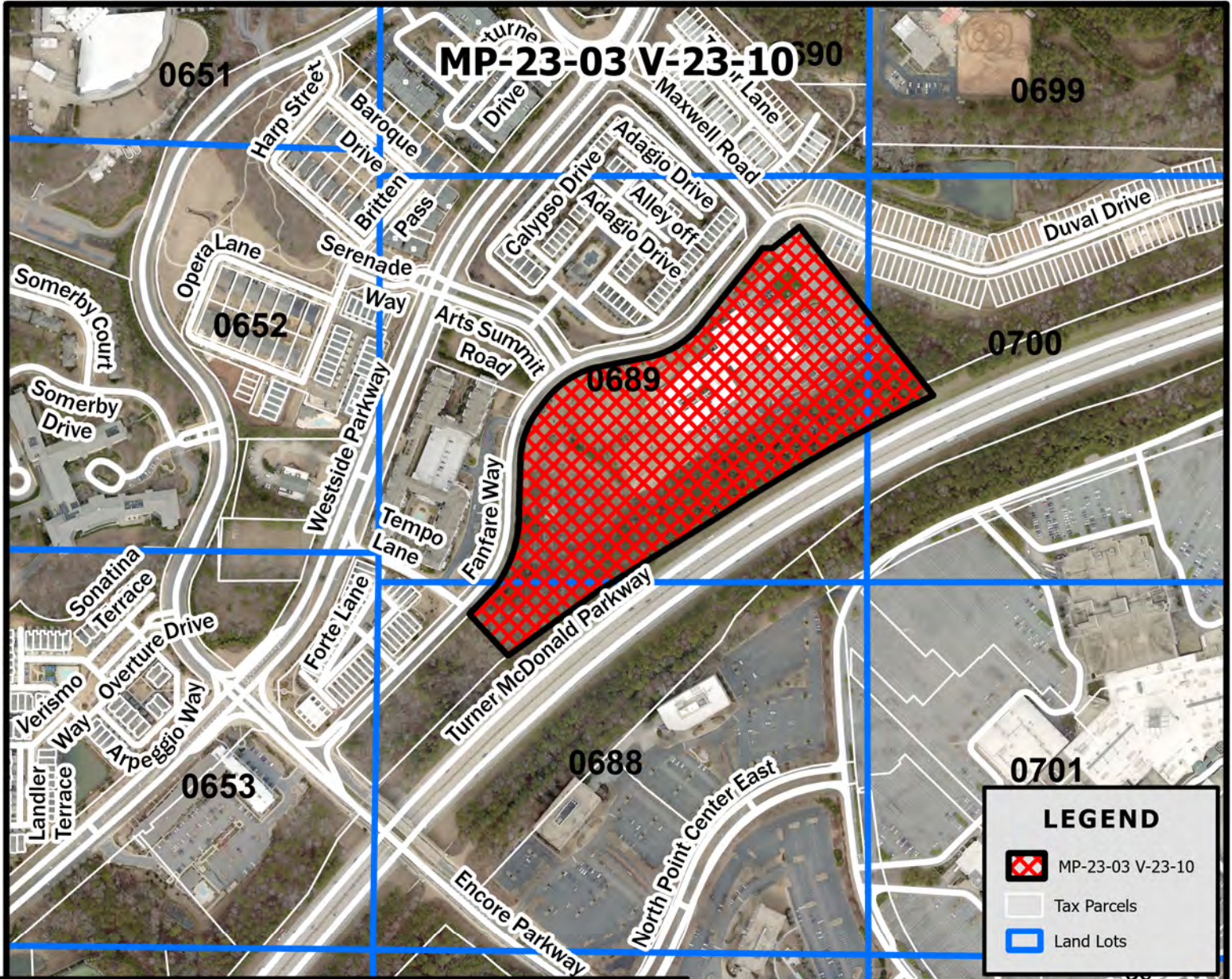
The report submitted by the applicant states that property owners within 500' were contacted regarding the applicant's intent. The report states that one (1) comment was received from an adjacent resident asking about the tennis courts and requesting pedestrian lighting along Fanfare Way.

COMMUNITY ZONING INFORMATION MEETING

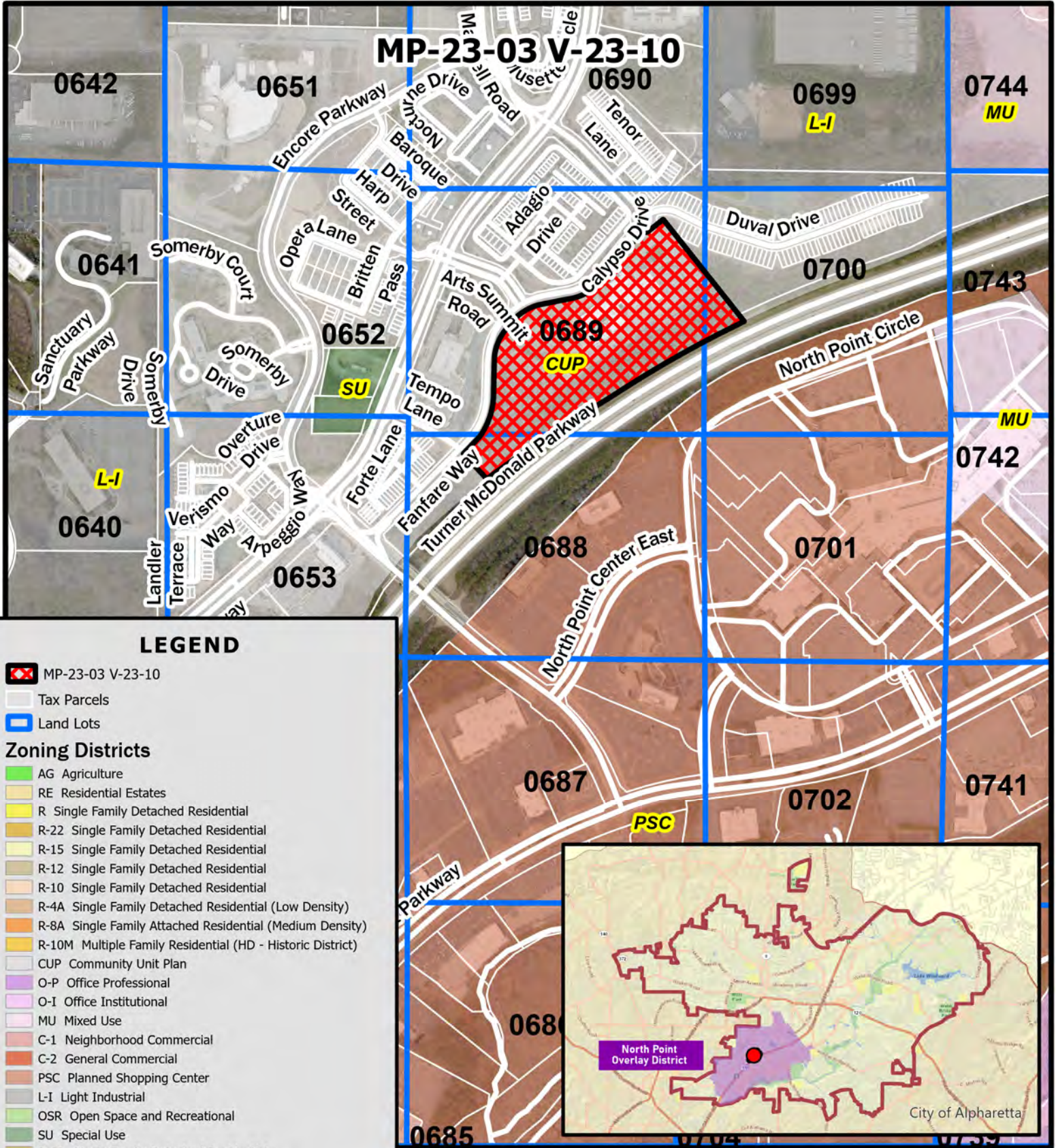
The CZIM was held on June 14, 2023. There were no public comments.

IV. ATTACHMENTS:

- Aerial Map
- Zoning Map
- Future Land Use Map
- Location Map
- Updated Lighting Plan
- Updated Traffic Study
- CZIM Sign In Sheet
- Citizen Part B
- Application



MP-23-03 V-23-10
D/LL: 1/2/688,
689, 700
PC: 6/01/23
CC: 6/26/23



LEGEND

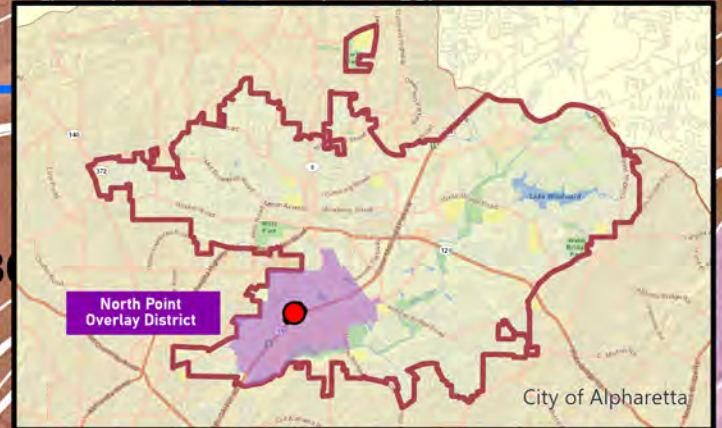
MP-23-03 V-23-10

Tax Parcels

Land Lots

Zoning Districts

- AG Agriculture
- RE Residential Estates
- R Single Family Detached Residential
- R-22 Single Family Detached Residential
- R-15 Single Family Detached Residential
- R-12 Single Family Detached Residential
- R-10 Single Family Detached Residential
- R-4A Single Family Detached Residential (Low Density)
- R-8A Single Family Attached Residential (Medium Density)
- R-10M Multiple Family Residential (HD - Historic District)
- CUP Community Unit Plan
- O-P Office Professional
- O-I Office Institutional
- MU Mixed Use
- C-1 Neighborhood Commercial
- C-2 General Commercial
- PSC Planned Shopping Center
- L-I Light Industrial
- OSR Open Space and Recreational
- SU Special Use
- R-8D Single Family Detached Residential
- R-4D Single Family Detached Residential (Medium Density)
- R-8A/D Single Family Attached/Detached Residential
- DT-C Downtown Core
- DT-MU Downtown Mixed-Use
- DT-LW Downtown Live-Work
- DT-R Downtown Residential



MP-23-03 V-23-10

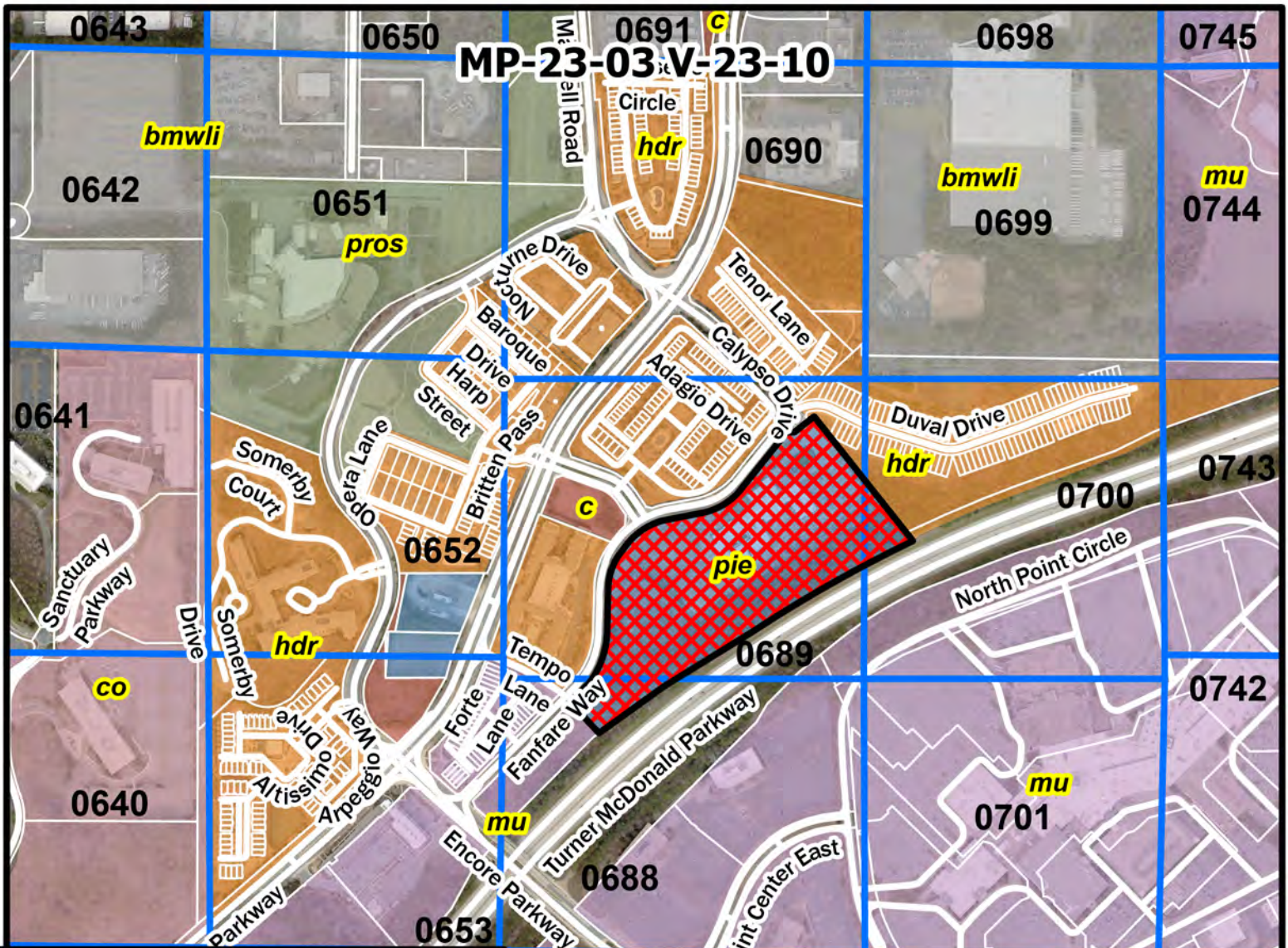
D/LL: 1/2/688,

689, 700

PC: 6/01/23

CC: 6/26/23

Zoning Map
Fulton Science Academy
3035 Fanfare Way



LEGEND

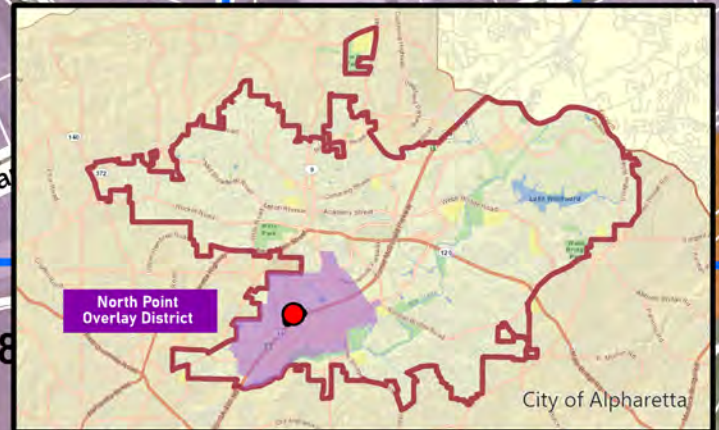
MP-23-03 V-23-10

Tax Parcels

Land Lots

2040 Future Land Use

- Business, Manufacturing, Warehousing, Light Industrial
- Central Business District
- Commercial
- Corporate Office
- Downtown Residential Density
- High Density Residential
- Low Density Residential
- Medium Density Residential
- Mixed Use
- Mixed Use Live Work
- Parks, Recreation, Open Space
- Professional Business Office
- Public, Institutional, Education
- Residential Estate
- Very Low Density Residential

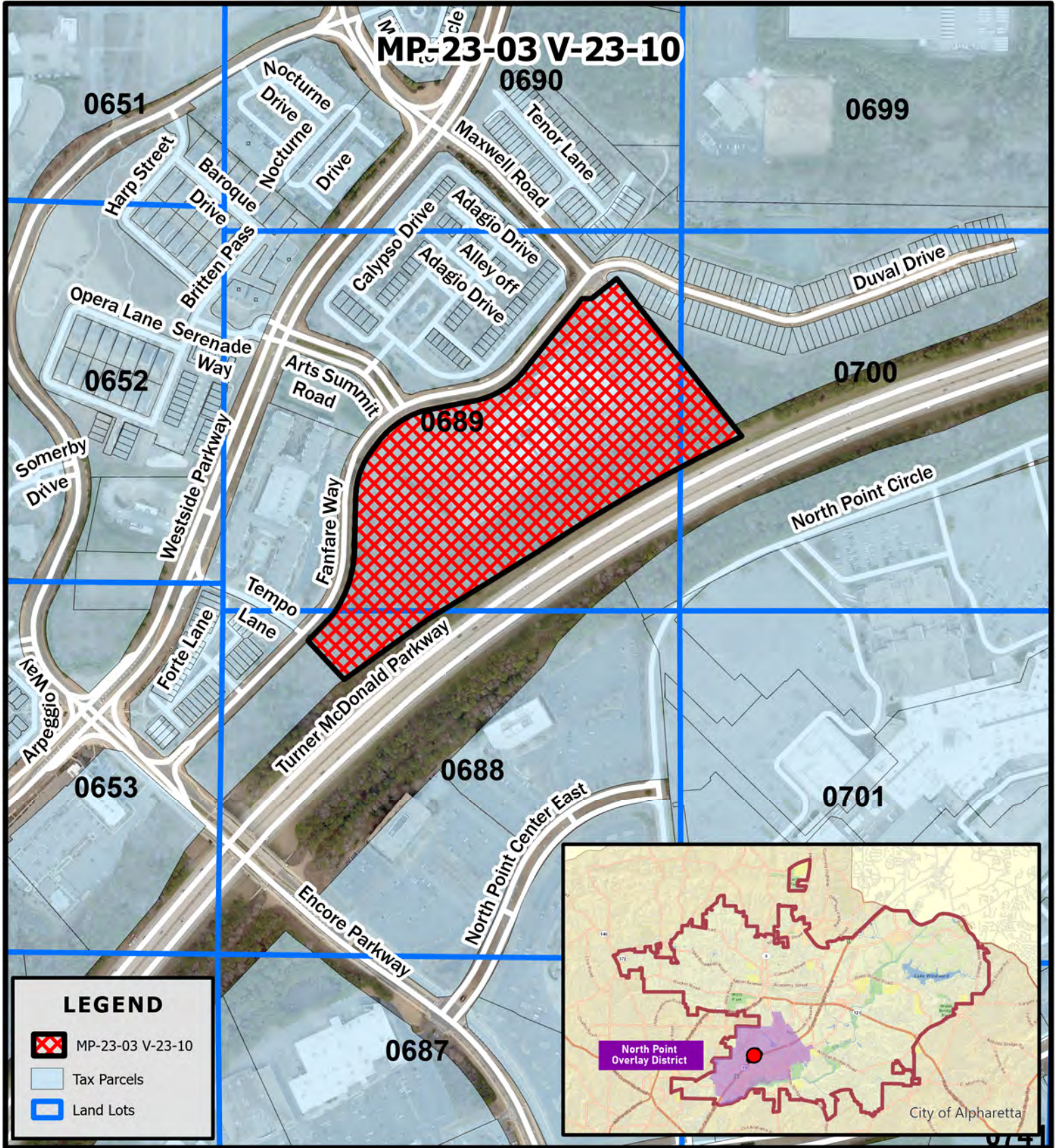


MP-23-03 V-23-10

**D/LL: 1/2/688,
689, 700**

PC: 6/01/23

CC: 6/26/23



MP-23-03 V-23-10

MP-23-03 V-23-10

**D/LL: 1/2/688,
689, 700**

PC: 6/01/23

CC: 6/26/23

**Location Map
Fulton Science Academy
3035 Fanfare Way**

**Location Map Provided by:
Community Development - GIS
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Mounting Height: GALN: 19'-0" above court
EPH: 40'-0" AFG

Berms: Blue: 24.11' AFG, Yellow: 20.41 ' AFG
Calculation Height: Spill Light/Street: 0'-0' AFG, Berm: 24.11' AFG (blue)

Luminaire Schedule								
Symbol	Qty	Tag	Label	Arrangement	LLF	Lum Lumens	Description	Total Watts
	4	2S	EPH -2S	SINGLE	0.900	90985	EPH-08-0640L-57-70-2S-HEG	2668
	4	3S	EPH -3S	SINGLE	0.900	89640	EPH-08-0640L-57-70-3S-HEG	2724
	14	4S	EPH -4S	SINGLE	0.900	89596	EPH-08-0640L-57-70-4S-HEG	9534
	6	2S-CV1	EPH-2S-CV1	Single	0.900	72684	EPH-LS-08-0640L-57-70-2S-CV1	4098
	2	3S-CV1	EPH-3S-CV1	Single	0.900	73139	EPH-LS-08-0640L-57-70-3S-CV1	1394
	6	A3	GALN-SA8D-T4FT-HSS	Single	0.900	44982	GALN-SA8D-750-U-T4FT-HSS	2958
	3	A2	GALN-SA8D-T4FT-HSS-2	Back-Back	0.900	44982	GALN-SA8D-750-U-T4FT-HSS-b2b	2958
	12	A1	GALN-SA9D-T4W-HSS	SINGLE	0.900	50733	GALN-SA9D-750-U-T4W-HSS	6624

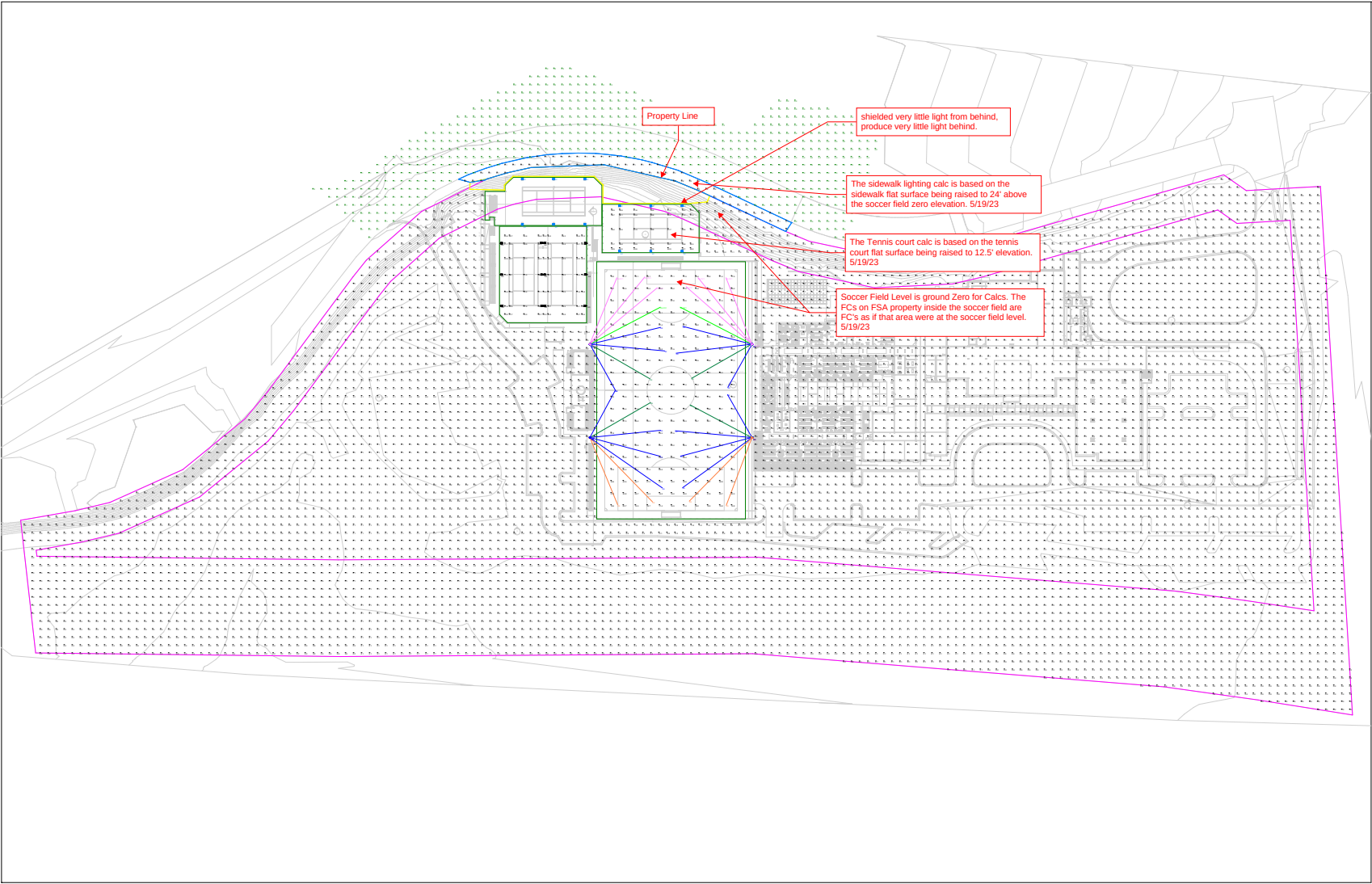
Calculation Summary									
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	PtSpcLr	PtSpcTb
Blue Berm_Top	Illuminance	Fc	0.12	0.3	0.0	N.A.	N.A.	10	10
Double Tennis Courts_3FT APS	Illuminance	Fc	31.84	47.4	21.6	1.47	2.19	N.A.	N.A.
Single Court_3FT APS	Illuminance	Fc	33.49	44.7	21.3	1.57	2.10	N.A.	N.A.
Soccer_3FT APF	Illuminance	Fc	31.28	48.0	16.0	1.96	3.00	15	15
Spill Light Calcs	Illuminance	Fc	0.47	20.2	0.0	N.A.	N.A.	10	10
Street Plan North_Grade	Illuminance	Fc	0.03	0.6	0.0	N.A.	N.A.	10	10

The calculations provided in this report are predicted lighting levels based on the above described input data and characteristics. All information should be reviewed for accuracy, understanding and agreement with all information. Any discrepancies should be noted and the preparer of this report immediately advised to clarify or change as required.

Actual lighting levels may vary from this report due to a variety of circumstances, such as: reflectances, voltage variations, objects blocking or redirecting light, different mounting heights, installation, lamp and ballast tolerances, etc. Room is considered completely empty unless noted otherwise above. Unless specifically stated otherwise, predicted foot candles are not a recommendation of lighting levels.

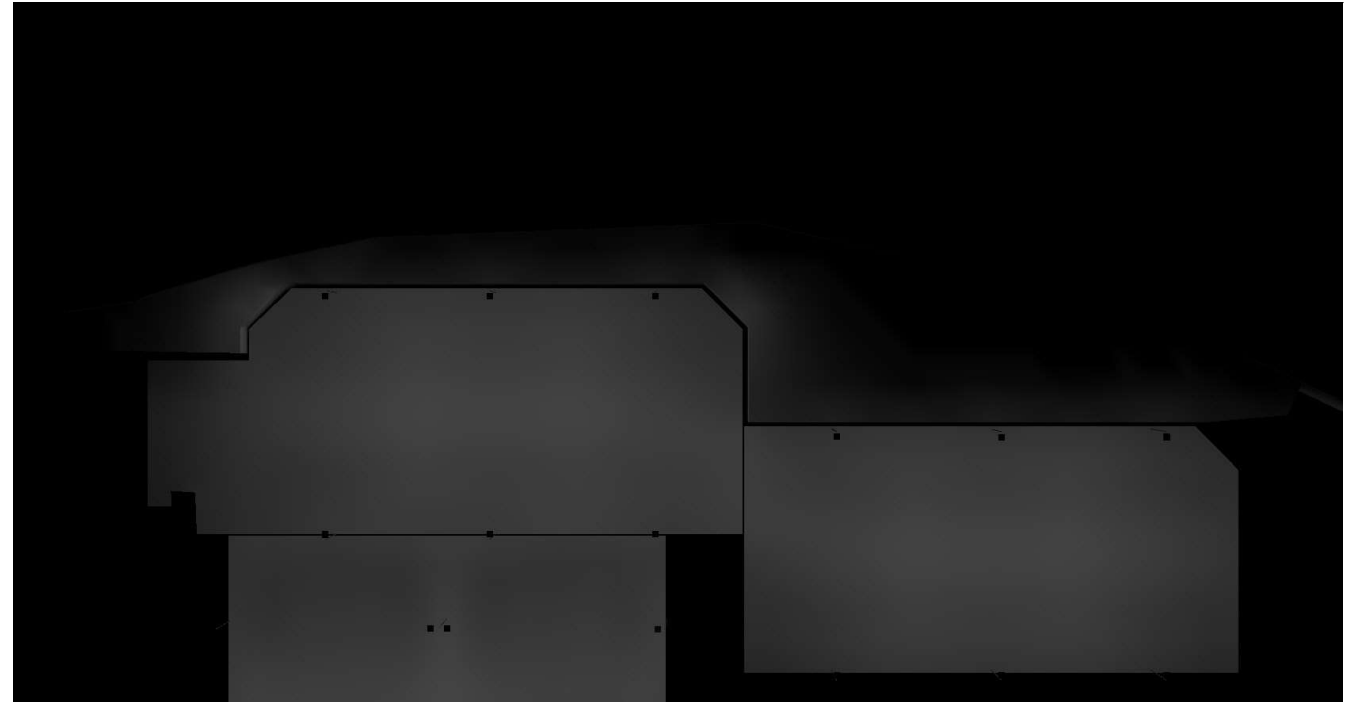
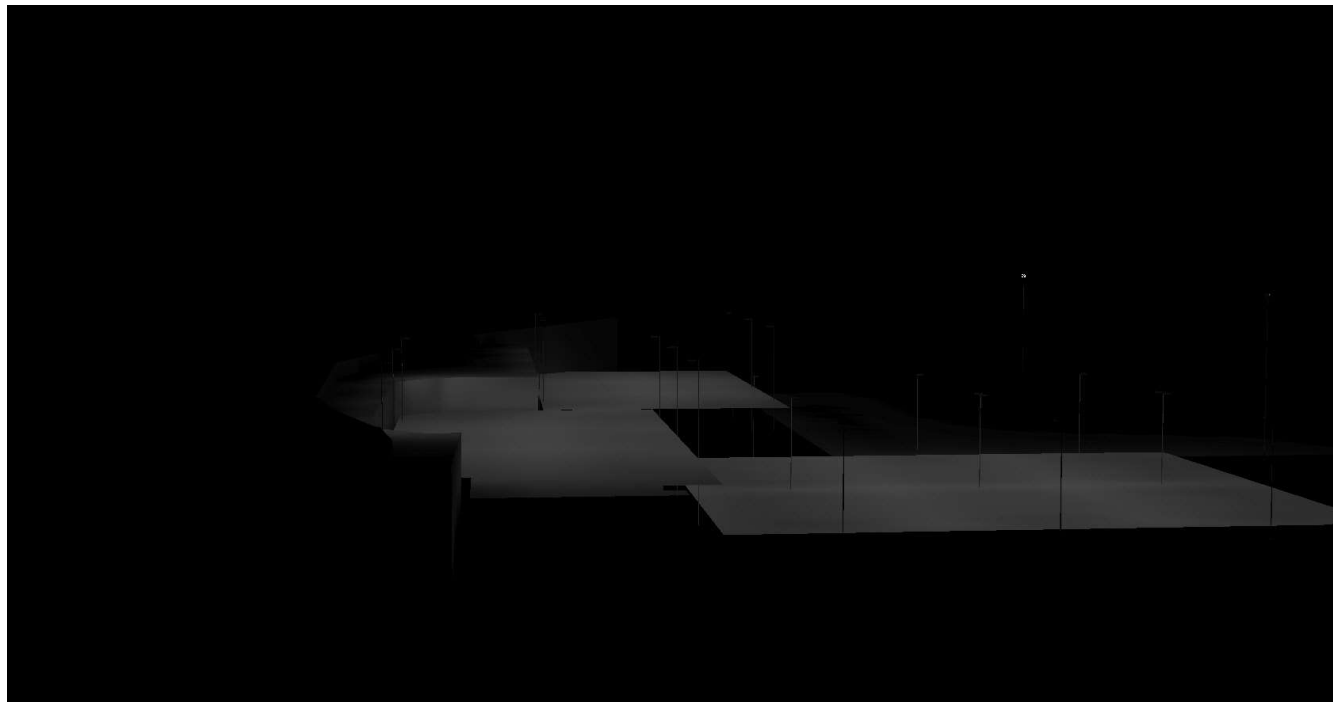
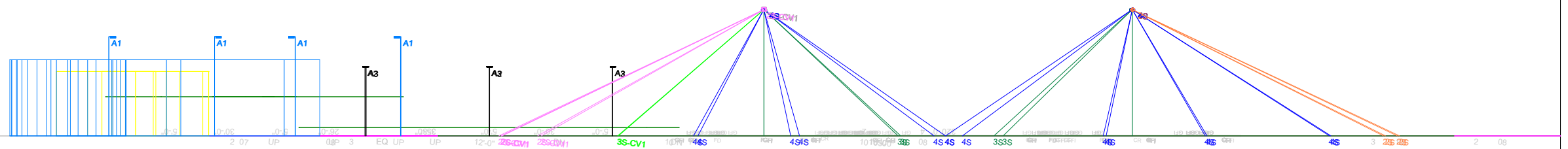
Ardd & Winter, Inc. assumes no responsibility for any such variances and will not be held responsible for lighting levels different from predicted levels in this report. Recipient of this report, or someone designated by recipient, must verify that lighting fixtures will physically fit within the specified location(s). Catalog numbers of lighting fixtures may not be complete as all conditions may not be known.

Where backgrounds are shown, these are typically used for reference purposes only, unless noted otherwise. Additional details available upon request.



Calculations By: WES
Revised By:
Date:5/18/2023
Scale: Not to Scale

Project Name: FSA Phase 3 Tennis Courts and Soccer Field Spill Light
Revision: P5A

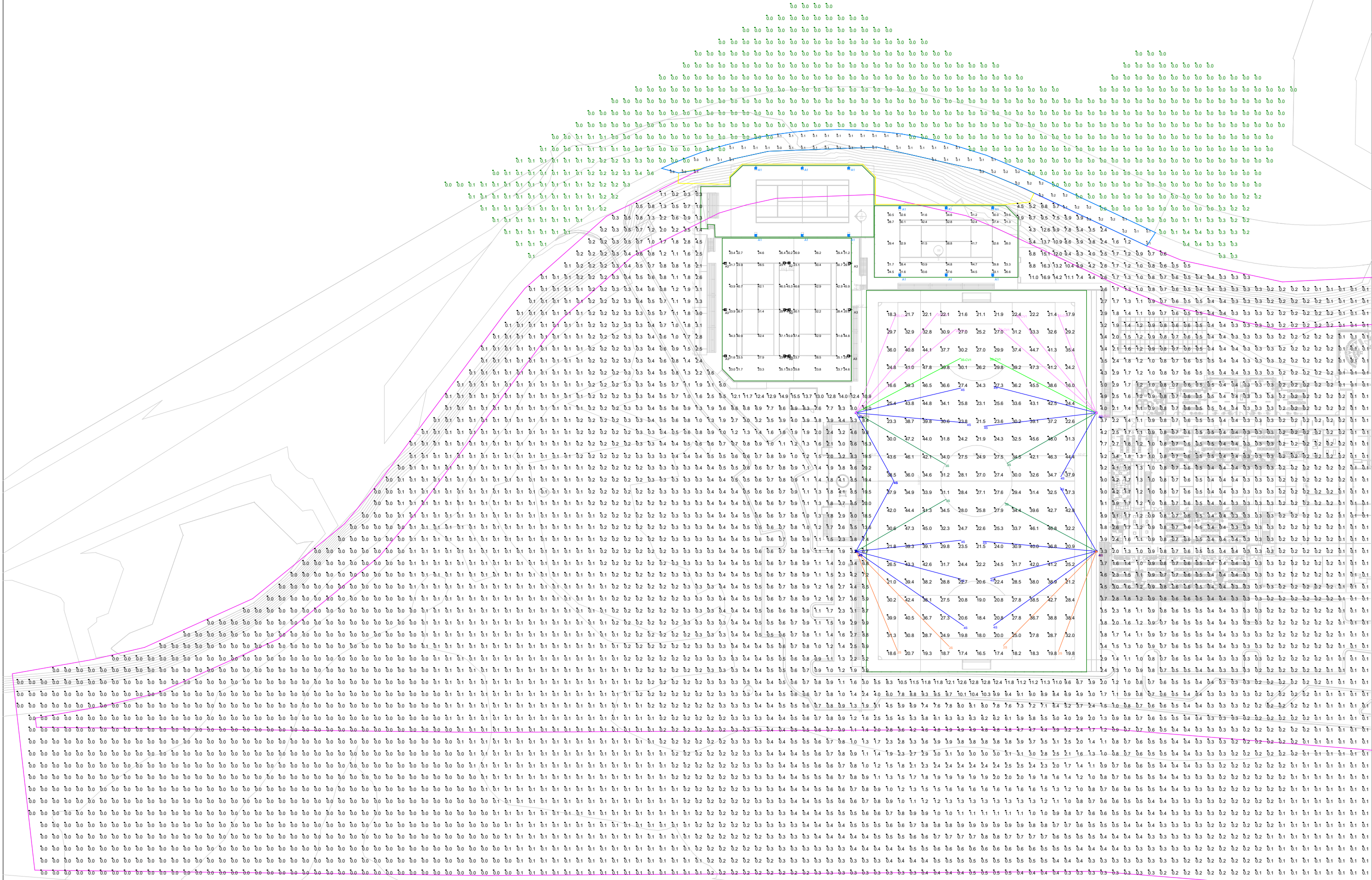


See Page 1 for A+W Disclaimer.

Calculations By: WES
Revised By:
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Project Name: FSA Phase 3 Tennis Courts and Soccer Field Spill Light

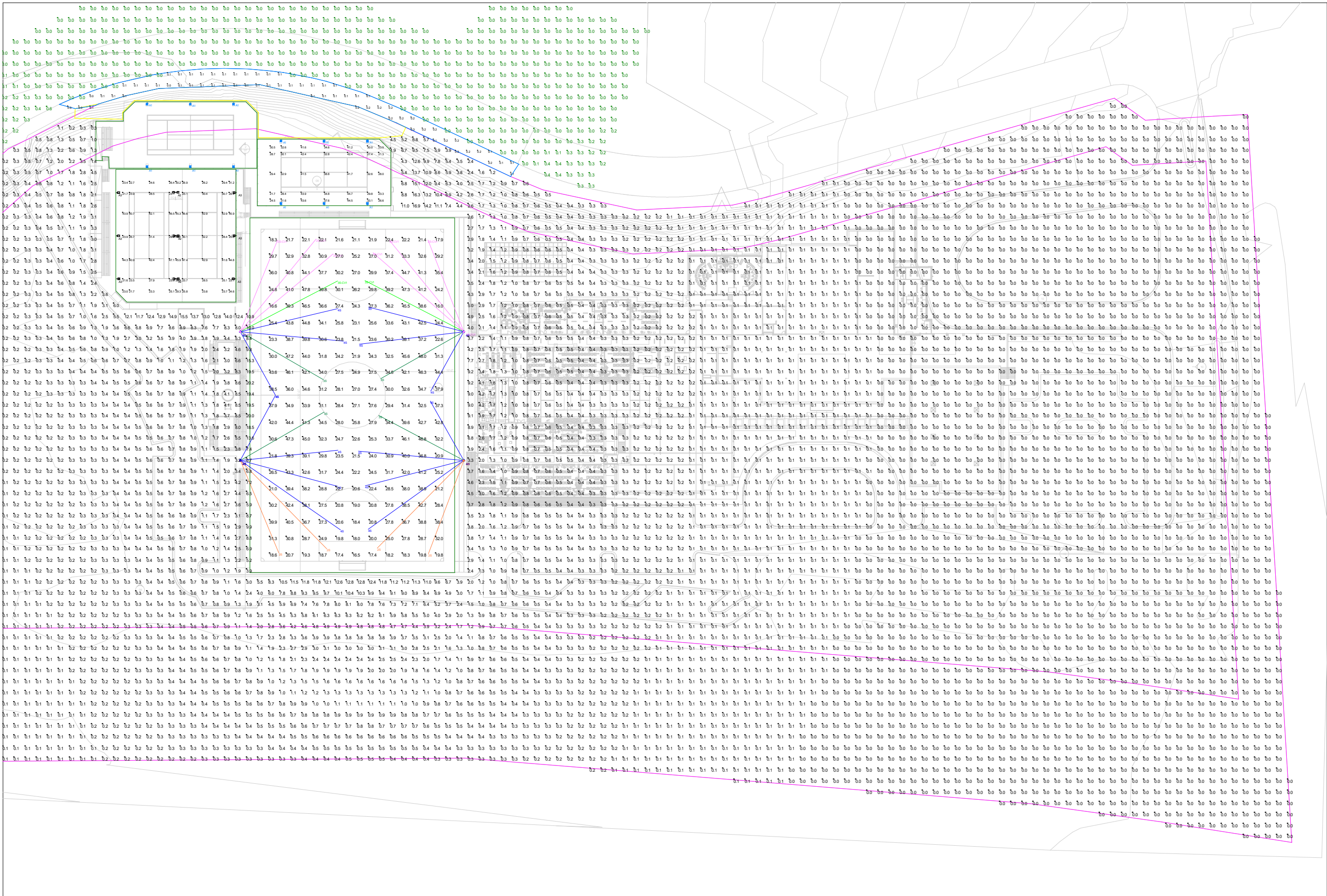
Revision: P5A

Calculations By: WES

Revised By:

Date:5/18/2023

Scale: Not to Scale



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Calculations By: WES
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Date:5/18/2023
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Revision: P5A

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Lighting Manufacturer Representatives

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**TRAFFIC IMPACT STUDY
FOR
FULTON SCIENCE ACADEMY EXPANSION

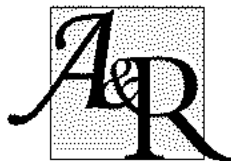
CITY OF ALPHARETTA, GEORGIA**



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May 22, 2023
A & R Project # 23-034

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1.0 INTRODUCTION

The purpose of this study is to determine the traffic impact from the planned expansion project for Fulton Science Academy, which is located east of Fanfare Way in Alpharetta, Georgia. The traffic analysis evaluates the current operations and future conditions with the traffic generated by the development.



Fulton Science Academy is a pre-k - 12th grade private school that is planned to undergo a series of improvements to the existing building and surrounding property. The improvements will consist of the addition of a few rooms to the school building, such as an innovation center room and a music room (no classrooms will be added to increase student capacity). Additionally, the project will also consist of a parking lot expansion to allow for 47 more parking spaces, the construction of a new soccer field and four tennis courts on the west side of the property, and the addition of a second access point via a new southern site driveway. This new site driveway will alleviate part of the school peak hour traffic that currently uses the only available entrance on Maxwell Road (Site Driveway 1). The southern site driveway will be made available for high school arrival and dismissal traffic, with the high school enrollment comprising approximately 25% of the overall enrollment of 935 students.

Upon completion of the expansion project, the school will provide access at the following locations:

- Site Driveway 1 (Existing Entrance): Full access northern driveway that consists of the eastern end of Maxwell Drive beyond its intersection with Fanfare Way / Duval Drive
- Site Driveway 2: Proposed full access driveway on Fanfare Way aligned with the Eastern Right-In/Right-Out Driveway to the Emblem Alpharetta residential development

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

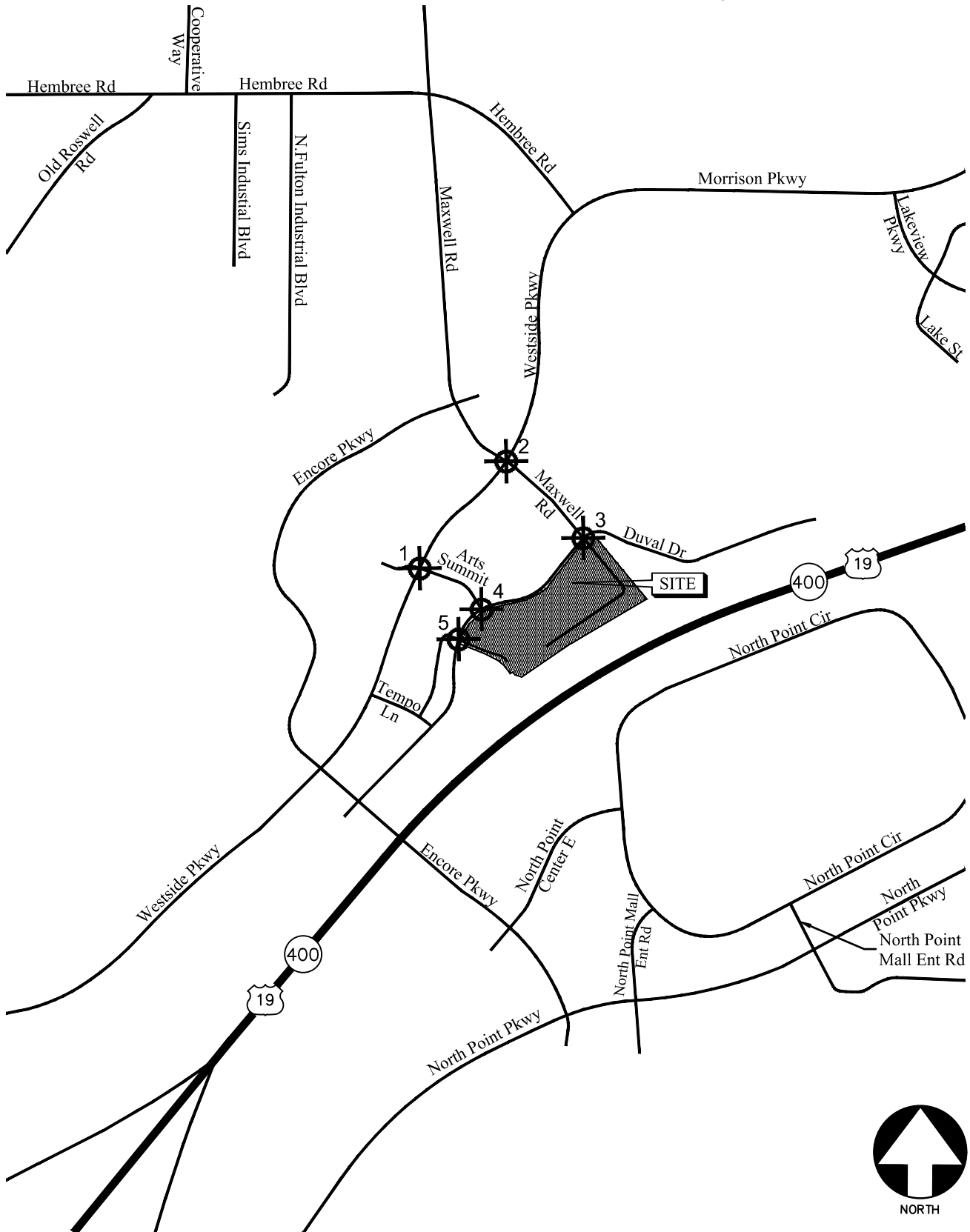
- Westside Parkway at Arts Summit
- Westside Parkway at Maxwell Road
- Maxwell Road at Fanfare Way / Duval Drive
- Fanfare Way at Arts Summit

Note: Although the soccer field and four tennis courts are expected to hold sporting events and tournaments on weekdays and possibly weekends, the potential added traffic from these facilities were not analyzed for the following reasons:

- 1) Fulton Science Academy is a private school and will not offer regular access to the sports facilities to those who are not enrolled students throughout most of the day. Therefore, the majority of those who use these facilities on a consistent basis will be students already on campus who will not be counted as “added trips” to or from the school. However, some students that would otherwise be leaving the school during the dismissal/PM peak hours will now be staying longer to participate in these events. Therefore, it can be assumed that a significant volume of the entering/exiting traffic at the school when these events occur in the afternoon will be offset by the reduction of students being picked up/leaving the school, as many of these same students will stay to take part in these events on the tennis courts/soccer fields.
- 2) The primary exception for when other families or students from outside the school will ever use these facilities will be when Fulton Science Academy hosts scheduled games on either the tennis courts or soccer fields. Any tournaments scheduled to be held at the school will be limited to four tennis matches and/or one soccer game at a time. These events will not occur on a consistent schedule and will likely be held either during the PM peak hour or later in the evening when traffic in the area/from the school has died down. However, due to the dismissal schedule of Fulton Science Academy, more students are let out from 3-4 PM (dismissal peak hour) than during the PM peak hour of 4-5 PM, as shown in Figure 2 on page 9. Therefore, if the traffic operations in the study area around the school operate acceptably during the dismissal peak hour with the added driveway, then the same can be expected for traffic operations during times when events occur during the PM peak hour.
- 3) There are no reliable ITE Land Use categories to use for estimating trip generation by private soccer complex/tennis court facilities. The data collected for ITE trip generation in these categories tend to be collected at public facilities that are open to both children and adults throughout the day, which does not match the circumstances of this planned private school redevelopment.

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

 Study Intersection



LOCATION MAP

FIGURE 1
A&R Engineering Inc.

2.0 EXISTING FACILITIES / CONDITIONS

2.1 Roadway Facilities

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

2.1.1 *Westside Parkway*

Westside Parkway is a north-south, four-lane, median-divided roadway with a posted speed limit of 40 mph in the vicinity of the site. Georgia Department of Transportation (GDOT) traffic counts (Station ID: 121-0938) indicate that the daily traffic volume on Westside Parkway in 2021 was 9,920 vehicles per day north of Encore Parkway. GDOT classifies Westside Parkway as an urban minor arterial roadway.

2.1.2 *Maxwell Road*

Maxwell Road is an east-west, two-lane, undivided roadway with a posted speed limit of 25 mph in the vicinity of the site. Maxwell Road currently serves as the only access point for Fulton Science Academy to the east of Fanfare Way / Duval Drive.

2.1.3 *Fanfare Way*

Fanfare Way is a north-south, two-lane, undivided roadway with a posted speed limit of 25 mph in the vicinity of the site.

2.1.4 *Arts Summit*

Arts Summit is an east-west, two-lane, undivided roadway with a posted speed limit of 25 mph in the vicinity of the site.

2.1.5 *Duval Drive*

Duval Drive is a north-south, two-lane, undivided roadway with a posted speed limit of 25 mph in the vicinity of the site.

3.0 STUDY METHODOLOGY

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

3.1 Unsignalized Intersections

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

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

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

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

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

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

3.2 Signalized Intersections

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

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

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

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

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

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

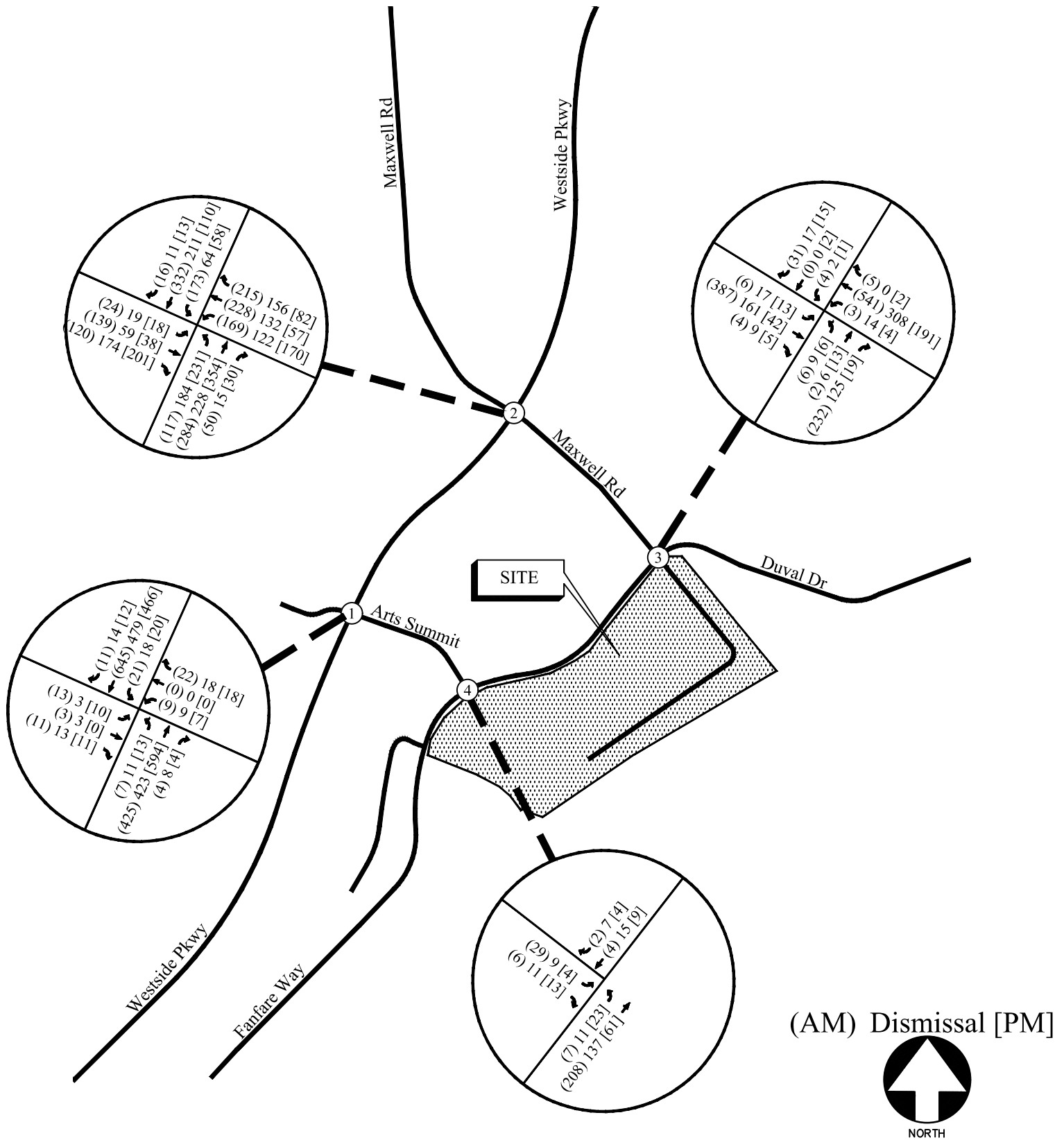
4.0 EXISTING 2023 TRAFFIC ANALYSIS

4.1 Existing Traffic Volumes

Existing traffic counts were obtained at the following study intersections:

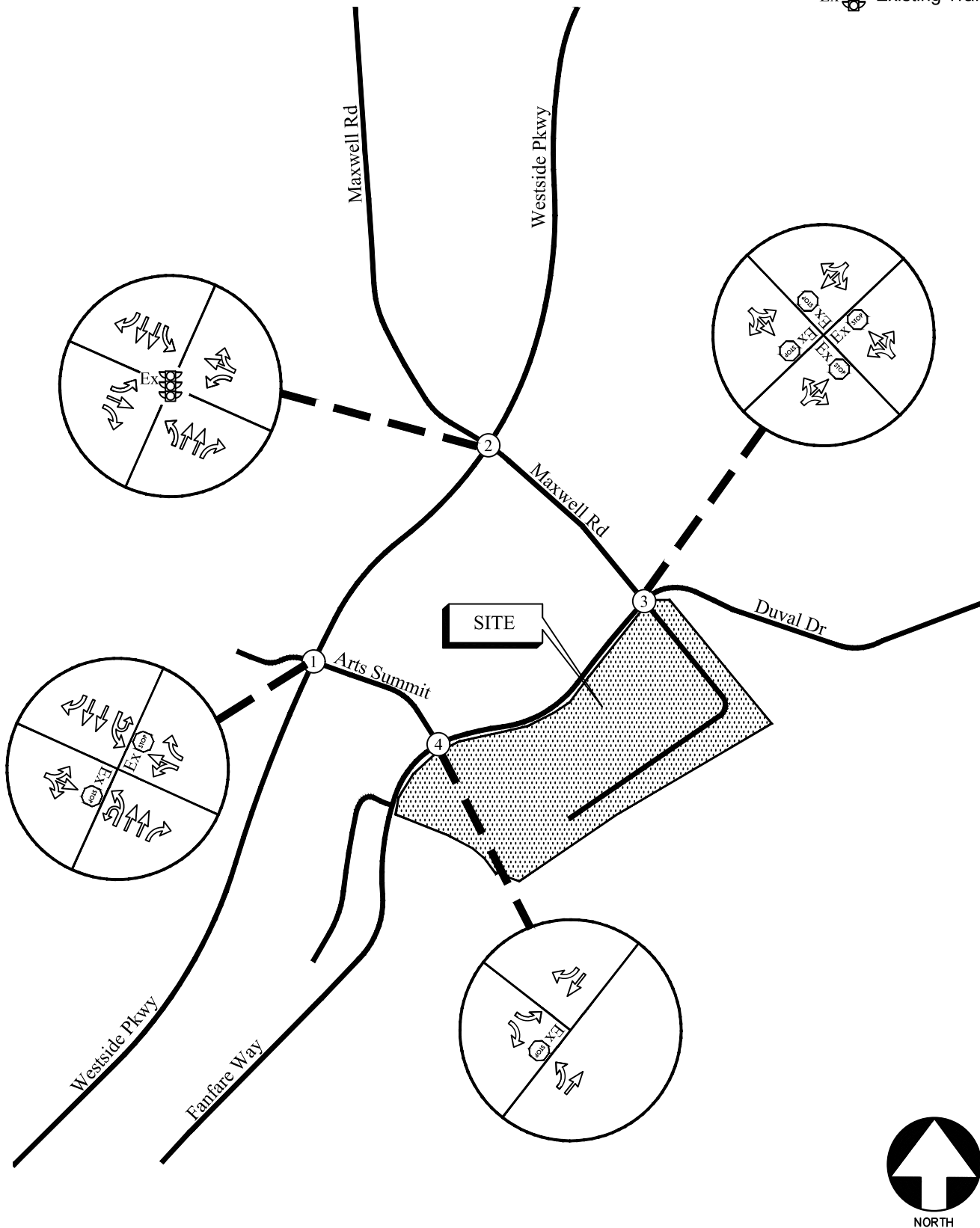
- Westside Parkway at Arts Summit
- Westside Parkway at Maxwell Road
- Maxwell Road at Fanfare Way / Duval Drive
- Fanfare Way at Arts Summit

Turning movement counts were collected on Tuesday, April 25, 2023. All turning movement counts were recorded during the AM, School Dismissal and PM peak hours between 7:00 am to 9:00 am, 2:00 am to 4:00 pm, and 4:00 pm to 6:00 pm, respectively. The four consecutive 15-minute interval volumes that summed to produce the highest volume at the intersections were then determined. These volumes make up the peak hour traffic volumes for the intersections counted and are shown in Figure 2. The existing traffic control and lane geometry for the intersections are shown in Figure 3.



LEGEND

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



EXISTING TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 3
A&R Engineering Inc.

4.2 Existing Traffic Operations

Existing 2023 traffic operations were analyzed at the study intersections in accordance with the HCM methodology. The results of the analysis are shown in Table 3.

TABLE 3 — EXISTING INTERSECTION OPERATIONS					
Intersection		Traffic Control	LOS (Delay)		
			AM Peak Hour	Dismissal	PM Peak Hour
1	<u>Westside Parkway @ Arts Summit</u>	Stop Controlled on EB and WB Approaches			
	-Eastbound Approach		C (19.1)	B (14.2)	C (16.4)
	-Westbound Approach		B (12.7)	B (13.3)	B (14.5)
	-Northbound Left		A (9.0)	A (8.6)	A (8.5)
	-Southbound Left		A (8.3)	A (8.4)	A (9.0)
2	<u>Westside Parkway @ Maxwell Road</u>	Signalized	<u>C (31.3)</u>	<u>C (27.4)</u>	<u>C (22.8)</u>
	-Eastbound Approach		D (36.8)	D (44.2)	E (56.8)
	-Westbound Approach		D (45.6)	D (48.1)	D (50.2)
	-Northbound Approach		C (21.7)	B (12.6)	A (9.2)
	-Southbound Approach		C (20.6)	B (14.7)	B (10.5)
3	<u>Maxwell Road / Site Driveway @ Fanfare Way / Duval Drive</u>	All-Way Stop Controlled	<u>F (144.1)</u>	<u>B (11.0)</u>	<u>B (12.0)</u>
	-Eastbound Approach		F (87.6)	A (10.0)	A (9.0)
	-Westbound Approach		F (245.4)	B (12.4)	B (13.8)
	-Northbound Approach		C (24.9)	A (9.4)	A (9.0)
	-Southbound Approach		B (13.9)	A (8.4)	A (8.4)
4	<u>Fanfare Way @Arts Summit</u>	Stop Controlled on EB Approach			
	-Eastbound Approach		B (11.1)	A (9.1)	A (8.8)
	-Northbound Left		A (7.3)	A (7.3)	A (7.3)

The results of the existing traffic operations analysis indicate that the signalized intersection of Westside Parkway at Maxwell Road is operating at an overall level of service “C” during the AM, School Dismissal, and PM peak hours. Most of the stop-controlled approaches at the unsignalized study intersections are operating at a level of service “C” or better during all peak hours, except for the eastbound and westbound approaches at the intersection of Maxwell Road at Fanfare Way / Duval Drive, which are operating at a level of service “F” in the AM peak hour. These approaches are primarily used by traffic entering and exiting Fulton Science Academy, with the proposed future western site driveway being intended to alleviate the high traffic volumes that currently rely on this single access point.

5.0 PROPOSED DEVELOPMENT

Fulton Science Academy is a pre-k - 12th grade private school that is planned to undergo a series of improvements to the existing building and surrounding property. The improvements will consist of the addition of a few rooms to the school building, such as an innovation center room and a music room (no classrooms will be added to increase student capacity). Additionally, the project will also consist of a parking lot expansion to allow for 47 more parking spaces, the construction of a new soccer field and four tennis courts on the west side of the property, and the addition of a second access point via a new southern site driveway. This new site driveway will alleviate part of the school peak hour traffic that currently uses the only available entrance on Maxwell Road (Site Driveway 1). The southern site driveway will be made available for high school arrival and dismissal traffic, with the high school enrollment comprising approximately 25% of the overall enrollment of 935 students.



Upon completion of the expansion project, the school will provide access at the following locations:

- Site Driveway 1 (Existing Entrance): Full access northern driveway that consists of the eastern end of Maxwell Drive beyond its intersection with Fanfare Way / Duval Drive
- Site Driveway 2: Proposed full access southern driveway on Fanfare Way aligned with the Eastern Right-In/Right-Out Driveway to the Emblem Alpharetta residential development

A site plan is shown in Figure 4.



A&R Engineering Inc.

5.1 Trip Generation

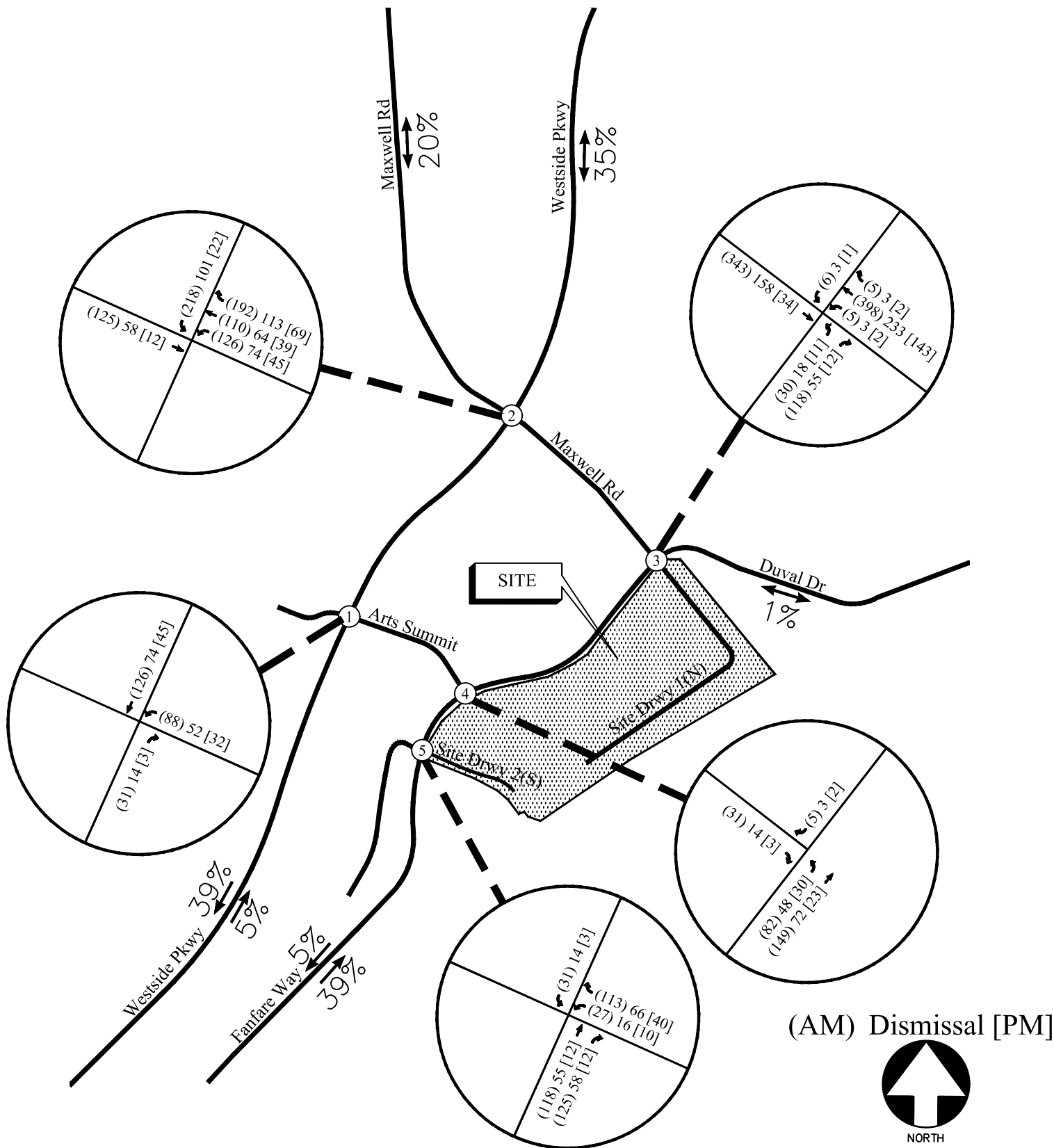
Data collected from counts at the site driveway was used to estimate the trip generation for this project. The school access point (Maxwell Road/Site Driveway) serves as the westbound approach to the intersection of Maxwell Road at Fanfare Way / Duval Drive. Eastbound through traffic was added to southbound left and northbound right turning movements to determine the peak hour volumes for entering traffic, while the counted westbound traffic indicated the volumes of peak hour exiting traffic. The calculated total trip generation for the Fulton Science Academy is shown in Table 4.

TABLE 4 – TRIP GENERATION										
Land Use	Size	AM Peak Hour			Dismissal Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Private School (K-12)	935 Students	623	549	1,172	288	322	610	62	197	259

To conduct an auxiliary lane analysis at the proposed future western site driveway, the 24-hour 2-way traffic volume for the school was estimated per ITE trip generation manual (11th edition) methodology for the land use category 532 – *Private School (K-12)*. According to ITE estimations, the overall combined entering and existing volume for site traffic is 2,319 vehicles per weekday.

Due to the planned addition of a new southern site driveway to provide sperate access for high school traffic, a part of the existing traffic volumes was shifted to the new driveway for the future build conditions analysis. This was done by analyzing the existing traffic volumes and their turning movements to estimate the existing site-generated traffic distribution, then altering these volumes based on the assumed future site traffic distribution (Figure 5) that will be affected by the second site driveway addition. These distribution values were based on a review of the existing travel patterns in the area and the locations of major roadways and highways located in the vicinity of the school.

An example of how site traffic was shifted for the future conditions can be observed at intersection 4 (Fanfare Way at Arts Summit). Based on the heavy peak hour northbound traffic at this intersection (particularly during the AM peak), it is evident that significant volumes enter Fanfare Way at the right-in/right-out only entrance from the south on Encore Parkway. As all this traffic would be approaching the site from the southeast Alpharetta/Johns Creek area, travelling back in the opposite direction on Fanfare Way would not be a practical route to take, as these drivers would be made to travel north on Encore Parkway instead of south. Instead, travelling east on either Arts Summit or Maxwell Road would allow exiting traffic to turn left on Westside Parkway to travel south before turning left again at Encore Parkway to travel east. This explains why the existing counts indicate the significant discrepancy between northbound and southbound traffic on Fanfare Way at intersection 4, and this is also the reason why far more shifted future “Build” condition traffic was projected to turn right on Fanfare Way to travel north rather than go to back south to the right-in/right-out driveway. The site-generated peak hour traffic volumes, shown in Table 4, were assigned to the study area intersections based on this distribution.



6.0 FUTURE 2025 TRAFFIC ANALYSIS

The future 2025 traffic operations are analyzed for the “Build” and “No-Build” conditions.

6.1 Future “No-Build” Conditions

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

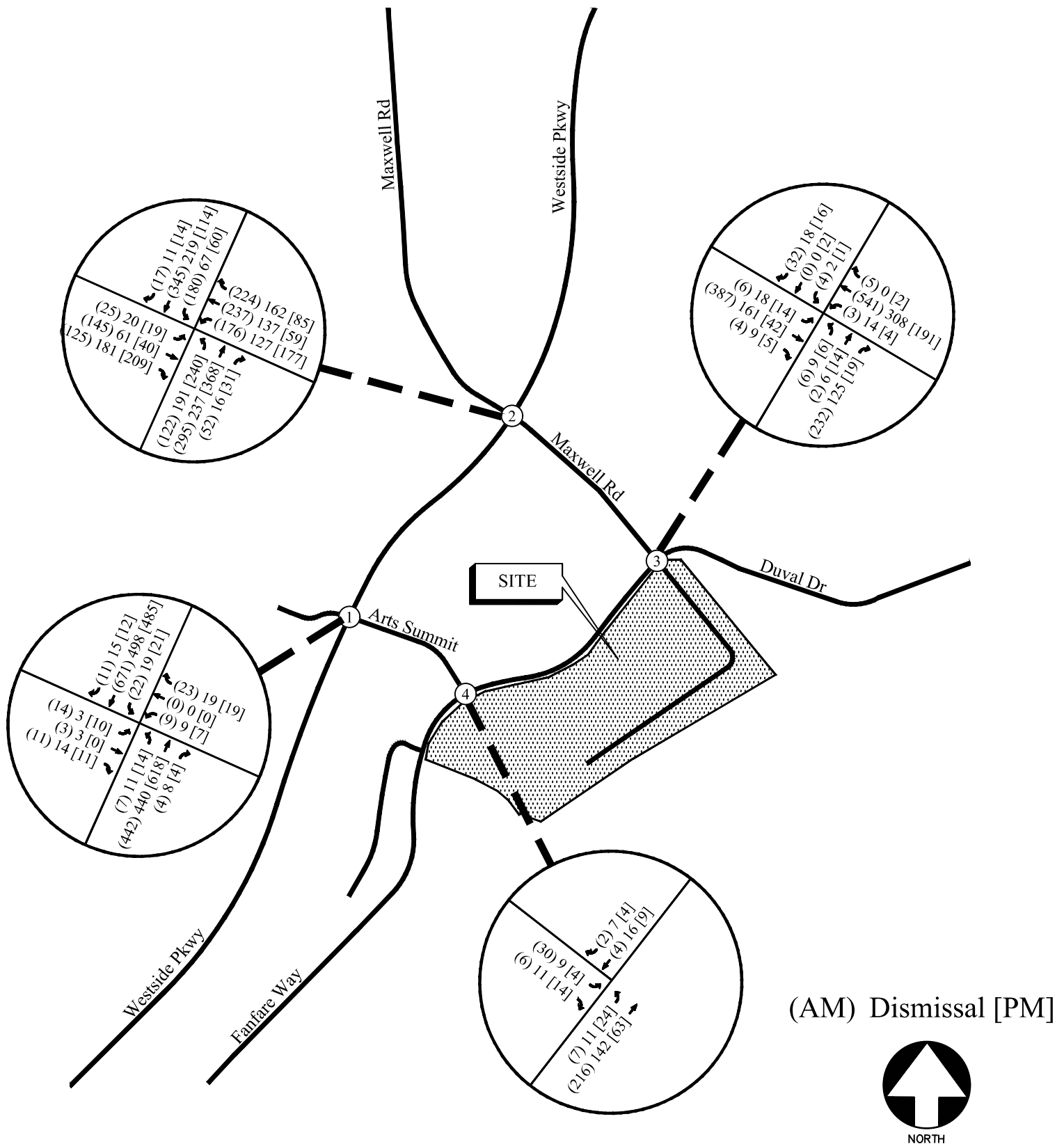
6.1.1 Annual Traffic Growth

To evaluate future traffic operations in this area, a projection of normal traffic growth was applied to the existing volumes. The Georgia Department of Transportation recorded average daily traffic volumes at several locations in the vicinity of the site. Reviewing the growth over the last three years revealed growth of approximately 2% in the area. This growth factor was applied to the existing traffic volumes between collector and arterial roadways to estimate the future year traffic volumes prior to the addition of site-generated traffic. The resulting Future “No-Build” volumes on the roadway are shown in Figure 6.

6.2 Future “Build” Conditions

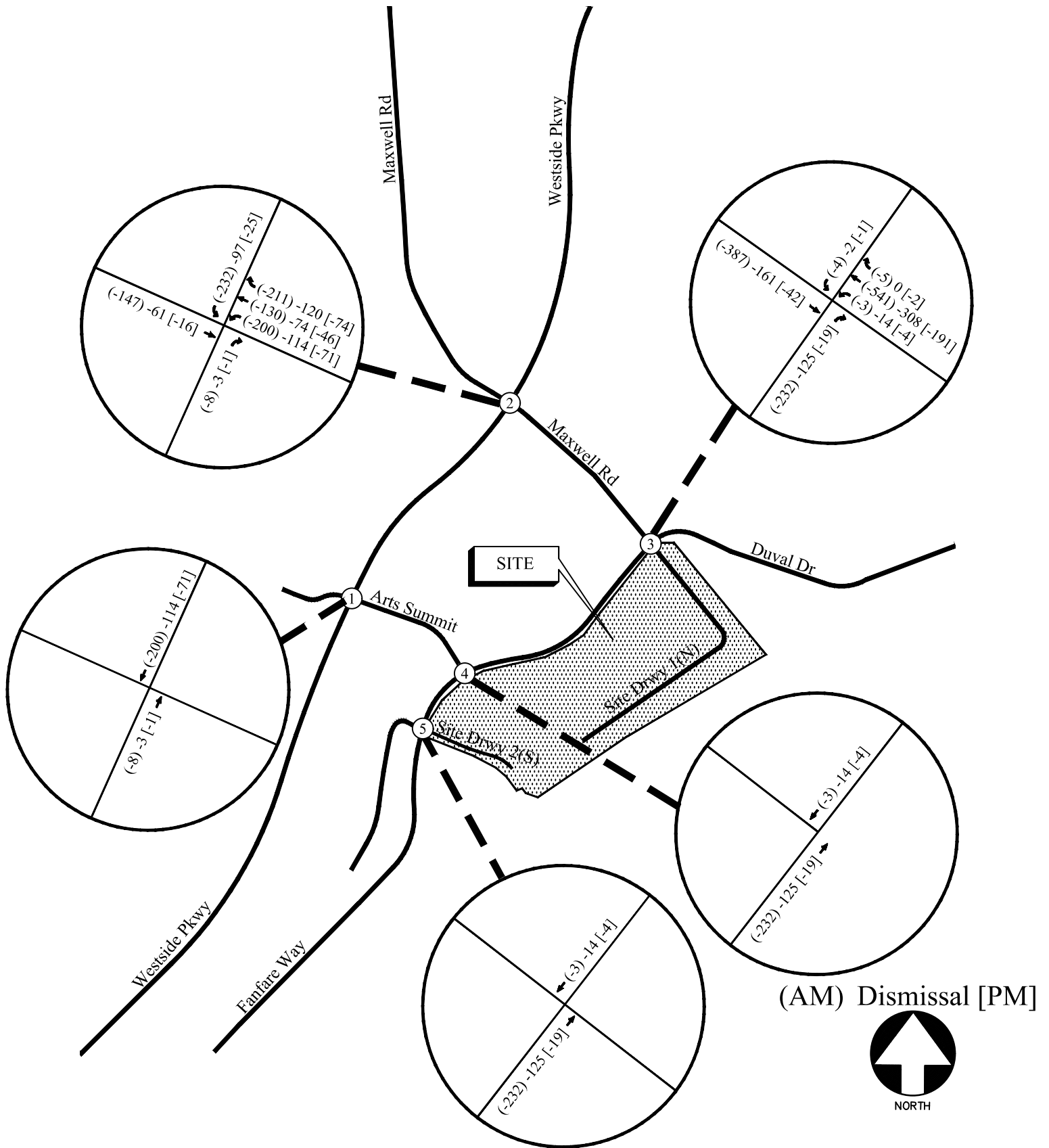
The “Build” or development conditions include the estimated background traffic from the “No-Build” conditions plus the added traffic from the proposed development and removed existing traffic volumes at the site driveways. To evaluate future traffic operations in this area, the shifted traffic volumes (Figure 5) and removed traffic volumes (Figure 7) were added to base traffic volumes (Figure 6) to calculate the future traffic volumes after the expansion of the development. These total future “Build” traffic volumes are shown in Figure 8.

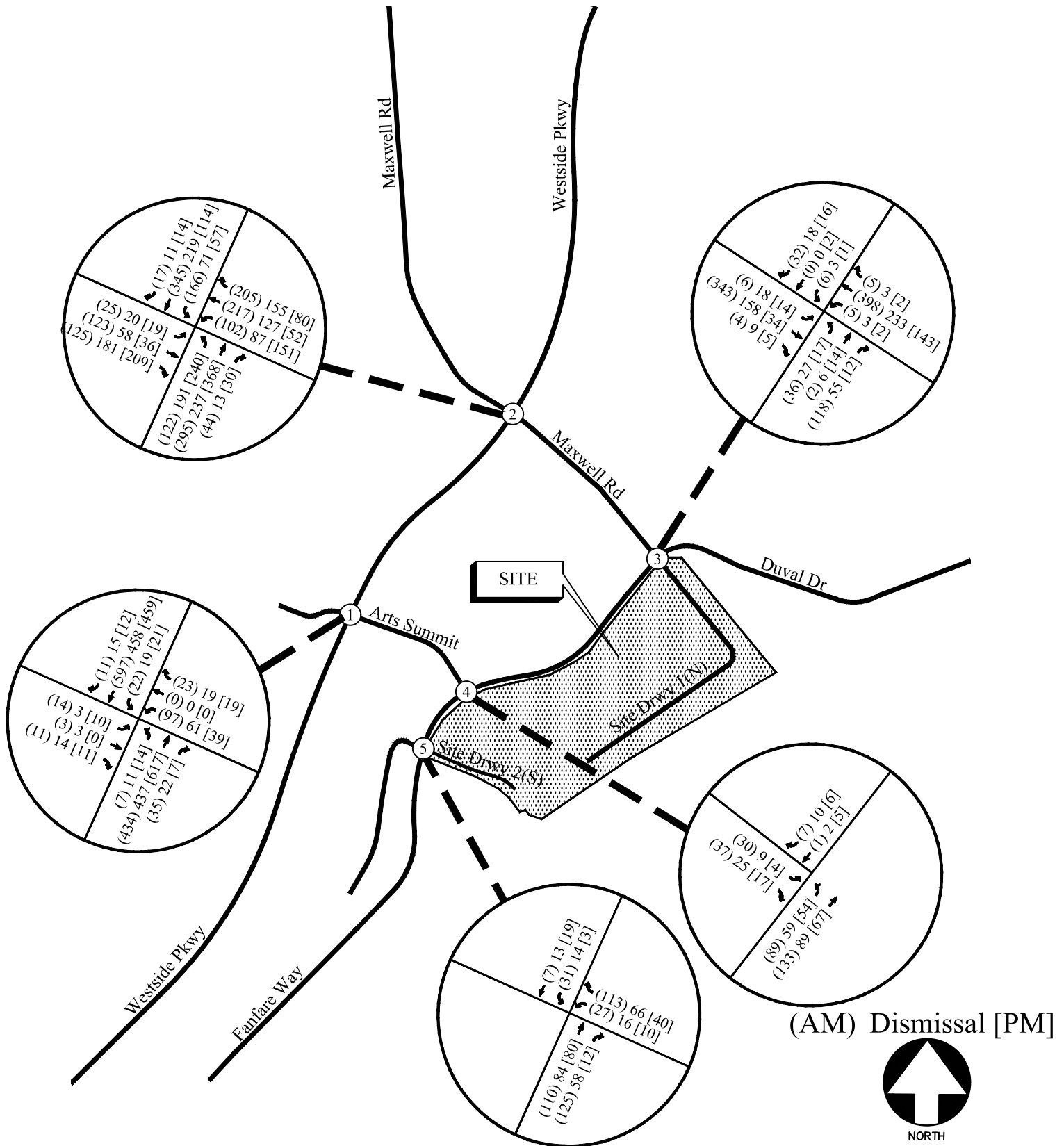
The future “Build” conditions volumes do not only show how the main site driveway traffic at intersection 3 has been affected, but it also shows how the traffic volume at the adjacent intersections have been altered. For example, it had been assumed that most of the southbound traffic volumes at intersection 4 will now prefer to travel east on either Arts Summit or Maxwell Road to avoid the increased traffic to the south generated by the added second driveway. However, some additional traffic volumes exiting site driveway 2 are projected to turn left and travel south on Fanfare Way if they intend to travel west on Encore Parkway, due to their proximity to the right-in/right-out intersection to the south. However, since greater traffic volumes are projected either intend to travel north on Westside Parkway or east on Encore Parkway, most of the exiting traffic at site driveway 2 is shown to turn right to travel north instead.



FUTURE (NO-BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 6
A&R Engineering Inc.





FUTURE (BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 8
A&R Engineering Inc.

6.3 Auxiliary Lane Analysis

Included below are analyses for a left turn lane and a right turn lane for the proposed southern site driveway (site driveway 2) per GDOT standards (*Regulations for Driveway & Encroachment Control Section 4.9 – Auxiliary Turn Lanes*). The analyses below are based off the trip distribution included in Section 5.2. The estimated combined overall entering and exiting vehicles at the site is 2,319 vehicles.

6.3.1 Left Turn Lane Analysis

For two lane roadways with AADT's less than 6,000 vehicles and a posted speed limit of 25 mph, the daily site generated traffic left turn movements threshold to warrant a turn lane is 300 left-turning vehicles a day (*GDOT Regulations for Driveway & Encroachment Control Section 4.9.1.2 – Minimum Requirements for Left Turn Lanes*). The projected left turn volume per day at site driveway 2 is included in Table 5.

Intersection	Left Turn Traffic (% total entering)	Left Turn Volume (vehicles/day)	Roadway Speed / # Lanes / ADT	GDOT Threshold (veh/day)	Warrants Met?
Fanfare Way @ Site Driveway 2	5% Southbound	58 (Total Trips) ÷ 2 × 0.05 = (2,319) ÷ 2 × 0.05 = 58	35 mph / 2-Lane / < 6,000	300	No

A left turn lane is not warranted at site driveway 2 per GDOT standards. However, to reduce the chance of queuing for southbound left turning traffic at site driveway 2 (particularly during morning peak hours) it is recommended that the northbound left turn lane on Fanfare Way at Arts Summit be re-striped and converted into a two-way left turn lane.



The distance along Fanfare Way between site driveway 2 and Arts Summit is 200 feet, and this should be enough to accommodate both northbound and southbound left-turning traffic. A 6th edition synchro analysis was performed at the northbound left approach of Fanfare Way at Arts Summit and the same was done for the southbound left turn approach of Fanfare Way at site driveway 2 during the AM peak hour (when the most traffic is entering the school or passing by) to determine if the overlapping queues in the potential two-way left turn lane will possibly interfere with each other. The results of the 95th percentile queuing analysis determined that neither of the queues at these two approaches are at risk of reaching 100 feet (half the available 200-ft storage space) during the busiest (AM) peak hour, and therefore these two approaches are not projected to interfere with one another. The longer of the two estimated queues was for the northbound left approach of Fanfare Way at Arts Summit, with an estimated 95th percentile length of 34 feet. The queuing and blocking report page from the synchro analysis can be found in the Future “Build” Intersection Analysis section of the appendix.

6.3.2 Deceleration Turn Lane Analysis

For two lane roadways with AADT’s less than 6,000 vehicles and a posted speed limit of 25 mph, the daily site generated traffic right-turn movements threshold to warrant a deceleration lane is 200 right-turning vehicles a day (*GDOT Regulations for Driveway & Encroachment Control Section 4.9.1.1 – Minimum Requirements for Right Turn Deceleration Lanes*). The projected right turn volume per day at site driveway 2 is included in Table 6.

Intersection	Right Turn Traffic (% total entering)	Right Turn Volume (vehicles/day)	Roadway Speed / # Lanes / ADT	GDOT Threshold (vehicles/ day)	Warrants Met?
Fanfare Way @ Site Driveway 2	20% Northbound	232 (Total Trips) ÷ 2 × 0.20 = (2,319) ÷ 2 × 0.20= 232	35 mph / 2-Lane / < 6,000	200	Yes

A right turn lane is warranted at site driveway 2 per GDOT standards.

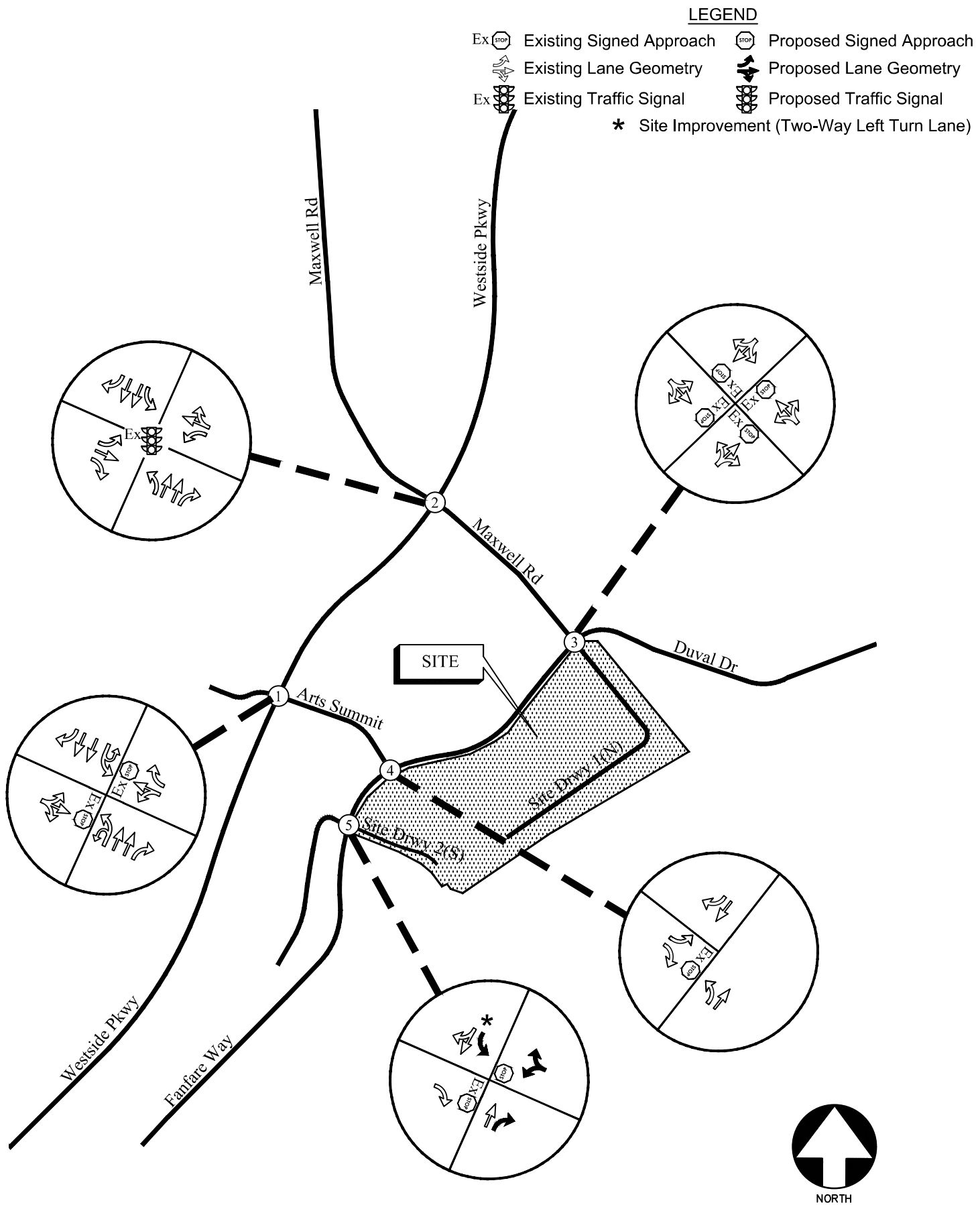
6.4 Future Traffic Operations

The future “No-Build” and “Build” traffic operations were analyzed using the volumes in Figure 6 and Figure 8, respectively. The results of the future traffic operations analysis are shown below in Table 7. Recommendations on traffic control and lane geometry are shown graphically in Figure 9.

