

## Agenda

### PLANNING COMMISSION REGULAR DOCKET TUESDAY, April 12, 2022 at 5:30 P.M. Virtual Meeting

#### I. **Commission Pre-Meeting (Agenda discussion(s))**

Beginning: 5:00 p.m.

Location: (Electronic/Virtual)

#### II. **Commission Regular Meeting**

*Beginning:* 5:30 p.m.

*Location:* (Electronic/Virtual)

##### A. **COMMISSIONERS' REPORTS**

##### B. **UNIVERSITY REPORT**

##### C. **CHAIR'S REPORT**

##### D. **DEPARTMENT OF NDS**

##### E. **MATTERS TO BE PRESENTED BY THE PUBLIC NOT ON THE FORMAL AGENDA**

##### F. **CONSENT AGENDA**

(Items removed from the consent agenda will be considered at the end of the regular agenda)

No items

##### G. Entrance Corridor Review - Recommendation on SUP for 2005 and 2007 Jefferson Park Avenue and 104 Observatory Avenue (discussion to occur with SP22-00001)

#### III. **JOINT MEETING OF COMMISSION/ COUNCIL**

*Beginning:* 6:00 p.m.

*Continuing:* until all public hearings are completed

*Format:* (i) Staff Report, (ii) Applicant, (iii) Hearing

- 1. Community Development Block Grant (CDBG) and HOME Funding**—4th Year Action Plan, FY 22-23: The Planning Commission and City Council are considering projects to be undertaken in the 4th Year Action Plan of the multi-year Consolidated Plan utilizing CDBG & HOME funds for the City of Charlottesville. In Fiscal Year 22-23 it is expected that the City of Charlottesville will receive about \$433,471 in Community Development Block Grant funds and about \$84,576.88 in HOME funds from the Department of Housing and Urban Development HUD. CDBG fund`s will be used in the City to address neighborhood improvements in the Ridge Street neighborhood, economic development activities, housing activities, and public service projects that benefit low and moderate income citizens. HOME funds will be used to support the housing needs of low and moderate-income citizens through homeowner rehabilitation. **Report prepared by Erin Atak, Grants Coordinator**
- 2. SP22-00001 – 2005 and 2007 Jefferson Park Avenue and 104 Observatory Avenue** – Aspen Topco II Acquisitions, LLC (Contract Purchaser/Applicant) and Mitchell Matthews Architects (Applicant’s Representative) have submitted an application seeking approval of a Special Use Permit (SUP) for the following properties: Tax Map and Parcels (TMP) 170104000, 170103100, and 170103000 (owners, Norman Lamson, Trustee of the Gadiant Land Trust Agreement) (Subject Properties). Pursuant to City Code Sec. 34-420, 34-353(3), and 34-162(a) an application has been submitted requesting increased density from a By-Right 21 Dwelling Units per Acre (DUA) to 70 DUA, increased height from a By-Right 45 feet to 75 feet, reduction of rear yard setback from a required 75 feet to 36 feet, and a reduction of the onsite parking by 22% from the requirements stated in Sec. 34-984. The applicant is proposing a multifamily building with 119 units and underground parking. The Subject Properties are approximately 1.71 acres with road frontage on Jefferson Park Avenue, Observatory Avenue, and Washington Avenue and falls within the City Entrance Corridor. The properties are zoned R-3 Medium Density Residential. The Comprehensive Land Use Map for this area calls for Urban Mixed Use Corridor which

recommends higher intensity mixed use developments up to 5 stories in height, up to 8 stories in height at key intersections and affordable units depending on zoning allowances. Information pertaining to this application may be viewed online at [www.charlottesville.gov/agenda](http://www.charlottesville.gov/agenda). Persons interested in the Special Use Permit application may contact NDS Planner Matt Alfele by e-mail ([alfelem@charlottesville.gov](mailto:alfelem@charlottesville.gov)) or by telephone (434-970-3636).

**(items below will be included in part 2 of the packet)**

3. **SP22-00002 - 209 Maury Avenue** – FMC Investments, LLC (Owner) has submitted a Special Use Permit (SUP) Application for the following properties: Tax Map and Parcels (TMP) 170018002, 170018000, 170018001, 170018600, 170018500, and 170018400 (Subject Properties). Pursuant to City Code Sec. 34-420 and 34-162(a) an application has been submitted requesting increased density from a by-right 21 Dwelling Units per Acre (DUA) to 43 DUA, modifications to yard requirements to match the layout proffered in ZM19-00002 and approved by City Council on December 2, 2019, and reduction to required onsite parking to ½ the spaces required under Sec. 34-984. The applicant is proposing to modify a site plan currently under review to allow more residential units without altering the footprint or layout of the development under review. The Subject Properties are approximately 1.60 acres with road frontage on Maury Avenue and Stadium Road. The properties are zoned R-3 Medium Density Residential. The Comprehensive Land Use Map for this area calls for Higher-Intensity Residential which recommends multi-family developments up to 5 stories in height, 13 plus units per lot, and affordable units depending on zoning allowances. Information pertaining to this application may be viewed online at [www.charlottesville.gov/agenda](http://www.charlottesville.gov/agenda). Persons interested in the Special Use Permit applications may contact NDS Planner Matt Alfele by e-mail ([alfelem@charlottesville.gov](mailto:alfelem@charlottesville.gov)) or by telephone (434-970-3636).
  
4. **SP22-00003 - 207 14th Street NW** -William Chapman (Contract Purchaser/Applicant) is requesting a Special Use Permit (SUP) pursuant to City Code Sec. 34-158, to authorize a specific land use (Hotel) at 207 14th Street NW (“Subject Property”) having frontage on 14th Street NW and 15th Street NW. The Subject Property is further identified on City Real Property Tax Map 9 as Parcel 701 (City Real Estate Parcel ID 090070100). The property is currently developed with a 21-unit multi-family residential building. The Subject Property is zoned Business (B-1). The applicant proposes to redevelop the existing residential building into a 19-unit hotel with one residential apartment (4 dwelling units per acre). In the B-1 Business zoning district, hotel uses with 100 or fewer rooms are allowed with an approved Special Use Permit, while multi-family residential units are allowed by-right with residential density up to 21 dwelling units per acre (DUA). The Future Land Use Map for this area calls for Higher Intensity Residential, and no density range is specified by the Comprehensive Plan. Information pertaining to this application may be viewed online at [www.charlottesville.gov/agenda](http://www.charlottesville.gov/agenda). Persons interested in this Special Use Permit may contact NDS Planner Dannan O’Connell by e-mail ([connelld@charlottesville.gov](mailto:connelld@charlottesville.gov)) or by telephone (434-970-3182)

**IV. COMMISSION’S ACTION ITEMS**

*Continuing:* until all action items are concluded.

**V. FUTURE MEETING SCHEDULE/ADJOURN**

Tuesday May 10, 2022 – 5:00 PM	Pre-Meeting	
Tuesday May 10, 2022 – 5:30 PM	Regular Meeting	<u>Minutes</u> - July 13, 2021, August 10, 2021, August 31, 2021, September 14, 2021, October 11, 2021, October 12, 2021, October 21, 2021, November 9, 2021 <u>Special Use Permit</u> – 923 Harris

	Comprehensive Plan Amendment – Manufactured Housing
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**Anticipated Items on Future Agendas**

Zoning Text Amendments –Off-street parking facilities requirements along streets designated as “framework streets” (initiated May 8, 2018), Site Plan Requirements, Accessory Dwelling Unit, Middle Density zoning and Affordable Dwelling Unit , 12<sup>th</sup> and Rosser/CH Brown Historic Conservation District (six properties)

Rezoning and SUP – 0 Carlton Road

Rezoning – 415 10<sup>th</sup> Street NW, Mount View PUD

Preliminary Site Plan - 218 West Market Street

Site Plan –Flint Hill PUD, 1223 Harris

Critical Slope Waiver – Azalea Springs

Special Use Permit – Fire Station on 250 Bypass, 1000 Monticello

Future Entrance Corridor

- 916 E High Street - Comprehensive Sign Plan Request (*Sentara*)
- 2005 JPA – New apartment building, requires SUP (Mitchell Matthews Architects)
- 1815 JPA - New apartment building (Wassenaar+Winkler Architects)
- 1150 5th Street SW – new convenience store and gas canopy (*Wawa*, Riverbend)
- 1801 Hydraulic Road – revised Comp Sign Plan, revised design review (*Hillsdale Place*, Riverbend)

**PLEASE NOTE: THIS AGENDA IS SUBJECT TO CHANGE PRIOR TO THE MEETING.**

**PLEASE NOTE: We are including suggested time frames on Agenda items. These times are subject to change at any time during the meeting.**

Individuals with disabilities who require assistance or special arrangements to participate in the public meeting may call the ADA Coordinator at (434) 970-3182 or submit a request via email to [ada@charlottesville.gov](mailto:ada@charlottesville.gov). The City of Charlottesville requests that you provide a 48 hour notice so that proper arrangements may be made.

During the local state of emergency related to the Coronavirus (COVID19), City Hall and City Council Chambers are closed to the public and meetings are being conducted virtually via a Zoom webinar. The webinar is broadcast on Comcast Channel 10 and on all the City's streaming platforms including: Facebook, Twitter, and [www.charlottesville.gov/streaming](http://www.charlottesville.gov/streaming). Public hearings and other matters from the public will be heard via the Zoom webinar which requires advanced registration here: [www.charlottesville.gov/zoom](http://www.charlottesville.gov/zoom) . You may also participate via telephone and a number is provided with the Zoom registration or by contacting staff at 434-970-3182 to ask for the dial in number for each meeting.

**LIST OF SITE PLANS AND SUBDIVISIONS APPROVED ADMINISTRATIVELY  
3/1/2022 TO 3/31/2022**

- 1. Preliminary Site Plans**
- 2. Final Site Plans**
- 3. Site Plan Amendments**
  - a. 125 Chancellor Street – February 28, 2022
  - b. South Street Inn – 200 South Street – February 25, 2022
- 4. Subdivision**
  - a. 1912-1914 Lewis Mountain Road - March 2, 2022

**CITY OF CHARLOTTESVILLE**  
**DEPARTMENT OF NEIGHBORHOOD DEVELOPMENT SERVICES**  
**STAFF REPORT**



**ERB Review of Special Use Permit Request within the Fontaine Avenue /  
Jefferson Park Avenue Entrance Corridor**  
2005 Jefferson Park Avenue

**PLANNING COMMISSION REGULAR MEETING**  
**DATE OF PLANNING COMMISSION MEETING: April 12, 2022**

Project Planner: Matt Alfele  
Date of Hearing: April 12, 2022  
Application Number: SP-15-00001  
Zoning: R-3 Residential with Entrance Corridor Overlay (Fontaine Ave/JPA; Sub-area C.)  
Tax Parcels: 17-104, 17-103, 17-103.1 (Note: 17-104 is not within the EC Overlay.)  
Site Acreage: 1.7 acres (74,531 sq ft)  
ERB Staff report prepared by: Jeff Werner, AICP, Preservation and Design Planner

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**Relevant Code Section**

Section 34-157 (a)(7). When a property that is the subject of the application for a SUP is within an Entrance Corridor (EC), City Council shall refer the application to the Entrance Corridor Review Board (ERB) for recommendations as to whether the proposed use will have an adverse impact on the district, and for recommendations as to reasonable conditions which, if imposed, that would mitigate any such impacts. The ERB shall return a written report of its recommendations to the City Council.

Note: Per Code Section 34-309, regardless of the approval or denial of the requested SUP, any subsequent development of this site will require formal design review by the ERB [applying the City's Entrance Corridor Design Guidelines (design guidelines)] and approval of a Certificate of Appropriateness (CoA).

**Background**

The 1.7-acre project site is comprised of three parcels; two (1.5 acres) are within the Fontaine Avenue/Jefferson Park Avenue Entrance Corridor, Sub-area C (Maury Avenue to Emmet Street). The site is the location currently of six (6) residential structures: a c1899 two-story house (converted to apartments), a 1948 single-story house; a 1957 two-story apartment building, a c2000 four-story apartment building, and two c2000 three-story apartment buildings.

SUP request<sup>1</sup> to increase residential density from 21 DUA to 70 DUA. (87 DUA is the max allowed by SUP), will require the following:

- Increase building height from 45-ft to 75-ft (101-ft is the max allowed by SUP).
- Reduce the rear yard setback from 75-ft (w/25-ft S-3 buffer) to 40-ft (w/25-ft S-3 buffer).
- Reduce off-street parking requirements from 200 spaces to 125.

### **Discussion**

(Note: See Attachments 1 and 2 re: the Entrance Corridor Design Guidelines.)

#### **Increased residential density:**

The design guidelines do not address how density and additional density, in and of itself, would visually impact the corridor. (Regardless if a building contains 100 small apartments or a single large one, the design review applies the same guidelines relative to scale and design.)

#### **Increased height (including massing and scale):**

The design guidelines were adopted on 2012. At that time, the corridor-specific recommendations for this EC--and this sub-area—suggested a maximum of 60-feet for parcels zoned *University High Density*. (In 2013, while parcel zoning did not change, revisions to the Land Use Map designated them *University High Density*.) 2021 revisions to the Land Use Map designated the parcels *Urban Mixed-Use Corridor*, with a recommended maximum height of five stories, with *up to eight stories for properties at key intersections*, such as intersections of *Streets That Work*, Downtown, Industrial, Mixed Use, or Neighborhood corridors. [*emphasis added*]

While JPA is designated on the *Streets That Work* Plan, the project site is not at a key intersection of designated streets. As such, whether applying the EC guidelines (60-feet) or the Comprehensive Plan (five stories) a height of 75-feet exceeds the recommendation for this location and therefore results in an *adverse impact*.

Emphasizing the word *recommendation*, the design guidelines are not intended to prohibit the consideration of increased height, where allowed by SUP, but to provide *recommendations* that, when properly applied, mitigate the adverse impacts of the increased height.

Additionally, perception of a building's height is more a response to its massing and scale than to vertical or planar dimensions. *Massing* refers to how one perceives a building's shape and size, its three-dimensional form. *Scale* refers to the dimensional perception of building's height and width, particularly in context of its surroundings. Our perceptions of both are affected by design, architectural elements, materials, setbacks and even landscaping.

During the required EC design review, the ERB will evaluate the visual elements of this project—landscaping, lighting, design, materials, etc.—and, possibly, request modifications that mitigate

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<sup>1</sup> Mitchell Matthews SUP Application for 2005 Jefferson Park Avenue, dated January 11, 2022: Cover, pages 2 through 37.

the perceived height, mass and scale of the building. However, the design guidelines do not provide an objective checklist; therefore, the results of the design review process depend on how the ERB interprets and applies them.

Staff finds the project, as presented conceptually, to be generally consistent with the EC design guidelines relative to streetscape, site design, and architectural design; however, the unbroken east and west elevations exceed what is typical within this corridor; in fact, exceed what is typical in Charlottesville. (See Appendix.) Facing Washington Avenue, the building wall is approximately 300-feet in length and seven stories high at mid-block. Facing Observatory Avenue, the building wall is approximately 250-feet long and six stories high at mid-block. Additionally, while portions of the primary façade step back, the northeast corner reads as an imposing element on JPA. The site's topography, planned landscaping, and the conceptual design (for example, the articulated walls above a masonry foundation) somewhat mitigate the perception of height, scale, and massing; however, staff recommends this be addressed further. Much could be accomplished at the pedestrian level (where mass and scale are most experienced) with street trees and breezeways into and through a central courtyard; however, when viewed from a distance, the tall, unbroken walls read as massive and overwhelming.

With that, the ERB can opt to address these elements during the design review process, in consideration of the design guidelines or, during this SUP review, recommend specific conditions that would be requirements for the design review.

Reduced rear setback: The reduced rear yard setback will not be visible from JPA and will not visually impact the corridor.

On-site Parking: The EC design guidelines address the visual impacts of off-street [*on-site*] parking. (For example, screening and reducing the scale of parking lots.) The submittal indicates all on-site parking will be concealed, below-grade, with a single entrance/egress on located at the NW corner of the site, on Washington Avenue. Reduced on-site parking therefore contributes to the viability of the concealed parking, a preferred solution for EC projects.

### **Recommendation**

As stated above, insofar as the increased height exceeds what is recommended, design staff finds the requested height and related massing and scale will adversely impact Sub-Area C of the Fontaine Avenue/Jefferson Park Avenue Entrance Corridor; however, those impacts can be mitigated during the subsequent design review through application of the Entrance Corridor Design Guidelines.

Should the ERB wish to apply design-related conditions to the SUP, staff recommends the following three conditions be considered:

- The building’s east and west elevations (along Washington and Observatory avenues) should incorporate pedestrian-level breaks to increase mid-block permeability and to mitigate the building’s perceived height from pedestrian level.
- When the project returns to the ERB for a Certificate of Appropriateness, the proposed building’s façade along JPA shall be generally consistent with the conceptual design presented in the SUP request, relative to form, massing, step backs, and materiality.
- When the project returns to the ERB for a Certificate of Appropriateness, the proposed building should be generally consistent with the conceptual design presented in the SUP request, relative to the overall organization and composition of the buildings.

Note: This is not a recommendation of approval—or denial—for the necessary Certificate of Appropriateness. The project’s final design—architecture, scale and massing, site layout, landscaping, lighting, materials, etc.--are all subject to ERB review and approval.

**Public Comments Received**

See Special use permit report for comments received.

**Suggested Motion**

**Finding of adverse impact with recommendation to approve the SUP:** I move to find that the requested Special Use Permit for 2005 Jefferson Park Avenue relative to the increased height and related massing and scale will adversely impact the Fontaine Avenue/Jefferson Park Avenue Entrance Corridor district; however, during the subsequent design review, these impacts could be mitigated through application of the Entrance Corridor Design Guidelines[....].

Should the ERB wish to apply design-related conditions to the SUP, staff recommends the following three conditions be considered:

- The building’s east and west elevations (along Washington and Observatory avenues) should incorporate pedestrian-level breaks to increase mid-block permeability and to mitigate the building’s perceived height from pedestrian level.
- When the project returns to the ERB for a Certificate of Appropriateness, the proposed building’s façade along JPA shall be generally consistent with the conceptual design presented in the SUP request, relative to form, massing, step backs, and materiality.
- When the project returns to the ERB for a Certificate of Appropriateness, the proposed building should be generally consistent with the conceptual design presented in the SUP request, relative to the overall organization and composition of the buildings.

**Alternate Motions**

**Finding of no adverse impact with recommendation to approve the SUP:** I move to find that the requested Special Use Permit for 2005 Jefferson Park Avenue relative to the increased



height and related massing and scale will not adversely impact the Fontaine Avenue/Jefferson Park Avenue Entrance Corridor district and, therefore, recommend approval of the Special Use Permit.

**Finding of adverse impact with recommendation to deny the SUP:** I move to find that the requested Special Use Permit for 2005 Jefferson Park Avenue relative to the increased height and related massing and scale will adversely impact the Fontaine Avenue/Jefferson Park Avenue Entrance Corridor district in a manner that cannot be mitigated through application of the Entrance Corridor Design Guidelines and, therefore, recommend denial of the Special Use Permit.

### **Attachments**

- Attachment 1: Charlottesville Entrance Corridor Design Guidelines Chapter V: Fontaine Avenue/Jefferson Park Avenue Entrance Corridor (pages 17-19)
- Attachment 2: Relevant Entrance Corridor Design Guidelines

## Appendix

### Suggested conditions for the Special Use Permit:

- There should be pedestrian-level, permeable breaks in the east and west elevations, along Washington Avenue and Observatory Avenue.
- The primary façade fronting on JPA (the street-level, two-story element and the multi-story elements) shall be generally consistent with the conceptual design relative to form, massing, height step backs, use of masonry (including hardscaping), and the variation in materiality.
- The organization and composition of the buildings shall be generally consistent with the conceptual design: a two-story, masonry foundation supporting five-story, residential structures separated by a central courtyard and set back from JPA.

### Façade lengths, for context:

- 15th Street NW façade *Grand Marc Apartments* (5 stories) approx. 450-feet.
- Water Street façade *Water Street Parking Garage* (4 stories) approx. 400-feet.
- West Main façade *The Standard* (5 stories) approx. 380-feet.
- 10<sup>th</sup> Street elevation *The Lark* (6 stories) approx. 380-feet.
- West Main façade *The Flats* (6 stories) approx. 370-feet.
- Water Street facade *City Walk Apartments* (4 stories) approx. 360-feet
- **2005 JPA (conceptual): Washington Avenue façade (7 stories) approx. 300-feet.**
- *Culbreth Parking Garage* (3 stories) approx. 285-feet.
- **2005 JPA (conceptual): Observatory Avenue façade (7 stories) approx. 250-feet**
- West Main facade *The Omni* (6 stories) approx. 232-feet.
- Maywood Lane façade of 1800 JPA (3 stories) approx. 221-feet
- Downtown Mall: West Man block length 200-feet, side streets approx. 220-feet.
- Water Street façade *CODE Building* (8 stories) approx. 215-feet.
- 2111 JPA (apartments) front façade (3 stories) approx. 210-feet.
- East High Street façade *Queen Charlotte* condos (4 stories) approx. 200-feet.
- 1600 JPA west façade *South Range Apartments* (4 stories) approx. 188-feet
- Grady Avenue façade *Preston Court Apartments* (4 stories) approx. 160-feet
- 1815 JPA apartments façade (5 stories) approx. 160-feet
- **2005 JPA (conceptual): JPA façade (seven stories) approx. 150-feet**
- 1600 Monticello Avenue (apartments) (5 stories) approx. 150-feet.
- Stadium Road facade *Woodrow Apartments* (2 stories) approx. 145-feet.
- 1830 JPA (apartments) Shamrock Road facade (3 stories) approx. 124-feet.
- 1725 JPA (apartments) front façade (6 stories) approx. 100-feet.

# V CORRIDORS

## F. CORRIDOR 5: FONTAINE AVENUE/JEFFERSON PARK AVENUE FROM THE CORPORATE LIMITS TO EMMET STREET



Sub-Area A: Corporate limits to Lewis Street



Sub-Area B: Lewis Street to Maury Avenue



Sub-Area C: Maury Avenue to Emmet Street

### OVERALL DESCRIPTION

Fontaine Avenue is known locally and historically as the Fry's Spring area of Charlottesville. Fontaine continues west as an extension of the road named Jefferson Park Avenue (JPA), while JPA turns south toward Fry's Spring Beach Club. The Fontaine section of the corridor is one of the gateways to the City and University, and its commercial sections serve as a neighborhood village center. The JPA section serves as a concentration of multi-unit apartment buildings for University students.

### Positive Aspects

- Largely intact residential corridor serving as gateway
- Core of commercial uses to serve the area
- Mature street trees and planted median along much of corridor
- Well-defined and landscaped gateway at Fontaine research park entry
- Comprehensive transportation network with divided corridor, bus routes, bike paths, and sidewalks

### Vision

This corridor transitions quickly from accommodating highway speed autos to more congested auto, transit, pedestrian and bicycle traffic. Foremost considerations are traffic calming, provisions for pedestrian safety, and pedestrian amenities such as sidewalks, landscaping and transit stops. The neighborhood center, Maury Avenue intersection, is currently a bustling, mixed use pedestrian activity area that newer developments strive to emulate. The pedestrian and mixed use characteristics of this neighborhood

intersection should not be lost as redevelopment occurs. New mixed use and apartment project design should reflect the character and importance of this major entrance to the City and the University. Historic assets to be protected include the JPA median that formerly accommodated a trolley line, the Fry Spring's Service Station, and the Oakhurst-Gildersleeve Neighborhood. This corridor is a potential location for public way-finding signage.

### SUB-AREA A: CORPORATE LIMITS TO LEWIS STREET

#### Description

*Streetscape:* canopied effect, planted slopes, overhead utilities, cobra-head lights, intermittent sidewalks, some on-street parking.

*Site:* Wooded edges, pole-mounted signs, mature landscaping, large trees, low stone walls, chain link fences.

*Buildings:* Post-war, small-scale residences with deep setbacks - colonial revival, bungalows, English cottages, Cape Cod.

#### Recommended General Guidelines

- Retain tree canopy at gateway
- Maintain residential uses and character
- Add sidewalks on Fontaine Avenue per the Fontaine Avenue Plan
- Upgrade older retail parcels as opportunity arises

#### Guidelines Specific to the Zoning

B-2: The B-2 business district is established to provide for commercial uses of limited size, primarily serving neighborhood needs for convenience goods. The intent of the B-2 regulations is to encourage clustering of these neighborhood-serving commercial uses. The uses permitted

F. CORRIDOR 5: FONTAINE AVENUE/JEFFERSON PARK AVENUE FROM THE CORPORATE LIMITS TO EMMET STREET

within this district are those which will generate minimal traffic originating outside the neighborhood areas served and that will generate minimal noise, odors and fumes, smoke, fire or explosion hazards, lighting glare, heat or vibration.

- Height regulation: Maximum height: 45 feet.
- Setback: 20 feet, minimum.

R-2U (“university”): Consisting of quiet, lowdensity residential areas in the vicinity of the University of Virginia campus, in which single family attached and two-family dwellings are encouraged.

- Height regulation: Maximum height: 35 feet.
- Setback: 25 feet, minimum.

**SUB-AREA B: LEWIS STREET TO MAURY AVENUE**

**Description**

*Streetscape:* Mixed-use, auto-oriented on three corners, curb cuts, overhead utilities, cobra-head lights, road widens, no crosswalks, no streetscape amenities.

*Site:* Pole-mounted signs, front yards used for parking.

*Buildings:* 1-2 story houses converted to commercial uses, restaurants, 3-story new infill.

**Recommended General Guidelines**

- Develop commercial sites into higher density mixed-use projects
- Upgrade streetscape amenities with underground utilities, streetlights and plantings

**Guidelines Specific to the Zoning**

(NCC) Neighborhood Commercial Corridor district: The intent of

the Neighborhood Commercial Corridor district is to establish a zoning classification for the Fontaine and Belmont commercial areas that recognize their compact nature, their pedestrian orientation, and the small neighborhood nature of the businesses. This zoning district recognizes the areas as small town center type commercial areas, and provides for the ability to develop on small lots with minimal parking dependent upon pedestrian access. The regulations recognize the character of the existing area and respect that they are neighborhood commercial districts located within established residential neighborhoods.

- Height regulation: Maximum height: 1 to 3 stories; however, up to 5 stories may be allowed by special permii, subject to streetwall regulations; recommend 2 to 4 stories.
- Stepback: The maximum height of the street wall of any building or structure shall be 3 stories. After 3 stories, there shall be a minimum stepback of 15 feet along at least 50% of the length of the streetwall.
- Setback: Primary street frontage: no minimum required; 10 feet, maximum. Linking street frontage: none required. Side and Rear, adjacent to low-density residential district: 10 feet, minimum. Side and Rear, adjacent to any other zoning districts: none required.
- Buffer regulations: Adjacent to any low-density residential district, side and rear buffers (S-1 type) shall be required, 5 feet, minimum.