TABLE 7 — FUTURE INTERSECTION OPERATIONS

Intersection		LOS (Delay)					
		No Build			Build		
		AM	Dismissal	PM	AM	Dismissal	PM
1	<u>Westside Parkway @ Arts Summit</u>						
	-Eastbound Approach	C (20.4)	B (14.4)	C (17.1)	C (18.5)	B (13.9)	C (16.6)
	-Westbound Approach	B (12.9)	B (13.6)	B (14.9)	C (24.4)	C (22.0)	C (24.3)
	-Northbound Left	A (9.1)	A (8.7)	A (8.6)	A (8.8)	A (8.6)	A (8.5)
	-Southbound Left	A (8.4)	A (8.5)	A (9.1)	A (8.4)	A (8.6)	A (9.1)
2	<u>Westside Parkway @ Maxwell Road</u>	<u>C (32.0)</u>	<u>C (27.8)</u>	<u>C (23.5)</u>	<u>C (30.3)</u>	<u>C (26.5)</u>	<u>C (21.6)</u>
	-Eastbound Approach	D (36.0)	D (43.7)	E (57.1)	D (35.8)	D (42.6)	E (56.5)
	-Westbound Approach	D (46.1)	D (48.6)	D (53.5)	D (47.7)	D (49.4)	D (50.8)
	-Northbound Approach	C (22.9)	B (13.1)	A (8.9)	C (20.5)	B (12.5)	A (8.7)
	-Southbound Approach	C (21.6)	B (15.4)	B (10.2)	B (19.8)	B (14.6)	B (10.1)
3	<u>Maxwell Road / Site Driveway 1 @ Fanfare Way / Duval Drive</u>	<u>F (144.8)</u>	<u>B (11.1)</u>	<u>B (12.0)</u>	<u>E (44.1)</u>	<u>A (9.5)</u>	<u>A (10.0)</u>
	-Eastbound Approach	F (88.3)	B (10.1)	A (9.1)	E (39.5)	A (9.4)	A (8.7)
	-Westbound Approach	F (246.7)	B (12.5)	B (13.9)	F (62.2)	A (10.0)	B (11.0)
	-Northbound Approach	C (25.0)	A (9.4)	A (9.0)	C (15.3)	A (8.6)	A (8.9)
	-Southbound Approach	B (14.0)	A (8.4)	A (8.4)	B (11.7)	A (8.0)	A (8.1)
4	<u>Fanfare Way @Arts Summit</u>						
	-Eastbound Approach	B (11.1)	A (9.1)	A (8.8)	B (10.7)	A (8.9)	A (8.9)
	-Northbound Left	A (7.3)	A (7.3)	A (7.3)	A (8.6)	A (7.3)	A (7.4)
5	<u>Fanfare Way @ Site Driveway 2 (Southern)</u>						
	-Westbound Approach	-	-	-	A (9.9)	A (9.2)	A (9.0)
	-Southbound Left				A (7.8)	A (7.6)	A (7.4)

The results of the future traffic operations analysis indicate that the signalized intersection of Westside Parkway at Maxwell Road will continue to operate at an overall level of service “C” during the AM, School Dismissal and PM peak hours under both “No-Build” and “Build” conditions. The all-way stop controlled intersection 2 (Maxwell Road at Fanfare Way / Duval Drive), which is projected to continue operating at a level of service “F” in the AM peak hour under “No-Build” conditions, will have its overall delay time improved by over 100 seconds under “Build” conditions and operate satisfactorily at an improved level of service “E”. Additionally, the performance of intersection 2 during dismissal and evening traffic peak hours will also improve due to the addition of a second site driveway, with it operating at an overall level of service “A” during those times. The stop-controlled minor approaches at the remaining intersections will continue to operate at an overall level of service “C” during all traffic peak hours.



FUTURE TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 9
A&R Engineering Inc.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for the planned expansion project for Fulton Science Academy, which is located east of Fanfare Way in Alpharetta, Georgia. Fulton Science Academy is a pre-k - 12th grade private school that is planned to undergo a series of improvements to the existing building and surrounding property. The improvements will consist of the addition of a few rooms to the school building, such as an innovation center room and a music room (no classrooms will be added to increase student capacity). Additionally, the project will also consist of a parking lot expansion to allow for 47 more parking spaces, the construction of a new soccer field and four tennis courts on the west side of the property, and the addition of a second access point via a new southern site driveway. This new site driveway will alleviate part of the school peak hour traffic that currently uses the only available entrance on Maxwell Road (Site Driveway 1). The southern site driveway will be made available for high school arrival and dismissal traffic, with the high school enrollment comprising approximately 25% of the overall enrollment of 935 students.

Existing and future operations after completion of the project were analyzed at the intersections of:

- Westside Parkway at Arts Summit
- Westside Parkway at Maxwell Road
- Maxwell Road / Site Driveway 1 at Fanfare Way / Duval Drive
- Fanfare Way at Arts Summit
- Fanfare Way at Site Driveway 2 / Emblem Alpharetta Right-In/Right-Out Eastern Driveway

The analysis included the evaluation of future traffic operations for “No-Build” and “Build” conditions, the differences between “No-Build” and “Build” account for changes in traffic due to the proposed project. The results of the future traffic operations analysis indicate that the signalized intersection of Westside Parkway at Maxwell Road will continue to operate at an overall level of service “C” during the AM, School Dismissal and PM peak hours under both “No-Build” and “Build” conditions. The all-way stop controlled intersection 2 (Maxwell Road at Fanfare Way / Duval Drive), which is projected to continue operating at a level of service “F” in the AM peak hour under “No-Build” conditions, will have its overall delay time improved by over 100 seconds under “Build” conditions and operate satisfactorily at an improved level of service “E”. Additionally, the performance of intersection 2 during dismissal and evening traffic peak hours will also improve due to the addition of a second site driveway, with it operating at an overall level of service “A” during those times. The stop-controlled minor approaches at the remaining intersections will continue to operate at an overall level of service “C” during all traffic peak hours.

7.1 Recommendations for Site Access Configuration

The following access configuration is recommended for the site driveway intersections.

- Site Driveway 1 (Northern): Full Access Driveway serving as the eastern end of Maxwell Road beyond its all-way stop controlled intersection with Fanfare Way / Duval Drive
 - Retain the current configuration for this driveway, which consists of an entering lane and one existing lane
 - Retain the existing all-way stop controlled configuration at this study intersection
- Site Driveway 2 (Southern): Full Access Driveway on Fanfare Way aligned with Emblem Alpharetta Right-In/Right-Out Eastern Driveway
 - One entering lane and one exiting lane
 - Stop-sign controlled on driveway approach with Fanfare Way remaining free flow
 - A right turn lane for entering traffic
 - To reduce the chance of queuing for southbound left turning traffic at site driveway 2 (particularly during morning peak hours) it is recommended that the northbound left turn lane on Fanfare Way at Arts Summit be re-striped and converted into a two-way left turn lane. The distance along Fanfare Way between site driveway 2 and Arts Summit is 200 feet, and this should be enough to accommodate both northbound and southbound left-turning traffic.
 - Provide adequate sight distance per AASHTO standards

Appendix

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

EXISTING INTERSECTION TRAFFIC COUNTS

A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC DATA
Westside Pkwy @ Arts Summits
7-9 am | 2-4 pm | 4-6 pm

File Name : 20230095
Site Code : 20230095
Start Date : 4/25/2023
Page No : 1

Groups Printed- Cars,Buses & Trucks

	Westside Pkwy Northbound				Westside Pkwy Southbound				Serenade Wy Eastbound				Arts Summits Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	61	0	61	2	41	0	43	1	0	3	4	5	0	3	8	116
07:15 AM	0	109	5	114	3	102	0	105	5	2	4	11	0	0	5	5	235
07:30 AM	0	106	3	109	17	150	6	173	5	3	5	13	3	0	3	6	301
07:45 AM	3	106	1	110	2	160	2	164	3	0	1	4	3	0	5	8	286
Total	3	382	9	394	24	453	8	485	14	5	13	32	11	0	16	27	938
08:00 AM	1	92	0	93	0	177	2	179	4	0	1	5	1	0	8	9	286
08:15 AM	3	121	0	124	2	158	1	161	1	0	4	5	2	0	6	8	298
08:30 AM	0	123	0	123	2	144	1	147	2	0	0	2	5	0	4	9	281
08:45 AM	0	112	0	112	1	138	1	140	3	0	0	3	3	0	2	5	260
Total	4	448	0	452	5	617	5	627	10	0	5	15	11	0	20	31	1125
*** BREAK ***																	
02:00 PM	1	119	0	120	1	76	0	77	1	0	2	3	2	0	2	4	204
02:15 PM	3	88	1	92	5	110	0	115	2	0	2	4	0	0	7	7	218
02:30 PM	2	107	3	112	4	111	2	117	1	0	5	6	2	0	5	7	242
02:45 PM	4	107	2	113	3	111	7	121	0	2	5	7	1	0	6	7	248
Total	10	421	6	437	13	408	9	430	4	2	14	20	5	0	20	25	912
03:00 PM	2	94	1	97	2	121	1	124	1	0	4	5	0	0	2	2	228
03:15 PM	3	110	1	114	8	102	1	111	0	0	3	3	4	0	4	8	236
03:30 PM	2	112	4	118	5	145	5	155	2	1	1	4	4	0	6	10	287
03:45 PM	3	90	2	95	5	108	4	117	3	0	1	4	2	1	3	6	222
Total	10	406	8	424	20	476	11	507	6	1	9	16	10	1	15	26	973
04:00 PM	3	109	0	112	5	123	2	130	4	0	2	6	5	1	3	9	257
04:15 PM	5	127	1	133	9	113	2	124	0	0	1	1	1	0	9	10	268
04:30 PM	4	129	1	134	6	94	6	106	2	0	1	3	2	0	3	5	248
04:45 PM	5	120	0	125	5	104	2	111	4	0	3	7	0	0	4	4	247
Total	17	485	2	504	25	434	12	471	10	0	7	17	8	1	19	28	1020
05:00 PM	3	171	2	176	8	123	3	134	2	0	1	3	5	0	4	9	322
05:15 PM	4	168	0	172	6	119	5	130	3	0	4	7	2	0	5	7	316
05:30 PM	1	135	2	138	1	120	2	123	1	0	3	4	0	0	5	5	270
05:45 PM	1	136	1	138	9	84	0	93	1	0	0	1	1	0	5	6	238
Total	9	610	5	624	24	446	10	480	7	0	8	15	8	0	19	27	1146
Grand Total	53	2752	30	2835	111	2834	55	3000	51	8	56	115	53	2	109	164	6114
Apprch %	1.9	97.1	1.1		3.7	94.5	1.8		44.3	7	48.7		32.3	1.2	66.5		
Total %	0.9	45	0.5	46.4	1.8	46.4	0.9	49.1	0.8	0.1	0.9	1.9	0.9	0	1.8	2.7	

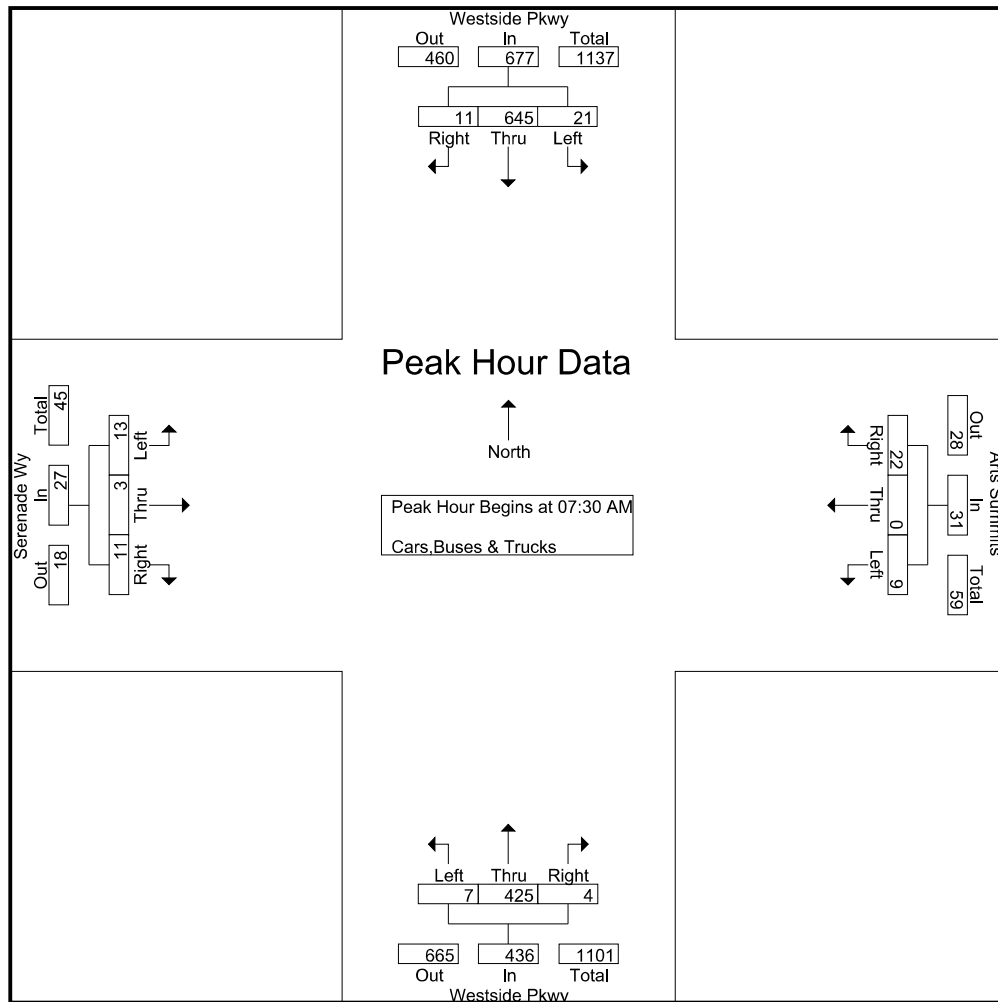
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC DATA
Westside Pkwy @ Arts Summits
7-9 am | 2-4 pm | 4-6 pm

File Name : 20230095
Site Code : 20230095
Start Date : 4/25/2023
Page No : 2

	Westside Pkwy Northbound				Westside Pkwy Southbound				Serenade Wy Eastbound				Arts Summits Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	106	3	109	17	150	6	173	5	3	5	13	3	0	3	6	301
07:45 AM	3	106	1	110	2	160	2	164	3	0	1	4	3	0	5	8	286
08:00 AM	1	92	0	93	0	177	2	179	4	0	1	5	1	0	8	9	286
08:15 AM	3	121	0	124	2	158	1	161	1	0	4	5	2	0	6	8	298
Total Volume	7	425	4	436	21	645	11	677	13	3	11	27	9	0	22	31	1171
% App. Total	1.6	97.5	0.9		3.1	95.3	1.6		48.1	11.1	40.7		29	0	71		
PHF	.583	.878	.333	.879	.309	.911	.458	.946	.650	.250	.550	.519	.750	.000	.688	.861	.973



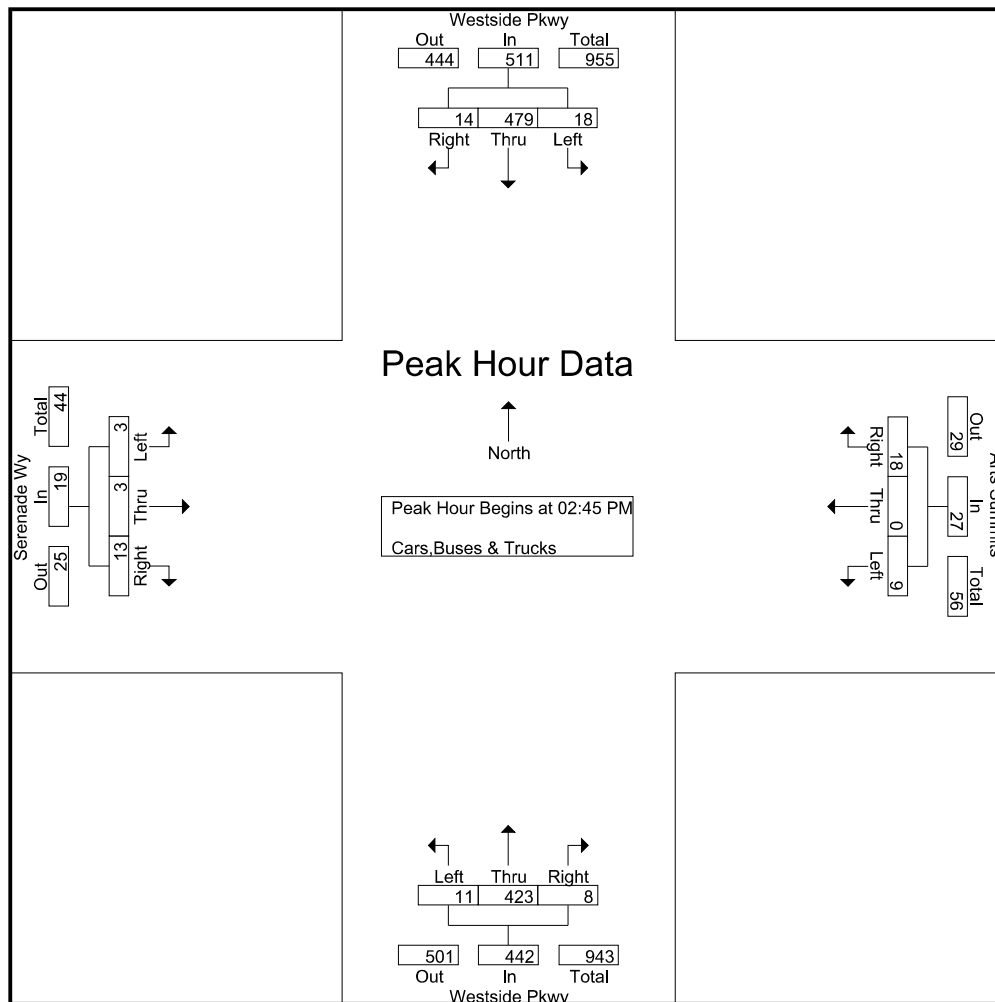
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7-9 am | 2-4 pm | 4-6 pm

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Page No : 3

	Westside Pkwy Northbound				Westside Pkwy Southbound				Serenade Wy Eastbound				Arts Summits Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:45 PM																	
02:45 PM	4	107	2	113	3	111	7	121	0	2	5	7	1	0	6	7	248
03:00 PM	2	94	1	97	2	121	1	124	1	0	4	5	0	0	2	2	228
03:15 PM	3	110	1	114	8	102	1	111	0	0	3	3	4	0	4	8	236
03:30 PM	2	112	4	118	5	145	5	155	2	1	1	4	4	0	6	10	287
Total Volume	11	423	8	442	18	479	14	511	3	3	13	19	9	0	18	27	999
% App. Total	2.5	95.7	1.8		3.5	93.7	2.7		15.8	15.8	68.4		33.3	0	66.7		
PHF	.688	.944	.500	.936	.563	.826	.500	.824	.375	.375	.650	.679	.563	.000	.750	.675	.870



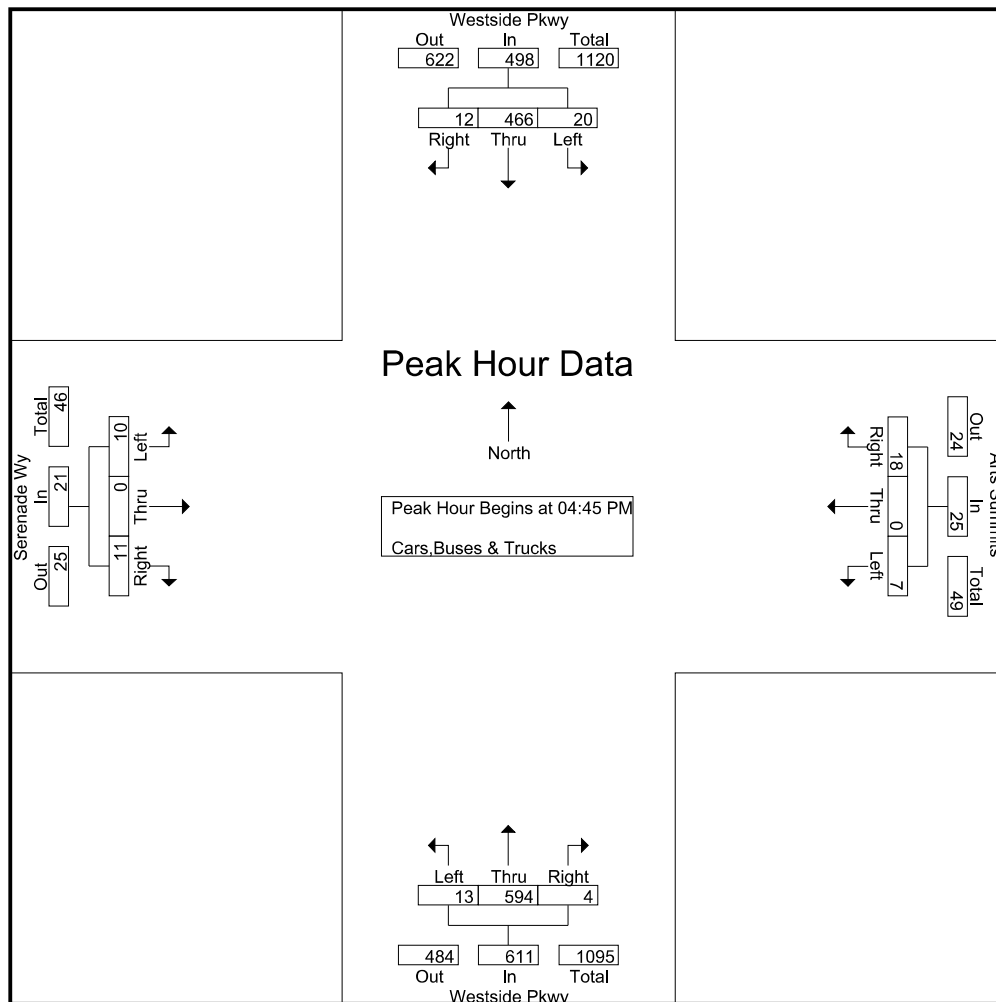
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	Westside Pkwy Northbound				Westside Pkwy Southbound				Serenade Wy Eastbound				Arts Summits Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	5	120	0	125	5	104	2	111	4	0	3	7	0	0	4	4	247
05:00 PM	3	171	2	176	8	123	3	134	2	0	1	3	5	0	4	9	322
05:15 PM	4	168	0	172	6	119	5	130	3	0	4	7	2	0	5	7	316
05:30 PM	1	135	2	138	1	120	2	123	1	0	3	4	0	0	5	5	270
Total Volume	13	594	4	611	20	466	12	498	10	0	11	21	7	0	18	25	1155
% App. Total	2.1	97.2	0.7		4	93.6	2.4		47.6	0	52.4		28	0	72		
PHF	.650	.868	.500	.868	.625	.947	.600	.929	.625	.000	.688	.750	.350	.000	.900	.694	.897



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Westside Pkwy @ Maxwell Rd
7-9 am | 2-4 pm | 4-6 pm

File Name : 20230096
Site Code : 20230096
Start Date : 4/25/2023
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Groups Printed- Cars,Buses & Trucks

	Westside Pkwy Northbound				Westside Pkwy Southbound				Maxwell Rd Eastbound				Maxwell Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	20	35	10	65	32	23	2	57	5	39	7	51	13	43	32	88	261
07:15 AM	35	67	17	119	58	49	3	110	5	48	22	75	34	72	56	162	466
07:30 AM	31	63	20	114	52	72	2	126	10	34	30	74	71	66	46	183	497
07:45 AM	28	79	7	114	42	94	5	141	5	38	37	80	33	57	74	164	499
Total	114	244	54	412	184	238	12	434	25	159	96	280	151	238	208	597	1723
08:00 AM	23	75	6	104	21	117	6	144	4	19	31	54	31	33	39	103	405
08:15 AM	37	84	7	128	13	122	3	138	2	11	30	43	9	30	32	71	380
08:30 AM	37	89	3	129	12	114	1	127	6	14	29	49	4	28	25	57	362
08:45 AM	49	65	3	117	10	110	3	123	4	9	27	40	3	22	20	45	325
Total	146	313	19	478	56	463	13	532	16	53	117	186	47	113	116	276	1472
*** BREAK ***																	
02:00 PM	50	71	1	122	5	40	3	48	1	12	34	47	3	4	3	10	227
02:15 PM	39	56	2	97	2	64	2	68	6	9	34	49	17	11	19	47	261
02:30 PM	46	60	7	113	17	57	1	75	6	10	35	51	25	8	15	48	287
02:45 PM	45	63	5	113	15	52	2	69	1	10	39	50	30	15	33	78	310
Total	180	250	15	445	39	213	8	260	14	41	142	197	75	38	70	183	1085
03:00 PM	48	45	4	97	14	55	2	71	2	14	41	57	28	27	36	91	316
03:15 PM	50	60	4	114	17	51	4	72	4	17	33	54	27	42	47	116	356
03:30 PM	40	75	5	120	14	73	2	89	5	10	51	66	31	31	35	97	372
03:45 PM	46	48	2	96	19	32	3	54	8	18	49	75	36	32	38	106	331
Total	184	228	15	427	64	211	11	286	19	59	174	252	122	132	156	410	1375
04:00 PM	51	59	6	116	16	48	2	66	5	18	48	71	34	34	43	111	364
04:15 PM	53	79	4	136	21	29	5	55	4	15	56	75	39	24	32	95	361
04:30 PM	58	68	8	134	15	4	4	23	6	11	58	75	44	16	27	87	319
04:45 PM	55	68	5	128	11	11	6	28	2	9	52	63	48	14	22	84	303
Total	217	274	23	514	63	92	17	172	17	53	214	284	165	88	124	377	1347
05:00 PM	61	106	10	177	13	45	2	60	4	8	47	59	42	11	18	71	367
05:15 PM	57	112	7	176	19	50	1	70	6	10	44	60	36	16	15	67	373
05:30 PM	54	78	9	141	11	50	3	64	2	15	40	57	33	10	11	54	316
05:45 PM	48	89	5	142	12	29	2	43	5	11	36	52	28	9	7	44	281
Total	220	385	31	636	55	174	8	237	17	44	167	228	139	46	51	236	1337
Grand Total	1061	1694	157	2912	461	1391	69	1921	108	409	910	1427	699	655	725	2079	8339
Apprch %	36.4	58.2	5.4		24	72.4	3.6		7.6	28.7	63.8		33.6	31.5	34.9		
Total %	12.7	20.3	1.9	34.9	5.5	16.7	0.8	23	1.3	4.9	10.9	17.1	8.4	7.9	8.7	24.9	

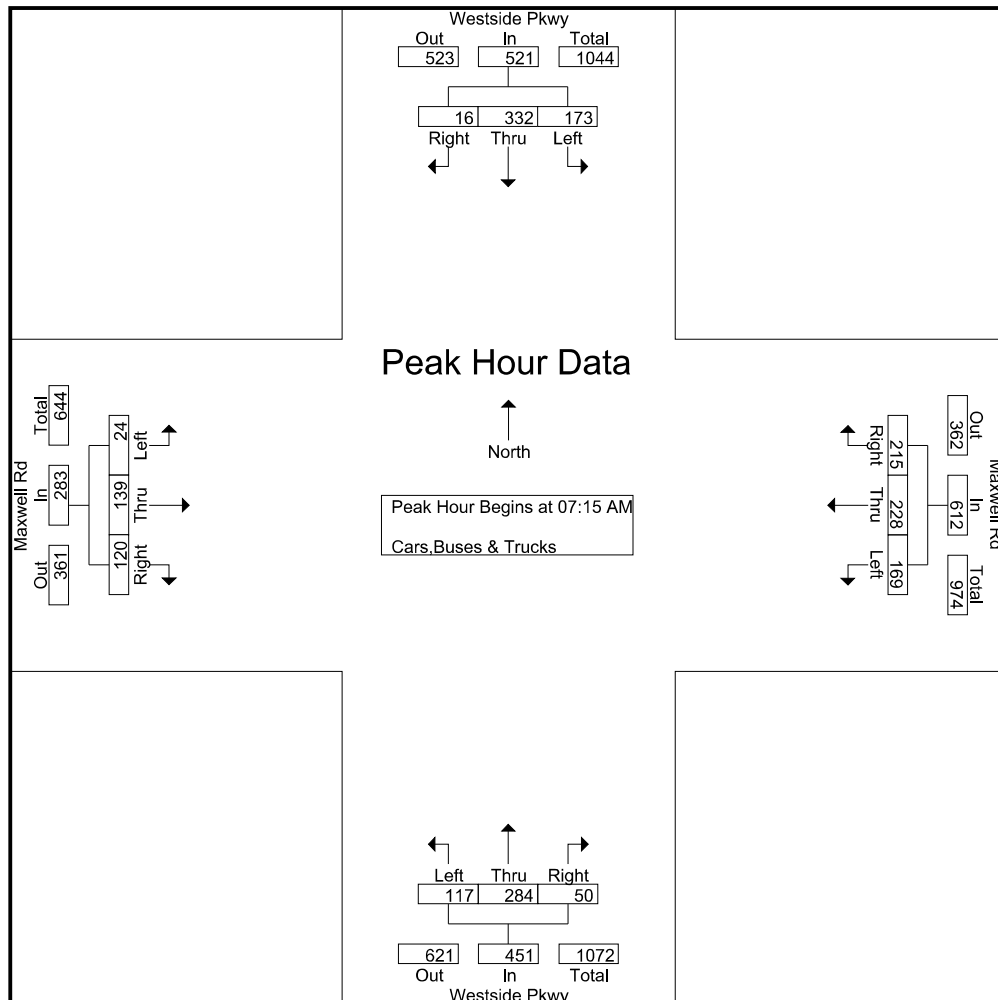
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC DATA
Westside Pkwy @ Maxwell Rd
7-9 am | 2-4 pm | 4-6 pm

File Name : 20230096
Site Code : 20230096
Start Date : 4/25/2023
Page No : 2

	Westside Pkwy Northbound				Westside Pkwy Southbound				Maxwell Rd Eastbound				Maxwell Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	35	67	17	119	58	49	3	110	5	48	22	75	34	72	56	162	466
07:30 AM	31	63	20	114	52	72	2	126	10	34	30	74	71	66	46	183	497
07:45 AM	28	79	7	114	42	94	5	141	5	38	37	80	33	57	74	164	499
08:00 AM	23	75	6	104	21	117	6	144	4	19	31	54	31	33	39	103	405
Total Volume	117	284	50	451	173	332	16	521	24	139	120	283	169	228	215	612	1867
% App. Total	25.9	63	11.1		33.2	63.7	3.1		8.5	49.1	42.4		27.6	37.3	35.1		
PHF	.836	.899	.625	.947	.746	.709	.667	.905	.600	.724	.811	.884	.595	.792	.726	.836	.935



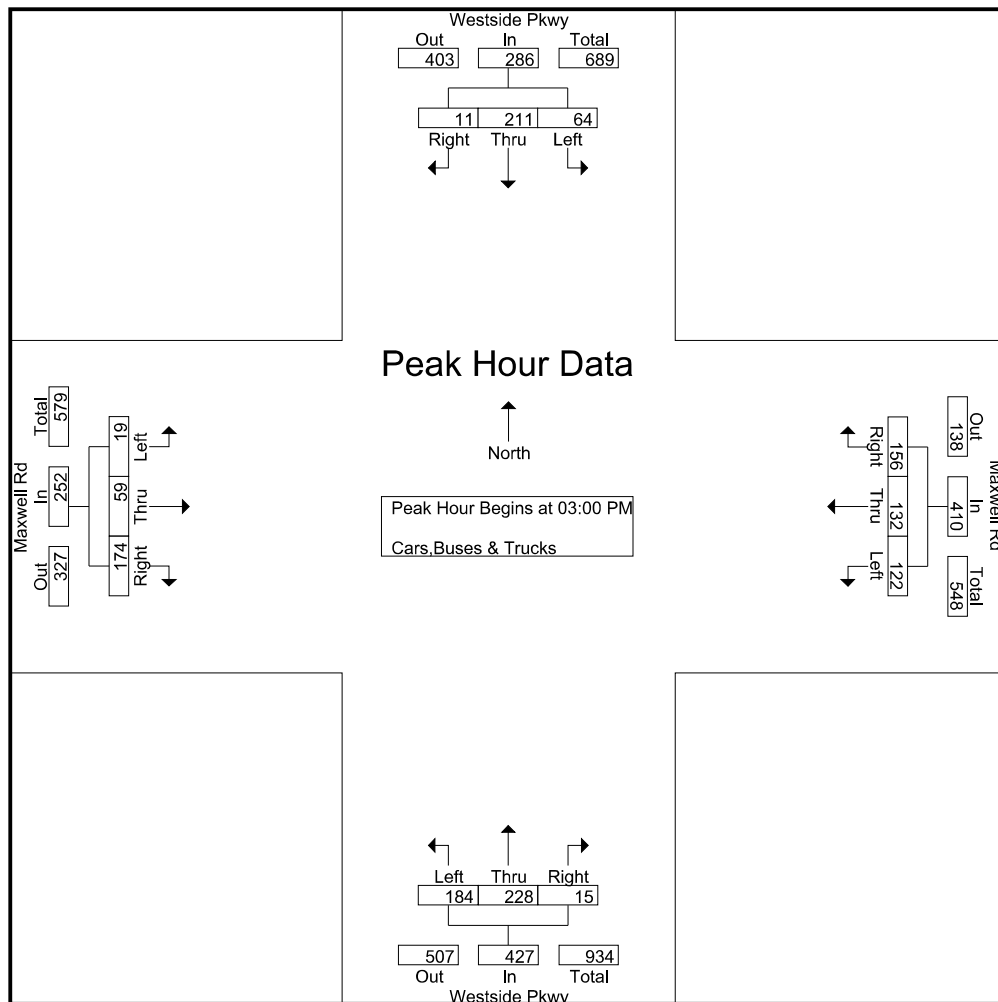
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC DATA
Westside Pkwy @ Maxwell Rd
7-9 am | 2-4 pm | 4-6 pm

File Name : 20230096
Site Code : 20230096
Start Date : 4/25/2023
Page No : 3

	Westside Pkwy Northbound				Westside Pkwy Southbound				Maxwell Rd Eastbound				Maxwell Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	48	45	4	97	14	55	2	71	2	14	41	57	28	27	36	91	316
03:15 PM	50	60	4	114	17	51	4	72	4	17	33	54	27	42	47	116	356
03:30 PM	40	75	5	120	14	73	2	89	5	10	51	66	31	31	35	97	372
03:45 PM	46	48	2	96	19	32	3	54	8	18	49	75	36	32	38	106	331
Total Volume	184	228	15	427	64	211	11	286	19	59	174	252	122	132	156	410	1375
% App. Total	43.1	53.4	3.5		22.4	73.8	3.8		7.5	23.4	69		29.8	32.2	38		
PHF	.920	.760	.750	.890	.842	.723	.688	.803	.594	.819	.853	.840	.847	.786	.830	.884	.924



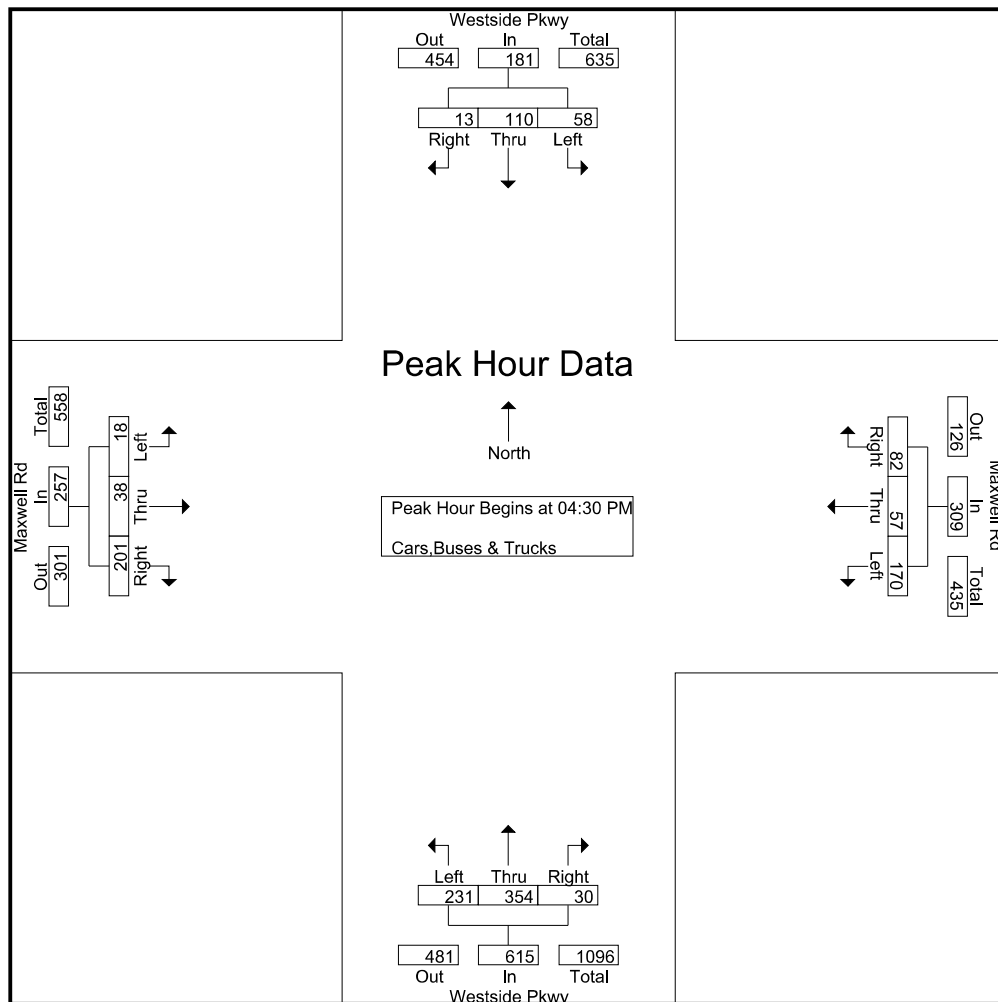
A & R Engineering, Inc.

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Marietta, GA 30067

TMC DATA
Westside Pkwy @ Maxwell Rd
7-9 am | 2-4 pm | 4-6 pm

File Name : 20230096
Site Code : 20230096
Start Date : 4/25/2023
Page No : 4

	Westside Pkwy Northbound				Westside Pkwy Southbound				Maxwell Rd Eastbound				Maxwell Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	58	68	8	134	15	4	4	23	6	11	58	75	44	16	27	87	319
04:45 PM	55	68	5	128	11	11	6	28	2	9	52	63	48	14	22	84	303
05:00 PM	61	106	10	177	13	45	2	60	4	8	47	59	42	11	18	71	367
05:15 PM	57	112	7	176	19	50	1	70	6	10	44	60	36	16	15	67	373
Total Volume	231	354	30	615	58	110	13	181	18	38	201	257	170	57	82	309	1362
% App. Total	37.6	57.6	4.9		32	60.8	7.2		7	14.8	78.2		55	18.4	26.5		
PHF	.947	.790	.750	.869	.763	.550	.542	.646	.750	.864	.866	.857	.885	.891	.759	.888	.913



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Marietta, GA 30067

TMC Data
Maxwell Rd @ Fanfare Way-Duval Dr
7-9 am | 2-4 pm | 4-6 pm

File Name : 20230097
Site Code : 20230097
Start Date : 4/25/2023
Page No : 1

Groups Printed- Cars, Buses & Trucks

	Fanfare Way Northbound				Duval Dr Southbound				Maxwell Rd Eastbound				Maxwell Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	36	36	0	0	6	6	3	87	0	90	0	68	0	68	200
07:15 AM	0	0	100	100	2	0	6	8	0	141	0	141	0	203	3	206	455
07:30 AM	5	1	56	62	1	0	11	12	3	82	1	86	2	154	1	157	317
07:45 AM	1	1	40	42	1	0	8	9	0	77	3	80	1	116	1	118	249
Total	6	2	232	240	4	0	31	35	6	387	4	397	3	541	5	549	1221
08:00 AM	1	0	2	3	0	0	9	9	0	14	3	17	0	20	0	20	49
08:15 AM	2	1	3	6	0	0	3	3	3	2	1	6	0	4	0	4	19
08:30 AM	1	0	3	4	0	1	2	3	3	5	0	8	0	6	0	6	21
08:45 AM	1	0	3	4	0	0	3	3	1	6	0	7	0	5	0	5	19
Total	5	1	11	17	0	1	17	18	7	27	4	38	0	35	0	35	108
*** BREAK ***																	
02:00 PM	0	3	13	16	0	0	3	3	1	12	1	14	0	20	0	20	53
02:15 PM	0	0	18	18	0	0	5	5	4	29	0	33	4	66	2	72	128
02:30 PM	2	2	34	38	0	1	3	4	0	33	2	35	2	40	0	42	119
02:45 PM	1	1	31	33	0	0	2	2	5	47	1	53	2	57	0	59	147
Total	3	6	96	105	0	1	13	14	10	121	4	135	8	183	2	193	447
03:00 PM	3	3	37	43	2	0	3	5	3	43	0	46	2	43	0	45	139
03:15 PM	0	1	35	36	0	0	4	4	1	26	3	30	9	123	0	132	202
03:30 PM	5	0	19	24	0	0	3	3	9	34	2	45	2	65	0	67	139
03:45 PM	1	2	34	37	0	0	7	7	4	58	4	66	1	77	0	78	188
Total	9	6	125	140	2	0	17	19	17	161	9	187	14	308	0	322	668
04:00 PM	3	5	11	19	1	0	3	4	1	29	3	33	3	131	0	134	190
04:15 PM	0	3	5	8	0	0	1	1	4	9	0	13	1	45	1	47	69
04:30 PM	1	1	1	3	0	1	4	5	4	2	0	6	0	14	1	15	29
04:45 PM	2	4	2	8	0	1	7	8	4	2	2	8	0	1	0	1	25
Total	6	13	19	38	1	2	15	18	13	42	5	60	4	191	2	197	313
05:00 PM	1	6	2	9	0	0	4	4	2	0	1	3	0	5	0	5	21
05:15 PM	0	3	3	6	0	0	11	11	9	4	2	15	0	6	1	7	39
05:30 PM	4	0	3	7	0	2	17	19	4	2	1	7	0	6	0	6	39
05:45 PM	1	0	2	3	0	0	3	3	2	7	1	10	1	13	0	14	30
Total	6	9	10	25	0	2	35	37	17	13	5	35	1	30	1	32	129
Grand Total	35	37	493	565	7	6	128	141	70	751	31	852	30	1288	10	1328	2886
Apprch %	6.2	6.5	87.3		5	4.3	90.8		8.2	88.1	3.6		2.3	97	0.8		
Total %	1.2	1.3	17.1	19.6	0.2	0.2	4.4	4.9	2.4	26	1.1	29.5	1	44.6	0.3	46	

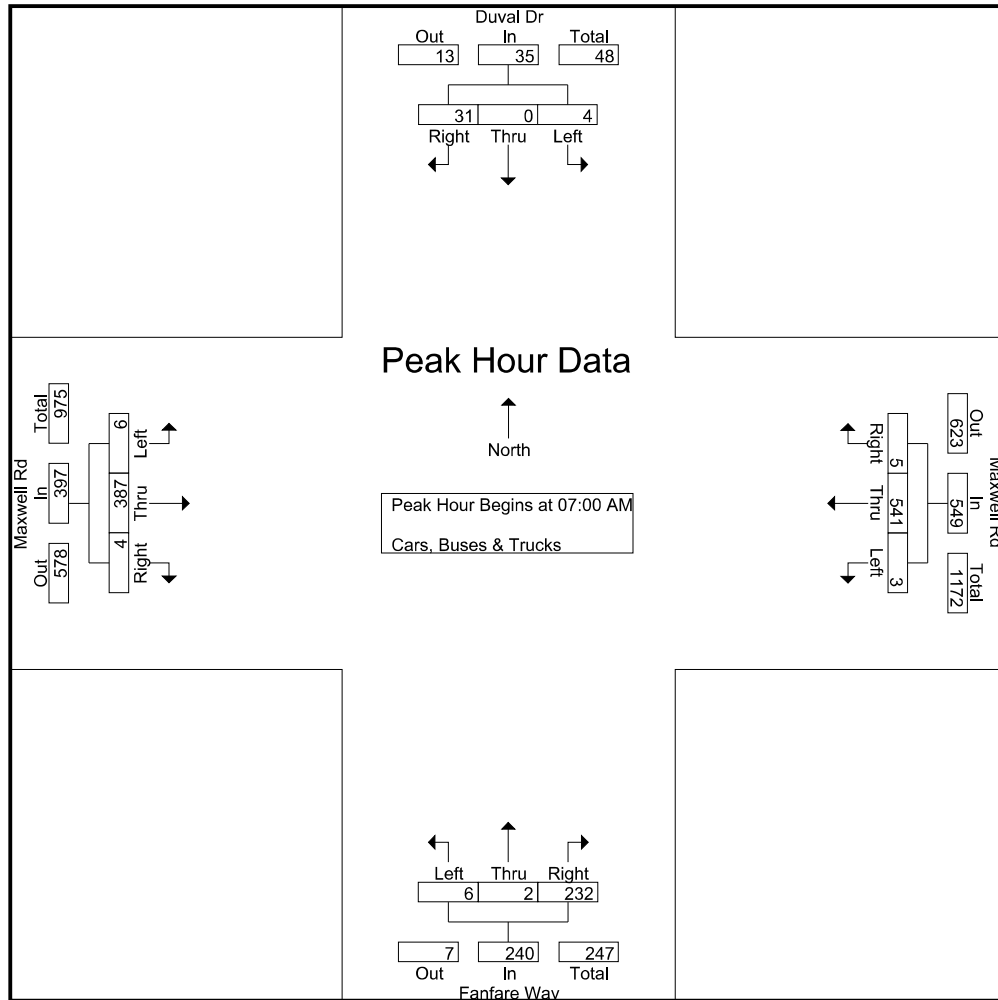
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
Maxwell Rd @ Fanfare Way-Duval Dr
7-9 am | 2-4 pm | 4-6 pm

File Name : 20230097
Site Code : 20230097
Start Date : 4/25/2023
Page No : 2

	Fanfare Way Northbound				Duval Dr Southbound				Maxwell Rd Eastbound				Maxwell Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	36	36	0	0	6	6	3	87	0	90	0	68	0	68	200
07:15 AM	0	0	100	100	2	0	6	8	0	141	0	141	0	203	3	206	455
07:30 AM	5	1	56	62	1	0	11	12	3	82	1	86	2	154	1	157	317
07:45 AM	1	1	40	42	1	0	8	9	0	77	3	80	1	116	1	118	249
Total Volume	6	2	232	240	4	0	31	35	6	387	4	397	3	541	5	549	1221
% App. Total	2.5	0.8	96.7		11.4	0	88.6		1.5	97.5	1		0.5	98.5	0.9		
PHF	.300	.500	.580	.600	.500	.000	.705	.729	.500	.686	.333	.704	.375	.666	.417	.666	.671



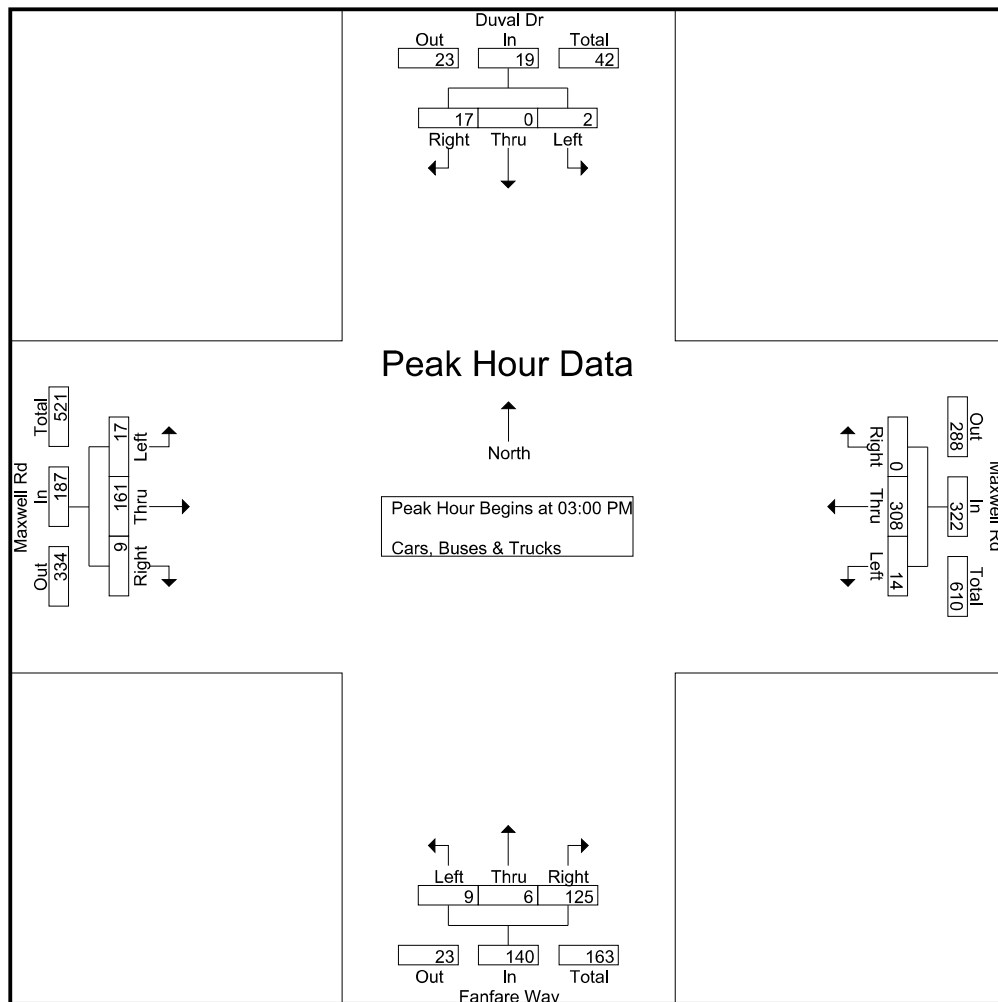
A & R Engineering, Inc.

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Marietta, GA 30067

TMC Data
Maxwell Rd @ Fanfare Way-Duval Dr
7-9 am | 2-4 pm | 4-6 pm

File Name : 20230097
Site Code : 20230097
Start Date : 4/25/2023
Page No : 3

	Fanfare Way Northbound				Duval Dr Southbound				Maxwell Rd Eastbound				Maxwell Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	3	3	37	43	2	0	3	5	3	43	0	46	2	43	0	45	139
03:15 PM	0	1	35	36	0	0	4	4	1	26	3	30	9	123	0	132	202
03:30 PM	5	0	19	24	0	0	3	3	9	34	2	45	2	65	0	67	139
03:45 PM	1	2	34	37	0	0	7	7	4	58	4	66	1	77	0	78	188
Total Volume	9	6	125	140	2	0	17	19	17	161	9	187	14	308	0	322	668
% App. Total	6.4	4.3	89.3		10.5	0	89.5		9.1	86.1	4.8		4.3	95.7	0		
PHF	.450	.500	.845	.814	.250	.000	.607	.679	.472	.694	.563	.708	.389	.626	.000	.610	.827



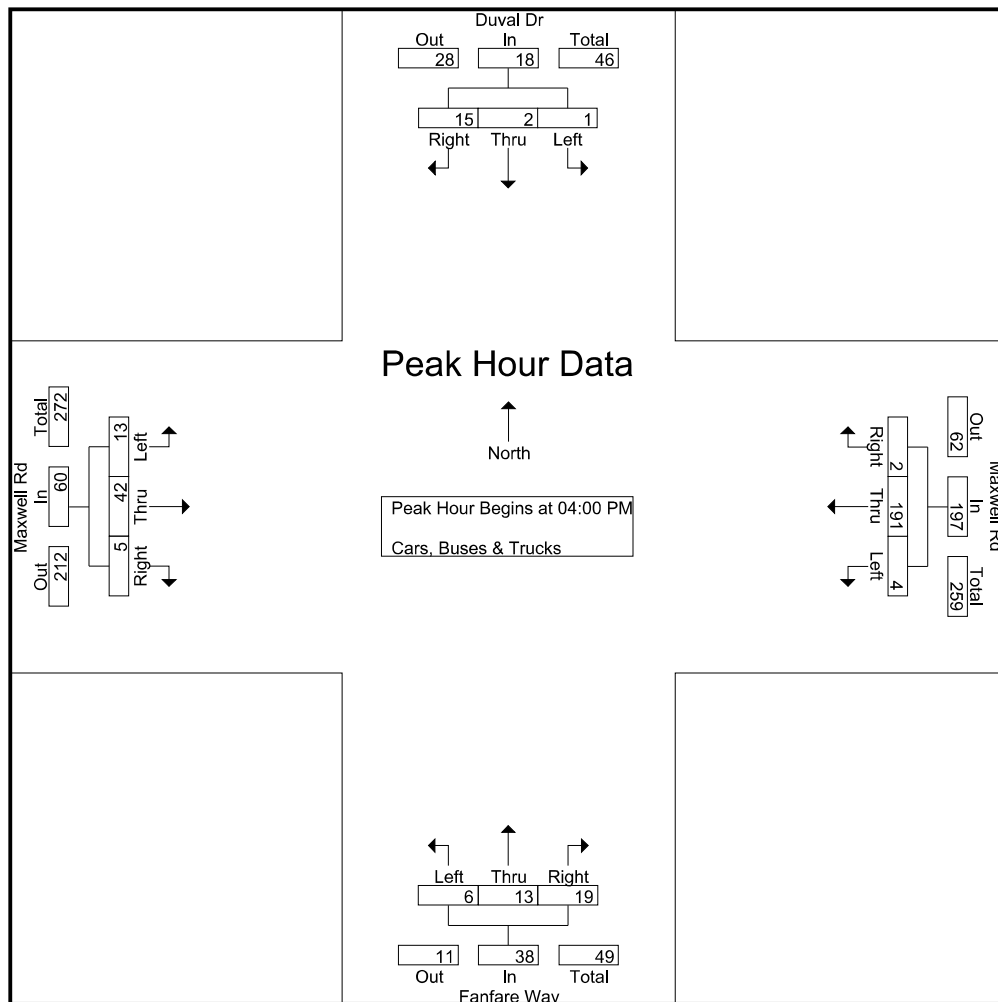
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
Maxwell Rd @ Fanfare Way-Duval Dr
7-9 am | 2-4 pm | 4-6 pm

File Name : 20230097
Site Code : 20230097
Start Date : 4/25/2023
Page No : 4

	Fanfare Way Northbound				Duval Dr Southbound				Maxwell Rd Eastbound				Maxwell Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	3	5	11	19	1	0	3	4	1	29	3	33	3	131	0	134	190
04:15 PM	0	3	5	8	0	0	1	1	4	9	0	13	1	45	1	47	69
04:30 PM	1	1	1	3	0	1	4	5	4	2	0	6	0	14	1	15	29
04:45 PM	2	4	2	8	0	1	7	8	4	2	2	8	0	1	0	1	25
Total Volume	6	13	19	38	1	2	15	18	13	42	5	60	4	191	2	197	313
% App. Total	15.8	34.2	50		5.6	11.1	83.3		21.7	70	8.3		2	97	1		
PHF	.500	.650	.432	.500	.250	.500	.536	.563	.813	.362	.417	.455	.333	.365	.500	.368	.412



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TMC Data

Fanfare Way @ Arts Summit

7-9 am | 2-4 pm | 4-6 pm

File Name : 20230094

Site Code : 20230094

Start Date : 04-25-2023

Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	Fanfare Way Northbound				Fanfare Way Southbound				Arts Smt Eastbound				Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	1	47	0	48	0	0	0	0	1	0	1	2	0	0	0	0	50
07:15 AM	2	87	0	89	0	0	0	0	23	0	4	27	0	0	0	0	116
07:30 AM	3	38	0	41	0	1	1	2	4	0	1	5	0	0	0	0	48
07:45 AM	1	36	0	37	0	3	1	4	1	0	0	1	0	0	0	0	42
Total	7	208	0	215	0	4	2	6	29	0	6	35	0	0	0	0	256
08:00 AM	0	2	0	2	0	0	3	3	0	0	0	0	0	0	0	0	5
08:15 AM	5	5	0	10	0	0	1	1	1	0	2	3	0	0	0	0	14
08:30 AM	0	4	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
08:45 AM	3	3	0	6	0	0	0	0	1	0	1	2	0	0	0	0	8
Total	8	14	0	22	0	1	4	5	2	0	3	5	0	0	0	0	32
*** BREAK ***																	
02:00 PM	4	16	0	20	0	0	0	0	1	0	0	1	0	0	0	0	21
02:15 PM	3	18	0	21	0	1	0	1	0	0	3	3	0	0	0	0	25
02:30 PM	6	19	0	25	0	4	0	4	2	0	2	4	0	0	0	0	33
02:45 PM	3	36	0	39	0	4	1	5	4	0	2	6	0	0	0	0	50
Total	16	89	0	105	0	9	1	10	7	0	7	14	0	0	0	0	129
03:00 PM	5	25	0	30	0	3	0	3	2	0	1	3	0	0	0	0	36
03:15 PM	3	44	0	47	0	2	1	3	1	0	4	5	0	0	0	0	55
03:30 PM	0	32	0	32	0	6	5	11	2	0	4	6	0	0	0	0	49
03:45 PM	3	22	0	25	0	1	2	3	1	0	1	2	0	0	0	0	30
Total	11	123	0	134	0	12	8	20	6	0	10	16	0	0	0	0	170
04:00 PM	4	36	0	40	0	2	4	6	2	0	4	6	0	0	0	0	52
04:15 PM	5	14	0	19	0	5	0	5	2	0	2	4	0	0	0	0	28
04:30 PM	9	7	0	16	0	1	0	1	0	0	4	4	0	0	0	0	21
04:45 PM	5	4	0	9	0	1	0	1	0	0	3	3	0	0	0	0	13
Total	23	61	0	84	0	9	4	13	4	0	13	17	0	0	0	0	114
05:00 PM	6	7	0	13	0	3	0	3	1	0	1	2	0	0	0	0	18
05:15 PM	4	10	0	14	0	2	0	2	1	0	2	3	0	0	0	0	19
05:30 PM	6	5	0	11	0	1	0	1	0	0	2	2	0	0	0	0	14
05:45 PM	3	6	0	9	0	0	3	3	1	0	3	4	0	0	0	0	16
Total	19	28	0	47	0	6	3	9	3	0	8	11	0	0	0	0	67
Grand Total	84	523	0	607	0	41	22	63	51	0	47	98	0	0	0	0	768
Apprch %	13.8	86.2	0		0	65.1	34.9		52	0	48		0	0	0		
Total %	10.9	68.1	0	79	0	5.3	2.9	8.2	6.6	0	6.1	12.8	0	0	0	0	

A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data

Fanfare Way @ Arts Summit

7-9 am | 2-4 pm | 4-6 pm

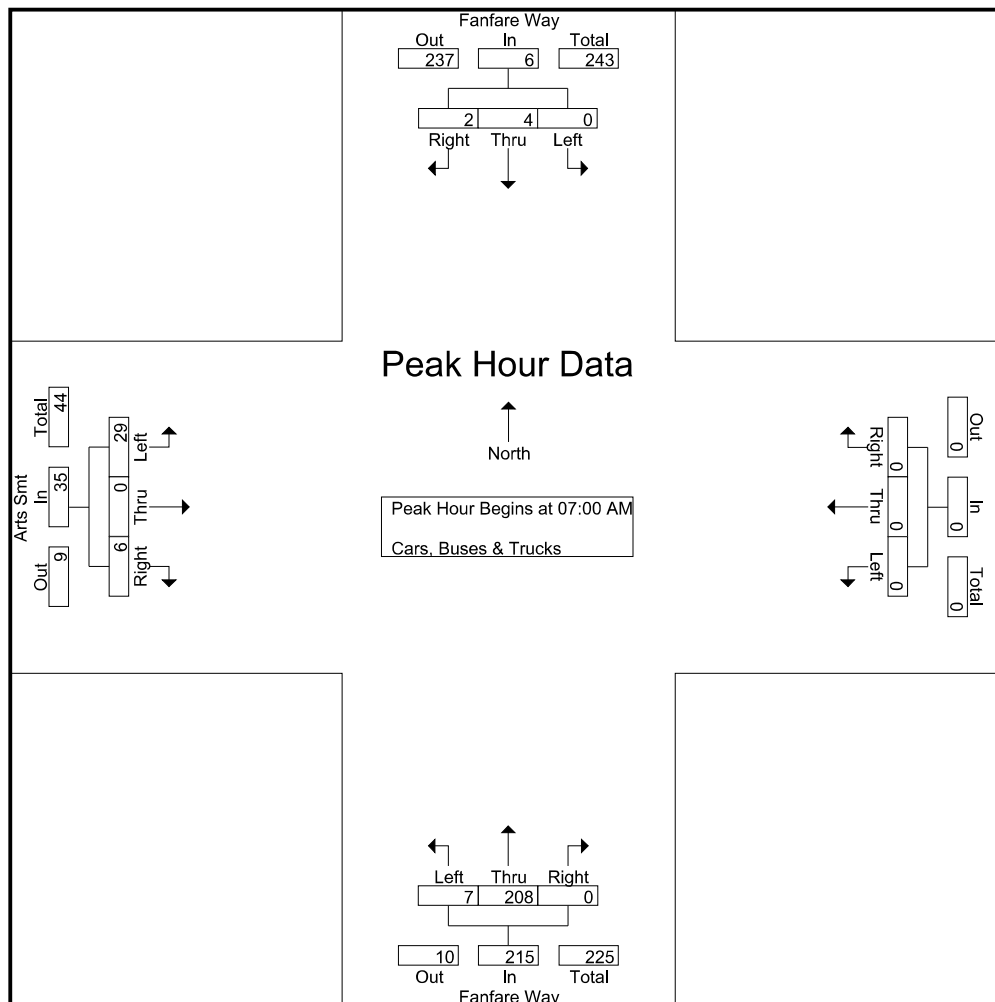
File Name : 20230094

Site Code : 20230094

Start Date : 04-25-2023

Page No : 2

	Fanfare Way Northbound				Fanfare Way Southbound				Arts Smt Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	1	47	0	48	0	0	0	0	1	0	1	2	0	0	0	0	50
07:15 AM	2	87	0	89	0	0	0	0	23	0	4	27	0	0	0	0	116
07:30 AM	3	38	0	41	0	1	1	2	4	0	1	5	0	0	0	0	48
07:45 AM	1	36	0	37	0	3	1	4	1	0	0	1	0	0	0	0	42
Total Volume	7	208	0	215	0	4	2	6	29	0	6	35	0	0	0	0	256
% App. Total	3.3	96.7	0		0	66.7	33.3		82.9	0	17.1		0	0	0		
PHF	.583	.598	.000	.604	.000	.333	.500	.375	.315	.000	.375	.324	.000	.000	.000	.000	.552



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TMC Data

Fanfare Way @ Arts Summit

7-9 am | 2-4 pm | 4-6 pm

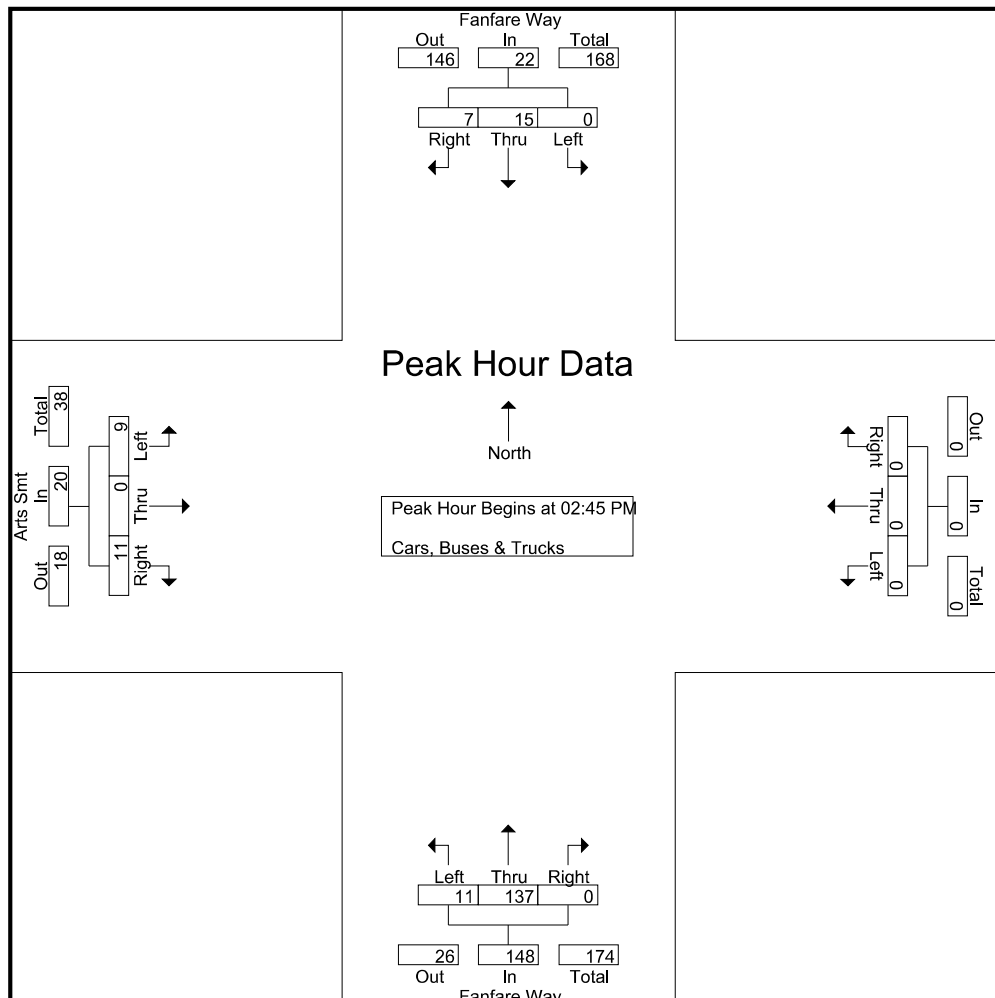
File Name : 20230094

Site Code : 20230094

Start Date : 04-25-2023

Page No : 3

	Fanfare Way Northbound				Fanfare Way Southbound				Arts Smt Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:45 PM																	
02:45 PM	3	36	0	39	0	4	1	5	4	0	2	6	0	0	0	0	50
03:00 PM	5	25	0	30	0	3	0	3	2	0	1	3	0	0	0	0	36
03:15 PM	3	44	0	47	0	2	1	3	1	0	4	5	0	0	0	0	55
03:30 PM	0	32	0	32	0	6	5	11	2	0	4	6	0	0	0	0	49
Total Volume	11	137	0	148	0	15	7	22	9	0	11	20	0	0	0	0	190
% App. Total	7.4	92.6	0		0	68.2	31.8		45	0	55		0	0	0		
PHF	.550	.778	.000	.787	.000	.625	.350	.500	.563	.000	.688	.833	.000	.000	.000	.000	.864



A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data

Fanfare Way @ Arts Summit

7-9 am | 2-4 pm | 4-6 pm

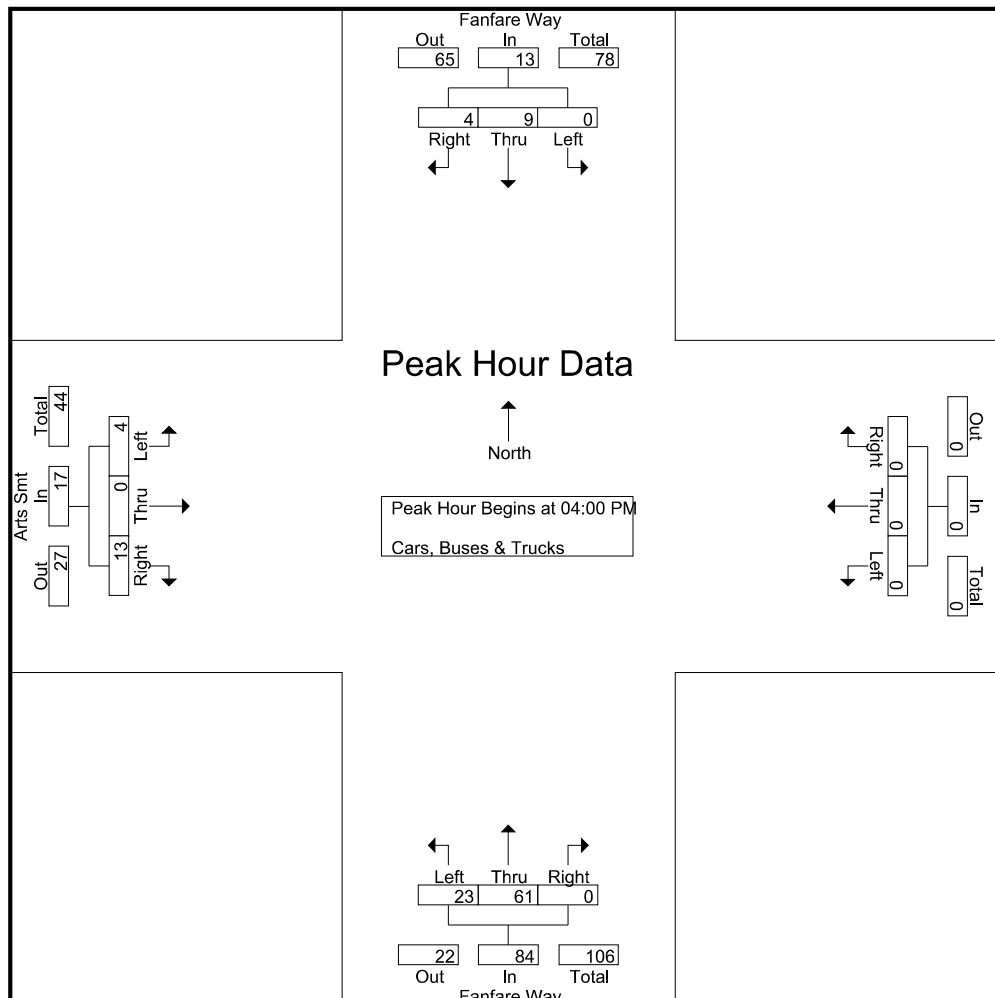
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Site Code : 20230094

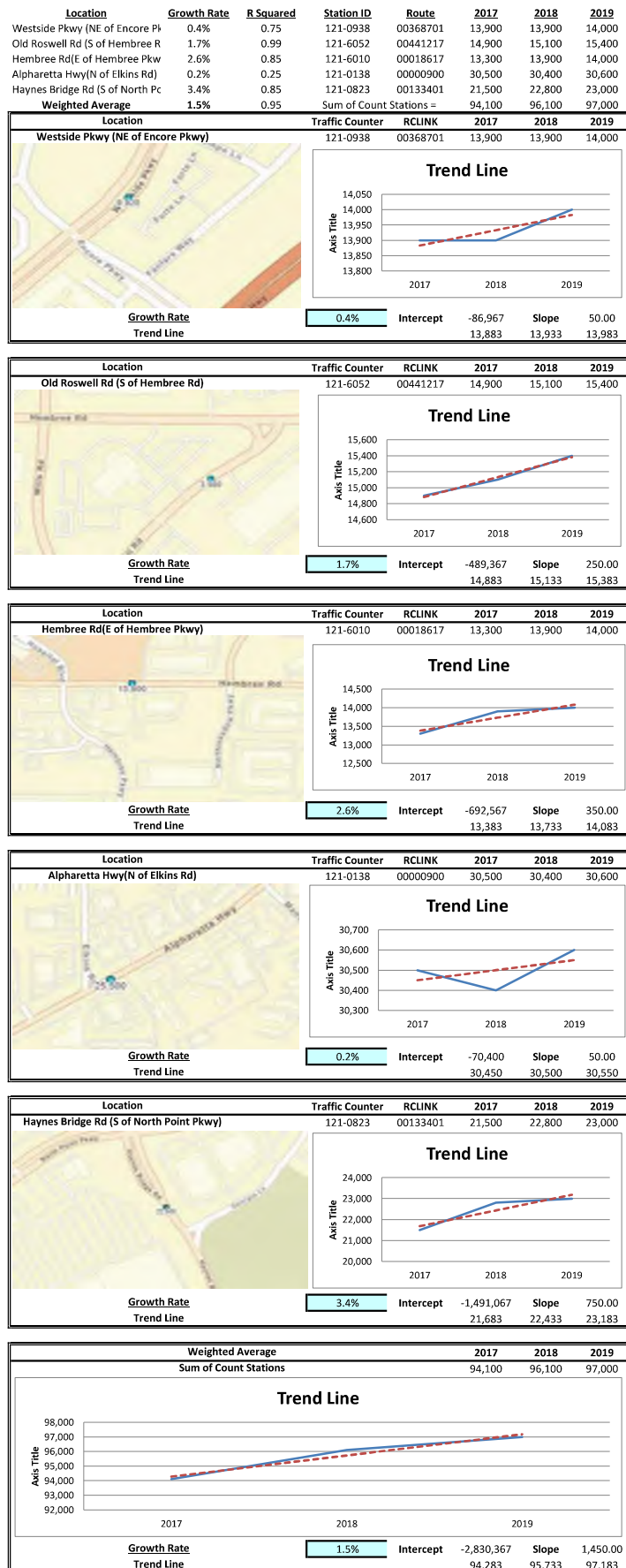
Start Date : 04-25-2023

Page No : 4

	Fanfare Way Northbound				Fanfare Way Southbound				Arts Smt Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	4	36	0	40	0	2	4	6	2	0	4	6	0	0	0	0	52
04:15 PM	5	14	0	19	0	5	0	5	2	0	2	4	0	0	0	0	28
04:30 PM	9	7	0	16	0	1	0	1	0	0	4	4	0	0	0	0	21
04:45 PM	5	4	0	9	0	1	0	1	0	0	3	3	0	0	0	0	13
Total Volume	23	61	0	84	0	9	4	13	4	0	13	17	0	0	0	0	114
% App. Total	27.4	72.6	0		0	69.2	30.8		23.5	0	76.5		0	0	0		
PHF	.639	.424	.000	.525	.000	.450	.250	.542	.500	.000	.813	.708	.000	.000	.000	.000	.548



LINEAR REGRESSION OF DAILY TRAFFIC



EXISTING INTERSECTION ANALYSIS

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	3	11	9	0	22	7	425	4	21	645	11
Future Vol, veh/h	13	3	11	9	0	22	7	425	4	21	645	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	165	-	200	165	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	3	11	9	0	23	7	438	4	22	665	11
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	942	1165	333	830	1172	219	676	0	0	442	0	0
Stage 1	709	709	-	452	452	-	-	-	-	-	-	-
Stage 2	233	456	-	378	720	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	218	193	663	263	191	785	911	-	-	1114	-	-
Stage 1	391	435	-	557	569	-	-	-	-	-	-	-
Stage 2	749	567	-	616	430	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	207	188	663	250	186	785	911	-	-	1114	-	-
Mov Cap-2 Maneuver	207	188	-	250	186	-	-	-	-	-	-	-
Stage 1	388	426	-	553	564	-	-	-	-	-	-	-
Stage 2	722	562	-	589	421	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	19.1		12.7		0.1		0.3					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	911	-	-	283	250	785	1114	-	-			
HCM Lane V/C Ratio	0.008	-	-	0.098	0.037	0.029	0.019	-	-			
HCM Control Delay (s)	9	-	-	19.1	20	9.7	8.3	-	-			
HCM Lane LOS	A	-	-	C	C	A	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0.1	0.1	-	-			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	24	139	120	169	228	117	284	50	173	332	16
Future Volume (vph)	24	139	120	169	228	117	284	50	173	332	16
Lane Group Flow (vph)	26	148	128	180	472	124	302	53	184	353	17
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	3	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	38.5	38.5	15.0	38.5	15.0	28.5	28.5	15.0	23.5	23.5
Total Split (s)	15.0	55.0	55.0	15.0	55.0	15.0	33.0	33.0	17.0	35.0	35.0
Total Split (%)	12.5%	45.8%	45.8%	12.5%	45.8%	12.5%	27.5%	27.5%	14.2%	29.2%	29.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	36.5	29.6	29.6	42.4	36.7	57.5	47.3	47.3	60.3	48.7	48.7
Actuated g/C Ratio	0.30	0.25	0.25	0.35	0.31	0.48	0.39	0.39	0.50	0.41	0.41
v/c Ratio	0.14	0.32	0.26	0.44	0.84	0.23	0.22	0.08	0.32	0.25	0.02
Control Delay	20.0	35.5	5.7	27.4	48.0	19.2	29.1	0.2	19.8	28.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	35.5	5.7	27.4	48.0	19.2	29.1	0.2	19.8	28.2	0.1
LOS	B	D	A	C	D	B	C	A	B	C	A
Approach Delay		21.5			42.3		23.3			24.6	
Approach LOS		C			D		C			C	
Queue Length 50th (ft)	12	89	0	90	308	51	87	0	78	102	0
Queue Length 95th (ft)	25	124	39	116	388	106	147	0	151	167	0
Internal Link Dist (ft)		265			650		835			452	
Turn Bay Length (ft)	145			375		315		200	275		225
Base Capacity (vph)	229	768	728	411	740	545	1393	697	589	1435	715
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.19	0.18	0.44	0.64	0.23	0.22	0.08	0.31	0.25	0.02

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 29.6

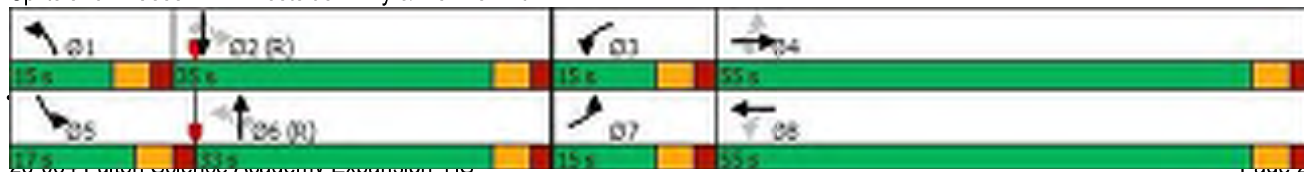
Intersection LOS: C

Intersection Capacity Utilization 69.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Westside Pkwy & Maxwell Rd



HCM 6th Signalized Intersection Summary

2: Westside Pkwy & Maxwell Rd

1a. Existing AM-2023
05/08/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	139	120	169	228	215	117	284	50	173	332	16
Future Volume (veh/h)	24	139	120	169	228	215	117	284	50	173	332	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	148	0	180	243	229	124	302	53	184	353	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	467		431	270	254	539	1462	652	562	1534	
Arrive On Green	0.02	0.25	0.00	0.08	0.30	0.30	0.06	0.41	0.41	0.08	0.43	0.00
Sat Flow, veh/h	1781	1870	1585	1781	886	835	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	26	148	0	180	0	472	124	302	53	184	353	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1720	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.3	7.7	0.0	8.8	0.0	31.6	4.8	6.6	2.4	7.1	7.5	0.0
Cycle Q Clear(g_c), s	1.3	7.7	0.0	8.8	0.0	31.6	4.8	6.6	2.4	7.1	7.5	0.0
Prop In Lane	1.00		1.00	1.00		0.49	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	141	467		431	0	524	539	1462	652	562	1534	
V/C Ratio(X)	0.18	0.32		0.42	0.00	0.90	0.23	0.21	0.08	0.33	0.23	
Avail Cap(c_a), veh/h	239	772		431	0	710	580	1462	652	597	1534	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.8	36.7	0.0	29.1	0.0	40.0	18.4	22.7	21.5	17.8	21.5	0.0
Incr Delay (d2), s/veh	0.6	0.4	0.0	0.6	0.0	11.7	0.2	0.3	0.2	0.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	0.0	3.9	0.0	15.1	1.9	2.7	1.0	2.9	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	37.1	0.0	29.7	0.0	51.7	18.6	23.0	21.7	18.1	21.9	0.0
LnGrp LOS	D	D		C	A	D	B	C	C	B	C	
Approach Vol, veh/h	174			652			479			537		
Approach Delay, s/veh	36.8			45.6			21.7			20.6		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	57.3	15.0	35.5	14.7	54.9	8.4	42.1				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	29.5	9.5	49.5	11.5	27.5	9.5	49.5				
Max Q Clear Time (g_c+I1), s	6.8	9.5	10.8	9.7	9.1	8.6	3.3	33.6				
Green Ext Time (p_c), s	0.1	3.7	0.0	0.9	0.1	3.4	0.0	3.0				

Intersection Summary

HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

Notes

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

Intersection	
Intersection Delay, s/vol	44.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	6	387	4	3	541	5	6	2	232	4	0	31
Future Vol, veh/h	6	387	4	3	541	5	6	2	232	4	0	31
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	578	6	4	807	7	9	3	346	6	0	46
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	87.6	245.4	24.9	13.9
HCM LOS	F	F	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	2%	1%	11%
Vol Thru, %	1%	97%	99%	0%
Vol Right, %	97%	1%	1%	89%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	397	549	35
LT Vol	6	6	3	4
Through Vol	2	387	541	0
RT Vol	232	4	5	31
Lane Flow Rate	358	593	819	52
Geometry Grp	1	1	1	1
Degree of Util (X)	0.671	1.071	1.481	0.119
Departure Headway (Hd)	7.655	7.283	6.767	9.632
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	476	504	541	375
Service Time	5.655	5.283	4.767	7.632
HCM Lane V/C Ratio	0.752	1.177	1.514	0.139
HCM Control Delay	24.9	87.6	245.4	13.9
HCM Lane LOS	C	F	F	B
HCM 95th-tile Q	4.9	16.5	39.5	0.4

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	6	7	208	4	2
Future Vol, veh/h	29	6	7	208	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	55	55	55	55
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	11	13	378	7	4
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	413	9	11	0	-	0
Stage 1	9	-	-	-	-	-
Stage 2	404	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	595	1073	1608	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	590	1073	1608	-	-	-
Mov Cap-2 Maneuver	602	-	-	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.1	0.2		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1608	-	602	1073	-	-
HCM Lane V/C Ratio	0.008	-	0.088	0.01	-	-
HCM Control Delay (s)	7.3	-	11.6	8.4	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	0	-	-

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	3	13	9	0	18	11	423	8	18	479	14
Future Vol, veh/h	3	3	13	9	0	18	11	423	8	18	479	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	165	-	200	165	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	3	15	10	0	21	13	486	9	21	551	16
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	862	1114	276	831	1121	243	567	0	0	495	0	0
Stage 1	593	593	-	512	512	-	-	-	-	-	-	-
Stage 2	269	521	-	319	609	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	249	207	721	262	205	758	1001	-	-	1065	-	-
Stage 1	459	492	-	513	535	-	-	-	-	-	-	-
Stage 2	713	530	-	667	484	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	236	200	721	247	198	758	1001	-	-	1065	-	-
Mov Cap-2 Maneuver	236	200	-	247	198	-	-	-	-	-	-	-
Stage 1	453	482	-	506	528	-	-	-	-	-	-	-
Stage 2	685	523	-	636	474	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14.2		13.3		0.2		0.3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1001	-	-	415	247	758	1065	-	-			
HCM Lane V/C Ratio	0.013	-	-	0.053	0.042	0.027	0.019	-	-			
HCM Control Delay (s)	8.6	-	-	14.2	20.2	9.9	8.4	-	-			
HCM Lane LOS	A	-	-	B	C	A	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.1	0.1	-	-			

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	59	174	122	132	184	228	15	64	211	11
Future Volume (vph)	19	59	174	122	132	184	228	15	64	211	11
Lane Group Flow (vph)	21	64	189	133	313	200	248	16	70	229	12
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	3	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	38.5	38.5	15.0	38.5	15.0	28.5	28.5	15.0	23.5	23.5
Total Split (s)	15.0	47.0	47.0	17.0	49.0	24.0	39.0	39.0	17.0	32.0	32.0
Total Split (%)	12.5%	39.2%	39.2%	14.2%	40.8%	20.0%	32.5%	32.5%	14.2%	26.7%	26.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	22.3	15.6	15.6	31.3	26.7	76.5	66.2	66.2	66.1	58.6	58.6
Actuated g/C Ratio	0.19	0.13	0.13	0.26	0.22	0.64	0.55	0.55	0.55	0.49	0.49
v/c Ratio	0.11	0.26	0.51	0.40	0.74	0.27	0.13	0.02	0.11	0.13	0.01
Control Delay	28.8	45.6	10.3	35.9	45.8	11.9	16.5	0.1	12.0	20.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	45.6	10.3	35.9	45.8	11.9	16.5	0.1	12.0	20.7	0.0
LOS	C	D	B	D	D	B	B	A	B	C	A
Approach Delay		20.0			42.8		14.0			18.0	
Approach LOS		B			D		B			B	
Queue Length 50th (ft)	13	48	0	87	188	49	43	0	16	43	0
Queue Length 95th (ft)	27	75	57	111	269	129	97	0	52	103	0
Internal Link Dist (ft)		265			650		835			452	
Turn Bay Length (ft)	145			375		315		200	275		225
Base Capacity (vph)	232	644	671	339	656	777	1952	928	713	1727	861
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.10	0.28	0.39	0.48	0.26	0.13	0.02	0.10	0.13	0.01

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 24.5

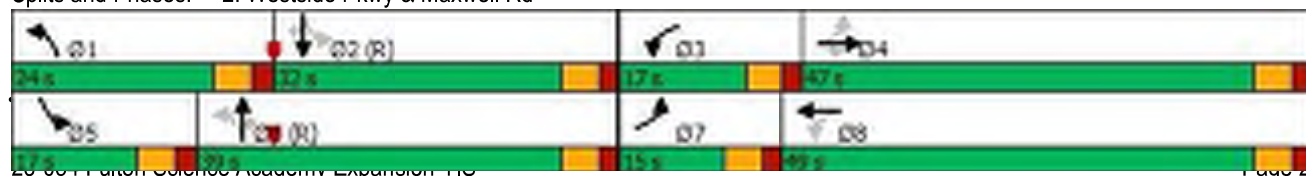
Intersection LOS: C

Intersection Capacity Utilization 52.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Westside Pkwy & Maxwell Rd



HCM 6th Signalized Intersection Summary

2: Westside Pkwy & Maxwell Rd

1b. Existing Dismissal -2023

05/08/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	59	174	122	132	156	184	228	15	64	211	11
Future Volume (veh/h)	19	59	174	122	132	156	184	228	15	64	211	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	64	0	133	143	170	200	248	16	70	229	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	290		364	164	195	740	1944	867	699	1824	
Arrive On Green	0.02	0.15	0.00	0.08	0.21	0.21	0.07	0.55	0.55	0.04	0.51	0.00
Sat Flow, veh/h	1781	1870	1585	1781	778	925	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	21	64	0	133	0	313	200	248	16	70	229	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1704	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.2	3.6	0.0	7.3	0.0	21.3	6.2	4.1	0.6	2.2	4.0	0.0
Cycle Q Clear(g_c), s	1.2	3.6	0.0	7.3	0.0	21.3	6.2	4.1	0.6	2.2	4.0	0.0
Prop In Lane	1.00		1.00	1.00		0.54	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	133	290		364	0	359	740	1944	867	699	1824	
V/C Ratio(X)	0.16	0.22		0.37	0.00	0.87	0.27	0.13	0.02	0.10	0.13	
Avail Cap(c_a), veh/h	237	647		398	0	618	887	1944	867	803	1824	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.1	44.4	0.0	36.8	0.0	45.8	11.5	13.2	12.4	12.6	15.2	0.0
Incr Delay (d2), s/veh	0.5	0.4	0.0	0.6	0.0	6.9	0.2	0.1	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.7	0.0	3.3	0.0	9.7	2.4	1.6	0.2	0.9	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	44.7	0.0	37.4	0.0	52.6	11.7	13.4	12.5	12.7	15.3	0.0
LnGrp LOS	D	D		D	A	D	B	B	B	B	B	
Approach Vol, veh/h	85			446			464			299		
Approach Delay, s/veh	44.2			48.1			12.6			14.7		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	67.1	14.7	24.1	10.0	71.2	8.0	30.8				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	18.5	26.5	11.5	41.5	11.5	33.5	9.5	43.5				
Max Q Clear Time (g_c+I1), s	8.2	6.0	9.3	5.6	4.2	6.1	3.2	23.3				
Green Ext Time (p_c), s	0.4	2.3	0.1	0.3	0.1	2.9	0.0	2.0				

Intersection Summary

HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

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

Intersection

Intersection Delay, s/veh 11

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	17	161	9	14	308	0	9	6	125	2	0	17
Future Vol, veh/h	17	161	9	14	308	0	9	6	125	2	0	17
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	194	11	17	371	0	11	7	151	2	0	20
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	10	12.4	9.4	8.4
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	9%	4%	11%
Vol Thru, %	4%	86%	96%	0%
Vol Right, %	89%	5%	0%	89%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	187	322	19
LT Vol	9	17	14	2
Through Vol	6	161	308	0
RT Vol	125	9	0	17
Lane Flow Rate	169	225	388	23
Geometry Grp	1	1	1	1
Degree of Util (X)	0.227	0.303	0.504	0.032
Departure Headway (Hd)	4.849	4.838	4.675	5.089
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	734	737	768	694
Service Time	2.923	2.906	2.734	3.189
HCM Lane V/C Ratio	0.23	0.305	0.505	0.033
HCM Control Delay	9.4	10	12.4	8.4
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.9	1.3	2.9	0.1

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	11	11	137	15	7
Future Vol, veh/h	9	11	11	137	15	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	13	13	159	17	8
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	206	21	25	0	-	0
Stage 1	21	-	-	-	-	-
Stage 2	185	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	782	1056	1589	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	847	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	776	1056	1589	-	-	-
Mov Cap-2 Maneuver	757	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	847	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	0.5		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1589	-	757	1056	-	-
HCM Lane V/C Ratio	0.008	-	0.014	0.012	-	-
HCM Control Delay (s)	7.3	-	9.8	8.5	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	11	7	0	18	13	594	4	20	466	12
Future Vol, veh/h	10	0	11	7	0	18	13	594	4	20	466	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	165	-	200	165	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	12	8	0	20	14	660	4	22	518	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	920	1254	259	991	1263	330	531	0	0	664	0	0
Stage 1	562	562	-	688	688	-	-	-	-	-	-	-
Stage 2	358	692	-	303	575	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	226	171	740	200	168	666	1033	-	-	921	-	-
Stage 1	479	508	-	403	445	-	-	-	-	-	-	-
Stage 2	633	443	-	681	501	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	213	165	740	191	162	666	1033	-	-	921	-	-
Mov Cap-2 Maneuver	213	165	-	191	162	-	-	-	-	-	-	-
Stage 1	472	496	-	397	439	-	-	-	-	-	-	-
Stage 2	606	437	-	654	489	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	16.4		14.5		0.2		0.4					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1033	-	-	340	191	666	921	-	-			
HCM Lane V/C Ratio	0.014	-	-	0.069	0.041	0.03	0.024	-	-			
HCM Control Delay (s)	8.5	-	-	16.4	24.6	10.6	9	-	-			
HCM Lane LOS	A	-	-	C	C	B	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.1	0.1	-	-			