**SUB-AREA C: MAURY AVENUE TO EMMET STREET**

**Description**

*Streetscape:* Overhead utilities, cobra-head

lights, planted median, on-street parking, bike lanes, concrete sidewalks, canopy of trees.

*Site:* Large mature site trees, some front site parking, sloped, block and wood retaining walls, split rail and chain link fences.

*Buildings:* Student housing, residential large scale, multi-family, materials include wood, stone, brick and stucco, majority of structures are of traditional designs, some smaller dwellings remain among the large scale infill buildings. Recent Past/Historic: Fry Spring Service Station

**Recommended General Guidelines**

- Put utilities underground that are now located within median
- Ensure that off street parking areas are well defined and screened as needed
- Design new apartment buildings to break up their large scale and use traditional materials

**Guidelines Specific to the Zoning**

R-UHD (“university high density”): Consisting of areas in the vicinity of the University of Virginia campus, in which high-density residential developments, including multi-family uses, are encouraged.

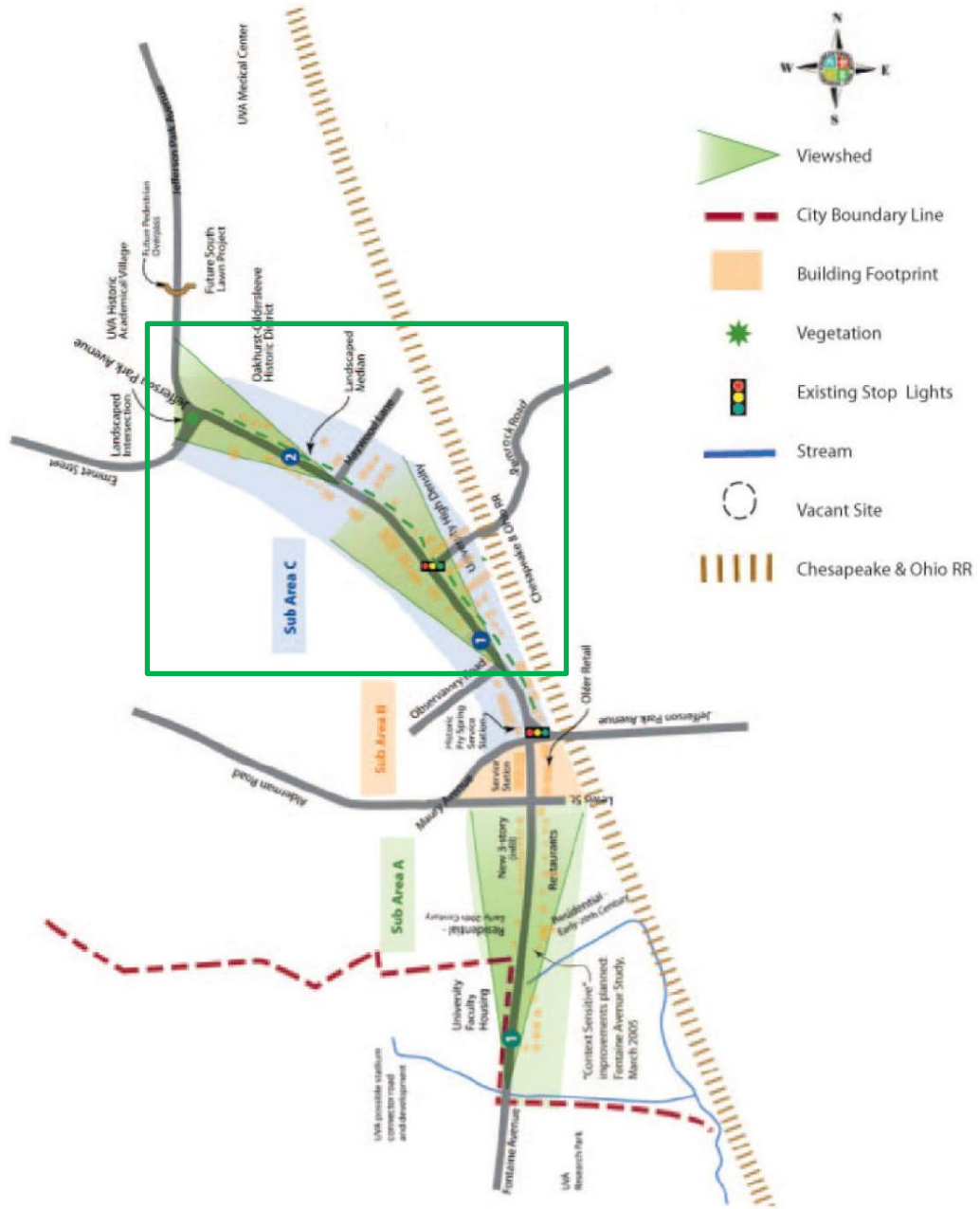
- Height regulation: Maximum height: 60 feet
- Setback: 15 feet, minimum.

R-2U (“university”): Consisting of quiet, lowdensity residential areas in the vicinity of the University of Virginia campus, in which single family attached and two-family dwellings are encouraged.

- Height regulation: Maximum height: 35 feet
- Setback: 25 feet, minimum.

# V CORRIDORS

F. CORRIDOR 5: FONTAINE AVENUE/JEFFERSON PARK AVENUE FROM THE CORPORATE LIMITS TO EMMET STREET



19 CHARLOTTESVILLE ENTRANCE CORRIDOR DESIGN GUIDELINES

## Attachment 2. Entrance Corridor Design Guidelines

- Chapter I: Introduction
  - [http://weblink.charlottesville.org/public/0/edoc/793359/1\\_Introduction\\_ERB.pdf](http://weblink.charlottesville.org/public/0/edoc/793359/1_Introduction_ERB.pdf)
- Chapter II: Streetscape
  - [http://weblink.charlottesville.org/public/0/edoc/793360/2\\_Chapter%20II%20Street%20scape\\_ERB.pdf](http://weblink.charlottesville.org/public/0/edoc/793360/2_Chapter%20II%20Street%20scape_ERB.pdf)
- Chapter III: Site
  - [http://weblink.charlottesville.org/public/0/edoc/793361/3\\_Chapter%20III%20Site\\_ERB.pdf](http://weblink.charlottesville.org/public/0/edoc/793361/3_Chapter%20III%20Site_ERB.pdf)
- Chapter IV: Buildings
  - [http://weblink.charlottesville.org/public/0/edoc/793362/4\\_Chapter%20IV%20Buildings\\_ERB.pdf](http://weblink.charlottesville.org/public/0/edoc/793362/4_Chapter%20IV%20Buildings_ERB.pdf)
- Chapter V: Entrance Corridors
  - [http://weblink.charlottesville.org/public/0/edoc/793363/5\\_Chapter%20V%20Maps%20of%20Corridors\\_ERB.pdf](http://weblink.charlottesville.org/public/0/edoc/793363/5_Chapter%20V%20Maps%20of%20Corridors_ERB.pdf)

### Design Guidelines relevant to Density

n/a

### Design Guidelines relevant to Height (including massing and scale)

Chapter I:

Maintain Human Scale in Buildings and Spaces: Consider the impact of building design, especially height, mass, complexity of form, and architectural details, and the impact of spaces created, on the people who will pass by, live, work, or shop there. The size, placement and number of doors, windows, portals and openings define human scale.

Chapter IV: Guidelines for Buildings

C. Building Mass, Scale & Height

1. Break up the front of a large building by dividing it into individual bays of 25 to 40 feet wide.
2. Use variation in materials, textures, patterns, colors and details to break down the mass and scale of the building.
  - a. Avoid an unmodulated mass
  - b. Use stepped-back height
  - c. Use varied wall surfaces
  - d. Use varied heights with regular width
3. Use building mass appropriate to the site. Place buildings of the greatest footprint, massing, and height in the core of commercial or office developments where the impact on adjacent uses is the least. Follow setback requirements for upper story according to zoning classification of the corridor.
4. When making transitions to lower density areas, modulate the mass of the building to relate to smaller buildings. Heights can be greater if the mass is modulated and other scale techniques are adopted. Reduce height near lower density uses.

5. Use massing reduction techniques of articulated base, watertables, string courses, cornices, material changes and patterns, and fenestration to reduce the apparent height of a large building. Fake windows and similar details are not appropriate articulation. Floor-to-floor heights of a building can have an impact on the mass of a building. For instance, typical ceiling heights in a residence are 8-9 feet. First floors of office buildings or retail shops can range from 10-15 feet. Upper floors that include residential or office are generally 8-12 feet in height. When actual or implied floor-to-floor heights exceed 15-20 feet on the exterior, then a building may begin to read as more massive than human-scaled. When articulating large buildings, keep these dimensions in mind.

### **Design Guidelines relevant to Setbacks.**

#### Chapter III: Guidelines for Sites, D. Building Placement

1. Orient the facade of new buildings to front on the corridor.
2. Limit setback of new buildings according to the zoning of the particular corridor.
3. Limit setbacks at major intersections so that the architecture can help define the area.
4. Use compact building arrangements to reduce the feeling of seas of parking, encourage pedestrian activity and define space.
5. Strive for contiguous building arrangement along the street face, and avoid large breaks between buildings in identified development sites.
6. Ensure that larger developments orient their design to any adjoining neighborhoods and to side streets.
7. Provide breaks in large developments and building masses to allow pedestrian connections between developments.
8. Orient service areas to limit their impact on the development and any neighboring areas.
9. Each side of a corner building that faces a street should be considered a facade of the building for design purposes.

### **Design Guidelines relevant to Parking.**

#### Chapter I. Design Principles

Mask the Utilitarian: Provide screening from adjacent properties and public view of parking lots, outdoor storage and loading areas, refuse areas, mechanical and communication equipment, and other uses that have adverse impacts. Where feasible, relegate parking behind buildings.

#### Chapter III: Guidelines for Sites,

##### E. Parking

3. Reduce the visibility of residential garages by:
  - a. Not allowing a garage to become the primary architectural feature when a development is viewed from the street, especially for attached housing.
  - b. Placing garages behind the building setback, preferably facing to the side or rear of attached housing.
  - c. Placing garages and parking in the rear with alley access

Chapter IV: Guidelines for Buildings,  
E. Facade Organization & Storefronts

3. Secondary entries may be created to allow convenient access from adjacent buildings, sidewalks, parking, bicycle paths and transit stops.

**Design Guidelines specific to Fontaine Avenue/Jefferson Park Avenue Entrance Corridor**

(Ref. Entrance Corridor Design Guidelines, Chapter V: Corridors, pages 17-19.)

**Vision statement for Fontaine Avenue/Jefferson Park Avenue Entrance Corridor:**

This corridor transitions quickly from accommodating highway speed autos to more congested auto, transit, pedestrian and bicycle traffic. Foremost considerations are traffic calming, provisions for pedestrian safety, and pedestrian amenities such as sidewalks, landscaping and transit stops. The neighborhood center, Maury Avenue intersection, is currently a bustling, mixed use pedestrian activity area that newer developments strive to emulate. The pedestrian and mixed use characteristics of this neighborhood intersection should not be lost as redevelopment occurs. New mixed use and apartment project design should reflect the character and importance of this major entrance to the City and the University. Historic assets to be protected include the JPA median that formerly accommodated a trolley line, the Fry Spring's Service Station, and the Oakhurst-Gildersleeve Neighborhood. This corridor is a potential location for public way-finding signage.

**Recommended General Guidelines for Sub-area: Maury Avenue to Emmet Street:**

- Put utilities underground that are now located within median
- Ensure that off street parking areas are well defined and screened as needed
- Design new apartment buildings to break up their large scale and use traditional materials



# City of Charlottesville

## MEMO



TO: Planning Commission  
FROM: Erin Atak, Grants Coordinator of Charlottesville  
DATE: April 12, 2022  
SUBJECT: Public hearing for proposed FY 2022-2023 CDBG and HOME Budget Allocations for the Annual Plan of the Consolidated Plan

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As part of the CDBG public participation process, the Planning Commission must provide recommendations to City Council on all Community Development Block Grant (CDBG) and HOME Investment Partnership (HOME) funding recommendations.

Attached you will find the proposed allocations for FY 22-23 CDBG and HOME programs. These recommendations are based on the CDBG Task Force recommendations for Housing, Public Service, Economic Development activities, and the Ridge Priority Neighborhood Task Force.

Attached you will also find copies of meeting minutes where these recommendations were made. This includes a memo of explanation and a list of all the projects reviewed as a result of the competitive Request for Proposal (RFP) process.

Following the public hearing, staff is asking for a recommendation to City Council concerning the CDBG and HOME budget allocations. The budget allocations will later be included in the FY22-23 Annual Action Plan for HUD submittal this May.

If you have any questions or concerns, please contact Erin Atak at (434) 970-3093 or email [atake@charlottesville.gov](mailto:atake@charlottesville.gov).

Cc: City Council  
Mr. Sam Sanders, Deputy City Manager  
Alexander Ikefuna, Interim Director of Office of Community Solutions  
CDBG Task Force

# City of Charlottesville

## MEMO



TO: Planning Commission  
FROM: Erin Atak, Grants Coordinator of Charlottesville  
DATE: April 12, 2022  
SUBJECT: Proposed FY 2022-2023 CDBG and HOME Budget Allocations

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### CDBG and HOME Project Recommendations for FY 2022-2023:

The CDBG program total has an estimated \$433,471 for the 2022-2023 program year. The HOME total consists of an estimated \$84,576.88 which is the City's portion of the Consortium's appropriation, in addition to \$21,144.22 for the City's 25% required match. Minutes from the meetings are attached which outline the recommendations made. It is important to note that all projects went through an extensive review by the CDBG/HOME Task Force as a result of a competitive RFP process.

On September 21, 2021, City Council set priorities for the FY22-23 CDBG Program which included prioritizing access to affordable housing (including but not limited to low income housing redevelopment), workforce development (including but not limited to efforts to bolster Section 3 training opportunities and partnerships with the City's GO programs), microenterprise assistance, access to quality childcare, homeowner rehabilitation, and down payment assistance. The CDBG/HOME competitive request for proposals were based off the 2022-2023 City Council's CDBG/HOME priorities, the 2018-2022 Consolidated Plan, Charlottesville Affordable Housing Plan, and HUD's CDBG/HOME national priorities.

Priority Neighborhood – On September 21, 2021, Council approved Ridge Street to be the Priority Neighborhood. On March 15, 2021, City Council approved activities for the Ridge Street priority neighborhood to be carried out with CDBG funds. Staff recommends that the Planning Commission approve Ridge Street as the priority neighborhood to allow for completion of those selected activities. All chosen activities went through extensive community participation selection and engagement process through the Ridge Street priority neighborhood Taskforce that occurred between September 2020 through February 2021.

Economic Development – Council set aside FY 22-23 CDBG funding for Economic Development Activities. Funds are proposed to be used to provide Community Investment Collaborative Microenterprise scholarships assistance to 10-20 entrepreneurs to develop their businesses through a 16-session workshop through technical assistance mentorship and financial management training program.

The Taskforce also recommended the Local Energy Alliance Program to receive funding for the Workforce Development program. Estimated benefits include hiring 2 staff members from the Home to Hope or CRHA's Section 3 program for their Weatherization Technician Workforce Development program.

Public Service Programs – The Task Force has recommended several public service programs. Funds are proposed to assist the Literacy Volunteers of Charlottesville/Albemarle to prepare 32 illiterate City residents for the workforce through individualized instruction; and assist the Public Housing Association of Residents to fund the resident outreach and community organization of public housing redevelopment.

CDBG Housing Programs – The Taskforce recommended the Local Energy Alliance Program for a solar home energy maintenance roof repair program. Estimated benefits include seven minor roof repairs and solar rooftop installations.

Administration and Planning: To pay for the costs of staff working with CDBG projects, citizen participation, environmental reviews, and other costs directly related to CDBG funds, \$86,694.20 is budgeted to administer the program; capped at 20% of the CDBG entitlement funds.

HOME Funds: The CDBG/HOME Task Force recommended funding the Local Energy Alliance Program that support homeowner energy maintenance rehabilitation. Estimated benefits include ten homeowner rehabilitations.

Adjusting for Actual Entitlement Amount: Because actual entitlement amounts are not known at this time, it is recommended that all recommendations are increased/reduced at the same pro-rated percentage of actual entitlement to be estimated. No agency will increase more than their initial funding request.

Adjusting for Timeliness: Because several subrecipients are in the process of completing their 2021-2022 CDBG/HOME contracts; 2022-2023 contract awards are subject to reprogramming if 2021-2022 CDBG/HOME subrecipients are not able to fulfill their contract obligations by June 30, 2022.

Attachments: Proposed FY 22-23 CDBG and HOME budgets  
FY 22-23 List of RFPs received  
CDBG/HOME Task Force Minutes  
CDBG/HOME Taskforce Rubric

**2022-2023 CDBG & HOME BUDGET ALLOCATIONS**  
**RECOMMENDED BY CDBG/HOME TASKFORCE: 2/16/22 & 3/21/22**  
**RECOMMENDED BY PLANNING COMMISSION**  
**APPROVED BY CITY COUNCIL**

**A. PRIORITY NEIGHBORHOOD**

A. Ridge Street Priority Neighborhood **\$ 186,376.16**

**B. ECONOMIC DEVELOPMENT PROJECTS**

A. Community Investment Collaborative - Micro Scholarships **\$ 25,000.00**

B. Local Energy Alliance Program - Workforce Development **\$ 30,130.00**

**C. PUBLIC SERVICE PROJECTS (15% CAP)**

A. Public Housing Association of Residents **\$ 37,510.32**

B. Literacy Volunteers of Charlottesville/Albemarle **\$ 27,510.32**

**D. HOUSING PROJECTS**

A. Local Energy Alliance Program - Solar Energy Maintenance **\$ 40,250.00**

**E. ADMINISTRATION/PLANNING (20% CAP)**

A. Admin/Planning **\$ 86,694.20**

Grand Total **\$ 433,471.00**

Estimated Entitlement **\$ 433,471.00**

**2022-2023 HOME BUDGET ALLOCATIONS**

A. Local Energy Alliance Program - Assisted HOME Performance **\$ 84,576.88**

Total **\$ 84,576.88**

Estimated Entitlement **\$ 84,576.88**

Local Match **\$ 21,144.22**

# CDBG FY22-23 Submissions

<b>CDBG</b>	<b>Econ</b>	<b>Organization, Program Title</b>	<b>Project Contact</b>	<b>Program Description</b>	<b>Funding Requested</b>
		Local Energy Alliance Program (LEAP)	Chris Meyer	Assisted Home Performance Workforce Development	\$ 30,130.00
		Community Investment Collaborative (CIC)	Stephen Davis	CIC Entrepreneur Program	\$ 25,000.00
		<b>Total Amount of Request</b>			<b>\$ 55,130.00</b>
<b>CDBG</b>	<b>Public Services (15% Cap)</b>	<b>Organization, Program Title</b>	<b>Project Contact</b>	<b>Program Description</b>	<b>Funding Requested</b>
		Public Housing Association of Residents (PHAR)	Shelby Edwards	Capacity Building, Empowerment, Protecting Affordable Housing	\$ 35,000.00
		PACEM	Jayson Whitehead	Referrals Specialist	\$ 39,375.00
		Literacy Volunteers Charlottesville/Albemarle	Ellen Osborne	Beginning Workforce Development Services	\$ 37,432.00
		<b>Total Amount of Request</b>			<b>\$ 111,807.00</b>
		<b>Total Projected Budget</b>			<b>\$ 65,020.65</b>
		<b>Request Overage</b>			<b>\$ 46,786.35</b>
<b>CDBG</b>	<b>Housing</b>	<b>Organization, Program Title</b>	<b>Project Contact</b>	<b>Program Description</b>	<b>Funding Requested</b>
		Local Energy Alliance Program	Chris Meyer	Low-Income Roof Repairs	\$ 40,250.00
		<b>Total Amount of Request</b>			<b>\$ 40,250.00</b>

# HOME FY22/23 RFP Submissions

HOME	Organization, Program Title	Project Contact	Program Description	Funding Requested
		Local Energy Alliance Program (LEAP)	Chris Meyer	Assisted Home Performance
			Friendship Court Early Learning	
	Piedmont Housing Alliance (PHA)	Sunshine Mathon	Center	\$105,721
	<b>Total Amount of Request</b>			<b>\$185,821</b>
	<b>Total Projected Budget</b>			<b>\$84,576.88</b>
	<b>Request Overage</b>			<b>\$101,244</b>



## Community Development Block Grant/HOME Taskforce

Wednesday, February 16th, 2022

4-5PM

Virtual Meeting (Zoom)

### Meeting Minutes

#### 1. Introductions/Housekeeping/Minutes

Grants Coordinator, Erin Atak (EA), took Roll Call.

Name	Attendance
Nancy Carpenter	<i>Present</i>
Helen Sporkin	<i>Present</i>
Matthew Gillikin	<i>Present</i>
Connor Brew	<i>Present</i>
James Bryant	<i>Present</i>
Kem Lea Spaulding	<i>Present</i>
Howard Evergreen	<i>Present</i>
Emily Cone Miller	<i>Absent</i>
Taneaia Dowell	<i>Absent</i>

All Taskforce members introduced themselves and their neighborhood designation/role on the CDBG/HOME Taskforce

#### 2. CDBG/HOME Background

EA shared the CDBG/HOME introductory technical assistance PowerPoint for the Taskforce. The PowerPoint serves as the training slideshow that all CDBG and HOME applicants are required to sit through in a mandatory 30-45 training session with the grants coordinator prior to applying for CDBG and HOME. EA walks through the following topics with the Taskforce:

- a. 2022-2023 CDBG/HOME Priorities selected by City Council
- b. Three CDBG/HOME HUD National Objectives

#### Staff Contact:

Erin Atak, Grants Coordinator (atake@charlottesville.gov), (434) 970-3093

- c. CDBG/HOME program income guidelines posted on the City of Charlottesville website that all CDBG/HOME applicants adhere to.
- d. The updated CDBG/HOME Priority Neighborhood Map on the City Website: <https://www.charlottesville.gov/DocumentCenter/View/6760/2021-CDBG-Priority-Neighborhood-Map>
- e. The HOME HUD Program Definition, eligible activities, and ineligible activities.
- f. Projected HOME allocation for FY2022-2023
- g. Federal and Local requirements subrecipients are required to adhere to (submitting quarterly reports, getting environmental reviews done, spending requirements, documentation requirements for invoices, etc.)
- h. And submitting an internal controls checklist required by HUD as listed in the City's CDBG Guidelines by application date: current annual audit, policies and procedures manual, financial statements, Evidence of 501(c)3, etc.

EA explained to the Taskforce that there was a total of six technical assistance meetings prior to application submittal with the following organizations:

- i. Piedmont Housing Alliance
- j. Thomas Jefferson Community Land Trust
- k. Local Energy Alliance Program
- l. Literacy Volunteers of Charlottesville/Albemarle
- m. Virginia Supportive Housing
- n. Charlottesville Redevelopment and Housing Authority

Two organizations submitted applications for the FY2022-2023 HOME request for proposal:

- Local Energy Alliance Program (LEAP)
- Piedmont Housing Alliance (PHA)

EA explained to the Taskforce that HUD reviewed the applications and advised the City that the Piedmont Housing Alliance Application and a portion of the LEAP application would be better suited for other funding sources. The Taskforce would only be able to review one portion of LEAP's application for funding consideration this afternoon.

Nancy Carpenter (NC) asks about whether the HUD national objective #2 (blight/slum) wording can be updated. NC also brings up whether organizations submit policies on diversity, equity, and inclusion within the attachments that subrecipients were required to submit with applications.

### **3. Scores**

EA asks the Taskforce if there were any concerns reviewing the applications. No concerns were brought up.

EA outlines LEAP's performance history. No concerns were brought up with audit history, timeliness, and documentation requirements.

#### **Staff Contact:**

Erin Atak, Grants Coordinator (atake@charlottesville.gov), (434) 970-3093



Discussion with the Taskforce revolved around LEAP’s FY2021 financial and performance workload. EA explains that LEAP is currently performing 16-20 energy efficiency audits with the same amount of funding that is being requested in the current application.

NC, Howard Evergreen (HE), and Connor Brew (CB) discuss the energy savings and impact on utility bills.

The Taskforce unanimously voted on the following funding recommendation for the LEAP assisted home performance application.

Applicant	Average Score	Funding Request	TF Funding Recommendations
LEAP	32.14	\$80,100.00	\$84,576.88
<hr/>			
Funding Available	\$ 84,576.88		

Assisted Home Performance (Only)

**4. Public Comment**

None

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**Staff Contact:**

Erin Atak, Grants Coordinator (atake@charlottesville.gov), (434) 970-3093



## Community Development Block Grant/HOME Taskforce

Monday, March 21, 2022

4-5PM

Virtual Meeting (Zoom)

### Meeting Minutes

#### 1. Introductions/Housekeeping

Grants Coordinator, Erin Atak (EA), took Roll Call.

Name	Attendance
Nancy Carpenter	<i>Present</i>
Helen Sporkin	<i>Present</i>
Matthew Gillikin	<i>Present</i>
Connor Brew	<i>Present</i>
James Bryant	<i>Absent – sent in funding recommendations</i>
Kem Lea Spaulding	<i>Absent</i>
Howard Evergreen	<i>Present</i>
Emily Cone Miller	<i>Absent</i>
Taneaia Dowell	<i>Absent</i>

*Guests Observing review process:*

Shirese Franklin, TJPDC Planner III

Hunter Allen Smith, City Staff, Vibrant Communities Fund

EA explained to the Taskforce about how many applicants she met with during the pre-application technical assistance meetings. There was a total of eleven applicants that met with EA during the RFP process. 6 applications were received at the end of the RFP process.

1. Community Investment Collaborative
2. Local Energy Alliance Program
3. Literacy Volunteers of Charlottesville/Albemarle
4. Thomas Jefferson Area Coalition for the Homeless

#### **Staff Contact:**

Erin Atak, Grants Coordinator (atake@charlottesville.gov), (434) 970-3093

5. Charlottesville Redevelopment and Housing Authority
6. Piedmont Housing Authority
7. Region 10
8. Habitat for Humanity of Greater Charlottesville
9. Public Housing Association of Residents
10. People and Congregations Engaged in Ministry (PACEM)
11. The HAVEN

EA explained the CDBG timeliness concerns for current applicants to the Taskforce.