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	18	38	201	170	57	231	354	30	58	110	13
Future Volume (vph)	18	38	201	170	57	231	354	30	58	110	13
Lane Group Flow (vph)	20	42	221	187	153	254	389	33	64	121	14
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	3	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	38.5	38.5	15.0	38.5	15.0	28.5	28.5	15.0	23.5	23.5
Total Split (s)	15.0	44.0	44.0	19.0	48.0	28.0	40.0	40.0	17.0	29.0	29.0
Total Split (%)	12.5%	36.7%	36.7%	15.8%	40.0%	23.3%	33.3%	33.3%	14.2%	24.2%	24.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	15.6	9.0	9.0	27.5	22.2	81.5	71.3	71.3	69.4	62.4	62.4
Actuated g/C Ratio	0.13	0.08	0.08	0.23	0.18	0.68	0.59	0.59	0.58	0.52	0.52
v/c Ratio	0.11	0.30	0.69	0.62	0.42	0.30	0.19	0.03	0.11	0.07	0.02
Control Delay	35.9	56.8	18.0	48.5	28.8	8.8	12.7	0.1	8.5	16.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	56.8	18.0	48.5	28.8	8.8	12.7	0.1	8.5	16.3	0.0
LOS	D	E	B	D	C	A	B	A	A	B	A
Approach Delay		25.1			39.6		10.6			12.7	
Approach LOS		C			D		B			B	
Queue Length 50th (ft)	12	32	0	126	55	66	71	0	15	23	0
Queue Length 95th (ft)	31	65	74	185	127	120	115	0	35	48	0
Internal Link Dist (ft)		265			650		835			452	
Turn Bay Length (ft)	145			375		315		200	275		225
Base Capacity (vph)	232	597	657	308	644	898	2101	989	674	1839	905
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.07	0.34	0.61	0.24	0.28	0.19	0.03	0.09	0.07	0.02

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 20.2

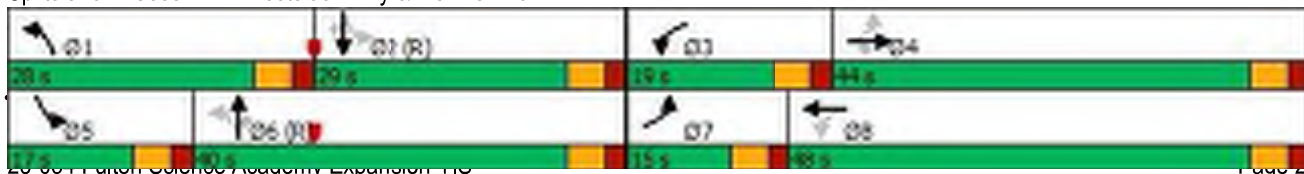
Intersection LOS: C

Intersection Capacity Utilization 55.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Westside Pkwy & Maxwell Rd



HCM 6th Signalized Intersection Summary

2: Westside Pkwy & Maxwell Rd

1c. Existing PM-2023
05/08/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	38	201	170	57	82	231	354	30	58	110	13
Future Volume (veh/h)	18	38	201	170	57	82	231	354	30	58	110	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	42	0	187	63	90	254	389	33	64	121	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	93		299	99	141	912	2194	979	676	2051	
Arrive On Green	0.02	0.05	0.00	0.11	0.14	0.14	0.08	0.62	0.62	0.04	0.58	0.00
Sat Flow, veh/h	1781	1870	1585	1781	696	995	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	20	42	0	187	0	153	254	389	33	64	121	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1691	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.3	2.6	0.0	11.6	0.0	10.2	6.7	5.6	1.0	1.7	1.8	0.0
Cycle Q Clear(g_c), s	1.3	2.6	0.0	11.6	0.0	10.2	6.7	5.6	1.0	1.7	1.8	0.0
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	93		299	0	240	912	2194	979	676	2051	
V/C Ratio(X)	0.13	0.45		0.63	0.00	0.64	0.28	0.18	0.03	0.09	0.06	
Avail Cap(c_a), veh/h	263	600		299	0	599	1108	2194	979	781	2051	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.5	55.4	0.0	45.3	0.0	48.5	7.9	9.9	9.0	9.3	11.1	0.0
Incr Delay (d2), s/veh	0.4	3.4	0.0	4.1	0.0	2.8	0.2	0.2	0.1	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.3	0.0	5.5	0.0	4.5	2.3	2.1	0.4	0.6	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	58.8	0.0	49.3	0.0	51.3	8.0	10.0	9.0	9.3	11.2	0.0
LnGrp LOS	D	E		D	A	D	A	B	A	A	B	
Approach Vol, veh/h	62			340			676			185		
Approach Delay, s/veh	56.8			50.2			9.2			10.5		
Approach LOS	E			D			A			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	74.7	19.0	11.5	9.9	79.6	7.9	22.6				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	22.5	23.5	13.5	38.5	11.5	34.5	9.5	42.5				
Max Q Clear Time (g_c+I1), s	8.7	3.8	13.6	4.6	3.7	7.6	3.3	12.2				
Green Ext Time (p_c), s	0.6	1.0	0.0	0.2	0.1	4.9	0.0	1.0				
Intersection Summary												
HCM 6th Ctrl Delay	22.8											
HCM 6th LOS	C											

Notes

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

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

Intersection

Intersection Delay, s/veh 12

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	13	42	5	4	191	2	6	13	19	1	2	15
Future Vol, veh/h	13	42	5	4	191	2	6	13	19	1	2	15
Peak Hour Factor	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	102	12	10	466	5	15	32	46	2	5	37
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	9	13.8	9	8.4
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	22%	2%	6%
Vol Thru, %	34%	70%	97%	11%
Vol Right, %	50%	8%	1%	83%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	60	197	18
LT Vol	6	13	4	1
Through Vol	13	42	191	2
RT Vol	19	5	2	15
Lane Flow Rate	93	146	480	44
Geometry Grp	1	1	1	1
Degree of Util (X)	0.132	0.195	0.594	0.061
Departure Headway (Hd)	5.144	4.798	4.448	5.005
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	692	745	812	710
Service Time	3.207	2.849	2.485	3.075
HCM Lane V/C Ratio	0.134	0.196	0.591	0.062
HCM Control Delay	9	9	13.8	8.4
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.5	0.7	4	0.2

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	13	23	61	9	4
Future Vol, veh/h	4	13	23	61	9	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	55	55	55	55
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	24	42	111	16	7
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	215	20	23	0	-	0
Stage 1	20	-	-	-	-	-
Stage 2	195	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	773	1058	1592	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	753	1058	1592	-	-	-
Mov Cap-2 Maneuver	744	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.8	2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1592	-	744	1058	-	-
HCM Lane V/C Ratio	0.026	-	0.01	0.022	-	-
HCM Control Delay (s)	7.3	-	9.9	8.5	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0.1	-	-

FUTURE “NO-BUILD” INTERSECTION ANALYSIS

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	3	11	9	0	23	7	442	4	22	671	11
Future Vol, veh/h	14	3	11	9	0	23	7	442	4	22	671	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	165	-	200	165	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	3	11	9	0	24	7	456	4	23	692	11
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	980	1212	346	864	1219	228	703	0	0	460	0	0
Stage 1	738	738	-	470	470	-	-	-	-	-	-	-
Stage 2	242	474	-	394	749	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	204	181	650	248	179	775	890	-	-	1097	-	-
Stage 1	376	422	-	543	558	-	-	-	-	-	-	-
Stage 2	740	556	-	602	417	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	193	176	650	235	174	775	890	-	-	1097	-	-
Mov Cap-2 Maneuver	193	176	-	235	174	-	-	-	-	-	-	-
Stage 1	373	413	-	539	554	-	-	-	-	-	-	-
Stage 2	712	552	-	575	408	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	20.4		12.9		0.1		0.3					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	WBLn2	SBL	SBT	SBR				
Capacity (veh/h)	890	-	-	263	235	775	1097	-	-			
HCM Lane V/C Ratio	0.008	-	-	0.11	0.039	0.031	0.021	-	-			
HCM Control Delay (s)	9.1	-	-	20.4	20.9	9.8	8.4	-	-			
HCM Lane LOS	A	-	-	C	C	A	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.4	0.1	0.1	0.1	-	-			

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	25	145	125	176	237	122	295	52	180	345	17
Future Volume (vph)	25	145	125	176	237	122	295	52	180	345	17
Lane Group Flow (vph)	27	154	133	187	490	130	314	55	191	367	18
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	3	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	38.5	38.5	15.0	38.5	15.0	28.5	28.5	15.0	23.5	23.5
Total Split (s)	15.0	54.0	54.0	15.0	54.0	15.0	33.0	33.0	18.0	36.0	36.0
Total Split (%)	12.5%	45.0%	45.0%	12.5%	45.0%	12.5%	27.5%	27.5%	15.0%	30.0%	30.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	37.7	30.7	30.7	43.5	37.8	56.1	46.0	46.0	59.5	47.7	47.7
Actuated g/C Ratio	0.31	0.26	0.26	0.36	0.32	0.47	0.38	0.38	0.50	0.40	0.40
v/c Ratio	0.14	0.32	0.26	0.45	0.85	0.25	0.23	0.08	0.35	0.26	0.03
Control Delay	19.6	34.8	5.4	27.0	48.2	20.1	29.9	0.2	20.7	28.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	34.8	5.4	27.0	48.2	20.1	29.9	0.2	20.7	28.8	0.1
LOS	B	C	A	C	D	C	C	A	C	C	A
Approach Delay		21.0			42.4		24.1			25.2	
Approach LOS		C			D		C			C	
Queue Length 50th (ft)	12	91	0	92	321	55	93	0	83	108	0
Queue Length 95th (ft)	25	126	39	118	403	112	153	0	159	172	0
Internal Link Dist (ft)		265			650		835			452	
Turn Bay Length (ft)	145			375		315		200	275		225
Base Capacity (vph)	228	752	719	418	726	524	1356	682	576	1406	703
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.20	0.18	0.45	0.67	0.25	0.23	0.08	0.33	0.26	0.03

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 29.9

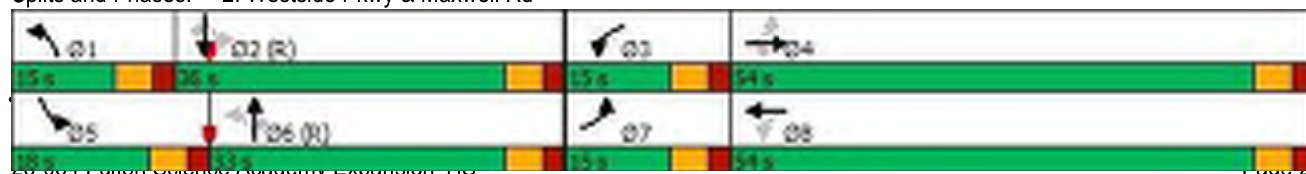
Intersection LOS: C

Intersection Capacity Utilization 71.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Westside Pkwy & Maxwell Rd



HCM 6th Signalized Intersection Summary

2: Westside Pkwy & Maxwell Rd

2a. Future No-Build AM-2025

05/08/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	145	125	176	237	224	122	295	52	180	345	17
Future Volume (veh/h)	25	145	125	176	237	224	122	295	52	180	345	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	154	0	187	252	238	130	314	55	191	367	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	486		439	278	263	522	1412	630	547	1487	
Arrive On Green	0.02	0.26	0.00	0.08	0.31	0.31	0.06	0.40	0.40	0.08	0.42	0.00
Sat Flow, veh/h	1781	1870	1585	1781	885	835	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	27	154	0	187	0	490	130	314	55	191	367	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1720	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.3	8.0	0.0	9.1	0.0	32.8	5.1	7.0	2.6	7.5	8.0	0.0
Cycle Q Clear(g_c), s	1.3	8.0	0.0	9.1	0.0	32.8	5.1	7.0	2.6	7.5	8.0	0.0
Prop In Lane	1.00		1.00	1.00		0.49	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	141	486		439	0	540	522	1412	630	547	1487	
V/C Ratio(X)	0.19	0.32		0.43	0.00	0.91	0.25	0.22	0.09	0.35	0.25	
Avail Cap(c_a), veh/h	238	756		439	0	695	558	1412	630	589	1487	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.1	35.8	0.0	28.3	0.0	39.5	19.3	23.9	22.6	18.6	22.6	0.0
Incr Delay (d2), s/veh	0.6	0.4	0.0	0.7	0.0	13.2	0.2	0.4	0.3	0.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.7	0.0	4.0	0.0	15.8	2.1	3.0	1.0	3.1	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.8	36.2	0.0	29.0	0.0	52.7	19.5	24.3	22.9	19.0	23.0	0.0
LnGrp LOS	C	D		C	A	D	B	C	C	B	C	
Approach Vol, veh/h	181			677			499			558		
Approach Delay, s/veh	36.0			46.1			22.9			21.6		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.6	55.7	15.0	36.7	15.1	53.2	8.5	43.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	30.5	9.5	48.5	12.5	27.5	9.5	48.5				
Max Q Clear Time (g_c+I1), s	7.1	10.0	11.1	10.0	9.5	9.0	3.3	34.8				
Green Ext Time (p_c), s	0.1	3.9	0.0	1.0	0.1	3.5	0.0	2.9				

Intersection Summary

HCM 6th Ctrl Delay	32.0
HCM 6th LOS	C

Notes

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

Intersection	
Intersection Delay, s/vol	44.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	6	387	4	3	541	5	6	2	232	4	0	32
Future Vol, veh/h	6	387	4	3	541	5	6	2	232	4	0	32
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	578	6	4	807	7	9	3	346	6	0	48
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	88.3	246.7	25	14
HCM LOS	F	F	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	2%	1%	11%
Vol Thru, %	1%	97%	99%	0%
Vol Right, %	97%	1%	1%	89%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	397	549	36
LT Vol	6	6	3	4
Through Vol	2	387	541	0
RT Vol	232	4	5	32
Lane Flow Rate	358	593	819	54
Geometry Grp	1	1	1	1
Degree of Util (X)	0.672	1.073	1.484	0.123
Departure Headway (Hd)	7.676	7.302	6.783	9.644
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	473	504	541	374
Service Time	5.676	5.302	4.783	7.644
HCM Lane V/C Ratio	0.757	1.177	1.514	0.144
HCM Control Delay	25	88.3	246.7	14
HCM Lane LOS	C	F	F	B
HCM 95th-tile Q	4.9	16.5	39.6	0.4

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	6	7	216	4	2
Future Vol, veh/h	30	6	7	216	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	55	55	55	55
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	11	13	393	7	4
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	428	9	11	0	-	0
Stage 1	9	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	584	1073	1608	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	579	1073	1608	-	-	-
Mov Cap-2 Maneuver	593	-	-	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.1	0.2		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1608	-	593	1073	-	-
HCM Lane V/C Ratio	0.008	-	0.092	0.01	-	-
HCM Control Delay (s)	7.3	-	11.7	8.4	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	0	-	-

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	3	14	9	0	19	11	440	8	19	498	15
Future Vol, veh/h	3	3	14	9	0	19	11	440	8	19	498	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	165	-	200	165	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	3	16	10	0	22	13	506	9	22	572	17
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	895	1157	286	864	1165	253	589	0	0	515	0	0
Stage 1	616	616	-	532	532	-	-	-	-	-	-	-
Stage 2	279	541	-	332	633	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	235	195	711	248	193	746	982	-	-	1047	-	-
Stage 1	445	480	-	499	524	-	-	-	-	-	-	-
Stage 2	704	519	-	655	472	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	222	188	711	233	186	746	982	-	-	1047	-	-
Mov Cap-2 Maneuver	222	188	-	233	186	-	-	-	-	-	-	-
Stage 1	439	470	-	493	517	-	-	-	-	-	-	-
Stage 2	674	512	-	622	462	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14.4		13.6		0.2		0.3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	WBLn2	SBL	SBT	SBR				
Capacity (veh/h)	982	-	-	407	233	746	1047	-	-			
HCM Lane V/C Ratio	0.013	-	-	0.056	0.044	0.029	0.021	-	-			
HCM Control Delay (s)	8.7	-	-	14.4	21.2	10	8.5	-	-			
HCM Lane LOS	A	-	-	B	C	B	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.1	0.1	-	-			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↰	↰	↱↱	↱	↰	↱↱	↱
Traffic Volume (vph)	20	61	181	127	137	191	237	16	67	219	11
Future Volume (vph)	20	61	181	127	137	191	237	16	67	219	11
Lane Group Flow (vph)	22	66	197	138	325	208	258	17	73	238	12
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	3	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	38.5	38.5	15.0	38.5	15.0	28.5	28.5	15.0	23.5	23.5
Total Split (s)	15.0	46.0	46.0	17.0	48.0	24.0	40.0	40.0	17.0	33.0	33.0
Total Split (%)	12.5%	38.3%	38.3%	14.2%	40.0%	20.0%	33.3%	33.3%	14.2%	27.5%	27.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	24.8	18.1	18.1	33.7	26.8	74.2	63.5	63.5	62.9	55.2	55.2
Actuated g/C Ratio	0.21	0.15	0.15	0.28	0.22	0.62	0.53	0.53	0.52	0.46	0.46
v/c Ratio	0.12	0.23	0.49	0.38	0.77	0.29	0.14	0.02	0.12	0.15	0.01
Control Delay	27.1	42.7	9.2	33.6	47.8	13.2	18.1	0.1	13.2	22.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	42.7	9.2	33.6	47.8	13.2	18.1	0.1	13.2	22.9	0.0
LOS	C	D	A	C	D	B	B	A	B	C	A
Approach Delay		18.3			43.6		15.3			19.8	
Approach LOS		B			D		B			B	
Queue Length 50th (ft)	12	45	0	80	204	68	55	0	22	56	0
Queue Length 95th (ft)	27	76	57	114	279	138	103	0	55	109	0
Internal Link Dist (ft)		265			650		835			452	
Turn Bay Length (ft)	145			375		315		200	275		225
Base Capacity (vph)	231	628	664	363	641	750	1872	895	677	1628	821
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.11	0.30	0.38	0.51	0.28	0.14	0.02	0.11	0.15	0.01

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 25.2

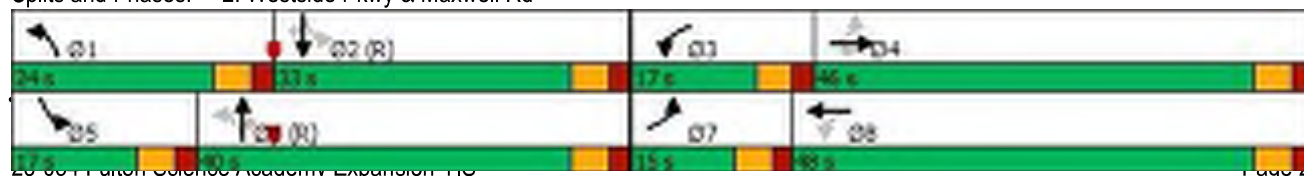
Intersection LOS: C

Intersection Capacity Utilization 54.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Westside Pkwy & Maxwell Rd



HCM 6th Signalized Intersection Summary

2: Westside Pkwy & Maxwell Rd

2b. Future No-Build Dismissal-2025

05/08/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	61	181	127	137	162	191	237	16	67	219	11
Future Volume (veh/h)	20	61	181	127	137	162	191	237	16	67	219	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	66	0	138	149	176	208	258	17	73	238	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	300		374	170	201	726	1916	855	683	1786	
Arrive On Green	0.02	0.16	0.00	0.08	0.22	0.22	0.07	0.54	0.54	0.04	0.50	0.00
Sat Flow, veh/h	1781	1870	1585	1781	781	923	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	22	66	0	138	0	325	208	258	17	73	238	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1704	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.2	3.7	0.0	7.5	0.0	22.1	6.6	4.3	0.6	2.4	4.3	0.0
Cycle Q Clear(g_c), s	1.2	3.7	0.0	7.5	0.0	22.1	6.6	4.3	0.6	2.4	4.3	0.0
Prop In Lane	1.00		1.00	1.00		0.54	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	300		374	0	371	726	1916	855	683	1786	
V/C Ratio(X)	0.16	0.22		0.37	0.00	0.88	0.29	0.13	0.02	0.11	0.13	
Avail Cap(c_a), veh/h	236	631		404	0	604	868	1916	855	786	1786	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.6	43.8	0.0	36.1	0.0	45.4	11.9	13.7	12.9	13.2	15.9	0.0
Incr Delay (d2), s/veh	0.6	0.4	0.0	0.6	0.0	8.2	0.2	0.1	0.0	0.1	0.2	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	0.6	1.8	0.0	3.4	0.0	10.2	2.5	1.7	0.2	0.9	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	44.2	0.0	36.7	0.0	53.6	12.1	13.9	12.9	13.3	16.1	0.0
LnGrp LOS	D	D		D	A	D	B	B	B	B	B	
Approach Vol, veh/h	88			463			483			311		
Approach Delay, s/veh	43.7			48.6			13.1			15.4		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.5	65.8	15.0	24.8	10.1	70.2	8.1	31.6				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	18.5	27.5	11.5	40.5	11.5	34.5	9.5	42.5				
Max Q Clear Time (g_c+I1), s	8.6	6.3	9.5	5.7	4.4	6.3	3.2	24.1				
Green Ext Time (p_c), s	0.4	2.4	0.1	0.3	0.1	3.1	0.0	2.0				

Intersection Summary

HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

Notes

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

Intersection

Intersection Delay, s/veh 11.1

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	18	161	9	14	308	0	9	6	125	2	0	18
Future Vol, veh/h	18	161	9	14	308	0	9	6	125	2	0	18
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	194	11	17	371	0	11	7	151	2	0	22
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	10.1	12.5	9.4	8.4
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	10%	4%	10%
Vol Thru, %	4%	86%	96%	0%
Vol Right, %	89%	5%	0%	90%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	188	322	20
LT Vol	9	18	14	2
Through Vol	6	161	308	0
RT Vol	125	9	0	18
Lane Flow Rate	169	227	388	24
Geometry Grp	1	1	1	1
Degree of Util (X)	0.228	0.305	0.504	0.034
Departure Headway (Hd)	4.857	4.844	4.681	5.09
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	734	736	764	694
Service Time	2.929	2.914	2.742	3.189
HCM Lane V/C Ratio	0.23	0.308	0.508	0.035
HCM Control Delay	9.4	10.1	12.5	8.4
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.9	1.3	2.9	0.1

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	11	11	142	16	7
Future Vol, veh/h	9	11	11	142	16	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	13	13	165	19	8
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	214	23	27	0	-	0
Stage 1	23	-	-	-	-	-
Stage 2	191	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	774	1054	1587	-	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	768	1054	1587	-	-	-
Mov Cap-2 Maneuver	751	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Approach						
	EB	NB		SB		
HCM Control Delay, s	9.1	0.5		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1587	-	751	1054	-	-
HCM Lane V/C Ratio	0.008	-	0.014	0.012	-	-
HCM Control Delay (s)	7.3	-	9.9	8.5	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	11	7	0	19	14	618	4	21	485	12
Future Vol, veh/h	10	0	11	7	0	19	14	618	4	21	485	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	165	-	200	165	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	12	8	0	21	16	687	4	23	539	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	961	1308	270	1035	1317	344	552	0	0	691	0	0
Stage 1	585	585	-	719	719	-	-	-	-	-	-	-
Stage 2	376	723	-	316	598	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	211	158	728	186	156	652	1014	-	-	900	-	-
Stage 1	464	496	-	386	431	-	-	-	-	-	-	-
Stage 2	617	429	-	670	489	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	198	151	728	177	149	652	1014	-	-	900	-	-
Mov Cap-2 Maneuver	198	151	-	177	149	-	-	-	-	-	-	-
Stage 1	457	483	-	380	424	-	-	-	-	-	-	-
Stage 2	588	422	-	642	476	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	17.1		14.9		0.2		0.4					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	WBLn2	SBL	SBT	SBR				
Capacity (veh/h)	1014	-	-	320	177	652	900	-	-			
HCM Lane V/C Ratio	0.015	-	-	0.073	0.044	0.032	0.026	-	-			
HCM Control Delay (s)	8.6	-	-	17.1	26.3	10.7	9.1	-	-			
HCM Lane LOS	A	-	-	C	D	B	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.1	0.1	-	-			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	19	40	209	177	59	240	368	31	60	114	14
Future Volume (vph)	19	40	209	177	59	240	368	31	60	114	14
Lane Group Flow (vph)	21	44	230	195	158	264	404	34	66	125	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	3	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	38.5	38.5	15.0	38.5	15.0	28.5	28.5	15.0	23.5	23.5
Total Split (s)	15.0	44.0	44.0	18.0	47.0	29.0	41.0	41.0	17.0	29.0	29.0
Total Split (%)	12.5%	36.7%	36.7%	15.0%	39.2%	24.2%	34.2%	34.2%	14.2%	24.2%	24.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	15.8	9.1	9.1	26.6	21.6	82.1	71.9	71.9	69.7	62.7	62.7
Actuated g/C Ratio	0.13	0.08	0.08	0.22	0.18	0.68	0.60	0.60	0.58	0.52	0.52
v/c Ratio	0.11	0.31	0.69	0.67	0.44	0.31	0.19	0.03	0.11	0.07	0.02
Control Delay	36.5	56.9	17.9	52.0	30.3	8.6	12.4	0.1	8.3	16.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	56.9	17.9	52.0	30.3	8.6	12.4	0.1	8.3	16.1	0.0
LOS	D	E	B	D	C	A	B	A	A	B	A
Approach Delay		25.1			42.3		10.3			12.4	
Approach LOS		C			D		B			B	
Queue Length 50th (ft)	13	33	0	134	59	67	72	0	15	23	0
Queue Length 95th (ft)	33	68	75	195	134	123	117	0	35	49	0
Internal Link Dist (ft)		265			650		835			452	
Turn Bay Length (ft)	145			375		315		200	275		225
Base Capacity (vph)	233	597	664	294	630	907	2120	997	669	1849	909
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.07	0.35	0.66	0.25	0.29	0.19	0.03	0.10	0.07	0.02

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 20.6

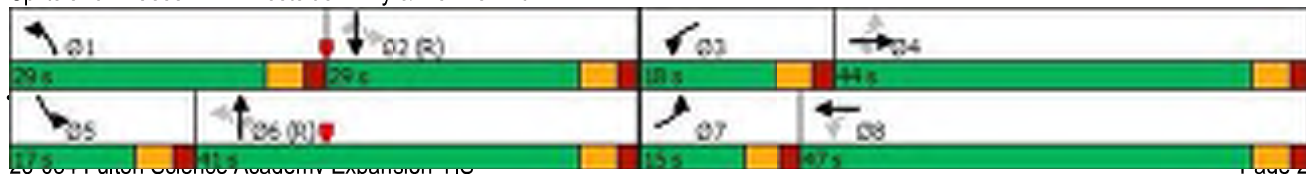
Intersection LOS: C

Intersection Capacity Utilization 56.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Westside Pkwy & Maxwell Rd



HCM 6th Signalized Intersection Summary

2: Westside Pkwy & Maxwell Rd

2c. Future No-Build PM-2025

05/08/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	40	209	177	59	85	240	368	31	60	114	14
Future Volume (veh/h)	19	40	209	177	59	85	240	368	31	60	114	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	44	0	195	65	93	264	404	34	66	125	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	93		282	93	133	920	2223	991	675	2075	
Arrive On Green	0.02	0.05	0.00	0.10	0.13	0.13	0.08	0.63	0.63	0.04	0.58	0.00
Sat Flow, veh/h	1781	1870	1585	1781	696	995	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	21	44	0	195	0	158	264	404	34	66	125	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1691	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.3	2.7	0.0	12.2	0.0	10.7	6.8	5.8	1.0	1.7	1.8	0.0
Cycle Q Clear(g_c), s	1.3	2.7	0.0	12.2	0.0	10.7	6.8	5.8	1.0	1.7	1.8	0.0
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	151	93		282	0	225	920	2223	991	675	2075	
V/C Ratio(X)	0.14	0.47		0.69	0.00	0.70	0.29	0.18	0.03	0.10	0.06	
Avail Cap(c_a), veh/h	255	600		282	0	585	1129	2223	991	780	2075	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.4	55.5	0.0	46.4	0.0	49.7	7.5	9.5	8.6	8.9	10.8	0.0
Incr Delay (d2), s/veh	0.4	3.6	0.0	7.0	0.0	3.9	0.2	0.2	0.1	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.4	0.0	6.0	0.0	4.8	2.4	2.1	0.4	0.6	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	59.1	0.0	53.4	0.0	53.7	7.7	9.7	8.7	9.0	10.8	0.0
LnGrp LOS	D	E		D	A	D	A	A	A	A	B	
Approach Vol, veh/h	65			353			702			191		
Approach Delay, s/veh	57.1			53.5			8.9			10.2		
Approach LOS	E			D			A			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.9	75.6	18.0	11.5	9.9	80.6	8.0	21.5				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	23.5	23.5	12.5	38.5	11.5	35.5	9.5	41.5				
Max Q Clear Time (g_c+I1), s	8.8	3.8	14.2	4.7	3.7	7.8	3.3	12.7				
Green Ext Time (p_c), s	0.6	1.1	0.0	0.2	0.1	5.1	0.0	1.0				

Intersection Summary

HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Notes

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

Intersection

Intersection Delay, s/veh 12

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	14	42	5	4	191	2	6	14	19	1	2	16
Future Vol, veh/h	14	42	5	4	191	2	6	14	19	1	2	16
Peak Hour Factor	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	102	12	10	466	5	15	34	46	2	5	39
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	9.1	13.9	9	8.4
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	23%	2%	5%
Vol Thru, %	36%	69%	97%	11%
Vol Right, %	49%	8%	1%	84%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	39	61	197	19
LT Vol	6	14	4	1
Through Vol	14	42	191	2
RT Vol	19	5	2	16
Lane Flow Rate	95	149	480	46
Geometry Grp	1	1	1	1
Degree of Util (X)	0.136	0.199	0.596	0.064
Departure Headway (Hd)	5.161	4.816	4.463	5.01
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	690	741	807	709
Service Time	3.228	2.87	2.503	3.084
HCM Lane V/C Ratio	0.138	0.201	0.595	0.065
HCM Control Delay	9	9.1	13.9	8.4
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.5	0.7	4	0.2

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	14	24	63	9	4
Future Vol, veh/h	4	14	24	63	9	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	55	55	55	55
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	25	44	115	16	7
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	223	20	23	0	-	0
Stage 1	20	-	-	-	-	-
Stage 2	203	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	765	1058	1592	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	831	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	744	1058	1592	-	-	-
Mov Cap-2 Maneuver	737	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	831	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.8	2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1592	-	737	1058	-	-
HCM Lane V/C Ratio	0.027	-	0.01	0.024	-	-
HCM Control Delay (s)	7.3	-	9.9	8.5	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0.1	-	-

FUTURE “BUILD” INTERSECTION ANALYSIS

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	3	11	97	0	23	7	434	35	22	597	11
Future Vol, veh/h	14	3	11	97	0	23	7	434	35	22	597	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	165	-	200	165	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	3	11	100	0	24	7	447	36	23	615	11
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	899	1158	308	816	1133	224	626	0	0	483	0	0
Stage 1	661	661	-	461	461	-	-	-	-	-	-	-
Stage 2	238	497	-	355	672	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	234	195	688	269	202	779	952	-	-	1076	-	-
Stage 1	418	458	-	550	564	-	-	-	-	-	-	-
Stage 2	744	543	-	635	453	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	222	190	688	256	196	779	952	-	-	1076	-	-
Mov Cap-2 Maneuver	222	190	-	256	196	-	-	-	-	-	-	-
Stage 1	415	448	-	546	560	-	-	-	-	-	-	-
Stage 2	716	539	-	607	443	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	18.5		24.4		0.1		0.3					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	WBLn2	SBL	SBT	SBR				
Capacity (veh/h)	952	-	-	295	256	779	1076	-	-			
HCM Lane V/C Ratio	0.008	-	-	0.098	0.391	0.03	0.021	-	-			
HCM Control Delay (s)	8.8	-	-	18.5	27.8	9.8	8.4	-	-			
HCM Lane LOS	A	-	-	C	D	A	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.3	1.8	0.1	0.1	-	-			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	25	123	125	102	217	122	295	44	166	345	17
Future Volume (vph)	25	123	125	102	217	122	295	44	166	345	17
Lane Group Flow (vph)	27	131	133	109	449	130	314	47	177	367	18
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	3	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	38.5	38.5	15.0	38.5	15.0	28.5	28.5	15.0	23.5	23.5
Total Split (s)	15.0	54.0	54.0	15.0	54.0	15.0	34.0	34.0	17.0	36.0	36.0
Total Split (%)	12.5%	45.0%	45.0%	12.5%	45.0%	12.5%	28.3%	28.3%	14.2%	30.0%	30.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	35.4	28.4	28.4	40.8	35.1	59.5	49.0	49.0	61.4	49.9	49.9
Actuated g/C Ratio	0.30	0.24	0.24	0.34	0.29	0.50	0.41	0.41	0.51	0.42	0.42
v/c Ratio	0.14	0.30	0.28	0.27	0.83	0.24	0.22	0.07	0.31	0.25	0.02
Control Delay	21.0	35.8	5.9	24.7	48.4	18.4	27.9	0.2	18.7	27.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	35.8	5.9	24.7	48.4	18.4	27.9	0.2	18.7	27.4	0.1
LOS	C	D	A	C	D	B	C	A	B	C	A
Approach Delay		20.8			43.8		22.7			23.8	
Approach LOS		C			D		C			C	
Queue Length 50th (ft)	13	79	0	53	292	52	88	0	72	104	0
Queue Length 95th (ft)	26	114	40	76	372	108	151	0	142	172	0
Internal Link Dist (ft)		265			650		835			452	
Turn Bay Length (ft)	145			375		315		200	275		225
Base Capacity (vph)	229	752	719	411	726	551	1444	718	598	1472	730
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.17	0.18	0.27	0.62	0.24	0.22	0.07	0.30	0.25	0.02

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 28.9

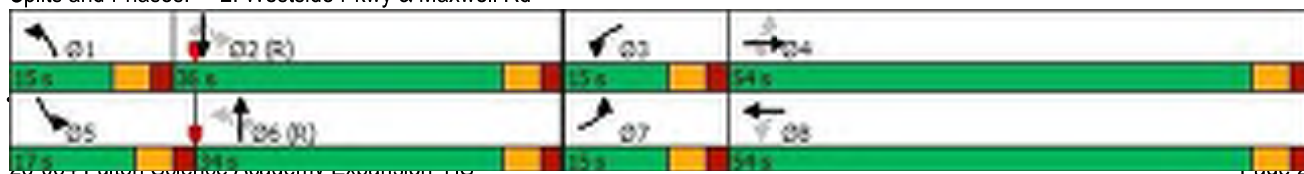
Intersection LOS: C

Intersection Capacity Utilization 68.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Westside Pkwy & Maxwell Rd



HCM 6th Signalized Intersection Summary

2: Westside Pkwy & Maxwell Rd

3a. Future Build AM-2025

05/08/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	123	125	102	217	205	122	295	44	166	345	17
Future Volume (veh/h)	25	123	125	102	217	205	122	295	44	166	345	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	131	0	109	231	218	130	314	47	177	367	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	142	479		418	257	243	547	1523	679	570	1578	
Arrive On Green	0.02	0.26	0.00	0.06	0.29	0.29	0.06	0.43	0.43	0.07	0.44	0.00
Sat Flow, veh/h	1781	1870	1585	1781	885	835	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	27	131	0	109	0	449	130	314	47	177	367	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1720	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.3	6.7	0.0	5.3	0.0	30.1	4.9	6.6	2.1	6.6	7.7	0.0
Cycle Q Clear(g_c), s	1.3	6.7	0.0	5.3	0.0	30.1	4.9	6.6	2.1	6.6	7.7	0.0
Prop In Lane	1.00		1.00	1.00		0.49	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	142	479		418	0	500	547	1523	679	570	1578	
V/C Ratio(X)	0.19	0.27		0.26	0.00	0.90	0.24	0.21	0.07	0.31	0.23	
Avail Cap(c_a), veh/h	239	756		453	0	695	587	1523	679	611	1578	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.4	35.7	0.0	29.7	0.0	40.8	17.3	21.5	20.2	16.8	20.7	0.0
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.3	0.0	11.2	0.2	0.3	0.2	0.3	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.2	0.0	2.3	0.0	14.3	2.0	2.8	0.8	2.6	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	36.0	0.0	30.0	0.0	52.1	17.5	21.8	20.4	17.1	21.0	0.0
LnGrp LOS	D	D		C	A	D	B	C	C	B	C	
Approach Vol, veh/h	158				558				491			
Approach Delay, s/veh	35.8				47.7				20.5			
Approach LOS	D				D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	58.8	12.7	36.2	14.2	56.9	8.5	40.4				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	30.5	9.5	48.5	11.5	28.5	9.5	48.5				
Max Q Clear Time (g_c+I1), s	6.9	9.7	7.3	8.7	8.6	8.6	3.3	32.1				
Green Ext Time (p_c), s	0.1	3.9	0.0	0.8	0.1	3.6	0.0	2.9				

Intersection Summary

HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

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

Intersection

Intersection Delay, s/veh 4.1

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	6	343	4	5	398	5	36	2	118	6	0	32
Future Vol, veh/h	6	343	4	5	398	5	36	2	118	6	0	32
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	512	6	7	594	7	54	3	176	9	0	48
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	39.5	62.2	15.3	11.7
HCM LOS	E	F	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	2%	1%	16%
Vol Thru, %	1%	97%	98%	0%
Vol Right, %	76%	1%	1%	84%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	156	353	408	38
LT Vol	36	6	5	6
Through Vol	2	343	398	0
RT Vol	118	4	5	32
Lane Flow Rate	233	527	609	57
Geometry Grp	1	1	1	1
Degree of Util (X)	0.442	0.888	1.005	0.119
Departure Headway (Hd)	6.839	6.07	5.94	7.649
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	524	595	609	471
Service Time	4.907	4.128	3.995	5.649
HCM Lane V/C Ratio	0.445	0.886	1	0.121
HCM Control Delay	15.3	39.5	62.2	11.7
HCM Lane LOS	C	E	F	B
HCM 95th-tile Q	2.2	10.5	15.2	0.4

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	37	89	133	1	7
Future Vol, veh/h	30	37	89	133	1	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	55	55	55	55
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	67	162	242	2	13
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	575	9	15	0	-	0
Stage 1	9	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	480	1073	1603	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	432	1073	1603	-	-	-
Mov Cap-2 Maneuver	491	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Approach						
	EB	NB		SB		
HCM Control Delay, s	10.7	3		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1603	-	491	1073	-	-
HCM Lane V/C Ratio	0.101	-	0.111	0.063	-	-
HCM Control Delay (s)	7.5	-	13.2	8.6	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.4	0.2	-	-

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	27	0	113	0	110	125	31	7	0
Future Vol, veh/h	0	0	0	27	0	113	0	110	125	31	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	-	-	-	75	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	29	0	123	0	120	136	34	8	0

Major/Minor	Minor2	Minor1		Major1		Major2	
Conflicting Flow All	-	-	8	196	120	-	0
Stage 1	-	-	-	120	-	-	-
Stage 2	-	-	-	76	-	-	-
Critical Hdwy	-	-	6.22	7.12	6.22	-	4.12
Critical Hdwy Stg 1	-	-	-	6.12	-	-	-
Critical Hdwy Stg 2	-	-	-	6.12	-	-	-
Follow-up Hdwy	-	-	3.318	3.518	3.318	-	2.218
Pot Cap-1 Maneuver	0	0	1074	763	931	0	1309
Stage 1	0	0	-	884	-	0	-
Stage 2	0	0	-	933	-	0	-
Platoon blocked, %						-	-
Mov Cap-1 Maneuver	-	-	1074	748	931	-	1309
Mov Cap-2 Maneuver	-	-	-	748	-	-	-
Stage 1	-	-	-	884	-	-	-
Stage 2	-	-	-	909	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.9	0	6.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	889	1309	-	-
HCM Lane V/C Ratio	-	-	0.171	0.026	-	-
HCM Control Delay (s)	-	-	0	9.9	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-	-

Queuing and Blocking Report

Baseline

05/22/2023

Intersection: 4: Fanfare Way & Arts Summit

Movement	EB	EB	NB
Directions Served	L	R	L
Maximum Queue (ft)	31	55	28
Average Queue (ft)	12	17	11
95th Queue (ft)	37	54	34
Link Distance (ft)	411	411	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Fanfare Way & Emblem Alpharetta Drwy/Proposed Site Drwy 2

Movement	WB	SB
Directions Served	LTR	L
Maximum Queue (ft)	46	12
Average Queue (ft)	29	2
95th Queue (ft)	43	10
Link Distance (ft)	233	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	3	14	61	0	19	11	437	22	19	458	15
Future Vol, veh/h	3	3	14	61	0	19	11	437	22	19	458	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	165	-	200	165	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	3	16	70	0	22	13	502	25	22	526	17

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	847	1123	263	837	1115	251	543	0	0	527	0	0
Stage 1	570	570	-	528	528	-	-	-	-	-	-	-
Stage 2	277	553	-	309	587	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	255	204	735	259	207	749	1022	-	-	1036	-	-
Stage 1	474	504	-	502	526	-	-	-	-	-	-	-
Stage 2	706	513	-	676	495	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	241	197	735	243	200	749	1022	-	-	1036	-	-
Mov Cap-2 Maneuver	241	197	-	243	200	-	-	-	-	-	-	-
Stage 1	468	493	-	495	519	-	-	-	-	-	-	-
Stage 2	677	506	-	643	485	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.9	22	0.2	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1022	-	-	428	243	749	1036	-
HCM Lane V/C Ratio	0.012	-	-	0.054	0.289	0.029	0.021	-
HCM Control Delay (s)	8.6	-	-	13.9	25.7	10	8.6	-
HCM Lane LOS	A	-	-	B	D	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.2	0.1	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	20	58	181	87	127	191	237	13	71	219	11
Future Volume (vph)	20	58	181	87	127	191	237	13	71	219	11
Lane Group Flow (vph)	22	63	197	95	306	208	258	14	77	238	12
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	3	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	38.5	38.5	15.0	38.5	15.0	28.5	28.5	15.0	23.5	23.5
Total Split (s)	15.0	46.0	46.0	17.0	48.0	24.0	40.0	40.0	17.0	33.0	33.0
Total Split (%)	12.5%	38.3%	38.3%	14.2%	40.0%	20.0%	33.3%	33.3%	14.2%	27.5%	27.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	23.8	17.1	17.1	31.7	24.9	76.0	65.3	65.3	65.1	57.3	57.3
Actuated g/C Ratio	0.20	0.14	0.14	0.26	0.21	0.63	0.54	0.54	0.54	0.48	0.48
v/c Ratio	0.12	0.24	0.50	0.28	0.77	0.28	0.13	0.02	0.12	0.14	0.01
Control Delay	28.5	43.9	9.8	32.6	48.7	12.2	17.0	0.0	12.3	21.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	43.9	9.8	32.6	48.7	12.2	17.0	0.0	12.3	21.5	0.0
LOS	C	D	A	C	D	B	B	A	B	C	A
Approach Delay		18.9			44.9		14.5			18.5	
Approach LOS		B			D		B			B	
Queue Length 50th (ft)	12	43	0	55	189	66	54	0	22	55	0
Queue Length 95th (ft)	28	77	59	85	267	131	99	0	54	105	0
Internal Link Dist (ft)		265			650		835			452	
Turn Bay Length (ft)	145			375		315		200	275		225
Base Capacity (vph)	226	628	664	345	642	767	1926	917	696	1690	846
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.10	0.30	0.28	0.48	0.27	0.13	0.02	0.11	0.14	0.01

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 24.4

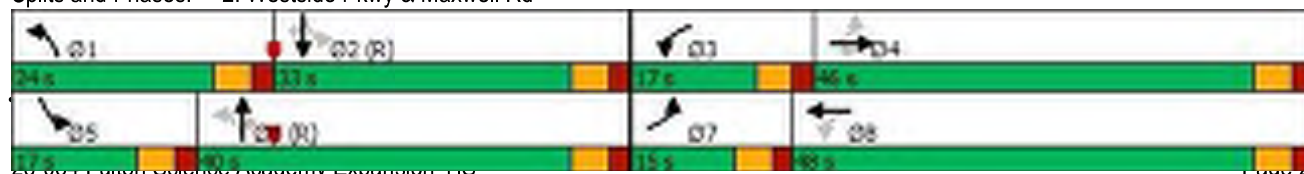
Intersection LOS: C

Intersection Capacity Utilization 53.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Westside Pkwy & Maxwell Rd



HCM 6th Signalized Intersection Summary

2: Westside Pkwy & Maxwell Rd

3b. Future Build Dismissal-2025

05/08/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	58	181	87	127	155	191	237	13	71	219	11
Future Volume (veh/h)	20	58	181	87	127	155	191	237	13	71	219	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	63	0	95	138	168	208	258	14	77	238	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	319		353	159	193	739	1954	872	698	1830	
Arrive On Green	0.02	0.17	0.00	0.06	0.21	0.21	0.07	0.55	0.55	0.04	0.51	0.00
Sat Flow, veh/h	1781	1870	1585	1781	768	935	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	22	63	0	95	0	306	208	258	14	77	238	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1702	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.2	3.5	0.0	5.2	0.0	20.9	6.4	4.2	0.5	2.4	4.2	0.0
Cycle Q Clear(g_c), s	1.2	3.5	0.0	5.2	0.0	20.9	6.4	4.2	0.5	2.4	4.2	0.0
Prop In Lane	1.00		1.00	1.00		0.55	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	319		353	0	352	739	1954	872	698	1830	
V/C Ratio(X)	0.16	0.20		0.27	0.00	0.87	0.28	0.13	0.02	0.11	0.13	
Avail Cap(c_a), veh/h	236	631		420	0	603	883	1954	872	801	1830	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.8	42.7	0.0	37.1	0.0	46.0	11.3	13.1	12.3	12.5	15.1	0.0
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.4	0.0	7.0	0.2	0.1	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.7	0.0	2.3	0.0	9.6	2.4	1.7	0.2	0.9	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.4	43.0	0.0	37.6	0.0	53.0	11.5	13.2	12.3	12.6	15.3	0.0
LnGrp LOS	D	D		D	A	D	B	B	B	B	B	
Approach Vol, veh/h	85			401			480			315		
Approach Delay, s/veh	42.6			49.4			12.5			14.6		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.3	67.3	12.4	26.0	10.1	71.5	8.1	30.3				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	18.5	27.5	11.5	40.5	11.5	34.5	9.5	42.5				
Max Q Clear Time (g_c+I1), s	8.4	6.2	7.2	5.5	4.4	6.2	3.2	22.9				
Green Ext Time (p_c), s	0.4	2.4	0.1	0.3	0.1	3.1	0.0	1.9				

Intersection Summary

HCM 6th Ctrl Delay	26.5
HCM 6th LOS	C

Notes

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

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	18	158	9	3	233	3	27	6	55	3	0	18
Future Vol, veh/h	18	158	9	3	233	3	27	6	55	3	0	18
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	190	11	4	281	4	33	7	66	4	0	22
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	9.4	10	8.6	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	10%	1%	14%
Vol Thru, %	7%	85%	97%	0%
Vol Right, %	62%	5%	1%	86%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	88	185	239	21
LT Vol	27	18	3	3
Through Vol	6	158	233	0
RT Vol	55	9	3	18
Lane Flow Rate	106	223	288	25
Geometry Grp	1	1	1	1
Degree of Util (X)	0.141	0.282	0.359	0.033
Departure Headway (Hd)	4.799	4.555	4.492	4.745
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	744	787	801	750
Service Time	2.844	2.59	2.524	2.8
HCM Lane V/C Ratio	0.142	0.283	0.36	0.033
HCM Control Delay	8.6	9.4	10	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	1.2	1.6	0.1

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	25	59	89	2	10
Future Vol, veh/h	9	25	59	89	2	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	29	69	103	2	12
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	249	8	14	0	-	0
Stage 1	8	-	-	-	-	-
Stage 2	241	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	739	1074	1604	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	707	1074	1604	-	-	-
Mov Cap-2 Maneuver	708	-	-	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	2.9		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1604	-	708	1074	-	-
HCM Lane V/C Ratio	0.043	-	0.015	0.027	-	-
HCM Control Delay (s)	7.3	-	10.2	8.4	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0.1	-	-

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	16	0	66	0	84	58	14	13	0
Future Vol, veh/h	0	0	0	16	0	66	0	84	58	14	13	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	-	-	-	75	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	17	0	72	0	91	63	15	14	0

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	14	135	135	91	-	0
Stage 1	-	-	-	91	91	-	-	-
Stage 2	-	-	-	44	44	-	-	-
Critical Hdwy	-	-	6.22	7.12	6.52	6.22	-	-
Critical Hdwy Stg 1	-	-	-	6.12	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	6.12	5.52	-	-	-
Follow-up Hdwy	-	-	3.318	3.518	4.018	3.318	-	-
Pot Cap-1 Maneuver	0	0	1066	836	756	967	0	-
Stage 1	0	0	-	916	820	-	0	-
Stage 2	0	0	-	970	858	-	0	-
Platoon blocked, %							-	-
Mov Cap-1 Maneuver	-	-	1066	829	748	967	-	-
Mov Cap-2 Maneuver	-	-	-	829	748	-	-	-
Stage 1	-	-	-	916	820	-	-	-
Stage 2	-	-	-	959	849	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.2	0	3.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	937	1426	-
HCM Lane V/C Ratio	-	-	-	0.095	0.011	-
HCM Control Delay (s)	-	-	0	9.2	7.6	0
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0.3	0	-

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	11	39	0	19	14	617	7	21	459	12
Future Vol, veh/h	10	0	11	39	0	19	14	617	7	21	459	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	165	-	200	165	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	12	43	0	21	16	686	8	23	510	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	931	1282	255	1019	1287	343	523	0	0	694	0	0
Stage 1	556	556	-	718	718	-	-	-	-	-	-	-
Stage 2	375	726	-	301	569	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	222	164	744	191	163	653	1040	-	-	897	-	-
Stage 1	483	511	-	386	431	-	-	-	-	-	-	-
Stage 2	618	428	-	683	504	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	208	157	744	182	156	653	1040	-	-	897	-	-
Mov Cap-2 Maneuver	208	157	-	182	156	-	-	-	-	-	-	-
Stage 1	476	498	-	380	425	-	-	-	-	-	-	-
Stage 2	589	422	-	655	491	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	16.6		24.3		0.2		0.4					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1040	-	-	334	182	653	897	-	-			
HCM Lane V/C Ratio	0.015	-	-	0.07	0.238	0.032	0.026	-	-			
HCM Control Delay (s)	8.5	-	-	16.6	30.9	10.7	9.1	-	-			
HCM Lane LOS	A	-	-	C	D	B	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.2	0.9	0.1	0.1	-	-			

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	36	209	151	52	240	368	30	57	114	14
Future Volume (vph)	19	36	209	151	52	240	368	30	57	114	14
Lane Group Flow (vph)	21	40	230	166	145	264	404	33	63	125	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	3	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	15.0	38.5	38.5	15.0	38.5	15.0	28.5	28.5	15.0	23.5	23.5
Total Split (s)	15.0	44.0	44.0	18.0	47.0	29.0	41.0	41.0	17.0	29.0	29.0
Total Split (%)	12.5%	36.7%	36.7%	15.0%	39.2%	24.2%	34.2%	34.2%	14.2%	24.2%	24.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	15.7	9.0	9.0	26.2	21.2	82.5	72.3	72.3	70.1	63.2	63.2
Actuated g/C Ratio	0.13	0.08	0.08	0.22	0.18	0.69	0.60	0.60	0.58	0.53	0.53
v/c Ratio	0.11	0.29	0.69	0.58	0.41	0.31	0.19	0.03	0.10	0.07	0.02
Control Delay	36.6	56.3	18.1	47.9	27.2	8.5	12.2	0.1	8.2	15.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	56.3	18.1	47.9	27.2	8.5	12.2	0.1	8.2	15.9	0.0
LOS	D	E	B	D	C	A	B	A	A	B	A
Approach Delay		24.7			38.3		10.2			12.4	
Approach LOS		C			D		B			B	
Queue Length 50th (ft)	13	30	0	112	47	67	72	0	14	23	0
Queue Length 95th (ft)	33	63	75	167	116	123	117	0	34	49	0
Internal Link Dist (ft)		265			650		835			452	
Turn Bay Length (ft)	145			375		315		200	275		225
Base Capacity (vph)	232	597	664	291	631	910	2133	1002	673	1863	915
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.07	0.35	0.57	0.23	0.29	0.19	0.03	0.09	0.07	0.02

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 19.1

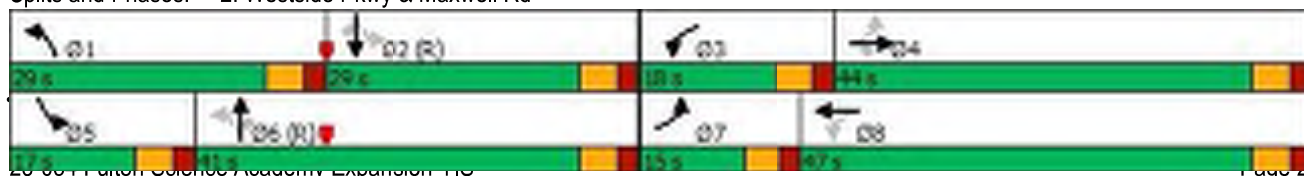
Intersection LOS: B

Intersection Capacity Utilization 55.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Westside Pkwy & Maxwell Rd



HCM 6th Signalized Intersection Summary

2: Westside Pkwy & Maxwell Rd

3c. Future Build PM-2025

05/08/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	36	209	151	52	80	240	368	30	57	114	14
Future Volume (veh/h)	19	36	209	151	52	80	240	368	30	57	114	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	40	0	166	57	88	264	404	33	63	125	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	93		281	87	134	923	2233	996	678	2085	
Arrive On Green	0.02	0.05	0.00	0.10	0.13	0.13	0.08	0.63	0.63	0.04	0.59	0.00
Sat Flow, veh/h	1781	1870	1585	1781	663	1023	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	21	40	0	166	0	145	264	404	33	63	125	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1686	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.3	2.5	0.0	10.3	0.0	9.8	6.7	5.7	0.9	1.7	1.8	0.0
Cycle Q Clear(g_c), s	1.3	2.5	0.0	10.3	0.0	9.8	6.7	5.7	0.9	1.7	1.8	0.0
Prop In Lane	1.00		1.00	1.00		0.61	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	93		281	0	221	923	2233	996	678	2085	
V/C Ratio(X)	0.13	0.43		0.59	0.00	0.66	0.29	0.18	0.03	0.09	0.06	
Avail Cap(c_a), veh/h	262	600		285	0	583	1133	2233	996	783	2085	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.4	55.3	0.0	45.9	0.0	49.6	7.4	9.4	8.5	8.8	10.6	0.0
Incr Delay (d2), s/veh	0.4	3.1	0.0	3.1	0.0	3.3	0.2	0.2	0.1	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.3	0.0	4.8	0.0	4.4	2.3	2.1	0.3	0.6	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	58.4	0.0	49.0	0.0	52.9	7.6	9.5	8.5	8.9	10.7	0.0
LnGrp LOS	D	E		D	A	D	A	A	A	A	B	
Approach Vol, veh/h	61			311			701			188		
Approach Delay, s/veh	56.5			50.8			8.7			10.1		
Approach LOS	E			D			A			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.9	75.9	17.7	11.5	9.9	80.9	8.0	21.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	23.5	23.5	12.5	38.5	11.5	35.5	9.5	41.5				
Max Q Clear Time (g_c+I1), s	8.7	3.8	12.3	4.5	3.7	7.7	3.3	11.8				
Green Ext Time (p_c), s	0.6	1.1	0.0	0.2	0.1	5.1	0.0	0.9				

Intersection Summary

HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

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

Intersection

Intersection Delay, s/veh 10

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	14	34	5	2	143	2	17	14	12	1	2	16
Future Vol, veh/h	14	34	5	2	143	2	17	14	12	1	2	16
Peak Hour Factor	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	83	12	5	349	5	41	34	29	2	5	39
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	8.7	11	8.9	8.1
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	26%	1%	5%
Vol Thru, %	33%	64%	97%	11%
Vol Right, %	28%	9%	1%	84%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	53	147	19
LT Vol	17	14	2	1
Through Vol	14	34	143	2
RT Vol	12	5	2	16
Lane Flow Rate	105	129	359	46
Geometry Grp	1	1	1	1
Degree of Util (X)	0.146	0.169	0.443	0.06
Departure Headway (Hd)	5.015	4.698	4.45	4.697
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	712	761	807	758
Service Time	3.063	2.741	2.484	2.753
HCM Lane V/C Ratio	0.147	0.17	0.445	0.061
HCM Control Delay	8.9	8.7	11	8.1
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.5	0.6	2.3	0.2

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	17	54	67	5	6
Future Vol, veh/h	4	17	54	67	5	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	55	55	55	55
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	31	98	122	9	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	333	15	20	0	-	0
Stage 1	15	-	-	-	-	-
Stage 2	318	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	662	1065	1596	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	622	1065	1596	-	-	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	3.3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1596	-	646	1065	-	-
HCM Lane V/C Ratio	0.062	-	0.011	0.029	-	-
HCM Control Delay (s)	7.4	-	10.6	8.5	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0	0.1	-	-

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	10	0	40	0	80	12	3	19	0
Future Vol, veh/h	0	0	0	10	0	40	0	80	12	3	19	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	-	-	-	75	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	11	0	43	0	87	13	3	21	0

Major/Minor	Minor2	Minor1		Major1		Major2	
Conflicting Flow All	-	-	21	114	114	87	-
Stage 1	-	-	-	87	87	-	-
Stage 2	-	-	-	27	27	-	-
Critical Hdwy	-	-	6.22	7.12	6.52	6.22	-
Critical Hdwy Stg 1	-	-	-	6.12	5.52	-	-
Critical Hdwy Stg 2	-	-	-	6.12	5.52	-	-
Follow-up Hdwy	-	-	3.318	3.518	4.018	3.318	-
Pot Cap-1 Maneuver	0	0	1056	863	776	971	0
Stage 1	0	0	-	921	823	-	0
Stage 2	0	0	-	990	873	-	0
Platoon blocked, %							-
Mov Cap-1 Maneuver	-	-	1056	861	774	971	-
Mov Cap-2 Maneuver	-	-	-	861	774	-	-
Stage 1	-	-	-	921	823	-	-
Stage 2	-	-	-	988	871	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9	0	1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	947	1493	-
HCM Lane V/C Ratio	-	-	-	0.057	0.002	-
HCM Control Delay (s)	-	-	0	9	7.4	0
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0.2	0	-

TRAFFIC VOLUME WORKSHEETS

23-054-Fulton Science Academy Expansion-Alpharetta-TIS
Traffic Volumes

A&R Engineering
May 2023

1. Westside Pkwy @ Arts Summit
A.M. Peak Hour

Condition	Westside Parkway Northbound			Westside Parkway Southbound			Serenade Way Eastbound			Arts Summit Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing 2023 Traffic Counts:	7	425	4	436	21	645	11	677	13	3	11	27
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2025 Volumes:	7	442	4	453	22	671	11	704	14	3	11	28
Shifted Trips:	0	0	31	31	0	126	0	126	0	0	0	0
Removed Trips:	0	-8	0	-8	0	-200	0	-200	0	0	0	0
Future 2025 Traffic Volumes:	7	434	35	476	22	597	11	630	14	3	11	28
										97	0	23
												120

School Dismissal Peak Hour

Condition	Westside Parkway Northbound			Westside Parkway Southbound			Serenade Way Eastbound			Arts Summit Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing 2023 Traffic Counts:	11	423	8	442	18	479	14	511	3	3	13	19
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2025 Volumes:	11	440	8	459	19	498	15	532	3	3	14	20
Shifted Trips:	0	0	14	14	0	74	0	74	0	0	0	0
Removed Trips:	0	-3	0	-3	0	-114	0	-114	0	0	0	0
Future 2025 Traffic Volumes:	11	437	22	470	19	458	15	492	3	3	14	20
										61	0	19
												80

P.M. Peak Hour

Condition	Westside Parkway Northbound			Westside Parkway Southbound			Serenade Way Eastbound			Arts Summit Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing 2023 Traffic Counts:	13	594	4	611	20	466	12	498	10	0	11	21
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2025 Volumes:	14	618	4	636	21	485	12	518	10	0	11	21
Shifted Trips:	0	0	3	3	0	45	0	45	0	0	0	0
Removed Trips:	0	-1	0	-1	0	-71	0	-71	0	0	0	0
Future 2025 Traffic Volumes:	14	617	7	638	21	459	12	492	10	0	11	21
										39	0	19
												58

23-054-Fulton Science Academy Expansion-Alphaetta-TIS
Traffic Volumes

A&R Engineering
May 2023

2. Westside Pkwy @ Maxwell Rd

A.M. Peak Hour

Condition	Westside parkway Northbound				Westside Parkway Southbound				Maxwell Road Eastbound				Maxwell Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	117	284	50	451	173	332	16	521	24	139	120	283	169	228	215	612
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2025 Volumes:	122	295	52	469	180	345	17	542	25	145	125	295	176	237	224	637
Shifted Trips:	0	0	0	0	218	0	0	218	0	125	0	125	126	110	192	428
Removed Trips:	0	0	-8	-8	-232	0	0	-232	0	-147	0	-147	-200	-130	-211	-541
Future 2025 Traffic Volumes:	122	295	44	461	166	345	17	528	25	123	125	273	102	217	205	524

School Dismissal Peak Hour

Condition	Westside parkway Northbound				Westside Parkway Southbound				Maxwell Road Eastbound				Maxwell Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	184	228	15	427	64	211	11	286	19	59	174	252	122	132	156	410
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2025 Volumes:	191	237	16	444	67	219	11	297	20	61	181	262	127	137	162	426
Shifted Trips:	0	0	0	0	101	0	0	101	0	58	0	58	74	64	113	251
Removed Trips:	0	0	-3	-3	-97	0	0	-97	0	-61	0	-61	-114	-74	-120	-308
Future 2025 Traffic Volumes:	191	237	13	441	71	219	11	301	20	58	181	259	87	127	155	369

P.M. Peak Hour

Condition	Westside Parkway Northbound				Westside Parkway Southbound				Maxwell Road Eastbound				Maxwell Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	231	354	30	615	58	110	13	181	18	38	201	257	170	57	82	309
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2025 Volumes:	240	368	31	639	60	114	14	188	19	40	209	268	177	59	85	321
Shifted Trips:	0	0	0	0	22	0	0	22	0	12	0	12	45	39	69	153
Removed Trips:	0	0	-1	-1	-25	0	0	-25	0	-16	0	-16	-71	-46	-74	-191
Future 2025 Traffic Volumes:	240	368	30	638	57	114	14	185	19	36	209	264	151	52	80	283

23-054-Fulton Science Academy Expansion-Alpharetta-TIS
Traffic Volumes

A&R Engineering
May 2023

3. Maxwell Rd @ Fanfare Way

A.M. Peak Hour

Condition	Fanfare Way				Duval Drive				Maxwell Road				Maxwell Road (Site Driveway 1-Northern)			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	6	2	232	240	4	0	31	35	6	387	4	397	3	541	5	549
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2025 Volumes:	6	2	232	240	4	0	32	36	6	387	4	397	3	541	5	549
Shifted Trips:	30	0	118	148	6	0	0	6	0	343	0	343	5	398	5	408
Removed Trips:	0	0	-232	-232	-4	0	0	-4	0	-387	0	-387	-3	-341	-5	-349
Future 2025 Traffic Volumes:	36	2	118	156	6	0	32	38	6	343	4	353	5	398	5	408

School Dismissal Peak Hour

Condition	Fanfare Way				Duval Drive				Maxwell Road				Maxwell Road (Site Driveway 1-Northern)			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	9	6	125	140	2	0	17	19	17	161	9	187	14	308	0	322
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2025 Volumes:	9	6	125	140	2	0	18	20	18	161	9	188	14	308	0	322
Shifted Trips:	18	0	55	73	3	0	0	3	0	158	0	158	3	233	3	239
Removed Trips:	0	0	-125	-125	-2	0	0	-2	0	-161	0	-161	-14	-308	0	-322
Future 2025 Traffic Volumes:	27	6	55	88	3	0	18	21	18	158	9	185	3	233	3	239

P.M. Peak Hour

Maxwell Road (Site Driveway 1-Northern)																
Fanfare Way				Duval Drive				Maxwell Road				Maxwell Road (Site Driveway 1-Northern)				
Condition	Northbound			Tot	Southbound			Tot	Eastbound			Tot	Westbound			Tot
	L	T	R		L	T	R		L	T	R		L	T	R	
Existing 2023 Traffic Counts:	6	13	19	38	1	2	15	18	13	42	5	60	4	191	2	197
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2025 Volumes:	6	14	19	39	1	2	16	19	14	42	5	61	4	191	2	197
Shifted Trips:	11	0	12	23	1	0	0	1	0	34	0	34	2	143	2	147
Removed Trips:	0	0	-19	-19	-1	0	0	-1	0	-42	0	-42	-4	-191	-2	-197
Future 2025 Traffic Volumes:	17	14	12	43	1	2	16	19	14	34	5	53	2	143	2	147

23-054-Fulton Science Academy Expansion-Alpharetta-TIS
Traffic Volumes

AskR Engineering
 May 2023

4. Fanfare Way @ Arts Summit
A.M. Peak Hour

Condition	Fanfare Way Northbound				Fanfare Way Southbound				Arts Summit Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	7	208	0	215	0	4	2	6	29	0	6	35	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2025 Volumes:	7	216	0	223	0	4	2	6	30	0	6	36	0	0	0	0
Shifted Trips:	82	149	0	231	0	0	5	5	0	0	31	31	0	0	0	0
Removed Trips:	0	-232	0	-232	0	-3	0	-3	0	0	0	0	0	0	0	0
Future 2025 Traffic Volumes:	89	133	0	222	0	1	7	8	30	0	37	67	0	0	0	0

School Dismissal Peak Hour

Condition	Fanfare Way Northbound				Fanfare Way Southbound				Arts Summit Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	11	137	0	148	0	15	7	22	9	0	11	20	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2025 Volumes:	11	142	0	153	0	16	7	23	9	0	11	20	0	0	0	0
Shifted Trips:	48	72	0	120	0	0	3	3	0	0	14	14	0	0	0	0
Removed Trips:	0	-125	0	-125	0	-14	0	-14	0	0	0	0	0	0	0	0
Future 2025 Traffic Volumes:	59	89	0	148	0	2	10	12	9	0	25	34	0	0	0	0

P.M. Peak Hour

Condition	Fanfare Way Northbound				Fanfare Way Southbound				Arts Summit Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	23	61	0	84	0	9	4	13	4	0	13	17	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2025 Volumes:	24	63	0	87	0	9	4	13	4	0	14	18	0	0	0	0
Shifted Trips:	30	23	0	53	0	0	2	2	0	0	3	3	0	0	0	0
Removed Trips:	0	-19	0	-19	0	-4	0	-4	0	0	0	0	0	0	0	0
Future 2025 Traffic Volumes:	54	67	0	121	0	5	6	11	4	0	17	21	0	0	0	0

23-054-Fulton Science Academy Expansion-Alpharetta-TIS
Traffic Volumes

A&R Engineering
May 2023

5. Fanfare Way @ Site Drwy 2

A.M. Peak Hour

Condition	Fanfare Way			Fanfare Way			Emblem Alpharetta Driveway			Proposed Site Driveway 2 (Southern)		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing 2023 Traffic Counts:	0	215	0	215	0	10	0	0	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2025 Volumes:	0	224	0	224	0	10	0	0	0	0	0	0
Shifted Trips:	0	118	125	243	31	0	0	0	0	27	0	113
Removed Trips:	0	-232	0	-232	0	-3	0	-3	0	0	0	0
Future 2025 Traffic Volumes:	0	110	125	235	31	7	0	38	0	0	0	113
										27	0	113
												140

School Dismissal Peak Hour

Condition	Fanfare Way			Fanfare Way			Emblem Alpharetta Driveway			Proposed Site Driveway 2 (Southern)		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing 2023 Traffic Counts:	0	148	0	148	0	26	0	26	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2025 Volumes:	0	154	0	154	0	27	0	27	0	0	0	0
Shifted Trips:	0	55	58	113	14	0	0	14	0	0	0	66
Removed Trips:	0	-125	0	-125	0	-14	0	-14	0	0	0	0
Future 2025 Traffic Volumes:	0	84	58	142	14	13	0	27	0	0	0	66
										16	0	66
												82

P.M. Peak Hour

Condition	Fanfare Way			Fanfare Way			Emblem Alpharetta Driveway			Proposed Site Driveway 2 (Southern)		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing 2023 Traffic Counts:	0	84	0	84	0	22	0	22	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2025 Volumes:	0	87	0	87	0	23	0	23	0	0	0	0
Shifted Trips:	0	12	12	24	3	0	0	3	0	0	0	40
Removed Trips:	0	-19	0	-19	0	-4	0	-4	0	0	0	0
Future 2025 Traffic Volumes:	0	80	12	92	3	19	0	22	0	0	0	40
										10	0	40
												50

Community Zoning Information Meeting (CZIM)

May 10, 2023

Please sign-in and leave your comments and/or concerns.

MP-23-03/V-23-10 / Fulton Science Academy/Cousins Westside Pod O

NAME	ADDRESS	COMMENTS
	No Comments	

CITIZEN PARTICIPATION FORM - PART B

This form must be completed and submitted to the City of Alpharetta Community Development Department a minimum of twenty (20) working days prior to the scheduled Public Hearing. Failure to do so will result in cancellation of the scheduled hearing.

Public Hearing or Project Name: Fulton Science Academy Tennis Courts and Soccer Field

Contact Name: Jim Winer, Make3 architecture planning design Telephone: 404 876 5510

Please describe comments and concerns provided by any and all individuals contacted as part of the the Citizen Participation Program. If any individuals provided written correspondence, please attach copies of same to this report.

To date, we received one contact from a resident , Carol Fanning, that is attached. Ms. Fanning was supportive of the tennis courts and requested pedestrian lighting improvements along Fanfare Way.

Method by which these individuals were contacted. Please mark all that apply. *Please provide samples of any and all written communications used to provide notification.*

- | | |
|--|--|
| ☒ Letter | ☐ Personal Visits |
| ☐ Telephone | ☐ Group Meeting |
| ☒ Email | ☐ Other <i>(Please Specify)</i> _____ |

Attach a list of people who have been notified of this application and provided information describing the subject proposal. Please note that ALL adjoining property owners MUST be notified.

Please see attached mailing list provided by the City and letter that was sent to everyone on the mailing list.

I, the undersigned, as an authorized representative of the applicant and Public Hearing item identified above, do solemnly swear and attest, subject to criminal penalties for false swearing, that the information provided in this Citizen Participation Form - Part B and in any and all documents provided in support of this report are true and accurate. I further understand that any false statements provided by representatives of the applicant as part of this report may result in penalties up to and including denial of the subject application.

Signature of Authorized Agent: Jim Winer

Digitally signed by Jim Winer
DN: C=US, E=jwiner@make3arch.com, O=Make3
architectura planning design, CN=Jim Winer
Date: 2023.05.17 12:20:41-04'00'

Date: 5/17/23

Print Form

LENNAR GEORGIA INC
1000 HOLCOMB WOODS PKWY BLDG/STE
200/200
ROSWELL GA 30076

ENCORE WALK TOWNHOMES ASSOCIATION
INC
1001 CAMBRIDGE SQ SUITE A
ALPHARETTA GA 30009

BECKFORD JESSICA
10105 WESTSIDE PKWY 235
ALPHARETTA GA 30004

REDDY RUSHY PUTTA & GADDAM SHRIYA
110 DUVAL DR
ALPHARETTA GA 30009

RAUT SANKET SUNIL
1110 HAMMOND DR APT 651
ATLANTA GA 30328

RATTRAY GORDON SCOTT & BELINDA
CRAWFORD
11153 CALYPSO DR
ALPHARETTA GA 30009

MOLINA RENE F
11155 CALYPSO DR
ALPHARETTA GA 30004

BARNES MICHAEL W & DERENDA W
11157 CALYPO DR
ALPHARETTA GA 30009

ZURBRICK CLAUDIA M & WILLIAM W
11159 CALYPSO DR
ALPHARETTA GA 30009

MC FADDEN MICHAEL J & LAURIE A
11161 CALYPSO DR
ALPHARETTA GA 30004

NEPUTE JONATHAN & KYONG H
11163 CALYPSO DR
ALPHARETTA GA 30009-7615

POLYNE MITCHELL
11167 CALYPSO DR
ALPHARETTA GA 30004

JEFFREY W ADAMS TRUST THE
11223 CALYPSO DR
ALPHARETTA GA 30009

WANJIHIA ESTHER W
11225 CALYPSO DR
ALPHARETTA GA 30009

LECOMPTTE CHERYL A
11227 CALYPSO DR
ALPHARETTA GA 30004

PRICE MARK A
11229 CALYPSO DR
ALPHARETTA GA 30009

FANNING MICHAEL S & FANNING CAROL A
11231 CALYPSO DR
ALPHARETTA GA 30009

SEARCY KRISTEN C
11237 CALYPSO DR
ALPHARETTA GA 30004

PEREZ JUAN & LORENA
11239 CALYPSO DR
ALPHARETTA GA 30009

PARK SOO JIN
11241 CALYPSO DR
ALPHARETTA GA 30004

COYLE PATRICIA J
11251 CALYPSO DR
ALPHARETTA GA 30009

AMIN HIRAK
11253 CALYPSO DR
ALPHARETTA GA 30004

ROBERTSON MICHAEL & KELLY
11255 CALYPSO DR
ALPHARETTA GA 30009

SULLIVAN MATTHEW WILLIAM
11259 CALYPSO DR
ALPHARETTA GA 30009

WAHBA MICHAEL D
11271 CALYPSO DR
ALPHARETTA GA 30009

ESCOBAR GIL MIRIAM
11273 CALYPSO DR
ALPHARETTA GA 30009

COBB KIMBERLY & THOMAS
11275 CALYPSO DR
ALPHARETTA GA 30009

WEBBER JASON C & WEBBER KELLY BODINE
11277 CALYPSO DR
ALPHARETTA GA 30009

FERSHTEYN SAMUEL
11279 CALYPSO DR
ALPHARETTA GA 30009

FAURE SONIA S
11281 CALYPSO DR
ALPHARETTA GA 30004

ROWLAND ANNA PAIGE
11283 CALYPSO DR
ALPHARETTA GA 30009

SINGH ANUP V
11653 DAWSON DR
LOS ALTOS CA 94024

DODDS WENDY & KARABIN SCOTT
11970 FOX RD
ALPHARETTA GA 30005

KATTA KRISHNA VENI
120 DUVAL DR
ALPHARETTA GA 30009

VIHAN LLC
12467 WATERSIDE DR
ALPHARETTA GA 30004

HOOKS ROBERT
130 DALRYMPLE RD
ATLANTA GA 30328-1240

GHADGE JEEVAN JAYSINGRAO & SAVITA
JEEFAN
130 DUVAL DR
ALPHARETTA GA 30009

RUDD COURTNEY LYDIA
140 DUVAL DR
ALPHARETTA GA 30009

BOUAMRANI MOHAMMED
140 SPUR LANE
ALPHARETTA GA 30009

CHOE SU JEONG
1550 WINNING COLORS CT
SUWANEE GA 30024

CREEKSIDE HOLBROOKE LLC
16 RIDGEMERE TRCE
ATLANTA GA 30328

PERKINS SHARI TOSHEA & KELLY JESSE LEE II
160 DUVAL DR
ALPHARETTA GA 30009

VAN HOLM LINDA M
165 TRAIL PT
ATLANTA GA 30350-2721

OKORO EBIMOBOERE
180 DUVAL DR
ALPHARETTA GA 30009

BLOEMEKE ERIC JOHN
1800 ADAGIO DR
ALPHARETTA GA 30009

MOORE MICHAEL RYAN
1802 ADAGIO DR
ALPHARETTA GA 30009

BATES VERONICA A & MILLER MICHAEL P
1804 ADAGIO DR
ALPHARETTA GA 30009

MOORE ANTHONY & AMANDA J
1806 ADAGIO DR
ALPHARETTA GA 30009

HOUGHLAND CARL OXFORD
1808 ADAGIO DR
ALPHARETTA GA 30009

MATHERLY KIMBRLE J
1812 ADAGIO DR
ALPHARETTA GA 30004

SUROVETS MAYA
1814 ADAGIO DR
ALPHARETTA GA 30009

GARVER MATTHEW SCOTT & MARY
ELIZABETH
1834 ADAGIO DR
ALPHARETTA GA 30009

DIXON LORENZO
1836 ADAGIO DR
ALPHARETTA GA 30009

COOLEY NATHANIEL
1837 ADAGIO DR
ALPHARETTA GA 30009

DROZYSKI JANE & FOUNTAIN MICHAEL
1838 ADAGIO DR
ALPHARETTA GA 30009

MERLETTI ROBERT LEE & KRISTA OLSEN
1840 ADAGIO DR
ALPHARETTA GA 30009-4816

HENRIQUEZ EDWARD
1842 ADAGIO DR
ALPHARETTA GA 30009

GOMES CYNTHIA L
1843 ADAGIO DR
ALPHARETTA GA 30009

DORCELIEN FOOLZBERG & DALILA
1845 ADAGIO DR
ALPHARETTA GA 30009

ARNER KEVIN H & MARNITA L
1847 ADAGIO DR
ALPHARETTA GA 30009

DUNCAN GEORGE T JR & JENNIFER A
1849 ADAGIO DR
ALPHARETTA GA 30009

PATTEWAR PANKAJ & PATTEWAR ANUYA
1850 ADAGIO DR
ALPHARETTA GA 30009

O NEILL CAREN J
1852 ADAGIO DR
ALPHARETTA GA 30004

ADLER TODD LOUIS
1854 ADAGIO DR
ALPHARETTA GA 30009

COLE PRISCILLA & GALEN
1855 ADAGIO DR UNIT 167
ALPHARETTA GA 30009

ZHANG MEI JIE & QIU AI LIAN
1857 ADAGIO DR
ALPHARETTA GA 30009

HAKIM ALEXANDER & ANDREW
1858 ADAGIO DR
ALPHARETTA GA 30009

MANN ALLISON
1860 ADAGIO DR
ALPHARETTA GA 30009

WILSON MICHAEL G
1871 ADAGIO DR
ALPHARETTA GA 30009

WOLF REVOCABLE TRUST THE
1873 ADAGIO DR
ALPHARETTA GA 30009

BROWN JESSICA MARIE
1875 ADAGIO DR
ALPHARETTA GA 30009

RIBEIRO PEDRO MAIA D & BARATA ANA
CRISTINA MACHADO
1877 ADAGIO DR
ALPHARETTA GA 30009

LIU ZHONGYUN
1879 ADAGIO DR
ALPHARETTA GA 30009

JENKINS MARTIN A & JENKINS SHEILA
1881 ADAGIO DR
ALPHARETTA GA 30009

TOUART KRISTIN BROOKE
190 DUVAL DR
ALPHARETTA GA 30009

HODGES DAWN
1910 FORTE LANE
ALPHARETTA GA 30009

EAPEN DAVID & CHHABRIYA TIVOLI SURESH
1914 FORTE LN
ALPHARETTA GA 30009

WILSON JAMES KEITH
1918 FORTE LANE
ALPHARETTA GA 30009

SASSMAN GREGORY
1922 FORTE LN
ALPHARETTA GA 30009

LOVE TERRY & LOVE ELISA M
1926 FORTE LANE
ALPHARETTA GA 30009

HOLM ERIK R & HOLM AMY
1930 FORTE LN
ALPHARETTA GA 30009

CROSS CLINTON ALLEN & KELLY JAY
1934 FORTE LANE
ALPHARETTA GA 30009

MARY KEEFE GROVE REVOCABLE TRUST THE
1938 FORTE LANE
ALPHARETTA GA 30009

SMITH GWEN
1946 FORTE LANE
ALPHARETTA GA 30009

ADAMS PAULETTE ROSE & BRADHAM
WILLIAM ALEXANDER
1950 FORTE LANE
ALPHARETTA GA 30009

HONG TAO & YANG GRACE XUE
1954 FORTE LANE
ALPHARETTA GA 30009

PEREZ IVANA
1958 FORTE LN
ALPHARETTA GA 30009

BENTLEY ALICE C
1962 FORTE LN
ALPHARETTA GA 30009

GOMEZ WENDY LYNN
1966 FORTE LANE
ALPHARETTA GA 30009

FLOWERS TARA DENEKQUA
1970 FORTE LANE
ALPHARETTA GA 30009

JENKINS PATRICK MICHAEL
1978 FORTE LANE
ALPHARETTA GA 30009

MC KIE GERALD A
1982 FORTE LANE
ALPHARETTA GA 30009

BEASLEY ANGELA D & TIMOTHY
1986 FORTE LANE
ALPHARETTA GA 30009

BUTTS DON CHARLES
1994 FORTE LANE
ALPHARETTA GA 30009

THOMAS KIMONETIA LATISHA
1998 FORTE LANE
ALPHARETTA GA 30009

WALLIS WILLIAM MICHAEL LEE & WALLIS
TIFFANI
200 DUVAL DR
ALPHARETTA GA 30009

GILBERT GIANNI
2002 FORTE LANE
ALPHARETTA GA 30009

QU HONG
2006 FORTE LANE
ALPHARETTA GA 30009

AKEY AARON
2030 FORTE LANE
ALPHARETTA GA 30009

MULLIGAN TIMOTHY JOHN & MULLIGAN
CATHERINE MARIE
2034 FORTE LANE
ALPHARETTA GA 30009

EASON TRACY L
2038 FORTE LN
ALPHARETTA GA 30009

HUGHES KESHA D
2042 FORTE LANE
ALPHARETTA GA 30009

LUCAS CALEIGH
2046 FORTE LANE
ALPHARETTA GA 30009

ANDREW MARK G
2050 FORTE LANE
ALPHARETTA GA 30009

NIZIALEK CAMERON
2058 FORTE LANE
ALPHARETTA GA 30009

THOMAS DON VALENCIA
210 DUVAL DR
ALPHARETTA GA 30009

PRASAD SAPNA
215 DUVAL DR
ALPHARETTA GA 30009

CHOI AREUM SOL & YIM SEUNG B
220 DUVAL DR
ALPHARETTA GA 30009

JAVERI VIPUL S
225 DUVAL DR
ALPHARETTA GA 30009

MASHALY AHMED ELMETWALLY & MOHAMED
AZZA MOUSTAFA
225 DUVAL DR
ALPHARETTA GA 30009

SEWPERSAD ASHVEER
2254 TENOR LANE
ALPHARETTA GA 30009

GUPTA VINEET & NEHA
2256 TENOR LANE
ALPHARETTA GA 30009

STONEY PERNELL & HWASON
2258 TENOR LN
ALPHARETTA GA 30009

CHENG GARY KEN LI & YU ALICE
2279 TENOR LANE
ALPHARETTA GA 30009

CHUN HAE
2289 TENOR LANE
ALPHARETTA GA 30009

RUBIO ANDRES E
230 DUVAL DR
ALPHARETTA GA 30009

GADAMSETTY JUGAL ANVESH
235 DUVAL DR
ALPHARETTA GA 30009

ABBATE JENNIFER LORI
240 DUVAL DR
ALPHARETTA GA 30009

SRIVASTAVA SHOBHIT
2405 TENOR LANE
ALPHARETTA GA 30009

LEE YUN KYUNG & JEONG JAE WON
2407 TENOR LN
ALPHARETTA GA 30009

IODICE EMILY & DIIOIA MICHAEL
2409 TENOR LANE
ALPHARETTA GA 30009

AVIRENENI RAVI TEJA
2419 TENOR LANE
ALPHARETTA GA 30009

CORNWALL EMMA E
2420 TENOR LANE
ALPHARETTA GA 30009

CASCANTE JULIA SALAS
2422 TENOR LN
ALPHARETTA GA 30009

GILLIAND KATHLEEN
2424 TENOR LANE
ALPHARETTA GA 30009

SHEN HANG
2426 TENOR LANE
ALPHARETTA GA 30009

LODGE KARYN J & FRANCIS NOBREGA
JAZMINE M
2428 TENOR LANE
ALPHARETTA GA 30009

GOSWAMI PRASAD & MUELLER ASTRID
2430 TENOR LANE
ALPHARETTA GA 30009

GAURAV FNU KUMAR & AGRAWAL SANGEETA
2432 TENOR LANE
ALPHARETTA GA 30009

KHAWARE MRITUNJAY & SHALINI SHWETA
2434 TENOR LANE
ALPHARETTA GA 30009

GLASS ELENA S
2438 TENOR LANE
ALPHARETTA GA 30009

NGUYEN NIXON & CHEN HUIJUAN
2440 TENOR LANE
ALPHARETTA GA 30009

MUNDRA MANISH & MUNDRA JYOTI
2442 TENOR LANE
ALPHARETTA GA 30009

OLONI WINIFRED I
2444 TENOR LANE
ALPHARETTA GA 30009

MAKINENI CHANDANA
2446 TENOR LANE
ALPHARETTA GA 30009

WHITENER TIFFANY LASHA & MICHAEL LEE JR
245 DUVAL DR
ALPHARETTA GA 30009

MELENDEZ ELIJAH JOEL & EVE LUTRELL
250 DUVAL DR
ALPHARETTA GA 30009

BENTLEY RUDOLPH & PEREZ SAILY
265 DUVAL DR
ALPHARETTA GA 30009

ARTISAN TOWNHOME ASSOCIATION INC
2675 PACES FERRY RD SE SUITE 125
ATLANTA GA 30339

ADATRAO LAKSHMI KANTHI
275 DUVAL DR
ALPHARETTA GA 30009

CHAURASIA MANISH KAILASH & CHAURASIA
RAINA MANISH
285 BRAEDEN WAY
ALPHARETTA GA 30009-3002

YALAMATI MANASA SREE
285 DUVAL DR
ALPHARETTA GA 30009

HEDGE HAMSANATH & JAIN SUPRIYA
295 DUVAL DR
ALPHARETTA GA 30009

FULTON SCIENCE ACADEMY PRIVATE SCHOOL
INC
3035 FANFARE WAY
ALPHARETTA GA 30009

KHAN FIONA SOFANA ARMIN & EAD WESAM
ADAM
305 DUVAL DR
ALPHARETTA GA 30009

MALYALA DIVYA & ANNACHEDU RAJENDAR
REDDY
315 DUVAL DR
ALPHARETTA GA 30009

SUMANTH SUKHAVASI & MALLIMOGGALA
PADMINI
325 DUVAL DR
ALPHARETTA GA 30009

I&G ALPHARETTA LLC
333 W WACKER DR STE 2300
CHICAGO IL 60606

LENNAR GEORGIA INC
345 DUVAL DR
ALPHARETTA GA 30009

PATTERSON MICHAEL WAYNE & PATTERSON
MICHELLE KEHOE
350 DUVAL DR
ALPHARETTA GA 30009

LEAL CARLOS ANTONIO PORRAS & LEAL
CLARET MARYNELLY PORRAS
360 DUVAL DR
ALPHARETTA GA 30009

LEFKOVITS ADRIANA RAQUEL BUSTILLOS
370 DUVAL DR
ALPHARETTA GA 30009

INTELLSIV HOLDINGS LLC
402 SPYGLASS HILL CT
DULUTH GA 30097

VILLARROEL ZABALA ARISTIDES
4200 IVY RUN CIR
DULUTH GA 30096

CAROLE R WEIL REVOCABLE TRUST THE
4361 E BROOKHAVEN DR
ATLANTA GA 30319

WESTWOOD PARK NEIGHBORHOOD
ASSOCIATION,
500 SUGAR MILL RD STE 200B
SANDY SPRINGS GA 30350

EQUITY TRUST CO FBO THOMAS ASSET
MGMT 401K E11700 & EQUITY TR CO FBO
THOMAS
5010 HARRINGTON RD
ALPHARETTA GA 30022

RABINOVICH ILYA ET AL
502 CYPRESS PT
WOODSTOCK GA 30189

REEP RTL NPM GA LLC
51 MADISON AVE
NEW YORK NY 10010

SECKINER AKGUN M & ZEYNEP MUGE
5260 NASSER AVE
ALPHARETTA GA 30005

GEORGIA DEPARTMENT OF TRANSPORTATION
600 W PEACHTREE NW STE 1400
ATLANTA GA 30308

FELIX SCHOOLS LLC THE
6435 WESTBAY TER
CUMMING GA 30040

SFN ENTERPRISES LLC
800 CRAPPAPPLE HL
ALPHARETTA GA 30004

NALLAMOTHU RAVI
802 LIVEOAK TRL
DOTHAN AL 36305

ASHTAROLNAKHAI SHADI
8230 HABERSHAM WATERS RD
SANDY SPRINGS GA 30350

FEN ENTERPRISES LLC
880 CRABAPPLE HL
ALPHARETTA GA 30004

ADVANCE EDUCATION INC
9115 WESTSIDE PKWY
ALPHARETTA GA 30009-8000

CITY OF ALPHARETTA
9115 WESTSIDE PKWY
ALPHARETTA GA 30009-8000

LIU JEFFREY
9908 MILL RUN DR
GREAT FALLS VA 22066

BRI 1870 NORTH POINT LLC
P O BOX 1368
CARLSBAD CA 92018

AMERICAN HONDA MOTOR CO INC
P.O. BOX 239
GREENSBORO GA 30642

April 17, 2023

Jim Winer, Make3
1075 Brady Avenue
Atlanta, Georgia 30318

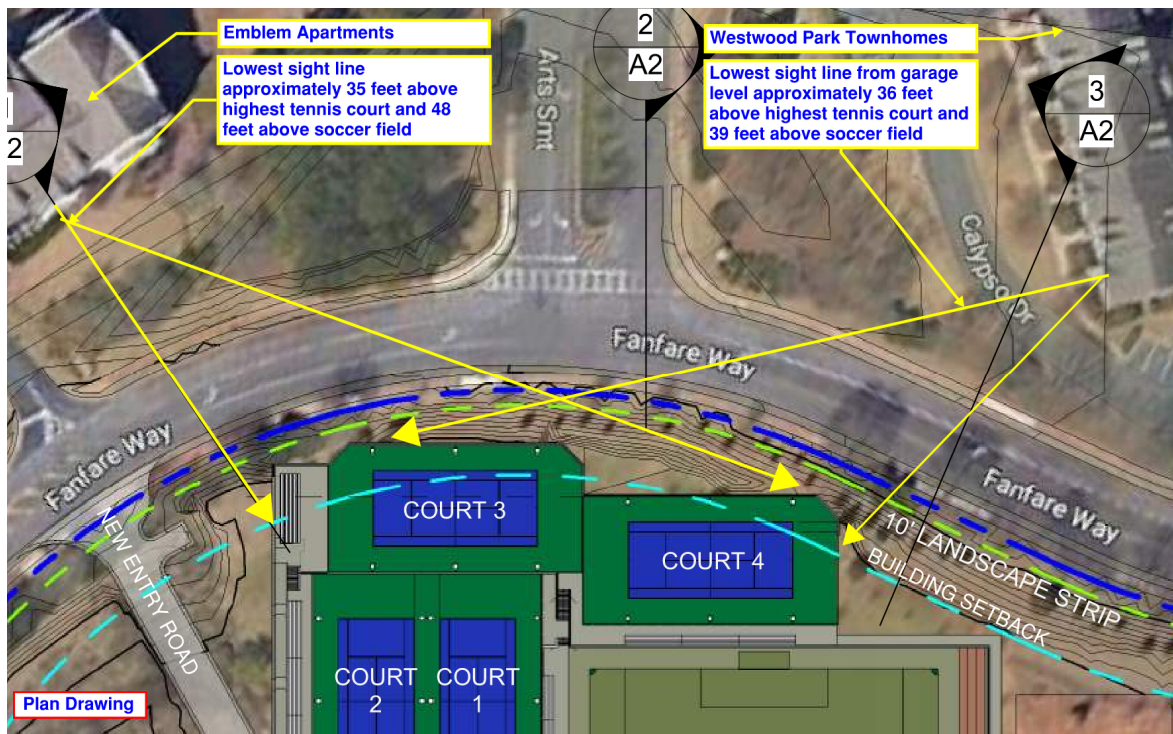
RE: Fulton Science Academy Athletic Improvements MP-23-03 / V-23-10

Dear Property Owner:

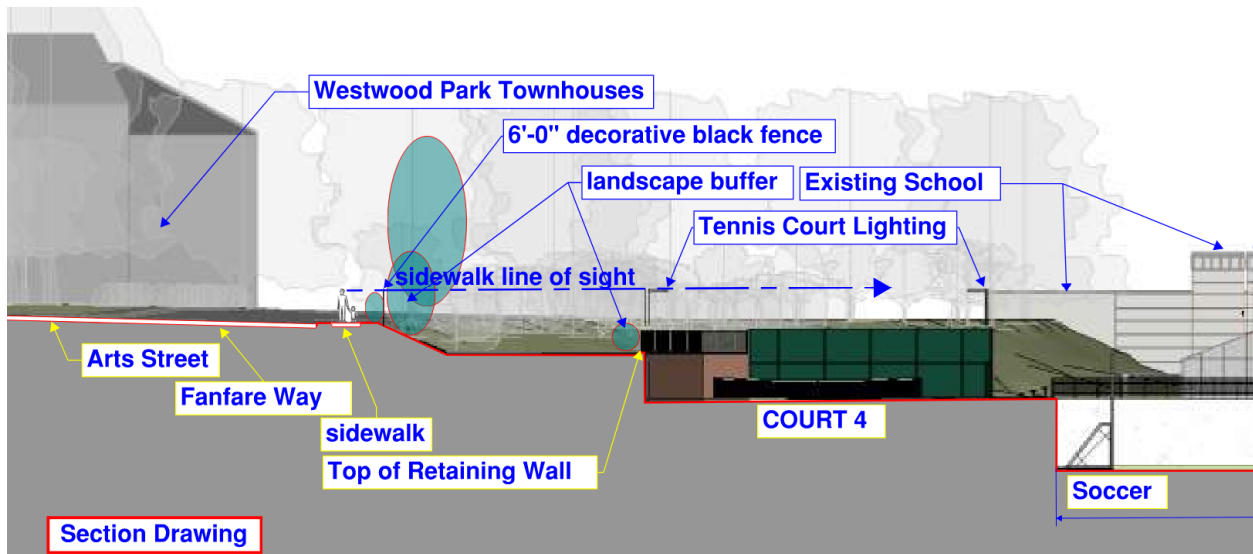
Please allow this letter to serve as public notice for a setback variance request at 3035 Fanfare Way, Alpharetta, GA 30009 for the purpose of constructing two tennis courts (see Plan Drawing below) and associated retaining walls, fencing, and court lighting partially within the 40' building setback.