- 2021-2022 subrecipients with CDBG/HOME contracts were eligible to apply for new rounds of funding for CDBG as long as they are able to fully spend their 2021 contract by the end of their contract year.
- EA explained that the contract year ends June 30, 2022. All funds must be spent by then in order to be eligible for their 2022 CDBG awards. If the subrecipient is not able to fulfill their end of the contract obligation, the City can reprogram the 2021 and 2022 CDBG awards for timeliness purposes.
- EA explained three organizations fell into this category: LEAP, CIC, and PHAR.

## **2. Scores**

Taskforce begins to look over the economic development scores first.

- EA gives an audit history for both applications in the economic development category. No concerns are listed from staff side.
- Nancy Carpenter (NC) makes a motion to fully fund both Community Investment Collaborative (CIC) and the Local Energy Alliance Program (LEAP). She explains that in LEAP's application she appreciates the initiative to re-acclimate people to the workforce with housing; and CIC's application was good and large in scope.
- Matthew Gillikin (MG) seconds the motion and wonders if CIC would be able to take on additional funding.
- Howard Evergeen (HE) asks what happens to any undesignated funds at the end of the awarding process
- EA explains several options to the taskforce:
  - o There is the option to issue another RFP
  - o There is the option to fund an unfunded project within the CDBG priority neighborhood that the City is looking for funding for
  - o There is the option to give the extra funds to the priority neighborhood taskforce budget
- NC states that the Taskforce should proceed with awarding the rest of the CDBG categories and then coming back and seeing if there are any extra funds remaining. The committee agrees.

Taskforce begins to look over the housing applications.

- EA gives an audit history for both applications in the economic development category. No concerns are listed from staff side.

### **Staff Contact:**

Erin Atak, Grants Coordinator (atake@charlottesville.gov), (434) 970-3093

- MG and NC states that this proposal was interesting and different from the typical housing application that LEAP generally requests for funds for. NC states that the application addresses the need for families to stay in their homes and addresses financial concerns.
- NC moves to fully fund the LEAP application.
- Connor Brew (CB) seconds the motion.

Taskforce begins to look over the public service applications.

- EA reminds the committee that the public service section has a HUD cap of 15% with CDBG funds.
- EA gives an audit history for applications in the public services category. No concerns are listed from staff side. EA gives several options to the Taskforce about how to fund the applications because there is a finite amount of funds to give out to the applicants.
- MG makes a motion to fully fund Literacy Volunteers of Charlottesville/Albemarle (LVCA) as they ranked the highest among the public service category.
- HE and NC seconds the motion.
- Helen Sporkin (HP) states that LVCA had the most thorough application among all that was submitted.
- NC makes the motion to fully fund Public Housing Association of Residents.
- NC states that there was not anything sustainable in the PACEM application about keeping the staff position long term past the one-year contract agreement.
- EA states that generally previous taskforces have also tended to stray away from funding staff positions for that reason.
- CB, MG, and HS support fully funding PHAR and LVCA.
- EA offers the option of adding the remaining additional \$5,020.64 split between the two funded programs. The Taskforce agrees. This uses the full 15% of the funding for public services.

The CDBG/HOME Taskforce unanimously votes on the following budget:

Applicant	Average Score	Funding Request	TF Recommendation
CIC	37.33	\$25,000.00	\$25,000.00
LEAP Workforce	33.17	\$30,130.00	\$30,130.00
LEAP Solar Roof	33.50	\$40,250.00	\$40,250.00
PACEM	32.17	\$39,375.00	\$0.00
LVCA	39.67	\$25,000.00	\$27,510.32
PHAR	34.17	\$35,000.00	\$37,510.32

- Shirese Franklin (SF): Makes a comment to the comment about how the review process on shovel ready projects is a great idea the City does and should be implemented to the region.
- Hunter Allen Smith (HAS) noted that it was great getting to shadow along the review process and the budget making process with the Taskforce.

**Staff Contact:**

Erin Atak, Grants Coordinator (atake@charlottesville.gov), (434) 970-3093

- MG stated that the process had a learning curve to it and the technical assistance trainings are always helpful.

### **3. Public Comment**

- Shelby Edwards: Shared her appreciation for the dialogue from the Taskforce and the Grants Coordinator and is looking forward to the future funding.
- Joy Johnson: Shared her concerns for the review process of the applications and asked whether the Taskforce received training.

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## SCORING RUBRIC FOR HOME PROPOSALS

Name of Applicant:

Name of Project:

	<b>Exemplary (3 Points)</b>	<b>Adequate (2 Points)</b>	<b>Needs Improvement (1 Point)</b>	<b>Missing Information (0 Points)</b>	<b>Score</b>	<b>Comments</b>
<b>Program/Project Description</b>	Provides a clear description and clearly explains how it will address a Council Priority	Provides a description that adequately explains how it will address a Council Priority	Program/project description needs improvement	Proposal does not describe how it will address a Council Priority		
<b>Program/Project Goal</b>	Provides a clear explanation of the goal. Identifies what will be provided to whom, how many. Provides demographic information of the beneficiaries and how they will meet the income guidelines	Provides an adequate explanation of the goal	Program/Project goal needs improvement. Barely identifies what will be provided to whom and how many. Barely provides demographic information and how the beneficiaries will meet the income guidelines	Goal is missing and/or not explained. Identification of beneficiaries, number of beneficiaries, demographic information, and information about how the beneficiaries will meet the income guidelines is missing		
<b>Need</b>	Clearly describes how the program will directly address the needs.	Adequately describes how the program will directly address the needs using some local	Description of need needs improvement. Only state, regional, or national data	Does not describe how the program will directly address the needs and/or		

	Provides local data to describe the needs of the community <u>and</u> the beneficiaries	data to describe the needs of the community <u>and</u> the beneficiaries	provided, data not specific to clients	does not provide data to describe the needs of the community and the beneficiaries		
<b>Outcomes</b>	Clearly explains how proposed outcomes will be meaningful, client-focused and related to the service	Adequately explains how proposed outcomes will be meaningful, client-focused and related to the service	Explanation of how proposed outcomes will be meaningful, client-focused and related to the service needs improvement	Does not explain how proposed outcomes will be meaningful, client-focused and/or related to the service		
<b>Strategies</b>	Provides evidence-based strategies for how the program/project will address the need	Adequately describes how strategies address need using researched best practices strategies at a minimum	Describes how strategies address need without information about best practices or research	Does not identify how strategies directly address need		
<b>Implementation Timeline</b>	Timeline is detailed and realistic	Timeline is adequate	Timeline is limited or not realistic	No timeline provided and information is missing		
<b>Evaluation Plan</b>	Provides a rigorous evaluation plan which informs ongoing work, explains metrics and why they are used	Provides a solid evaluation plan	Evaluates some elements of its work, but the evaluation is not thorough	Proposal does not provide an evaluation plan or the plan is insufficient		
<b>Demographic Verification</b>	Proposal clearly describes how the agency will collect and verify <u>all</u> required information	Proposal adequately describes how the agency will collect and verify all required information	Proposal describes how the agency will collect and verify <u>some</u> required information	Proposal does not describe how the agency will collect and verify any required information		

<b>Financial Benefits</b>	Proposal describes how the program fully meets two financial benefits	Proposal describes how the program fully meets one financial benefit	Proposal describes how the program <u>partially</u> meets one to two financial benefits	Proposal does not describe how the program will provide a financial benefit		
<b>Collaboration</b>	Proposal describes how the program collaborates with other organizations to achieve a common goal using defined deliverables and metrics (ex. Clear accountability, shared management, such as MOU's or formal partnership agreements)	Proposal describes formal agreements with more than two organizations describing how they cooperate, but does not share common deliverables or metrics.	Proposal describes collaboration informally with other organizations (ex. information sharing, resource sharing)	Proposal does not describe collaboration with other entities		
<b>Engagement/ Outreach Strategy</b>	Proposal describes complete outreach and engagement strategies and explains how it will serve needy and underserved populations	Proposal describes some outreach and engagement strategies and how it will serve needy and underserved populations	Proposal explains that services are available to needy and underserved populations but program/project does not conduct outreach or engagement	Proposal does not provide strategies for outreach and engagement to needy and underserved populations		
<b>Priority Neighborhood Ridge Street</b>	Proposal describes complete outreach strategies and program/project serves residents in the Priority Neighborhood	Proposal describes some outreach and program/project serves residents in the Priority Neighborhood	Proposal explains that services are available to priority neighborhood residents but program/project does not conduct outreach	Proposal does not provide strategies for outreach to priority neighborhood residents		



<b>Organizational Capacity (STAFF ONLY)</b>	Organization demonstrated sufficient capacity and fully met projected outcomes in previous grant year	Organization demonstrated adequate capacity and almost met projected outcomes in previous grant year	Organization capacity needs improvement, did not meet projected outcomes	The organization demonstrated a lack of a capacity		
<b>Organizational Capacity</b>	Proposal provides clear evidence of the capacity and ability to ensure timely performance and reporting	Proposal provides adequate evidence of the capacity and ability to ensure timely performance and reporting	Evidence of capacity and ability needs improvement. Does not address the question fully	Proposal does not provide evidence of the capacity and ability		
<b>Budget</b>	<p>Proposal clearly demonstrates:</p> <ul style="list-style-type: none"> <li>A. How requested funds will be applied to expense line items</li> <li>B. How the amount requested is reasonable</li> <li>C. That the overall program budget shows a direct relationship with proposed service items</li> </ul>	<p>Proposal provides an adequate budget. Adequately addresses A, B, and C</p>	<p>Proposed budget needs improvement and barely addresses A, B, and/or C. Proposed budget needs improvement.</p>	<p>The proposal does not demonstrate how the requested funds will be applied to expense line items, how the amount requested is reasonable, and does not show a direct relationship with proposed service items</p>		
<b>TOTAL SCORE (MAX SCORE = 42 PTS)</b>						

**CITY OF CHARLOTTESVILLE**  
**DEPARTMENT OF NEIGHBORHOOD DEVELOPMENT SERVICES**  
**STAFF REPORT**



**JOINT CITY COUNCIL AND PLANNING COMMISSION PUBLIC HEARING**  
**APPLICATION FOR A SPECIAL USE PERMIT**  
**APPLICATION NUMBER: SP22-00001**  
**DATE OF HEARING: April 12, 2022**

**Project Planner:** Matt Alfele, AICP

**Date of Staff Report:** March 30, 2022

**Applicant:** Aspen Topco II Acquisitions, LLC (Contract Purchaser)

**Applicant's Representative(s):** Erin Hannegan with Michell/Matthews Architects & Planners

**Current Property Owner:** Norman Lamson, Trustee of the Gadiant Land Trust Agreement

**Application Information**

**Property Street Address:** 2005/2007 Jefferson Park Avenue and 104 Observatory Avenue  
("Subject Properties")

**Tax Map & Parcel/Tax Status:** 170104000, 170103100, and 170103000 (real estate taxes paid current - Sec. 34-10)

**Total Square Footage/ Acreage Site:** Approx. 1.71 acres (74,487 square feet)

**Comprehensive Plan (Future Land Use Map):** Mixed Use Corridor

**Current Zoning Classification:** R-3 Medium-density Residential

**Overlay District:** Entrance Corridor for 2005/2007 Jefferson Park Avenue. No Overlay District for 104 Observatory Avenue

**Applicant's Request (Summary)**

The applicant is requesting a Special Use Permit (SUP) pursuant to Code Sec. 34-420, 34-353(3), and Sec. 34-162(a), which allows increased residential density, additional height, and modifications to parking and setbacks. The Subject Properties have street frontage on Jefferson Park Avenue, Observatory Avenue, and Washington Avenue; and a by-right density of 21 dwelling units per acre (DUA). The applicant is looking to increase density to 70 DUA, increase height from a by-right 45 feet to 75 feet, reduce the rear yard setback from the required 75 feet to 36 feet, and reduce the onsite parking by 22% from what is required under Sec. 34-984. The SUP is required in order to accommodate the development being proposed for a 119-unit multifamily building with underground parking.

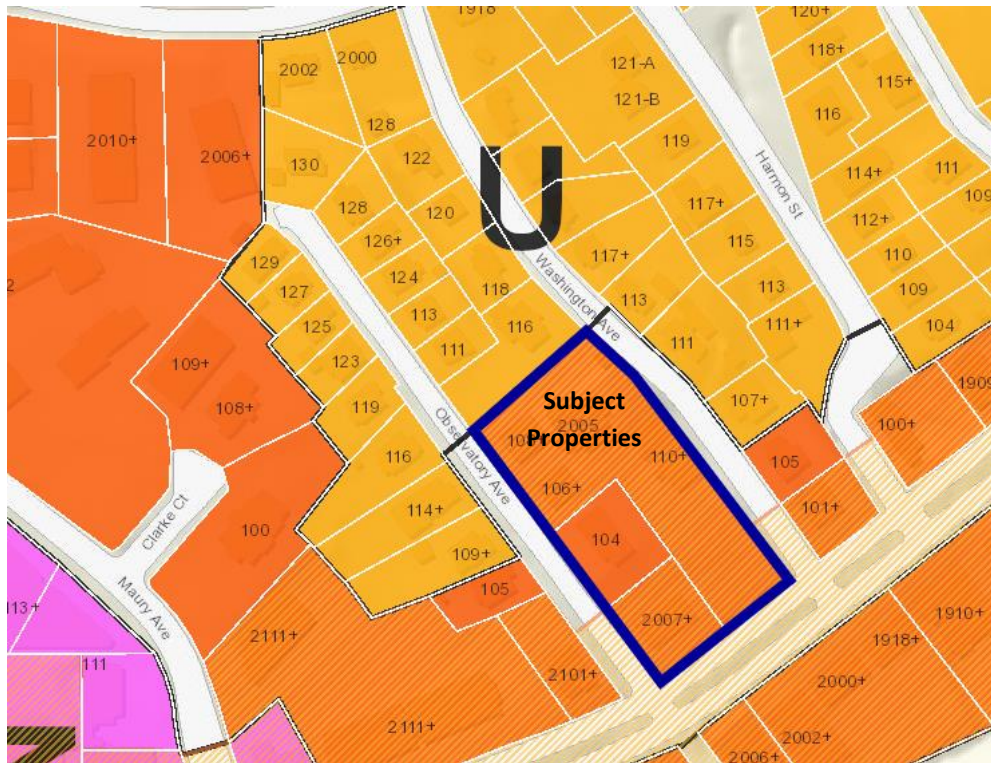
**Vicinity Map**



**Context Map 1**



**Context Map 2- Zoning Classifications**



**KEY - Light Orange: R-2U, Orange: R-3, Orange (lower right) UHD, Purple: NCC, Hatch: Entrance Corridor**

**Context Map 3- Future Land Use Map, 2021 Comprehensive Plan**



**KEY – Brown: Higher-Intensity Residential, Purple: Urban Mixed Use Corridor, Yellow: General Residential**

**Standard of Review**

City Council may grant an applicant a special permit or special use permit, giving consideration to a number of factors set forth within Zoning Ordinance Sec. 34-157. If Council finds that a proposed use or development will have potentially adverse impacts, and if Council identifies development conditions that could satisfactorily mitigate such impacts, then Council may set forth reasonable conditions within its SUP approval. The role of the Planning Commission is to make an advisory recommendation to the City Council, as to (i) whether or not Council should approve a proposed SUP and if so, (ii) whether there are any reasonable development conditions that could mitigate potentially adverse impacts of the proposed use or development.

Section 34-157 of the City’s Zoning Ordinance lists a number of factors that Council will consider in making a decision on a proposed SUP. Following below is staff’s analysis of those factors, based on the information provided by the applicant.

For the applicant analysis of their application per Sec. 34-157, see attachment B.

**(1) Whether the proposed use or development will be harmonious with existing patterns of use and development within the neighborhood.**

The properties immediately surrounding the Subject properties are described as:

Direction	Use	Zoning
North	Single Family Detached	R-2U
South	Multi-Family Apartments (across JPA)	University High Density, EC
East	Single Family Detached and Multi-Family Apartments	R-2U, EC
West	Single Family Detached and Multi-Family Apartments	R-2U, EC

The Subject Properties footprint takes up almost an entire city block and is surrounded by a variety of dwelling types. Directly to the south, across the seventy-foot plus (70+) right of way (ROW) of JPA, are located two multi-family apartments buildings of different sizes. The larger is approximately four (4) stories in height and sits at the highest point of the intersection. Heading northeast along JPA the grade drops and the next structures (multi-family apartments) become only two (2) stories in height. To the north of the Subject Properties (the highest point abutting the proposed development) are moderate single family detached dwellings one (1) to two (2) stories in height. On the eastern side of the Subject Properties the grade rises from JPA heading north along Washington Avenue and the surrounding dwellings are single family detached with heights of one (1) to two (2) stories. This pattern is repeated to the west of the Subject Properties along Observatory

Avenue, with the exception of the intersection of JPA and Observatory Avenue where a four (4) story multi-family apartment is located.

The uses surrounding the Subject Properties consist of single family, two-family, small multi-family, and moderate multi-family residential as defined by Sec. 34-420. Although commercial and retail uses are within a ¼ mile of the Subject Properties, the overwhelming use type for this location, and surrounding neighborhood, is residential. Within the residential use, the majority of units are rentals, but owner occupied units still exist primarily to the north of the Subject Properties. It should also be noted that although a majority of the dwelling “type” is single family detached, this is only referencing the structure and not the use. Due to the proximity to UVA many of the single family detached units are functioning as small apartments or two-family dwellings. This is a product of bedroom count and allowable unrelated inhabitants per Sec. 34-420.

*Staff Analysis:* The by-right density for the Subject Properties could create a residential development with a maximum of thirty-five (35) units. The proposed SUP would increase that density and would have a maximum unit count of one hundred and nineteen (119). This would be an increase of eight four (84) units over that of a by-right development. Under R-3 regulations, each unit within a residential development can have up to four (4) unrelated persons living in the unit (Sec. 34-420). This would mean a by-right development could have as many as one hundred and forty (140) bedrooms. Although the application materials do not indicate a final bedroom count, page two (2) of attachment B indicates the required parking for the development would be two hundred (200) spaces. This indicates the total bedroom count would be under the maximum allowable of four hundred and seventy-six (476) bedrooms under Sec. 34-420. The most likely final outcome will be a mix of one-, two-, three-, and four-bedroom units. The applicant’s Traffic Impact Analysis (attachment E) indicates the bedroom count will be around three hundred and ninety (390). This number will need to be finalized during the final site plan review.

The majority of residential developments surrounding the Subject Properties have a unit count from one (1) to ten (10) with more density (over twenty units per dwelling) to the south of JPA (information provided by the City Assessor’s Office). Developing the Subject Properties to a unit count of one hundred and nineteen (119) would create one of the largest multi-family residential developments in the area. Although it is true that comparable developments are located in this area (as it relates to density and height), these developments are located farther north on JPA. For comparison, below are the dwelling unit counts for the larger multi-family residential developments in the immediate area:

- 1725 JPA = nineteen (19) units and six (6) stories (DUA of 49)

- 1815 JPA = thirty (30) units and four (4) stories (DUA of 47)
- 2111 JPA = thirty-four (34) units and (3) stories (DUA of 55)

These counts only indicate units and not bedrooms. For a maximum bedroom count the unit count can be multiplied by four (4).

Based on the surrounding uses, staff believes the “use” of multi-family residential on the Subject Properties is harmonious with the existing patterns of development. By contrast, staff believes the scale and density of the development is not harmonious with the existing patterns within the neighborhood.

**(2) Whether the proposed use or development and associated public facilities will substantially conform to the city's comprehensive plan.**

*Below are specific areas of the Comprehensive Plan for which the request could be in compliance:*

**a. Land Use, Urban Form, and Historic & Cultural Preservation**

**Goal 2: Future Land Use Vision.**

*Guide implementation of the Future Land Use vision contained in this Comprehensive Plan, including support for existing neighborhoods and preventing displacement.*

**Goal 7: Entrance Corridors.**

*Ensure that the quality of development in Charlottesville’s designated Entrance Corridor Overlay Districts is compatible with the City’s requirements and standards, and with the adjacent neighborhood’s historic, architectural, and cultural resources, while allowing for reuse of structures and evolution of uses in these areas.*

**b. Housing**

**Goal 2: Diverse Housing Throughout the City.**

*Support a wide range of rental and homeownership housing choices that are integrated and balanced across the city, and that meet multiple City goals including community sustainability, walkability, bikeability, ADA accessibility, public transit use, increased support for families with children and low-income households, access to food, access to local jobs, thriving local businesses, and decreased vehicle use.*

**c. Transportation**

**Goal 1: Complete Streets**

*Create and maintain a connected network of safe, convenient, and pleasant accommodations for pedestrians, bicyclists, and transit riders, including people of all ages and abilities.*

**Goal 2: Coordination with Land Use & Community Design**

*Improve quality of life and promote active living by reducing automobile use and congestion and supporting multimodal options for safe and convenient travel in conjunction with implementation of the Future Land Use Vision.*

**Goal 4: Parking Supply and Management**

*Provide a balanced approach to parking that supports economic vitality, achieves urban form goals, minimizes environmental impacts, and accommodates pedestrians, bicycles, transit users, and disabled individuals.*

**d. Environment, Climate, and Food Equity**

**Goal 6: Tree Canopy**

*Contribute to the creation, protection, and expansion of robust urban forests.*

*Below are specific areas of the Comprehensive Plan for which the request may not be in compliance:*

**a. Land Use, Urban Form, and Historic & Cultural Preservation**

**Goal 3: Balance Conservation and Preservation with Change.**

*Protect and enhance the existing distinct identities of the city's neighborhoods and places while promoting and prioritizing infill development, housing options, a mix of uses, and sustainable reuse in our community*

**Goal 7: Entrance Corridors.**

*Ensure that the quality of development in Charlottesville's designated Entrance Corridor Overlay Districts is compatible with the City's requirements and standards, and with the adjacent neighborhood's historic, architectural, and cultural resources, while allowing for reuse of structures and evolution of uses in these areas.*

**b. Environment, Climate, and Food Equity**

**Goal 6: Tree Canopy**

*Contribute to the creation, protection, and expansion of robust urban forests.*

**Comprehensive Plan- Staff Analysis:**

The Subject Properties are zoned R-3 with Entrance Corridor overlay. R-3 consists of mainly medium density residential units with small to medium apartment buildings being the most common use. In this section of the City most development on R-3 lots are by-right and have a density of twenty-one (21) DUA. Some of the larger developments in the area, ones with DUA over 21, were granted SUPs, constructed prior to the current code, or are located within the UHD zoning district. The 2021 Comprehensive Future Land Use Map indicates the



Subject Properties remain Urban Mixed Use Corridor. The land use section of the comprehensive plan states the following for Urban Mixed Use Corridor:

**Description:** Higher intensity mixed use development arranged along corridors between employment, commercial, and civic hubs of the City.

**Form:** Respond to existing residential, environmental, historic context. building heights according to context.

**Height:** 5 stories, up to 8 at key intersections, such as intersections of Streets That Work Downtown, Industrial, Mixed Use, or Neighborhood corridors.

**Use and Affordability:** Commercial, employment, residential. Include an inclusionary zoning mechanism to support housing affordability.

As presented, the development will be required to provide nine (9) affordable dwelling units on or off site; or pay \$435,245.76 into the City's Affordable Housing fund per Sec. 34-12 (attachment C).

Staff finds the proposed development would conform to the Future Land Use Map as it relates to *Description* and *Use* but would not conform to *Form* and *Height*. The application, as proposed, would have seven (7) stories at the JPA and Washington/Observatory Avenue intersections. It is stated that buildings up to eight (8) stories are appropriate at "key intersections" in this district. Key intersections are not called out in any City planning documents, but it is staff's professional opinion that Washington Avenue and Observatory Avenue would not be categorized as "key intersections" due to existing conditions and level of use. Key intersections for this area would most likely be JPA at Maury Avenue and JPA at Shamrock Road. Staff finds that design elements being incorporated into the building, such as stepping back the bulk after two (2) stories on the western frontage and additional articulation could make the building feel smaller than seven (7) stories. Staff is concerned with the eastern frontage of the building as it is the tallest portion of the structure due to grade. A five (5) story building would be more appropriate in this location, but design standards from Entrance Corridor review may be enough to mitigate the impact of a larger building at this location. In addition, staff cannot make a full determination on Affordability or Density as those aspects of the land use map are tied to a future zoning code.

#### Streets that Work Plan

The 2016 Streets that Work Plan labels Jefferson Park Avenue (JPA) as *Mixed Use B* typology. *Mixed Use B* streets are characterized as able to support high levels of walking, bicycling, and transit as they connect important destinations within the City and surrounding county. The Streets that Work Plan recommends a minimum clear zone width of seven (7) feet for sidewalks, which are noted along with a curbside buffer zone (the area

between the curb and sidewalk) as the highest priority items in the *Mixed Use B* typology. The next level (high) priority items for Mixed Use B typology are five (5) to seven (7) foot bike lanes, turn boxes, ten (10) foot shared use paths, and bicycle parking in curbside buffer zoned or on-street.

The existing conditions for JPA include a 4.5 foot wide sidewalks with no buffer, on street parking, a marked bike lane, and crosswalk markings over Washington Avenue. As part of the development, per attachment B, the applicant will provide a larger sidewalk (no dimensions given) and additional pedestrian access next to the building.

The Streets that Work Plans labels Washington Avenue and Observatory Avenue as “Local”. Local streets are found throughout the city and provide immediate access to all types of land uses. Although local streets form the majority of the street network, there is no specific typology associated with them. This is due in part to the many variations in context and right-of-way width, as well as the community’s expressed desire to replicate as nearly as possible the feel of older local streets that do not meet current engineering and fire code standards.

The existing conditions for Washington Avenue are similar to many of the Local streets in the City. No sidewalk exists on the Subject Properties side and only a partial four (4) foot wide sidewalk is constructed on the opposite (eastern) side. This sidewalk starts at the intersection of JPA and runs north for about one-hundred and fifty (150) feet before ending. The conditions are the same for Observatory Avenue, but with a newer four (4.5) foot wide sidewalk on the side opposite (western) to the Subject Properties. This sidewalk also starts at the intersection of JPA and runs north for about one-hundred and fifty (150) feet. On the Subject Properties side a four (4.5) foot wide sidewalk (with no buffer) starts about two-hundred (200) feet from the intersection with JPA and continues north to the end of the Subject Properties. In relation to connectivity, Washington Avenue connects JPA to Stadium Road. Observatory Avenue terminates into a dead-end about three-hundred (300) feet north of the Subject Properties. As part of the proposed development a sidewalk (no dimensions provided) without a planting buffer will be constructed along Washington Avenue and JPA. Along Observatory Avenue a sidewalk (no dimensions provided) with a buffer is being proposed. The development also proposes on street parking for both Washington Avenue and Observatory Avenue. This would be permitted parking but not available to residents and guest of the development (see 4(a) below).