The two courts are part of a project to improve the Fulton Science Academy's athletic offerings by adding a total of 4 tennis courts, a soccer field, a field house, some additional parking, and the addition of a second vehicular entry to improve traffic circulation.

The tennis courts are purposely designed to be visually unobtrusive. The site conditions allow the two tennis courts that require the setback variance to be approximately 9 to 12 feet below the adjacent sidewalk and street (see Section Drawing below). The living levels of the across the street apartments and townhomes are elevated well above the sidewalk and have views over and beyond the courts. The tall side of the retaining walls face inward toward the school property. From the street, the view toward the courts will have the appearance of a low fence hidden in a densely planted landscape buffer. Light studies included in this application show minimal off-site light bleed.



April 17, 2023



The Community Zoning Information Meeting (CZIM) for this request will be held on **Wednesday, May 10, 2023, at 6:00 PM** in the Multipurpose Room in Alpharetta City Hall across from the Council Chambers. Alpharetta City Hall is Located at 2 Park Plaza, Alpharetta, GA 30009. This is an informal meeting to allow the public to view public hearing requests, ask questions, and provide feedback.

This item will be considered by the Planning Commission on **Thursday, June 1, 2023, at 6:30 PM** and City Council on Monday, **June 26, 2023, at 6:30 PM**. The meeting(s) will be held in the Council Chambers at City Hall, 2 Park Plaza, Alpharetta, GA 30009.

If you have any questions regarding the request, please feel free to contact me at your convenience. I can be reached at jwiner@make3arch.com or 404 876 5510.

Sincerely,

Jim Winer, Principal, AIA, LEED AP

Copy

Michael Woodman, Planning + Development Services Manager, City of Alpharetta
Dr. Kenan Sener, Principal, Fulton Science Academy

END

5/8/23

Case Type: Public Hearing Application

Permit/Case Number: PHA230010

Project Name: Fulton Science Academy

Location: 3035 Fanfare Way

Citizen Participation: Citizen Responses to 4/17/23 Public Notification Letter

From: Woodman, Michael <mwoodman@alpharetta.ga.us>

Sent: Friday, April 21, 2023 1:15 PM

To: Carol Fanning <carol.fanning@bhhsgeorgia.com>; Jim Winer <jwiner@make3arch.com>

Subject: RE: Lighting along Fanfare Way: RE: Question regarding tennis courts at Fulton Science Academy

The City's Public Works Dept does not have any plans to add streetlights along Fanfare Way. However, City staff will recommend a condition with the current public hearing request at Fulton Science Academy that pedestrian streetlights be added along Fanfare Way.

From: Woodman, Michael

Sent: Friday, April 21, 2023 10:59 AM

To: Carol Fanning <carol.fanning@bhhsgeorgia.com>; Jim Winer <jwiner@make3arch.com>

Subject: RE: Lighting along Fanfare Way: RE: Question regarding tennis courts at Fulton Science Academy

I also forwarded your email to our Public Works Dept to see if they have any plans to install streetlights along that stretch. I'll let you know once I receive a response.

From: Carol Fanning <carol.fanning@bhhsgeorgia.com>

Sent: Friday, April 21, 2023 10:40 AM

To: Woodman, Michael <mwoodman@alpharetta.ga.us>; Jim Winer <jwiner@make3arch.com>

Subject: Lighting along Fanfare Way: RE: Question regarding tennis courts at Fulton Science Academy

Thank you all so much for your quick responses to my concerns this morning regarding lighting along Fanfare Way. This information is extremely welcome (by me and the entire Westwood Park community!). I know it will be a while longer, but just knowing there will eventually be lights along Fanfare is such a relief.

From: Woodman, Michael <mwoodman@alpharetta.ga.us>

Sent: Friday, April 21, 2023 9:53 AM

To: Jim Winer <jwiner@make3arch.com>

Subject: RE: Question regarding tennis courts at Fulton Science Academy

As a heads up we expect that the traffic study, which is required with the public hearing request, addresses the new curb cut on Fanfare Way. Also, the North Point Overlay streetscape standards will require the school add pedestrian lighting along Fanfare Way.

From: Jim Winer <jwiner@make3arch.com>

Sent: Friday, April 21, 2023 9:29 AM

To: Woodman, Michael <mwoodman@alpharetta.ga.us>

Subject: FW: Question regarding tennis courts at Fulton Science Academy

FYI from a resident below and my response.

From: Jim Winer

Sent: Friday, April 21, 2023 9:28 AM

To: Carol Fanning <carol.fanning@bhhsgeorgia.com>

Subject: RE: Question regarding tennis courts at Fulton Science Academy

Good morning and thank you for contacting me. I'm pleased you're supportive of the courts, and I'm glad you've raised safety as an issue.

Because this is a variance request to construct a retaining wall needed to place the tennis courts within the building setback, the plans are not fully developed and engineered or permit ready. FSA will need to meet the City requirements for traffic, detention, etc. Here is where we are on the issue that you raised:

Street Lighting: There is no lighting proposed along Fanfare Way. The City ordinance prohibits lighting coming from the school to be above one foot candle outside of the school property (1 foot candle is approximately the amount of light that a candle produces on a surface 1 foot away). We have been

5/8/23

Case Type: Public Hearing Application

Permit/Case Number: PHA230010

Project Name: Fulton Science Academy

Location: 3035 Fanfare Way

Citizen Participation: Citizen Responses to 4/17/23 Public Notification Letter

working on a lighting design that meets those requirements. I don't know what the City policy is concerning street lighting or pedestrian lighting along streets and sidewalks, but I was wondering about that as we were working on the lighting for the courts and soccer field. .

Traffic Engineering: At this juncture, the new drive entry has not been engineered as it is not part of the variance request. It will need to be fully engineered prior to permitting, so currently, it doesn't show striping, signage, or signaling. The Fulton Science Academy has commissioned a traffic study as a first step, which is a city requirement. I emailed the engineering company yesterday to get an ETA on their report. Once completed and given to the City, the City Traffic Engineering Department will review the study and provide requirements. Preliminarily, the City has discussed striping and turn lanes, but a traffic signal has not been mentioned.

Our primary point of contact for the variance request is Michael Woodman. It is a good time to share your concerns with the City through him.

Please contact me anytime.

From: Carol Fanning <carol.fanning@bhhsgeorgia.com>

Sent: Friday, April 21, 2023 8:44 AM

To: Jim Winer <jwiner@make3arch.com>

Subject: Question regarding tennis courts at Fulton Science Academy

Good morning Jim. I live in the Westwood Park community and my townhome faces Fanfare Way. I am a fan of the tennis courts being built on the Fulton Science Academy property, but I do have a concern. Will there be any type of street lighting along Fanfare near the new entry road onto the school property (off Fanfare)? That stretch of curves at the intersection of Arts Summit and Fanfare are dangerous – especially at night.

If there aren't additional street lights proposed by your firm, do you know who I could contact to express my concern?

CITY OF ALPHARETTA

PUBLIC HEARING APPLICATION

FOR OFFICE USE ONLY

Case #: _____

PH #: _____

☐ Property Taxes & Code Violations Verified

☐ Fee Paid Initial: _____

COMMUNITY DEVELOPMENT DEPARTMENT

2 PARK PLAZA

ALPHARETTA, GA 30009

1. This page should be the first page in each of your completed application packets.
2. It is preferred that all responses be typed. Illegible applications will not be accepted.
3. Prior to signing and submitting your application, please check all information supplied on the following pages to ensure that all responses are complete and accurate. Incomplete applications will not be accepted.
4. Payment of all applicable fees must be made at the time of application. Payment may be made via cash, credit card (American Express, Master Card or Visa), or check made payable to "City of Alpharetta." Please note that a 3% convenience fee will be added to all credit card transactions.
5. Applications will be accepted on the designated submittal dates between the hours of 8:30 AM and 3:30 PM.
6. If you have any questions regarding this form, please contact the Community Development Department by calling 678-297-6070.

Contact Information:

Contact Name: Jim Winer Telephone: 404 876 5510

Address: 1075 Brady Avenue Suite: NA

City: Atlanta State: GA Zip: 30318 Fax: NA

Mobile Tel: 6787780795 Email: jwiner@make3arch.com

Subject Property Information:

Address: 3035 Fanfare Way Current Zoning: CUP

District: 1st Section: 2nd Land Lot: 688,689,700 Parcel ID: Pod 0

Proposed Zoning: CUP Current Use: Educational: Private K-12 STEAM School

This Application For (Check All That Apply):

- | | | |
|--|---|---|
| ☐ Conditional Use | ☒ Master Plan Amendment | ☐ Comprehensive Plan Amendment |
| ☐ Rezoning | ☐ Master Plan Review | |
| ☒ Variance | ☐ Public Hearing | |
| ☐ Exception | ☐ Other (Specify): _____ | |

APPLICANT REQUEST AND INTENT

What is the proposed use(s) of the property?

The property is currently used as a, educational facility, K-12 STEAM school. There is no proposed change in use.

Applicant's Request (Please itemize the proposal):

Due to the unique shape, topographic, and detention constraints of the site, the Fulton Science Academy is requesting a zoning variance for:

1. Site Retaining Walls and associated fencing within the 40' building setback.
2. Two tennis courts within the 40' building setback.
3. Tennis Court and Soccer Field Lighting (photometric included)
4. Allow the relocation of the previously approved 6' tall ornamental security metal fences to to be located on the line landscape buffer.

Applicant's Intent *(Please describe what the proposal would facilitate).*

In support of the Fulton Science Academy athletic program and related to this variance request, the applicant would like to add the following to their campus:

1. Add Four Tennis Courts: This is the minimum required for the school to host tennis tournaments. The school currently has no tennis courts.
2. Add One Soccer Field: The school currently has no playing field.
3. Add a field house with an observatory for use by the FSA astronomy team and a concession stand.
4. Add tennis court and soccer field lighting. The lighting will be designed to minimize off site light bleed.

Separate from this variance request, the applicant will submit an application to the DRB for the addition of an innovation center and a revised music practice area (Note: A music practice area was previously approved by the DRB and permitted. The music practice revisions are minor). These toe small additions will not require a variance.

PROPERTY OWNER AUTHORIZATION

Property Owner Information:

Contact Name: Fulton Science Academy

Telephone: 678 366 2555

Address: 3035 Fanfare Way

Suite: NA

City Alpharetta

State: GA

Zip: 30009

Authorization:

I do solemnly swear and attest, subject to criminal penalties for false swearing, that I am the legal owner, as reflected in the records of Fulton County, Georgia, of the property identified below, which is the subject of the attached Application for Public Hearing before the City of Alpharetta, Georgia.

As the legal owner of record of the subject property, I hereby authorize the individual named below to act as the applicant in the pursuit of the Application for Public Hearing in request of the items indicated below.

☐ Annexation

☐ Special Use

☐ Rezoning

☐ Conditional Use

☒ Variance

☐ Master Plan

☐ Land Use Application

☐ Other

Property Owner's Authorized Applicant (if applicable):

Name of Authorized Applicant: Jim Winer

Telephone: 404 876 5510 ext 1001

Address: _____

Suite: _____

City Atlanta

State: GA

Zip: 30318

So Sworn and Attested:

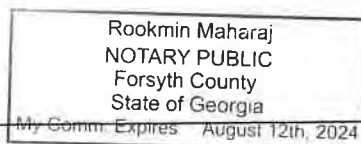
Owner Signature: _____



Date: 3/27/23

Notary:

Notary Signature: _____



Date: 3/27/23

DISCLOSURE FORM

The Official Code of Georgia Annotated requires disclosure of campaign contributions to government officials by an applicant or opponent of a rezoning or public hearing petition (O.C.G.A. 36-67 A-1).

Applicants must file this form with the City of Alpharetta Community Development Department within ten (10) days after filing for rezoning or public hearing. Opponents to a rezoning or public hearing petition must file this form five (5) days prior to the Planning Commission meeting at which the subject rezoning or public hearing petition is scheduled to be heard.

Name of Applicant or Opponent: Jim Winer, Principal, Make3 architecture planning design

Subject Public Hearing Case: _____

Jim Winer has made no contributions to campaigns in Alpharetta.

Campaign Contribution Information:

Please provide the requested information for each contribution with a dollar amount or value of \$250 or more made within the past two (2) years to an Alpharetta Official by the individual identified above. Please use a separate form for each Alpharetta Official to whom such a contribution as been made.

If the individual identified above has made no such contributions to an Alpharetta Official within the past two (2) years, please indicate this by entering "N/A" on the appropriate lines below.

Name of Official: NA Position: NA

Description of Contribution: _____ Value: _____

Description of Contribution: _____ Value: _____

Description of Contribution: _____ Value: _____

Description of Contribution: _____ Value: _____

Description of Contribution: _____ Value: _____

Campaign Contribution Information:

I do solemnly swear and attest, subject to criminal penalties for false swearing, that the information provided in this Disclosure Form is true and accurate and that I have disclosed herein any and all campaign contributions made to an Official of the City of Alpharetta, Georgia in accordance with O.C.G.A. 36-67 A-3.

Signature: _____

Jim Winer

Date: 3/27/23

DISCLOSURE FORM

The Official Code of Georgia Annotated requires disclosure of campaign contributions to government officials by an applicant or opponent of a rezoning or public hearing petition (O.C.G.A. 36-67 A-1).

Applicants must file this form with the City of Alpharetta Community Development Department within ten (10) days after filing for rezoning or public hearing. Opponents to a rezoning or public hearing petition must file this form five (5) days prior to the Planning Commission meeting at which the subject rezoning or public hearing petition is scheduled to be heard.

Name of Applicant or Opponent: Dr. Kenan Sener, CEO, Head of School

Subject Public Hearing Case: Fulton Science Academy Variance Request

Campaign Contribution Information:

Please provide the requested information for each contribution with a dollar amount or value of \$250 or more made within the past two (2) years to an Alpharetta Official by the individual identified above. Please use a separate form for each Alpharetta Official to whom such a contribution as been made.

If the individual identified above has made no such contributions to an Alpharetta Official within the past two (2) years, please indicate this by entering "N/A" on the appropriate lines below.

Name of Official: NA Position: NA

Description of Contribution: NA Value: _____

Description of Contribution: NA Value: _____

Description of Contribution: NA Value: _____

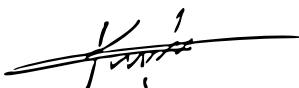
Description of Contribution: NA Value: _____

Description of Contribution: NA Value: _____

Campaign Contribution Information:

I do solemnly swear and attest, subject to criminal penalties for false swearing, that the information provided in this Disclosure Form is true and accurate and that I have disclosed herein any and all campaign contributions made to an Official of the City of Alpharetta, Georgia in accordance with O.C.G.A. 36-67 A-3.

Signature: _____



Date: 3/27/23

ALPHARETTA PLANNING COMMISSION REVIEW CRITERIA

How will this proposal be compatible with surrounding properties?

The existing Fulton Science Academy has been in existing since approximately 2014/15. A classroom addition was constructed in 2019/20 along with the surrounding properties forms an existing compatible context. For the surrounding properties, this proposal is consistent with what exists in use and aesthetics.

How will this proposal affect the use and value of the surrounding properties?

Adjacency to a high performing school has a positive impact on property values. The proposed enhancements will make the school more attractive to prospective families.

Can the property be developed for a reasonable economic use as currently zoned? Please explain why or why not.

We are not seeking a rezoning; however, the variance is requested because the site constraints provide no alternatives for fitting four tennis courts on the property.

What would be the increase to population and traffic if the proposal were approved?

This project enhances athletic offerings and does not increase the student population. The project includes additional parking and a second ingress/egress to improve external and internal traffic flow. The tennis courts and soccer field will allow normal after school competitions. We anticipate the project will enhance traffic flow and not increase trip generation beyond the current peak pick up and drop off trip generation. FSA is commissioning a traffic study update to the A&R Engineering study done in 2011 to include a traffic management plan, a trip generation report.

What would be the impact to schools and utilities if the proposal were approved?

The impact is to enhance the athletic and wellness offerings at an existing school. The necessary utilities are available.

How is the proposal consistent with the Alpharetta Comprehensive Plan; particularly the Future Land Use Map?

The proposal is consistent with the future land use map. The future land use map identifies this property as a Public, Institutional, Education. The site will continue to be used for educational purposes. The Fulton Science Academy as a K through 12 STEAM school.

Are there existing or changing conditions which affect the development of the property and support the proposed request?

Yes, the existing conditions are constrained by the Georgia 400 buffer to the East, a detention facility to the South, the existing school building to the North, and Fanfair Way to the West.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

BOARD OF ZONING APPEALS REVIEW CRITERIA

Please respond to the following ONLY if you are applying for a zoning variance.

Are there extraordinary and exceptional conditions pertaining to the subject property because of its size, shape, or topography? Please describe them.

Yes, as mentioned in the previous bullet point, the existing conditions are constrained by the Georgia 400 buffer to the east, a detention facility to the south, the existing school building to the north, and Fanfair Way to the West.

Would the application of the Zoning Code standards as they relate to the subject property create an unnecessary hardship? Please explain.

Yes, the application of the standards would mean that the Fulton Science Academy could not construct 4 tennis courts required to host school tennis tournaments. Without court and field lighting, the school would not be able to host competitions or practice after daylight hours.

Are there conditions that are peculiar to the subject property? Please describe them in detail.

The constraints have been itemized above. There are topographic conditions that will provide screening of the field and courts.

The two tennis courts that requiring the setback variance are approximately 9 to 12 feet below the adjacent sidewalk and street. The living levels of the across the street apartments and town-homes are elevated well above the sidewalk, looking over and beyond the courts. The tall side of the retaining walls face inward toward the school property. From the street, the retaining walls will screen the nearest courts, and the view will have the appearance of a low fence hidden in a densely planted landscape buffer. The lower elevation of the school property in conjunction with landscaping along the street edge also provides screening for the court and field lighting. The soccer field is 22 to 26 feet lower than the street. Light studies included in this application show minimal off site light bleed.

Would relief, if granted, cause substantial detriment to the public good or impair the purpose and intent of the Zoning Code? Please defend your response.

Allowing the Fulton Science Academy to provide the normal athletic facilities expected of a K through 12 would be an enhancement. Better and more desirable schools are attractive from a real-estate perspective and are generally considered to be a public good.

On a separate sheet or sheets, please provide any information or evidence that supports your request and the statements that you have provided in this application.

CITIZEN PARTICIPATION FORM - PART A

This form must be completed and submitted with the applicant's completed Public Hearing Application. Applications submitted to the City of Alpharetta without a completed Citizen Participation Form - Part A will not be accepted.

Public Hearing or Project Name: Fulton Science Academy Tennis Courts and Soccer Field

Contact Name: Jim Winer, Make3 architecture planning design Telephone: 404 876 5510

The following people will be notified of this application and provided information describing the subject proposal. Please note that ALL adjoining property owners MUST be notified. Use additional pages as needed.

Emblem Alparetta Apartments

Westwood Park Townhouses

Method by which these individuals will be contacted. Please mark all that apply. *If you select "Other," please provide a description of the method of contact that will be used.*

☒

Letter

☐

Personal Visits

☒

Telephone

☐

Group Meeting

☒

Email

☐

Other *(Please Specify)*

Please describe the method(s) by which these individuals will have the opportunity to respond or contact the applicant with questions or concerns about the proposal.

The apartment complex management and town-home neighborhood association will be contacted via telephone and email. The applicants contact information (phone, email, and address) will be available for contact. We will offer to come to their location and do a presentation.



Real Estate

View Bill

As of	4/3/2023
Bill Year	2022
Bill	2206580
Owner	FULTON SCIENCE ACADEMY PRIVATE
Parcel ID	12 -2600-0689-423-7

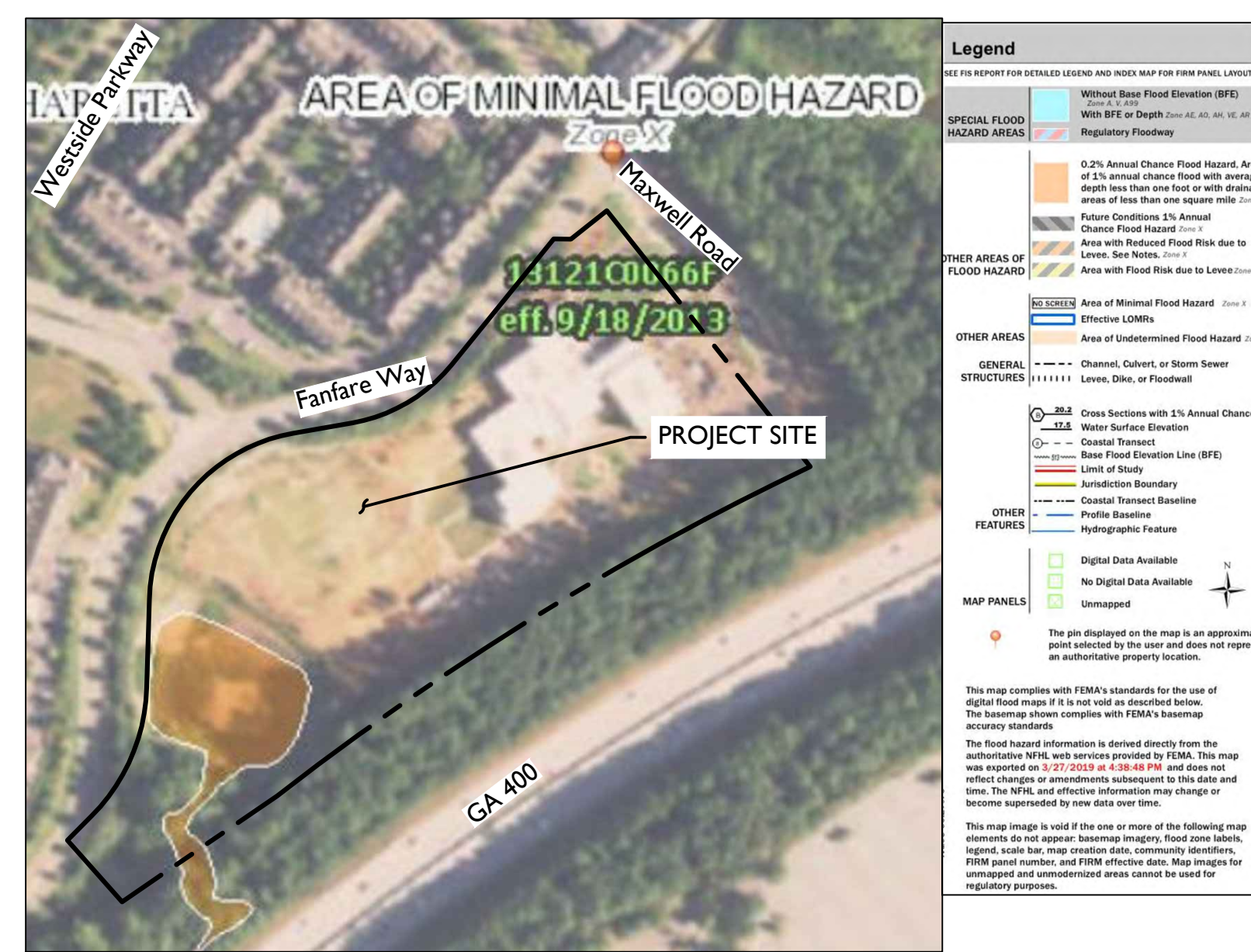
[View payments/adjustments](#)

Installment	Pay By	Amount	Payments/Credits	Balance	Interest	Due
1	12/1/2022	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

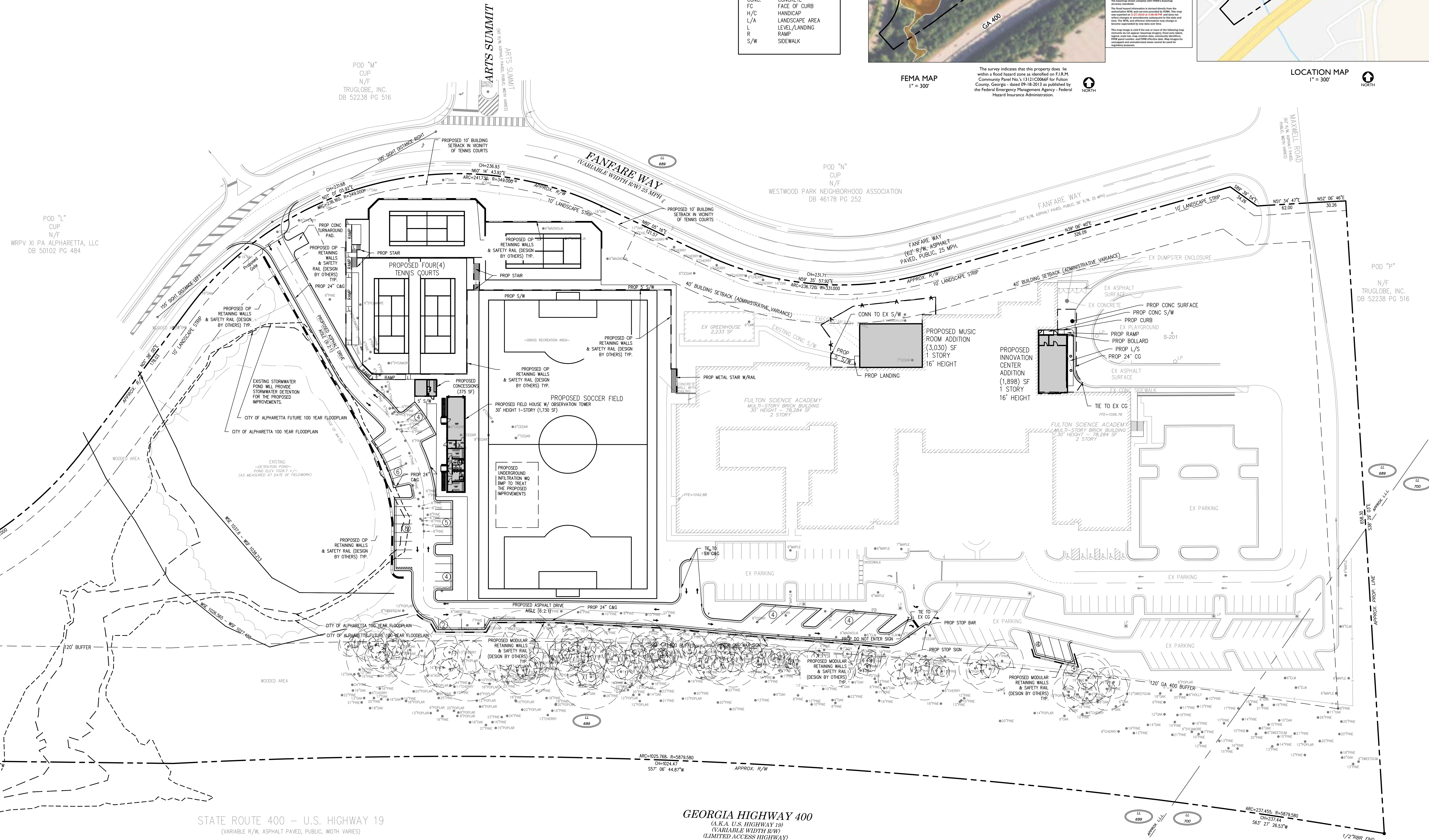
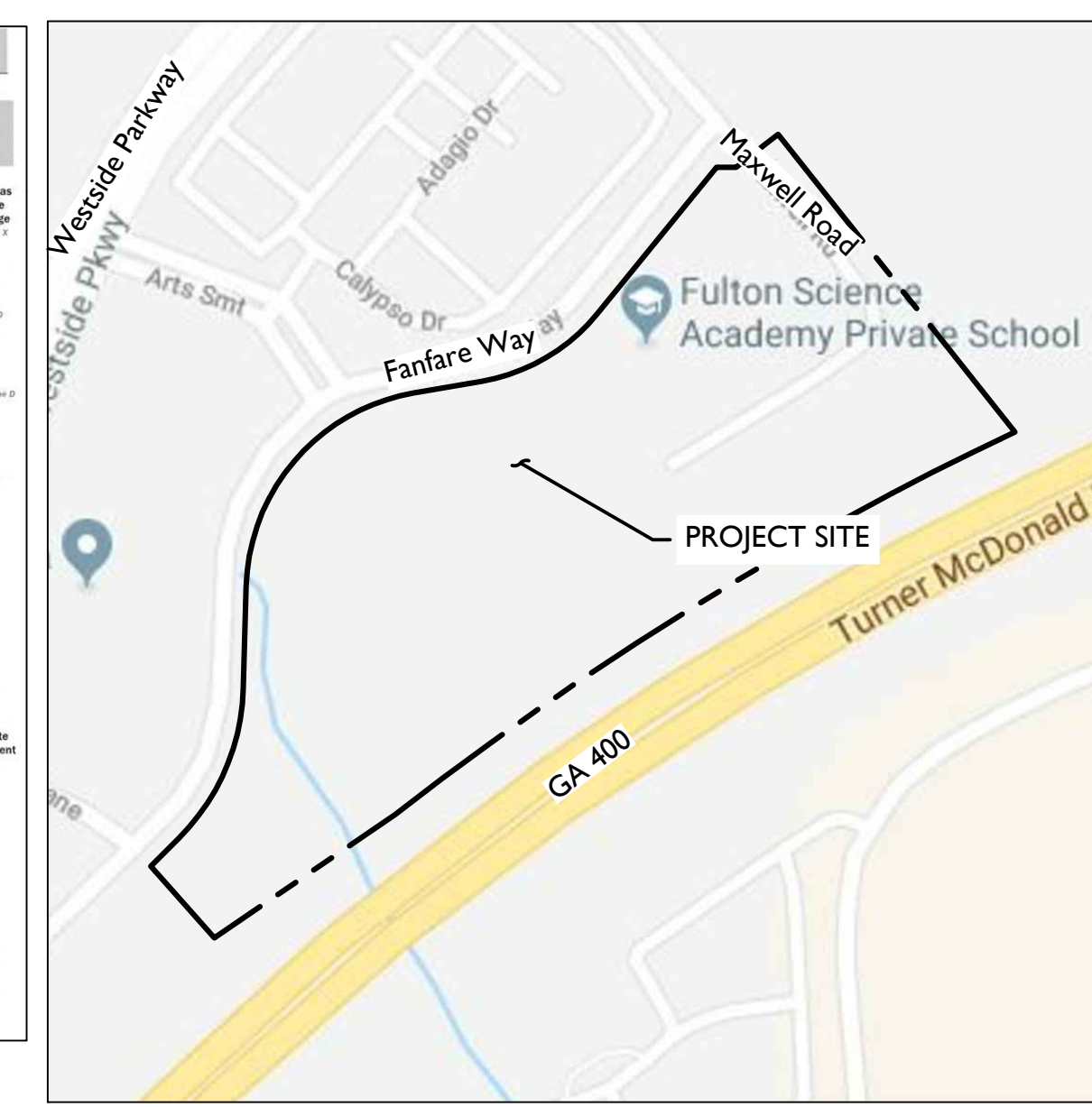
©2023 Tyler Technologies, Inc.

SITE AREA: 18.49 ACRES
DISTURBED AREA: 2.9 ACRES
PID: 12 260 006 894 237
ZONING: CLUP (COMMUNITY UNIT PLAN) 1ST DISTRICT & 2ND SECTION
USE: PRIVATE SCHOOL
SETBACKS: 40' FRONT
15' WEST SIDE
40' EAST SIDE
120' GA. GA. BUFFER
15' REAR (IN ADDITION TO 400' BUFFER)
BUILDING: EXISTING. 102,411 SF DENSITY: 3.916 SF/AC EX
BUILDING HEIGHT: 30' (2 STORIES)
REQUIREMENT: 1 PER CLASSROOM/OFFICE + 1 PER 4 HIGH SCHOOL STUDENT
105 PHASE 1 + (145 STUDENTS) + 145 STALLS REQUIRED
EX PHASE 18181 ACRES + 154 PARKING STALLS
PROPOSED PHASE 3 = 154 EXISTING + 37 PROPOSED = 191 STALLS

BC	BACK OF
B.S.L.	BUILDING
C&G	CURB AND
CIP	CAST IN
CONC.	CONCRETE
FC	FACE OF
H/C	HANDICAP
L/A	LANDSCAPE
L	LEVEL/LA
R	RAMP
S/W	SIDEWALK



The survey indicates that this property does lie within a flood hazard zone as identified on F.I.R.M. Community Panel No.'s 13121C0066F for Fulton County, Georgia - dated 09-18-2013 as published by the Federal Emergency Management Agency - Federal Hazard Insurance Administration.

STATE ROUTE 400 – U.S. HIGHWAY 19
(VARIABLE R/W, ASPHALT PAVED, PUBLIC, WIDTH VARIES)

GEORGIA HIGHWAY 400
(A.K.A. U.S. HIGHWAY 19)
(VARIABLE WIDTH R/W)
(LIMITED ACCESS HIGHWAY)

GEORGIA811
Utilities Protection Center, Inc.



Scale 1" = 40'

LAYOUT PLAN

**FULTON SCIENCE
ACADEMY - PHASE III**
ALPHARETTA, FULTON COUNTY, GEORGIA

DATE _____

REVISIONS

No. |

PROJECT NO: 22-4817
CIVIL DRAWN BY: JLM
CIVIL DESIGNED BY: CJF, JLM
LANDSCAPE DRAWN BY: -
LANDSCAPE DESIGNED BY: -
CHECKED BY: CJF
DATE - 04-03-2023

SHEET

C4.0



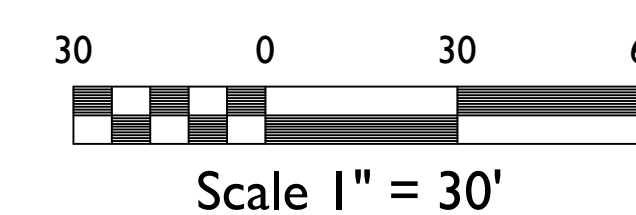
**FULTON SCIENCE
ACADEMY - PHASE III**
ALPHARETTA, FULTON COUNTY, GEORGIA

[illegible]

PROJECT NO: 22-4817
CIVIL DRAWN BY: JLM
CIVIL DESIGNED BY: CJF, JLM
LANDSCAPE DRAWN BY: -
LANDSCAPE DESIGNED BY: -
CHECKED BY: CJF
DATE - 04-03-2023

SHEET

C6.0





Acres	SF/Acre Allowable Building GSF	Total Allowable Building GSF	Current Bldg Area	Future Music Practice Addition (no variance required, not part of variance application)	Future Music Innovation Addition (no variance required, not part of variance application)	Proposed Field House (no variance required)	Proposed Concession Stand (no variance required)	Total Additions	% Addition of Total Existing GSF	Total Proposed Building GSF (under allowable)
17.45	15,000	261,750	104,084	3,030	1,898	2,550	450	7,928	7.62%	112,012



FULTON SCIENCE ACADEMY
Phase III
3035 Fanfare Way Alpharetta, GA 30009

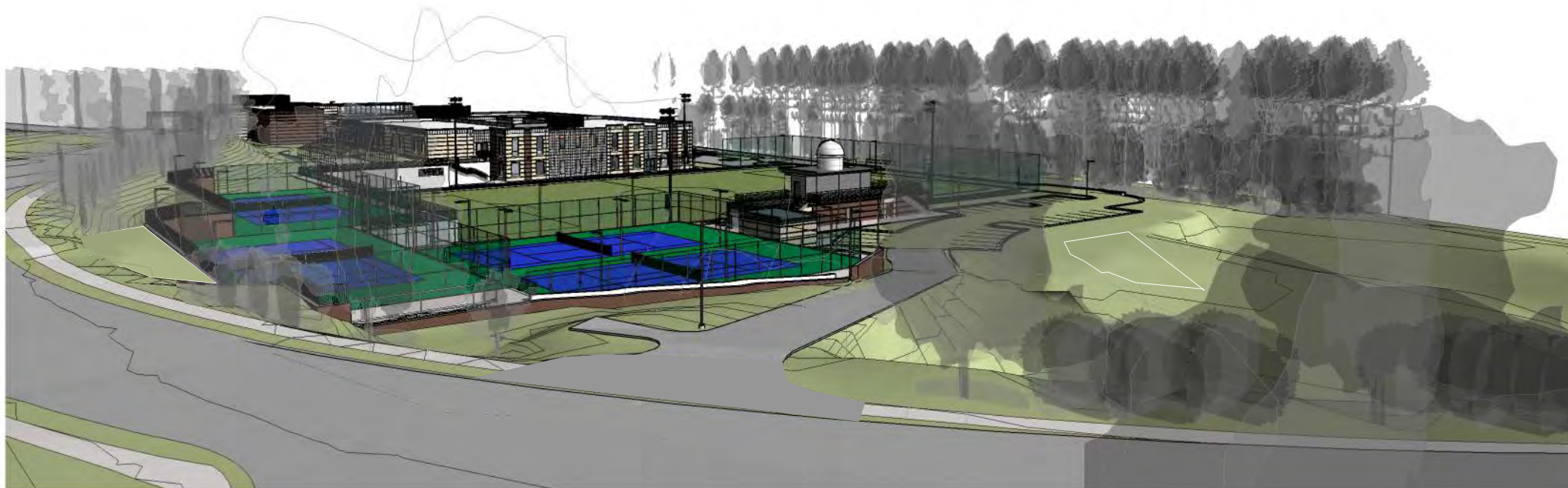
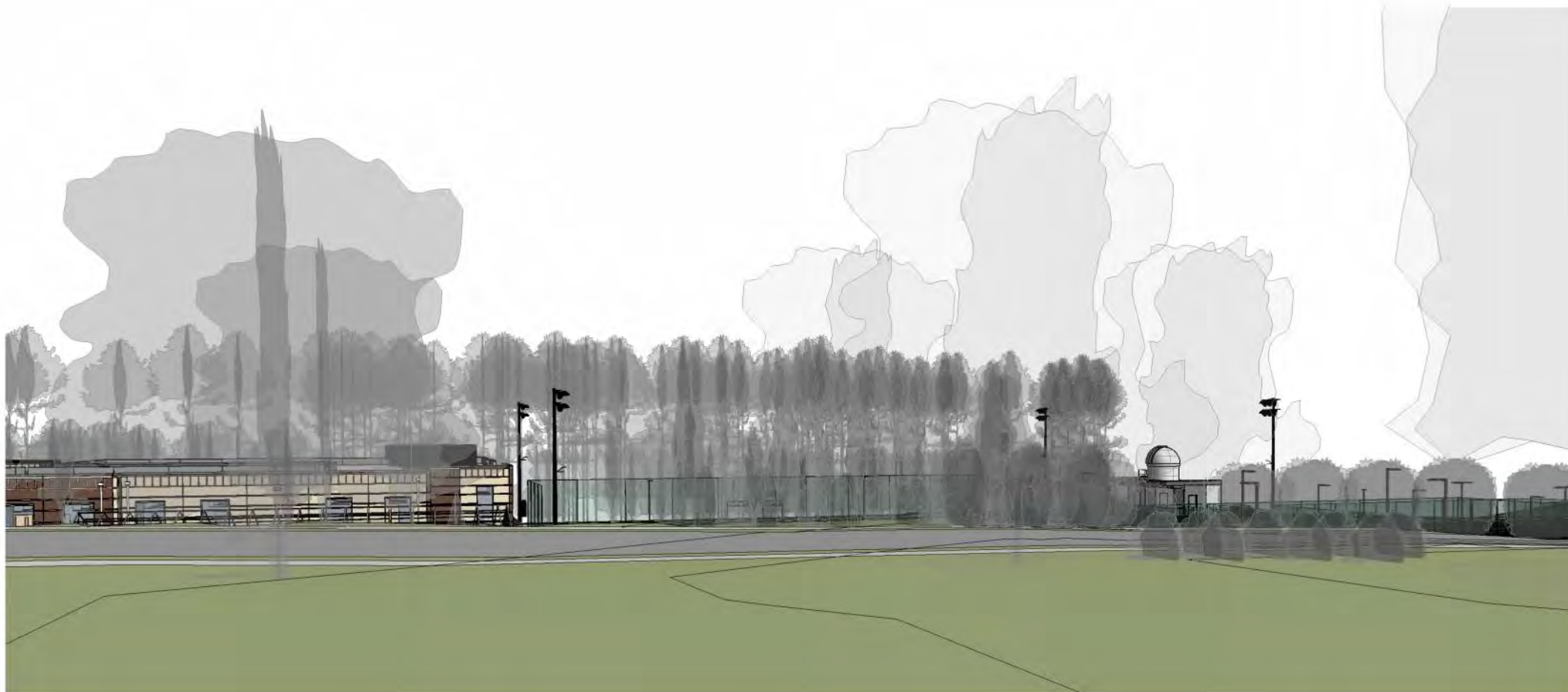
Make3 Project No. 202212

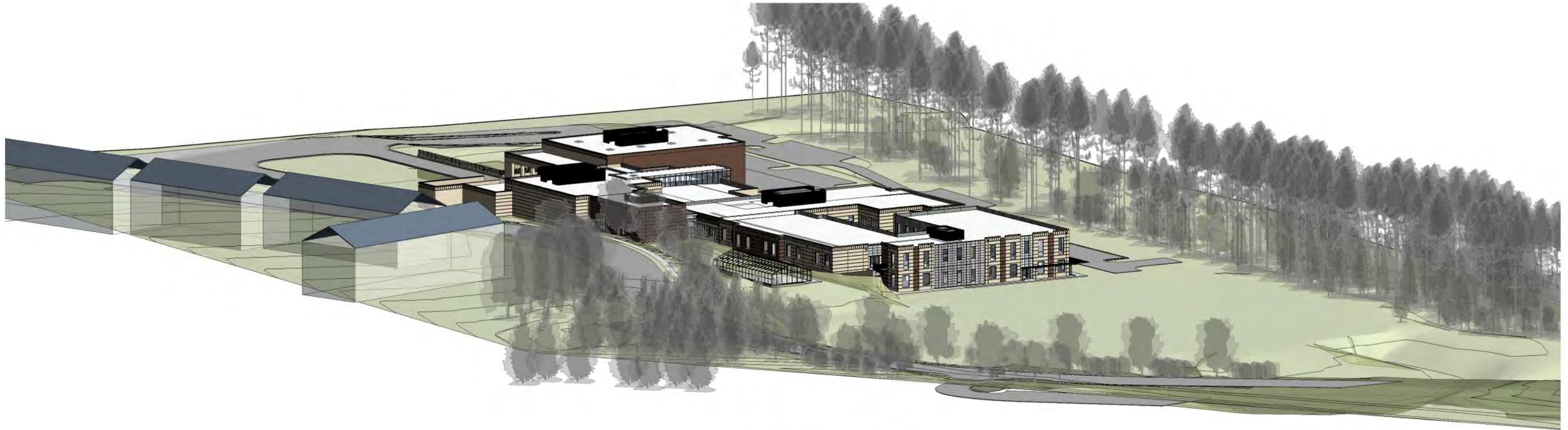
A0 EXISTING AERIAL MAP
04/03/23



Make3
architecture / planning / design

1075 Brady Avenue NW Atlanta, Georgia 30318 404.876.5510





FULTON SCIENCE ACADEMY
Phase III

3035 Fanfare Way Alpharetta, GA 30009

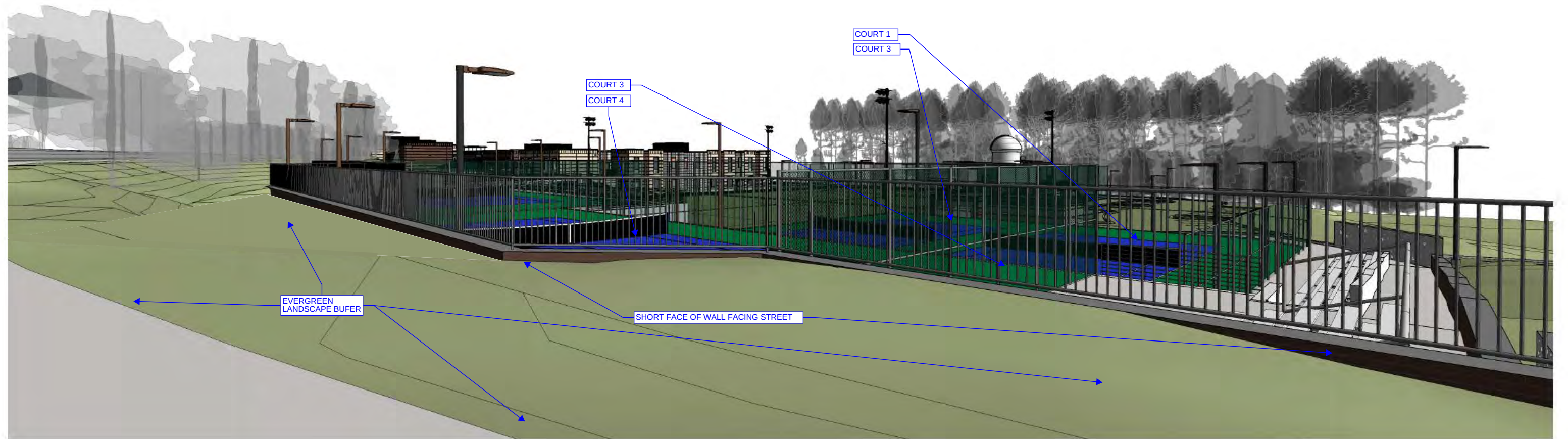
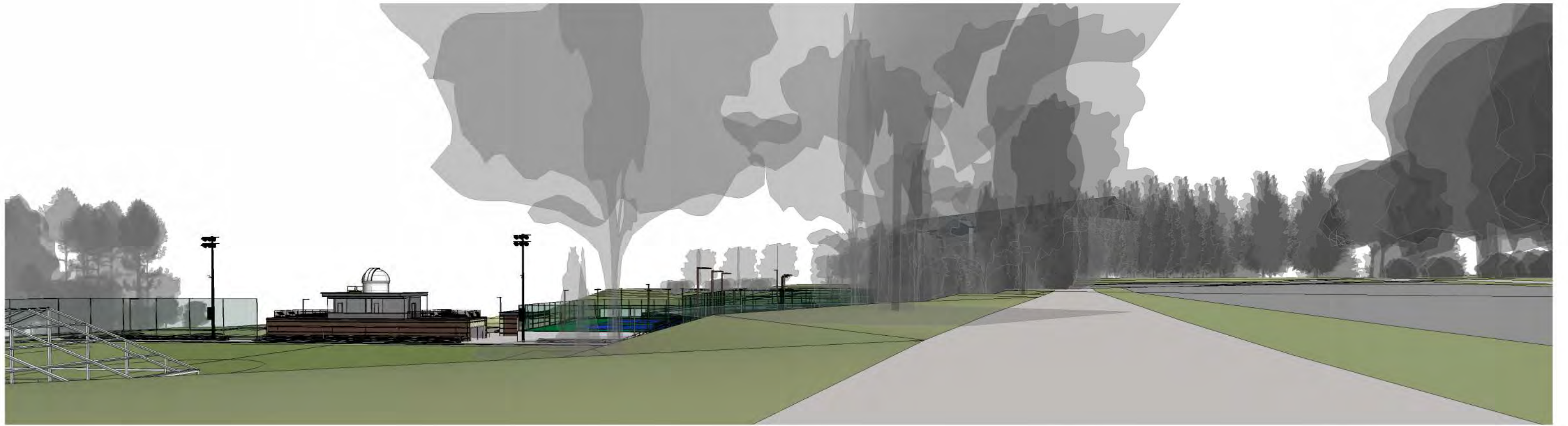
Make3 Project No. 202212

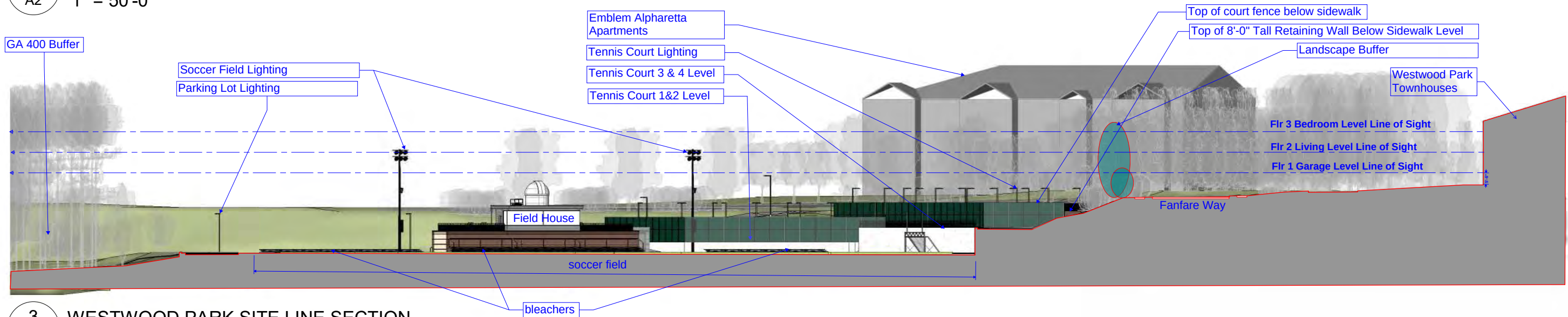
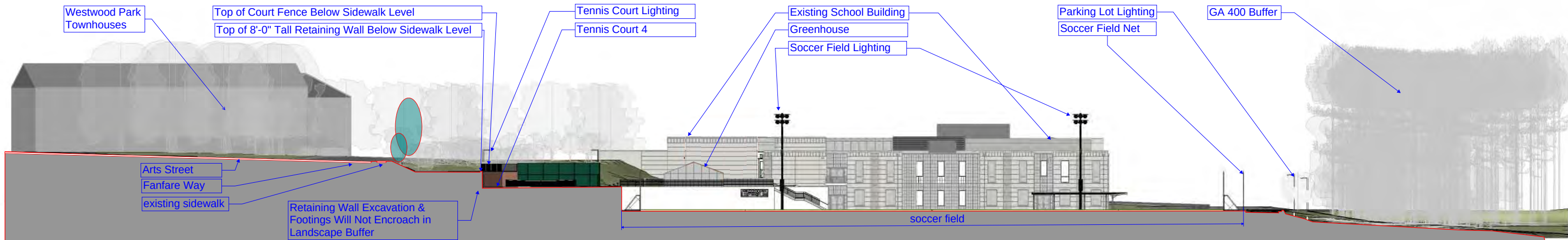
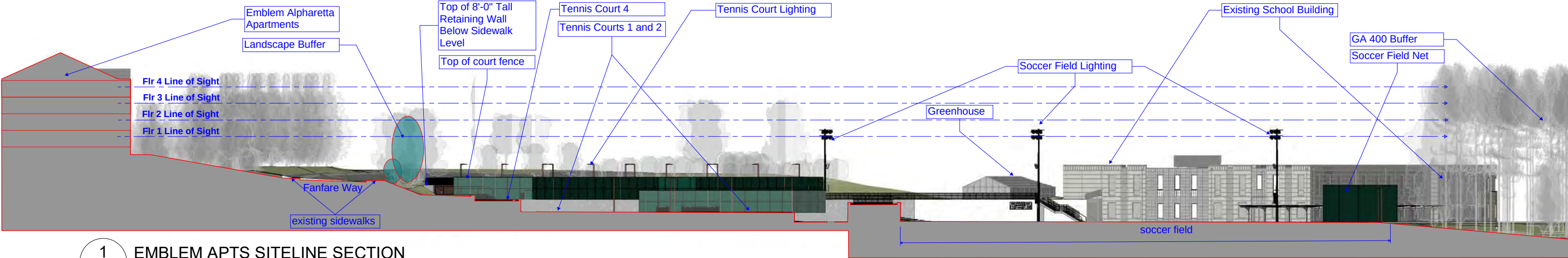
A4 BEFORE AND AFTER PERSPECTIVES

04/03/23



1075 Brady Avenue NW Atlanta, Georgia 30318 404.876.5510





FULTON SCIENCE ACADEMY
Phase III
3035 Fanfare Way Alpharetta, GA 30009

A2 SITE SECTIONS - SIGHT LINES

04/03/23



1075 Brady Avenue NW
Atlanta, Georgia 30318
404.876.5510

RESERVED FOR PLAT FILING

REFERENCES

- EASEMENTS AS CONTAINED IN THAT CERTAIN LIMITED WARRANTY DEED BY AND BETWEEN COUSINS PROPERTIES INCORPORATED AND ROBERTS PROPERTIES RESIDENTIAL, L.P., DATED 29 DECEMBER 2004, FILED AND RECORDED DECEMBER 30, 2004 IN DEED BOOK 39097, PAGE 560, FULTON COUNTY RECORDS.
- ROAD DEDICATION PLATS AT COUSINS WESTSIDE FOR COUSINS PROPERTIES, INCORPORATED, PREPARED BY LOWE ENGINEERS, DATED NOV 3, 2005, LAST REVISED 03/24/06, FILED AND RECORDED DEC 27, 2006 IN PLAT BOOK 313, PAGE 29-43, FULTON COUNTY, GEORGIA RECORDS.
- ALTA/ACM LAND TITLE SURVEY FOR FULTON SCIENCE ACADEMY, INC., FIRST AMERICAN TITLE INSURANCE COMPANY, COMPASS BANK, AN ALABAMA BANKING CORPORATION, MERCHANT CAPITAL, LLC, AND THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., PREPARED BY LOWE ENGINEERS, DATED DECEMBER 20, 2004, LAST REVISED 07/25/11.
- LAND DEVELOPMENT PLANS FOR FULTON SCIENCE ACADEMY - PHASE 2, BUILDING AND PARKING LOT ADDITION, PREPARED BY MAMES, DATED 05/10/19, LAST REVISED 09/17/19.
- AS-BUILT SURVEY OF FULTON SCIENCE ACADEMY - PHASE 2, BUILDING AND PARKING LOT ADDITION, FOR MANHATTAN CONSTRUCTION COMPANY, PREPARED BY LOWE ENGINEERS, DATED 12/02/2021.

LEGEND - ABBREVIATIONS

IPS IRON PIN SET
RFB IRON PIN FOUND (1/2" REBAR)
CMP CONCRETE MONUMENT FOUND
RFB REBAR
CTP OPEN TOP PIPE
CTP CRIMPED TOP PIPE
POB POINT OF BEGINNING
RW RIGHT OF WAY
LL LAND LOT
DBPFG DEED BOOKPAGE
PND FOUND
DIST. DISTURBED
CL CENTERLINE
PL PROPERTY LINE
DI DROP INLET
JB JUNCTION BOX
CB CATCH BASIN
OCS OUTLET CONTROL STRUCTURE
CMP CORRUGATED METAL PIPE
RCP REINFORCED CONCRETE PIPE
PVC POLYVINYL CHLORIDE PIPE
SSMH SANITARY SEWER MANHOLE
CO CLEAN OUT
FH FIRE HYDRANT
FPC FIRE DEPARTMENT CONNECTION
WM WATER METER
GM GAS METER
OV GAS VALVE
GLM GAS LINE MARKER
ELEC. ELECTRIC
ELEC. BOX
ELEC. METER
PP POWER POLE
LP LIGHT POLE
GW GUY WIRE
TELE. TELEPHONE
CONC. CONCRETE
TYP. TYPICAL
W/ WITH
BSL BUILDING SETBACK LINE

LEGEND - LINE TYPE

ADJOINING PROPERTY LINE
PROPERTY LINE
EASEMENT LINE
RIGHT-OF-WAY LINE
METAL FENCE
WOOD FENCE
WIRE FENCE
GUARDRAIL
OVERHEAD ELECTRIC LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND NATURAL GAS LINE
UNDERGROUND SANITARY SEWER LINE
UNDERGROUND STORM SEWER LINE
UNDERGROUND COMMUNICATION LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE TV LINE
FLOOD ZONE LINE

LEGEND - SYMBOLS

DROP INLET
STORM DRAINAGE MANHOLE
SINGLE WING CATCH BASIN
DOUBLE WING CATCH BASIN
SANITARY SEWER MANHOLE
CLEAN OUT
FIRE HYDRANT
FIRE DEPARTMENT CONNECTION
WATER VALVE
GAS METER
GAS VALVE
ELECTRIC BOX
ELECTRIC METER
POWER POLE
LIGHT POLE
GUY WIRE
TELEPHONE
CONCRETE
TYPICAL
WITH
BUILDING SETBACK LINE

50 0 50 100 150
GRAPHIC SCALE - 1" = 50 FEET

AREA = 17.457 ACRES
(760,430 SQ. FT.)
INCLUDES 0.465 ACRE (20,260 SQ. FT.) IN RESERVED R/W

SEE SHEET 2 OF 2 FOR
LEGAL DESCRIPTIONS AND
TITLE EXCEPTIONS

NOTE: SEE SHEET
2 OF 2 FOR POC
POB SITE
(IPS FUTURE)

STATE ROUTE 400
US HWY 19
PUBLIC VARIABLE WIDTH R/W

CLOSURE STATEMENT

THE FIELD DATA UPON WHICH THIS MAP OR PLAT IS BASED HAS AN ANGULAR ERROR OF 0 SECONDS PER ANGLE POINT AND A PRECISION RATIO OF 1 IN 321,215 FEET. IT HAS BEEN ADJUSTED USING THE COMPASS RULE.

THE DATA SHOWN ON THIS PLAT HAS A CLOSURE PRECISION OF ONE FOOT IN 596,838 FEET.

GENERAL NOTES

THE LINEAR AND ANGULAR MEASUREMENTS SHOWN ON THIS MAP OR PLAT WERE OBTAINED BY USING IN THE FIELD SURVEY A LEICA TS16 ROBOTIC TOTAL STATION, LEICA CS20 FIELD CONTROLLER, AND LEICA GS38 GNSS RTK ROVER.

BEARINGS ARE CALCULATED FROM ANGLES TURNED FROM A SINGLE GRID BASELINE.

THE DATUM FOR THIS SITE WAS ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEMS AND BASED ON POSITIONAL VALUES FOR THE VERTICAL REFERENCE STATION NETWORK DEVELOPED BY LEICA SMARTNET. THE HORIZONTAL REFERENCE FRAME IS NORTH AMERICAN DATUM OF 1983 (NAD83). THE VERTICAL REFERENCE FRAME IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAV88).

INITIAL FIELD WORK COMPLETED IN 2004, 2005, 2010, 2011 AND 2021. SITE INSPECTION PERFORMED ON 4 JANUARY 2023.

BY GRAPHIC PLOTTING ONLY, NO PORTIONS OF THIS SITE ARE LOCATED WITHIN SPECIAL FLOOD HAZARD AREA "A", AS PER THE FLOOD INSURANCE RATE MAP (FIRM) OF FULTON COUNTY, GEORGIA, MAP NUMBER 131221006G, WITH AN EFFECTIVE DATE OF 9/18/2013. THE SITE IS PRIMARILY IN ZONE X (AREA OF MINIMAL FLOOD HAZARD) WITH A PORTION LOCATED IN ZONE X* (0.2% ANNUAL CHANCE FLOOD HAZARD, AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTH OF LESS THAN ONE FOOT OR WITH DRAINAGE AREAS OF LESS THAN ONE SQUARE MILE).

ALL IRON PINS SET ARE 1/2" REBAR WITH STAMPED CAP UNLESS OTHERWISE INDICATED.

THIS PLAT IS SUBJECT TO ALL LEGAL EASEMENTS AND RIGHTS OF WAY, PUBLIC OR PRIVATE.

ABOVE GROUND UTILITY LOCATIONS AS SHOWN HEREON WERE OBTAINED FROM FIELD OBSERVATIONS. UNDERGROUND UTILITIES AS SHOWN HEREON ARE FROM REFERENCE NUMBER 5. THE INFORMATION SHOWN ON THIS DRAWING CONCERNING UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE OWNER, ARCHITECT, CONTRACTOR, AND THEIR AGENTS ARE RESPONSIBLE FOR MAKING THEIR OWN DETERMINATIONS AS TO THE ACTUAL SIZE, TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERE TO.

THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES ON THE PROJECT. THE CONTRACTOR SHALL HIRE AN INDEPENDENT UTILITY LOCATING COMPANY TO LOCATE ALL UTILITIES PRIOR TO THE START OF WORK.

THE SURVEY AND PLAT SHOWN HEREON IS NOT INTENDED FOR USE OR RELIANCE BY ANY PARTIES OR ENTITIES NOT SPECIFICALLY LISTED IN THE TITLE. UNAUTHORIZED THIRD PARTIES SHALL INDEMNIFY AND HOLD LOWE ENGINEERS, LLC HARMLESS AGAINST ANY AND ALL LIABILITY FOR ANY LOSS ARISING OUT OF, OR RELATED TO, RELIANCE BY ANY THIRD PARTY ON ANY WORK PERFORMED THEREUNDER, OR THE CONTENTS OF THE SURVEY.

THERE WAS NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION, OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK - TABLE A, ITEM 16.

THE SURVEYOR IS NOT AWARE OF ANY PROPOSED CHANGES IN STREET RIGHT OF WAY LINES. THERE WAS NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK - TABLE A, ITEM 17.

ZONING: CLP (COMMUNITY UNIT PLAN)

USE: PRIVATE SCHOOL

SETBACKS: 40' FRONT

15' WEST (SIDE)

40' EAST (SIDE)

120' REAR (GA 400 BUFFER)

PARKING SPACE COUNT - TOTAL 153 SPACES

4 HANDICAPPED

1 HANDICAPPED VAN

148 REGULAR

SITE INCLUDES THE FOLLOWING TAX PARCEL:

12 2600689437

3035 FAIRFAX WAY

ALPHARETTA, GA 30009

SURVEYOR'S CERTIFICATE (STATE OF GEORGIA)

This plat is a retracement of an existing parcel or parcels of land and does not subdivide or create a new parcel or make any changes to any real property boundaries. The recording information of the documents, maps, plats, or other instruments which created the parcel or parcels are stated herein. RECORDED OF THIS PLAT DOES NOT IMPLY APPROVAL OF ANY LOCAL JURISDICTION, AVAILABILITY OF PERMITS, COMPLIANCE WITH LOCAL REGULATIONS OR REQUIREMENTS, OR SUITABILITY FOR ANY USE OR PURPOSE OF THE LAND. Furthermore, the undersigned land surveyor certifies that this plat complies with the minimum technical standards for property surveys in Georgia as set forth in the rules and regulations of the Georgia Board of Registration for Professional Engineers and Land Surveyors and as set forth in O.C.G.A. Section 15-6-67.

Date of Plat or Map: 5 January 2023



ALTA/NSPS LAND TITLE SURVEY PREPARED FOR:
AMERS BANK, CHICAGO TITLE INSURANCE COMPANY, BLUE
SKY TITLE LLC, BRISKEN, CROSS & SANFORD, LLC, AND
FULTON SCIENCE ACADEMY PRIVATE SCHOOL, INC.
LOCATED IN LAND LOTS 686, 689 & 700
SECTION 14, CITY OF ALPHARETTA
FULTON COUNTY, GEORGIA

FULTON SCIENCE ACADEMY
PRIVATE SCHOOL, INC.

DATE: 01.05.2023

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DRAWN BY: DE/CAM
CHECKED BY: CGL

890 HANOVER DRIVE, SUITE 900
ATLANTA, GEORGIA 30328
TEL: 770-857-8400
WWW.LOWENGINEERS.COM
Land Surveyor Firm License No. 15000656

LOWE
ENGINEERS

SHEET
1 OF 2

NOT ISSUED FOR CONSTRUCTION

Legal Description As Surveyed

All that tract or parcel of land lying and being in Land Lots 688, 689 and 700 of the 1st District, 2nd Section, City of Alpharetta, Fulton County, Georgia, and being more particularly described as follows:

BEGINNING at an iron pin set located at the intersection of the Land Lot Line common to Land Lots 743 and 744 with the northwesterly right-of-way line of State Route 400, U.S. Highway 19 (having a variable width public right-of-way); thence run southwesterly along said northwesterly right-of-way line of State Route 400, U.S. Highway 19 the following courses and distances: S63°43'36"W a distance of 154.60 feet to a point; S70°43'17"W a distance of 499.99 feet to a concrete monument found; S70°39'47"W a distance of 199.60 feet to a concrete monument found; S63°43'47"W a distance of 201.60 feet to a concrete monument found; S70°44'42"W a distance of 343.70 feet to a concrete monument found; along the arc of a curve to the left an arc distance of 280.19 feet to a point, having a radius of 5879.58 feet, being subtended by a chord bearing of S69°25'04"W and a chord distance of 280.16 feet; along the arc of a curve to the left an arc distance of 371.37 feet to an iron pin found, having a radius of 5879.58 feet, being subtended by a chord bearing of S66°14'35"W and a chord distance of 371.31 feet; N38°26'44"W a distance of 35.04 feet to an iron pin set, said iron pin set being the TRUE POINT OF BEGINNING.

FROM THE TRUE POINT OF BEGINNING AS THUS ESTABLISHED, thence continue to run southwesterly along said northwesterly right-of-way line of State Route 400, U.S. Highway 19 the following courses and distances: S62°27'10"W a distance of 185.56 feet to an iron pin set; along the arc of a curve to the left an arc distance of 1413.61 feet to an iron pin set, having a radius of 5880.00 feet, being subtended by a chord bearing of S55°41'44"W and a chord distance of 1410.21 feet; S55°41'00"W a distance of 40.68 feet to an iron pin set; thence leave said northwesterly right-of-way line of State Route 400, U.S. Highway 19 and run N41°32'22"W a distance of 165.85 feet to an iron pin set located on the southeasterly right-of-way line of Fanfare Way (having a 62' width public right-of-way); thence run generally northeasterly along said southeasterly right-of-way line of Fanfare Way the following courses and distances: N44°56'59"E a distance of 68.90 feet to a point; along the arc of a curve to the left an arc distance of 288.06 feet to a point, having a radius of 381.00 feet, being subtended by a chord bearing of N23°17'25"E and a chord distance of 281.25 feet; N01°37'51"E a distance of 178.03 feet to a point; along the arc of a curve to the right an arc distance of 477.88 feet to a point, having a radius of 349.00 feet, being subtended by a chord bearing of N40°51'29"E and a chord distance of 441.41 feet; N80°05'07"E a distance of 121.57 feet to a point; along the arc of a curve to the left an arc distance of 236.72 feet to a point, having a radius of 331.00 feet, being subtended by a chord bearing of N59°35'49"E and a chord distance of 231.71 feet; N39°06'31"E a distance of 326.09 feet to an iron pin set located at the western point of the mitered intersection of said southeasterly right-of-way line of Fanfare Way with the southwesterly right-of-way line of Maxwell Road (having a 62' width public right-of-way); thence run southeasterly along said miter S89°40'03"E a distance of 34.26 feet to an iron pin set located on the southwesterly right-of-way line of Maxwell Road at the eastern point of the mitered intersection; thence leave said miter and run N51°34'38"E a distance of 62.00 feet to an iron pin set located on the northeasterly right-of-way line of Maxwell Road; thence leave said northeasterly right-of-way line and run N51°34'38"E a distance of 30.37 feet to an iron pin set; thence run S38°26'44"E a distance of 623.02 feet to an iron pin set located on the northwesterly right-of-way line of State Route 400, U.S. Highway 19, said iron pin set being the TRUE POINT OF BEGINNING.

Said tract or parcel of land containing 17.457 acres (760,430 square feet).

Legal Description Record

ALL THAT TRACT OR PARCEL OF LAND KNOWN AS POD "O" OF THE COUSINS WESTSIDE SUBDIVISION LYING AND BEING IN LAND LOTS 688, 689 & 700, 1ST LAND DISTRICT, 2ND SECTION, CITY OF ALPHARETTA, FULTON COUNTY, GEORGIA AND AS SHOWN ON THAT CERTAIN SUBDIVISION PLAT PREPARED BY LOWE ENGINEERS, DATED 12/20/2004, LAST REVISED 04/15/2011, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT LOCATED AT THE INTERSECTION OF THE NORTHERLY RIGHT OF WAY LINE OF STATE ROUTE 400 - U.S. HWY 19 (TURNER MACDONALD PKWY) HAVING A VARIABLE RIGHT OF WAY AND THE LINE COMMON TO LAND LOTS 743 & 744, 1ST LAND DISTRICT, 2ND SECTION, CITY OF ALPHARETTA, FULTON COUNTY, GEORGIA; THENCE ALONG THE AFORESAID RIGHT OF WAY A DISTANCE OF 2051.05 FEET TO A 1/2" REBAR FOUND, SAID POINT BEING THE TRUE POINT OF BEGINNING; THENCE CONTINUING ALONG THE AFORESAID RIGHT OF WAY WITH A CURVE TURNING TO THE LEFT, HAVING AN ARC LENGTH OF 237.46', A RADIUS OF 5879.58', A CHORD BEARING OF S 63°27'27" W, AND A CHORD LENGTH OF 237.44' TO A CONCRETE MONUMENT FOUND; THENCE CONTINUING ALONG THE AFORESAID RIGHT OF WAY WITH A COMPOUND CURVE TURNING TO THE LEFT, HAVING AN ARC LENGTH OF 1025.77', A RADIUS OF 5879.58', A CHORD BEARING OF S 57°06'45" W, AND A CHORD LENGTH OF 1024.47' TO A 1/2" REBAR FOUND; THENCE CONTINUING ALONG THE AFORESAID RIGHT OF WAY S 55°40'57" W A DISTANCE OF 378.66' TO A 1/2" REBAR SET; THENCE LEAVING THE AFORESAID RIGHT OF WAY N 41°32'16" W A DISTANCE OF 165.85' TO A 1/2" REBAR SET ALONG THE SOUTHERLY RIGHT OF WAY LINE OF FANFARE WAY HAVING A 62' RIGHT OF WAY;

THENCE CONTINUING ALONG THE AFORESAID RIGHT OF WAY N 44°55'59" E A DISTANCE OF 68.90' TO A POINT; THENCE CONTINUING ALONG THE AFORESAID RIGHT OF WAY WITH A CURVE TURNING TO THE LEFT, HAVING AN ARC LENGTH OF 288.06', A RADIUS OF 381.00', A CHORD BEARING OF N 23°17'34" E, AND A CHORD LENGTH OF 281.25' TO A POINT; THENCE CONTINUING ALONG THE AFORESAID RIGHT OF WAY N 01°38'00" E A DISTANCE OF 178.03' TO A POINT; THENCE CONTINUING ALONG THE AFORESAID RIGHT OF WAY WITH A CURVE TURNING TO THE RIGHT, HAVING AN ARC LENGTH OF 236.16', A RADIUS OF 349.00', A CHORD BEARING OF N 21°01'06" E, AND A CHORD LENGTH OF 231.68' TO A POINT; THENCE CONTINUING ALONG THE AFORESAID RIGHT OF WAY WITH A COMPOUND CURVE TURNING TO THE RIGHT, HAVING AN ARC LENGTH OF 241.73', A RADIUS OF 349.00', A CHORD BEARING OF N 60°14'44" E, AND A CHORD LENGTH OF 236.93' TO A POINT; THENCE CONTINUING ALONG THE AFORESAID RIGHT OF WAY N 80°05'16" E A DISTANCE OF 121.57' TO A POINT; THENCE CONTINUING ALONG THE AFORESAID RIGHT OF WAY WITH A CURVE TURNING TO THE LEFT, HAVING AN ARC LENGTH OF 236.72', A RADIUS OF 331.00', A CHORD BEARING OF N 59°35'58" E, AND A CHORD LENGTH OF 231.71' TO A POINT; THENCE N 39°06'40" E A DISTANCE OF 326.09' TO A ½" REBAR SET AT THE SOUTHWESTERN POINT OF MITERED INTERSECTION OF FANFARE WAY (62' R/W) AND MAXWELL ROAD (62' R/W); THENCE CONTINUING ALONG THE MITERED INTERSECTION S 89°39'54" E A DISTANCE OF 34.26' TO A ½" REBAR SET; THENCE CONTINUING ALONG THE MITERED INTERSECTION N 51°34'47" E A DISTANCE OF 62.00' TO A ½" REBAR SET; THENCE LEAVING THE RIGHT OF WAY OF MAXWELL ROAD N 52°06'46" E A DISTANCE OF 30.26' TO A ½" REBAR FOUND; THENCE S 38°29'03" E A DISTANCE OF 658.30' TO A ½" REBAR FOUND, SAID POINT BEING THE TRUE POINT OF BEGINNING.

LESS AND EXCEPT THE RIGHT OF WAY TAKING SET FORTH IN DEED BOOK 65923 PAGE 33, AFORESAID RECORDS.

Legal Description Reserved ROW

All that tract or parcel of land lying and being in Land Lot 689 of the 1st District, 2nd Section, City of Alpharetta, Fulton County, Georgia, and being more particularly described as follows:

BEGINNING at an iron pin set located at the intersection of the Land Lot Line common to Land Lots 743 and 744 with the northwesterly right-of-way line of State Route 400, U.S. Highway 19 (having a variable width public right-of-way); thence run southwesterly along said northwesterly right-of-way line of State Route 400, U.S. Highway 19 the following courses and distances: S63°43'36"W a distance of 154.60 feet to a point; S70°43'17"W a distance of 499.99 feet to a concrete monument found; S70°39'47"W a distance of 199.60 feet to a concrete monument found; S63°43'47"W a distance of 201.60 feet to a concrete monument found; S70°44'42"W a distance of 343.70 feet to a concrete monument found; along the arc of a curve to the left an arc distance of 280.19 feet to a point, having a radius of 5879.58 feet, being subtended by a chord bearing of S69°25'04"W and a chord distance of 280.16 feet; along the arc of a curve to the left an arc distance of 371.37 feet to an iron pin found, having a radius of 5879.58 feet, being subtended by a chord bearing of S66°14'35"W and a chord distance of 371.31 feet; N38°26'44"W a distance of 35.04 feet to an iron pin set; thence leave said northwesterly right-of-way line of State Route 400, U.S. Highway 19 and run N38°26'44"W a distance of 623.02 feet to an iron pin set; thence run S51°34'38"W a distance of 30.37 feet to an iron pin set located on the northeasterly right-of-way line of Maxwell Road (having a 62' width public right-of-way); thence run S51°34'38"W a distance of 62.00 feet to an iron pin set located on the southwesterly right-of-way line of Maxwell Road at the eastern point of the mitered intersection with Fanfare Way (having a 62' width public right-of-way), said iron pin set being the TRUE POINT OF BEGINNING.

FROM THE TRUE POINT OF BEGINNING AS THUS ESTABLISHED, thence leave said southwesterly right-of-way line of Maxwell Road and run S38°26'44"E a distance of 17.66 feet to a point; thence run S89°49'34"W a distance of 25.78 feet to a point; thence run S39°06'31"W a distance of 327.38 feet to a point; thence run along the arc of a curve to the right an arc distance of 277.84 feet to a point, having a radius of 355.01 feet, being subtended by a chord bearing of S61°31'47"W and a chord distance of 270.80 feet; thence run S83°57'06"W a distance of 88.28 feet to a point; thence run along the arc of a curve to the left an arc distance of 477.28 feet to a point located on the southeasterly right-of-way line of Fanfare Way, having a radius of 337.00 feet, being subtended by a chord bearing of S43°23'38"W and a chord distance of 438.38 feet; thence run generally northeasterly along said southeasterly right-of-way line of Fanfare Way the following courses and distances: along the arc of a curve to the right an arc distance of 477.88 feet to a point, having a radius of 349.00 feet, being subtended by a chord bearing of N40°51'29"E and a chord distance of 441.41 feet; N80°05'07"E a distance of 121.57 feet to a point; along the arc of a curve to the left an arc distance of 236.72 feet to a point, having a radius of 331.00 feet, being subtended by a chord bearing of N59°35'49"E and a chord distance of 231.71 feet; N39°06'31"E a distance of 326.09 feet to an iron pin set located at the western point of the mitered intersection of said southeasterly right-of-way line of Fanfare Way with the southwesterly right-of-way line of Maxwell Road; thence run southeasterly along said miter S89°40'03"E a distance of 34.26 feet to an iron pin set located on the southwesterly right-of-way line of Maxwell Road at the eastern point of the mitered intersection with Fanfare Way, said iron pin set being the TRUE POINT OF BEGINNING.

Said tract or parcel of land containing 0.465 acre (20,260 square feet).

**TRAFFIC IMPACT STUDY
FOR
FULTON SCIENCE ACADEMY

ALPHARETTA, GEORGIA**



Prepared for:

Fulton Science Academy,
Fanfare Way,
Alpharetta, GA 30009

Prepared by:



A&R Engineering Inc.

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

September 10, 2011

A & R Project # 11-063

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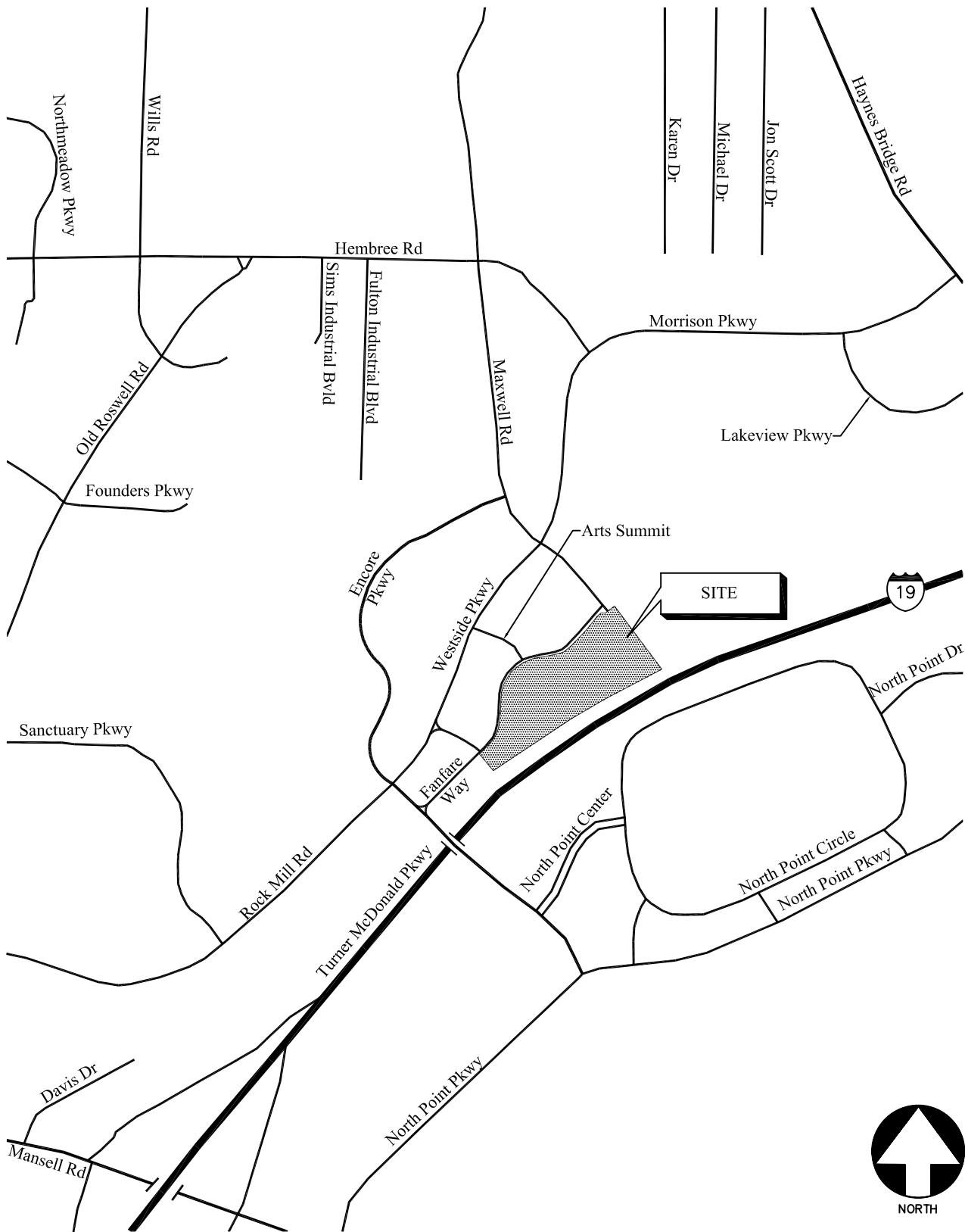
INTRODUCTION

The purpose of this study is to determine the traffic impact that will result from the proposed Fulton Science Academy. The Fulton Science Academy is currently divided into two separate locations, the middle school (1675 Hembree Road, Alpharetta) and the high school (4100 Old Milton Parkway, Alpharetta). The plans for the new Academy site will combine the middle school and high school into one location at the southwest corner of the intersection of Maxwell Road / Fanfare Way in Alpharetta, Georgia. The enrollment for the current middle school location is 508 students, and the current enrollment at the high school is 300 students. These enrollment numbers are not anticipated to change when the schools are combined at the proposed site. The location of the development and the surrounding roadway network is shown in Figure 1.

The proposed development will have one full access driveway, which will be the westbound approach to the intersection of Fanfare Way / Maxwell Road after completion of the site. The AM and PM peak hours have been analyzed in this study. The proposed project will be completed in 2012. As confirmed by City of Alpharetta, this study includes the evaluation of existing, base 2012 and future 2012 traffic operations at the intersections of Westside Parkway / Encore Parkway, Westside Parkway / Maxwell Road and Fanfare Way / Maxwell Road. Recommendations to improve traffic operations have been identified as appropriate and are discussed in detail in the report.

STUDY ASSUMPTIONS

The study includes various assumptions that have been reviewed and confirmed by City of Alpharetta city staff to project the future traffic conditions at the study intersections. Trip generation for High school was estimates based on the rates and equations published in the 8th edition of the Institute of Transportation Engineers (ITE) Trip Generation report. Trip generation rates of Middle school were estimates based on collected counts from intersections of Hembree Road / Fulton Science Academy Parkway & Sims Industrial Boulevard / Fulton Science Academy Parkway. The new site generated trip distributions for 2012 conditions were based on the locations of major roadways and highways that will serve the development. The growth factor is calculated to be annual 1% and used to estimate future background traffic growth based on Georgia DOT historical traffic data collected in the vicinity of the site. All these assumptions used in the study have been confirmed by City of Alpharetta City staff.



LOCATION MAP

FIGURE 1

A&R Engineering Inc.

EXISTING FACILITIES / CONDITIONS

Roadway Facilities

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

Westside Parkway

Westside Parkway is a north-south, four-lane, divided roadway with a posted speed limit of 40 mph in the vicinity of the site. It runs between Old Milton Road (to the north) and Mansell Road (to the south).

Encore Parkway

Encore Parkway is an east-west in the vicinity of the site. It is a four-lane roadway west of Westside Parkway with a posted speed limit of 25 mph and two-lane roadway east of Westside Parkway with a posted speed limit of 35 mph. Encore Parkway runs between Maxwell Road (to the north) and North Point Parkway (to the south).

Fanfare Way

Fanfare Way is a north-south, three-lane, undivided roadway in the vicinity of the site with a two-way left turn lane at either end. It runs between Maxwell Road (to the north) and Encore Parkway (to the south). Fanfare Parkway runs parallel to Westside Parkway and fronts a large portion of the proposed site.

STUDY METHODOLOGY

In this study, the methodology used for evaluating traffic operations at each of the subject intersections is based on the criteria set forth in the Transportation Research Board's Highway Capacity Manual, 2000 edition (HCM 2000). Synchro software, which utilizes the HCM 2000 methodology, was used for the analysis. The following is a description of the methodology employed for the analysis of unsignalized and signalized intersections.

Unsignalized Intersections

For unsignalized intersections at which the side street or minor street is controlled by a stop sign, the criteria for evaluating traffic operations are the level of service (LOS) for the turning movements at the intersection and the level of service for the overall intersection. Level of service is based on the average controlled delay incurred at the intersection. Controlled delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the controlled delay for unsignalized intersections, such as the availability and distribution of gaps in the conflicting traffic stream, critical gaps, and follow-up time for a vehicle in the queue.

Level of service is assigned a letter designation from A through F. Level of service A indicates excellent operations with little delay to motorists, while level of service F exists when there are insufficient gaps of acceptable size to allow vehicles on the side street to cross safely, resulting in extremely long total delays and long queues. The level of service criteria for two-way stop-controlled and all-way stop-controlled (unsignalized) intersections is given in Table 1.

TABLE 1 LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS	
<u>Level of Service</u>	<u>Average Controlled Delay (sec/veh)</u>
A	≤ 10
B	$> 10 \text{ and } \leq 15$
C	$> 15 \text{ and } \leq 25$
D	$> 25 \text{ and } \leq 35$
E	$> 35 \text{ and } \leq 50$
F	> 50

Source: 2000 Highway Capacity Manual

Signalized Intersections

For signalized intersections, it is necessary to evaluate both capacity and level of service in order to evaluate the overall operation of the intersection. The capacity analysis of an intersection is performed by comparing the volume of traffic using the various lane groups at the intersection to the capacity of those lane groups. This results in a volume/capacity (v/c) ratio for each lane group. A v/c ratio greater than 1.0 indicates that the volume of traffic has exceeded the capacity available, resulting in a temporary excess of demand. Although the capacity of the entire intersection is not defined, a composite v/c ratio for the sum of the critical lane groups within the intersection is computed. This composite v/c ratio is an indication of the overall intersection sufficiency.

Level of service for a signalized intersection is defined in terms of average controlled delay per vehicle, which is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The levels of service criteria for signalized intersections, based on average controlled delay, are shown in Table 2. Level of service A indicates operations with very low controlled delay, while level of service F describes operations with extremely high average controlled delay. Level of service E is typically considered to be the limit of acceptable delay, and level of service F is considered unacceptable by most drivers.

TABLE 2 LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS	
<u>Level of Service</u>	<u>Controlled Delay Per Vehicle (sec)</u>
A	≤ 10.0
B	$> 10.0 \text{ and } \leq 20.0$
C	$> 20.0 \text{ and } \leq 35.0$
D	$> 35.0 \text{ and } \leq 55.0$
E	$> 55.0 \text{ and } \leq 80.0$
F	> 80.0

Source: 2000 Highway Capacity Manual

EXISTING TRAFFIC OPERATIONS

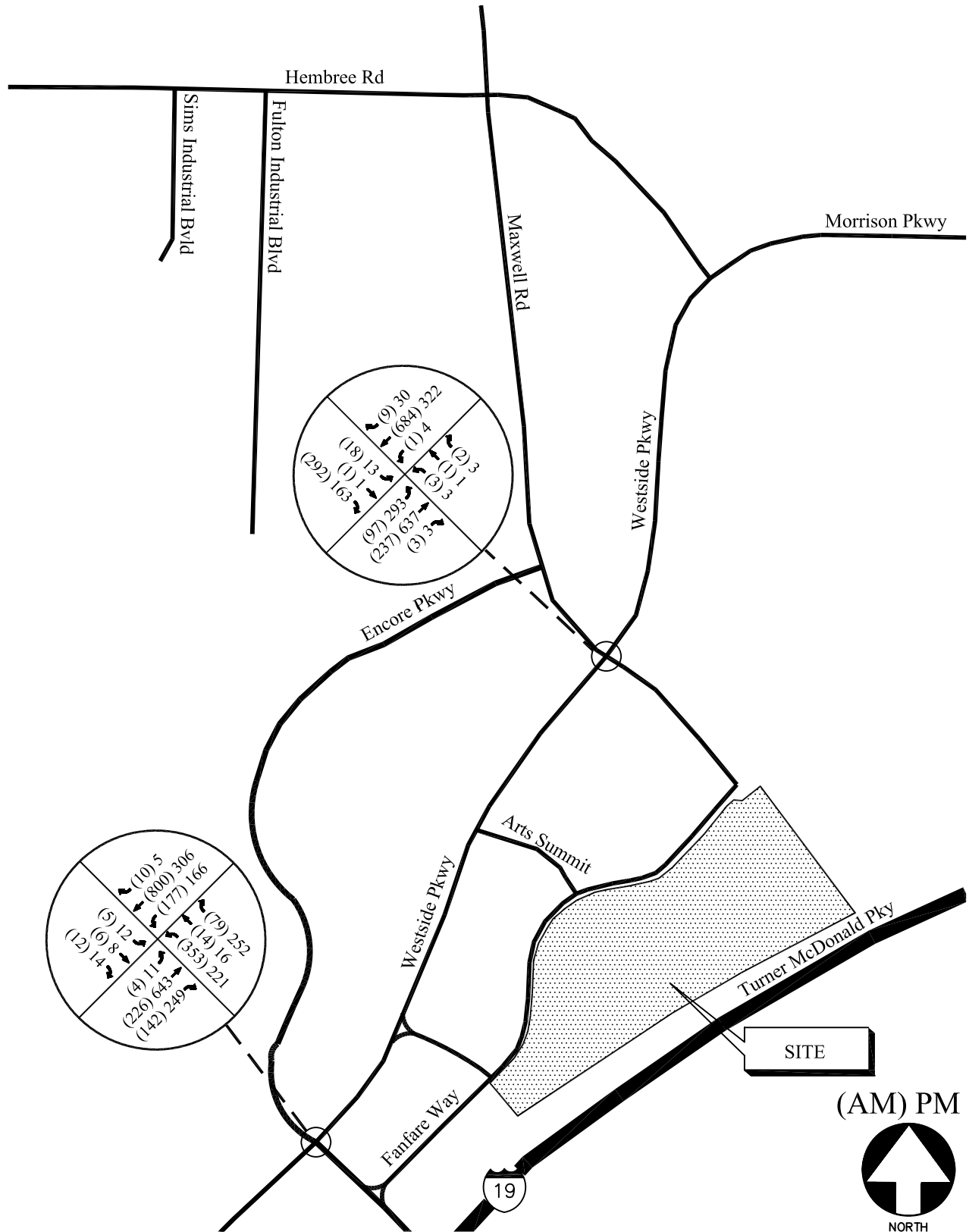
Existing traffic counts and intersection geometric data were obtained at the intersections of Westside Parkway / Encore Parkway and Westside Parkway / Maxwell Road. Turning movement counts were performed on Thursday, August 25, 2011. All turning movement counts were recorded during the AM and PM peak hours between 6:30 am to 9:30 am and 3:00 pm to 6:00 pm, respectively. These times were selected to account for the school hours at the study intersection. The four consecutive 15-minute interval volumes that summed to produce the highest volume at the intersection were then determined. These volumes make up the peak hour traffic volumes for the intersections counted and are shown in Figure 2 for morning and evening peak hours.

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

TABLE 3					
EXISTING INTERSECTION OPERATIONS — WITH EXISTING SIGNAL TIMING					
Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		LOS (Delay)	v/c ratio*	LOS (Delay)	v/c ratio*
Westside Pkwy / Encore pkwy	Signalized	C (25.1)	0.46	C (22.0)	0.39
Westside Pkwy / Maxwell Rd	Signalized	B (17.0)	0.28	B (12.0)	0.36

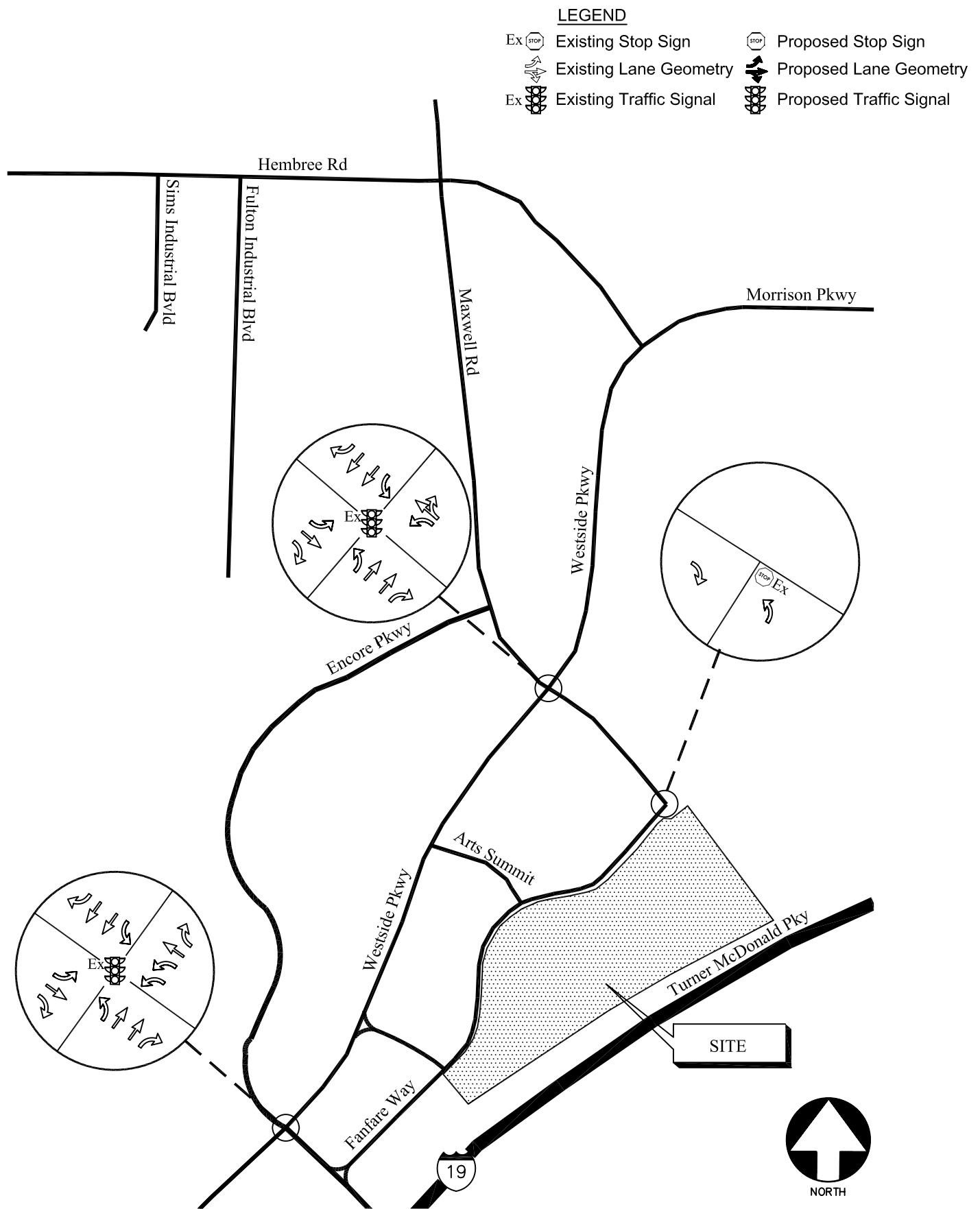
* v/c ratio is not calculated for unsignalized intersections

The existing condition analysis indicates that all study intersections currently operate at level-of-service (LOS) C or better during both the AM peak and PM peak hours.



EXISTING WEEKDAY PEAK-HOUR VOLUMES

FIGURE 2
A&R Engineering Inc.



EXISTING TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 3
A&R Engineering Inc.

BASE TRAFFIC OPERATIONS

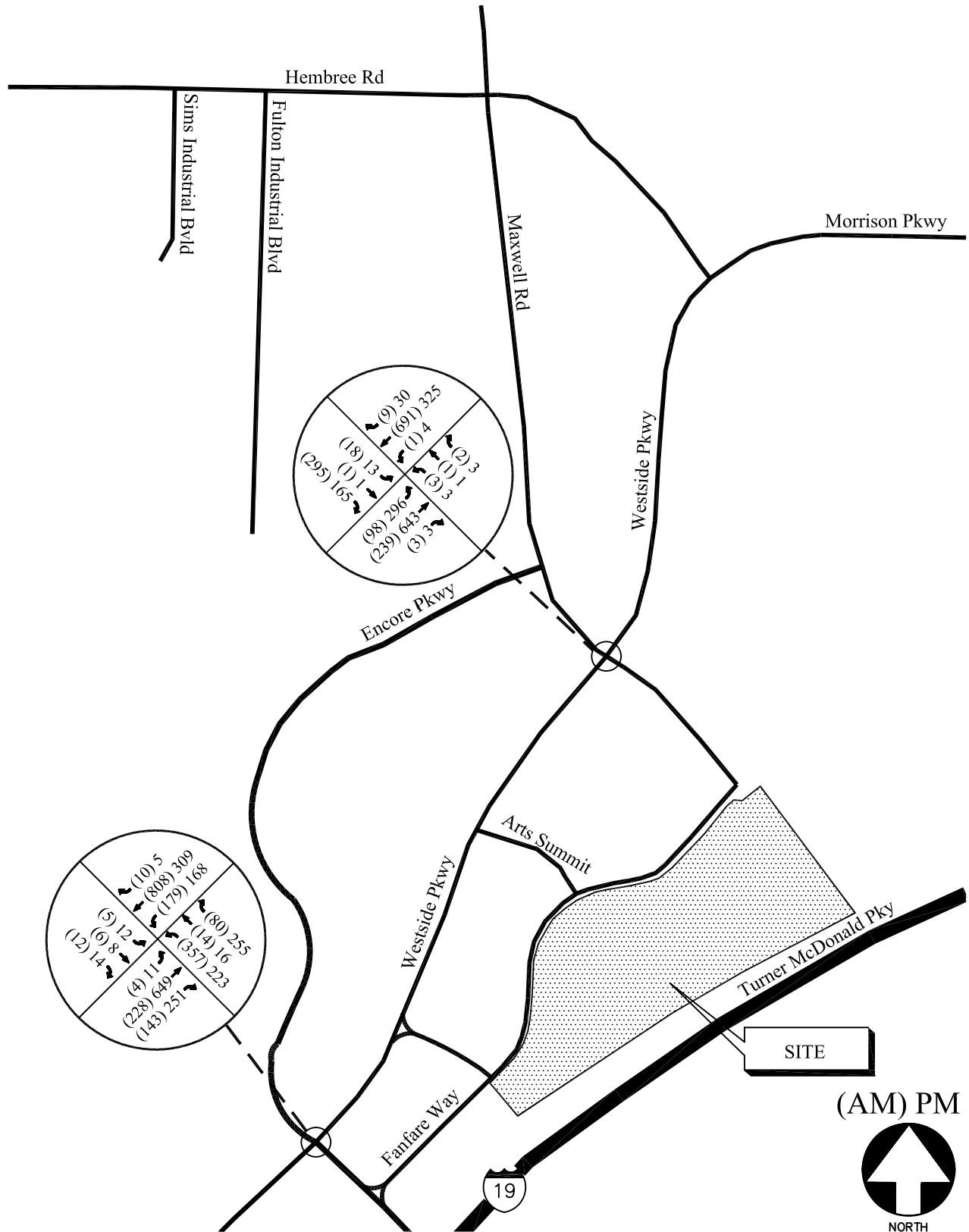
In order to evaluate future traffic operations in this area prior to the addition of the new traffic from the projected site, a projection was made of future base year traffic volumes. The base traffic volumes are made up of the existing traffic volumes and expected growth in the area. The Georgia Department of Transportation recorded average daily traffic volumes at several locations in the vicinity of the site. A linear regression of these volumes over the last several years revealed growth of approximately 1% in the area. This growth factor was applied to the existing traffic volumes on the roadways in order to estimate the future year 2012 traffic volumes prior to the addition of site-generated traffic. It should be noted that this growth rate has been confirmed by City of Alpharetta city staff.

The resulting base traffic volumes are shown in Figure 4. These volumes were used to analyze the future base traffic operations at the study intersections. The results of the analysis are shown in Table 4.

TABLE 4					
BASE INTERSECTION OPERATIONS - WITH EXISTING LANE GEOMETRY					
Intersection	Traffic Control	A.M. Peak Hour		P.M. Peak Hour	
		LOS (Delay)	v/c ratio*	LOS (Delay)	v/c ratio*
Westside Pkwy / Encore Pkwy	Signalized	C (25.2)	0.46	C (22.0)	0.39
Westside Pkwy / Maxwell Rd	Signalized	B (17.0)	0.29	B (12.1)	0.37

* v/c ratio is not calculated for unsignalized intersections

The results of the base traffic operation analysis indicate that all study intersections will continue to operate at LOS C or better during both the AM peak and PM peak hours.



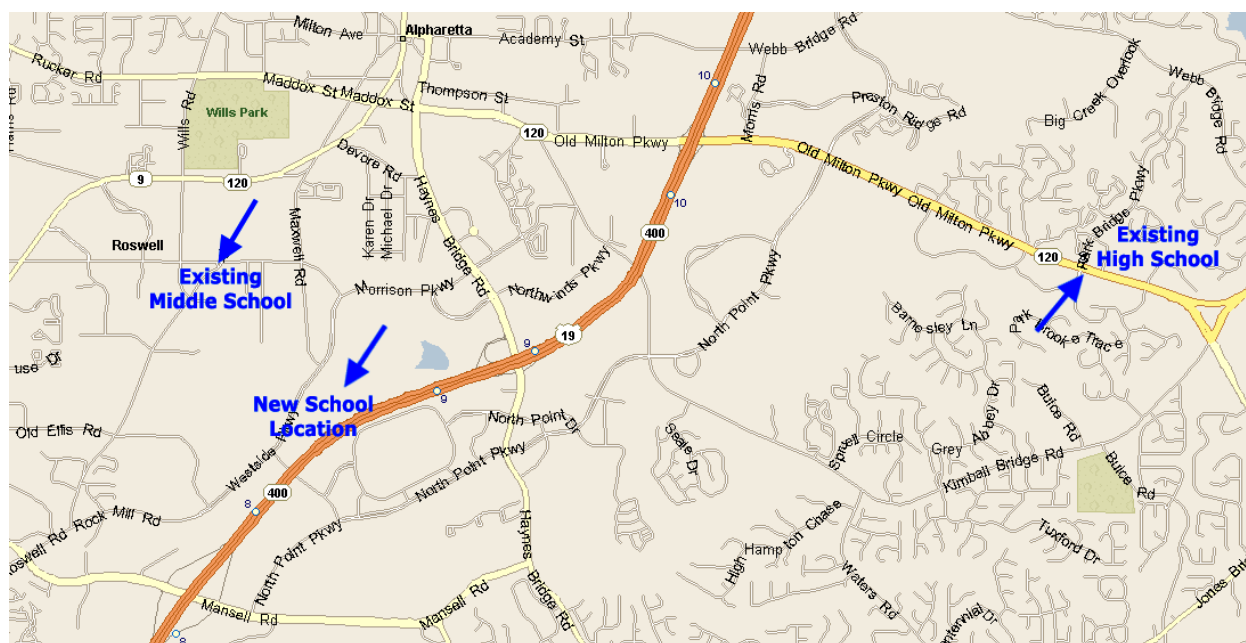
BASE 2012 WEEKDAY PEAK-HOUR VOLUMES

FIGURE 4

A&R Engineering Inc.

PROPOSED DEVELOPMENT

The Fulton Science Academy is currently divided into two separate locations, the middle school (1675 Hembree Road, Alpharetta) and the High school (4100 Old Milton Parkway, Alpharetta). The plans for the new Academy site will combine the middle school and high school into one location at the southwest corner of the intersection of Maxwell Road / Fanfare Way in Alpharetta, Georgia. The current middle school building is located in a standalone structure, but the high school shares its building with Reinhardt University - North Fulton Center. The proposed development will have one full access driveway, which will be the westbound approach to the intersection of Fanfare Way / Maxwell Road after completion of the site.



Trip Generation

The enrollment for the current middle school location is 508 students, and the current enrollment at the high school is 300 students. These enrollment numbers are not anticipated to change when the schools are combined at the proposed site. With the middle being a stand-alone location, trip generation rates of Middle school were based on collected counts collected from the current campus, specifically the intersections of Hembree Road / Fulton Science Academy Parkway and Sims Industrial Boulevard / Fulton Science Academy Parkway. Turning movement counts were performed on Thursday, August 25, 2011. All turning movement counts were recorded during the AM and PM peak hours between 6:30 am to 9:30 am and 3:00 pm to 6:00 pm, respectively.

Trip generation estimates for the high school project were based on the rates and equations

published in the 8th edition of the Institute of Transportation Engineers (ITE) Trip Generation report. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation was based on the following ITE Land Use: 530 – *High School*. The calculated trip generation for the High School and Middle School are shown in Table 5.

TABLE 5 TRIP GENERATION – ACADEMY								
Land Use	Size Students	A.M. Peak Hour			P.M Peak Hour			24-Hour
		Enter	Exit	Total	Enter	Exit	Total	2-way
530 – High School	300	171	73	244	32	48	80	949
Middle School	508	282	242	524	130	195	325	N/A
New Trips	808	453	315	768	162	243	405	949

Trip Distribution

The trip distribution describes how traffic arrives and departs from the site. An overall trip distribution was developed for the site based on zip code information on the enrolled student population, a review of the existing travel patterns in the area, and the locations of major roadways and highways that will serve the development. A site plan is shown in Figure 5, and further details on the zip code data is shown graphically in the Appendix.

The trip distribution has been approved by City of Alpharetta city staff and is shown in Figure 6. The site-generated new traffic volumes, shown in Table 5, were assigned to the study area intersections based on these distributions. The AM and PM peak hour new traffic generated by the site is shown in Figure 7.



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22. OPEN DOCUMENTS

[illegible]

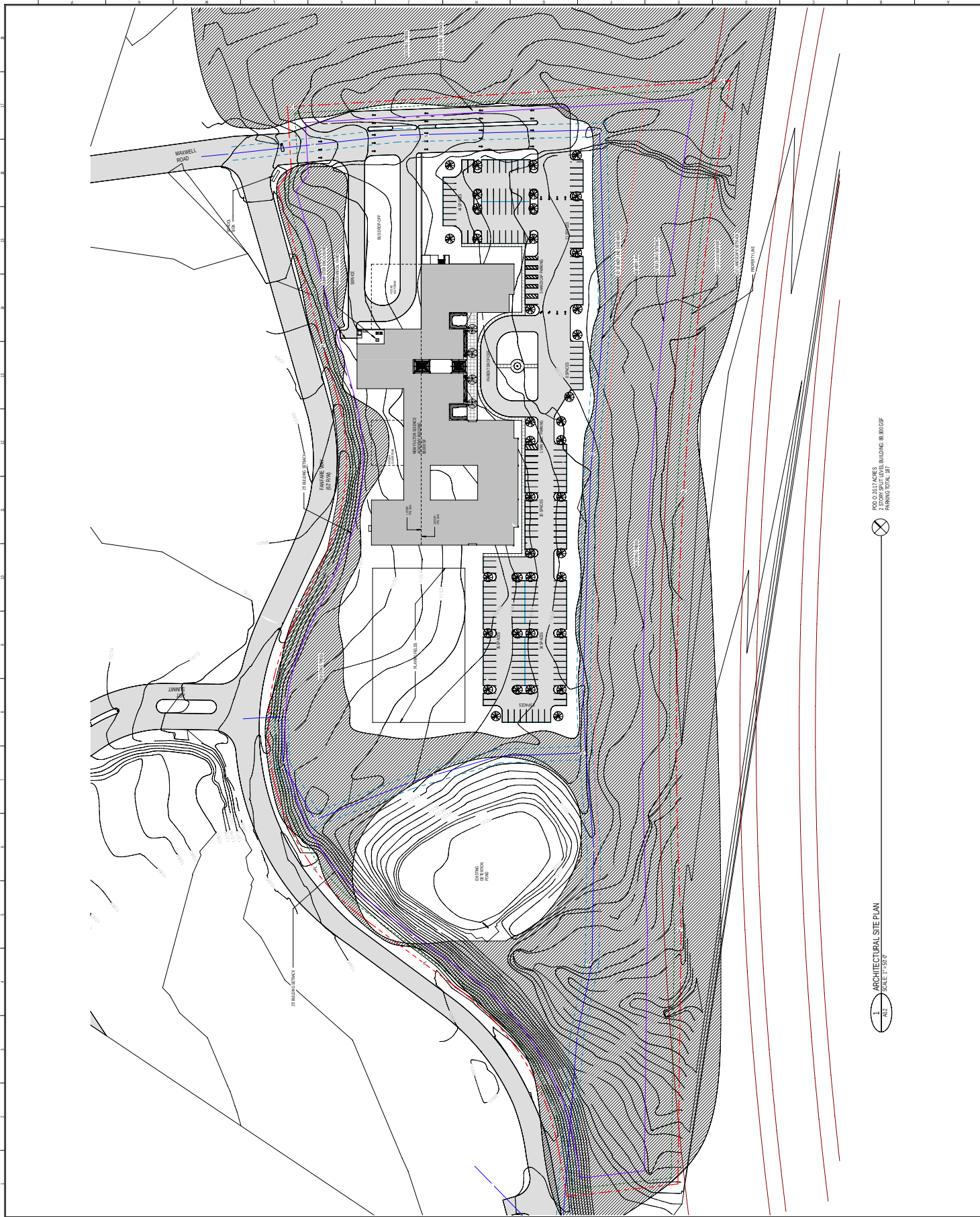
ISSUANCES		
No.	Drawing Issue Description	Date

FULTON SCIENCE ACADEMY

Fanfare Way,
Alpharetta, GA 30009

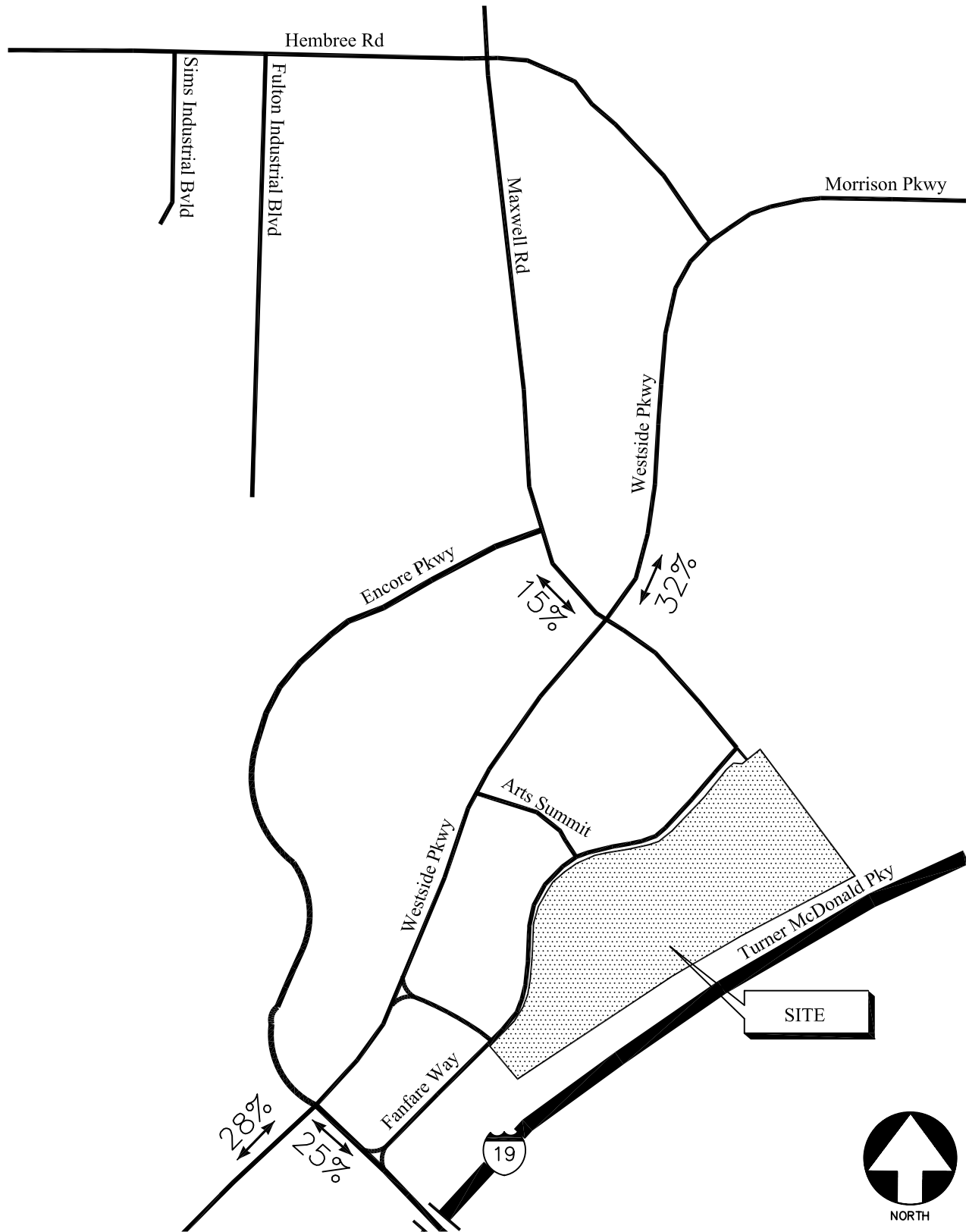
ARCHITECTURAL SITE PLAN

Project No.	201 10032
Project Name	Henry Cooper
Project Manager	Theresa Lee Chang
Project Start Date	2010 Jul
Project End Date	08/08/11
Project Status	Open
Project Location	China
Project Description	
Project Details	
Project History	
Project Budget	
Project Risk	
Project Communication	
Project Documentation	
Project Reporting	
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Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Work Breakdown Structure	
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Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Network Diagram	
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Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Breakdown Structure	
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Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Management	
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Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Destruction	
Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Recovery	
Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Restoration	
Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Backup	
Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Restore	
Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Monitor	
Project Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource Resource	



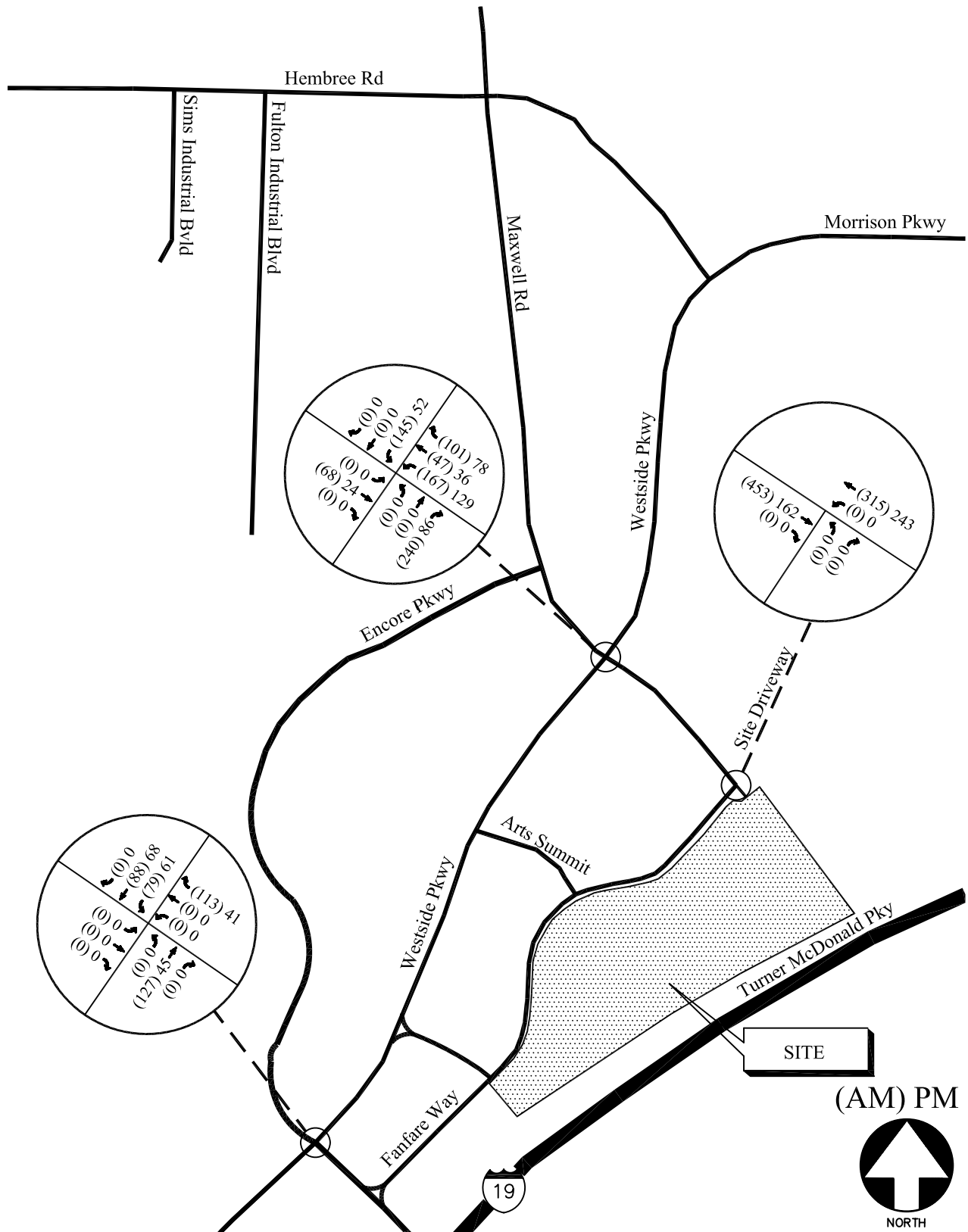
POD 0: 20.17 ACRES
2 STORY SPLIT LEVEL BUILDING: 89,900 GSF
LOADING TOTAL: 197

1 ARCHITECTURAL SITE PLAN
SCALE 1" = 50'-0"



TRIP DISTRIBUTION

FIGURE 6
A&R Engineering Inc.



SITE-GENERATED WEEKDAY PEAK-HOUR VOLUMES

FIGURE 7

A&R Engineering Inc.

TOTAL FUTURE 2012 TRAFFIC OPERATIONS

The new traffic volumes that will be generated by the proposed development, shown in Figure 7, were added to the base year 2012 traffic volumes (Figure 4) in order to determine the traffic volumes that will be on the roadway network after completion of the project. The total future 2012 peak hour volumes are shown in Figure 8. These volumes were used to analyze future traffic operations at the study intersections including the site driveway. The results of the future traffic operations are shown in Table 6.

TABLE 6 FUTURE 2012 INTERSECTION OPERATIONS					
Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		LOS (Delay)	v/c ratio*	LOS (Delay)	v/c ratio*
Westside Pkwy / Encore Pkwy	Signalized	C (26.5)	0.48	C (22.3)	0.49
Westside Pkwy / Maxwell Rd	Signalized	D (44.9)	0.94	C (28.8)	0.59
Maxwell Rd / Fanfare Way / Site Drwy	All-Way Stop Controlled				
-Northbound Approach		B (10.3)		A (9.1)	
-Eastbound Approach		F (118.6)	-	B (10.7)	-
-Westbound Approach		D (27.4)		B (13.4)	

* v/c ratio is not calculated for unsignalized intersections

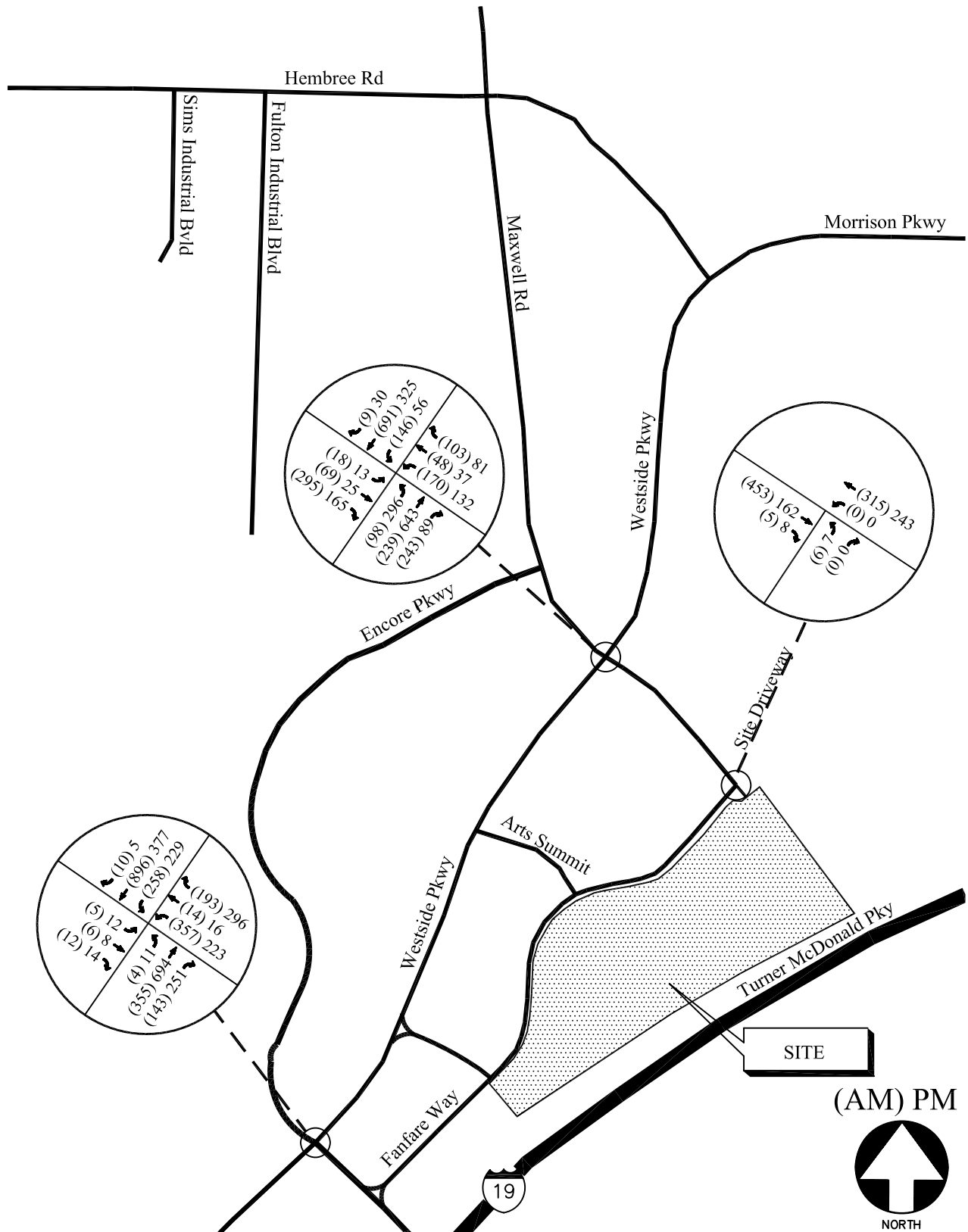
As can be seen from Table 6, the intersections of Westside Parkway with Maxwell Road and Westside Parkway with Encore Parkway will continue to operate at LOS D or better during the AM and PM peak hours after the traffic is added to the road network for the proposed school, without any changes to the existing lane geometry.

The future driveway intersection, at Maxwell Road and Fanfare Way, has been assumed be stop-controlled on all approaches. The eastbound approach will experience some delays from traffic entering the school in the morning peak hour. In reality, drivers will have other alternatives to Maxwell Road to enter the site, such as the right-in / right-out access to Fanfare Way from Encore Parkway and the two non-signalized access points to Fanfare Parkway from Westside Parkway (between Encore Parkway and Maxwell Road). This study has evaluated the worst-case scenario, in which all of the future traffic will enter via the signalized intersection of Maxwell Road / Westside Parkway at the height of the morning rush hour. In order to evaluate if this worst-case scenario will cause vehicles to queue beyond the approximate storage provided at the site driveway intersection, a 95th percentile queuing analysis has been performed at this location. The results of this analysis are shown in Table 7.

TABLE 7 FUTURE QUEUE LENGTHS (IN FEET)			
		AM Peak Hour	PM Peak Hour
Intersection	Available Storage (approximate feet)	Queue Length (95 th)	Queue Length (95 th)
Westside Pkwy / Encore Pkwy			
-Northbound Left	260	4	9
-Northbound Through	-	18	255
-Northbound Right	160	39	78
-Southbound Left	270	137	143
-Southbound Through	-	314	91
-Southbound Right	165	10	2
-Eastbound Left	430	12	25
-Eastbound Through	-	16	20
-Eastbound Right	-	3	17
-Westbound Left	180	200	144
-Westbound Through	-	13	35
-Westbound Right	180	64	89
Westside Pkwy / Maxwell Rd			
-Northbound Left	320	79	202
-Northbound Through	-	123	261
-Northbound Right	200	0	22
-Southbound Left	285	88	34
-Southbound Through	-	295	149
-Southbound Right	170	6	18
-Eastbound Left	130	20	18
-Eastbound Through	-	69	32
-Eastbound Right	380	181	33
-Westbound Left	400	117	102
-Westbound Through / Right	645	50	38
Maxwell Rd / Fanfare Way / Site Drwy*			
-Northbound Approach	-	24	29
-Eastbound Approach	645	95	71
-Westbound Approach	-	64	32

*95th percentile queues for all-way stop controlled intersections are generated through SimTraffic software

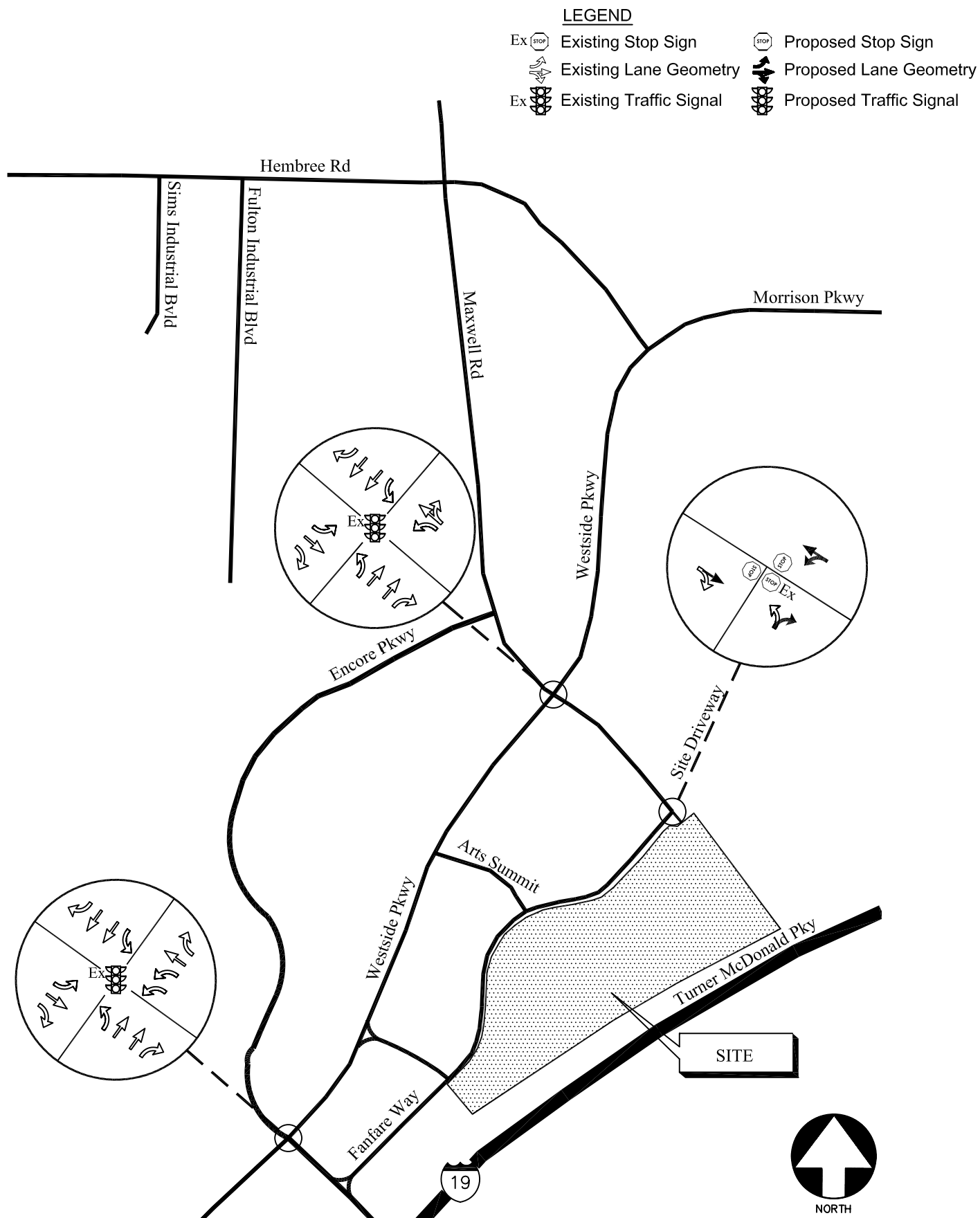
As shown in Table 7, the queue lengths for the eastbound approach to the site and the westbound approach to Westside Parkway will not exceed the available capacity.



FUTURE WEEKDAY PEAK HOUR VOLUMES

FIGURE 8

A&R Engineering Inc.



FUTURE TRAFFIC CONTROL AND LANE GEOMETRY

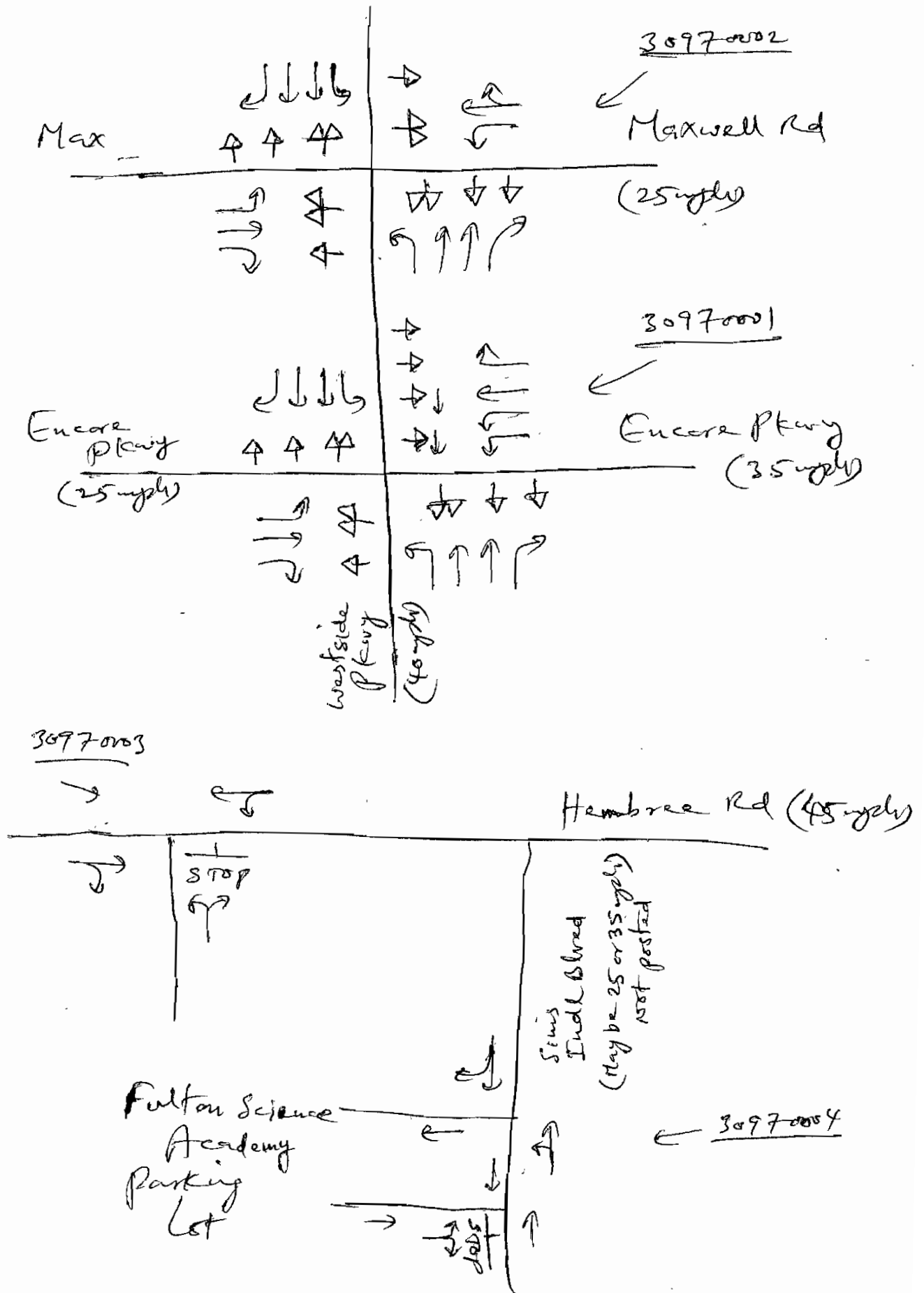
FIGURE 9
A&R Engineering Inc.

CONCLUSIONS AND RECOMMENDATIONS

This study determined the traffic impact that will result from the proposed Fulton Science Academy. The Fulton Science Academy is currently divided into two separate locations, the middle school (1675 Hembree Road, Alpharetta) and the high school (4100 Old Milton Parkway, Alpharetta). The plans for the new Academy site will combine the middle school and high school into one location at the southwest corner of the intersection of Maxwell Road / Fanfare Way in Alpharetta, Georgia. The enrollment for the current middle school location is 508 students, and the current enrollment at the high school is 300 students. These enrollment numbers are not anticipated to change when the schools are combined at the proposed site.

The proposed development will have one full access driveway, which will be the westbound approach to the intersection of Fanfare Way / Maxwell Road after completion of the site. The results of the traffic operations analysis revealed that the intersections of Westside Parkway with Encore Parkway and Westside Parkway with Maxwell Road are currently operating at an acceptable level-of-service during the both AM and PM peak hours will continue to operate at an acceptable level of service in the future after the addition of traffic from the academy.

The future driveway intersection, at Maxwell Road and Fanfare Way, has been assumed be stop-controlled on all approaches. The eastbound approach will experience some delays from traffic entering the school in the morning peak hour. In reality, drivers will have other alternatives to Maxwell Road to enter the site, such as the right-in / right-out access to Fanfare Way from Encore Parkway and the two non-signalized access points to Fanfare Parkway from Westside Parkway (between Encore Parkway and Maxwell Road). This study has evaluated the worst-case scenario, in which all of the future traffic will enter via the signalized intersection of Maxwell Road / Westside Parkway at the height of the morning rush hour. In order to evaluate if this worst-case scenario will cause vehicles to queue beyond the approximate storage provided at the site driveway intersection, a 95th percentile queuing analysis has been performed at this location, which showed that the queue lengths for the eastbound approach to the site and the westbound approach to Westside Parkway will not exceed the available capacity.



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TMC Data

Westside Pkwy @ Encore Pkwy

6.30am-9.30am 3pm-6pm

File Name : 30970001

Site Code : 30970001

Start Date : 8/25/2011

Page No : 1

Groups Printed- Cars, Trucks & Buses

	Westside Pkwy Northbound					Westside Pkwy Southbound					Encore Pkwy Eastbound					Encore Pkwy Westbound					
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
06:30 AM	2	17	7	0	26	22	97	1	0	120	2	1	1	0	4	37	3	12	0	52	202
06:45 AM	2	24	14	0	40	28	122	2	0	152	0	1	1	0	2	69	5	13	0	87	281
Total	4	41	21	0	66	50	219	3	0	272	2	2	2	0	6	106	8	25	0	139	483
07:00 AM	2	37	10	0	49	29	162	0	0	191	1	2	4	0	7	66	6	15	0	87	334
07:15 AM	3	43	23	0	69	31	179	0	0	210	0	1	6	0	7	88	2	18	0	108	394
07:30 AM	1	47	22	0	70	33	215	1	0	249	1	2	4	0	7	79	1	26	0	106	432
07:45 AM	0	58	39	0	97	46	218	3	0	267	0	1	7	0	8	121	5	22	0	148	520
Total	6	185	94	0	285	139	774	4	0	917	2	6	21	0	29	354	14	81	0	449	1680
08:00 AM	3	53	30	0	86	45	203	2	0	250	1	4	1	0	6	81	2	20	0	103	445
08:15 AM	0	57	35	0	92	44	192	3	0	239	2	0	4	0	6	55	1	17	0	73	410
08:30 AM	1	58	38	0	97	42	187	2	0	231	2	1	0	0	3	96	6	20	0	122	453
08:45 AM	0	55	44	0	99	40	184	2	0	226	0	2	1	0	3	89	1	18	0	108	436
Total	4	223	147	0	374	171	766	9	0	946	5	7	6	0	18	321	10	75	0	406	1744
09:00 AM	1	52	41	0	94	38	172	2	0	212	1	0	1	0	2	86	2	16	0	104	412
09:15 AM	0	49	37	0	86	35	168	1	0	204	1	1	1	0	3	82	1	13	0	96	389
*** BREAK ***																					
Total	1	101	78	0	180	73	340	3	0	416	2	1	2	0	5	168	3	29	0	200	801
*** BREAK ***																					
03:00 PM	3	70	46	0	119	30	43	2	0	75	1	6	4	0	11	38	6	33	0	77	282
03:15 PM	6	78	28	0	112	34	46	1	0	81	2	8	5	0	15	44	2	37	0	83	291
03:30 PM	3	73	40	0	116	31	51	5	0	87	1	5	3	0	9	46	1	34	0	81	293
03:45 PM	5	88	37	0	130	27	52	1	0	80	2	2	1	0	5	37	6	50	0	93	308
Total	17	309	151	0	477	122	192	9	0	323	6	21	13	0	40	165	15	154	0	334	1174
04:00 PM	7	109	61	0	177	31	53	3	0	87	5	4	6	0	15	41	6	41	0	88	367
04:15 PM	5	129	43	0	177	37	57	1	0	95	1	1	2	0	4	32	2	50	0	84	360
04:30 PM	5	146	76	0	227	44	78	2	0	124	2	4	6	0	12	33	5	49	0	87	450
04:45 PM	3	138	59	0	200	35	76	1	0	112	2	5	3	0	10	65	4	62	0	131	453
Total	20	522	239	0	781	147	264	7	0	418	10	14	17	0	41	171	17	202	0	390	1630
05:00 PM	3	176	71	0	250	49	79	3	0	131	4	1	5	0	10	63	5	57	0	125	516
05:15 PM	2	167	62	0	231	42	74	0	0	116	4	0	3	0	7	48	4	68	0	120	474
05:30 PM	3	162	57	0	222	40	77	1	0	118	2	2	3	0	7	45	3	65	0	113	460
05:45 PM	2	146	53	0	201	37	72	1	0	110	2	1	2	0	5	42	2	62	0	106	422
Total	10	651	243	0	904	168	302	5	0	475	12	4	13	0	29	198	14	252	0	464	1872
Grand Total	62	2032	973	0	3067	870	2857	40	0	3767	39	55	74	0	168	1483	81	818	0	2382	9384
Apprch %	2	66.3	31.7	0		23.1	75.8	1.1	0		23.2	32.7	44	0		62.3	3.4	34.3	0		
Total %	0.7	21.7	10.4	0	32.7	9.3	30.4	0.4	0	40.1	0.4	0.6	0.8	0	1.8	15.8	0.9	8.7	0	25.4	

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TMC Data

Westside Pkwy @ Encore Pkwy

6.30am-9.30am 3pm-6pm

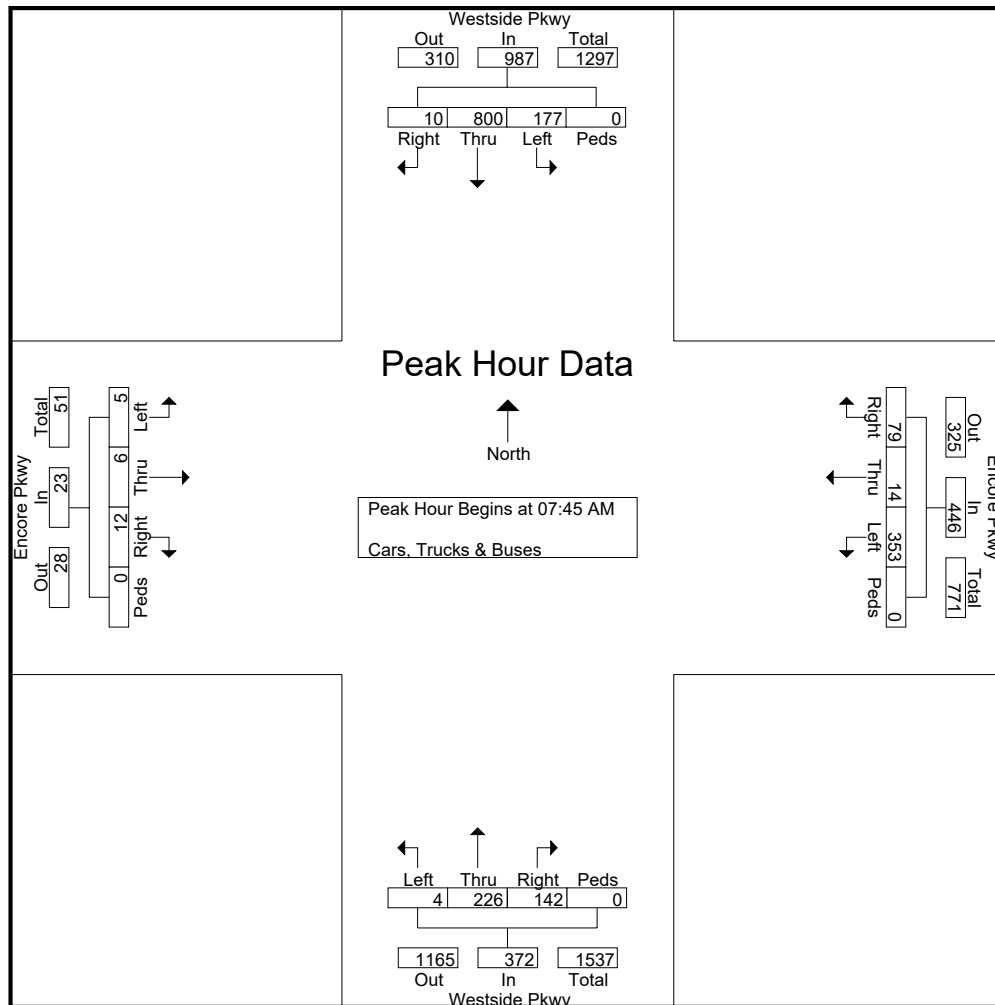
File Name : 30970001

Site Code : 30970001

Start Date : 8/25/2011

Page No : 2

	Westside Pkwy Northbound					Westside Pkwy Southbound					Encore Pkwy Eastbound					Encore Pkwy Westbound					
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 Analysis From 06:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	58	39	0	97	46	218	3	0	267	0	1	7	0	8	121	5	22	0	148	520
08:00 AM	3	53	30	0	86	45	203	2	0	250	1	4	1	0	6	81	2	20	0	103	445
08:15 AM	0	57	35	0	92	44	192	3	0	239	2	0	4	0	6	55	1	17	0	73	410
08:30 AM	1	58	38	0	97	42	187	2	0	231	2	1	0	0	3	96	6	20	0	122	453
Total Volume	4	226	142	0	372	177	800	10	0	987	5	6	12	0	23	353	14	79	0	446	1828
% App. Total	1.1	60.8	38.2	0		17.9	81.1	1	0		21.7	26.1	52.2	0		79.1	3.1	17.7	0		
PHF	.333	.974	.910	.000	.959	.962	.917	.833	.000	.924	.625	.375	.429	.000	.719	.729	.583	.898	.000	.753	.879



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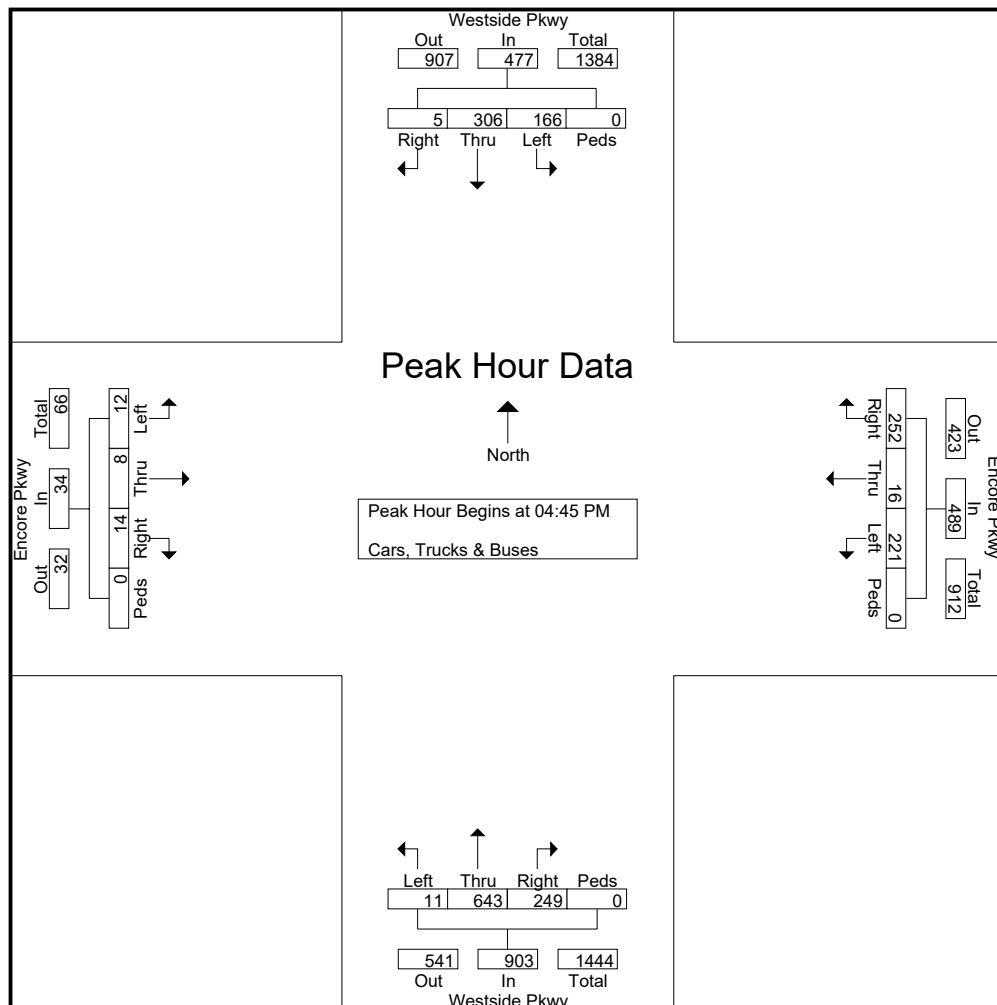
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Site Code : 30970001

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Page No : 3

	Westside Pkwy Northbound					Westside Pkwy Southbound					Encore Pkwy Eastbound					Encore Pkwy Westbound					
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 Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	3	138	59	0	200	35	76	1	0	112	2	5	3	0	10	65	4	62	0	131	453
05:00 PM	3	176	71	0	250	49	79	3	0	131	4	1	5	0	10	63	5	57	0	125	516
05:15 PM	2	167	62	0	231	42	74	0	0	116	4	0	3	0	7	48	4	68	0	120	474
05:30 PM	3	162	57	0	222	40	77	1	0	118	2	2	3	0	7	45	3	65	0	113	460
Total Volume	11	643	249	0	903	166	306	5	0	477	12	8	14	0	34	221	16	252	0	489	1903
% App. Total	1.2	71.2	27.6	0		34.8	64.2	1	0		35.3	23.5	41.2	0		45.2	3.3	51.5	0		
PHF	.917	.913	.877	.000	.903	.847	.968	.417	.000	.910	.750	.400	.700	.000	.850	.850	.800	.926	.000	.933	.922



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TMC Data

Westside Pkwy @ Maxwell Rd

6.30am-9.30am 3pm-6pm

File Name : 30970002

Site Code : 30970002

Start Date : 8/25/2011

Page No : 1

Groups Printed- Cars, Trucks & Buses

	Westside Pkwy Northbound					Westside Pkwy Southbound					Maxwell Rd Eastbound					Maxwell Rd Westbound					
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
06:30 AM	11	25	0	0	36	0	93	0	0	93	1	0	33	0	34	0	0	0	0	0	163
06:45 AM	13	28	0	0	41	1	107	1	0	109	2	0	45	0	47	0	0	1	0	1	198
Total	24	53	0	0	77	1	200	1	0	202	3	0	78	0	81	0	0	1	0	1	361
07:00 AM	17	41	1	0	59	0	119	1	0	120	1	0	53	0	54	0	0	2	0	2	235
07:15 AM	22	46	0	0	68	1	148	5	0	154	8	0	65	0	73	1	0	0	0	1	296
07:30 AM	27	54	2	0	83	0	183	4	0	187	7	0	80	0	87	0	0	0	0	0	357
07:45 AM	25	57	0	0	82	1	179	1	0	181	8	0	72	0	80	2	0	1	0	3	346
Total	91	198	3	0	292	2	629	11	0	642	24	0	270	0	294	3	0	3	0	6	1234
08:00 AM	21	63	1	0	85	0	165	1	0	166	0	1	78	0	79	0	1	0	0	1	331
08:15 AM	24	63	0	0	87	0	157	3	0	160	3	0	62	0	65	1	0	1	0	2	314
08:30 AM	20	54	1	0	75	0	163	3	0	166	7	0	65	0	72	0	0	1	0	1	314
08:45 AM	17	57	0	0	74	1	159	3	0	163	2	1	69	0	72	1	0	0	0	1	310
Total	82	237	2	0	321	1	644	10	0	655	12	2	274	0	288	2	1	2	0	5	1269
09:00 AM	15	53	1	0	69	0	156	2	0	158	3	0	63	0	66	0	0	1	0	1	294
09:15 AM	14	50	1	0	65	1	152	1	0	154	2	1	57	0	60	1	0	0	0	1	280
*** BREAK ***																					
Total	29	103	2	0	134	1	308	3	0	312	5	1	120	0	126	1	0	1	0	2	574
*** BREAK ***																					
03:00 PM	40	65	1	0	106	0	33	2	0	35	2	0	32	0	34	1	1	0	0	2	177
03:15 PM	43	69	1	0	113	0	36	4	0	40	1	1	35	0	37	2	2	1	0	5	195
03:30 PM	48	76	0	0	124	1	42	4	0	47	2	0	31	0	33	0	0	0	0	0	204
03:45 PM	55	85	1	0	141	1	47	2	0	50	2	0	34	0	36	1	0	1	0	2	229
Total	186	295	3	0	484	2	158	12	0	172	7	1	132	0	140	4	3	2	0	9	805
04:00 PM	62	103	2	0	167	0	51	7	0	58	1	0	36	0	37	0	0	0	0	0	262
04:15 PM	57	119	0	0	176	0	66	4	0	70	6	1	39	0	46	0	2	1	0	3	295
04:30 PM	61	134	1	0	196	1	57	5	0	63	5	1	36	0	42	1	0	0	0	1	302
04:45 PM	64	153	1	0	218	0	84	10	0	94	6	0	41	0	47	0	1	2	0	3	362
Total	244	509	4	0	757	1	258	26	0	285	18	2	152	0	172	1	3	3	0	7	1221
05:00 PM	82	159	0	0	241	0	80	7	0	87	2	0	54	0	56	2	0	0	0	2	386
05:15 PM	76	164	1	0	241	1	77	9	0	87	3	1	44	0	48	0	0	1	0	1	377
05:30 PM	71	161	1	0	233	3	81	4	0	88	2	0	24	0	26	1	0	0	0	1	348
05:45 PM	64	154	0	0	218	1	74	3	0	78	2	0	21	0	23	0	0	1	0	1	320
Total	293	638	2	0	933	5	312	23	0	340	9	1	143	0	153	3	0	2	0	5	1431
Grand Total	949	2033	16	0	2998	13	2509	86	0	2608	78	7	1169	0	1254	14	7	14	0	35	6895
Apprch %	31.7	67.8	0.5	0		0.5	96.2	3.3	0		6.2	0.6	93.2	0		40	20	40	0		
Total %	13.8	29.5	0.2	0	43.5	0.2	36.4	1.2	0	37.8	1.1	0.1	17	0	18.2	0.2	0.1	0.2	0	0.5	

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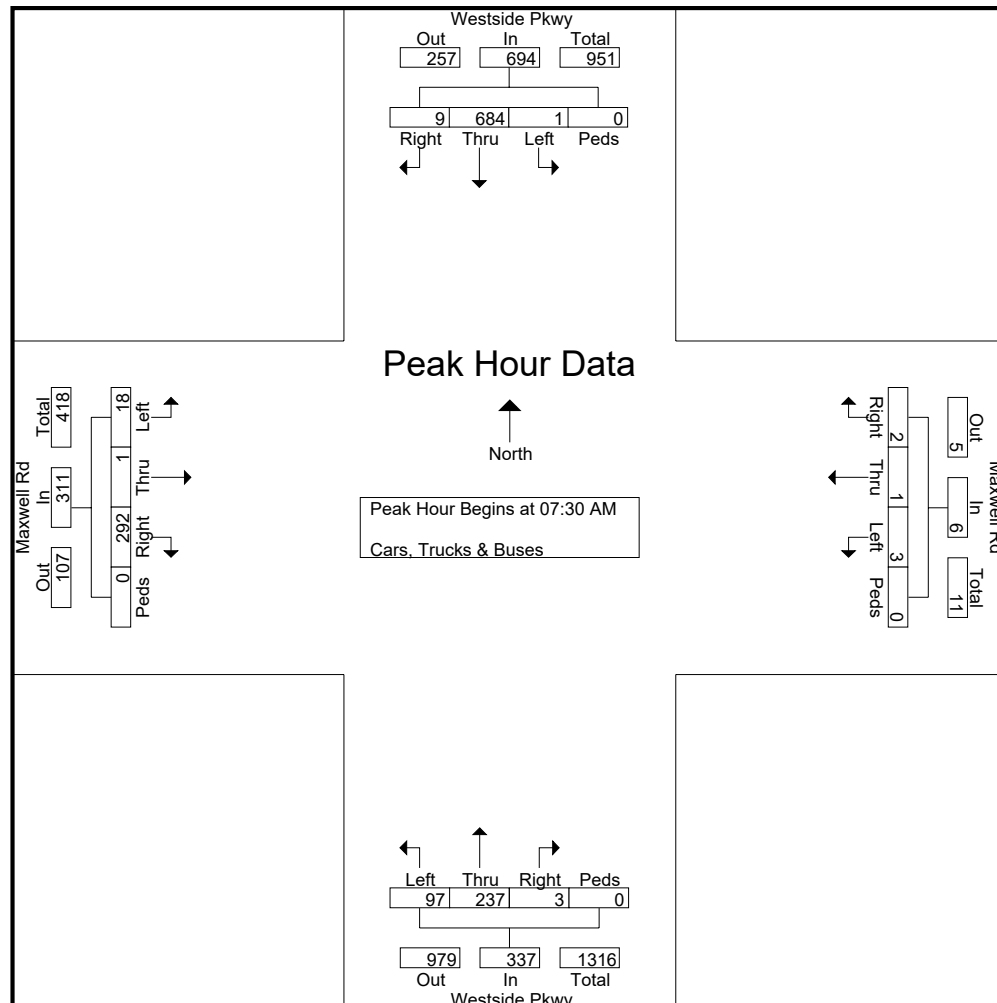
File Name : 30970002

Site Code : 30970002

Start Date : 8/25/2011

Page No : 2

	Westside Pkwy Northbound					Westside Pkwy Southbound					Maxwell Rd Eastbound					Maxwell Rd Westbound					
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 Analysis From 06:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	27	54	2	0	83	0	183	4	0	187	7	0	80	0	87	0	0	0	0	0	357
07:45 AM	25	57	0	0	82	1	179	1	0	181	8	0	72	0	80	2	0	1	0	3	346
08:00 AM	21	63	1	0	85	0	165	1	0	166	0	1	78	0	79	0	1	0	0	1	331
08:15 AM	24	63	0	0	87	0	157	3	0	160	3	0	62	0	65	1	0	1	0	2	314
Total Volume	97	237	3	0	337	1	684	9	0	694	18	1	292	0	311	3	1	2	0	6	1348
% App. Total	28.8	70.3	0.9	0		0.1	98.6	1.3	0		5.8	0.3	93.9	0		50	16.7	33.3	0		
PHF	.898	.940	.375	.000	.968	.250	.934	.563	.000	.928	.563	.250	.913	.000	.894	.375	.250	.500	.000	.500	.944



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TMC Data

Westside Pkwy @ Maxwell Rd

6.30am-9.30am 3pm-6pm

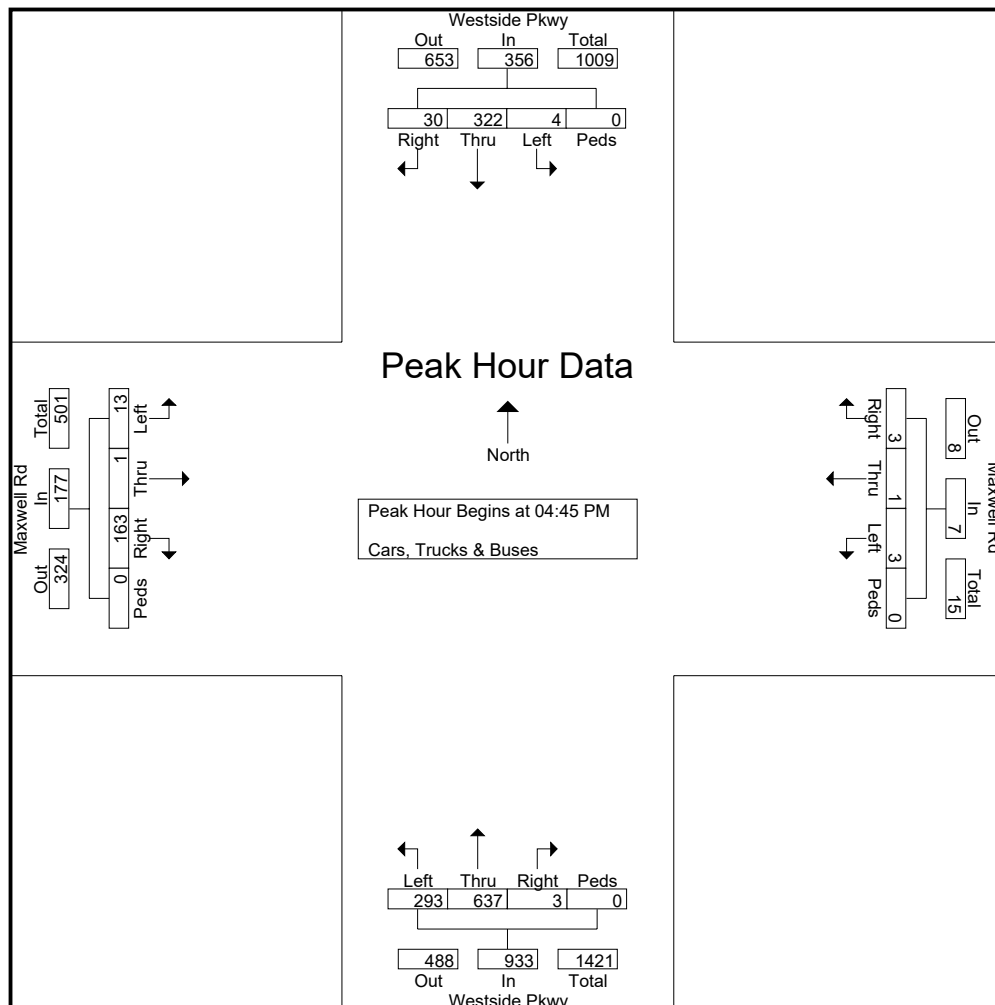
File Name : 30970002

Site Code : 30970002

Start Date : 8/25/2011

Page No : 3

	Westside Pkwy Northbound					Westside Pkwy Southbound					Maxwell Rd Eastbound					Maxwell Rd Westbound					
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 Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	64	153	1	0	218	0	84	10	0	94	6	0	41	0	47	0	1	2	0	3	362
05:00 PM	82	159	0	0	241	0	80	7	0	87	2	0	54	0	56	2	0	0	0	2	386
05:15 PM	76	164	1	0	241	1	77	9	0	87	3	1	44	0	48	0	0	1	0	1	377
05:30 PM	71	161	1	0	233	3	81	4	0	88	2	0	24	0	26	1	0	0	0	1	348
Total Volume	293	637	3	0	933	4	322	30	0	356	13	1	163	0	177	3	1	3	0	7	1473
% App. Total	31.4	68.3	0.3	0		1.1	90.4	8.4	0		7.3	0.6	92.1	0		42.9	14.3	42.9	0		
PHF	.893	.971	.750	.000	.968	.333	.958	.750	.000	.947	.542	.250	.755	.000	.790	.375	.250	.375	.000	.583	.954



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TMC Data

Hembree Rd @ Fulton Science

Academy Drwy (N)

6.30am-9.30am 3pm-6pm

File Name : 30970003

Site Code : 30970003

Start Date : 8/25/2011

Page No : 1

Groups Printed- Cars, Trucks & Buses

	Fulton Science Academy Drwy (N) Northbound					Southbound					Hembree Rd Eastbound					Hembree Rd Westbound					
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
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	68	0	0	68	0	104	0	0	104	172
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	75	0	0	75	0	115	0	0	115	190
Total	0	0	0	0	0	0	0	0	0	0	0	143	0	0	143	0	219	0	0	219	362
07:00 AM	1	0	1	0	2	0	0	0	0	0	0	84	0	0	84	0	126	0	0	126	212
07:15 AM	0	0	3	0	3	0	0	0	0	0	0	116	0	0	116	0	185	0	0	185	304
07:30 AM	3	0	12	0	15	0	0	0	0	0	0	169	0	0	169	0	172	0	0	172	356
07:45 AM	14	0	30	0	44	0	0	0	0	0	0	178	0	0	178	0	179	0	0	179	401
Total	18	0	46	0	64	0	0	0	0	0	0	547	0	0	547	0	662	0	0	662	1273
08:00 AM	36	0	42	0	78	0	0	0	0	0	0	167	0	0	167	0	129	0	0	129	374
08:15 AM	57	0	49	0	106	0	0	0	0	0	0	147	0	0	147	0	146	0	0	146	399
08:30 AM	6	0	4	0	10	0	0	0	0	0	0	142	0	0	142	0	168	0	0	168	320
08:45 AM	3	0	2	0	5	0	0	0	0	0	0	133	0	0	133	0	163	0	0	163	301
Total	102	0	97	0	199	0	0	0	0	0	0	589	0	0	589	0	606	0	0	606	1394
09:00 AM	2	0	2	0	4	0	0	0	0	0	0	137	0	0	137	0	158	0	0	158	299
09:15 AM	1	0	1	0	2	0	0	0	0	0	0	128	0	0	128	0	152	0	0	152	282
*** BREAK ***																					
Total	3	0	3	0	6	0	0	0	0	0	0	265	0	0	265	0	310	0	0	310	581
*** BREAK ***																					
03:00 PM	1	0	1	0	2	0	0	0	0	0	0	121	0	0	121	0	112	0	0	112	235
03:15 PM	0	0	2	0	2	0	0	0	0	0	0	125	0	0	125	0	115	0	0	115	242
03:30 PM	1	0	1	0	2	0	0	0	0	0	0	133	0	0	133	0	127	0	0	127	262
03:45 PM	3	0	4	0	7	0	0	0	0	0	0	142	0	0	142	0	116	0	0	116	265
Total	5	0	8	0	13	0	0	0	0	0	0	521	0	0	521	0	470	0	0	470	1004
04:00 PM	53	0	30	0	83	0	0	0	0	0	0	138	0	0	138	0	119	0	0	119	340
04:15 PM	5	0	2	0	7	0	0	0	0	0	0	153	0	0	153	0	127	0	0	127	287
04:30 PM	2	0	3	0	5	0	0	0	0	0	0	135	0	0	135	0	138	0	0	138	278
04:45 PM	40	0	40	0	80	0	0	0	0	0	0	167	0	0	167	0	183	0	0	183	430
Total	100	0	75	0	175	0	0	0	0	0	0	593	0	0	593	0	567	0	0	567	1335
05:00 PM	23	0	26	0	49	0	0	0	0	0	0	218	0	0	218	0	197	0	0	197	464
05:15 PM	5	0	1	0	6	0	0	0	0	0	0	197	0	0	197	0	192	0	0	192	395
05:30 PM	3	0	2	0	5	0	0	0	0	0	0	185	0	0	185	0	177	0	0	177	367
05:45 PM	2	0	1	0	3	0	0	0	0	0	0	167	0	0	167	0	165	0	0	165	335
Total	33	0	30	0	63	0	0	0	0	0	0	767	0	0	767	0	731	0	0	731	1561
Grand Total	261	0	259	0	520	0	0	0	0	0	0	3425	0	0	3425	0	3565	0	0	3565	7510
Apprch %	50.2	0	49.8	0		0	0	0	0		0	100	0	0		0	100	0	0		
Total %	3.5	0	3.4	0	6.9	0	0	0	0	0	0	45.6	0	0	45.6	0	47.5	0	0	47.5	

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TMC Data

Hembree Rd @ Fulton Science

Academy Drwy (N)

6.30am-9.30am 3pm-6pm

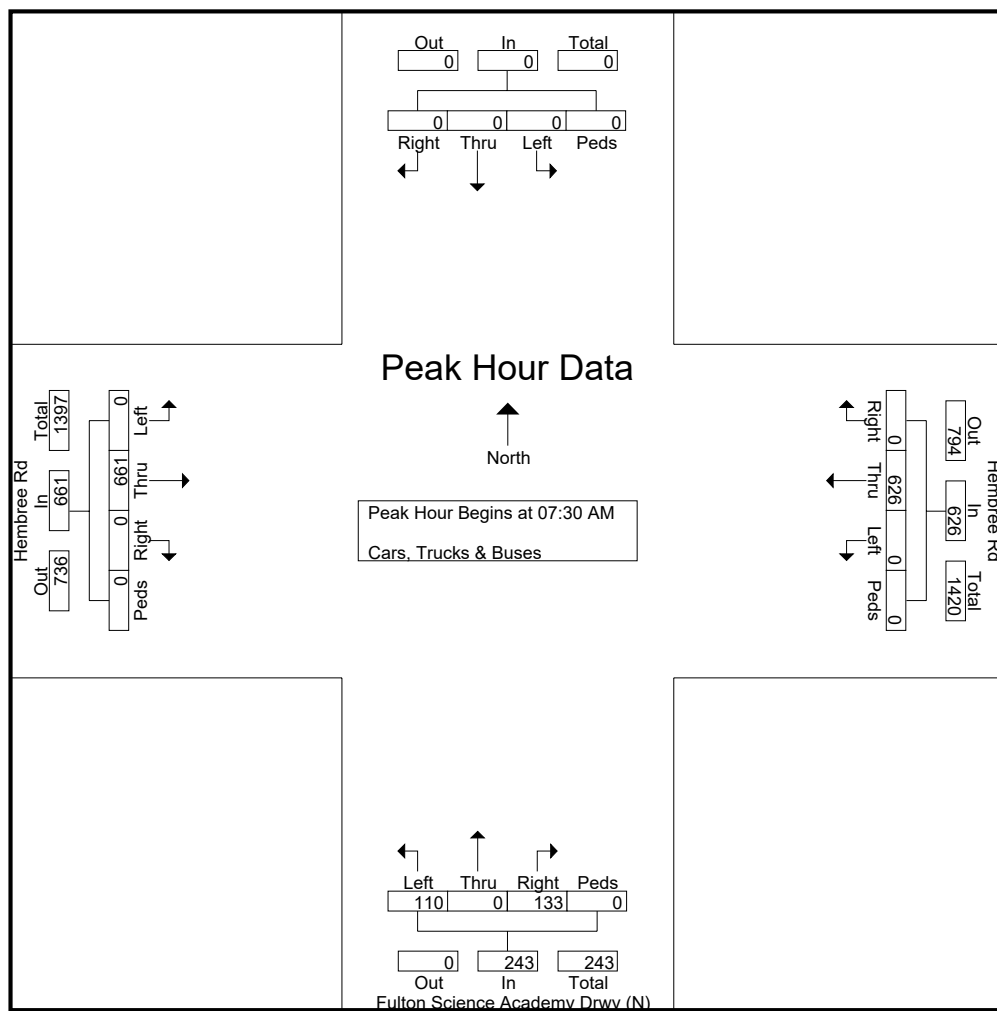
File Name : 30970003

Site Code : 30970003

Start Date : 8/25/2011

Page No : 2

	Fulton Science Academy Drwy (N) Northbound					Southbound					Hembree Rd Eastbound					Hembree Rd Westbound					
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 Analysis From 06:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	3	0	12	0	15	0	0	0	0	0	0	169	0	0	169	0	172	0	0	172	356
07:45 AM	14	0	30	0	44	0	0	0	0	0	0	178	0	0	178	0	179	0	0	179	401
08:00 AM	36	0	42	0	78	0	0	0	0	0	0	167	0	0	167	0	129	0	0	129	374
08:15 AM	57	0	49	0	106	0	0	0	0	0	0	147	0	0	147	0	146	0	0	146	399
Total Volume	110	0	133	0	243	0	0	0	0	0	0	661	0	0	661	0	626	0	0	626	1530
% App. Total	45.3	0	54.7	0		0	0	0	0	0	0	100	0	0		0	100	0	0		
PHF	.482	.000	.679	.000	.573	.000	.000	.000	.000	.000	.000	.928	.000	.000	.928	.000	.874	.000	.000	.874	.954



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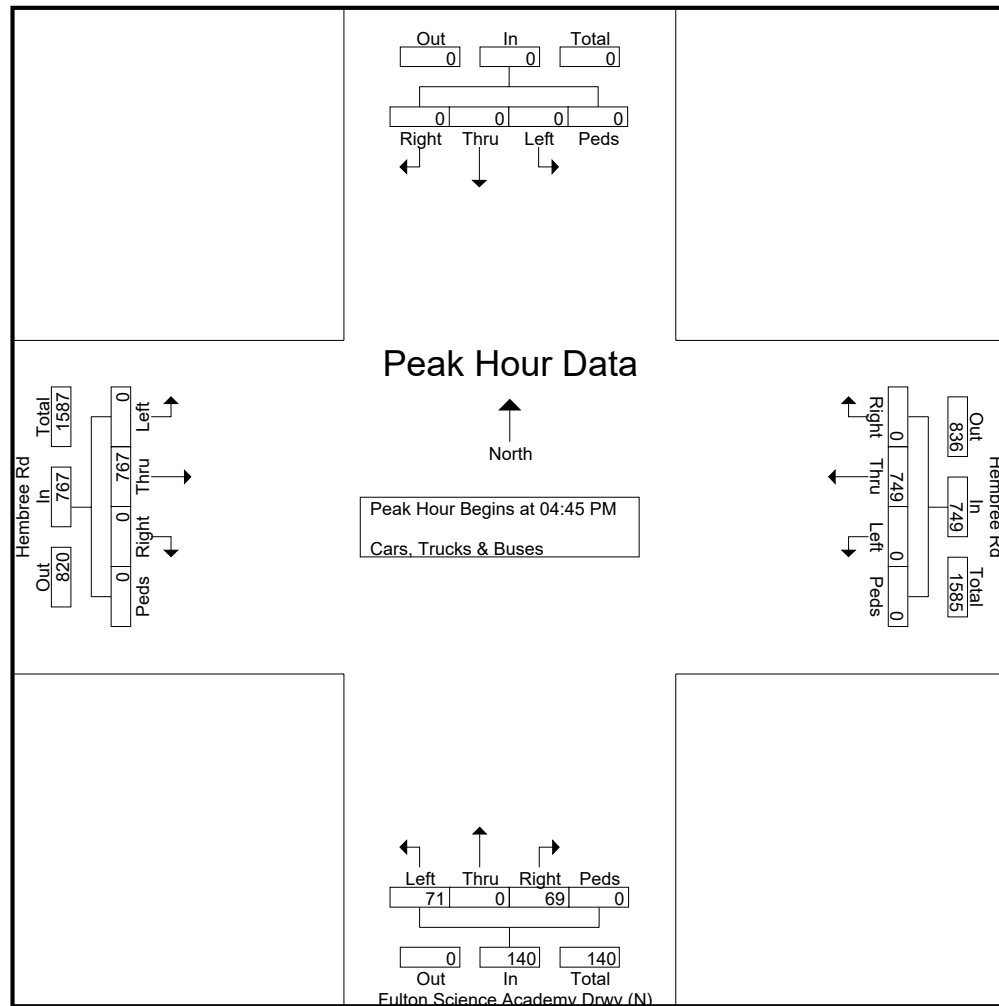
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TMC Data
Hembree Rd @ Fulton Science
Academy Drwy (N)
6.30am-9.30am 3pm-6pm

File Name : 30970003
Site Code : 30970003
Start Date : 8/25/2011
Page No : 3

	Fulton Science Academy Drwy (N) Northbound					Southbound					Hembree Rd Eastbound					Hembree Rd Westbound					
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 Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	40	0	40	0	80	0	0	0	0	0	0	167	0	0	167	0	183	0	0	183	430
05:00 PM	23	0	26	0	49	0	0	0	0	0	0	218	0	0	218	0	197	0	0	197	464
05:15 PM	5	0	1	0	6	0	0	0	0	0	0	197	0	0	197	0	192	0	0	192	395
05:30 PM	3	0	2	0	5	0	0	0	0	0	0	185	0	0	185	0	177	0	0	177	367
Total Volume	71	0	69	0	140	0	0	0	0	0	0	767	0	0	767	0	749	0	0	749	1656
% App. Total	50.7	0	49.3	0		0	0	0	0	0	0	100	0	0		0	100	0	0		
PHF	.444	.000	.431	.000	.438	.000	.000	.000	.000	.000	.000	.880	.000	.000	.880	.000	.951	.000	.000	.951	.892



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TMC Data

Sims Industrial Blvd @ Fulton Science

Academy Drwy (E)