*Staff Analysis:* Based on the application package, staff concludes that the pedestrian network along Washington and Observatory as shown on attachment B, would be

consistent with the City's Streets that Work Plan and would be an upgrade to the existing conditions. It should be noted that any by-right development on the Subject Properties would not require the construction of sidewalks per Sec. 34-1124 as the Subject Properties are not vacant. For JPA staff believes the pedestrian network is not consistent with the City's Streets That Work Plan. Staff would like to see a seven (7) foot sidewalk with a three (3) foot landscape buffer proposed for JPA. This would address the highest priorities of Mixed Use B Streets for this area.

#### Bike Ped Master Plan

The City's 2015 Bike Ped Master Plan indicates JPA to have "Bike Lanes or Buffered Bike Lanes". Bicycle lanes are one-way, on-road bike facilities that provide a dedicated space for people bicycling parallel to motor vehicle traffic. Bicycle lanes are often delineated with pavement marking stripes and, in some cases, may be fully colored for higher visibility, especially at intersections. Additional striping or hatching between a bicycle lane and vehicular travel lane is recommended to provide a buffer between the person bicycling and the person driving, where roadway widths allow. Bicycle lanes without a buffer require a minimum width of 5-6 feet and bicycle lanes with a buffer require 7-8 feet. JPA currently has bike lanes and nothing in the proposed plan alters this existing feature. No improvements are recommended for Washington and Observatory Avenues within the Bike Ped Master Plan.

### **(3) Whether proposed use or development of any buildings or structures will comply with all applicable building code regulations.**

Based on the information contained within the application the proposed development would likely comply with applicable building code regulations, but final determination cannot be made until final site plan review.

### **(4) Potential adverse impacts, including, but not necessarily limited to:**

#### **a) Traffic or parking congestion**

##### Traffic

The City Traffic Engineer has reviewed the Traffic Impact Analysis (Attachment E) provided by the applicant. The following information is a synopsis of the information provided in the Traffic Impact Analysis. Please see Attachment E for more information.

Trip generation information (VPD): The trip generation figures provided by the applicant indicate that a development of off campus student housing apartments will have 1,070 vehicular trips per day.

Peak-hour traffic: As shown in the trip generation, the morning peak hour would have 38 trips. The afternoon peak hour would have 53 trips. A mid-day peak would also occur with 84 trips. As this development is targeted toward campus housing, the newest edition of the ITE manual accounts for this different use rather than a normal apartment building as it generally has a different time of day trip generation.

Traffic Counts, adjacent streets—The applicant conducted a traffic count study on August 31st, 2021 (background data included in Attachment E). The study found that the existing traffic volumes are as follows:

- Jefferson Park Avenue: Approximately 12,000 vehicles per day (ADT)
- Stadium Road: Approximately 3,800 vehicles per day (ADT)
- Observatory Avenue: Approximately 200 vehicles per day (ADT)
- Washington Avenue: Approximately 200 vehicles per day (ADT)

At the direction of staff, the applicant did evaluate the intersections most effected by the development to see if the increased traffic would satisfy requirements for additional traffic signals. It was found that signalized intersections would not be warranted.

*Staff Analysis:* The City Traffic Engineer has reviewed the provided Traffic Impact Analysis, and found the information provided to be sufficient and appropriate. The proposed development and increased residential density, while increasing traffic on the roadway, will not create an adverse effect on traffic on surrounding City streets. Much of this is due to the redistribution of trips in the “off campus student housing” and the location of the project to UVA and proximity to both CAT and UTS transit options.

#### Vehicular Access

The proposed project will only have one vehicular access point off of Washington Avenue to an underground parking facility.

*Staff Analysis:* While in many conditions multiple access points are desirable, for this particular location the traffic engineer has agreed that a singular access point is not only acceptable, but desirable. The building will be close enough to Observatory for fire apparatus to service the building if needed. As Observatory and Washington Avenue are less than 250 feet apart, having a singular access point for the traveling public to have to anticipate vehicles turning in and out is beneficial. Observatory is also a sub-standard roadway and would have difficulty accommodating additional traffic while still maintaining the on-street parking that is currently present.

### Parking

As part of the applicants request to increase density, the applicant is also requesting to reduce the onsite parking by twenty-two percent (22%) of the requirements under Sec. 34-984. Under Sec. 34-984 efficiency, one-bedroom and two-bedroom units need to provide a minimum of one (1) space per unit. Three- and four-bedroom units need to provide two (2) spaces per units. The application materials do not call out a final unit count for each type, but it is indicated studio, one-, two-, three- and four-bedroom units are being considered. If built out to a max of one-hundred and nineteen (119) four-bedroom units, two-hundred and thirty-eight (238) onsite parking spots would be required. With a twenty-two percent (22%) reduction the minimum parking required, in this configuration, would be one-hundred and eighty-six (186). The application materials indicate the final space count will be one-hundred and twenty-five (125). This indicates some of the units will fall under the requirement of only needing one (1) space per unit and not two (2). Under the current plan all parking will be provided under the proposed development with one access point on Washington Avenue. Due to current regulations, the proposed development would not be eligible to obtain on street parking permits in this zone (Zone 1). This means residents and guest of the proposed development would not be allowed to park on Washington, Observatory or JPA.

### Other Modes of Transportation

There are several mass transit stops located within a quarter (1/4) mile, including stops on JPA, Shamrock, Fontaine and Stadium that are serviced by both the UTS and the CAT's free trolley. JPA has bike lanes in both directions that connect all the way to UVA and to West Main Street. The proposed development is also served by a complete (but mostly un-buffered) sidewalk network immediately adjacent to the Subject Properties along JPA but has limited sidewalk along Washington Avenue (see the above Streets that Work and Bike Ped Master Plan sections). The Subject Properties could be served by a system of scooter and bicycle programs due to the proximity to UVA.

*Staff Analysis:* Staff believes a condition should be placed on the applicant to upgrade the existing pedestrian crossing at Harmon Street for residents to have a more manageable way to access all transit options that are being so heavily leveraged in the proposed development. Additional sidewalk along Washington Avenue to connect to Stadium Road, while ideal, is not practical with this project.

*Staff Analysis:* Based on the information provided in the application it appears an increase in density from twenty-one (21) DUA to seventy (70) DUA would not have an adverse impact related to traffic and transportation. The proposed development could have an adverse impact on the surrounding neighborhood as it relates to parking should adequate measures not be implemented. Staff recommends conditioning the applicant work with the City Traffic Engineer to develop a detailed parking plan that is kept on file with the City.

*Staff Analysis:* Staff finds the existing pedestrian circulation plan is not adequate and the sidewalk on JPA should be updated to meet the standards described in the Streets that work Plan. Staff recommends a condition that the applicant provide seven (7) foot sidewalks with a planting buffer on JPA.

**b) Noise, lights, dust, odor, fumes, vibration, and other factors which adversely affect the natural environment**

The proposed development will not result in any additional dust, odor, fumes, vibration, or other factors that could also be present with any by-right development. It should be noted that due to the height and density, noise and lighting could be more intense than would be present in a by-right development. Any site plan submitted would need to conform to Division 3 *Lighting* of the Zoning Ordinance.

**c) Displacement of existing residents or businesses**

There are currently six (6) buildings on the Subject Properties totaling seventeen (17) dwelling units. These units would be removed to accommodate the proposed development. The application materials indicate construction would not begin until existing leases expire. With the replacement of the existing units the net gain for the Subject Properties will be one hundred-two (102) units.

**d) Discouragement of economic development activities that may provide desirable employment or enlarge the tax base**

No discouragement of economic development activities will be associated with the proposed development. The existing rental unit count will be multiplied by seven (7) upon completion. Prior to completion of the project, the Subject Properties would be vacant and not contributing at current levels.

**e) Undue density of population or intensity of use in relation to the community facilities existing or available**

The City’s Comprehensive Plan identifies community facilities as fire protection, police enforcement, and emergency response services; public utilities and infrastructure; and public parks and recreation opportunities. Although final determination for capacity and code compliance will take place at Final Site Plan review, each of these departments have reviewed the SUP applicant and determined the development, as proposed, would not have an adverse impact on community facilities.

**f) Reduction in the availability of affordable housing in the neighborhood**

This application includes the Affordable Dwelling Unit (ADU) Ordinance Worksheet, which currently identifies a minimum of nine (9) ADUs required pursuant to the gross floor area proposed in excess of 1.0 FAR (per Sec. 34-12. - Affordable dwelling units.). Cash-in-Lieu Payment information is also included on the worksheet. At this time, the applicant has not identified whether ADUs or cash-in-lieu will be proposed.

The Office of Community Solutions offers the following comments as to this application:

- preference that on-site affordable dwelling units be provided with this project vs. cash-in-lieu payment
- "affordable dwelling units" means dwelling units that are affordable to households with incomes at not more than 80% of the area median income and that are committed to remain affordable for a term of not more than thirty (30) years
- A marketing plan on how to market the designated affordable units shall be provided to the City’s Office of Community Solutions
- When completed and occupied, owner shall provide an annual report on affordability compliance to the City on a template provided by the City’s Office of Community Solutions

The table below shows the 2022 HUD guidelines for Fair Market Rent. If this application is approved, the FMR will be based on the HUD guidelines for the year that the Certificate of Occupancy for the unit is issued.

	Eff	1 BR	2 BR	3 BR	4 BR
2022 HUD FMR	1,024	1,063	1,264	1,562	1,959
Monthly cost includes tenant-paid utilities					

**g) Impact on school population and facilities**

Because housing is open to all, there is a possibility that families with children could take residence here. Therefore, some impact could be created on school population and facilities.

**h) Destruction of or encroachment upon conservation or historic districts**

The subject property is not within any of these design control districts.

**i) Conformity with federal, state and local laws, as demonstrated and certified by the applicant**

Based on the information contained within the application, the proposed development would likely comply with applicable federal and state laws. As to local ordinances (zoning, water protection, etc.), it generally appears that this project, as detailed in the application, can be accommodated on this site in compliance with applicable local ordinances; however, final determinations cannot be made prior to having the details required for final site plan and building permit approvals. Specific Z.O. requirements reviewed preliminarily at this stage include massing and scale (building height, setbacks, stepbacks, etc.) and general planned uses.

**j) Massing and scale of project**

The building being proposed has a footprint of approximately fifty-one thousand two hundred (51,200) square feet and will take up the entire block between Washington Avenue and Observatory Avenue. The height of the building will be seventy-five (75) feet as measured per Sec. 34-1100 and Sec. 34-1200 but could appear taller from JPA and shorter from the back of the Subject Properties. The application materials indicate the building will be five (5) stories of apartment over two (2) stories of underground parking. This makes the building seven (7) stories as viewed from JPA and five (5) stories as viewed from the back of the Subject Properties. In the application renderings, the apartments are configured in a "U" shape above the underground parking. This configuration makes the overall development appear as two (2) buildings and breaks up the massing as viewed from JPA. The front setback will be just over twenty-six (26) feet with side setbacks of twenty (20) feet. The rear setback will be thirty-six (36) feet.

The maximum height allowed in this zoning district is one-hundred and one (101) feet with a Special Use Permit and a DUA of forty-four (44) or above per Sec. 34-353(b)(3). Buildings in the R-3 zoning district are measured by feet and not stories. This conflicts with the 2021 Future Land Use Map as "Height" is measured in stories for this land use designation. Should the Subject Properties be developed by-right, the max height allowed would be forty-five (45) feet. Another characteristic of the R-3 zoning districts is



side yard setbacks are calculated based on the height and density of the building. But this is only applicable for side setbacks “not” adjacent to ROW or considered “corner lots”. For corner lot setbacks, the required distance is a set twenty (20) feet and is not altered by the height and/or density of the building per Sec. 34-343(a). The development as presented would meet side and front setback requirements. Sec. 34-343(b)(4) requires a seventy-five (75) foot setback from any multifamily development with a DUA of forty-four (44) and above when adjacent to a low density zoned district. The proposed development is adjacent to a R-2U lot which is considered low density. As part of the SUP the applicant is requesting to modify this requirement to make the rear yard setback thirty-six (36) feet.

*Staff Analysis:* This section reflects staff’s analysis as it relates to Massing and Scale for the SUP. For more detailed information on design and how the proposed development could impact the Entrance Corridor, see the ERB Staff Report. Also, it should be noted that the final design of the proposed development is subject to review by the Entrance Corridor Review Board and to date that application has not been submitted.

According to the City’s Future Land Use Map the JPA corridor is anticipated to go through a significant change in the coming years based off the stated goals of the plan. These goals include more “intense” mixed use developments within five (5) and eight (8) story buildings. Although this is the vision for the corridor, the neighborhood directly impacted by the proposed development is still mainly a mix of one (1) and two (2) story residential dwellings. Staff is concerned with the impact such a large building could have on these properties. Staff believes some of the massing has been broken up by arranging the apartment units in a “U”. This makes the building look like two (2) smaller buildings sitting on a pedestal from a pedestrian perspective on JPA. Staff would like to see the seven (7) story section of the building that is located at the corner of JPA and Washington Avenue pushed back or articulated more in order to scale back the massing at that intersection. In general, staff does believe the massing and scale of the development as it relates to JPA will activate the street and create an inviting pedestrian experience.