6.30am-9.30am 3pm-6pm

File Name : 30970004

Site Code : 30970004

Start Date : 8/25/2011

Page No : 1

Groups Printed- Cars, Trucks & Buses

	Sims Industrial Blvd Northbound					Sims Industrial Blvd Southbound					Fulton Science Academy Drwy (E) Eastbound					Westbound					
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
06:30 AM	0	1	0	0	1	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	3
06:45 AM	0	1	0	0	1	0	3	2	0	5	1	0	0	0	1	0	0	0	0	0	7
Total	0	2	0	0	2	0	4	3	0	7	1	0	0	0	1	0	0	0	0	0	10
07:00 AM	0	1	0	0	1	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	4
07:15 AM	0	0	0	0	0	0	2	15	0	17	0	0	0	0	0	0	0	0	0	0	17
07:30 AM	0	1	0	0	1	0	3	47	0	50	0	0	0	0	0	0	0	0	0	0	51
07:45 AM	0	0	0	0	0	0	8	70	0	78	1	0	0	0	1	0	0	0	0	0	79
Total	0	2	0	0	2	0	14	134	0	148	1	0	0	0	1	0	0	0	0	0	151
08:00 AM	0	1	0	0	1	0	6	124	0	130	3	0	0	0	3	0	0	0	0	0	134
08:15 AM	0	2	0	0	2	0	6	41	0	47	0	0	0	0	0	0	0	0	0	0	49
08:30 AM	0	1	0	0	1	0	1	8	0	9	0	0	0	0	0	0	0	0	0	0	10
08:45 AM	0	1	0	0	1	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	3
Total	0	5	0	0	5	0	13	175	0	188	3	0	0	0	3	0	0	0	0	0	196
09:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2
09:15 AM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																					
Total	0	1	0	0	1	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	4
*** BREAK ***																					
03:00 PM	0	1	0	0	1	0	3	8	0	11	1	0	0	0	1	0	0	0	0	0	13
03:15 PM	1	2	0	0	3	0	6	10	0	16	2	0	0	0	2	0	0	0	0	0	21
03:30 PM	1	3	0	0	4	0	11	21	0	32	1	0	0	0	1	0	0	0	0	0	37
03:45 PM	1	24	0	0	25	0	9	33	0	42	3	0	0	0	3	0	0	0	0	0	70
Total	3	30	0	0	33	0	29	72	0	101	7	0	0	0	7	0	0	0	0	0	141
04:00 PM	0	10	0	0	10	0	0	11	0	11	1	0	0	0	1	0	0	0	0	0	22
04:15 PM	0	0	0	0	0	0	1	26	0	27	3	0	0	0	3	0	0	0	0	0	30
04:30 PM	0	2	0	0	2	0	11	33	0	44	2	0	1	0	3	0	0	0	0	0	49
04:45 PM	0	17	0	0	17	0	11	60	0	71	13	0	0	0	13	0	0	0	0	0	101
Total	0	29	0	0	29	0	23	130	0	153	19	0	1	0	20	0	0	0	0	0	202
05:00 PM	1	1	0	0	2	0	0	20	0	20	9	0	1	0	10	0	0	0	0	0	32
05:15 PM	0	2	0	0	2	0	2	3	0	5	1	0	0	0	1	0	0	0	0	0	8
05:30 PM	0	2	0	0	2	0	1	25	0	26	2	0	0	0	2	0	0	0	0	0	30
05:45 PM	0	1	0	0	1	0	1	4	0	5	1	0	0	0	1	0	0	0	0	0	7
Total	1	6	0	0	7	0	4	52	0	56	13	0	1	0	14	0	0	0	0	0	77
Grand Total	4	75	0	0	79	0	88	568	0	656	44	0	2	0	46	0	0	0	0	0	781
Apprch %	5.1	94.9	0	0		0	13.4	86.6	0		95.7	0	4.3	0		0	0	0	0		
Total %	0.5	9.6	0	0	10.1	0	11.3	72.7	0	84	5.6	0	0.3	0	5.9	0	0	0	0	0	

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TMC Data

Sims Industrial Blvd @ Fulton Science

Academy Drwy (E)

6.30am-9.30am 3pm-6pm

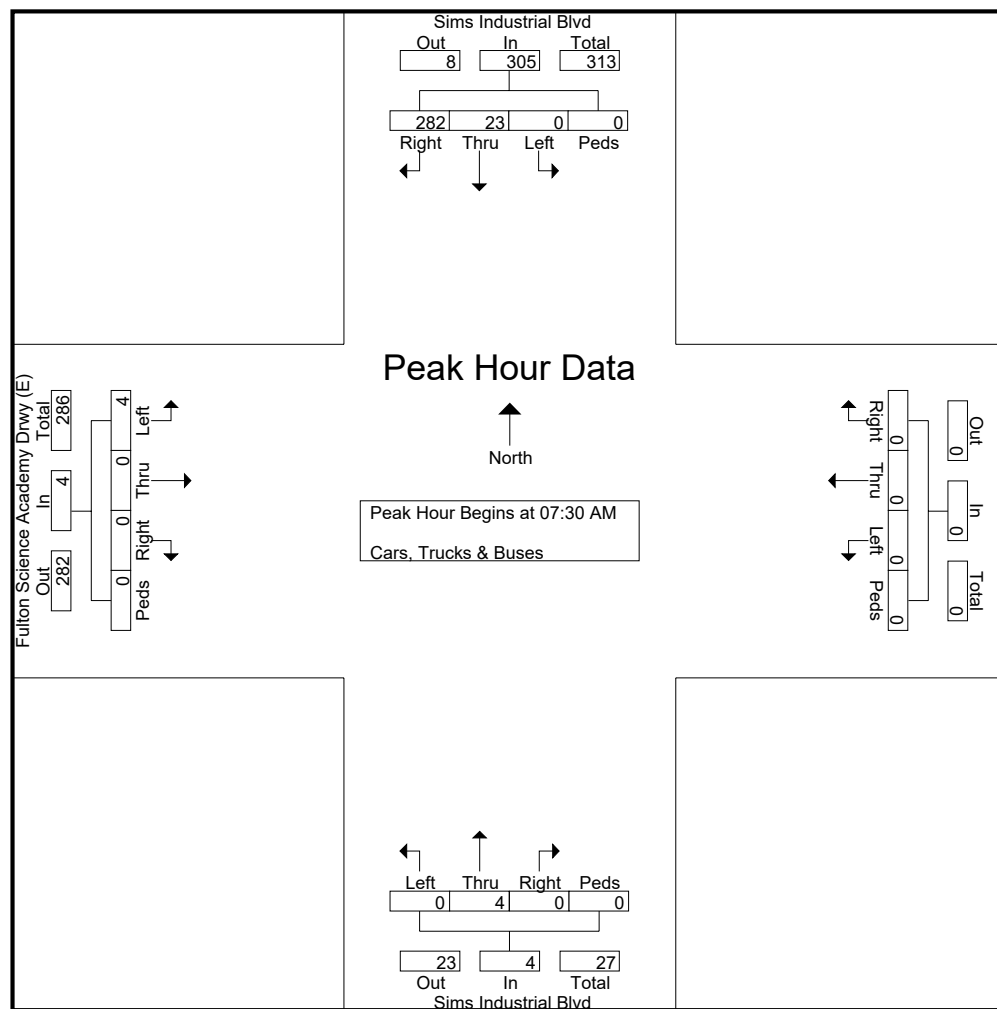
File Name : 30970004

Site Code : 30970004

Start Date : 8/25/2011

Page No : 2

	Sims Industrial Blvd Northbound					Sims Industrial Blvd Southbound					Fulton Science Academy Drwy (E) Eastbound					Westbound					
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 Analysis From 06:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	1	0	0	1	0	3	47	0	50	0	0	0	0	0	0	0	0	0	0	51
07:45 AM	0	0	0	0	0	0	8	70	0	78	1	0	0	0	1	0	0	0	0	0	79
08:00 AM	0	1	0	0	1	0	6	124	0	130	3	0	0	0	3	0	0	0	0	0	134
08:15 AM	0	2	0	0	2	0	6	41	0	47	0	0	0	0	0	0	0	0	0	0	49
Total Volume	0	4	0	0	4	0	23	282	0	305	4	0	0	0	4	0	0	0	0	0	313
% App. Total	0	100	0	0		0	7.5	92.5	0		100	0	0	0		0	0	0	0		
PHF	.000	.500	.000	.000	.500	.000	.719	.569	.000	.587	.333	.000	.000	.000	.333	.000	.000	.000	.000	.000	.584



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TMC Data

Sims Industrial Blvd @ Fulton Science

Academy Drwy (E)

6.30am-9.30am 3pm-6pm

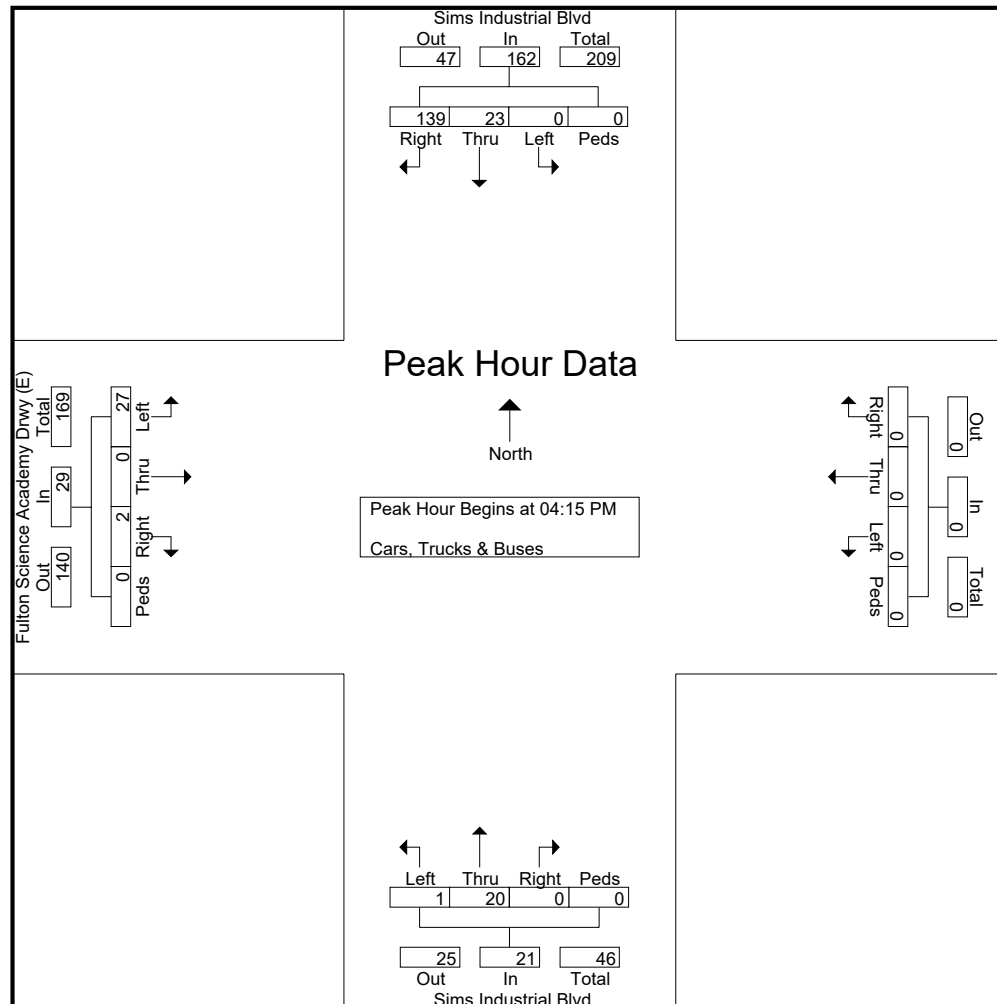
File Name : 30970004

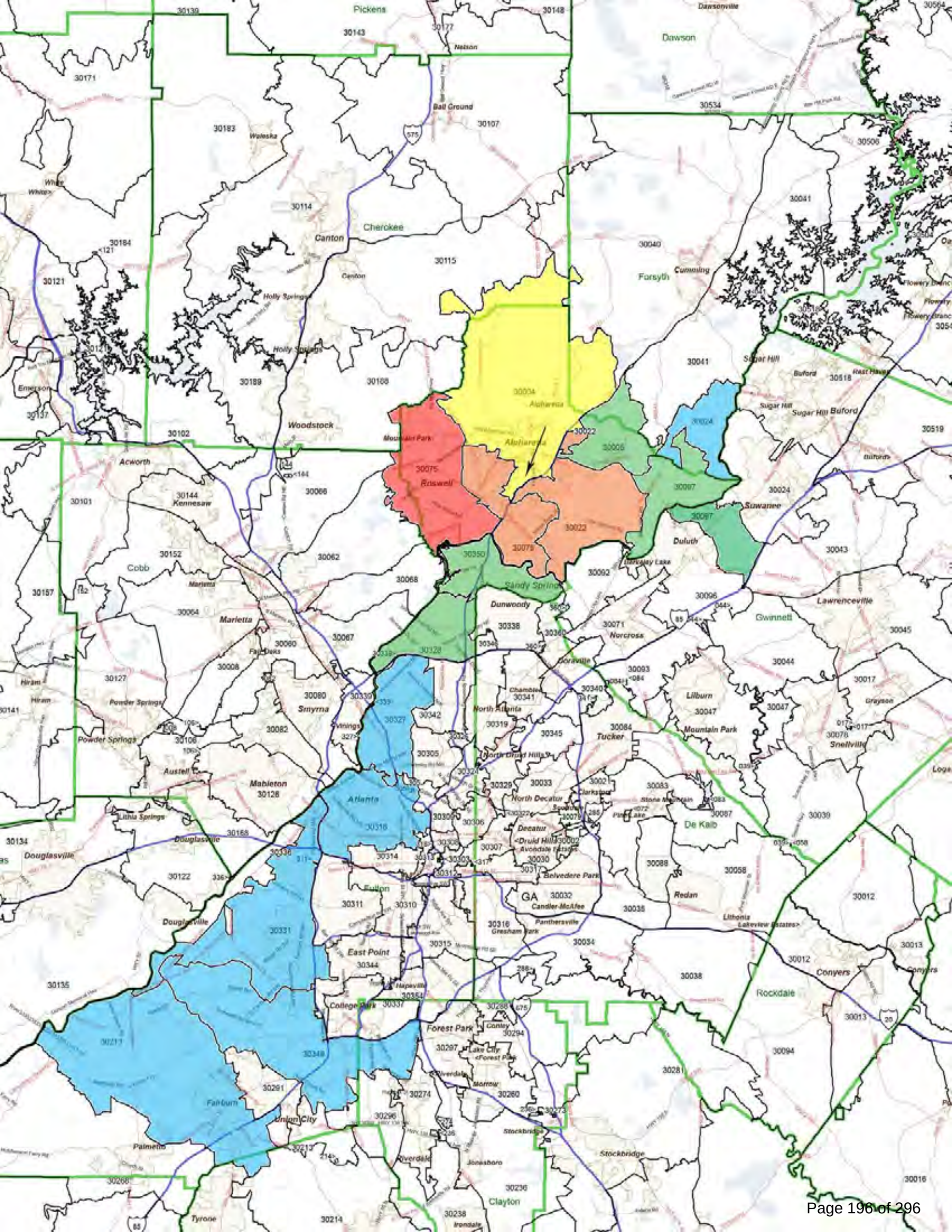
Site Code : 30970004

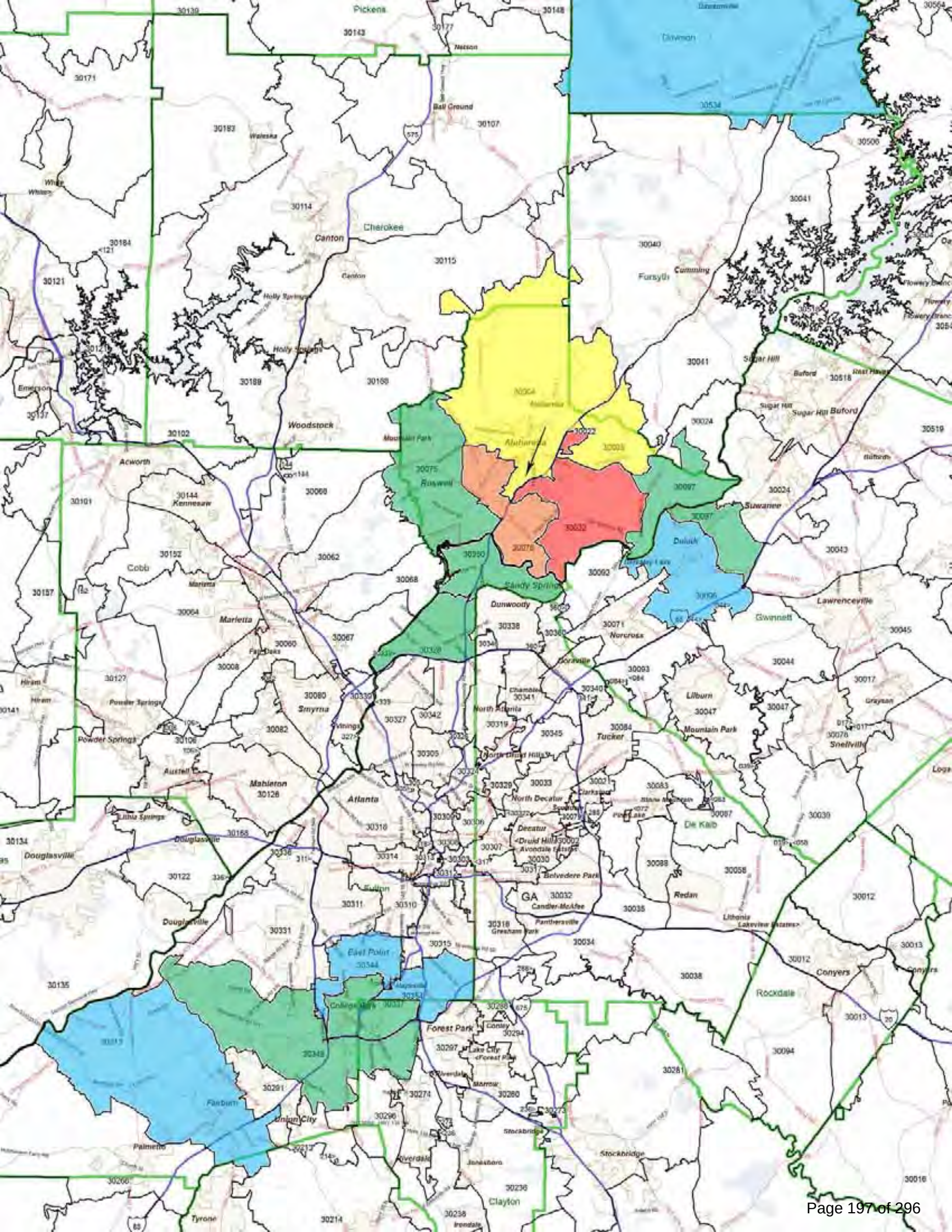
Start Date : 8/25/2011

Page No : 3

	Sims Industrial Blvd Northbound					Sims Industrial Blvd Southbound					Fulton Science Academy Drwy (E) Eastbound					Westbound					
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 Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	0	0	0	0	1	26	0	27	3	0	0	0	3	0	0	0	0	0	30
04:30 PM	0	2	0	0	2	0	11	33	0	44	2	0	1	0	3	0	0	0	0	0	49
04:45 PM	0	17	0	0	17	0	11	60	0	71	13	0	0	0	13	0	0	0	0	0	101
05:00 PM	1	1	0	0	2	0	0	20	0	20	9	0	1	0	10	0	0	0	0	0	32
Total Volume	1	20	0	0	21	0	23	139	0	162	27	0	2	0	29	0	0	0	0	0	212
% App. Total	4.8	95.2	0	0		0	14.2	85.8	0		93.1	0	6.9	0		0	0	0	0		
PHF	.250	.294	.000	.000	.309	.000	.523	.579	.000	.570	.519	.000	.500	.000	.558	.000	.000	.000	.000	.000	.525







Queues
1: Encore Pkwy & Westside Pkwy

Existing AM
9/10/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	6	12	353	14	79	4	226	142	177	800	10
Lane Group Flow (vph)	8	16	28	484	24	88	12	233	156	184	870	12
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Detector Phases	3	8	8	7	4	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.5	30.5	12.0	30.5	30.5	12.0	24.0	24.0	12.0	27.5	27.5
Total Split (s)	15.0	33.5	33.5	33.0	51.5	51.5	15.0	47.0	47.0	17.0	49.0	49.0
Total Split (%)	11.5%	25.7%	25.7%	25.3%	39.5%	39.5%	11.5%	36.0%	36.0%	13.0%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.06	0.17	0.26	0.80	0.03	0.22	0.05	0.11	0.15	0.23	0.36	0.01
Control Delay	36.2	62.8	26.2	61.5	37.8	9.0	9.0	13.5	3.0	8.3	11.5	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	62.8	26.2	61.5	37.8	9.0	9.0	13.5	3.0	8.3	11.5	7.9
Queue Length 50th (ft)	5	13	0	204	7	0	3	45	0	51	150	1
Queue Length 95th (ft)	12	16	3	196	13	44	4	82	37	96	278	10
Internal Link Dist (ft)		265			665			598			2378	
Turn Bay Length (ft)				180		180	260		160	270		165
Base Capacity (vph)	195	421	380	763	1288	632	317	2126	1013	800	2403	1078
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.07	0.63	0.02	0.14	0.04	0.11	0.15	0.23	0.36	0.01

Intersection Summary

Cycle Length: 130.5

Actuated Cycle Length: 130.5

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

Natural Cycle: 85

Control Type: Actuated-Coordinated

Splits and Phases: 1: Encore Pkwy & Westside Pkwy

			
ø1	ø2	ø3	ø4
15 s	49 s	15 s	51.5 s
			
ø5	ø6	ø7	ø8
17 s	47 s	33 s	33.5 s

HCM Signalized Intersection Capacity Analysis

Existing AM

1: Encore Pkwy & Westside Pkwy

9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.95	1.00	1.00	0.31	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	1380	1863	1583	3433	3539	1583	572	3539	1583	1072	3539	1583
Volume (vph)	5	6	12	353	14	79	4	226	142	177	800	10
Peak-hour factor, PHF	0.62	0.38	0.43	0.73	0.58	0.90	0.33	0.97	0.91	0.96	0.92	0.83
Adj. Flow (vph)	8	16	28	484	24	88	12	233	156	184	870	12
RTOR Reduction (vph)	0	0	27	0	0	69	0	0	66	0	0	3
Lane Group Flow (vph)	8	16	1	484	24	19	12	233	90	184	870	9
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Actuated Green, G (s)	7.3	5.9	5.9	23.1	27.6	27.6	77.7	75.2	75.2	89.5	83.0	83.0
Effective Green, g (s)	7.3	5.9	5.9	23.1	27.6	27.6	77.7	75.2	75.2	89.5	83.0	83.0
Actuated g/C Ratio	0.06	0.05	0.05	0.18	0.21	0.21	0.60	0.58	0.58	0.69	0.64	0.64
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	81	84	72	608	748	335	364	2039	912	790	2251	1007
v/s Ratio Prot	0.00	c0.01		c0.14	0.01		0.00	0.07		c0.02	c0.25	
v/s Ratio Perm	0.00		0.00			0.01	0.02		0.06	0.14		0.01
v/c Ratio	0.10	0.19	0.02	0.80	0.03	0.06	0.03	0.11	0.10	0.23	0.39	0.01
Uniform Delay, d1	58.4	60.0	59.5	51.4	40.8	41.1	10.8	12.5	12.4	7.3	11.5	8.7
Progression 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
Incremental Delay, d2	0.5	1.1	0.1	7.1	0.0	0.1	0.0	0.1	0.2	0.2	0.5	0.0
Delay (s)	59.0	61.1	59.6	58.6	40.9	41.1	10.9	12.7	12.6	7.4	12.0	8.7
Level of Service	E	E	E	E	D	D	B	B	B	A	B	A
Approach Delay (s)		60.0			55.3			12.6			11.1	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM Average Control Delay			25.1				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			130.5				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			52.2%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Maxwell Road & Westside Pkwy

Existing AM
9/10/2011

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	18	1	292	3	1	97	237	3	1	684	9
Lane Group Flow (vph)	32	4	321	8	8	108	252	8	4	735	16
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4	1	6		5	2	
Permitted Phases	8		8	4		6		6	2		2
Detector Phases	3	8	8	7	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.0	30.0	12.0	30.5	12.0	20.5	20.5	12.0	20.0	20.0
Total Split (s)	18.0	36.5	36.5	18.0	36.5	20.0	47.5	47.5	18.0	45.5	45.5
Total Split (%)	15.0%	30.4%	30.4%	15.0%	30.4%	16.7%	39.6%	39.6%	15.0%	37.9%	37.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.21	0.03	0.77	0.07	0.07	0.27	0.09	0.01	0.00	0.28	0.01
Control Delay	49.3	48.0	18.7	45.7	40.0	4.3	3.6	3.7	4.0	6.3	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	48.0	18.7	45.7	40.0	4.3	3.6	3.7	4.0	6.3	3.8
Queue Length 50th (ft)	24	3	0	6	3	8	9	0	0	67	0
Queue Length 95th (ft)	28	4	87	8	3	42	56	1	1	184	4
Internal Link Dist (ft)		353			298		2378			398	
Turn Bay Length (ft)	130		380	400		320		200	285		170
Base Capacity (vph)	238	505	663	239	470	508	2916	1306	1007	2651	1190
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.01	0.48	0.03	0.02	0.21	0.09	0.01	0.00	0.28	0.01

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 2: Maxwell Road & Westside Pkwy

			
ø1	ø2	ø3	ø4
20 s	45.5 s	18 s	36.5 s
			
ø5	ø6	ø7	ø8
18 s	47.5 s	18 s	36.5 s

HCM Signalized Intersection Capacity Analysis

Existing AM

2: Maxwell Road & Westside Pkwy

9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1723		1770	3539	1583	1770	3539	1583
Flt Permitted	0.45	1.00	1.00	0.80	1.00		0.34	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	837	1863	1583	1490	1723		624	3539	1583	1110	3539	1583
Volume (vph)	18	1	292	3	1	2	97	237	3	1	684	9
Peak-hour factor, PHF	0.56	0.25	0.91	0.38	0.25	0.50	0.90	0.94	0.38	0.25	0.93	0.56
Adj. Flow (vph)	32	4	321	8	4	4	108	252	8	4	735	16
RTOR Reduction (vph)	0	0	297	0	4	0	0	0	2	0	0	4
Lane Group Flow (vph)	32	4	24	8	4	0	108	252	6	4	735	12
Turn Type	pm+pt	Perm		pm+pt			pm+pt	Perm		pm+pt	Perm	
Protected Phases	3	8	7		4	1		6	5		2	
Permitted Phases	8	8		4			6	6		2	2	
Actuated Green, G (s)	14.2	8.9	8.9	6.4	5.0	97.7		92.5	92.5	87.9	86.7	86.7
Effective Green, g (s)	14.2	8.9	8.9	6.4	5.0	97.7		92.5	92.5	87.9	86.7	86.7
Actuated g/C Ratio	0.12	0.07	0.07	0.05	0.04	0.81		0.77	0.77	0.73	0.72	0.72
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	140	138	117	83	72	575		2728	1220	820	2557	1144
v/s Ratio Prot	c0.01	0.00	0.00		0.00	c0.01		0.07	0.00		c0.21	
v/s Ratio Perm	c0.02	0.02		0.00			0.14	0.00		0.00	0.01	
v/c Ratio	0.23	0.03	0.20	0.10	0.06	0.19		0.09	0.01	0.00	0.29	0.01
Uniform Delay, d1	47.6	51.5	52.2	54.0	55.2	2.6		3.4	3.2	4.3	5.8	4.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.9	0.5	0.3	0.2		0.1	0.0	0.0	0.3	0.0
Delay (s)	48.4	51.6	53.1	54.5	55.6	2.8		3.5	3.2	4.3	6.1	4.7
Level of Service	D	D	D	D	E	A		A	A	A	A	A
Approach Delay (s)	52.6				55.0		3.3				6.1	
Approach LOS	D				E		A				A	
Intersection Summary												
HCM Average Control Delay			17.0		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)				16.0			
Intersection Capacity Utilization			50.3%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Existing PM

1: Encore Pkwy & Westside Pkwy

9/10/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	8	14	221	16	252	11	643	249	166	306	5
Lane Group Flow (vph)	16	20	20	260	20	271	12	707	283	195	315	12
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Detector Phases	3	8	8	7	4	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.5	30.5	12.0	30.5	30.5	12.0	24.0	24.0	12.0	27.5	27.5
Total Split (s)	17.0	35.5	35.5	24.0	42.5	42.5	17.0	44.0	44.0	27.0	54.0	54.0
Total Split (%)	13.0%	27.2%	27.2%	18.4%	32.6%	32.6%	13.0%	33.7%	33.7%	20.7%	41.4%	41.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.12	0.20	0.20	0.66	0.04	0.61	0.02	0.30	0.25	0.54	0.12	0.01
Control Delay	43.5	63.6	26.5	63.5	47.9	12.0	5.7	10.9	3.5	10.6	6.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	63.6	26.5	63.5	47.9	12.0	5.7	10.9	3.5	10.6	6.6	4.2
Queue Length 50th (ft)	11	17	0	110	7	0	2	133	18	42	34	0
Queue Length 95th (ft)	25	20	17	141	18	81	9	205	60	74	76	2
Internal Link Dist (ft)		265			665			598			2378	
Turn Bay Length (ft)				180		180	260		160	270		165
Base Capacity (vph)	224	450	397	526	1044	658	867	2362	1131	509	2620	1175
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.04	0.05	0.49	0.02	0.41	0.01	0.30	0.25	0.38	0.12	0.01

Intersection Summary

Cycle Length: 130.5

Actuated Cycle Length: 130.5

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

Natural Cycle: 85

Control Type: Actuated-Coordinated

Splits and Phases: 1: Encore Pkwy & Westside Pkwy

			
ø1	ø2	ø3	ø4
17 s	54 s	17 s	42.5 s
			
ø5	ø6	ø7	ø8
27 s	44 s	24 s	35.5 s

HCM Signalized Intersection Capacity Analysis

Existing PM

1: Encore Pkwy & Westside Pkwy

9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.95	1.00	1.00	0.56	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1385	1863	1583	3433	3539	1583	1044	3539	1583	617	3539	1583
Volume (vph)	12	8	14	221	16	252	11	643	249	166	306	5
Peak-hour factor, PHF	0.75	0.40	0.70	0.85	0.80	0.93	0.92	0.91	0.88	0.85	0.97	0.42
Adj. Flow (vph)	16	20	20	260	20	271	12	707	283	195	315	12
RTOR Reduction (vph)	0	0	19	0	0	235	0	0	79	0	0	4
Lane Group Flow (vph)	16	20	1	260	20	36	12	707	204	195	315	8
Turn Type	pm+pt		Perm		Prot		Perm		pm+pt		Perm	
Protected Phases	3		8		7		4		1		6	
Permitted Phases	8		8		7		4		6		2	
Actuated Green, G (s)	8.4	5.4	5.4	14.9	17.3	17.3	87.0	84.6	84.6	98.2	91.8	91.8
Effective Green, g (s)	8.4	5.4	5.4	14.9	17.3	17.3	87.0	84.6	84.6	98.2	91.8	91.8
Actuated g/C Ratio	0.06	0.04	0.04	0.11	0.13	0.13	0.67	0.65	0.65	0.75	0.70	0.70
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	98	77	66	392	469	210	709	2294	1026	549	2490	1114
v/s Ratio Prot	0.00	c0.01		c0.08	0.01		0.00	0.20		c0.03	0.09	
v/s Ratio Perm	0.01		0.00			0.02	0.01		0.13	c0.24		0.01
v/c Ratio	0.16	0.26	0.01	0.66	0.04	0.17	0.02	0.31	0.20	0.36	0.13	0.01
Uniform Delay, d1	57.6	60.6	60.0	55.4	49.4	50.2	7.3	10.1	9.3	5.2	6.3	5.8
Progression 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
Incremental Delay, d2	0.8	1.8	0.1	4.2	0.0	0.4	0.0	0.3	0.4	0.4	0.1	0.0
Delay (s)	58.4	62.4	60.1	59.6	49.4	50.6	7.3	10.4	9.7	5.6	6.4	5.8
Level of Service	E	E	E	E	D	D	A	B	A	A	A	A
Approach Delay (s)	60.4				54.8				10.2			
Approach LOS	E				D				B			
Intersection Summary												
HCM Average Control Delay			22.0		HCM Level of Service			C				
HCM Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			130.5		Sum of lost time (s)			12.0				
Intersection Capacity Utilization			49.9%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Maxwell Road & Westside Pkwy

Existing PM
9/10/2011

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	13	1	163	3	1	293	637	3	4	322	30
Lane Group Flow (vph)	24	4	214	8	12	329	657	4	12	335	40
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4	1	6		5	2	
Permitted Phases	8		8	4		6		6	2		2
Detector Phases	3	8	8	7	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.0	30.0	12.0	30.5	12.0	20.5	20.5	12.0	20.0	20.0
Total Split (s)	18.0	36.5	36.5	18.0	36.5	37.0	47.5	47.5	18.0	28.5	28.5
Total Split (%)	15.0%	30.4%	30.4%	15.0%	30.4%	30.8%	39.6%	39.6%	15.0%	23.8%	23.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.18	0.03	0.70	0.07	0.12	0.50	0.22	0.00	0.02	0.13	0.03
Control Delay	49.8	50.0	19.5	47.0	35.0	5.2	3.6	3.7	3.5	6.8	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	50.0	19.5	47.0	35.0	5.2	3.6	3.7	3.5	6.8	3.2
Queue Length 50th (ft)	18	3	0	6	3	26	26	0	1	30	0
Queue Length 95th (ft)	23	4	35	8	2	108	138	3	3	91	11
Internal Link Dist (ft)		353			298		2378			398	
Turn Bay Length (ft)	130		380	400		320		200	285		170
Base Capacity (vph)	232	505	585	232	460	860	2940	1316	741	2560	1156
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.01	0.37	0.03	0.03	0.38	0.22	0.00	0.02	0.13	0.03

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 2: Maxwell Road & Westside Pkwy

			
ø1	ø2	ø3	ø4
37 s	28.5 s	18 s	36.5 s
			
ø5	ø6	ø7	ø8
18 s	47.5 s	18 s	36.5 s

HCM Signalized Intersection Capacity Analysis

Existing PM

2: Maxwell Road & Westside Pkwy

9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1676		1770	3539	1583	1770	3539	1583
Flt Permitted	0.49	1.00	1.00	0.87	1.00		0.52	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	920	1863	1583	1620	1676		978	3539	1583	749	3539	1583
Volume (vph)	13	1	163	3	1	3	293	637	3	4	322	30
Peak-hour factor, PHF	0.54	0.25	0.76	0.38	0.25	0.38	0.89	0.97	0.75	0.33	0.96	0.75
Adj. Flow (vph)	24	4	214	8	4	8	329	657	4	12	335	40
RTOR Reduction (vph)	0	0	200	0	8	0	0	0	1	0	0	12
Lane Group Flow (vph)	24	4	14	8	4	0	329	657	3	12	335	28
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Actuated Green, G (s)	13.0	8.1	8.1	6.0	4.6		98.5	93.3	93.3	84.8	83.6	83.6
Effective Green, g (s)	13.0	8.1	8.1	6.0	4.6		98.5	93.3	93.3	84.8	83.6	83.6
Actuated g/C Ratio	0.11	0.07	0.07	0.05	0.04		0.82	0.78	0.78	0.71	0.70	0.70
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	134	126	107	83	64		875	2752	1231	540	2466	1103
v/s Ratio Prot	c0.01	0.00		0.00	0.00		c0.03	0.19		0.00	0.09	
v/s Ratio Perm	c0.01		0.01	0.00			c0.27		0.00	0.02		0.02
v/c Ratio	0.18	0.03	0.13	0.10	0.07		0.38	0.24	0.00	0.02	0.14	0.03
Uniform Delay, d1	48.4	52.3	52.7	54.4	55.6		2.5	3.6	3.0	5.2	6.1	5.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1	0.6	0.5	0.4		0.3	0.2	0.0	0.0	0.1	0.0
Delay (s)	49.1	52.4	53.2	54.9	56.1		2.7	3.9	3.0	5.2	6.2	5.7
Level of Service	D	D	D	D	E		A	A	A	A	A	A
Approach Delay (s)		52.8			55.6			3.5			6.1	
Approach LOS		D			E			A			A	
Intersection Summary												
HCM Average Control Delay			12.0			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			42.5%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Encore Pkwy & Westside Pkwy

Base AM
9/10/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	6	12	357	14	80	4	228	143	179	808	10
Lane Group Flow (vph)	8	16	28	489	24	89	12	235	157	186	878	12
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Detector Phases	3	8	8	7	4	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.5	30.5	12.0	30.5	30.5	12.0	24.0	24.0	12.0	27.5	27.5
Total Split (s)	15.0	33.5	33.5	33.0	51.5	51.5	15.0	47.0	47.0	17.0	49.0	49.0
Total Split (%)	11.5%	25.7%	25.7%	25.3%	39.5%	39.5%	11.5%	36.0%	36.0%	13.0%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.06	0.17	0.26	0.80	0.03	0.22	0.05	0.11	0.16	0.24	0.37	0.01
Control Delay	36.0	62.8	26.2	61.6	37.7	9.0	9.2	13.5	3.0	8.4	11.6	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	62.8	26.2	61.6	37.7	9.0	9.2	13.5	3.0	8.4	11.6	7.9
Queue Length 50th (ft)	5	13	0	206	7	0	3	45	0	52	152	1
Queue Length 95th (ft)	12	16	3	198	13	44	4	82	37	97	281	10
Internal Link Dist (ft)		265			665			598			2378	
Turn Bay Length (ft)				180		180	260		160	270		165
Base Capacity (vph)	195	421	380	763	1288	633	312	2120	1011	798	2399	1076
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.07	0.64	0.02	0.14	0.04	0.11	0.16	0.23	0.37	0.01

Intersection Summary

Cycle Length: 130.5

Actuated Cycle Length: 130.5

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

Natural Cycle: 85

Control Type: Actuated-Coordinated

Splits and Phases: 1: Encore Pkwy & Westside Pkwy

			
ø1	ø2	ø3	ø4
15 s	49 s	15 s	51.5 s
			
ø5	ø6	ø7	ø8
17 s	47 s	33 s	33.5 s

HCM Signalized Intersection Capacity Analysis

Base AM

1: Encore Pkwy & Westside Pkwy

9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.95	1.00	1.00	0.30	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	1380	1863	1583	3433	3539	1583	566	3539	1583	1069	3539	1583
Volume (vph)	5	6	12	357	14	80	4	228	143	179	808	10
Peak-hour factor, PHF	0.62	0.38	0.43	0.73	0.58	0.90	0.33	0.97	0.91	0.96	0.92	0.83
Adj. Flow (vph)	8	16	28	489	24	89	12	235	157	186	878	12
RTOR Reduction (vph)	0	0	27	0	0	70	0	0	67	0	0	3
Lane Group Flow (vph)	8	16	1	489	24	19	12	235	90	186	878	9
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Actuated Green, G (s)	7.4	6.0	6.0	23.2	27.8	27.8	77.4	74.9	74.9	89.3	82.8	82.8
Effective Green, g (s)	7.4	6.0	6.0	23.2	27.8	27.8	77.4	74.9	74.9	89.3	82.8	82.8
Actuated g/C Ratio	0.06	0.05	0.05	0.18	0.21	0.21	0.59	0.57	0.57	0.68	0.63	0.63
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	82	86	73	610	754	337	359	2031	909	787	2245	1004
v/s Ratio Prot	0.00	c0.01		c0.14	0.01		0.00	0.07		c0.02	c0.25	
v/s Ratio Perm	0.00		0.00			0.01	0.02		0.06	0.14		0.01
v/c Ratio	0.10	0.19	0.02	0.80	0.03	0.06	0.03	0.12	0.10	0.24	0.39	0.01
Uniform Delay, d1	58.3	59.9	59.4	51.4	40.7	40.9	11.0	12.7	12.6	7.3	11.6	8.8
Progression 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
Incremental Delay, d2	0.5	1.0	0.1	7.5	0.0	0.1	0.0	0.1	0.2	0.2	0.5	0.0
Delay (s)	58.8	60.9	59.5	58.9	40.7	41.0	11.0	12.8	12.8	7.5	12.1	8.8
Level of Service	E	E	E	E	D	D	B	B	B	A	B	A
Approach Delay (s)		59.9			55.5			12.7			11.3	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM Average Control Delay	25.2			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.46											
Actuated Cycle Length (s)	130.5			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	52.5%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

Queues
2: Maxwell Road & Westside Pkwy

Base AM
9/10/2011

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	18	1	295	3	1	98	239	3	1	691	9
Lane Group Flow (vph)	32	4	324	8	8	109	254	8	4	743	16
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4	1	6		5	2	
Permitted Phases	8		8	4		6		6	2		2
Detector Phases	3	8	8	7	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.0	30.0	12.0	30.5	12.0	20.5	20.5	12.0	20.0	20.0
Total Split (s)	18.0	36.5	36.5	18.0	36.5	20.0	47.5	47.5	18.0	45.5	45.5
Total Split (%)	15.0%	30.4%	30.4%	15.0%	30.4%	16.7%	39.6%	39.6%	15.0%	37.9%	37.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.21	0.03	0.78	0.07	0.07	0.28	0.09	0.01	0.00	0.28	0.01
Control Delay	49.3	48.0	18.7	45.7	40.0	4.4	3.6	3.7	4.0	6.3	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	48.0	18.7	45.7	40.0	4.4	3.6	3.7	4.0	6.3	3.8
Queue Length 50th (ft)	24	3	0	6	3	8	9	0	0	68	0
Queue Length 95th (ft)	28	4	87	8	3	42	57	1	1	186	4
Internal Link Dist (ft)		353			298		2378			398	
Turn Bay Length (ft)	130		380	400		320		200	285		170
Base Capacity (vph)	238	505	665	239	470	500	2916	1306	1006	2651	1190
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.01	0.49	0.03	0.02	0.22	0.09	0.01	0.00	0.28	0.01

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 2: Maxwell Road & Westside Pkwy

			
ø1	ø2	ø3	ø4
20 s	45.5 s	18 s	36.5 s
			
ø5	ø6	ø7	ø8
18 s	47.5 s	18 s	36.5 s

HCM Signalized Intersection Capacity Analysis

2: Maxwell Road & Westside Pkwy

Base AM
9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1723		1770	3539	1583	1770	3539	1583
Flt Permitted	0.45	1.00	1.00	0.80	1.00		0.33	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	837	1863	1583	1490	1723		618	3539	1583	1107	3539	1583
Volume (vph)	18	1	295	3	1	2	98	239	3	1	691	9
Peak-hour factor, PHF	0.56	0.25	0.91	0.38	0.25	0.50	0.90	0.94	0.38	0.25	0.93	0.56
Adj. Flow (vph)	32	4	324	8	4	4	109	254	8	4	743	16
RTOR Reduction (vph)	0	0	300	0	4	0	0	0	2	0	0	4
Lane Group Flow (vph)	32	4	24	8	4	0	109	254	6	4	743	12
Turn Type	pm+pt	Perm		pm+pt			pm+pt	Perm		pm+pt	Perm	
Protected Phases	3	8	7		4	1		6	5		2	
Permitted Phases	8	8		4			6	6		2	2	
Actuated Green, G (s)	14.2	8.9	8.9	6.4	5.0	97.7		92.5	92.5	87.9	86.7	86.7
Effective Green, g (s)	14.2	8.9	8.9	6.4	5.0	97.7		92.5	92.5	87.9	86.7	86.7
Actuated g/C Ratio	0.12	0.07	0.07	0.05	0.04	0.81		0.77	0.77	0.73	0.72	0.72
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	140	138	117	83	72	570		2728	1220	818	2557	1144
v/s Ratio Prot	c0.01	0.00	0.00		0.00	c0.01		0.07	0.00		c0.21	
v/s Ratio Perm	c0.02	0.02		0.00			0.14	0.00		0.00	0.01	
v/c Ratio	0.23	0.03	0.21	0.10	0.06	0.19		0.09	0.01	0.00	0.29	0.01
Uniform Delay, d1	47.6	51.5	52.2	54.0	55.2	2.6		3.4	3.2	4.3	5.8	4.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.9	0.5	0.3	0.2		0.1	0.0	0.0	0.3	0.0
Delay (s)	48.4	51.6	53.1	54.5	55.6	2.8		3.5	3.2	4.3	6.1	4.7
Level of Service	D	D	D	D	E	A		A	A	A	A	A
Approach Delay (s)	52.7				55.0		3.3				6.1	
Approach LOS	D				E		A				A	
Intersection Summary												
HCM Average Control Delay			17.0		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.29									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)				16.0			
Intersection Capacity Utilization			50.7%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Encore Pkwy & Westside Pkwy

Base PM
9/10/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	8	14	223	16	255	11	649	251	168	309	5
Lane Group Flow (vph)	16	20	20	262	20	274	12	713	285	198	319	12
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Detector Phases	3	8	8	7	4	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.5	30.5	12.0	30.5	30.5	12.0	24.0	24.0	12.0	27.5	27.5
Total Split (s)	17.0	35.5	35.5	25.0	43.5	43.5	17.0	42.0	42.0	28.0	53.0	53.0
Total Split (%)	13.0%	27.2%	27.2%	19.2%	33.3%	33.3%	13.0%	32.2%	32.2%	21.5%	40.6%	40.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.12	0.20	0.20	0.66	0.04	0.61	0.02	0.30	0.25	0.59	0.12	0.01
Control Delay	43.5	63.6	26.5	63.5	47.8	12.0	5.8	11.0	3.7	12.2	6.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	63.6	26.5	63.5	47.8	12.0	5.8	11.0	3.7	12.2	6.6	4.2
Queue Length 50th (ft)	11	17	0	111	7	0	2	135	20	43	35	0
Queue Length 95th (ft)	25	20	17	143	18	82	9	207	63	75	77	2
Internal Link Dist (ft)		265			665			598			2378	
Turn Bay Length (ft)				180		180	260		160	270		165
Base Capacity (vph)	224	450	397	552	1071	670	862	2358	1128	500	2618	1174
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.04	0.05	0.47	0.02	0.41	0.01	0.30	0.25	0.40	0.12	0.01

Intersection Summary

Cycle Length: 130.5

Actuated Cycle Length: 130.5

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

Natural Cycle: 85

Control Type: Actuated-Coordinated

Splits and Phases: 1: Encore Pkwy & Westside Pkwy

			
ø1	ø2	ø3	ø4
17 s	53 s	17 s	43.5 s
			
ø5	ø6	ø7	ø8
28 s	42 s	25 s	35.5 s

HCM Signalized Intersection Capacity Analysis

Base PM

1: Encore Pkwy & Westside Pkwy

9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00	1.00	0.95	1.00	1.00	0.56	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1406	1863	1583	3433	3539	1583	1040	3539	1583	612	3539	1583
Volume (vph)	12	8	14	223	16	255	11	649	251	168	309	5
Peak-hour factor, PHF	0.75	0.40	0.70	0.85	0.80	0.93	0.92	0.91	0.88	0.85	0.97	0.42
Adj. Flow (vph)	16	20	20	262	20	274	12	713	285	198	319	12
RTOR Reduction (vph)	0	0	19	0	0	238	0	0	77	0	0	4
Lane Group Flow (vph)	16	20	1	262	20	36	12	713	208	198	319	8
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Actuated Green, G (s)	8.3	5.3	5.3	15.0	17.3	17.3	87.0	84.6	84.6	98.2	91.8	91.8
Effective Green, g (s)	8.3	5.3	5.3	15.0	17.3	17.3	87.0	84.6	84.6	98.2	91.8	91.8
Actuated g/C Ratio	0.06	0.04	0.04	0.11	0.13	0.13	0.67	0.65	0.65	0.75	0.70	0.70
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	98	76	64	395	469	210	707	2294	1026	546	2490	1114
v/s Ratio Prot	0.00	c0.01		c0.08	0.01		0.00	0.20		c0.03	0.09	
v/s Ratio Perm	0.01		0.00			0.02	0.01		0.13	c0.25		0.01
v/c Ratio	0.16	0.26	0.01	0.66	0.04	0.17	0.02	0.31	0.20	0.36	0.13	0.01
Uniform Delay, d1	57.7	60.7	60.1	55.3	49.4	50.2	7.3	10.1	9.3	5.3	6.3	5.8
Progression 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
Incremental Delay, d2	0.8	1.9	0.1	4.2	0.0	0.4	0.0	0.4	0.4	0.4	0.1	0.0
Delay (s)	58.5	62.6	60.2	59.5	49.4	50.6	7.3	10.5	9.7	5.7	6.4	5.8
Level of Service	E	E	E	E	D	D	A	B	A	A	A	A
Approach Delay (s)		60.6			54.8			10.2			6.1	
Approach LOS		E			D			B			A	
Intersection Summary												
HCM Average Control Delay			22.0				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			130.5				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			50.3%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Maxwell Road & Westside Pkwy

Base PM
9/10/2011

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	13	1	165	3	1	296	643	3	4	325	30
Lane Group Flow (vph)	24	4	217	8	12	333	663	4	12	339	40
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4	1	6		5	2	
Permitted Phases	8		8	4		6		6	2		2
Detector Phases	3	8	8	7	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.0	30.0	12.0	30.5	12.0	20.5	20.5	12.0	20.0	20.0
Total Split (s)	18.0	36.5	36.5	18.0	36.5	38.0	47.5	47.5	18.0	27.5	27.5
Total Split (%)	15.0%	30.4%	30.4%	15.0%	30.4%	31.7%	39.6%	39.6%	15.0%	22.9%	22.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.18	0.03	0.70	0.07	0.12	0.52	0.23	0.00	0.02	0.13	0.03
Control Delay	49.8	50.0	19.5	47.0	35.0	5.5	3.6	3.7	3.8	7.1	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	50.0	19.5	47.0	35.0	5.5	3.6	3.7	3.8	7.1	3.3
Queue Length 50th (ft)	18	3	0	6	3	26	26	0	1	31	0
Queue Length 95th (ft)	23	4	35	8	2	109	140	3	3	94	12
Internal Link Dist (ft)		353			298		2378			398	
Turn Bay Length (ft)	130		380	400		320		200	285		170
Base Capacity (vph)	232	505	587	232	460	855	2940	1316	736	2542	1148
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.01	0.37	0.03	0.03	0.39	0.23	0.00	0.02	0.13	0.03

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 2: Maxwell Road & Westside Pkwy

			
ø1	ø2	ø3	ø4
38 s	27.5 s	18 s	36.5 s
			
ø5	ø6	ø7	ø8
18 s	47.5 s	18 s	36.5 s

HCM Signalized Intersection Capacity Analysis

2: Maxwell Road & Westside Pkwy

Base PM
9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1676		1770	3539	1583	1770	3539	1583
Flt Permitted	0.49	1.00	1.00	0.87	1.00		0.52	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	920	1863	1583	1620	1676		973	3539	1583	745	3539	1583
Volume (vph)	13	1	165	3	1	3	296	643	3	4	325	30
Peak-hour factor, PHF	0.54	0.25	0.76	0.38	0.25	0.38	0.89	0.97	0.75	0.33	0.96	0.75
Adj. Flow (vph)	24	4	217	8	4	8	333	663	4	12	339	40
RTOR Reduction (vph)	0	0	202	0	8	0	0	0	1	0	0	12
Lane Group Flow (vph)	24	4	15	8	4	0	333	663	3	12	339	28
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Actuated Green, G (s)	13.0	8.1	8.1	6.0	4.6		98.5	93.3	93.3	84.2	83.0	83.0
Effective Green, g (s)	13.0	8.1	8.1	6.0	4.6		98.5	93.3	93.3	84.2	83.0	83.0
Actuated g/C Ratio	0.11	0.07	0.07	0.05	0.04		0.82	0.78	0.78	0.70	0.69	0.69
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	134	126	107	83	64		875	2752	1231	533	2448	1095
v/s Ratio Prot	c0.01	0.00		0.00	0.00		c0.04	0.19		0.00	0.10	
v/s Ratio Perm	c0.01		0.01	0.00			c0.28		0.00	0.02		0.02
v/c Ratio	0.18	0.03	0.14	0.10	0.07		0.38	0.24	0.00	0.02	0.14	0.03
Uniform Delay, d1	48.4	52.3	52.7	54.4	55.6		2.5	3.7	3.0	5.4	6.3	5.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1	0.6	0.5	0.4		0.3	0.2	0.0	0.0	0.1	0.0
Delay (s)	49.1	52.4	53.2	54.9	56.1		2.8	3.9	3.0	5.4	6.4	5.8
Level of Service	D	D	D	D	E		A	A	A	A	A	A
Approach Delay (s)		52.8			55.6			3.5			6.3	
Approach LOS		D			E			A			A	
Intersection Summary												
HCM Average Control Delay			12.1			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			42.8%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Encore Pkwy & Westside Pkwy

Future AM
9/10/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	6	12	357	14	193	4	35	143	258	896	10
Lane Group Flow (vph)	8	16	28	489	24	214	12	36	157	269	974	12
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Detector Phases	3	8	8	7	4	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.5	30.5	12.0	30.5	30.5	12.0	24.0	24.0	12.0	27.5	27.5
Total Split (s)	14.0	32.5	32.5	32.0	50.5	50.5	14.0	48.0	48.0	18.0	52.0	52.0
Total Split (%)	10.7%	24.9%	24.9%	24.5%	38.7%	38.7%	10.7%	36.8%	36.8%	13.8%	39.8%	39.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.06	0.17	0.26	0.81	0.03	0.42	0.06	0.02	0.16	0.29	0.41	0.01
Control Delay	36.2	62.8	26.1	62.2	38.0	7.8	9.5	16.0	3.2	8.6	12.0	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	62.8	26.1	62.2	38.0	7.8	9.5	16.0	3.2	8.6	12.0	7.8
Queue Length 50th (ft)	5	13	0	206	7	0	3	6	0	79	175	1
Queue Length 95th (ft)	12	16	3	200	13	65	4	18	39	137	314	10
Internal Link Dist (ft)		265			665			598			2378	
Turn Bay Length (ft)				180		180	260		160	270		165
Base Capacity (vph)	182	407	368	737	1261	702	274	2057	986	948	2403	1077
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.08	0.66	0.02	0.30	0.04	0.02	0.16	0.28	0.41	0.01

Intersection Summary

Cycle Length: 130.5

Actuated Cycle Length: 130.5

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

Natural Cycle: 85

Control Type: Actuated-Coordinated

Splits and Phases: 1: Encore Pkwy & Westside Pkwy

HCM Signalized Intersection Capacity Analysis

Future AM

1: Encore Pkwy & Westside Pkwy

9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.95	1.00	1.00	0.28	1.00	1.00	0.69	1.00	1.00
Satd. Flow (perm)	1380	1863	1583	3433	3539	1583	513	3539	1583	1293	3539	1583
Volume (vph)	5	6	12	357	14	193	4	35	143	258	896	10
Peak-hour factor, PHF	0.62	0.38	0.43	0.73	0.58	0.90	0.33	0.97	0.91	0.96	0.92	0.83
Adj. Flow (vph)	8	16	28	489	24	214	12	36	157	269	974	12
RTOR Reduction (vph)	0	0	27	0	0	169	0	0	70	0	0	3
Lane Group Flow (vph)	8	16	1	489	24	45	12	36	87	269	974	9
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Actuated Green, G (s)	7.4	6.0	6.0	23.1	27.7	27.7	75.1	72.6	72.6	89.4	82.9	82.9
Effective Green, g (s)	7.4	6.0	6.0	23.1	27.7	27.7	75.1	72.6	72.6	89.4	82.9	82.9
Actuated g/C Ratio	0.06	0.05	0.05	0.18	0.21	0.21	0.58	0.56	0.56	0.69	0.64	0.64
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	82	86	73	608	751	336	319	1969	881	933	2248	1006
v/s Ratio Prot	0.00	0.01		c0.14	0.01		0.00	0.01		c0.03	c0.28	
v/s Ratio Perm	0.00		0.00			c0.03	0.02		0.06	0.17		0.01
v/c Ratio	0.10	0.19	0.02	0.80	0.03	0.14	0.04	0.02	0.10	0.29	0.43	0.01
Uniform Delay, d1	58.3	59.9	59.4	51.5	40.8	41.7	11.9	13.0	13.6	7.7	12.0	8.7
Progression 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
Incremental Delay, d2	0.5	1.0	0.1	7.6	0.0	0.2	0.0	0.0	0.2	0.2	0.6	0.0
Delay (s)	58.8	60.9	59.5	59.1	40.8	41.9	12.0	13.0	13.8	7.9	12.6	8.7
Level of Service	E	E	E	E	D	D	B	B	B	A	B	A
Approach Delay (s)		59.9			53.5			13.6			11.5	
Approach LOS		E			D			B			B	
Intersection Summary												
HCM Average Control Delay			26.5		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			130.5		Sum of lost time (s)				12.0			
Intersection Capacity Utilization			48.3%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Maxwell Road & Westside Pkwy

Future AM
9/10/2011

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	18	69	295	170	48	98	239	243	146	691	9
Lane Group Flow (vph)	32	276	324	447	398	109	254	639	584	743	16
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4	1	6		5	2	
Permitted Phases	8		8	4		6		6	2		2
Detector Phases	3	8	8	7	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.0	30.0	12.0	30.5	12.0	20.5	20.5	12.0	20.0	20.0
Total Split (s)	12.0	30.0	30.0	28.0	46.0	12.0	33.0	33.0	29.0	50.0	50.0
Total Split (%)	10.0%	25.0%	25.0%	23.3%	38.3%	10.0%	27.5%	27.5%	24.2%	41.7%	41.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.12	0.81	0.70	0.98	0.61	0.37	0.28	0.87	0.89	0.50	0.02
Control Delay	22.2	65.2	24.4	65.9	32.4	22.4	37.6	27.5	41.1	28.1	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	65.2	24.4	65.9	32.4	22.4	37.6	27.5	41.1	28.1	10.1
Queue Length 50th (ft)	14	204	80	261	229	43	85	164	322	228	0
Queue Length 95th (ft)	20	69	181	117	50	79	123	0	88	295	6
Internal Link Dist (ft)		353			678		2378			398	
Turn Bay Length (ft)	130		380	400		320		200	285		170
Base Capacity (vph)	283	404	507	457	653	297	898	732	655	1478	671
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.68	0.64	0.98	0.61	0.37	0.28	0.87	0.89	0.50	0.02

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 2: Maxwell Road & Westside Pkwy

HCM Signalized Intersection Capacity Analysis

2: Maxwell Road & Westside Pkwy

Future AM
9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1718		1770	3539	1583	1770	3539	1583
Flt Permitted	0.53	1.00	1.00	0.21	1.00		0.37	1.00	1.00	0.46	1.00	1.00
Satd. Flow (perm)	983	1863	1583	400	1718		688	3539	1583	861	3539	1583
Volume (vph)	18	69	295	170	48	103	98	239	243	146	691	9
Peak-hour factor, PHF	0.56	0.25	0.91	0.38	0.25	0.50	0.90	0.94	0.38	0.25	0.93	0.56
Adj. Flow (vph)	32	276	324	447	192	206	109	254	639	584	743	16
RTOR Reduction (vph)	0	0	168	0	32	0	0	0	336	0	0	10
Lane Group Flow (vph)	32	276	156	447	366	0	109	254	303	584	743	6
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Actuated Green, G (s)	27.9	23.5	23.5	51.5	43.1		36.9	28.9	28.9	60.5	48.5	48.5
Effective Green, g (s)	27.9	23.5	23.5	51.5	43.1		36.9	28.9	28.9	60.5	48.5	48.5
Actuated g/C Ratio	0.23	0.20	0.20	0.43	0.36		0.31	0.24	0.24	0.50	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	257	365	310	446	617		284	852	381	643	1430	640
v/s Ratio Prot	0.00	0.15		c0.20	0.21		0.03	0.07		c0.21	0.21	
v/s Ratio Perm	0.02		0.10	c0.23			0.09		0.19	c0.25		0.00
v/c Ratio	0.12	0.76	0.50	1.00	0.59		0.38	0.30	0.80	0.91	0.52	0.01
Uniform Delay, d1	36.0	45.5	43.0	30.4	31.3		30.7	37.3	42.8	23.0	27.0	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	8.6	1.3	43.2	1.5		0.9	0.9	15.8	16.6	1.4	0.0
Delay (s)	36.2	54.2	44.3	73.6	32.8		31.5	38.1	58.6	39.6	28.3	21.4
Level of Service	D	D	D	E	C		C	D	E	D	C	C
Approach Delay (s)		48.2			54.4			50.4			33.1	
Approach LOS		D			D			D			C	
Intersection Summary												
HCM Average Control Delay			44.9			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			56.8%		ICU Level of Service			B				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 3: Maxwell Road & Fanfare Way

Future AM
9/10/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	453	5	0	315	6	0
Peak Hour Factor	0.50	0.40	0.50	0.50	0.38	0.50
Hourly flow rate (vph)	906	12	0	630	16	0
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	919	630	16			
Volume Left (vph)	0	0	16			
Volume Right (vph)	13	0	0			
Hadj (s)	0.03	0.03	0.23			
Departure Headway (s)	4.7	4.8	7.0			
Degree Utilization, x	1.20	0.84	0.03			
Capacity (veh/h)	759	743	492			
Control Delay (s)	118.6	27.4	10.3			
Approach Delay (s)	118.6	27.4	10.3			
Approach LOS	F	D	B			
Intersection Summary						
Delay			80.8			
HCM Level of Service			F			
Intersection Capacity Utilization			34.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Queues
1: Encore Pkwy & Westside Pkwy

Future PM
9/10/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	8	14	223	16	296	11	694	251	229	377	5
Lane Group Flow (vph)	16	20	20	262	20	318	12	763	285	269	389	12
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Detector Phases	3	8	8	7	4	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.5	30.5	12.0	30.5	30.5	12.0	24.0	24.0	12.0	27.5	27.5
Total Split (s)	14.0	32.5	32.5	22.0	40.5	40.5	14.0	44.0	44.0	32.0	62.0	62.0
Total Split (%)	10.7%	24.9%	24.9%	16.9%	31.0%	31.0%	10.7%	33.7%	33.7%	24.5%	47.5%	47.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.12	0.20	0.20	0.67	0.08	0.66	0.02	0.34	0.26	0.75	0.15	0.01
Control Delay	43.8	63.5	26.4	64.1	49.1	12.4	6.3	13.1	4.7	23.5	6.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	63.5	26.4	64.1	49.1	12.4	6.3	13.1	4.7	23.5	6.6	4.2
Queue Length 50th (ft)	11	17	0	111	14	0	2	153	24	61	44	0
Queue Length 95th (ft)	25	20	17	144	35	89	9	255	78	143	91	2
Internal Link Dist (ft)		265			665			598			2378	
Turn Bay Length (ft)				180		180	260		160	270		165
Base Capacity (vph)	184	407	361	474	521	672	761	2277	1093	533	2623	1176
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.05	0.06	0.55	0.04	0.47	0.02	0.34	0.26	0.50	0.15	0.01

Intersection Summary

Cycle Length: 130.5

Actuated Cycle Length: 130.5

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

Natural Cycle: 85

Control Type: Actuated-Coordinated

Splits and Phases: 1: Encore Pkwy & Westside Pkwy

			
ø1	ø2	ø3	ø4
14 s	62 s	14 s	40.5 s
			
ø5	ø6	ø7	ø8
32 s	44 s	22 s	32.5 s

HCM Signalized Intersection Capacity Analysis

Future PM

1: Encore Pkwy & Westside Pkwy

9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.95	1.00	1.00	0.52	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	1386	1863	1583	3433	1863	1583	972	3539	1583	564	3539	1583
Volume (vph)	12	8	14	223	16	296	11	694	251	229	377	5
Peak-hour factor, PHF	0.75	0.40	0.70	0.85	0.80	0.93	0.92	0.91	0.88	0.85	0.97	0.42
Adj. Flow (vph)	16	20	20	262	20	318	12	763	285	269	389	12
RTOR Reduction (vph)	0	0	19	0	0	276	0	0	78	0	0	4
Lane Group Flow (vph)	16	20	1	262	20	42	12	763	207	269	389	8
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8			4	6		6	2		2
Actuated Green, G (s)	8.4	5.4	5.4	14.8	17.2	17.2	83.9	81.5	81.5	98.3	91.9	91.9
Effective Green, g (s)	8.4	5.4	5.4	14.8	17.2	17.2	83.9	81.5	81.5	98.3	91.9	91.9
Actuated g/C Ratio	0.06	0.04	0.04	0.11	0.13	0.13	0.64	0.62	0.62	0.75	0.70	0.70
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	98	77	66	389	246	209	640	2210	989	543	2492	1115
v/s Ratio Prot	0.00	0.01		c0.08	0.01		0.00	0.22		c0.05	0.11	
v/s Ratio Perm	0.01		0.00			c0.03	0.01		0.13	c0.32		0.01
v/c Ratio	0.16	0.26	0.01	0.67	0.08	0.20	0.02	0.35	0.21	0.50	0.16	0.01
Uniform Delay, d1	57.6	60.6	60.0	55.5	49.7	50.5	8.4	11.7	10.6	5.9	6.4	5.7
Progression 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
Incremental Delay, d2	0.8	1.8	0.1	4.6	0.1	0.5	0.0	0.4	0.5	0.7	0.1	0.0
Delay (s)	58.4	62.4	60.1	60.1	49.9	51.0	8.4	12.2	11.1	6.7	6.5	5.8
Level of Service	E	E	E	E	D	D	A	B	B	A	A	A
Approach Delay (s)		60.4			54.9			11.8			6.6	
Approach LOS		E			D			B			A	
Intersection Summary												
HCM Average Control Delay	22.3			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.49											
Actuated Cycle Length (s)	130.5			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	54.9%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

Queues
2: Maxwell Road & Westside Pkwy

Future PM
9/10/2011

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	13	25	165	132	37	296	643	89	56	325	30
Lane Group Flow (vph)	24	100	217	347	361	333	663	119	170	339	40
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4	1	6		5	2	
Permitted Phases	8		8	4		6		6	2		2
Detector Phases	3	8	8	7	4	1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	30.0	30.0	12.0	30.5	12.0	20.5	20.5	12.0	20.0	20.0
Total Split (s)	15.0	33.0	33.0	28.0	46.0	35.0	37.0	37.0	22.0	24.0	24.0
Total Split (%)	12.5%	27.5%	27.5%	23.3%	38.3%	29.2%	30.8%	30.8%	18.3%	20.0%	20.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.13	0.53	0.61	0.71	0.71	0.66	0.39	0.14	0.41	0.22	0.06
Control Delay	28.4	60.6	13.9	42.0	40.8	19.1	22.0	4.5	15.3	24.3	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	60.6	13.9	42.0	40.8	19.1	22.0	4.5	15.3	24.3	8.7
Queue Length 50th (ft)	13	75	0	224	219	118	166	0	54	84	0
Queue Length 95th (ft)	18	32	33	102	38	202	261	22	34	149	18
Internal Link Dist (ft)		353			678		2378			398	
Turn Bay Length (ft)	130		380	400		320		200	285		170
Base Capacity (vph)	256	450	547	491	637	650	1712	827	520	1526	705
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.22	0.40	0.71	0.57	0.51	0.39	0.14	0.33	0.22	0.06

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 2: Maxwell Road & Westside Pkwy

			
ø1	ø2	ø3	ø4
35 s	24 s	15 s	46 s
			
ø5	ø6	ø7	ø8
22 s	37 s	28 s	33 s

HCM Signalized Intersection Capacity Analysis

2: Maxwell Road & Westside Pkwy

Future PM
9/10/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1698		1770	3539	1583	1770	3539	1583
Flt Permitted	0.55	1.00	1.00	0.45	1.00		0.47	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	1016	1863	1583	831	1698		876	3539	1583	671	3539	1583
Volume (vph)	13	25	165	132	37	81	296	643	89	56	325	30
Peak-hour factor, PHF	0.54	0.25	0.76	0.38	0.25	0.38	0.89	0.97	0.75	0.33	0.96	0.75
Adj. Flow (vph)	24	100	217	347	148	213	333	663	119	170	339	40
RTOR Reduction (vph)	0	0	192	0	48	0	0	0	63	0	0	23
Lane Group Flow (vph)	24	100	25	347	313	0	333	663	56	170	339	17
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Actuated Green, G (s)	17.9	13.6	13.6	40.7	32.4		71.3	56.5	56.5	61.0	50.2	50.2
Effective Green, g (s)	17.9	13.6	13.6	40.7	32.4		71.3	56.5	56.5	61.0	50.2	50.2
Actuated g/C Ratio	0.15	0.11	0.11	0.34	0.27		0.59	0.47	0.47	0.51	0.42	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	179	211	179	463	458		648	1666	745	440	1480	662
v/s Ratio Prot	0.00	0.05		c0.14	0.18		c0.07	0.19		0.03	0.10	
v/s Ratio Perm	0.02		0.02	c0.11			c0.23		0.04	0.16		0.01
v/c Ratio	0.13	0.47	0.14	0.75	0.68		0.51	0.40	0.08	0.39	0.23	0.03
Uniform Delay, d1	44.0	49.8	47.9	32.8	39.2		12.5	20.7	17.4	16.2	22.5	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.7	0.4	6.6	4.2		0.7	0.7	0.2	0.6	0.4	0.1
Delay (s)	44.4	51.5	48.3	39.4	43.4		13.2	21.4	17.6	16.7	22.8	20.6
Level of Service	D	D	D	D	D		B	C	B	B	C	C
Approach Delay (s)		49.0			41.4			18.5			20.8	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM Average Control Delay			28.8			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			49.4%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 3: Maxwell Road & Fanfare Way

Future PM
9/10/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	162	8	0	243	7	0
Peak Hour Factor	0.50	0.58	0.50	0.50	0.33	0.50
Hourly flow rate (vph)	324	14	0	486	21	0
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	338	486	21			
Volume Left (vph)	0	0	21			
Volume Right (vph)	14	0	0			
Hadj (s)	0.01	0.03	0.23			
Departure Headway (s)	4.5	4.4	5.9			
Degree Utilization, x	0.42	0.59	0.03			
Capacity (veh/h)	789	813	523			
Control Delay (s)	10.7	13.4	9.1			
Approach Delay (s)	10.7	13.4	9.1			
Approach LOS	B	B	A			
Intersection Summary						
Delay			12.2			
HCM Level of Service			B			
Intersection Capacity Utilization			22.8%	ICU Level of Service	A	
Analysis Period (min)			15			

11-063 Fulton Science Academy - TIS
Traffic Volumes
Future Conditions

A&R Engineering
September-11

Westside Parkway / Encore Parkway

A.M. Peak Hour

Condition	Northbound					Southbound					Eastbound					Westbound			
	L	T	R	Tot		L	T	R	Tot		L	T	R	Tot		L	T	R	Tot
Existing:	4	226	142	372		177	800	10	987		5	6	12	23		353	14	79	446
Growth Factor (%):	1	1	1			1	1	1			1	1	1			1	1	1	
Base Condition:	4	228	143	376		179	808	10	997		5	6	12	23		357	14	80	450
Total New Trips	0	127	0	127		79	88	0	167		0	0	0	0		0	0	113	113
Future Traffic Volumes:	4	355	143	503		258	896	10	1164		5	6	12	23		357	14	193	563

P.M. Peak Hour

Condition	Northbound					Southbound					Eastbound					Westbound			
	L	T	R	Tot		L	T	R	Tot		L	T	R	Tot		L	T	R	Tot
Existing:	11	643	249	903		166	306	5	477		12	8	14	34		221	16	252	489
Growth Factor (%):	1	1	1			1	1	1			1	1	1			1	1	1	
Base Condition:	11	649	251	912		168	309	5	482		12	8	14	34		223	16	255	494
Total New Trips	0	45	0	45		61	68	0	129		0	0	0	0		0	0	41	41
Future Traffic Volumes:	11	694	251	957		229	377	5	611		12	8	14	34		223	16	296	535

11-063 Fulton Science Academy - TIS
Traffic Volumes
Future Conditions

A&R Engineering
September-11

Westside Parkway / Maxwell Road

A.M. Peak Hour

Condition	Northbound					Southbound					Eastbound					Westbound			
	L	T	R	Tot		L	T	R	Tot		L	T	R	Tot		L	T	R	Tot
Existing:	97	237	3	337		1	684	9	694		18	1	292	311		3	1	2	6
Growth Factor (%):	1	1	1			1	1	1			1	1	1			1	1	1	
Base Condition:	98	239	3	340		1	691	9	701		18	1	295	314		3	1	2	6
Total New Trips	0	0	240	240		145	0	0	145		0	68	0	68		167	47	101	315
Future Traffic Volumes:	98	239	243	580		146	691	9	846		18	69	295	382		170	48	103	321

P.M. Peak Hour

Condition	Northbound					Southbound					Eastbound					Westbound			
	L	T	R	Tot		L	T	R	Tot		L	T	R	Tot		L	T	R	Tot
Existing:	293	637	3	933		4	322	30	356		13	1	163	177		3	1	3	7
Growth Factor (%):	1	1	1			1	1	1			1	1	1			1	1	1	
Base Condition:	296	643	3	942		4	325	30	360		13	1	165	179		3	1	3	7
Total New Trips	0	0	86	86		52	0	0	52		0	24	0	24		129	36	78	243
Future Traffic Volumes:	296	643	89	1028		56	325	30	412		13	25	165	203		132	37	81	250

11-063 Fulton Science Academy - TIS
Traffic Volumes
Future Conditions

A&R Engineering
September-11

Maxwell Road / Fanfare Way / Site Driveway

A.M. Peak Hour

Condition	Northbound					Southbound					Eastbound					Westbound			
	L	T	R	Tot		L	T	R	Tot		L	T	R	Tot		L	T	R	Tot
Existing:	6	0	0	6		0	0	0	0		0	0	5	5		0	0	0	0
Growth Factor (%):	1	1	0			0	1	1			1	0	1			0	0	0	
Base Condition:	6	0	0	6		0	0	0	0		0	0	5	5		0	0	0	0
Total New Trips	0	0	0	0		0	0	0	0		0	453	0	453		0	315	0	315
Future Traffic Volumes:	6	0	0	6		0	0	0	0		0	453	5	458		0	315	0	315

P.M. Peak Hour

Condition	Northbound					Southbound					Eastbound					Westbound			
	L	T	R	Tot		L	T	R	Tot		L	T	R	Tot		L	T	R	Tot
Existing:	7	0	0	7		0	0	0	0		0	0	8	8		0	0	0	0
Growth Factor (%):	1	1	1			1	1	1			1	1	1			1	1	1	
Base Condition:	7	0	0	7		0	0	0	0		0	0	8	8		0	0	0	0
Total New Trips	0	0	0	0		0	0	0	0		0	162	0	162		0	243	0	243
Future Traffic Volumes:	7	0	0	7		0	0	0	0		0	162	8	170		0	243	0	243

Mounting Height: EPH-640: 50'-0" AFG

Calculation Height: 3'-0" above playing field

Luminaire Schedule							
Project: Soccer Field							
Symbol	Qty	Label	Arrangement	LLF	Lum Lumens	Description	Total Watts
	8	EPH-640 57 70 4S	SINGLE	0.900	89596	EPH-08-0640L-57-70-4S-HEG	5448
	12	EPH-640 57 70 3S	SINGLE	0.900	89640	EPH-08-0640L-57-70-3S-HEG	8172

Calculation Summary										
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	PtSpcLr	PtSpcTb	
Soccer_3FT APF	Illuminance	Fc	22.28	37.8	10.1	2.21	3.74	15	15	

The calculations provided in this report are predicted lighting levels based on the above described input data and characteristics. All information should be reviewed for accuracy, understanding and agreement with all information. Any discrepancies should be noted and the preparer of this report immediately advised to clarify or change as required.

Actual lighting levels may vary from this report due to a variety of circumstances, such as: reflectances, voltage variations, objects blocking or redirecting light, different mounting heights, installation, lamp and ballast tolerances, etc. Room is considered completely empty unless noted otherwise above. Unless specifically stated otherwise, predicted foot candles are not a recommendation of lighting levels.

Ardd & Winter, Inc. assumes no responsibility for any such variances and will not be held responsible for lighting levels different from predicted levels in this report. Recipient of this report, or someone designated by recipient, must verify that lighting fixtures will physically fit within the specified location(s). Catalog numbers of lighting fixtures may not be complete as all conditions may not be known.

Where backgrounds are shown, these are typically used for reference purposes only, unless noted otherwise. Additional details available upon request.





Ardd + Winter

Lighting Manufacturer Representatives

Calculations By: WES

Revised By:

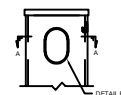
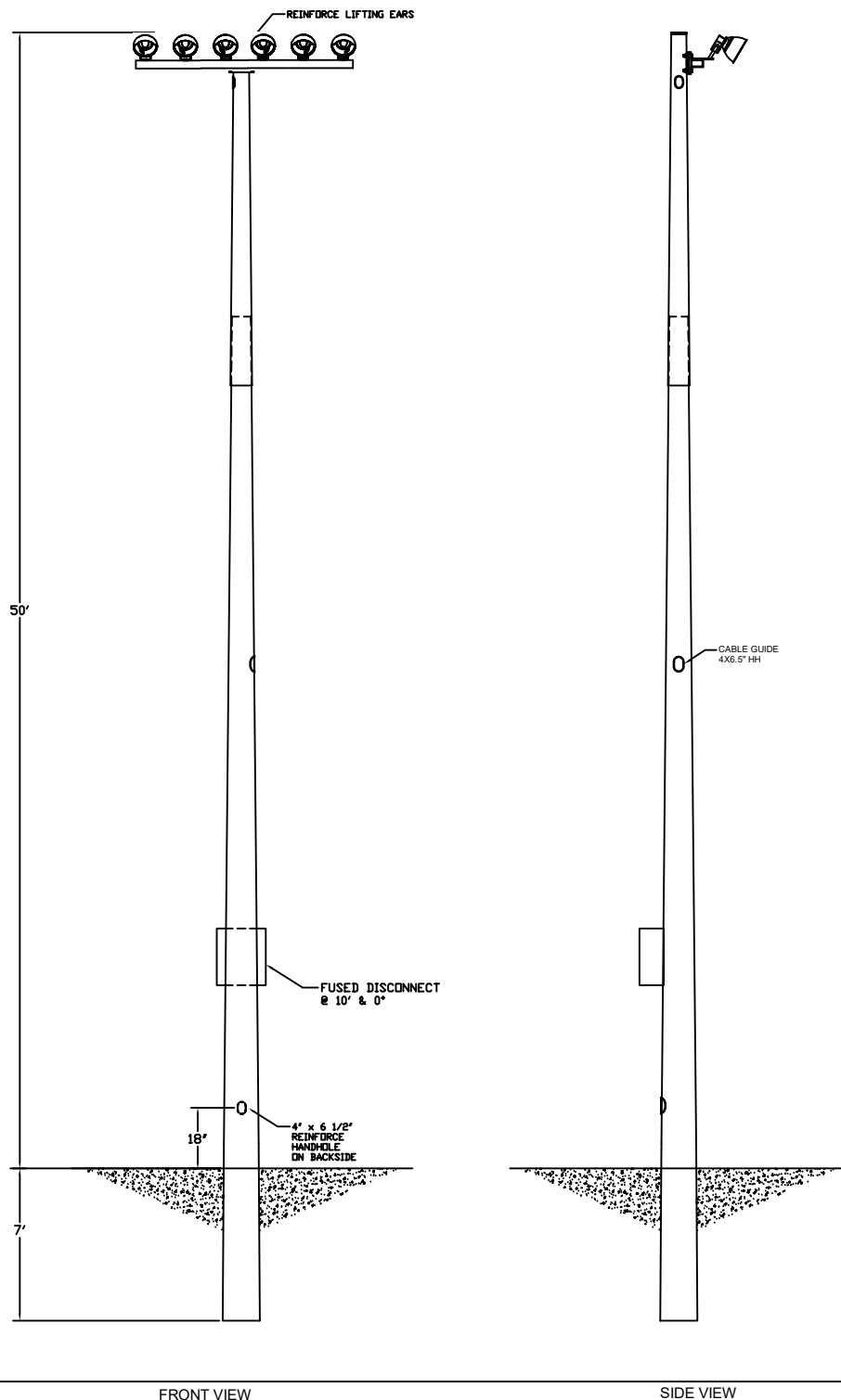
Date: 3/30/2023

Scale: Not to Scale

Project Name: FSA Phase 3 Soccer Field

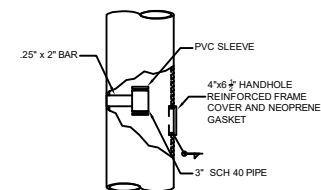
Revision: P1

Page 1 of 1

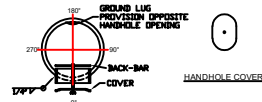
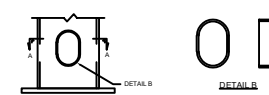


SECTION A-A

3 X 5" REINFORCE HANDHOLE



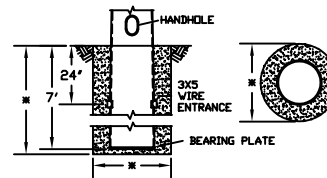
CABLE GUIDE



4 X 6 1/2" REINFORCE HANDHOLE

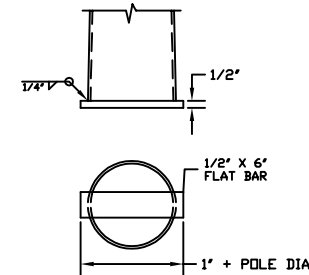
	BASE OD (in)	TOP OD (in)	WALL THC	LENGHT (ft)	WEIGHT (lbs)
TOP	7.23	6.4	.188	5.96	82
BOTTOM	14	6.58	.188	53	1119

POLE DIMENSION



■ DIMENSIONS TO BE DETERMINED BY ENGINEER.

NOTE:
EXTERIOR TOP COATED WITH COAL
TAR MASTIC FOR EMBEDMENT
DEPTH PLUS 6".



COMPONENT	SPECIFICATION
POLE TOP	ASTM A572 GR. 65
POLE BOTTOM	ASTM A572 GR. 65
MISC. STEEL	ASTM A36

GENERAL NOTES:

1. ALL HARDWARE TO BE GALVANIZED TO ASTM A153.
2. POLE ASSEMBLY TO BE GALVANIZED TO ASTM A153.
3. ALL WELDING TO CONFORM TO AWS D1.1 MOST RECENT EDITION.
4. DESIGN INCORPORATE GUST FACTOR PER REF CODE.
5. REFER TO GENERAL INSTALLATION INSTRUCTIONS PRIOR TO ASSEMBLY.

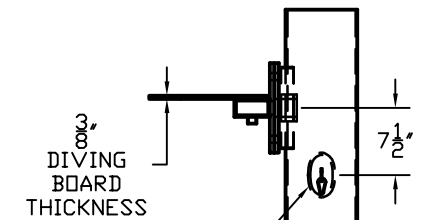
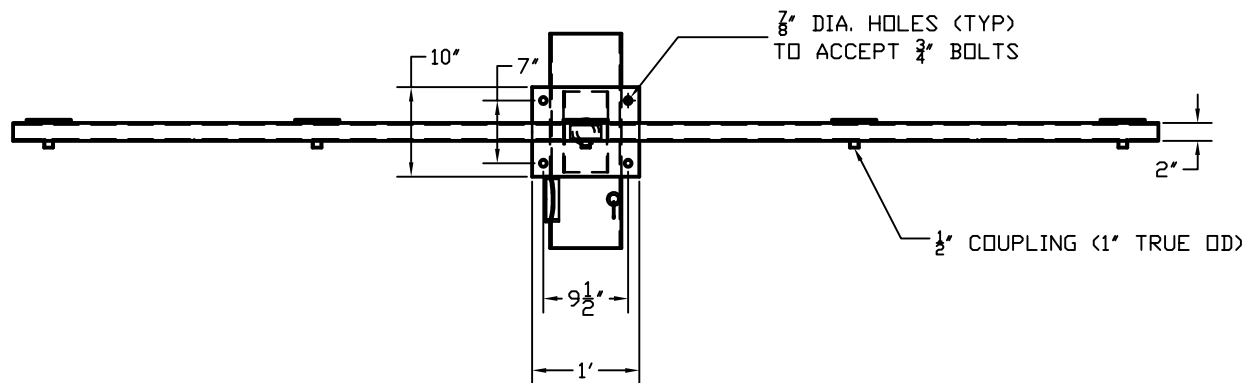
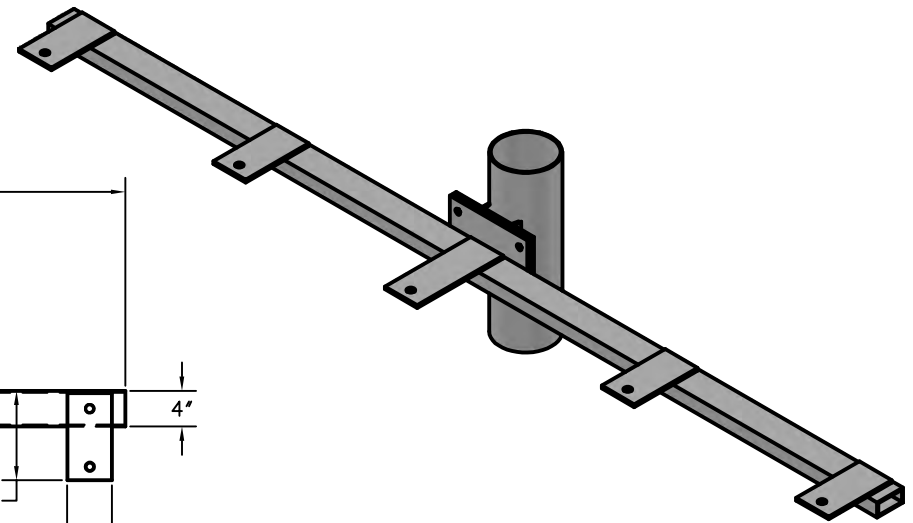
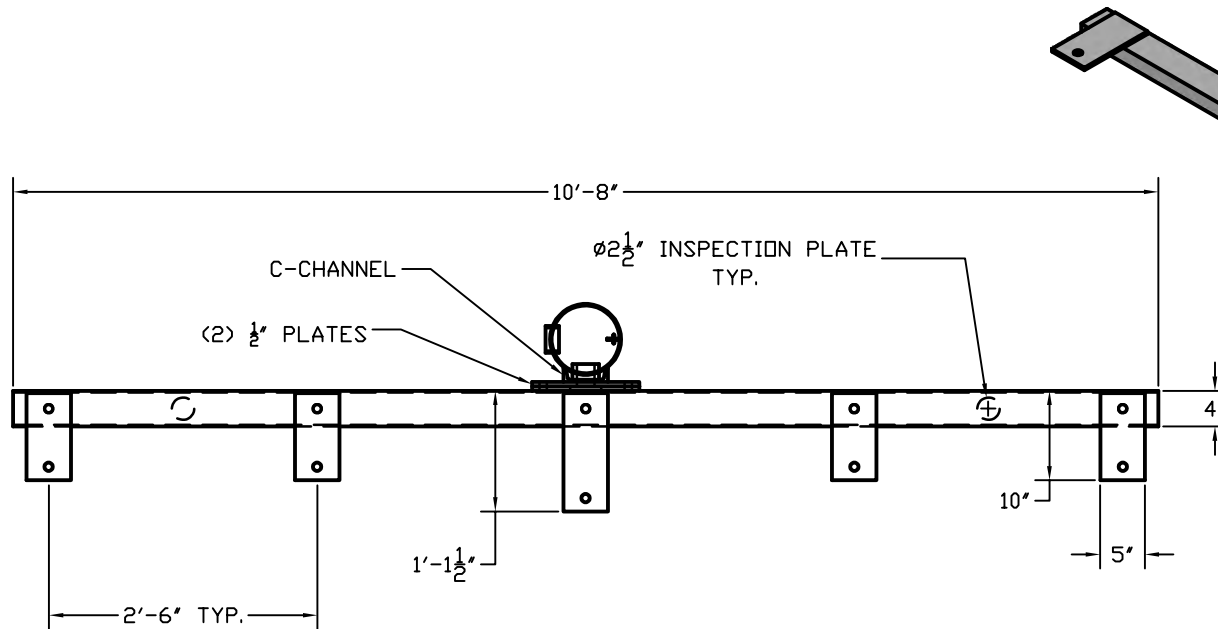
FINISH:	WIND SPEED:	DESIGN CRITERIA:
☒ GALVANIZED	☐ 80 MPH ☐ 110 MPH	☐ ASHTO LTS 3 ☐ IBC
☐ PAINTED	☒ 50 MPH ☐ 120 MPH	☒ ASHTO LTS 6 ☐ DSA
☐ PAINTED & GALV	☐ 100 MPH ☐ ___ MPH	☐ ASCE 7-10 ☐ UBC

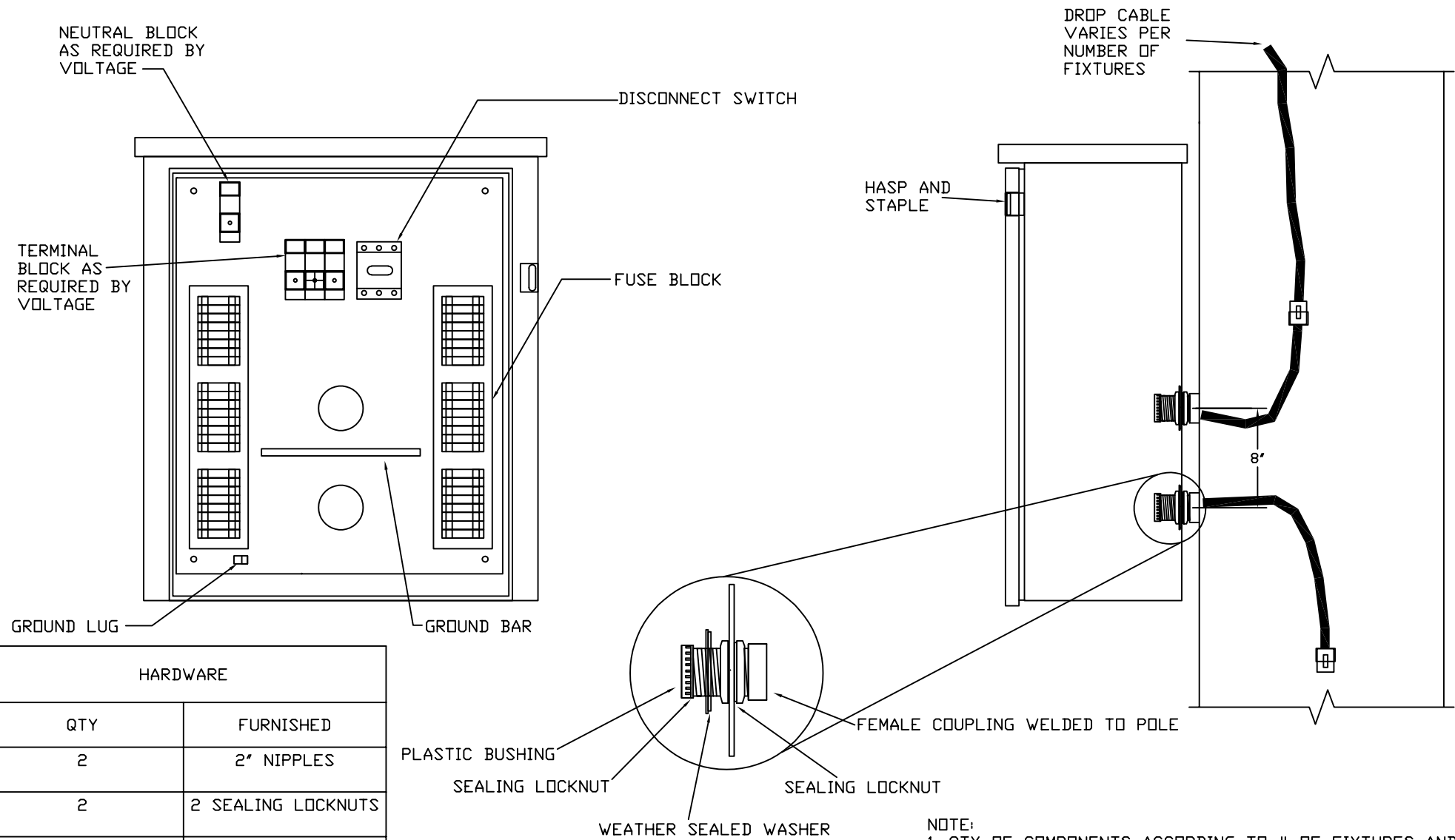
FOUNDATION

BEARING PLATE

MATERIAL SPECIFICATIONS

DATE:	REV:	CHECKED BY:	SCALE: NTS
DRAWING NUMBER: MSP50M2EM	DRAWN BY: DR	QUOTE NUMBER:	
MSM Makers Sales and Marketing, LLC PO BOX 14537 HALTOM CITY, TX 76117 METRO (817) 834-5538 TOLL FREE (866) 724-4527 FAX (817) 831-6088			





HARDWARE	
QTY	FURNISHED
2	2" NIPPLES
2	2 SEALING LOCKNUTS
2	2" X 2 1/2" GASKETED REDUCING WASHERS
2	2" PLASTIC BUSHINGS
1	4" 1/2" HDG BOLT & WASHERS

NOTE:
 1. QTY OF COMPONENTS ACCORDING TO # OF FIXTURES AND VOLTAGE
 2. PREWIRED FROM FACTORY

MSM
 Makers Sales and Marketing, LLC

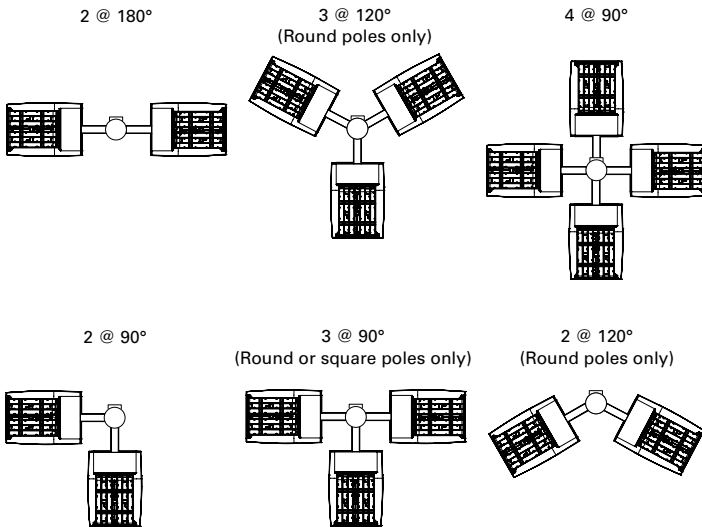
PO BOX 14537
 HALTOM CITY, TX 76117
 METRO (817) 834-5538
 TOLL FREE (866) 724-4527
 FAX (817) 831-6088

DATE:	REV.:	CHECKED BY:
DRAWING NUMBER: DIST BOX	DRAWN BY: JSV	

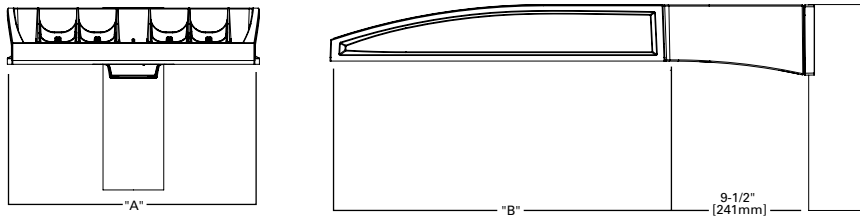
DISTRIBUTION BOX

Mounting Details

Pole Configuration Options

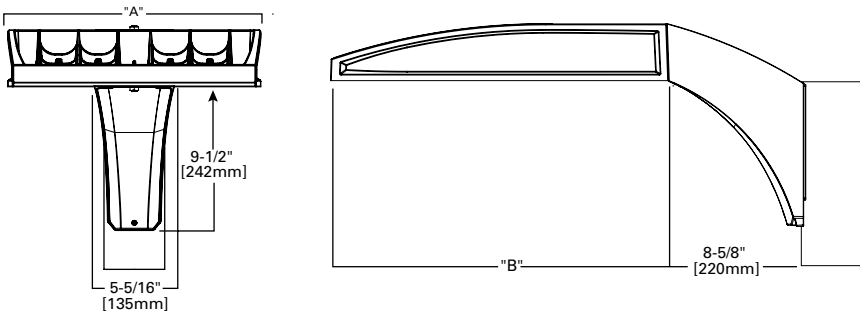


Quick Mount Arm (QM) *



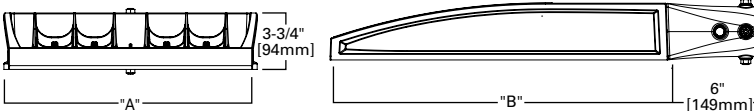
*NOTE: Use Type N drilling pattern

Upswept Arm (UP) *

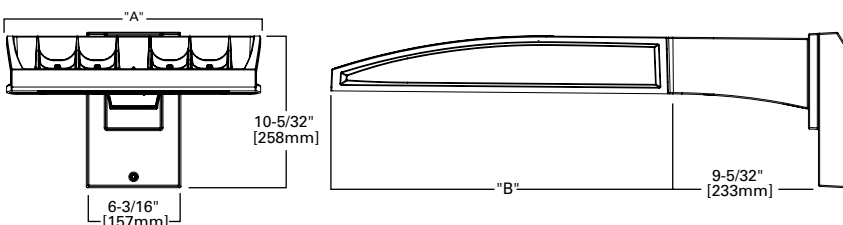


*NOTE: Use Type N, R or M drilling pattern

Mast Arm, Fixed (MA)

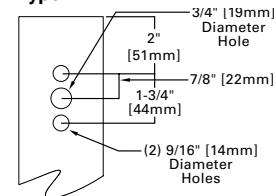


Wall Mount, Fixed (WM)

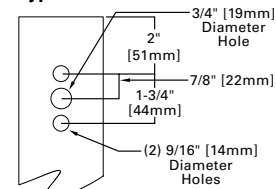


Pole Drilling Patterns

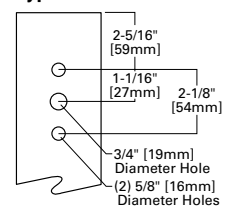
Type "N"



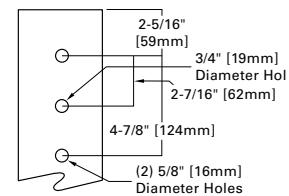
Type "N"



Type "R"



Type "M"



Project		Catalog #		Type	
Prepared by		Notes		Date	



Ephesus

LUMASPORT 8

White LED Sports & Entertainment Luminaire

Typical Applications

Pro Arenas • University & Collegiate Arenas • University & Collegiate Stadiums • Multi-Event & Convention Centers • Gymnasiums & Field Houses

Interactive Menu

- Dimensional Details [page 1](#)
- Ordering Information [page 2](#)
- Dimensional and Mounting Details [page 3](#)
- Visor (VHE) Configuration [page 4](#)
- Performance Data [page 5](#)
- Optical Performance Data [page 6](#)
- Ordering Information for Accessories [page 8](#)
- Accessory Dimensions and Part Details [page 9](#)
- Example System Topology [page 12](#)

Product Certification

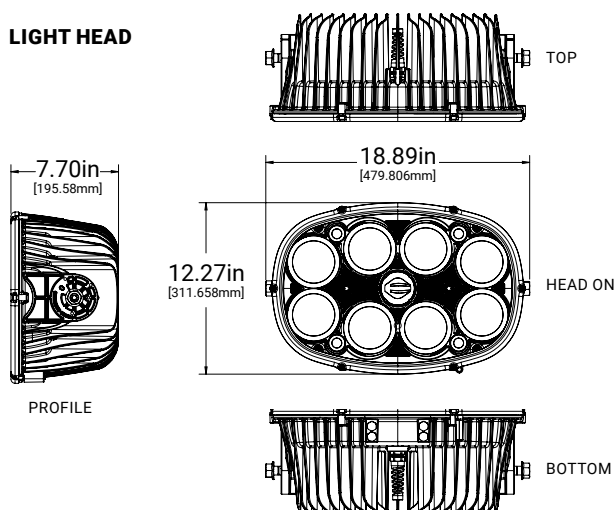


Top Product Features

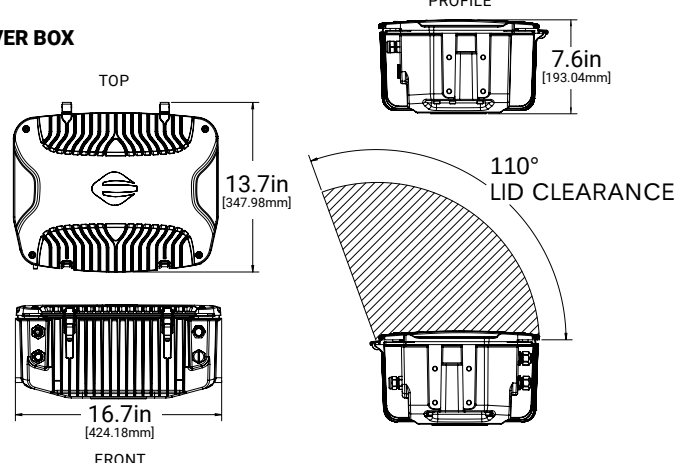
- 55,000 or 90,000 lumen output options
- Glare and cutoff control via Hybrid Reflector and TIR Optical System
- Reduce install time with pre-aimable two-piece assembly
- Virtually eliminate maintenance with power redundancy
- Industry leading light source reliability with Chip-on-Board LEDs
- Greater than 92% lumen maintenance at 55,000 hours
- Wireless AirMesh, Wired DMX or sACN controls options to suit your needs
- Impact Resistant Glass option protects from vandalism and prevents down time in the event of impact to the glass.
- Options to meet Trade Agreements Act requirements

Dimensional Details

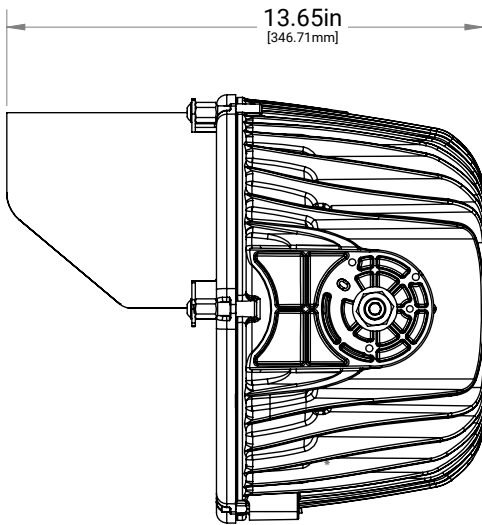
LIGHT HEAD



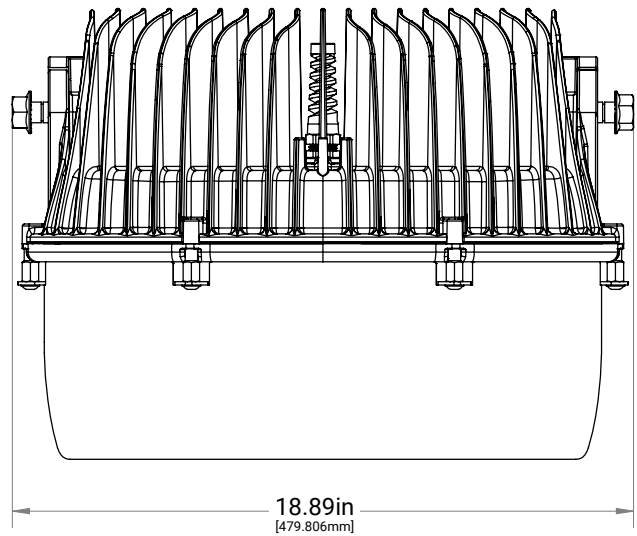
DRIVER BOX



VHE & VIR Visor Option Dimensional Details



LEFT PROFILE: VISOR

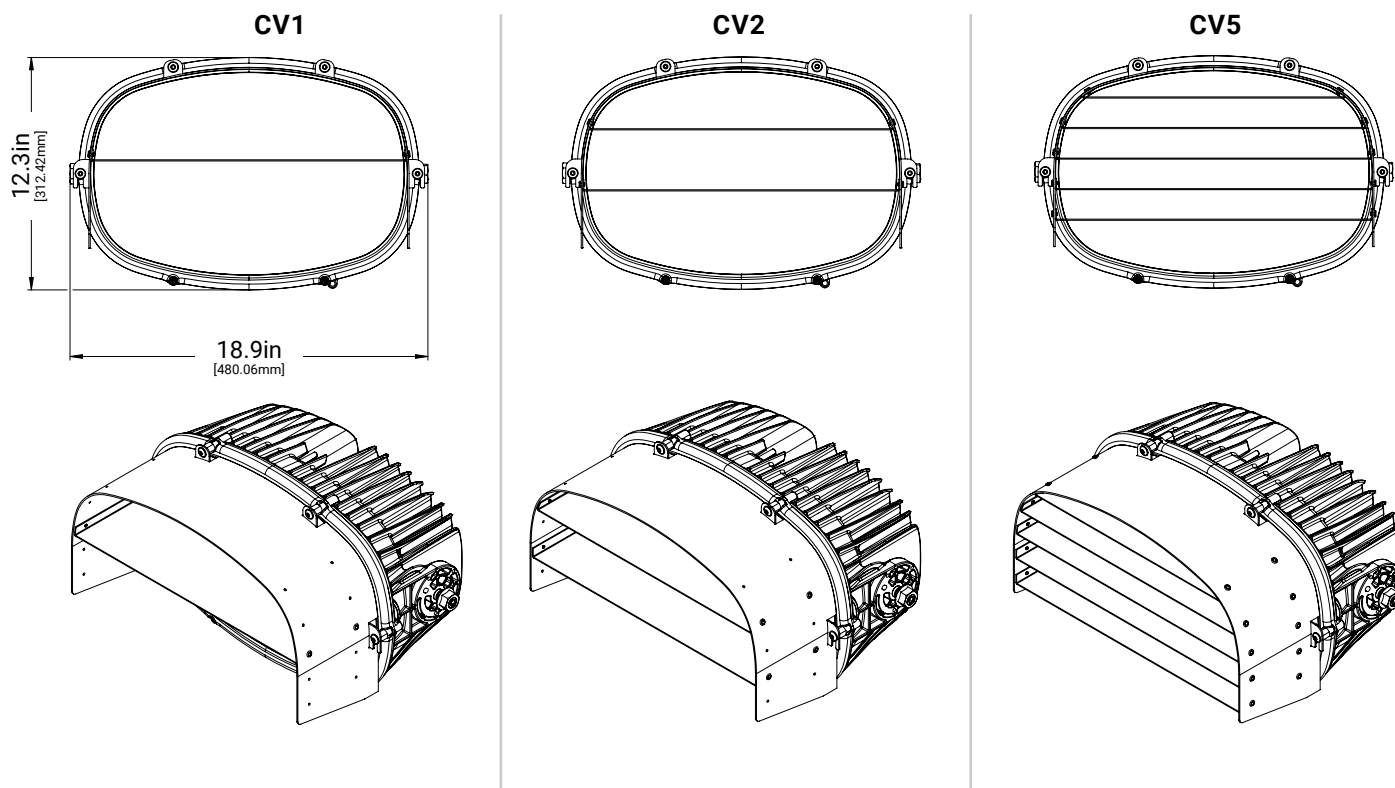


TOP: VISOR

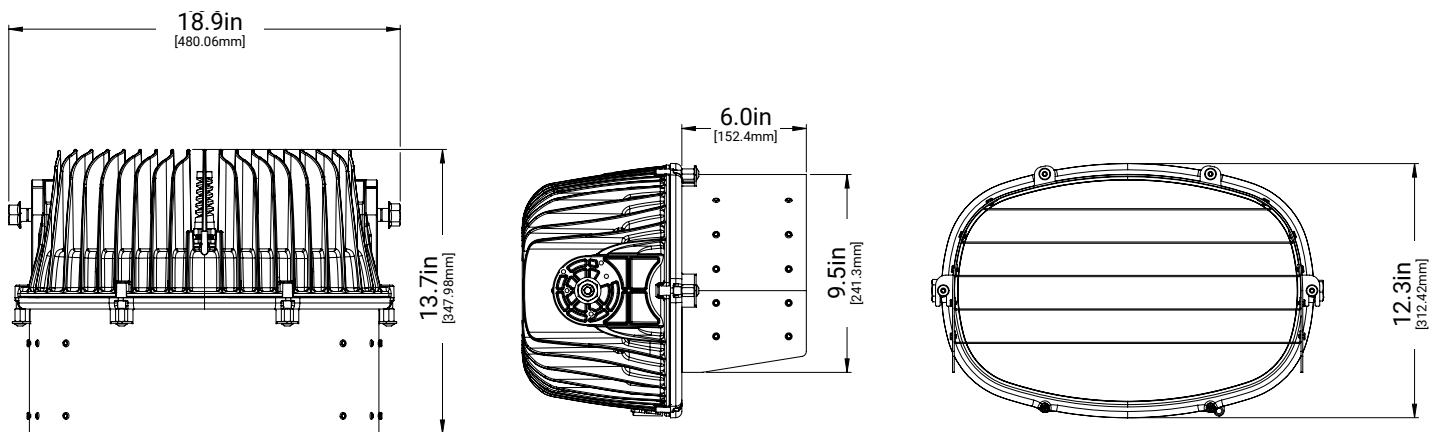
NOTES:

The addition of a visor adds 1lb of material to the luminaire weight.

CV1, CV2, CV5 Cutoff Visor Options



CV1, CV2, CV5 Cutoff Visor Option Dimensional Details



Performance Data¹

	LUMASPORT 8 (320W)	LUMASPORT 8 (640W)
Lumen Output Range ²	48,303 - 55,419lm	80,572 - 92,929lm
Nominal Power ³	340W	680W
Input Voltage (Low Voltage)	120-277VAC	120-277VAC
Input Voltage (High Voltage)	347-480VAC	347-480VAC
Efficacy Range ²	140.4 - 163.5 lm/W	117.5 - 139.3 lm/W
CRI ⁴	70, 80	70, 80
TLCI ⁵	75	75
CCT Range	4000K, 5000K, 5700K	4000K, 5000K, 5700K
Distribution (NEMA)	3-5, 7	3-5
Dimming Range	DIM TO OFF, 10%-100%	DIM TO OFF, 10%-100%
Operating Temperature Range	-40°C to +40°C	-40°C to +40°C
Usage	INDOOR, OUTDOOR*	INDOOR, OUTDOOR*
Mounting Options (3G RATED)	LOCAL YOKE; LOCAL PENDANT	LOCAL YOKE; LOCAL PENDANT
Electrical Certifications	FCC, UL8750, UL1598, DLC Standard (NANQSV)	FCC, UL8750, UL1598, DLC Standard (NANQSV)
Environmental Certifications	IP66, NEMA4X ⁷	IP66, NEMA4X ⁷
Vibration	ANSI C136.31-2010 3G ⁸	ANSI C136.31-2010 3G ⁸
Surge	10kV	10kV
Effective Projected Area (EPA)	1.8 (sq. ft.)	1.8 (sq. ft.)
Effective Projected Area (EPA) with Visor (VHE, CV1, CV2, CV5) ⁹	1.8 - 2.5 (sq. ft.)	1.8 - 2.5 (sq. ft.)
Approximate Weight ¹⁰	67.5 LBS	71.5 LBS
Approximate Weight with Visor (VHE, CV1, CV2, CV5) ¹⁰	71.5 LBS	75.5 LBS

NOTES:

- (1) Specifications are subject to change without notice.
(2) Refer to Optical Performance Data.
(3) Values are +/- 4% when fixture is operated at 25°C ambient
(4) Values are +/- 2%
(5) Values are +/- 3 points.
(6) When driver box is mounted in upright position.
(7) Light head meets NEMA4X Certification
(8) LumaSport 8 with Visors (VHE, CV1, CV2, CV5) qualifies for ANSI C136, 31-2010 1.5G
(9) EPA may vary depending on the aiming angle of the fixture.
(10) Weight may vary depending on mounting bracket, VHE Visor option, light head and driver box selection.

Electrical Performance Data

Product	Input Voltage Range (VAC)	Nominal Input Power (W)	Input Current (A)	Power Factor (>60% Load)	THD (>60% Load)	Inrush (A2s)	Inrush period (ms)	Peak Inrush (A)
LS-8-320	120-277	340 (365 Max)	1.3 - 3.0 (4.0 Max)	> 0.9	< 20%	1.9	3.52	150
	347-480	340 (365 Max)	0.7 - 1.0 (1.5 Max)	> 0.9	< 20%	3.87	1.77	70
LS-8-640	120-277	680 (740 Max)	2.5 - 5.9 (8.0 Max)	> 0.9	< 20%	3.8	3.52	300
	347-480	680 (740 Max)	1.5 - 2.0 (3.0 Max)	> 0.9	< 20%	7.74	1.77	140

Optical Performance Data (HEG Configuration Option)

LUMASPORT 8 (320W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	53987	346	156.0	17.5	33.3
			5000K	54903	346	158.7	17.5	33.3
			5700K	53943	346	155.9	17.5	33.3
		80	4000K	50877	346	147.0	17.5	33.3
			5000K	51822	346	149.8	17.5	33.3
			5700K	50916	346	147.2	17.5	33.3
2S	NEMA 3	70	4000K	54494	339	160.7	21.9	40.2
			5000K	55419	339	163.5	21.9	40.2
			5700K	54450	339	160.6	21.9	40.2
		80	4000K	51346	339	151.5	21.9	40.2
			5000K	52308	339	154.3	21.9	40.2
			5700K	51400	339	151.6	21.9	40.2
3S	NEMA 3	70	4000K	53275	344	154.9	25.4	45.7
			5000K	54179	344	157.5	25.4	45.7
			5700K	53232	344	154.7	25.4	45.7
		80	4000K	50200	344	145.9	25.4	45.7
			5000K	51137	344	148.7	25.4	45.7
			5700K	50209	344	146.0	25.4	45.7
4S	NEMA 4	70	4000K	53419	344	155.3	36.0	64.4
			5000K	54325	344	157.9	36.0	64.4
			5700K	53375	344	155.2	36.0	64.4
		80	4000K	50335	344	146.3	36.0	64.4
			5000K	51275	344	149.1	36.0	64.4
			5700K	50344	344	146.3	36.0	64.4
5S	NEMA 5	70	4000K	54338	344	158.0	46.6	82.6
			5000K	55260	344	160.6	46.6	82.6
			5700K	54294	344	157.8	46.6	82.6
		80	4000K	51202	344	148.8	46.6	82.6
			5000K	52158	344	151.6	46.6	82.6
			5700K	51211	344	148.9	46.6	82.6
7F	NEMA 7	70	4000K	51262	344	149.0	72.5	131.0
			5000K	52132	344	151.5	72.5	131.0
			5700K	51220	344	148.9	72.5	131.0
		80	4000K	48303	344	140.4	72.5	131.0
			5000K	49205	344	143.0	72.5	131.0
			5700K	48312	344	140.4	72.5	131.0

LUMASPORT 8 (640W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	85498	686	124.6	17.5	33.3
			5000K	88248	686	128.6	17.5	33.3
			5700K	86402	686	126.0	17.5	33.3
		80	4000K	80572	686	117.5	17.5	33.3
			5000K	83295	686	121.4	17.5	33.3
			5700K	81554	686	118.9	17.5	33.3
2S	NEMA 3	70	4000K	90033	667	135.0	21.9	40.2
			5000K	92929	667	139.3	21.9	40.2
			5700K	90985	667	136.4	21.9	40.2
		80	4000K	84832	667	127.2	21.9	40.2
			5000K	87713	667	131.5	21.9	40.2
			5700K	85888	667	128.8	21.9	40.2
3S	NEMA 3	70	4000K	88702	681	130.3	25.4	45.7
			5000K	91555	681	134.4	25.4	45.7
			5700K	89640	681	131.6	25.4	45.7
		80	4000K	83582	681	122.7	25.4	45.7
			5000K	86415	681	126.9	25.4	45.7
			5700K	84550	681	124.2	25.4	45.7
4S	NEMA 4	70	4000K	88659	681	130.2	36.0	64.4
			5000K	91510	681	134.4	36.0	64.4
			5700K	89596	681	131.6	36.0	64.4
		80	4000K	83541	681	122.7	36.0	64.4
			5000K	86372	681	126.8	36.0	64.4
			5700K	84508	681	124.1	36.0	64.4
5S	NEMA 5	70	4000K	89953	681	132.1	46.6	82.6
			5000K	92846	681	136.3	46.6	82.6
			5700K	90904	681	133.5	46.6	82.6
		80	4000K	84761	681	124.5	46.6	82.6
			5000K	87633	681	128.7	46.6	82.6
			5700K	85742	681	125.9	46.6	82.6

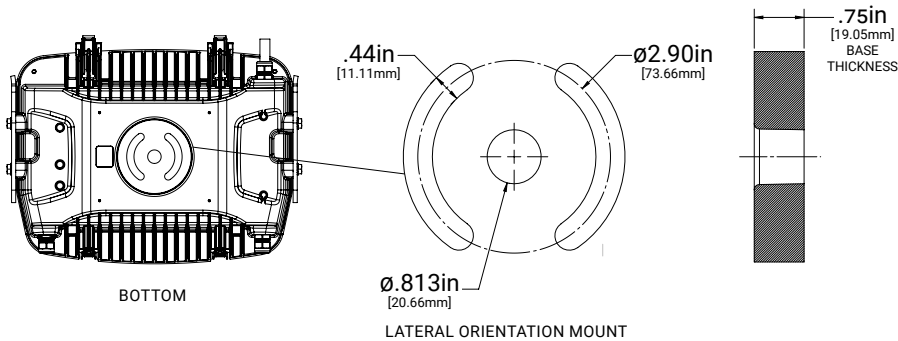
Optical Performance Data (VHE Visor Configuration Option)

LUMASPORT 8 (320W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	50557	346	146.1	18.3	33.0
			5000K	51415	346	148.6	18.3	33.0
			5700K	50516	346	146.0	18.3	33.0
		80	4000K	47645	346	137.7	18.3	33.0
			5000K	48530	346	140.3	18.3	33.0
			5700K	47681	346	137.8	18.3	33.0
2S	NEMA 3	70	4000K	51545	339	152.1	22.5	38.8
			5000K	52420	339	154.6	22.5	38.8
			5700K	51504	339	151.9	22.5	38.8
		80	4000K	48568	339	143.3	22.5	38.8
			5000K	49478	339	146.0	22.5	38.8
			5700K	48619	339	143.4	22.5	38.8
3S	NEMA 3	70	4000K	50127	344	145.7	25.7	44.3
			5000K	50977	344	148.2	25.7	44.3
			5700K	50086	344	145.6	25.7	44.3
		80	4000K	47234	344	137.3	25.7	44.3
			5000K	48115	344	139.9	25.7	44.3
			5700K	47242	344	137.3	25.7	44.3
4S	NEMA 4	70	4000K	50235	344	146.0	35.1	63.7
			5000K	51087	344	148.5	35.1	63.7
			5700K	50193	344	145.9	35.1	63.7
		80	4000K	47334	344	137.6	35.1	63.7
			5000K	48218	344	140.2	35.1	63.7
			5700K	47343	344	137.6	35.1	63.7
5S	NEMA 5	70	4000K	49723	344	144.5	44.5	80.5
			5000K	50567	344	147.0	44.5	80.5
			5700K	49683	344	144.4	44.5	80.5
		80	4000K	46854	344	136.2	44.5	80.5
			5000K	47728	344	138.7	44.5	80.5
			5700K	46862	344	136.2	44.5	80.5
7F	NEMA 7	70	4000K	43036	344	125.1	66.7	121.6
			5000K	43767	344	127.2	66.7	121.6
			5700K	43001	344	125.0	66.7	121.6
		80	4000K	40552	344	117.9	66.7	121.6
			5000K	41309	344	120.1	66.7	121.6
			5700K	40560	344	117.9	66.7	121.6

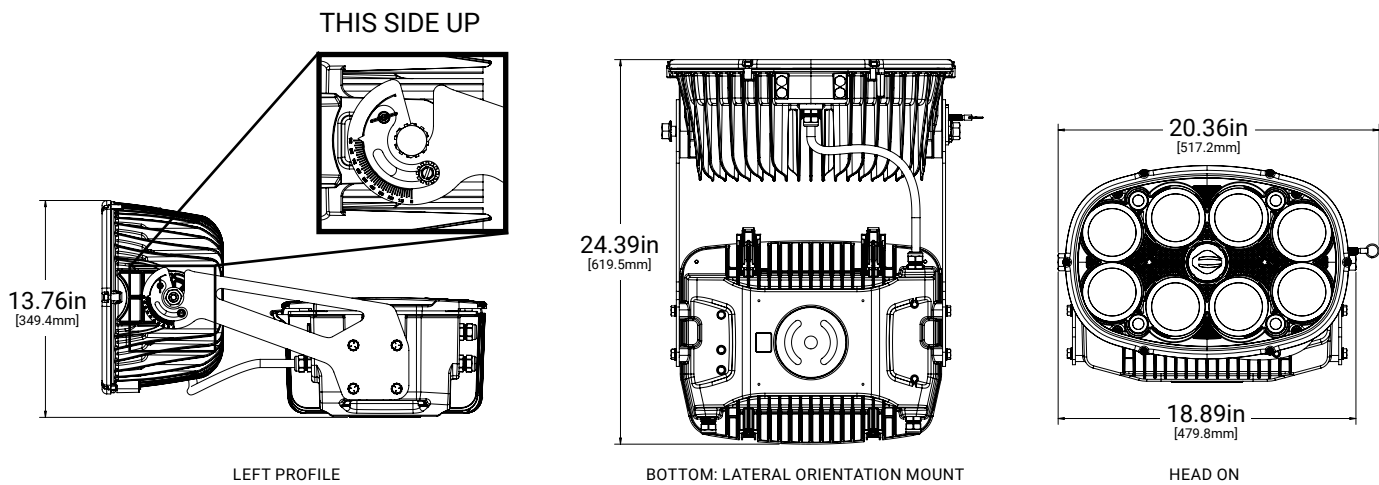
LUMASPORT 8 (640W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	80066	686	116.7	18.3	33.0
			5000K	82642	686	120.5	18.3	33.0
			5700K	80913	686	117.9	18.3	33.0
		80	4000K	75453	686	110.0	18.3	33.0
			5000K	78003	686	113.7	18.3	33.0
			5700K	76373	686	111.3	18.3	33.0
2S	NEMA 3	70	4000K	85162	667	127.7	22.5	38.8
			5000K	87901	667	131.8	22.5	38.8
			5700K	86062	667	129.0	22.5	38.8
		80	4000K	80242	667	120.3	22.5	38.8
			5000K	82967	667	124.4	22.5	38.8
			5700K	81241	667	121.8	22.5	38.8
3S	NEMA 3	70	4000K	83460	681	122.6	25.7	44.3
			5000K	86145	681	126.5	25.7	44.3
			5700K	84343	681	123.9	25.7	44.3
		80	4000K	78643	681	115.5	25.7	44.3
			5000K	81309	681	119.4	25.7	44.3
			5700K	79554	681	116.8	25.7	44.3
4S	NEMA 4	70	4000K	83374	681	122.4	35.1	63.7
			5000K	86055	681	126.4	35.1	63.7
			5700K	84255	681	123.7	35.1	63.7
		80	4000K	78561	681	115.4	35.1	63.7
			5000K	81223	681	119.3	35.1	63.7
			5700K	79470	681	116.7	35.1	63.7
5S	NEMA 5	70	4000K	82314	681	120.9	44.5	80.5
			5000K	84961	681	124.8	44.5	80.5
			5700K	83184	681	122.1	44.5	80.5
		80	4000K	77563	681	113.9	44.5	80.5
			5000K	80191	681	117.8	44.5	80.5
			5700K	78460	681	115.2	44.5	80.5

Dimensional and Mounting Details

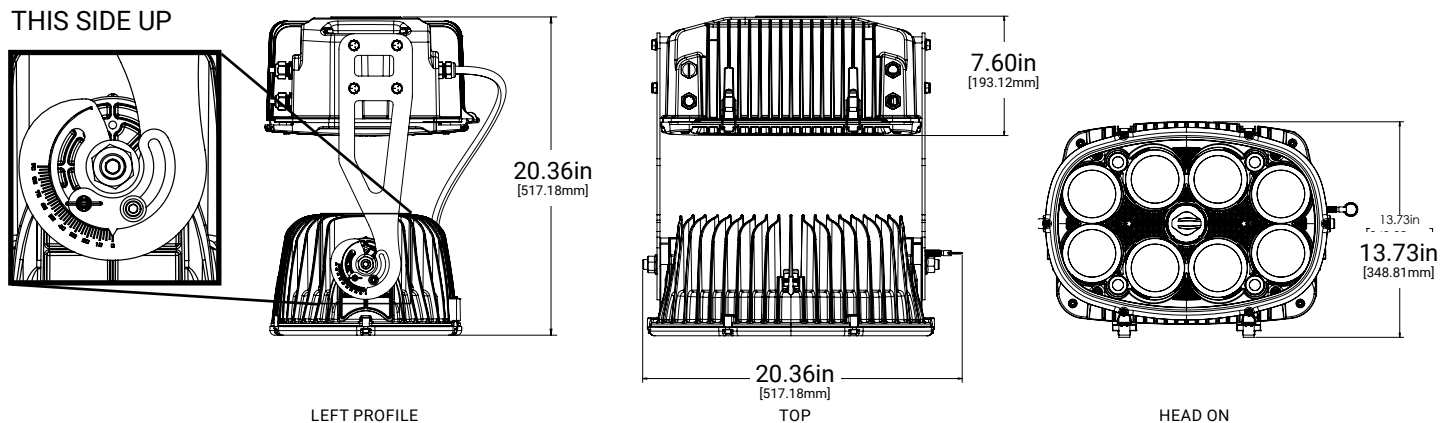
MOUNTING: DRIVER BOX



MOUNTING CONFIGURATION: LOCAL YOKE



MOUNTING CONFIGURATION: LOCAL PENDANT



Ordering Information

SAMPLE NUMBER: GALN-SA4C-740-U-T4FT-GM

Product Family ^{1,2}	Light Engine		Color Temperature	Voltage	Distribution	Mounting	Finish
	Configuration	Drive Current					
GALN =Galleon II BAA-GALN =Galleon II Buy American Act Compliant ²⁷ TAA-GALN =Galleon II Trade Agreements Act Compliant ²⁷	SA1 =1 Square SA2 =2 Squares SA3 =3 Squares SA4 =4 Squares SA5 =5 Squares SA6 =6 Squares SA7 =7 Squares SA8 =8 Squares SA9 =9 Squares	A =600mA B =800mA C =1000mA D =1200mA ^{4,17}	722 =70CRI, 2200K 727 =70CRI, 2700K 730 =70CRI, 3000K 735 =70CRI, 3500K 740 =70CRI, 4000K 750 =70CRI, 5000K 760 =70CRI, 6000K 827 =80CRI, 2700K 830 =80CRI, 3000K AMB =Amber, 590nm ^{15,17}	U =120-277V H =347V-480V ^{7,30} 1 =120V 2 =208V 3 =240V 4 =277V 8 =480V ⁷ 9 =347V ^{7,30} DV =277V-480V DuraVolt Drivers ^{29,30,31}	T2 =Type II T2R =Type II Roadway T3 =Type III T3R =Type III Roadway T4FT =Type IV Forward Throw T4W =Type IV Wide SNQ =Type V Narrow SMQ =Type V Square Medium SWQ =Type V Square Wide SL2 =Type II w/Spill Control SL3 =Type III w/Spill Control SL4 =Type IV w/Spill Control SLL =90° Spill Light Eliminator Left SLR =90° Spill Light Eliminator Right RW =Rectangular Wide Type I AFL =Automotive Frontline	[Blank] =Standard Pole Mount Arm QM =Standard Pole Mount Arm with Quick Mount Adaptor PA =Pole Mount, Adjustable SP =Slipfitter, Adjustable ⁸ MA =Mast Arm, Fixed WM =Wall Mount, Fixed WA =Wall Mount, Adjustable UP =Upswept Arm	AP =Grey BZ =Bronze BK =Black DP =Dark Platinum GM =Graphite Metallic WH =White RALXX =Custom Color

Options (Add as Suffix)	Controls and Systems Options (Add as Suffix)	Accessories (Order Separately) ²⁸
DIM =External 0-10V Dimming Leads ²⁰ F =Single Fuse (120, 277 or 347V Specify Voltage) FF =Double Fuse (208, 240 or 480V Specify Voltage) 20K =20kV UL 1449 fused surge protective device ¹⁰ 2L =Two Circuits ¹⁰ HA =50°C High Ambient HSS =Installed House Side Shield ¹⁸ GRSBK =Glare Reducing Shield, Black ²³ GRSWH =Glare Reducing Shield, White ²³ LCF =Light Square Trim Painted to Match Housing ²⁶ TH =Tool-less Door Hardware ⁵ CC =Coastal Construction finish ³ L90 =Optics Rotated 90° Left R90 =Optics Rotated 90° Right AHD145 =After Hours Dim, 5 Hours ²² AHD245 =After Hours Dim, 6 Hours ²² AHD255 =After Hours Dim, 7 Hours ²² AHD355 =After Hours Dim, 8 Hours ²² DALI =DALI Drivers	BPC =Button Type Photocontrol ⁶ PR =NEMA 3-PIN Photocontrol Receptacle PR7 =NEMA 7-PIN Photocontrol Receptacle ²¹ FADC =Field Adjustable Dimming Controller ³² SPB2 =Dimming Motion Sensor, 9'-20' mounting ²⁴ SPB4 =Dimming Motion Sensor, 21'-40' mounting ²⁴ SPB2/X =Dimming Motion Sensor, limited square count, 9'-20' mounting ²⁴ SPB4/X =Dimming Motion Sensor, limited square count, 21'-40' mounting ²⁴ ZW =WaveLinX-enabled 4-PIN Twistlock Receptacle ¹⁹ ZD =SR Driver-enabled 4-PIN Twistlock Receptacle ¹⁹ ZW-WOBXX =WaveLinX Lite, Dimming Motion and Daylight, Bluetooth Programmable, 7' - 15' Mounting ^{19,12,13} ZW-WOFOX =WaveLinX Lite, Dimming Motion and Daylight, Bluetooth Programmable, 15' - 40' Mounting ^{19,12,13} ZD-WOBXX =WaveLinX Lite, SR Driver, Dimming Motion and Daylight, Bluetooth Programmable, 7' - 15' Mounting ^{19,12,13} ZD-WOFOX =WaveLinX Lite, SR Driver, Dimming Motion and Daylight, Bluetooth Programmable, 15' - 40' Mounting ^{19,12,13} ZW-SWPD4XX =WaveLinX Pro, Dimming Motion and Daylight, WAC Programmable, 7' - 15' Mounting ^{19,12,13} ZW-SWPD5XX =WaveLinX Pro, Dimming Motion and Daylight, WAC Programmable, 15' - 40' Mounting ^{19,12,13} ZD-SWPD4XX =WaveLinX Pro, SR Driver, Dimming Motion and Daylight, WAC Programmable, 7' - 15' Mounting ^{19,12,13} ZD-SWPD5XX =WaveLinX Pro, SR Driver, Dimming Motion and Daylight, WAC Programmable, 15' - 40' Mounting ^{19,12,13} DIM10-MS/DIM-L20 =Synapse Occupancy Sensor (9'-20' Mounting) ¹⁹ DIM10-MS/DIM-L40 =Synapse Occupancy Sensor (21'-40' Mounting) ¹⁹	OA/RA1016 =NEMA Photocontrol Multi-Tap - 105-285V OA/RA1027 =NEMA Photocontrol - 480V OA/RA1201 =NEMA Photocontrol - 347V OA/RA1013 =Photocontrol Shorting Cap OA/RA1014 =120V Photocontrol MA1252 =10kV Surge Module Replacement MA1036-XX =Single Tenon Adapter for 2-3/8" O.D. Tenon MA1037-XX =2@180° Tenon Adapter for 2-3/8" O.D. Tenon MA1197-XX =3@120° Tenon Adapter for 2-3/8" O.D. Tenon MA1188-XX =4@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1189-XX =2@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1190-XX =3@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1191-XX =2@120° Tenon Adapter for 2-3/8" O.D. Tenon MA1038-XX =Single Tenon Adapter for 3-1/2" O.D. Tenon MA1039-XX =2@180° Tenon Adapter for 3-1/2" O.D. Tenon MA1192-XX =3@120° Tenon Adapter for 3-1/2" O.D. Tenon MA1193-XX =4@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1194-XX =2@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1195-XX =3@90° Tenon Adapter for 3-1/2" O.D. Tenon SRA238 =Adapter kit for mounting to 2-3/8" O.D. Tenon LS/HSS =Field Installed House Side Shield ^{5,18} LS/GRSBK-2PK =Glare Reducing Shield, Black ^{8,23} LS/GRSWH-2PK =Glare Reducing Shield, White ^{8,23} LS/PFS =Perimeter Shield, Black ¹⁶ WOLC-7P-10A =WaveLinX Outdoor Control Module ^{11,19} WOB-XX =WaveLinX Lite Sensor, Dimming Motion and Daylight, Bluetooth Programmable, 7' - 15' Mounting ^{12,13,14,19} WOF-XX =WaveLinX Lite Sensor, Dimming Motion and Daylight, Bluetooth Programmable, 15' - 40' Mounting ^{12,13,14,19} SWPD4-XX =WaveLinX Sensor, Dimming Motion and Daylight, WAC Programmable, 7' - 15' Mounting ^{12,13,14,19} SWPD5-XX =WaveLinX Sensor, Dimming Motion and Daylight, WAC Programmable, 15' - 40' Mounting ^{12,13,14,19}

NOTES: 1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information. 2. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details. 3. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654. Not available with TH option. 4. Drive current 1200mA not available with color temperatures 722, 727 or 830 when either HA or HSS options are selected. 5. TH option not 3G rated. Not available with Coastal Construction (CC) option. 6. Not available with voltage options H, 8 or 9. 7. Requires the use of an internal step down transformer when combined with sensor options. Not available in combination with the HA high ambient and sensor options at 1A. 8. Adjustable Slipfitter arm limited to vertical 3" tenon. For mounting to 2-3/8" O.D. tenons, order accessory SRA238. 9. One required for each Light Square. 10. 2L is not available with SPB at 347V or 480V. Not available with WaveLinX or Enlightened sensors, or 20kV surge option. 11. Requires PR7. 12. Replace XX with sensor color (WH, BZ or BK.) 13. WAC Gateway required to enable field-configurability. Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed. WAC not required for LC Bluetooth sensors. 14. Requires ZW or ZD receptacle. 15. Narrow-band 590nm +/- 5nm for wildlife and observatory use. Choose drive current A; supplied at 500mA drive current only. Exact luminaire wattage available in IES files. Available with 5WQ, 5MQ, SL2, SL3 and SL4 distributions. Can be used with HSS option. 16. Set of 4 pcs. One set required per Light Square.		17. Not available with HA option. 18. Not for use with 5NQ, 5MQ, 5WQ or RW optics. 19. Cannot be used with other control options. 20. Low voltage control lead brought out 18" outside fixture. Not available with DALI or integrated controls options. 21. Not available if any SPB, LWR, or WaveLinX sensor is selected. Motion sensor has an integral photocell. 22. Requires the use of BPC photocontrol or the PR7 or PR photocontrol receptacle with photocontrol accessory. 23. Not for use with T4FT, T4W or SL4 optics. See IES files for details. 24. Sensor configuration mobile application required for configuration. See controls page for details. 25. Replace X with number of Light Squares controlled by the SPB, referencing the "SPB/X Availability Table" on the controls page. 26. Not available with HSS, GRSWH or GRSBK. 27. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements. 28. For BAA or TAA requirements, Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information. 29. DuraVolt drivers feature added protection from power quality issues such as loss of neutral, transients and voltage fluctuations. Visit www.signify.com/duravolt for more information. 30. 480V not to be used with ungrounded or impedance grounded systems. 31. Not available in 1 square configuration at 800mA or below. Not available with any control option except SPB. 32. Cannot be used with PR7 or other motion response control options.
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LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

Product Family	Camera Type	Data Backhaul
L =LumenSafe Technology 	D =Standard Dome Camera H =Hi-Res Dome Camera Z =Remote PTZ Camera	C =Cellular, No SIM A =Cellular, AT&T V =Cellular, Verizon S =Cellular, Sprint R =Cellular, Rogers W =Wi-Fi Networking w/ Omni-Directional Antenna E =Ethernet Networking

Project		Catalog #		Type	
Prepared by		Notes		Date	



McGraw-Edison

GALN Galleon II

Area / Site Luminaire

Product Features



Interactive Menu

- Ordering Information [page 2](#)
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- Optical Distributions [page 5](#)
- Product Specifications [page 5](#)
- Energy and Performance Data [page 6](#)
- Control Options [page 10](#)

Product Certifications



Quick Facts

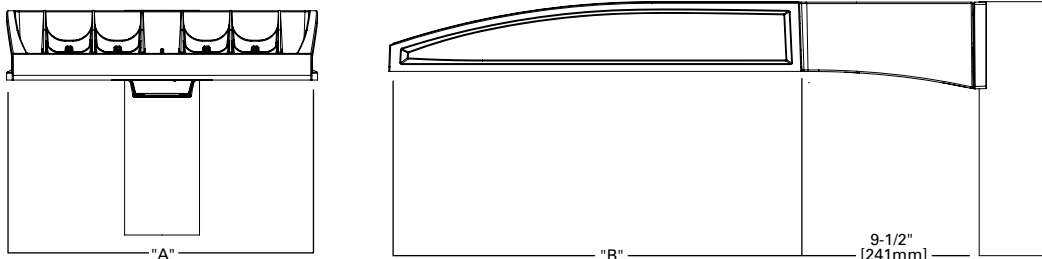
- Lumen packages range from 3,300 - 73,500 (33W - 552W)
- 16 optical distributions
- Efficacy up to 159 lumens per watt

Connected Systems

- WaveLinx Lite
- WaveLinx

Dimensional Details

Standard Arm

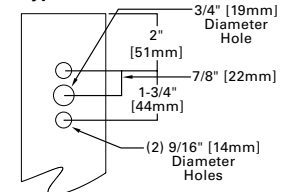


Number of Light Squares	Width "A"	Housing Length "B"	Weight with Standard or QM Arm	EPA with Standard or QM Arm
1-4	16"	22"	29 lb	0.95
5-6	22"	22"	39 lb	0.95
7-9	22"	28-1/8"	48 lb	1.1

NOTES:
For arm selection requirements and additional line art, see Mounting Details section.

Pole Drilling Patterns

Type "N"



NOTES:
1. Visit <https://www.designlights.org/search/> to confirm qualification. Not all product variations are DLC qualified.
2. IDA Certified (3000K CCT and warmer only, fixed mounting options)

Ordering Information for Accessories

NOTE: A complete accessory order requires a selection entry for **Brand, Accessory, Option**.

SAMPLE ORDER NUMBER: **EPH-HRDM34-025**

Brand	Accessory	Option	
Brand	Accessory	Option	Intended Use
EPH = Ephesus	EXTPLT = Extension Plate ¹	025 = .25in 050 = .5in 200 = 2.0in	Extension Plate Kit to mount to structures .25in, .5in, or 2.00in thick. Designed to be used with the LUMASPORT 8, LUMADAPT 8, PRISM RGBA & ALL FIELD luminaires only.
	DVGBRD = Diving Board ²		Diving Board to mount to 2in x 4in steel cross arms. Designed to be used with the LUMASPORT 8, LUMASPORT 16, LUMADAPT 8 & PRISM RGBA luminaires only.
	HRDM58 = Mounting Hardware 5/8in diameter	050 = .375in - .50in Range of Clamping Thickness ³ 200 = 2in Clamping Thickness ³	HRDM58-050: .375-.500in clamping thickness, Use for Extension Plate (EXTPLT) or other flat surfaces drilled for 5/8in hardware HRDM58-200: 2.00in clamping thickness, use for 2in x 4in Cross arms that are drilled for 5/8in hardware
	HRDM34 = Mounting Hardware 3/4in diameter	025 = .25in ⁴ 075 = .75in ⁴ 200 = 2in ⁴	HRDM34-025: .25-.50in clamping thickness, use for diving board (DVGBRD) or other flat surfaces drilled for 3/4in hardware HRDM34-075: .50-.75in clamping thickness, flat surfaces drilled for 3/4in hardware HRDM34-200: 2.00in clamping thickness, use for 2in x 4in Cross arms that are drilled for 3/4in hardware
	Notes: (1) Additional mounting fastener hardware kit needed to attach a fixture to the EXTPLT = Extension Plate (2) Additional mounting fastener hardware kit needed to attach a fixture to the DVGBRD = Diving Board	Notes: (3) Option only available for use with HRDM58 (4) Option only available for use with HRDM34	

Optical Performance Data (CV5 Configuration Option)

LUMASPORT 8 (320W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	35182	354	99.4	17.1	32.0
			5000K	35779	354	101.1	17.1	32.0
			5700K	35153	354	99.3	17.1	32.0
		80	4000K	33155	354	93.7	17.1	32.0
			5000K	33771	354	95.4	17.1	32.0
			5700K	33180	354	93.7	17.1	32.0
2S	NEMA 3	70	4000K	34584	347	99.7	21.3	38.4
			5000K	35171	347	101.4	21.3	38.4
			5700K	34556	347	99.6	21.3	38.4
		80	4000K	32586	347	93.9	21.3	38.4
			5000K	33197	347	95.7	21.3	38.4
			5700K	32620	347	94.0	21.3	38.4
3S	NEMA 3	70	4000K	33745	352	95.9	24.0	43.8
			5000K	34317	352	97.5	24.0	43.8
			5700K	33717	352	95.8	24.0	43.8
		80	4000K	31797	352	90.3	24.0	43.8
			5000K	32391	352	92.0	24.0	43.8
			5700K	31803	352	90.3	24.0	43.8
4S	NEMA 4	70	4000K	30818	352	87.6	33.1	58.6
			5000K	31341	352	89.0	33.1	58.6
			5700K	30793	352	87.5	33.1	58.6
		80	4000K	29039	352	82.5	33.1	58.6
			5000K	29581	352	84.0	33.1	58.6
			5700K	29044	352	82.5	33.1	58.6
5S	NEMA 5	70	4000K	27810	352	79.0	41.9	74.8
			5000K	28282	352	80.3	41.9	74.8
			5700K	27787	352	78.9	41.9	74.8
		80	4000K	26205	352	74.4	41.9	74.8
			5000K	26694	352	75.8	41.9	74.8
			5700K	26210	352	74.5	41.9	74.8
7F	NEMA 7	70	4000K	19710	352	56.0	58.6	109.0
			5000K	20044	352	56.9	58.6	109.0
			5700K	19694	352	55.9	58.6	109.0
		80	4000K	18572	352	52.8	58.6	109.0
			5000K	18919	352	53.7	58.6	109.0
			5700K	18575	352	52.8	58.6	109.0

LUMASPORT 8 (640W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	55716	700	79.6	17.1	32.0
			5000K	57509	700	82.2	17.1	32.0
			5700K	56306	700	80.4	17.1	32.0
		80	4000K	52506	700	75.0	17.1	32.0
			5000K	54281	700	77.5	17.1	32.0
			5700K	53146	700	75.9	17.1	32.0
2S	NEMA 3	70	4000K	57138	683	83.7	21.3	38.4
			5000K	58976	683	86.3	21.3	38.4
			5700K	57742	683	84.5	21.3	38.4
		80	4000K	53837	683	78.8	21.3	38.4
			5000K	55666	683	81.5	21.3	38.4
			5700K	54508	683	79.8	21.3	38.4
3S	NEMA 3	70	4000K	56184	697	80.6	24.0	43.8
			5000K	57992	697	83.2	24.0	43.8
			5700K	56779	697	81.5	24.0	43.8
		80	4000K	52941	697	76.0	24.0	43.8
			5000K	54736	697	78.5	24.0	43.8
			5700K	53555	697	76.8	24.0	43.8
4S	NEMA 4	70	4000K	51149	697	73.4	33.1	58.6
			5000K	52793	697	75.7	33.1	58.6
			5700K	51689	697	74.2	33.1	58.6
		80	4000K	48196	697	69.1	33.1	58.6
			5000K	49829	697	71.5	33.1	58.6
			5700K	48754	697	69.9	33.1	58.6
5S	NEMA 5	70	4000K	46038	697	66.1	41.9	74.8
			5000K	47518	697	68.2	41.9	74.8
			5700K	46524	697	66.7	41.9	74.8
		80	4000K	43380	697	62.2	41.9	74.8
			5000K	44850	697	64.3	41.9	74.8
			5700K	43882	697	63.0	41.9	74.8

Optical Performance Data (CV2 Configuration Option)

LUMASPORT 8 (320W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	40742	354	115.1	17.2	32.2
			5000K	41433	354	117.0	17.2	32.2
			5700K	40709	354	115.0	17.2	32.2
		80	4000K	38395	354	108.5	17.2	32.2
			5000K	39108	354	110.5	17.2	32.2
			5700K	38424	354	108.5	17.2	32.2
2S	NEMA 3	70	4000K	40915	347	117.9	21.6	38.4
			5000K	41609	347	119.9	21.6	38.4
			5700K	40882	347	117.8	21.6	38.4
		80	4000K	38551	347	111.1	21.6	38.4
			5000K	39273	347	113.2	21.6	38.4
			5700K	38592	347	111.2	21.6	38.4
3S	NEMA 3	70	4000K	40894	352	116.2	24.1	43.9
			5000K	41588	352	118.1	24.1	43.9
			5700K	40861	352	116.1	24.1	43.9
		80	4000K	38534	352	109.5	24.1	43.9
			5000K	39253	352	111.5	24.1	43.9
			5700K	38541	352	109.5	24.1	43.9
4S	NEMA 4	70	4000K	38643	352	109.8	33.2	58.7
			5000K	39298	352	111.6	33.2	58.7
			5700K	38611	352	109.7	33.2	58.7
		80	4000K	36412	352	103.4	33.2	58.7
			5000K	37092	352	105.4	33.2	58.7
			5700K	36419	352	103.5	33.2	58.7
5S	NEMA 5	70	4000K	36037	352	102.4	41.7	74.9
			5000K	36648	352	104.1	41.7	74.9
			5700K	36008	352	102.3	41.7	74.9
		80	4000K	33957	352	96.5	41.7	74.9
			5000K	34591	352	98.3	41.7	74.9
			5700K	33963	352	96.5	41.7	74.9
7F	NEMA 7	70	4000K	26508	352	75.3	58.6	108.9
			5000K	26958	352	76.6	58.6	108.9
			5700K	26486	352	75.2	58.6	108.9
		80	4000K	24978	352	71.0	58.6	108.9
			5000K	25444	352	72.3	58.6	108.9
			5700K	24983	352	71.0	58.6	108.9

LUMASPORT 8 (640W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	64522	700	92.2	17.2	32.2
			5000K	66598	700	95.1	17.2	32.2
			5700K	65204	700	93.1	17.2	32.2
		80	4000K	60805	700	86.9	17.2	32.2
			5000K	62860	700	89.8	17.2	32.2
			5700K	61546	700	87.9	17.2	32.2
2S	NEMA 3	70	4000K	67598	683	99.0	21.6	38.4
			5000K	69772	683	102.2	21.6	38.4
			5700K	68312	683	100.0	21.6	38.4
		80	4000K	63693	683	93.3	21.6	38.4
			5000K	65856	683	96.4	21.6	38.4
			5700K	64485	683	94.4	21.6	38.4
3S	NEMA 3	70	4000K	68089	697	97.7	24.1	43.9
			5000K	70278	697	100.8	24.1	43.9
			5700K	68809	697	98.7	24.1	43.9
		80	4000K	64158	697	92.0	24.1	43.9
			5000K	66333	697	95.2	24.1	43.9
			5700K	64901	697	93.1	24.1	43.9
4S	NEMA 4	70	4000K	64135	697	92.0	33.2	58.7
			5000K	66198	697	95.0	33.2	58.7
			5700K	64813	697	93.0	33.2	58.7
		80	4000K	60433	697	86.7	33.2	58.7
			5000K	62481	697	89.6	33.2	58.7
			5700K	61133	697	87.7	33.2	58.7
5S	NEMA 5	70	4000K	59657	697	85.6	41.7	74.9
			5000K	61575	697	88.3	41.7	74.9
			5700K	60287	697	86.5	41.7	74.9
		80	4000K	56213	697	80.6	41.7	74.9
			5000K	58118	697	83.4	41.7	74.9
			5700K	56864	697	81.6	41.7	74.9

Order Information

NOTE: A complete fixture order requires a selection entry for **Brand, Family, Model, Power Configuration, Color, CCT, CRI, Optic, Light Head Cable (DC), Voltage, Control, Mount Configuration, Power Cable (AC), Options, Packaging, & International Option.**

SAMPLE ORDER NUMBER: EPH-LS-08-0320L-BLK-40-70-1S-C04-HV-LB-LY-A00-HEG-BP-ST

Brand	Family	Model	Power Configuration	Color	CCT	CRI	Optic	Light Head Cable (DC)
Brand	Family	Model	Power Configuration	Color ³	CCT	CRI	Optic ⁴	Light Head Cable (DC) ⁶
EPH = Ephesus, Standard TAA=Trade Agreements Act ¹	LS = Lumasport	08 = 8 Optics	0320L = 320W Local Power ² 0640L = 640W Local Power ²	BLK = Black WHT = White	40 = 4000K 50 = 5000K 57 = 5700K	70 = 70 CRI 80 = 80 CRI	1S = NEMA 3 17.5 33.3 2S = NEMA 3 21.9 40.2 3S = NEMA 3 25.4 45.7 4S = NEMA 4 36.0 64.4 5S = NEMA 5 46.6 82.6 7F ⁵ = NEMA 7 72.5 131.0	C04 = 4ft Cable, Standard C10 ⁷ = 10ft Cable, Catwalk Bracket
Notes: (1)Only product configurations with this designated prefix are built to be compliant with the Trade Agreements Act of 1979 (TAA). Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.			Notes: (2) Local Power means that the light head is attached to the driver box with the yoke or pendant mount.	Notes: (3) Not coastal rated. Contact Ephesus for coastal fixture options.			Notes: (4) Optic = NEMA TYPE; BEAM ANGLE; FIELD ANGLE. Additional optical performance data within spec sheet. (5)7F = NEMA 7 Optic only available with 0320L = 320W Local Power configuration.	Notes: (6) DC Cable connecting the light head to the driver box. (7) C10 = 10ft Cable is intended to be used with the Ephesus Catwalk Bracket

Voltage	Control	Mount Configuration	Power Cable (AC)	Options	Packaging	International Option
Voltage	Control	Mount	Power Cable (AC) ⁸	Options ⁹	Packaging	International Option
LV = Low Voltage HV = High Voltage	NC = No Control AM = Wireless AirMesh LB = Wired DMX	LY = Local Yoke LP = Local Pendant	A00 = No Cable, Standard A04 = 4ft Cable A10 = 10ft Cable A15 = 15ft Cable	HEG = No Visor High Efficiency Glass Lens VHE = Visor High Efficiency Glass Lens IRG = No Visor Impact Resistant Glass Lens VIR = Visor Impact Resistant Glass Lens CV1 = 1 Louver Cutoff Visor CV2 = 2 Louver Cutoff Visor CV5 = 5 Louver Cutoff Visor	BP = Bulk Pack	ST = Standard
			Notes: (8) AC Cable connecting the Driver Box to the electrical power source.	Notes: (9)Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information.		

DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details

Optical Performance Data (CV1 Configuration Option)

LUMASPORT 8 (320W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	43530	354	123.0	17.3	32.0
			5000K	44268	354	125.1	17.3	32.0
			5700K	43494	354	122.9	17.3	32.0
		80	4000K	41022	354	115.9	17.3	32.0
			5000K	41784	354	118.0	17.3	32.0
			5700K	41053	354	116.0	17.3	32.0
2S	NEMA 3	70	4000K	43533	347	125.5	21.6	38.4
			5000K	44272	347	127.6	21.6	38.4
			5700K	43498	347	125.4	21.6	38.4
		80	4000K	41018	347	118.2	21.6	38.4
			5000K	41786	347	120.4	21.6	38.4
			5700K	41061	347	118.3	21.6	38.4
3S	NEMA 3	70	4000K	43468	352	123.5	24.3	43.9
			5000K	44206	352	125.6	24.3	43.9
			5700K	43433	352	123.4	24.3	43.9
		80	4000K	40959	352	116.4	24.3	43.9
			5000K	41724	352	118.5	24.3	43.9
			5700K	40966	352	116.4	24.3	43.9
4S	NEMA 4	70	4000K	42009	352	119.3	33.1	59.2
			5000K	42722	352	121.4	33.1	59.2
			5700K	41975	352	119.2	33.1	59.2
		80	4000K	39584	352	112.5	33.1	59.2
			5000K	40323	352	114.6	33.1	59.2
			5700K	39591	352	112.5	33.1	59.2
5S	NEMA 5	70	4000K	39742	352	112.9	39.9	74.0
			5000K	40416	352	114.8	39.9	74.0
			5700K	39709	352	112.8	39.9	74.0
		80	4000K	37448	352	106.4	39.9	74.0
			5000K	38147	352	108.4	39.9	74.0
			5700K	37455	352	106.4	39.9	74.0
7F	NEMA 7	70	4000K	30408	352	86.4	57.7	107.8
			5000K	30924	352	87.9	57.7	107.8
			5700K	30383	352	86.3	57.7	107.8
		80	4000K	28653	352	81.4	57.7	107.8
			5000K	29188	352	82.9	57.7	107.8
			5700K	28658	352	81.4	57.7	107.8

LUMASPORT 8 (640W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	68937	700	98.5	17.3	32.0
			5000K	71154	700	101.6	17.3	32.0
			5700K	69666	700	99.5	17.3	32.0
		80	4000K	64965	700	92.8	17.3	32.0
			5000K	67161	700	95.9	17.3	32.0
			5700K	65757	700	93.9	17.3	32.0
2S	NEMA 3	70	4000K	71923	683	105.3	21.6	38.4
			5000K	74237	683	108.7	21.6	38.4
			5700K	72684	683	106.4	21.6	38.4
		80	4000K	67768	683	99.2	21.6	38.4
			5000K	70070	683	102.6	21.6	38.4
			5700K	68612	683	100.5	21.6	38.4
3S	NEMA 3	70	4000K	72373	697	103.8	24.3	43.9
			5000K	74701	697	107.2	24.3	43.9
			5700K	73139	697	104.9	24.3	43.9
		80	4000K	68196	697	97.8	24.3	43.9
			5000K	70507	697	101.2	24.3	43.9
			5700K	68986	697	99.0	24.3	43.9
4S	NEMA 4	70	4000K	69722	697	100.0	33.1	59.2
			5000K	71964	697	103.2	33.1	59.2
			5700K	70459	697	101.1	33.1	59.2
		80	4000K	65698	697	94.3	33.1	59.2
			5000K	67924	697	97.5	33.1	59.2
			5700K	66458	697	95.3	33.1	59.2
5S	NEMA 5	70	4000K	65790	697	94.4	39.9	74.0
			5000K	67905	697	97.4	39.9	74.0
			5700K	66485	697	95.4	39.9	74.0
		80	4000K	61992	697	88.9	39.9	74.0
			5000K	64093	697	92.0	39.9	74.0
			5700K	62710	697	90.0	39.9	74.0

Optical Performance Data (VIR Configuration Option)

LUMASPORT 8 (320W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	46650	346	134.8	18.3	33.0
			5000K	47442	346	137.1	18.3	33.0
			5700K	46612	346	134.7	18.3	33.0
		80	4000K	43963	346	127.1	18.3	33.0
			5000K	44780	346	129.4	18.3	33.0
			5700K	43997	346	127.2	18.3	33.0
2S	NEMA 3	70	4000K	47562	339	140.3	22.5	38.8
			5000K	48369	339	142.7	22.5	38.8
			5700K	47524	339	140.2	22.5	38.8
		80	4000K	44815	339	132.2	22.5	38.8
			5000K	45654	339	134.7	22.5	38.8
			5700K	44862	339	132.3	22.5	38.8
3S	NEMA 3	70	4000K	46253	344	134.5	25.7	44.3
			5000K	47038	344	136.7	25.7	44.3
			5700K	46216	344	134.3	25.7	44.3
		80	4000K	43583	344	126.7	25.7	44.3
			5000K	44397	344	129.1	25.7	44.3
			5700K	43591	344	126.7	25.7	44.3
4S	NEMA 4	70	4000K	46353	344	134.7	35.1	63.7
			5000K	47139	344	137.0	35.1	63.7
			5700K	46314	344	134.6	35.1	63.7
		80	4000K	43677	344	127.0	35.1	63.7
			5000K	44492	344	129.3	35.1	63.7
			5700K	43684	344	127.0	35.1	63.7
5S	NEMA 5	70	4000K	45881	344	133.4	44.5	80.5
			5000K	46659	344	135.6	44.5	80.5
			5700K	45844	344	133.3	44.5	80.5
		80	4000K	43233	344	125.7	44.5	80.5
			5000K	44040	344	128.0	44.5	80.5
			5700K	43241	344	125.7	44.5	80.5
7F	NEMA 7	70	4000K	39710	344	115.4	66.7	121.6
			5000K	40384	344	117.4	66.7	121.6
			5700K	39678	344	115.3	66.7	121.6
		80	4000K	37418	344	108.8	66.7	121.6
			5000K	38117	344	110.8	66.7	121.6
			5700K	37425	344	108.8	66.7	121.6

LUMASPORT 8 (640W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	73879	686	107.7	18.3	33.0
			5000K	76255	686	111.2	18.3	33.0
			5700K	74660	686	108.8	18.3	33.0
		80	4000K	69622	686	101.5	18.3	33.0
			5000K	71975	686	104.9	18.3	33.0
			5700K	70471	686	102.7	18.3	33.0
2S	NEMA 3	70	4000K	78580	667	117.8	22.5	38.8
			5000K	81108	667	121.6	22.5	38.8
			5700K	79411	667	119.1	22.5	38.8
		80	4000K	74041	667	111.0	22.5	38.8
			5000K	76555	667	114.8	22.5	38.8
			5700K	74963	667	112.4	22.5	38.8
3S	NEMA 3	70	4000K	77011	681	113.1	25.7	44.3
			5000K	79488	681	116.7	25.7	44.3
			5700K	77825	681	114.3	25.7	44.3
		80	4000K	72566	681	106.6	25.7	44.3
			5000K	75025	681	110.2	25.7	44.3
			5700K	73406	681	107.8	25.7	44.3
4S	NEMA 4	70	4000K	76931	681	113.0	35.1	63.7
			5000K	79405	681	116.6	35.1	63.7
			5700K	77744	681	114.2	35.1	63.7
		80	4000K	72490	681	106.4	35.1	63.7
			5000K	74946	681	110.1	35.1	63.7
			5700K	73329	681	107.7	35.1	63.7
5S	NEMA 5	70	4000K	75953	681	111.5	44.5	80.5
			5000K	78395	681	115.1	44.5	80.5
			5700K	76756	681	112.7	44.5	80.5
		80	4000K	71569	681	105.1	44.5	80.5
			5000K	73994	681	108.7	44.5	80.5
			5700K	72397	681	106.3	44.5	80.5

Optical Performance Data (IRG Configuration Option)

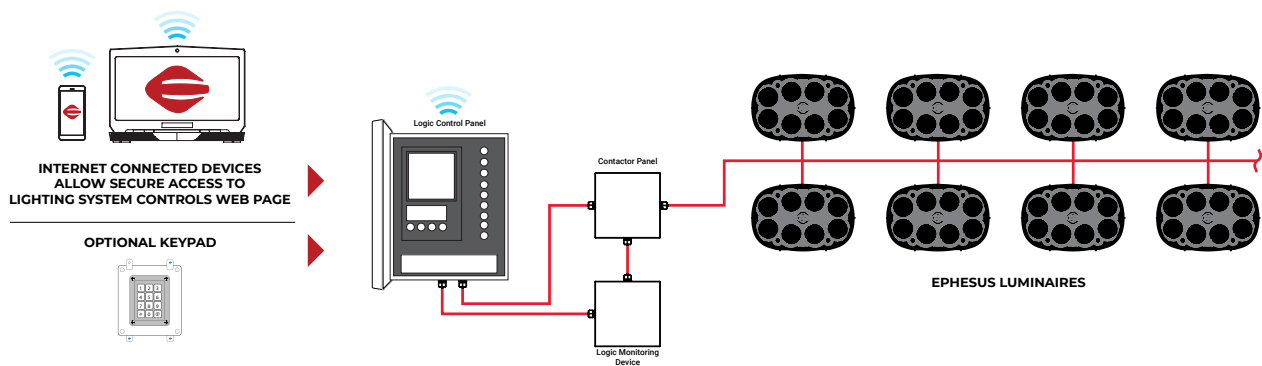
LUMASPORT 8 (320W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	49815	346	144.0	17.5	33.3
			5000K	50660	346	146.4	17.5	33.3
			5700K	49774	346	143.9	17.5	33.3
		80	4000K	46945	346	135.7	17.5	33.3
			5000K	47817	346	138.2	17.5	33.3
			5700K	46981	346	135.8	17.5	33.3
2S	NEMA 3	70	4000K	50283	339	148.3	21.9	40.2
			5000K	51136	339	150.8	21.9	40.2
			5700K	50242	339	148.2	21.9	40.2
		80	4000K	47378	339	139.8	21.9	40.2
			5000K	48266	339	142.4	21.9	40.2
			5700K	47428	339	139.9	21.9	40.2
3S	NEMA 3	70	4000K	49158	344	142.9	25.4	45.7
			5000K	49992	344	145.3	25.4	45.7
			5700K	49118	344	142.8	25.4	45.7
		80	4000K	46321	344	134.7	25.4	45.7
			5000K	47185	344	137.2	25.4	45.7
			5700K	46329	344	134.7	25.4	45.7
4S	NEMA 4	70	4000K	49291	344	143.3	36.0	64.4
			5000K	50127	344	145.7	36.0	64.4
			5700K	49250	344	143.2	36.0	64.4
		80	4000K	46445	344	135.0	36.0	64.4
			5000K	47313	344	137.5	36.0	64.4
			5700K	46454	344	135.0	36.0	64.4
5S	NEMA 5	70	4000K	50139	344	145.8	46.6	82.6
			5000K	50990	344	148.2	46.6	82.6
			5700K	50098	344	145.6	46.6	82.6
		80	4000K	47245	344	137.3	46.6	82.6
			5000K	48127	344	139.9	46.6	82.6
			5700K	47254	344	137.4	46.6	82.6
7F	NEMA 7	70	4000K	47301	344	137.5	72.5	131.0
			5000K	48103	344	139.8	72.5	131.0
			5700K	47262	344	137.4	72.5	131.0
		80	4000K	44570	344	129.6	72.5	131.0
			5000K	45403	344	132.0	72.5	131.0
			5700K	44579	344	129.6	72.5	131.0

LUMASPORT 8 (640W) Lumen Outputs								
Optic	NEMA TYPE	CRI	CCT	Lumens	Input Power (W)	Lm/W	Beam Angle	Field Angle
1S	NEMA 3	70	4000K	78891	686	115.0	17.5	33.3
			5000K	81428	686	118.7	17.5	33.3
			5700K	79725	686	116.2	17.5	33.3
		80	4000K	74346	686	108.4	17.5	33.3
			5000K	76858	686	112.0	17.5	33.3
			5700K	75252	686	109.7	17.5	33.3
2S	NEMA 3	70	4000K	83075	667	124.6	21.9	40.2
			5000K	85748	667	128.6	21.9	40.2
			5700K	83954	667	125.9	21.9	40.2
		80	4000K	78276	667	117.4	21.9	40.2
			5000K	80935	667	121.3	21.9	40.2
			5700K	79251	667	118.8	21.9	40.2
3S	NEMA 3	70	4000K	81847	681	120.2	25.4	45.7
			5000K	84480	681	124.1	25.4	45.7
			5700K	82713	681	121.5	25.4	45.7
		80	4000K	77123	681	113.2	25.4	45.7
			5000K	79737	681	117.1	25.4	45.7
			5700K	78016	681	114.6	25.4	45.7
4S	NEMA 4	70	4000K	81808	681	120.1	36.0	64.4
			5000K	84438	681	124.0	36.0	64.4
			5700K	82672	681	121.4	36.0	64.4
		80	4000K	77085	681	113.2	36.0	64.4
			5000K	79697	681	117.0	36.0	64.4
			5700K	77977	681	114.5	36.0	64.4
5S	NEMA 5	70	4000K	83002	681	121.9	46.6	82.6
			5000K	85671	681	125.8	46.6	82.6
			5700K	83879	681	123.2	46.6	82.6
		80	4000K	78211	681	114.8	46.6	82.6
			5000K	80861	681	118.7	46.6	82.6
			5700K	79116	681	116.2	46.6	82.6

Example System Topology (Contactor Controls)

Example system topology showing the LUMASPORT 8 System in a Wired Contactor Controls Installation.

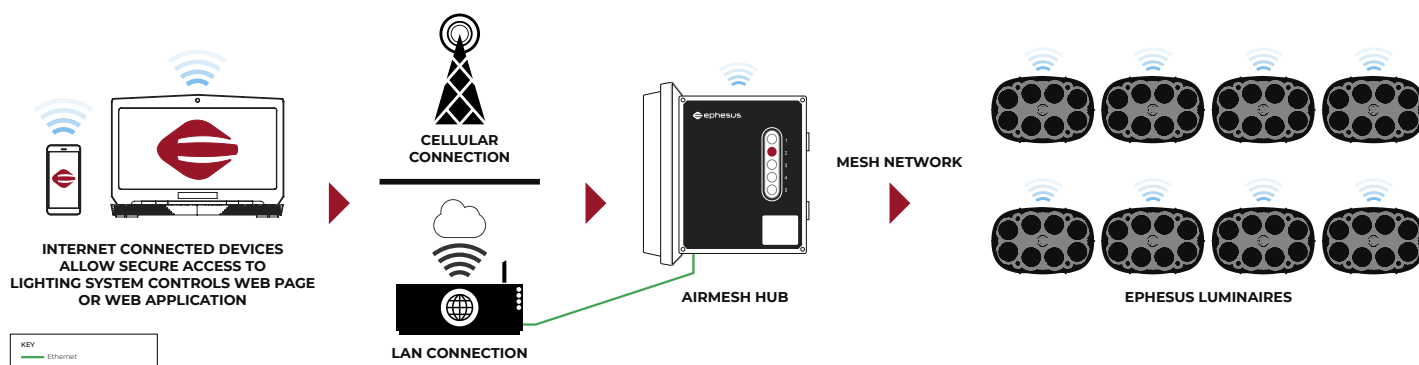
Note: Laptop and mobile device not included. A cellular network connection requires a cellular carrier network plan.



Example System Topology (Wireless AirMesh Controls)

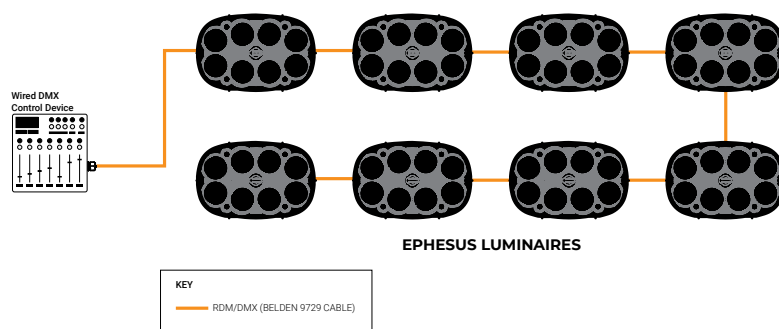
Example system topology showing the LUMASPORT 8 System in a Wireless AirMesh Control Installation.

Note: Laptop and mobile device not included. A cellular network connection requires a cellular carrier network plan.



Example System Topology (Wired DMX Controls)

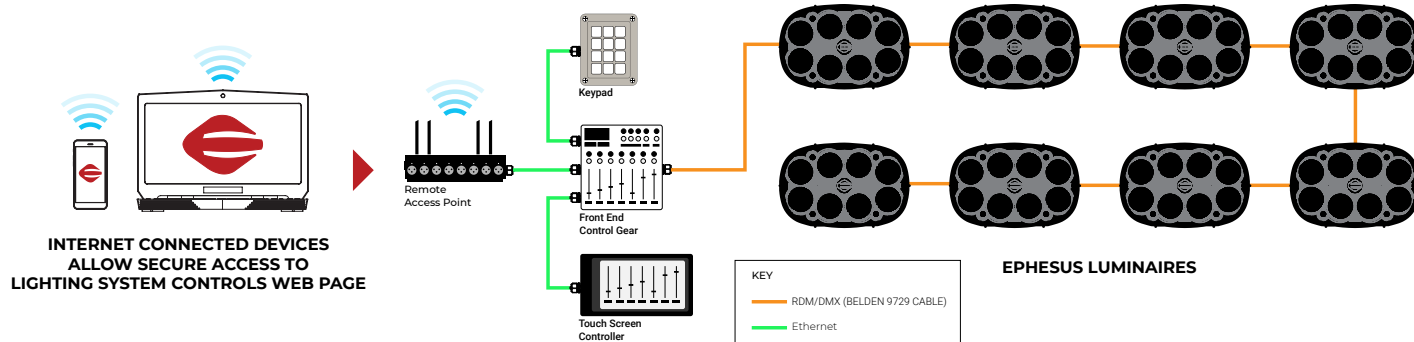
Example system topology showing the LUMASPORT 8 System in a commonly used wired DMX Control Installation. Refer to the specifications and limitations of your wired DMX control device before installing this configuration.



Example System Topology (Remote Access Point With Wired DMX Controls)

Example system topology showing the LUMASPORT 8 System in a commonly used remote access point with wired DMX Control Installation. Refer to the specifications and limitations of your wired DMX control device before installing this configuration. Note: Laptop and mobile device not included. A cellular network connection requires a cellular carrier network plan.

REMOTE ACCESS POINT TO DMX SYSTEM CONTROLS



NOTES:

Remote Access Point requires either a wired Internet connection at the lighting system site or through a cellular carrier network connection plan.

HRDM58 Dimension and Part Details:

HRDM58-050:

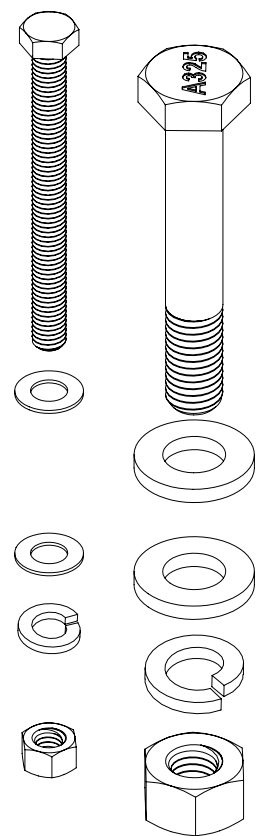
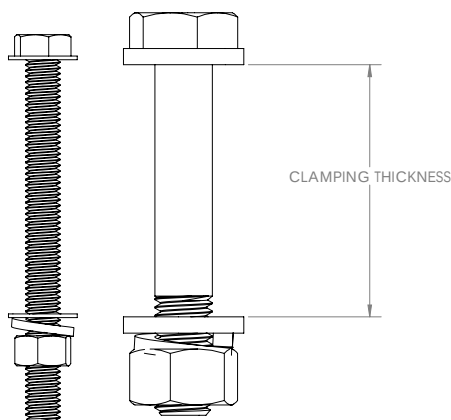
.375-.500in clamping thickness, Use for Extension Plate (EXTPLT) or other flat surfaces drilled for 5/8in hardware

HRDM58-200:

2.00in clamping thickness, use for 2in x 4in Cross arms that are drilled for 5/8in hardware

HRDM58 Data

MODEL #	WEIGHT (LBS)
HRDM58-050	.65
HRDM58-200	.84



HRDM34 Dimension and Part Details:

HRDM34-025:

.25-.50in clamping thickness, use for diving board (DVGBRD) or other flat surfaces drilled for 3/4in hardware

HRDM34-075:

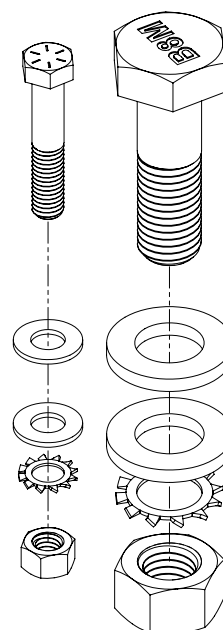
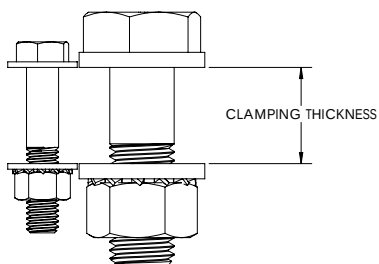
.50-.75in clamping thickness, flat surfaces drilled for 3/4in hardware

HRDM34-200:

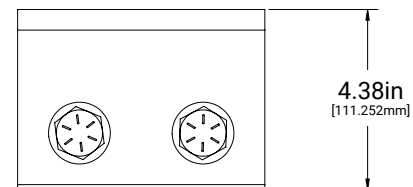
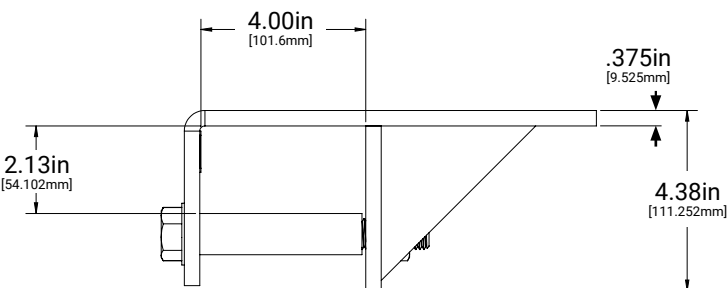
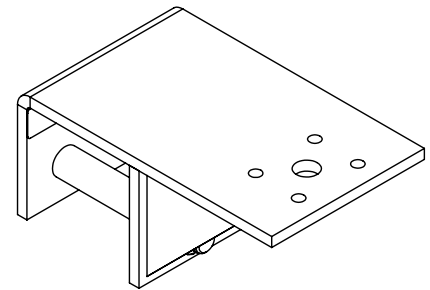
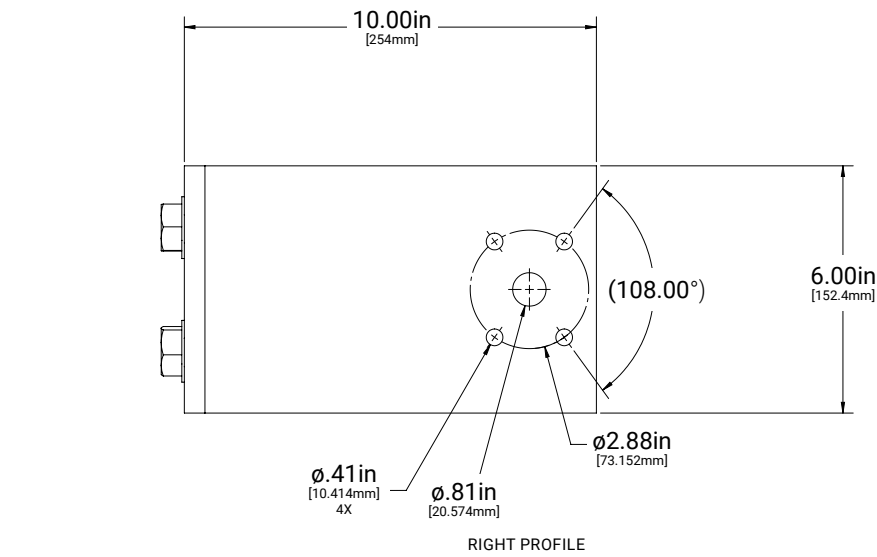
2.00in clamping thickness, use for 2in x 4in Cross arms that are drilled for 3/4in hardware

HRDM34 Data

MODEL #	WEIGHT (LBS)
HRDM34-025	1
HRDM34-075	1.5
HRDM34-200	2



Diving Board (DVGBRD) Dimension and Part Details:

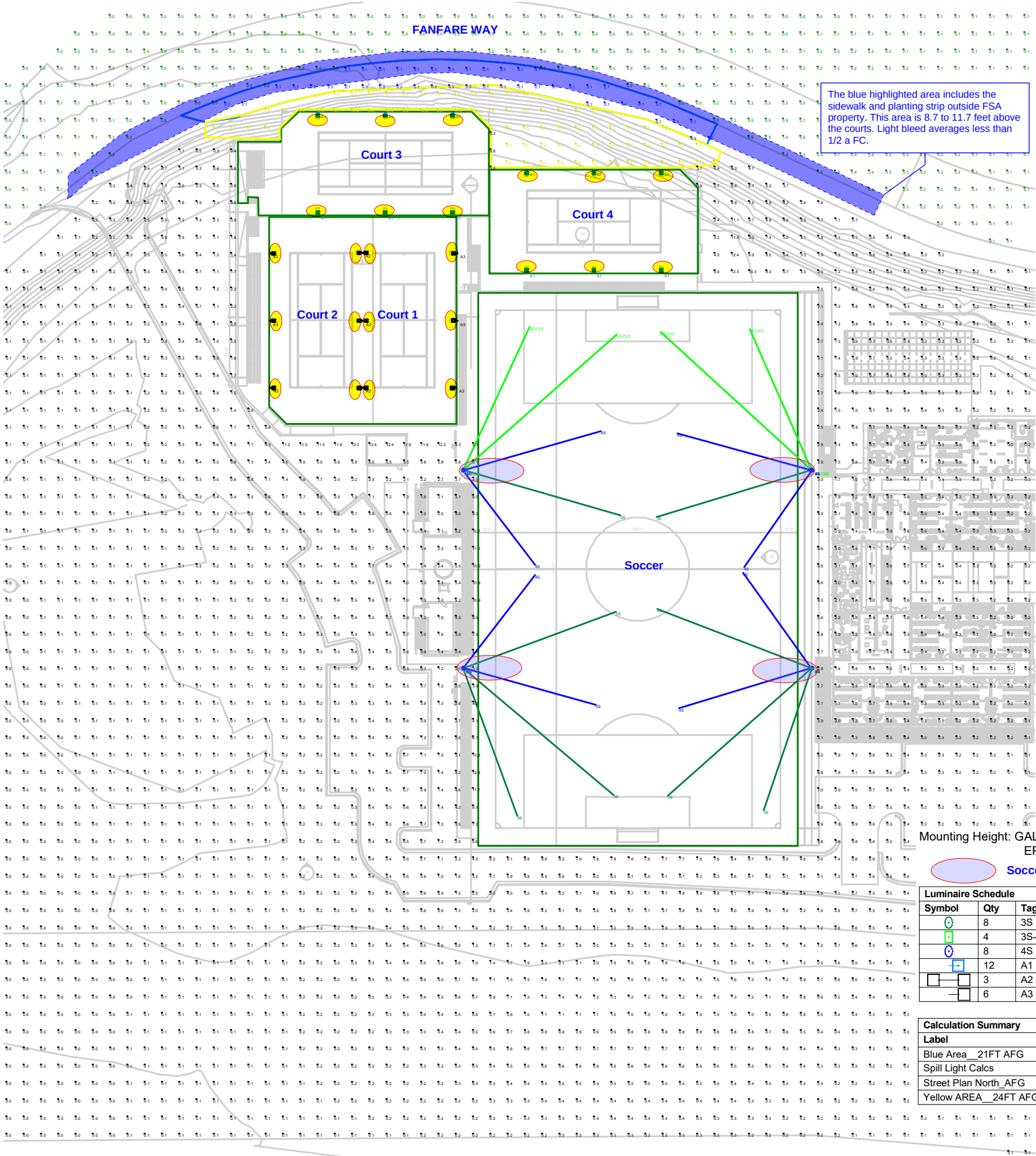


Diving Board Data

MODEL #	WEIGHT (LBS)
DVGBRD	15.1
DVGBRD + HRDM34-025	16.1

Diving Board Parts

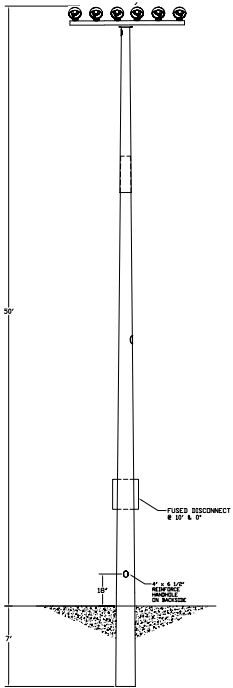
DESCRIPTION	QUANTITY
Welded Bracket	1
Bolt Sleeve	2
3/4in-10 X 6in Structural Hex Bolt, Hot Dip Galvanized	2
3/4in Steel Flat Washer, Hot Dlp Galvanized	2
3/4in Ext Tooth Washer, Steel, Magni-565 Grey Polycoat	2
3/4in-10 Structural Steel Hex Nut, Hot Dip Galvanized	2
Stainless Shim	1



Soccer Field Fixture:
6 per pole



Tennis Court Lights on 19' Poles
(fixture matches fixture in existing
FSA parking areas)



Soccer Field Light Pole

Mounting Height: GALN: 19'-0" AFG
EPH: 50'-0" AFG

Soccer Lighting Tennis Lighting

Berms: Blue: 21.11' AFG, Yellow: 20.41' AFG
Calculation Height: Spill Light/Street: 0'-0" AFG, Berms: 21.11' AFG (blue) and 24.41' AFG (yellow)

Luminaire Schedule								
Symbol	Qty	Tag	Label	Arrangement	LLF	Lum Lumens	Description	Total Watts
	8	3S	EPH- 3S	SINGLE	0.900	89640	EPH-08-0640L-57-70-3S-HEG	5448
	4	3S-CV2	EPH-3S-CV2	Single	0.900	68809	EPH-LS-08-0640L-57-70-3S-CV2	2788
	8	4S	EPH- 4S	SINGLE	0.900	89596	EPH-08-0640L-57-70-4S-HEG	5448
	12	A1	GALN-SA9D-T4W-HSS	SINGLE	0.900	50733	GALN-SA9D-750-U-T4W-HSS	6624
	3	A2	GALN-SA8D-T4FT-HSS-2	Back-Back	0.900	44982	GALN-SA8D-750-U-T4FT-HSS-b2b	2958
	6	A3	GALN-SA8D-T4FT-HSS	Single	0.900	44982	GALN-SA8D-750-U-T4FT-HSS	2958

Calculation Summary									
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	PtSpcLr	PtSpcTb
Blue Area _21FT AFG	Illuminance	Fc	0.12	0.2	0.1	1.20	2.00	10	10
Spill Light Calcs	Illuminance	Fc	0.32	13.4	0.0	N.A.	N.A.	10	10
Street Plan North_AFG	Illuminance	Fc	0.08	1.4	0.0	N.A.	N.A.	10	10
Yellow AREA _24FT AFG	Illuminance	Fc	2.20	10.9	0.1	22.00	109.00	10	10

Does Not Occur off FSA Property. Spill light
off FSA property averages under 1/2 FC,



FULTON SCIENCE ACADEMY
Phase III

3035 Fanfare Way Alpharetta, GA 30009

Make3 Project No. 202212

A3 SPILL LIGHT STUDY

04/03/23

Control Options

0-10V (DIM)

This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (BPC, PR and PR7)

Optional button-type photocontrol (BPC) and photocontrol receptacles (PR and PR7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PR7 receptacle.

After Hours Dim (AHD)

This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a "dusk-to-dawn" period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

Dimming Occupancy Sensor (SPB)

These passive infrared (PIR) sensors are factory installed in the luminaire housing. When the SPB sensor option is selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when no motion is detected. After a period of time, the luminaire turns off, and when motion is detected, the luminaire returns to full light output. The SPB sensor default parameters are listed in the table below, and can be configured utilizing the Sensor Configuration mobile application for iOS and Android devices. The SPB/X is configured to control only the specified number of light squares. An integral photocontrol can be activated with the app for "dusk-to-dawn" control or daylight harvesting - the factory default is off. Three sensor lenses are available to optimize the coverage pattern for mounting heights from 8'-40'. Four sensor colors are available; Bronze, Black, Gray and White, and are automatically selected based on the luminaire finish as indicated by the table below.

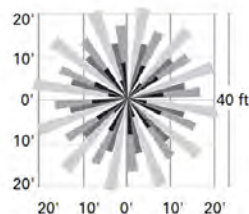
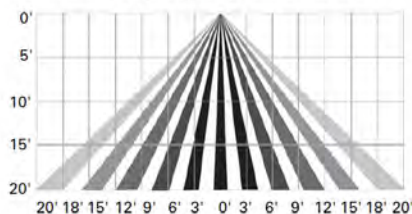
SPB sensor finish matched to luminaire finish		
Luminaire Finish		SPB Sensor Finish
WH	White	White
BK	Black	Black
GM	Graphite Metallic	Black
BZ	Bronze	Bronze
AP	Gray	Gray
DP	Dark Platinum	Gray

SPB/X Availability Table	
Fixture Square Count	Available SPB/X Square Count
1	Not Available
2	Not Available
3	Not Available
4	2
5	2 or 3
6	3
7	2, 3, 4 or 5
8	2, 3, 5 or 6
9	3 or 6

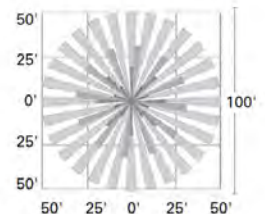
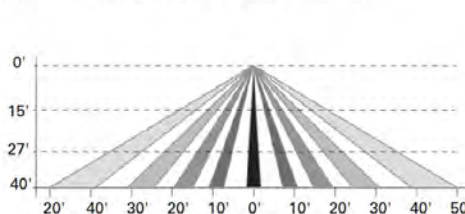
WaveLinx Wireless Control and Monitoring System

Operates on a wireless mesh network based on IEEE 802.15.4 standards enabling wireless control of outdoor lighting. WaveLinx and WaveLinx Lite sensors utilize the Zhaga Book 18 compliant 4-PIN receptacle (ZD or ZW), while the WOLC control module utilizes a 7-PIN receptacle. ZW option provides 4-PIN receptacle and control module to enable future installation of WaveLinx sensors. ZD option provides 4-PIN receptacle and sensor-ready (SR) driver to enable future installation of WaveLinx sensors, power monitoring, and advanced functionality. WaveLinx (SWPD4 to SWPD5) outdoor wireless sensors offer passive infrared (PIR) occupancy and photocell for closed loop daylight harvesting, and can be factory or field-installed. Sensors are factory preset to dim down to 50% after 15 minutes of no motion detected. Two lens options are available for mounting heights of 7' to 40'. Use the WaveLinx mobile application for set-up and configuration. At least one Wireless Area Controller (WAC) is required for full functionality and remote communication (including adjustment of any factory pre-sets). WaveLinx Lite (WOF and WOB) outdoor wireless sensors provide PIR occupancy and photocell for closed loop daylight harvesting, and can be factory or field-installed. Sensors are factory preset to dim down to 50% after 15 minutes of no motion detected. Two lens options are available for mounting heights of 7' to 40'. Use the WaveLinx Lite mobile application for set-up and configuration. WAC not required. WaveLinx Outdoor Control Module (WOLC-7P-10A) accessory provides a photocontrol enabling astronomic or time-based schedules to provide ON, OFF and dimming control of fixtures utilizing a 7-PIN receptacle. The out-of-box functionality is ON at dusk and OFF at dawn.

For mounting heights up to 15' (SWPD4 and WOB)



For mounting heights up to 40' (SWPD5 and WOF)



LumenSafe Integrated Network Security Camera (LD)

Cooper Lighting Solutions brings ease of camera deployment to a whole new level. No additional wiring is needed beyond providing line power to the luminaire. A variety of networking options allows security integrators to design the optimal solution for active surveillance. As the ideal solution to meet the needs for active surveillance, the LumenSafe integrated network camera is a streamlined, outdoor-ready fixed dome that provides HDTV 1080p video. This IP camera is optimally designed for deployment in the video management system or security software platform of choice.

Synapse (DIM10)

SimplySNAP integrated wireless controls system by Synapse. Includes factory installed DIM10 Synapse control module and MS/DC motion sensor; requires additional Synapse system components for operation. Contact Synapse at www.synapsewireless.com for product support, warranty and terms and conditions.

Performance Table, Drive Current "D" (1200mA)

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		65	125	184	245	309	368	433	493	552
Input Current @ 120V		0.546	1.041	1.535	2.082	2.578	3.070	3.619	4.114	4.605
Input Current @ 208V		0.318	0.610	0.893	1.219	1.504	1.786	2.113	2.397	2.679
Input Current @ 240V		0.276	0.523	0.758	1.046	1.282	1.516	1.806	2.041	2.274
Input Current @ 277V		0.241	0.460	0.662	0.920	1.133	1.325	1.593	1.807	1.987
Input Current @ 347V		0.187	0.370	0.543	0.740	0.915	1.085	1.285	1.459	1.628
Input Current @ 480V		0.138	0.269	0.391	0.537	0.663	0.782	0.932	1.057	1.173
Optics										
T2	4000K Lumens	7,872	15,645	23,225	30,777	38,962	46,135	54,189	62,824	70,530
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	125	126	126	126	125	125	127	128
T2R	4000K Lumens	7,977	15,854	23,535	31,188	39,482	46,751	54,913	63,663	71,472
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	127	128	127	128	127	127	129	129
T3	4000K Lumens	7,762	15,427	22,901	30,348	38,418	45,491	53,433	61,947	69,546
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	123	124	124	124	124	123	126	126
T3R	4000K Lumens	8,010	15,920	23,632	31,317	39,645	46,944	55,139	63,925	71,767
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	127	128	128	128	128	127	130	130
T4FT	4000K Lumens	7,810	15,522	23,043	30,535	38,655	45,772	53,763	62,330	69,976
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	120	124	125	125	125	124	124	126	127
T4W	4000K Lumens	7,833	15,568	23,110	30,625	38,769	45,907	53,921	62,513	70,182
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	125	126	125	125	125	125	127	127
SL2	4000K Lumens	7,813	15,528	23,052	30,547	38,670	45,790	53,784	62,354	70,003
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	120	124	125	125	125	124	124	126	127
SL3	4000K Lumens	7,758	15,419	22,889	30,332	38,398	45,468	53,406	61,916	69,511
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	123	124	124	124	124	123	126	126
SL4	4000K Lumens	7,662	15,228	22,605	29,955	37,921	44,903	52,742	61,146	68,646
	BUG Rating	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	118	122	123	122	123	122	122	124	124
5NQ	4000K Lumens	8,169	16,235	24,101	31,938	40,431	47,874	56,232	65,193	73,190
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	126	130	131	130	131	130	130	132	133
5MQ	4000K Lumens	8,210	16,316	24,221	32,097	40,632	48,113	56,512	65,517	73,554
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	126	131	132	131	131	131	131	133	133
5WQ	4000K Lumens	8,192	16,282	24,170	32,029	40,546	48,011	56,393	65,379	73,399
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	126	130	131	131	131	130	130	133	133
SLL/ SLR	4000K Lumens	6,747	13,410	19,906	26,379	33,394	39,542	46,445	53,846	60,451
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	104	107	108	108	108	107	107	109	110
RW	4000K Lumens	8,076	16,050	23,826	31,574	39,970	47,329	55,592	64,450	72,356
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	124	128	129	129	129	129	128	131	131
AFL	4000K Lumens	7,904	15,709	23,320	30,902	39,120	46,323	54,410	63,079	70,817
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G4
	Lumens per Watt	122	126	127	126	127	126	126	128	128

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Performance Table, Drive Current "C" (1050mA)

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		57	108	160	213	269	321	377	429	481
Input Current @ 120V		0.478	0.905	1.338	1.810	2.244	2.675	3.150	3.584	4.013
Input Current @ 208V		0.279	0.532	0.780	1.064	1.313	1.559	1.845	2.093	2.339
Input Current @ 240V		0.243	0.458	0.664	0.916	1.123	1.328	1.582	1.788	1.991
Input Current @ 277V		0.213	0.404	0.582	0.808	0.997	1.164	1.401	1.589	1.745
Input Current @ 347V		0.164	0.322	0.471	0.644	0.795	0.943	1.117	1.269	1.414
Input Current @ 480V		0.121	0.235	0.341	0.469	0.579	0.681	0.814	0.923	1.022
Optics										
T2	4000K Lumens	7,154	14,219	21,107	27,970	35,408	41,927	49,247	57,094	64,098
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	132	132	131	132	131	131	133	133
T2R	4000K Lumens	7,250	14,408	21,389	28,344	35,881	42,487	49,905	57,857	64,954
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	127	133	134	133	133	132	132	135	135
T3	4000K Lumens	7,054	14,020	20,812	27,580	34,914	41,342	48,560	56,297	63,203
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	124	130	130	129	130	129	129	131	131
T3R	4000K Lumens	7,280	14,468	21,477	28,461	36,029	42,663	50,111	58,096	65,222
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	128	134	134	134	134	133	133	135	136
T4FT	4000K Lumens	7,098	14,107	20,941	27,751	35,130	41,598	48,860	56,646	63,594
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	131	131	130	131	130	130	132	132
T4W	4000K Lumens	7,119	14,148	21,003	27,832	35,233	41,720	49,004	56,812	63,781
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	131	131	131	131	130	130	132	133
SL2	4000K Lumens	7,101	14,112	20,949	27,761	35,144	41,614	48,879	56,668	63,619
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	131	131	130	131	130	130	132	132
SL3	4000K Lumens	7,051	14,013	20,802	27,566	34,897	41,321	48,535	56,269	63,172
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	124	130	130	129	130	129	129	131	131
SL4	4000K Lumens	6,963	13,839	20,543	27,223	34,463	40,808	47,932	55,569	62,386
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	122	128	128	128	128	127	127	130	130
5NQ	4000K Lumens	7,424	14,755	21,903	29,025	36,743	43,508	51,104	59,247	66,515
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	130	137	137	136	137	136	136	138	138
5MQ	4000K Lumens	7,461	14,828	22,012	29,169	36,926	43,725	51,359	59,542	66,846
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	131	137	138	137	137	136	136	139	139
5WQ	4000K Lumens	7,445	14,797	21,966	29,108	36,849	43,633	51,250	59,417	66,705
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	131	137	137	137	137	136	136	139	139
SLL/ SLR	4000K Lumens	6,132	12,187	18,091	23,973	30,348	35,936	42,210	48,935	54,938
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	108	113	113	113	113	112	112	114	114
RW	4000K Lumens	7,340	14,587	21,653	28,694	36,325	43,013	50,522	58,573	65,757
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	129	135	135	135	135	134	134	137	137
AFL	4000K Lumens	7,183	14,276	21,193	28,084	35,552	42,098	49,448	57,327	64,359
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4
	Lumens per Watt	126	132	132	132	132	131	131	134	134

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Performance Table, Drive Current "B" (800mA)

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		44	82	121	164	204	243	286	325	364
Input Current @ 120V		0.367	0.689	1.014	1.378	1.704	2.027	2.393	2.716	3.041
Input Current @ 208V		0.213	0.401	0.594	0.802	0.997	1.188	1.400	1.605	1.782
Input Current @ 240V		0.184	0.347	0.510	0.694	0.860	1.021	1.210	1.386	1.531
Input Current @ 277V		0.160	0.303	0.449	0.605	0.757	0.898	1.065	1.242	1.347
Input Current @ 347V		0.125	0.235	0.355	0.471	0.592	0.710	0.828	0.958	1.065
Input Current @ 480V		0.092	0.172	0.258	0.344	0.432	0.517	0.605	0.706	0.775
Optics										
T2	4000K Lumens	5,790	11,508	17,083	22,638	28,658	33,935	39,859	46,210	51,879
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	132	140	141	138	140	140	139	142	143
T2R	4000K Lumens	5,868	11,662	17,311	22,941	29,041	34,388	40,391	46,827	52,572
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5
	Lumens per Watt	133	142	143	140	142	142	141	144	144
T3	4000K Lumens	5,710	11,347	16,845	22,322	28,258	33,461	39,303	45,565	51,155
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5
	Lumens per Watt	130	138	139	136	139	138	137	140	141
T3R	4000K Lumens	5,892	11,710	17,383	23,035	29,161	34,530	40,558	47,020	52,788
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	134	143	144	140	143	142	142	145	145
T4FT	4000K Lumens	5,745	11,418	16,949	22,460	28,433	33,668	39,546	45,847	51,471
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	139	140	137	139	139	138	141	141
T4W	4000K Lumens	5,762	11,451	16,999	22,526	28,517	33,767	39,662	45,982	51,622
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	140	140	137	140	139	139	141	142
SL2	4000K Lumens	5,747	11,422	16,956	22,469	28,444	33,681	39,561	45,865	51,491
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	139	140	137	139	139	138	141	141
SL3	4000K Lumens	5,707	11,342	16,836	22,311	28,244	33,444	39,283	45,542	51,129
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	130	138	139	136	138	138	137	140	140
SL4	4000K Lumens	5,636	11,201	16,627	22,034	27,893	33,028	38,794	44,976	50,493
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	128	137	137	134	137	136	136	138	139
5NQ	4000K Lumens	6,009	11,942	17,727	23,492	29,739	35,214	41,362	47,953	53,835
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	137	146	147	143	146	145	145	148	148
5MQ	4000K Lumens	6,039	12,001	17,816	23,609	29,887	35,389	41,568	48,191	54,103
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	137	146	147	144	147	146	145	148	149
5WQ	4000K Lumens	6,026	11,976	17,778	23,559	29,824	35,315	41,480	48,090	53,989
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	137	146	147	144	146	145	145	148	148
SLL/ SLR	4000K Lumens	4,963	9,863	14,642	19,403	24,563	29,085	34,163	39,607	44,465
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	113	120	121	118	120	120	119	122	122
RW	4000K Lumens	5,940	11,806	17,526	23,224	29,400	34,813	40,891	47,407	53,222
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	135	144	145	142	144	143	143	146	146
AFL	4000K Lumens	5,814	11,555	17,153	22,730	28,775	34,073	40,021	46,398	52,090
	BUG Rating	B1-U0-G1	B2-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4
	Lumens per Watt	132	141	142	139	141	140	140	143	143

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Performance Table, Drive Current "A" (615mA)

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		33	63	93	121	154	182	215	244	274
Input Current @ 120V		0.283	0.529	0.778	1.058	1.310	1.556	1.839	2.089	2.335
Input Current @ 208V		0.165	0.309	0.460	0.618	0.771	0.919	1.082	1.240	1.379
Input Current @ 240V		0.143	0.270	0.398	0.540	0.671	0.796	0.944	1.078	1.194
Input Current @ 277V		0.125	0.237	0.352	0.473	0.581	0.705	0.818	0.962	1.057
Input Current @ 347V		0.098	0.181	0.272	0.362	0.454	0.544	0.636	0.738	0.816
Input Current @ 480V		0.073	0.133	0.200	0.267	0.335	0.400	0.470	0.554	0.600
Optics										
T2	4000K Lumens	4,654	9,249	13,730	18,194	23,032	27,273	32,034	37,138	41,694
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	141	147	148	150	150	150	149	152	152
T2R	4000K Lumens	4,716	9,372	13,913	18,437	23,340	27,637	32,462	37,634	42,251
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4
	Lumens per Watt	143	149	150	152	152	152	151	154	154
T3	4000K Lumens	4,589	9,120	13,538	17,940	22,711	26,892	31,587	36,620	41,112
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4
	Lumens per Watt	139	145	146	148	147	148	147	150	150
T3R	4000K Lumens	4,735	9,411	13,970	18,513	23,436	27,751	32,596	37,790	42,425
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	143	149	150	153	152	152	152	155	155
T4FT	4000K Lumens	4,617	9,176	13,622	18,051	22,851	27,058	31,782	36,847	41,366
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	140	146	146	149	148	149	148	151	151
T4W	4000K Lumens	4,631	9,203	13,662	18,104	22,918	27,138	31,876	36,955	41,488
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	140	146	147	150	149	149	148	151	151
SL2	4000K Lumens	4,619	9,180	13,627	18,058	22,860	27,069	31,795	36,861	41,383
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5
	Lumens per Watt	140	146	147	149	148	149	148	151	151
SL3	4000K Lumens	4,586	9,115	13,531	17,931	22,699	26,879	31,571	36,602	41,091
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	139	145	145	148	147	148	147	150	150
SL4	4000K Lumens	4,529	9,002	13,363	17,708	22,417	26,544	31,178	36,146	40,580
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	137	143	144	146	146	146	145	148	148
5NQ	4000K Lumens	4,829	9,598	14,247	18,880	23,901	28,301	33,242	38,539	43,266
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3
	Lumens per Watt	146	152	153	156	155	155	155	158	158
5MQ	4000K Lumens	4,853	9,645	14,318	18,974	24,020	28,442	33,407	38,731	43,482
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	147	153	154	157	156	156	155	159	159
5WQ	4000K Lumens	4,843	9,625	14,288	18,934	23,969	28,382	33,337	38,649	43,390
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	147	153	154	156	156	156	155	158	158
SLL/ SLR	4000K Lumens	3,989	7,927	11,768	15,594	19,741	23,375	27,456	31,831	35,736
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	121	126	127	129	128	128	128	130	130
RW	4000K Lumens	4,774	9,488	14,085	18,665	23,628	27,979	32,863	38,100	42,774
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	145	151	151	154	153	154	153	156	156
AFL	4000K Lumens	4,673	9,286	13,785	18,268	23,126	27,384	32,164	37,290	41,864
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	Lumens per Watt	142	147	148	151	150	150	150	153	153

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Energy and Performance Data

Lumen Maintenance (TM-21)

Drive Current	Ambient Temperature	25,000 hours*	50,000 hours*	60,000 hours*	100,000 hours**	Theoretical L70 hours**
Up to 1A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.7%	98.3%	98.1%	97.4%	> 1.9M
	50°C	98.2%	97.2%	96.8%	95.2%	> 851,000
1.2A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.5%	97.9%	97.7%	96.7%	> 1.3M

* Supported by IES TM-21 standards

** Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, explaining proper use of IES TM-21 and LM-80.

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

FADC Settings

SA1-SA3 (A, B, C, D Drive Current)

FADC Position	Percent of Typical Lumen Output
1	25%
2	48%
3	56%
4	65%
5	75%
6	80%
7	85%
8	90%
9	95%
10	100%

FADC Settings

SA4-SA6 (A, B, C, D Drive Current)

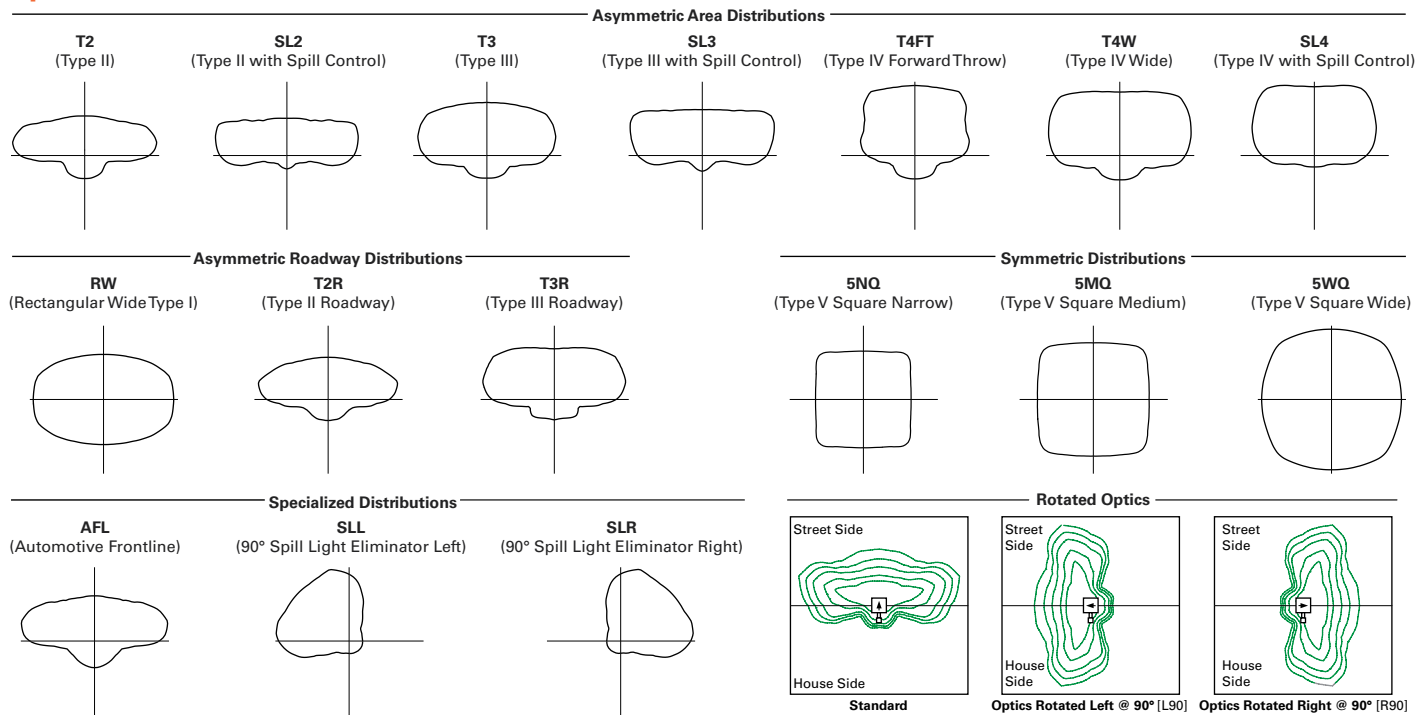
FADC Position	Percent of Typical Lumen Output
1	14%
2	25%
3	32%
4	43%
5	49%
6	57%
7	65%
8	72%
9	80%
10	100%

FADC Settings

SA7-SA9 (A, B, C, D Drive Current)

FADC Position	Percent of Typical Lumen Output
1	19%
2	38%
3	47%
4	63%
5	74%
6	85%
7	95%
8	97%
9	100%
10	100%

Optical Distributions



Product Specifications

Construction

- Die-cast aluminum housing and heat sink
- Three housing sizes, using 1 to 9 light squares

Optics

- High-efficiency injection-molded AccuLED Optics technology
- 16 optical distributions for area site and roadway applications
- 3 shielding options include HSS, GRS and PFS
- IDA Certified (3000K CCT and warmer only, fixed mounting options)

Electrical

- Removable power tray assembly includes drivers, surge modules and control modules for ease of maintenance and serviceability
- Standard with 0-10V dimming
- Standard with 10kV surge module, optional 20kV surge module

- Suitable for operation in -40°C to 40°C ambient environments. Optional 50°C high ambient (HA) configuration

Mounting

- Arms are factory installed, enabling closed-housing installation
- All arms suitable for round or square pole installation
- All arms provide clearance for multiple fixture installations at 90°

Finish

- 6 standard finishes use super durable TGIC polyester powder coat paint, providing 2.5 mil nominal thickness and salt-spray tested to 3,000 hours per ASTM B117
- RAL and custom color matches available
- Coastal Construction (CC) option salt-spray tested to 5,000 hours per ASTM B117, achieving a scribe rating of 9 per ASTM D1654

Typical Applications

- Outdoor, Parking Lots, Walkways, Roadways, Building Areas

Warranty

- Five year limited warranty

Energy and Performance Data

Lumen Maintenance (TM-21)

Drive Current	Ambient Temperature	25,000 hours*	50,000 hours*	60,000 hours*	100,000 hours**	Theoretical L70 hours**
Up to 1A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.7%	98.3%	98.1%	97.4%	> 1.9M
	50°C	98.2%	97.2%	96.8%	95.2%	> 851,000
1.2A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.5%	97.9%	97.7%	96.7%	> 1.3M

Lumen Multiplier

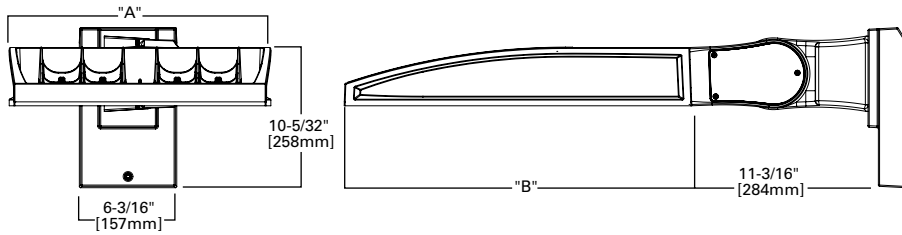
Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

* Supported by IES TM-21 standards

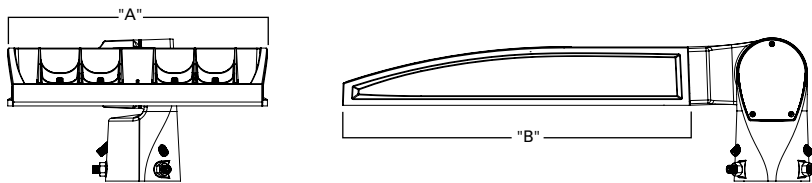
** Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, explaining proper use of IES TM-21 and LM-80.

Mounting Details

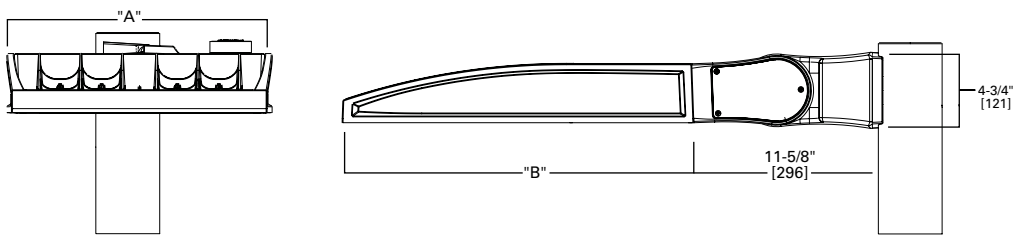
Wall Mount, Adjustable (WA)



Slipfitter, Adjustable (SP)

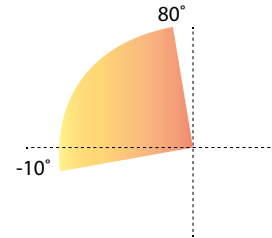


Pole Mount, Adjustable Arm (PA)



Adjustable Arm Range of Motion

- Wall Mount (WA), Slipfitter (SP) and Pole Mount (PA)
- Adjustable in increments of 5°
- Must maintain downward facing orientation



Fixture Weights and EPAs

Tilt Angle (Degrees)	Number of Light Squares	Weight	1 @ 90°	2 @ 180°	2 @ 90°	2 @ 120°	3 @ 90°	3 @ 120°	4 @ 90°
0°	1-4	33.5 lb (15.2 kg)	0.85	1.70	1.46	1.66	2.31	2.25	2.35
	5-6	43.5 lb (19.7 kg)	0.86	1.71	1.62	1.80	2.49	2.35	2.50
	7-9	52.5 lb (23.8 kg)	0.98	1.95	1.75	1.98	2.73	2.55	2.76
15°	1-4	33.5 lb (15.2 kg)	1.10	1.71	1.95	2.26	2.81	3.30	2.87
	5-6	43.5 lb (19.7 kg)	1.42	1.71	2.27	2.72	3.13	3.63	3.15
	7-9	52.5 lb (23.8 kg)	1.69	1.96	2.67	3.22	3.65	4.38	3.72
30°	1-4	33.5 lb (15.2 kg)	1.72	1.81	2.58	3.21	3.44	4.59	3.53
	5-6	43.5 lb (19.7 kg)	2.26	2.29	3.11	4.00	3.97	5.27	4.00
	7-9	52.5 lb (23.8 kg)	2.75	2.85	3.73	4.83	4.71	6.45	4.81
45°	1-4	33.5 lb (15.2 kg)	2.25	2.36	3.10	4.00	3.96	5.63	4.08
	5-6	43.5 lb (19.7 kg)	2.96	2.99	3.81	5.06	4.67	6.49	4.71
	7-9	52.5 lb (23.8 kg)	3.63	3.76	3.73	6.17	5.59	8.03	5.73
60°	1-4	33.5 lb (15.2 kg)	2.63	2.77	3.49	4.58	4.34	6.21	4.48
	5-6	43.5 lb (19.7 kg)	3.46	3.51	4.32	5.84	5.19	7.01	5.22
	7-9	52.5 lb (23.8 kg)	4.27	4.44	5.25	7.15	6.23	8.80	6.40



CITY COUNCIL MEETING STAFF REPORT

SUBMITTING DEPARTMENT: COMMUNITY DEVELOPMENT

SUBMITTED BY: KATHI COOK

DRAFTED BY: MICHAEL WOODMAN

I. **AGENDA ITEM TITLE:** PH-23-08 UNIFIED DEVELOPMENT CODE TEXT AMENDMENTS – ZONING PROCEDURES LAW

PLANNING COMMISSION: JUNE 1, 2023

CITY COUNCIL: JUNE 19, 2023

II. **REPORT IN BRIEF:**

Consideration of text amendments to Unified Development Code (UDC) Article IV to amend various zoning procedures.

DISCUSSION

Staff recommends text amendments to Unified Development Code (UDC), Article IV Procedures in order to comply with the State of Georgia's revisions to The Zoning Procedures Law. The State's revised Zoning Procedures Law goes into effect on July 1, 2023. The most significant change to the zoning procedures requires a local government to place a legal advertisement in the newspaper of local circulation 30 days in advance of a public hearing before a quasi-judicial board. The current legal advertising requirement is fifteen (15) days in advance of the public hearing. In addition, the legal advertisement in the newspaper will now apply to such boards as the Design Review Board (DRB) and Board of Zoning Appeals (BZA). In order to provide consistency among all boards and councils, Staff recommends changing the legal advertising timeframe to 30 days for all boards and City Council.

III. **ATTACHMENTS:**

- New State Zoning Law July 2023
- Proposed Text Amendments

House Bill 1405 (AS PASSED HOUSE AND SENATE)

By: Representatives Roberts of the 52nd, Washburn of the 141st, Crowe of the 110th, Dreyer of the 59th, Paris of the 142nd, and others

A BILL TO BE ENTITLED
AN ACT

1 To amend Title 36 of the Official Code of Georgia Annotated, relating to local governments,
2 so as to revise "The Zoning Procedures Law"; to revise provisions related to judicial review
3 of zoning decisions; to revise definitions; to provide for requirements for zoning decisions
4 by boards or agencies using delegated powers; to provide additional notice and hearing
5 provisions for changes to zoning ordinances that revise single-family residential
6 classifications and definitions so as to authorize multifamily residential property uses; to
7 require review procedures for decisions made by boards or agencies using delegated powers;
8 to provide for judicial review of zoning decisions; to require certain designations relating to
9 appeals of quasi-judicial decisions; to provide for related matters; to provide for an effective
10 date and applicability; to repeal conflicting laws; and for other purposes.

11 BE IT ENACTED BY THE GENERAL ASSEMBLY OF GEORGIA:

12 **SECTION 1.**

13 Title 36 of the Official Code of Georgia Annotated, relating to local governments, is
14 amended by revising Chapter 66, relating to zoning procedures, as follows:

15 "CHAPTER 66

H. B. 1405

- 1 -

36-66-1.

This chapter shall be known and may be cited as ~~'The Zoning~~ the 'Zoning Procedures Law.'

36-66-2.

(a) While recognizing and confirming the authority of local governments to exercise zoning power within their respective territorial boundaries, it is the intention of this chapter to establish as state policy minimum procedures governing the exercise and means of judicial review of the exercise of that power. The purpose of these minimum procedures is to assure that due process is afforded to the general public when local governments regulate the uses of property through the exercise of the zoning power. Nothing in this chapter shall be construed to invalidate any zoning decision made by a local government prior to ~~January 1, 1986~~ July 1, 2023, or to require a local government to exercise its zoning power.

(b) Consistent with the minimum procedures required by this chapter, local governments may:

(1) Provide by ordinance or resolution for such administrative officers, ~~bodies~~ boards, or agencies as may be expedient for the efficient exercise of ~~their~~ delegated, quasi-judicial zoning powers and to establish procedures and notice requirements for hearings before such quasi-judicial officers, boards, or agencies that are consistent with the minimum procedures provided for in this chapter to assure due process is afforded the general public; and

(2) Provide by ordinance or resolution for procedures and requirements in addition to or supplemental to those required by this chapter and, where so adopted, thereby establish the minimum procedures for such local government's exercise of zoning powers.

36-66-3.

As used in this chapter, the term:

(1) 'Local government' means any county or municipality which exercises zoning power within its territorial boundaries.

(1.1) 'Quasi-judicial officers, boards, or agencies' means an officer, board, or agency appointed by a local government to exercise delegated, quasi-judicial zoning powers including hearing appeals of administrative decisions by such officers, boards, or agencies and hearing and rendering decisions on applications for variances, special administrative permits, special exceptions, conditional use permits, or other similar permits not enumerated herein as a zoning decision, pursuant to standards for the exercise of such quasi-judicial authority adopted by a local government.

(2) 'Territorial boundaries' means, in the case of counties, the unincorporated areas thereof and any area defined in paragraph (5.1) of Code Section 36-70-2, and, in the case of municipalities, the area lying within the corporate limits thereof except any area defined in paragraph (5.1) of Code Section 36-70-2.

(3) 'Zoning' means the power of local governments to provide within their respective territorial boundaries for the zoning or districting of property for various uses and the prohibition of other or different uses within such zones or districts and for the regulation of development and the improvement of real estate within such zones or districts in accordance with the uses of property for which such zones or districts were established.

(4) 'Zoning decision' means final legislative action by a local government which results in:

(A) The adoption or repeal of a zoning ordinance;

(B) The adoption of an amendment to a zoning ordinance which changes the text of the zoning ordinance;

(C) The adoption or denial of an amendment to a zoning ordinance ~~which rezones to~~ rezone property from one zoning classification to another;

(D) The adoption or denial of an amendment to a zoning ordinance by a municipal local government ~~which zones to zone~~ to zone property to be annexed into the municipality; ~~or~~

(E) The grant or denial of a permit relating to a special use of property;

(F) The grant or denial of a variance or conditions concurrent and in conjunction with a decision pursuant to subparagraphs (C) or (E) of this paragraph.

(5) 'Zoning ordinance' means an ordinance or resolution of a local government establishing procedures and zones or districts within its respective territorial boundaries which regulate the uses and development standards of property within such zones or districts. The term also includes the zoning map adopted in conjunction with a zoning ordinance which shows the zones and districts and zoning classifications of property therein.

36-66-4.

(a) A local government taking action resulting in a zoning decision shall provide for a hearing on the proposed action. Where the proposed action includes any combination of zoning decisions under subparagraphs (C), (E), or (F) of paragraph (4) of Code Section 36-66-3 for the same property, only one hearing shall be required under this Code Section.

At least 15 but not more than 45 days prior to the date of the hearing, the local government shall cause to be published within a newspaper of general circulation within the territorial boundaries of the local government a notice of the hearing. The notice shall state the time, place, and purpose of the hearing.

(b) If a zoning decision of a local government is for the rezoning of property and the rezoning is initiated by a party other than the local government, then:

(1) The notice, in addition to the requirements of subsection (a) of this Code section, shall include the location of the property, the present zoning classification of the property, and the proposed zoning classification of the property; and

(2) A sign containing information required by local ordinance or resolution shall be placed in a conspicuous location on the property not less than 15 days prior to the date of the hearing.

(c) If the zoning decision of a local government is for the rezoning of property and the amendment to the zoning ordinance to accomplish the rezoning is defeated by the local government, then the same property may not again be considered for rezoning until the expiration of at least six months immediately following the defeat of the rezoning by the local government.

(d) If the zoning is for property to be annexed into a municipality, then:

(1) Such municipal local government shall complete the procedures required by this chapter for such zoning, except for the final vote of the municipal governing authority, prior to adoption of the annexation ordinance or resolution or the effective date of any local Act but no sooner than the date the notice of the proposed annexation is provided to the governing authority of the county as required under Code Section 36-36-6;

(2) The hearing required by subsection (a) of this Code section shall be conducted prior to the annexation of the subject property into the municipality;

(3) In addition to the other notice requirements of this Code section, the municipality shall cause to be published within a newspaper of general circulation within the territorial boundaries of the county wherein the property to be annexed is located a notice of the hearing as required under the provisions of subsection (a) or (b), as applicable, of this Code section and shall place a sign on the property when required by subsection (b) of this Code section; and

(4) The zoning classification approved by the municipality following the hearing required by this Code section shall become effective on the later of:

(A) The date the zoning is approved by the municipality;

(B) The date that the annexation becomes effective pursuant to Code Section 36-36-2;
or

(C) Where a county has interposed an objection pursuant to Code Section 36-36-11, the date provided for in paragraph (8) of subsection (c) of said Code section.

(e) A qualified municipality into which property has been annexed may provide, by the adoption of a zoning ordinance, that all annexed property shall be zoned by the municipality, without further action, for the same use for which that property was zoned immediately prior to such annexation. A qualified county which includes property which has been deannexed by a municipality may provide, by the adoption of a zoning ordinance, that all deannexed property shall be zoned by the county, without further action, for the same use for which that property was zoned immediately prior to such deannexation. A municipality shall be a qualified municipality only if the municipality and the county in which is located the property annexed into such municipality have a common zoning ordinance with respect to zoning classifications. A county shall be a qualified county only if that county and the municipality in which was located the property deannexed have a common zoning ordinance with respect to zoning classifications. A zoning ordinance authorized by this subsection shall be adopted in compliance with the other provisions of this chapter. The operation of such ordinance to zone property which is annexed or deannexed shall not require any further action by the adopting municipality, adopting county, or owner of the property annexed or deannexed. Property which is zoned pursuant to this subsection may have such zoning classification changed upon compliance with the other provisions of this chapter.

(f) When a proposed zoning decision relates to or will allow the location or relocation of a halfway house, drug rehabilitation center, or other facility for treatment of drug dependency, a public hearing shall be held on the proposed action. Such public hearing shall be held at least six months and not more than nine months prior to the date of final action on the zoning decision. The hearing required by this subsection shall be in addition to any hearing required under subsection (a) of this Code section. The local government shall give notice of such hearing by:

- (1) Posting notice on the affected premises in the manner prescribed by subsection (b) of this Code section; and

(2) Publishing in a newspaper of general circulation within the territorial boundaries of the local government a notice of the hearing at least 15 days and not more than 45 days prior to the date of the hearing.

Both the posted notice and the published notice shall include a prominent statement that the proposed zoning decision relates to or will allow the location or relocation of a halfway house, drug rehabilitation center, or other facility for treatment of drug dependency. The published notice shall be at least six column inches in size and shall not be located in the classified advertising section of the newspaper.

(g) A local government delegating decision-making power to a quasi-judicial officer, board, or agency shall provide for a hearing on each proposed action described in paragraph (1.1) of Code Section 36-66-3. Notice of such hearing shall be provided at least 30 days prior to the quasi-judicial hearing, with such notice being made as provided for in subsection (a) of this Code section and with additional notice being mailed to the owner of the property that is the subject of the proposed action.

(h)(1) Notwithstanding any other provisions of this chapter to the contrary, when a proposed zoning decision relates to an amendment of the zoning ordinance to revise one or more zoning classifications or definitions relating to single-family residential uses of property so as to authorize multifamily uses of property pursuant to such classification or definitions, or to grant blanket permission, under certain or all circumstances, for property owners to deviate from the existing zoning requirements of a single-family residential zoning, such zoning decision must be adopted in the following manner:

(A) The zoning decision shall be adopted at two regular meetings of the local government making the zoning decision, during a period of not less than 21 days apart; and

(B) Prior to the first meeting provided for in subparagraph (A) of this paragraph, at least two public hearings shall be held on the proposed action. Such public hearings shall be held at least three months and not more than nine months prior to the date of

final action on the zoning decision. Furthermore, at least one of the public hearings must be held between the hours of 5:00 P.M. and 8:00 P.M. The hearings required by this paragraph shall be in addition to any hearing required under subsection (a) of this Code section. The local government shall give notice of such hearing by:

(i) Posting notice on each affected premises in the manner prescribed by subsection (b) of this Code section; provided, however, that when more than 500 parcels are affected, in which case posting notice is required every 500 feet in the affected area; and

(ii) Publishing in a newspaper of general circulation within the territorial boundaries of the local government a notice of each hearing at least 15 days and not more than 45 days prior to the date of the hearing.

Both the posted notice and the published notice shall include a prominent statement that the proposed zoning decision relates to or will authorize multifamily uses or give blanket permission to the property owner to deviate from the zoning requirements of a single-family residential zoning of property in classification previously relating to single-family residential uses. The published notice shall be at least nine column inches in size and shall not be located in the classified advertising section of the newspaper. The notice shall state that a copy of the proposed amendment is on file in the office of the clerk or the recording officer of the local government and in the office of the clerk of the superior court of the county of the legal situs of the local government for the purpose of examination and inspection by the public. The local government shall furnish anyone, upon written request, a copy of the proposed amendment, at no cost.

(2) The provisions of paragraph (1) of this subsection shall also apply to any zoning decisions that provide for the abolition of all single-family residential zoning classifications within the territorial boundaries of a local government or zoning decisions that result in the rezoning of all property zoned for single-family residential uses within

200 the territorial boundaries of a local government to multifamily residential uses of
201 property.

202 (3) This subsection shall not apply to zoning decisions for the rezoning of property from
203 a single-family residential use of property to a multifamily residential use of property
204 when the rezoning is initiated by the owner or authorized agent of the owner of such
205 property.

206 36-66-5.

207 (a) Local governments shall adopt policies and procedures which govern calling and
208 conducting hearings required by Code Section 36-66-4, and printed copies of such policies
209 and procedures shall be available for distribution to the general public. Such policies and
210 procedures shall specify a minimum time period at hearings on proposed zoning decisions
211 or quasi-judicial decisions for presentation of data, evidence, and opinion by proponents
212 of each zoning decision and an equal minimum time period for presentation by opponents
213 of each proposed zoning decision, such minimum time period to be no less than ten
214 minutes per side.

215 (b) In addition to policies and procedures required by subsection (a) of this Code section,
216 each local government rendering a zoning decision shall adopt standards governing the
217 exercise of the zoning power, and such standards may include any factors which the local
218 government finds relevant in balancing the interest in promoting the public health, safety,
219 morality, or general welfare against the right to the unrestricted use of property. Such
220 standards shall be printed and copies thereof shall be available for distribution to the
221 general public.

222 (b.1) In addition to policies and procedures required by subsection (a) of this Code section,
223 each local government providing for a quasi-judicial officer's, board's, or agency's grant,
224 denial, or review of a quasi-judicial matter may adopt specific standards and criteria
225 governing the exercise of such quasi-judicial decision-making authority, and such standards

shall include the factors by which the local government directs the evaluation of a quasi-judicial matter. Such standards shall be printed and copies thereof made available for distribution to the general public.

(c) The policies and procedures required by subsection (a) of this Code section and the adoption of standards required by subsection (b) and permitted by subsection (b.1) of this Code section ~~may~~ shall be included in and adopted as part of the zoning ordinance. Prior to the adoption of any zoning ordinance enacted on or after ~~January 1, 1986~~ July 1, 2022, a local government shall conduct a public hearing on a proposed action which may be advertised and held concurrent with the hearing required by subsection (a) of Code Section 36-66-4 for the adoption of a zoning ordinance. The provisions of subsection (a) of Code Section 36-66-4 relating to notices of public hearings for the purposes of that subsection shall also apply to public hearings required by this subsection.

36-66-5.1.

(a) To ensure that the general public is afforded due process in an orderly way to petition the courts for review of a local government's exercise of zoning, administrative, or quasi-judicial powers as guaranteed by Article I, Section I, Paragraphs IX and XII of the Constitution, the General Assembly, pursuant to its authority under Article VI, Section IV, Paragraph I of the Constitution, provides the following mechanism by which each of the powers described in this chapter may be reviewed by the superior court of the county wherein such property is located:

(1) Zoning decisions as described in this chapter, being legislative in nature, shall be subject to direct constitutional challenge regarding the validity of maintaining the existing zoning on the subject property or the validity of conditions or an interim zoning category other than what was requested in the superior court pursuant to its original jurisdiction over declaratory judgments pursuant to Chapter 4 of Title 9 and equity jurisdiction under Title 23. Such challenges shall be by way of a de novo review by the superior court

wherein such review brings up the whole record from the local government and all competent evidence shall be admissible in the trial thereof, whether adduced in a local government process or not and employing the presumption that a governmental zoning decision is valid and can be overcome substantively by a petitioner showing by clear and convincing evidence that the zoning classification is a significant detriment to the petitioner and is insubstantially related to the public health, safety, morality, or general welfare; or

(2) Quasi-judicial decisions as described in this chapter and zoning decisions under subparagraph (E) of paragraph (4) of Code Section 36-66-3 shall be subject to appellate review by the superior court pursuant to its appellate jurisdiction from a lower judicatory body and shall be brought by way of a petition for such review as provided for in Title 5. Such matters shall be reviewed on the record which shall be brought to the superior court as provided in Title 5.

(b) All such challenges or appeals shall be brought within 30 days of the written decision of the challenged or appealed action.

(c) To ensure that the citizens of this state are not unnecessarily burdened by the review process as a mechanism of appeal, local governments shall designate by ordinance or resolution:

(1) The officer of the quasi-judicial board or agency who shall have authority, without additional board or agency action, to approve or issue any form or certificate necessary to perfect the petition described in Title 5 for review of lower judicatory bodies and upon whom service of such petition may be effected or accepted on behalf of the lower judicatory board or agency, during normal business hours, at the regular offices of the local government; and

(2) The elected official or his or designee who shall have authority to accept service and upon whom service of an appeal of a quasi-judicial decision may be effected or accepted

on behalf of the local governing authority, during normal business hours, at the regular offices of the local government.

(d) An appeal or challenge by an opponent filed pursuant to this chapter shall stay all legal proceedings in furtherance of the action appealed from or challenged, unless the local government, officer, board, or agency from which or from whom the appeal or challenge is taken certifies that, by reason of the facts stated in the certificate, a stay would cause imminent peril to life or property. In such actions, the applicant for the zoning decision or the quasi-judicial decision shall be a necessary party and shall be named as a defendant in the action and served in accordance with the requirements of Title 5 or Title 9, as appropriate.

36-66-6.

(a) In any local government which has established a planning department or other similar agency charged with the duty of reviewing zoning proposals, such planning department or other agency shall, with respect to each proposed zoning decision involving land that is adjacent to or within 3,000 feet of any military base or military installation or within the 3,000 foot Clear Zone and Accident Prevention Zones Numbers I and II as prescribed in the definition of an Air Installation Compatible Use Zone of a military airport, investigate and make a recommendation with respect to each of the matters enumerated in subsection (b) of this Code section, in addition to any other duties with which the planning department or agency is charged by the local government. The planning department or other agency shall request from the commander of such military base, military installation, or military airport a written recommendation and supporting facts relating to the use of the land being considered in the proposed zoning decision at least 30 days prior to the hearing required by subsection (a) of Code Section 36-66-4. If the base commander does not submit a response to such request by the date of the public hearing, there shall be a presumption that the proposed zoning decision will not have any adverse effect relative to

the matters specified in subsection (b) of this Code section. Any such information provided shall become a part of the public record.

(b) The matters with which the planning department or agency shall be required to make such investigation and recommendation shall be:

(1) Whether the zoning proposal will permit a use that is suitable in view of the use of adjacent or nearby property within 3,000 feet of a military base, military installation, or military airport;

(2) Whether the zoning proposal will adversely affect the existing use or usability of nearby property within 3,000 feet of a military base, military installation, or military airport;

(3) Whether the property to be affected by the zoning proposal has a reasonable economic use as currently zoned;

(4) Whether the zoning proposal will result in a use which will or could cause a safety concern with respect to excessive or burdensome use of existing streets, transportation facilities, utilities, or schools due to the use of nearby property as a military base, military installation, or military airport;

(5) If the local government has an adopted land use plan, whether the zoning proposal is in conformity with the policy and intent of the land use plan; and

(6) Whether there are other existing or changing conditions affecting the use of the nearby property as a military base, military installation, or military airport which give supporting grounds for either approval or disapproval of the zoning proposal."

325 **SECTION 2.**

326 This Act shall become effective on July 1, 2022, and shall apply to all zoning and
327 quasi-judicial decisions occurring on and after that date; however, no zoning or quasi-judicial
328 decision prior to July 1, 2023, shall be rendered invalid or void because of a local
329 government's failure to implement language in their ordinances accomplishing the provisions
330 of Code Section 36-66-5.1.

331 **SECTION 3.**

332 All laws and parts of laws in conflict with this Act are repealed.

**AN ORDINANCE OF THE CITY OF ALPHARETTA, GEORGIA TO
AMEND THE UNIFIED DEVELOPMENT CODE OF THE CITY OF
ALPHARETTA, GEORGIA TO AMEND PROCEDURES TO ENSURE
CONSISTENCY WITH THE ZONING PROCEDURES LAW; TO
REPEAL CONFLICTING ORDINANCES; TO PROVIDE AN
EFFECTIVE DATE; AND FOR OTHER LAWFUL PURPOSES.**

WHEREAS, pursuant to its Charter and other laws of the State of Georgia, the City of Alpharetta, Georgia has the power to adopt clearly reasonable ordinances, resolutions and regulations for the protection and preservation of the public health, safety and welfare of its citizens; and

WHEREAS, the Unified Development Code of the City of Alpharetta regulates zoning within the City of Alpharetta, and

WHEREAS, the Georgia Legislature adopted revisions to the Georgia Zoning Procedures Law (O.C.G.A. § 36-66-1, et seq. "ZPL") establishing minimum procedures for the conduct and enforcement of zoning by local jurisdictions; and

WHEREAS, the revisions to the ZPL require local jurisdictions to meet certain minimum procedural requirements as part of their zoning ordinances; and

WHEREAS, the Mayor and Council have determined that it is in the best interest of the City's residents to amend the Zoning Ordinance to satisfy the minimum requirements set forth in the State ZPL;

**NOW THEREFORE, THE COUNCIL OF THE CITY OF ALPHARETTA
HEREBY ORDAINS** as follows:

- Section 1.** The Unified Development Code of the City of Alpharetta, Georgia is hereby amended as provided in Exhibit A.
- Section 2.** That all Ordinances, parts of Ordinances, or regulations in conflict herewith are hereby repealed.
- Section 3.** That if any portion of this Ordinance or the application thereof shall be held invalid or unconstitutional, the other provisions of this Ordinance shall not be affected, and thus, the provisions of this Ordinance are declared severable.

Section 4. This Ordinance shall become effective upon adoption by the Mayor and City Council and the signature approval of the Mayor.

SO ORDAINED this the _____ day of _____, 2023, the public’s health, safety, and welfare demanding it.

CITY OF ALPHARETTA, GEORGIA

By: _____
Jim Gilvin, Mayor

COUNCIL MEMBERS

Donald F. Mitchell

Brian Will

Douglas J. Derito

John Hipes

Jason Binder

Dan Merkel

ATTEST:

APPROVED AS TO FORM:

Lauren Shapiro, City Clerk

Molly Esswein, City Attorney

EXHIBIT A

Section 2.4.1(F)(1) is amended by replacing “4.5.4” with “4.5.5”

Section 2.7.4(D) is amended by deleting the subsection in its entirety and replacing it with the following:

1. Every applicant for a license shall make a written application to the City Clerk on forms prescribed by the City Clerk. All Applications shall be accompanied by a certified check for the full amount of the license fee, together with a separate check or cash in the amount of one hundred dollars (\$100.00) to defray investigative and administrative costs. If the application is denied, or if the applicant withdraws the application prior to its approval, the license fee (without interest) shall be refunded, but the one hundred dollar (\$100.00) investigative fee shall be retained.
2. Every application for a license shall be accompanied by one or more fully completed background questionnaires on forms prescribed by the City Clerk. The background questionnaire shall be completed by the owner and primary operator of the Range. If the owner is a corporation or partnership, each officer and director of the corporation and each general partner of the partnership shall provide a background questionnaire.
3. The City Clerk or her designee shall review the application and shall send a copy to all affected departments of city government to determine compliance with city regulations and laws, and to the police department to investigate the character and reputation of the applicant and other parties required to submit background questionnaires.
4. The City shall have ninety (90) days from receipt of a completed application for a license to make a decision in which to grant or deny a license. The council shall make a final decision regarding whether to grant or deny a license only after a public hearing. Notice of the hearing shall be published in a newspaper of general circulation within the City not less than thirty (30) and not more than forty-five (45) days prior to the date set for the public hearing. Additionally, notice of the public hearing shall be sent to the owner of the property that is the subject of the proposed action at least thirty (30) days prior to the hearing date by regular mail. The notice shall state the time, place and purpose of the hearing. The public hearing shall be conducted according to the procedures established in Section 4.2. In the event the city council has not granted or denied the application within ninety (90) days, the license shall automatically issue.

Section 2.7.4(G) is amended by deleting the subsection in its entirety and replacing it with the following:

G. Suspension or Revocation of License. The City Clerk may suspend or revoke the license of any licensee found to have violated any provision of this Ordinance. However, no license shall be suspended or revoked without the opportunity for a hearing before the City Council. Any licensee desiring a hearing shall, within fifteen (15) days of being notified of an Ordinance violation, file a written petition for a hearing in the office of the City Clerk. A hearing shall be conducted by the City Council. Notice of the hearing shall be published in the newspaper utilized by Alpharetta as the legal organ not less than thirty (30) and not more than forty-five (45) days prior to the date set for the public hearing. The notice shall state the time, place and purpose of the hearing. Additionally, notice of the public hearing shall be sent to the owner of the property that is the subject of the proposed action at least thirty (30) days prior to the hearing date by regular mail. The public hearing shall be conducted according to the procedures established in Section 4.2. ~~within thirty (30) days of the filing of the petition, unless a continuation of such date is agreed to by the licensee and the City Clerk.~~ The licensee shall have the right to be represented by an attorney at the hearing at the expense of the licensee. The findings of the City Council shall be forwarded to the City Clerk after the conclusion of the hearing and it shall be the duty of the City Clerk to notify the licensee of the action of the City Council. The findings of the City Council shall be final. ~~The findings of the City Council may be appealed to the Superior Court of the County within thirty (30) days of the date of the findings; provided, however, that the findings shall not be set aside unless found to be contrary to the law or Ordinance, or unsupported by any evidence on the record as a whole. For the purposes of this Section, notice shall be deemed delivered when personally served or, when served by mail, within three (3) days after the date of deposit in the United States Mail.~~

Section 2.7.5(M)(2) is amended by deleting the subsection in its entirety and replacing it with the following:

2. The City Clerk shall prepare and cause to be published a notice of each pending application, which notice shall include the date the application will be considered by the Council, the location or street number of the premises where applicant proposes to conduct activities permitted by this Section and the name of each Owner and Operator. The applicant shall pay the publication costs. The notice shall be published in a newspaper of general circulation within the City, ~~and shall appear once a week for two (2) weeks immediately preceding consideration of the application by Council~~ not less than thirty (30) and not more than forty-five (45) days prior to the date set for the public hearing. Additionally, notice of the public hearing shall be sent to the owner of the property that is the subject of the proposed action at least thirty (30) days prior to the hearing date by regular mail. The public hearing shall be conducted according to the procedures established in Section 4.2. Each applicant for a license for an Adult Entertainment Establishment shall, at such applicant's expense, post on the premises

where the activities permitted by such license are to be conducted, continuously for a period of not less than ten (10) days prior to the consideration of the application by the Council, a notice of the pending application, meeting the following minimum specifications: This notice shall be painted or printed in black letters three inches (3") or more in height, against a white background, on a wooden or metal sign and having a surface of not less than twelve square feet (12 sq. ft.), and shall be placed with the base of the sign not more than three feet (3') from the ground on the most conspicuous part of the premises, facing the most frequently traveled road, street or highway abutting same, and not more than ten feet (10') therefrom. The sign shall state clearly the nature and purpose of the application, the date and hour and place of the Council hearing, and the name of each Owner and Operator making the application.

Section 2.7.5(Q)(5) is amended by deleting the subsection in its entirety and replacing it with the following:

5. When an appeal is placed on the Council agenda, the Council may take either of the following actions:

- (a) Set a hearing date before the City Council and instruct the City Clerk to give such notice of hearing as may be required by law; or
- (b) Appoint a hearing officer and fix the time and place for hearing. The hearing officer may or may not be a City employee, and may be appointed for an extended period of time. The Clerk shall assume responsibility for such publication of notice of the hearing as may be required by law. If a hearing officer is appointed, the hearing shall be conducted in accordance with the procedures set out in this Ordinance.

In either event, at least thirty (30) days but not more than forty-five (45) days prior to any hearing, notice shall be published in a newspaper of general circulation within the City. The notice shall state the time, place and purpose of the hearing. Additionally, notice of the public hearing shall be sent to the owner of the property that is the subject of the proposed action at least thirty (30) days prior to the hearing date by regular mail. ~~the hearing shall be held within thirty (30) days of the Council's action, unless a continuance of such date is agreed to by the licensee and the City Clerk.~~

Section 2.7.5(Q)(6) is amended by deleting the subsection in its entirety and replacing it with the following:

6. At any hearing, the hearing officer or the City Council (if it elects not to appoint a hearing officer) shall receive oral and written testimony regarding the appeal. Hearings shall be conducted according to the procedures established in Section 4.2 and under any rules issued by the hearing officer or City Council, which shall be consistent with rules

applied in administrative proceedings, and shall ensure that each party may present evidence, cross-examine witnesses and be represented by legal counsel.

Section 2.9.4(C)(3) is amended by deleting the subsection in its entirety and replacing it with the following:

3. Public Hearings. The HPC and the City Council shall each hold a public hearing on any proposed ordinance for the designation of a historic property. Such public hearings may be held on the same date. The HPC shall make a recommendation to the City Council and the City Council will take final action. ~~At least thirty (30) days but not more than forty-five (45) days prior to each public hearing, notice shall be published in a newspaper of general circulation within the City. The notice shall state the time, place and purpose of the hearing. Notice of the public hearing shall be published in at least three consecutive issues of a newspaper of general circulation within the territorial boundaries of the City, with one of such notices being published at least fifteen (15) days, but not more than forty-five (45) days prior to the date of the hearing, and~~ Written notice of the hearing shall be mailed not less than ~~thirty ten (130)~~ nor more than ~~forty-five twenty (4520)~~ days prior to the date set for the public hearing. A notice sent via the United States mail to the last known address of the property owner as such address appears in the City ad valorem tax records and a notice sent to the address of the property to the attention of the occupant shall constitute legal notification to the owner and occupant under this section. Such public hearings and the provisions of notice for same shall otherwise be performed in a manner consistent with the requirements of the Georgia Zoning Procedures Law (O.C.G.A. § 36-66-1, et seq.) and the City public hearing process for a proposed zoning change ~~as provided in Section 4.2~~; provided, however, the HPC, not the Planning Commission, shall serve as the recommending body to the City Council in regard to such matters.

Section 2.9.7(E) is amended by deleting the subsection in its entirety and replacing it with the following:

E. Public Hearings, Notices, and Right to be Heard. The HPC shall hold a public hearing at which each proposed certificate of appropriateness is discussed. ~~At least thirty (30) days but not more than forty-five (45) days prior to each public hearing, notice shall be published in a newspaper of general circulation within the City. The notice shall state the time, place and purpose of the hearing. Notice of the hearing shall be published in the principal newspaper of general circulation within the City and~~ Written notice of the hearing shall be mailed ~~made by the HPC~~ not less than thirty (30) nor more than forty-five (45) days prior to the date set for the public hearing to all owners and occupants of the subject property. ~~The written and published notice shall be provided in the same manner and time frame as notices required by the Georgia Zoning Procedures Law. The HPC shall provide the property owner and/or applicant an opportunity to be heard at the certificate of appropriateness hearing. The public hearing shall be conducted according to the procedures established in Section 4.2.~~

Section 2.9.7(J) is amended by deleting the subsection in its entirety and replacing it with the following:

J. Deadline for Approval or Rejection of Application for a Certificate of Appropriateness.

1. The HPC shall approve, reject or otherwise act on an application for a certificate of appropriateness within ~~sixtyforty-five~~ (6045) days after the filing thereof by the owner or occupant of a historic property, building, structure, object or historical site. Evidence of approval shall be by a certificate of appropriateness issued by the HPC. Notice of the issuance or denial of a certificate of appropriateness shall be sent by United States certified mail to the applicant and all other persons who have filed a written request for such notice with the HPC.
2. Should the HPC fail to approve or reject an application for a certificate of appropriateness within ~~sixtyforty-five~~ (6045) days the application shall be deemed automatically approved; provided, however, that such ~~sixtyforty-five~~ (6045) day period may be extended an additional thirty (30) days if consideration of an application for a certificate of appropriateness is tabled by the HPC.

Section 2.9.7 (O) is amended by deleting the subsection in its entirety and replacing it with the following:

O. Appeals. Any person adversely affected by any determination made by the HPC relative to the issuance or denial of an application for a certificate of appropriateness may appeal such determination to the City Council. Any such appeal must be filed with the City Council within thirty (30) days after the issuance of the determination pursuant to Subparagraph J.1. of this Subsection, or in the case of a failure of the HPC to act, within thirty (30) days of the expiration of the ~~sixtyforty-five~~ (6045) day period allowed for HPC action, as set forth in Subparagraph J.2. of this Subsection. ~~The notice and procedures of any such appeal shall be conducted in accordance with the procedures established in Section 4.2.~~ The City Council may approve, modify, or reject the determination made by the HPC if the governing body finds that the HPC abused its discretion in reaching its decision. Decisions of the City Council are final and may only be appealed by application for a writ of certiorari to the Superior Court of Fulton County, which must be filed within thirty (30) days of the date of the decision.

Section 2.9.10 is amended by deleting the subsection in its entirety and replacing it with the following:

To the extent not otherwise provided herein, any person adversely affected by a determination made by the HPC may appeal such determination to the City Council. Any such appeal must be filed within thirty (30) days of the date of the subject determination. ~~The notice and procedures of any such appeal shall be conducted in accordance with the procedures established in Section 4.2.~~ Decisions of the City

Council are final and may only be appealed by application for a writ of certiorari to the Superior Court of Fulton County, which must be filed within thirty (30) days of the date of the decision.

Section 4.1.2 is amended by deleting the subsection in its entirety and replacing it with the following:

4.1.2 Public hearing process.

Before taking final action on a proposed CLUP amendment, the Planning Commission and the City Council each shall hold a public hearing on the proposal. The Director shall publish the schedule of the public hearing dates on an annual basis, along with application filing deadlines.

A. Public Notice.

1. Notification to the General Public.

- a. At least ~~15~~-thirty (30) days but not more than ~~forty-five~~ (45) days prior to each public hearing, notice shall be published in a newspaper of general circulation within the City. The Director shall prepare such notice, which shall state the time, place and purpose of the hearing.
- b. If a CLUP amendment is to be heard at the public hearing then:
 - (1) The notice in addition to the requirements above, shall include the location of the property, the present land use designation of the property and the proposed land use designation of the property; and
 - (2) The Director shall post, at least ~~15~~-thirty (30) days prior to the public hearing, on a conspicuous place on the property for which an application has been submitted, a sign or signs stating the date, time and place for the public hearing, and the public hearing case number.

2. Notice to Surrounding Property Owners: If the proposed CLUP amendment affects only one (1) property, notice shall also be given to the surrounding property owners as follows:

- a. At least ten (10) days prior to the first public hearing at which the amendment will be considered, the Director shall cause a notice to be mailed to the:
 - (1) All persons owning record title to the property located within 500 feet of the property that is the subject matter of amendment.
- b. The notice shall state the time, place and purpose of the hearings by the Planning Commission and the City Council. The written notice shall be mailed to the last known address of the property owners as such addresses appear on the Fulton County ad valorem tax records.

3. *Associated Applications for Zoning or Conditional Use.* If an application for a CLUP amendment is associated with a proposal to rezone property or to obtain approval of a conditional use, the public notice for the CLUP amendment and the zoning change and conditional use may be combined.

B. *Public Hearings.*

1. The following procedures shall govern public hearings for purposes of considering applications as specified in this Section.
 - a. Presiding officer. The public hearing shall be conducted by the presiding officer.
 - b. Requirements for speakers. Persons wishing to speak in support (including the applicants and designated representative) or opposition to any application shall provide their name and address on the specified form to City staff prior to speaking at the public hearing. In addition, each person shall be required to disclose any campaign contributions/gifts equal to or greater than \$100 given to any City elected official within two (2) years of the public hearing date.
 - c. Time limits. Speakers at the public hearing shall be allowed not less than ten (10) minutes per side, provided, however, that the presiding officer may at his or her discretion elect to extend this time period equally to proponents and opponents.

However, the applicant and adjacent property owners shall be afforded the first opportunity to speak. The Director or any Council member designated by the Mayor shall present the recommendation of the Planning Commission, and the recommendation of the Director if it differs from the recommendation of the Planning Commission.

C. Planning Commission.

1. The Director or his or her designee shall submit each proposed CLUP amendment to the Planning Commission, together with the staff Recommendation.
2. The Planning Commission shall review and take action upon each CLUP amendment after holding a public hearing.
3. ~~In making a recommendation on each application, the Planning Commission shall follow the standards set forth under this Section. The recommendation of the Planning Commission and that of the Director, together with the minutes of the Planning Commission hearing at which the CLUP amendment is reviewed, shall be submitted to the City Council. If the Planning Commission does not act upon the CLUP amendment at its public hearing, the amendment shall process forward to the City Council without a recommendation from the Planning Commission. No member of the Planning Commission shall rule on a matter in which he or she has a financial interest, directly or indirectly.~~

- ~~2. In taking action on a CLUP amendment, t~~The Planning Commission by majority of those voting may recommend approval or denial, or make any other recommendation it deems appropriate.
4. The recommendation of the Planning Commission and that of the Director, together with the minutes of the Planning Commission hearing at which the CLUP amendment is reviewed, shall be submitted to the City Council. If the Planning Commission does not act upon the CLUP amendment at its public hearing, the amendment shall process forward to the City Council without a recommendation from the Planning Commission. No member of the Planning Commission shall rule on a matter in which he or she has a financial interest, directly or indirectly.

D. 3. City Council.

- ~~a. 1. The Director or his or her designee shall present each proposed CLUP amendment to the City Council, together with the staff recommendation. The Director or his or her designee shall also present the recommendation of the Planning Commission if it differs from the staff recommendation. A public hearing on each CLUP amendment shall be convened at the scheduled time by the Mayor, who shall preside. The Mayor may impose reasonable time limitations on the public discussion of each CLUP amendment. To the extent reasonably possible, equal amounts of time shall be made available to those speaking for and against the CLUP amendment. If reasonable time limitations permit, any member of the general public may speak at a hearing. However, the applicant and adjacent property owners shall be afforded the first opportunity to speak. The Director or any Council member designated by the Mayor shall present the recommendation of the Planning Commission, and the recommendation of the Director if it differs from the recommendation of the Planning Commission.~~
- b2. At the public hearing, following all presentations from the applicants and the publicFollowing the public hearing, action may be taken by the City Council by majority of those voting approving or rejecting the proposal, or allowing withdrawal if so requested by the applicant (with or without prejudice), or the City Council may table the proposal for consideration at its next regular meeting, or the City Council may refer the matter back to the Planning Commission for further consideration.

E. Referral to Planning Commission for Further Consideration.

1. The Director shall conduct such further studies as appropriate and shall present any CLUP amendment to the Planning Commission that has been heard by the City Council and referred back to it for further consideration. Public notice of the Planning Commission and City Council's hearings shall be given in the same manner as prescribed herein, and the Planning Commission shall conduct its public hearing and take action as described above.

2. After the Planning Commission's rehearing and action on the referred application, the City Council shall hold a public hearing on the CLUP amendment, following the same procedures set forth for its hearings, above.

Section 4.2.2 is amended by deleting the subsection in its entirety and replacing it with the following:

4.2.2 Public hearing process.

Before taking final action on a proposed zoning change, the Planning Commission and the City Council each shall hold a public hearing on the proposal. The Director shall publish a schedule of the public hearing dates on an annual basis, along with the application filing deadlines.

A. Notification to the General Public.

1. At least ~~15~~-thirty (30) days but not more than ~~forty-five~~ (45) days prior to each public hearing, notice shall be published in a newspaper of general circulation within the City. The Director shall prepare such notice, which shall state the time, place and purpose of the hearing.
2. A zoning change initiated by a party other than the City Council or the Planning Commission shall be heard at a public hearing only upon:
 - a. The notice, in addition to the requirements above, shall include the location of the property, the present zoning classification of the property, and the proposed zoning classification of the property or the conditional use requested; and
 - b. The Director shall post, at least ~~15~~-thirty (30) days prior to the public hearing, on a conspicuous place on the property for which an application has been submitted, a sign or signs stating the date, time and place for the public hearing, and the public hearing case number.
 - c. Notice to Surrounding Property Owners. If the proposed zoning change affects only one (1) property, notice shall also be given to surrounding property owners as follows:
3. At least ten (10) days prior to the first public hearing at which a zoning change will be considered, the Director shall cause a notice to be mailed to all persons owning record title to property located within 500 feet of the property that is the subject matter of the zoning change.
4. The notice shall state the time, place and purpose of the hearings by the Planning Commission and the City Council. The written notice shall be mailed to the last known address of the property owners as such addresses appear on the Fulton County ad valorem tax records.
5. Citizen Participation. The applicant shall be required to complete a Citizen's Participation Plan which includes notification to property owners.

- a. Prior to the Public Hearing, the Applicant shall cause a notice to be mailed to:
 - (1) All persons or property owner's associations owning record title to the property located within 500 feet of the property that is the subject matter of amendment.
- b. The notice shall state the time, place and purpose of the Public Hearing as well as a summary of applicant's request. The written notice shall be mailed to the last known address of the property owners as such addresses appear on the Fulton County ad valorem tax records.
- c. At the time of Public Hearing Application Submittal, the applicant shall provide the following information in the Citizen Participation Form — Part A:
 - (1) Method by which these individuals will be contacted.
 - (2) Method by which these individuals will have the opportunity to respond or contact the applicant with questions or concerns about the proposal.
- d. Prior to the scheduled Public Hearing The applicant shall provide to the Director in the Citizen Participation B Report:
 - (1) A Sample of any and all written communications used to provide notification. Failure to do so may result in cancellation of the scheduled hearing.
 - (2) A list of people who have been notified of this application and provided information describing the subject proposal. ALL adjoining property owners MUST be notified.

B. Public Hearings.

1. The following procedures shall govern public hearings for purposes of considering applications as specified in this Section.
 - a. Presiding officer. The public hearing shall be conducted by the presiding officer.
 - b. Requirements for speakers. Persons wishing to speak in support (including the applicants and designated representative) or opposition to any application shall provide their name and address on the specified form to City staff prior to speaking at the public hearing. In addition, each person shall be required to disclose any campaign contributions/gifts equal to or greater than \$100 given to any City elected official within two (2) years of the public hearing date.
 - c. Time limits. Speakers at the public hearing shall be allowed not less than ten (10) minutes per side, provided, however, that the presiding officer may at his or her discretion elect to extend this time period equally to proponents and opponents.

C. Associated Applications for CLUP Amendments or Variances. If an application for a zoning change is associated with a proposed Comprehensive Land Use Plan amendment or exception variance, the public notice for the zoning change may be combined with the public notice required for the associated applications.

1. The Director shall submit each application to the Planning Commission, together with a report of the Director's findings and a recommendation. The Planning Commission shall review and take action upon each application after holding a public hearing. In making a recommendation on each application, the Planning Commission shall follow the standards set forth under this Section. The recommendation of the Planning Commission and that of the Director, together with the minutes of the Planning Commission hearing at which the application is reviewed, shall be submitted to the City Council. If the Planning Commission does not act upon an application, the Director may take it to the City Council without a recommendation from the Planning Commission. No member of the Planning Commission shall rule on a matter in which he or she has a financial interest.

Section 4.2.3 is amended by deleting the subsection in its entirety and replacing it with the following:

4.2.3 Standards for zoning changes.

A. Zoning Map Amendments (Rezoning).

1. In order to be approved, a rezoning must be in conformity with the designation for the property on the Future Land Use Map contained in the Comprehensive Plan, as most recently amended.
2. The Planning Commission and the City Council shall consider the following standards in considering a rezoning application, giving due weight or priority to those factors particularly appropriate to the circumstances of each application:
 - a. Whether the zoning proposal will permit a use that is suitable in view of the zoning, use and development of adjacent and nearby property.
 - b. Whether the zoning proposal will adversely affect the existing use or usability of adjacent or nearby property.
 - c. Whether the zoning proposal will adversely affect the natural environment.
 - d. Whether there are substantial reasons why the property cannot or should not be used as currently zoned.
 - e. Whether the zoning proposal will result in a use that will or could cause an excessive or burdensome use of public facilities or services, including but not limited to existing streets and transportation facilities, schools, water or sewer utilities, and police or fire protection.
 - f. Whether the zoning proposal is supported by new or changing conditions not anticipated or reflected in the existing zoning on the property.

- g. Whether the zoning proposal reflects a reasonable balance between the promotion of the public health, safety, morality or general welfare against the right to unrestricted use of property.
 - h. Whether there are substantial reasons why the property cannot be used in accordance with existing zoning.
 - i. The extent to which the zoning proposal is consistent with the Comprehensive Plan.
- B. *Conditional Use Standards.* A conditional use otherwise permitted within a zoning district shall be considered to be compatible with other uses permitted in the district, provided that due consideration is given to the following objective criteria at a public hearing and satisfactory provisions or arrangements are made for:
- 1. Access into and out of the property with regard to traffic and pedestrian safety, volume of traffic flow, and emergency vehicles, as well as the type of street providing access;
 - 2. The extent to which refuse areas, loading and service areas, off street parking, and buffers and screening are provided on the property;
 - 3. Ensuring that the conditional use will not be injurious to the use and enjoyment of the environment or of other property in the immediate vicinity or diminish and impair property values within the surrounding neighborhood;
 - 4. Ensuring that the conditional use will not increase local or state expenditures in relation to the cost of servicing or maintaining neighboring properties;
 - 5. Ensuring that the conditional use will not impede the normal and orderly development of surrounding property for uses predominant in the area; and
 - 6. Ensuring that the location and character of the conditional use is considered to be consistent with a desirable pattern of development for the city, in general.
 - 7. Ensuring that the conditional use is appropriately separated from similar uses and conflicting uses, such as residences, government buildings, parks, churches or schools.
- C. *Planning Commission Recommendation.*
- 1. The Director or his or her designee shall submit each application to the Planning Commission, together with the staff recommendation.
 - 2. The Planning Commission shall review and take action on each application after holding a public hearing.
 - 3. ~~In taking action on a zoning change,~~ The Planning Commission by majority of those voting may recommend approval, approval with conditions, or denial, or may request that the City Council refer the application back to the Planning Commission for further study or make any other recommendation it deems appropriate.

4. The recommendation of the Planning Commission and that of the staff, together with the minutes of the Planning Commission public hearing at which the application is reviewed, shall be submitted to the City Council. If the Planning Commission does not act upon the application at its public hearing, the amendment shall process forward to the City Council without a recommendation from the Planning Commission.

D1. City Council.

- ~~1.a. A public hearing on each application shall be convened at the scheduled time by the Mayor, who shall preside. The Mayor may impose reasonable time limitations on the public discussion of each zoning proposal. To the extent reasonably possible, equal amounts of time shall be made available to those speaking for and against the application. If reasonable time limitations permit, any member of the general public may speak at a hearing. However, the applicant and adjacent property owners shall be afforded the first opportunity to speak. The Director or any Council member designated by the Mayor shall present the recommendation of the Director if it differs from the recommendation of the Planning Commission.~~
The Director or his or her designee shall present each application to the City Council, together with the staff recommendation. The Director or his or her designee shall also present the recommendation of the Planning Commission if it differs from the staff recommendation.
- ~~2b. At the public hearing, following all presentations from the applicants and the public~~
Following the public hearing, action may be taken by the City Council by majority of those voting approving, approving with conditions, or rejecting the proposal, or allowing withdrawal if so requested by the applicant (with or without prejudice), or the City Council may table the proposal for consideration at its next regular meeting, or the City Council may refer the matter back to the Planning Commission for further consideration.
- 3e. If the application for a zoning change is associated with a proposed amendment to the Comprehensive Land Use Plan or an application for an exception variance, the City Council shall first take action on the CLUP amendment.
 - ~~(1a.)~~ If the CLUP amendment is denied, the zoning change may not be approved unless conformity to the purpose and intent of the CLUP and the land use designation of the Future Land Use Plan Map is achieved.
 - ~~(2b.)~~ If the CLUP amendment is approved, action may then be considered on the proposed zoning change.
 - ~~(3c.)~~ If the zoning change is denied, the exception/variance may not be approved.
 - ~~(4d.)~~ If the zoning change is approved, with or without conditions, action may then be considered on the proposed exception/variance.

E. *Referral to Planning Commission for Further Consideration.*

1. The Director shall conduct such further studies as appropriate and shall present any application to the Planning Commission that has been heard by the City Council and referred back to it for further consideration. Public notice of the

Planning Commission and City Council's hearing and take action as described above.

2. After the Planning Commission's rehearing and action on the referred application, the City Council shall hold a public hearing on the application, following the same procedures set forth for its hearings, above.
- F. *Change in Conditions of Approval.* Any application that proposes a change in the conditions of approval previously established by the City Council through action on a zoning change shall be reviewed in light of the standards set forth in this section for a map amendment or conditional use, as appropriate.

Section 4.5 is amended by deleting the subsection in its entirety and replacing it with the following:

SECTION 4.5 APPEALS

4.5.1 Initiation.

- A. All requests for relief from the imposition of the regulations and requirements of this Ordinance on a property or development activity, or from an interpretation of the meaning of words or the boundaries of zoning districts, or from an administrative decision of the Director, shall be taken as an appeal to the Board of Appeals, except as otherwise provided in this Section.
- B. Appeals to the Board of Appeals may be initiated by any person aggrieved or by an officer, department, board or bureau of the City. Such appeal shall be initiated within 15 days of the action or decision appealed from by filing with the Director notice of said appeal specifying the grounds thereof. The Director shall transmit to the Board of Appeals any papers constituting the record of the action or decision from which the appeal was taken.
- C. An appeal stays all legal proceedings in furtherance of the action appealed from, unless the officer from whom the appeal is made certifies to the Board of Appeals, after the notice of appeal shall have been filed with them, that by reason of facts stated in the certificate a stay would, in the Director's opinion, cause imminent peril to life and property. In such case, proceedings shall not be stayed otherwise than by a restraining order which may be granted by a court of competent jurisdiction.
- ~~D. Notice of the meeting shall state the time, place and purpose of the hearing by the Board of Appeals. The written notice shall be posted at City Hall.~~

4.5.2 Public hearing process.

A. Public Notice

1. Notification to the General Public.

a. At least thirty (30) days but not more than forty-five (45) days prior to each public hearing, notice shall be published in a newspaper of general circulation within the City. The Director shall prepare such notice, which shall state the time, place and purpose of the hearing. Additionally, notice of the public hearing shall be sent to the owner of the property that is the subject of the proposed action at least thirty (30) days prior to the hearing date by regular mail.

b. If a request for a variance is to be heard at the hearing, then the notice shall, in addition to the above requirements, include the proposed code provisions requested to be modified. Each section of this code requested to be varied shall be separately identified in all required notices.

c. If an appeal of an administrative decision is to be heard at the hearing, then the notice shall, in addition to the above requirements, include a summary of the purpose of the appeal.

4.5.3 Public hearing.

A. The Director shall submit the appeal to the Board of Appeals, together with any Staff Report. The Board of Appeals shall review and take action upon each appeal after holding a public hearing. In making a decision on the appeal, the Board of Appeals shall follow the standards set forth under this Section. No member of the Board of Appeals shall rule on a matter in which he or she has a financial interest, directly or indirectly.

B. In taking on an appeal, the Board of Appeals by majority of those voting may approve, approve with conditions, or deny the appeal, or the Board of Appeals may table the matter for consideration at its next regular meeting.

C. The following procedures shall govern public hearings for purposes of considering applications as specified in this Section.

1. Presiding officer. The public hearing shall be conducted by the presiding officer.

2. Requirements for speakers. Persons wishing to speak in support (including the applicants and designated representative) or opposition to any application shall provide their name and address on the specified form to City staff prior to speaking at the public hearing. In addition, each person shall be required to disclose any campaign contributions/gifts equal to or greater than \$100 given to any City elected official within two (2) years of the public hearing date.

3. Time limits. Speakers at the public hearing shall be allowed not less than ten (10) minutes per side, provided, however, that the presiding officer may at his or her discretion elect to extend this time period equally to proponents and opponents.

4.5.34. Hardship variances.

A. *General.*

1. Relief from the application of the provisions of this Ordinance may be granted by the board of Appeals upon a finding that compliance with such provision will result in a hardship to the property or owner that is substantially unwarranted by the protection of the public health, safety or general welfare and the need for consistency among all properties similarly zoned.
 2. Such relief may be granted only to the extent necessary to alleviate such unnecessary hardship and not as a convenience to the applicant nor to gain any advantage or interest over similarly zoned properties.
- B. *Standards for Approval.* A hardship variance may be granted in whole or in part, or with conditions, in such individual case of unnecessary hardship upon a finding by the Board of Appeals that:
1. There are extraordinary and exceptional conditions pertaining to the particular piece of property in question because of its size, shape or topography; or
 2. The application of the Ordinance to this particular piece of property would create an unnecessary hardship; or
 3. There are conditions that are peculiar to the property which adversely affect its reasonable use or usability as currently zoned.
- C. *Limitation.* In no case shall a hardship variance be granted from the conditions of approval imposed on a property through a zoning change granted by the City Council, nor may any use of land or buildings or structures be granted that is not permitted by the zoning district that is applicable to the property.

4.5.4-5 Exceptions.

A. *General.*

1. An exception requested as part of a rezoning or conditional use application shall be heard by the Planning Commission and decided by the City Council as part of the public hearing process related to the rezoning or conditional use application. All other exceptions (which do not exceed 50% of the stipulated requirement) shall be heard and acted upon by the Board of Appeals, unless approved administratively by the Director as provided herein.
2. Exceptions shall be limited to relief from the following requirements of this Ordinance:
 - a. Minimum building setbacks;
 - b. Maximum building height;
 - c. Buffers and screening;
 - d. Signage in accordance with a coordinated signage plan;
 - e. Minimum street frontage;
 - f. Parking and loading requirements;
 - g. Tree preservation;

- h. Signage height and copy area; and
- i. Minimum street frontage;
- j. Minimum building size;
- k. Maximum impervious area

B. *Standards for Approval.*

1. An exception may be granted upon a finding that:
 - a. There are extraordinary and exceptional conditions pertaining to the particular piece of property in question because of size, shape or topography; or
 - b. The application of the Ordinance to this particular piece of property would create an unnecessary hardship; or
 - c. There are conditions that are peculiar to the property which adversely affect its reasonable use or usability as currently zoned; or
 - d. Relief, if granted, would not cause substantial detriment to the public good or impair the purpose and intent of the Ordinance.
2. An exception may be granted from the requirements of this Ordinance regarding tree preservation. The factors to be taken into consideration include the following:
 - a. The ease with which the applicant can alter or revise the proposed development or improvement to accommodate existing trees.
 - b. The economic hardship that would be imposed upon the applicant were the exception denied.
 - c. The heightened desirability of preserving tree cover in densely developed or densely populated areas.
 - d. The need for visual screening in transitional zones or relief from glare, blight, commercial or industrial ugliness or any other visual affront.
 - e. Whether the continued presence of the tree or trees is likely to cause danger to a person or property.
 - f. Whether the topography of the area in which the tree is located is such a nature to be damaging or injurious to trees.
 - g. Whether the removal of trees is for the purpose of thinning a heavily wooded area where some trees will remain.
 - h. Whether tree removal would have an adverse impact upon existing biological and ecological systems.
 - i. Whether tree removal would affect noise pollution by increasing source noise levels to such a degree that a public nuisance may be anticipated or a violation of the noise control ordinance will occur.

- C. *Limitations.* In no case shall an exception be granted from the conditions of approval imposed on a property through a zoning change granted by the City Council, nor may a minimum lot size required by a zoning district be reduced, nor may any use of land or buildings or structures be granted that will result in an increase in housing units or nonresidential building density or is not permitted by the zoning district that is applicable to the property.

4.5.5-6 Interpretations.

- A. The Board of Appeals, upon appeal of an aggrieved party or at the request of the Director, shall interpret the use of words or phrases within the context of the intent of this Ordinance, the boundaries of the various zoning districts where uncertainty exists, and such other provisions of this Ordinance as may require clarification or extension. The Board of Appeals shall also hear and decide appeals from any order, determination, decision or other action by the Director where a misinterpretation of the requirements or other provisions of this Ordinance is alleged, except for appeals of administrative decisions denying design approval of signs reviewed by the Director for compliance with the design standards set forth in the Design Review Board Ordinance.
- B. An interpretation by the Board of Appeals shall be final, unless an appeal of their action is taken to Superior Court within 30 days of the Board's action.

4.5.7 Appeals of Administrative Variance Decisions.

Any administrative variance decision or administrative exception decision made pursuant to Section 5.1 may be appealed in accord with the procedures set forth in Sections 4.5.2 and 4.5.3.

Add a new Section 5.10 – Designated Officials for Appeal Proceedings to read:

- (a) In order to comply with O.C.G.A. § 36-66-5.1(c), the Mayor, the Chairman of the Planning Commission, the Chairman of the Board of Zoning Appeals, the Chairman of the Historic Preservation Commission, and/or the Chairman of the Design Review Board, as appropriate, is authorized to issue appeal bonds and certificates of costs upon confirmation with City staff that such approvals are appropriate.
- (b) For purposes of appeals pursuant to Chapter 4, of Title 5 of the Official Code of Georgia Annotated, the Mayor, the Chairman of the Planning Commission, the Chairman of the Board of Zoning Appeals, the Chairman of the Historic Preservation Commission, and/or the Chairman of the Design Review Board, as appropriate, is authorized to accept service on behalf of the Respondent. The Mayor is authorized to accept service of process on behalf of the City as the defendant/opposite party.