Staff’s biggest concern with the massing and scale relates to the portion of the building that abuts the low density residential zoned district. The application materials (attachment B) indicate the five (5) story section of the building will only be twenty (20) feet taller than the existing structure on that property to the north. There is currently one (1) two-story building and one (1) three-story building within approximately thirty-

six (36) feet of the property line. This is the same setback the application is requesting for the new development. See insert below:



In addition, below is a view of the existing two-story building (far left) as seen in relation to the existing low density residential unit (far right) from Washington Avenue.

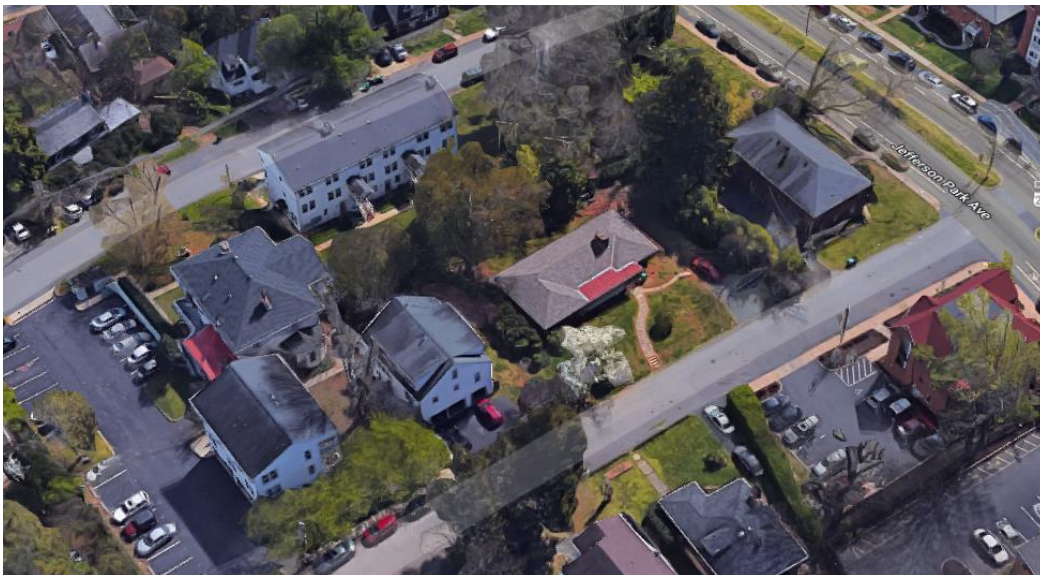


As is evident, the existing two-story unit is already taller than the low density structure. Staff is concerned three (3) additional stories on the Subject Properties will create an inappropriate transition. Although the twenty-five (25) foot S-3 planting buffer will offer some protection, staff would like to see the building step-back after two-stories or see the grade lowered on the back end of the Subject Properties to ensure a better transition to the low density district. An alternative to this would be to condition the rear of the proposed development shall be no more than twenty (20) feet taller than the existing structure located at 116 Washington Avenue (TMP 170105000) as indicated in the application materials (attachment A page 26).

Staff is less concerned with the massing along Washington Avenue as an existing four and one half (4 ½) story building already sits in close proximity to the street. Although the proposed building replacing this structure will be larger, the improved streetscape, setback, and articulation will mitigate the impact.



Although the existing buildings along Observatory Avenue (on the Subject Properties) are not as tall as the one on Washington Avenue, staff believes the improved streetscape, setback, and articulation will mitigate the impact of the proposed five (5) to seven (7) story building.



**(5) Whether the proposed use or development will be in harmony with the purposes of the specific zoning district in which it will be placed;**

The Subject Properties are currently zoned R-3 with Entrance Corridor (EC) overlay.

The purpose of the multifamily residential zoning district is to provide areas for medium- to high-density residential development. The basic permitted use is medium-density residential development; however, higher density residential development may be permitted where harmonious with surrounding areas. Certain additional uses may be permitted, in cases where the character of the district will not be altered by levels of traffic, parking, lighting, noise, or other impacts associated with such uses.

R-3 consists of medium-density residential areas in which medium-density residential developments, including multifamily uses, are encouraged.

The entrance corridor overlay district (EC) is intended to implement the comprehensive plan goal of protecting the city's historic, architectural and cultural resources, by ensuring a quality of development compatible with those resources through design control measures. The purposes of this article are to stabilize and improve property values; to protect and enhance the city's attractiveness to tourists and other visitors; to sustain and enhance the economic benefits accruing to the city from tourism; to support and stimulate development complimentary to the prominence afforded properties and districts having historic, architectural or cultural significance; all of the foregoing being deemed to advance and promote the health, safety and welfare of the general public.

*Staff Analysis:* Staff finds that although the Zoning Ordinance does not define "medium-density, Sec. 34-420 indicates any density up to eighty-seven (87) DUA is appropriate in the R-3 districts. Nothing within the SUP application would conflict with the district regulations. Additional information on the EC is provided under the ERB Staff Report.

**(6) Whether the proposed use or development will meet applicable general and specific standards set forth within the zoning ordinance, subdivision regulations, or other city ordinances or regulations; and**

Based on the information contained within the application, the proposed development would likely comply with applicable local ordinances. However, final determinations cannot be made prior to having the details required for final site plan and building permit approvals.

**(7) When the property that is the subject of the application for a special use permit is within a design control district, city council shall refer the application to the BAR or ERB, as may**

**be applicable, for recommendations as to whether the proposed use will have an adverse impact on the district, and for recommendations as to reasonable conditions which, if imposed, that would mitigate any such impacts. The BAR or ERB, as applicable, shall return a written report of its recommendations to the city council.**

The Subject Property is located within an Entrance Corridor Overlay, where the final design of the proposed development is subject to review by the Entrance Corridor Review Board (ERB).

### **Public Comments Received**

*Community Meetings Required by Sec. 34-41(c)(2)*

The applicant held a community meeting on December 7, 2021 and was well attended by twelve (12) members of the public. A recording of the meeting can be found at the below link.

<https://transcripts.gotomeeting.com/#/s/9e98af90f4404d2dd2a2a7d7cca2cfaff77ec76ae4c36d12fdfbfebefe6788c32>

Staff has received a number of emails and phone calls (attachment D) expressing concerns with the development. Below is an outline of these concerns:

- Lack of on street parking: Observatory and Washington already deal with a lack of on street parking that impact everything from trash pick up to blocking driveways.
- Parking will be inadequate for the development and impact the surrounding neighborhood.
- The scale of the building will be much larger than any of the surrounding buildings.
- The project will place too much density in one location.
- The development will remove existing trees that are part of the urban forest.
- Students living in the development will still have cars and not walk and take the bus everywhere.
- Visitor parking is not accounted for.
- The new development will create too much impervious surface and not be environmentally friendly.
- The setback should not be reduced.

Any comments received after the completion of this staff report will be directly sent to Planning Commission and City Council.

### **Staff Recommendation**

Staff finds the applications meets general standards three (3), five (5), and six (6) and with reasonable conditions the application would meet standards two (2), four (4), and seven (7). The application does not meet standard one (1).

### **Recommended Conditions**

Should Planning Commission recommend approval to City Council, Staff recommends that following conditions be included:

1. Up to seventy (70) dwelling units per acre (DUA) are permitted on the Subject Properties.
2. Modification of rear yard setback to thirty-six (36) feet with a twenty-five (25) foot S-3 buffer.
3. A new seven (7) foot sidewalk with three (3) foot curbside buffer shall be constructed along Jefferson Park Avenue in accordance with the City's Streets That Work Plan.
4. The applicant will work with the City's Traffic Engineer to develop a Master Parking Plan for the site. This plan will be kept on file with the City and may be updated or altered from time to time with authorization of the City's Traffic Engineer. The plan shall indicate how the developer will distribute available parking spots on site, how potential residents are informed of their parking opportunities, and any possible offsite parking arrangements for residents, etc....
5. The pedestrian crossing of JPA at Harmon Street will be upgraded to provide safer access to transit options. The applicant will work with the City's Traffic Engineer to determine appropriate improvements.
6. The rear elevation of the development shall be no more than twenty (20) feet taller than the existing structure located at 116 Washington Avenue (TMP 170105000) as indicated in the application materials labeled "*205 Jefferson Park Avenue Special Use Permit Application January 11, 2022*" (page 26).

### **Suggested Motions**

1. I move to recommend approval of this application for a Special Use Permit in the R-3 zone at 170104000, 170103000, and 170103100, collectively 2005/2007 Jefferson Park Avenue and 104 Observatory Avenue to permit additional density with the following listed conditions.
  - a. The six (6) conditions recommended by staff
  - b. [alternative conditions, or additional condition(s)....list here]

Or

2. I move to recommend denial of this application for a Special Use Permit in the R-3 zone at 170104000, 170103000, and 170103100 collectively 2005/2007 Jefferson Park Avenue and 104 Observatory Avenue to permit additional density.

### **Attachments**

- A. Special Use Permit Application

- B. Special Use Permit Narrative and supporting documents
- C. Affordable Dwelling Unit Ordinance Worksheet
- D. Public Comments
- E. Traffic Impact Analysis



# City of Charlottesville

## Application for Special Use Permit

**Project Name:** 2005 Jefferson Park Avenue

**Address of Property:** 2005 Jefferson Park Avenue, 2007 Jefferson Park Avenue, and 104 Observatory Avenue

**Tax Map and Parcel Number(s):** TMP 17-104, TMP 17-103, TMP 17-103.1

**Current Zoning District Classification:** R-3

**Comprehensive Plan Land Use Designation:** Urban Mixed Use Corridor

**Is this an amendment to an existing SUP?** No

**If "yes", provide the SUP #:** \_\_\_\_\_

**Applicant:** Aspen Topco II Acquistitions, LLC

**Address:** 8008 Corporate Center Drive, Suite #201, Charlotte, NC 28226

**Phone:** #704-255-4115

**Email:** dhelfrich@ahpliving.com

**Applicant's Role in the Development (check one):**

Owner  Owner's Agent  Designer  Contract Purchaser

**Owner of Record:** Norman Lamson, Trustee of the Gadiant Land Trust Agreement

c/o Gadiant Enterprises, Inc., sole beneficial owner

**Address:** Att: Anthony J. Gadiant, President

529 Rookwood Place, Charlottesville, VA 22903

**Phone:** 412-979-3779

**Email:** gadiantaj@gmail.com

(cell #)

**Reason for Special Use Permit:**

Additional height: 75 feet

Additional residential density: \_\_\_\_\_ units, or 70 units per acre

Authorize specific land use (identify) \_\_\_\_\_

Other purpose(s) (specify City Code section): Reduction in rear yard setback (Sec. 34-353) & a parking reduction (Sec. 34-984)

### (1) Applicant's and (2) Owner's Signatures

**(1) Signature** David Helfrich **Print** David Helfrich **Date** 03/09/22

**Applicant's (Circle One):**  LLC Member  LLC Manager  Corporate Officer (specify) \_\_\_\_\_

**Other (specify):** \_\_\_\_\_

**(2) Signature** Norman Lamson **Print** NORMAN LAMSON **Date** 3-11-2022

**Owner's (Circle One):**  LLC Member  LLC Manager  Corporate Officer (specify) \_\_\_\_\_

**Other (specify):** Trustee of a Land Trust

*Trust agreement dated 1/3/2005 and not individually OF THE GADIANT SPA LAND TRUST UNDER AGREEMENT DATED 1/3/2005 + not INDIVIDUALLY*





# City of Charlottesville

## Pre-Application Meeting Verification

Project Name: 2005 Jefferson Park Avenue

Pre-Application Meeting Date: 5/27/21 and 6/2/21

Applicant's Representative: John Matthews, Erin Hannegan

Planner: Matt Alfele

Other City Officials in Attendance:

Jeff Werner

The following items will be required supplemental information for this application and must be submitted with the completed application package:

1. Massing Diagram
2. Any documents or studies that may be required by the City's Traffic Engineer.
3. Please contact Brennen Duncan for more information.
4. \_\_\_\_\_
5. \_\_\_\_\_

Planner Signature: Matt Alfele



# City of Charlottesville

## Application Checklist

Project Name: 2005 Jefferson Park Avenue

I certify that the following documentation is ATTACHED to this application:

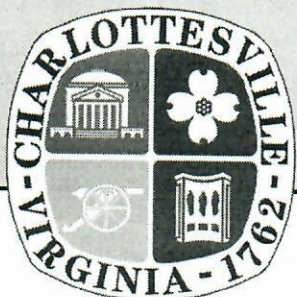
- 34-158(a)(1): a site plan (ref. City Code 34-802(generally); 34-1083(communications facilities)
- 34-158(a)(3): Low-impact development (LID) methods worksheet (required for developments that include non-residential uses, and developments proposing 3 or more SFDs or TFDs)
- 34-158(a)(4): a building massing diagram, and building elevations (required for applications proposing alteration of a building height or footprint, or construction of any new building(s))
- 34-158(a)(5) and 34-12: affordable housing data. (i) how many (if any) existing dwelling units on the property are an "affordable dwelling unit" by the city's definitions? (ii) Will existing affordable units, or equivalent affordable units, remain following the development? (iii) What is the GFA of the project? GFA of residential uses? GFA of non-residential uses?
- 34-157(a)(1) Graphic materials that illustrate the context of the project, and a narrative statement as to compatibility with existing patterns of use and development
- 34-157(a)(2) Narrative statement: applicant's analysis of conformity with the Comprehensive Plan
- 34-157(a)(3) Narrative statement: compliance with applicable USBC provisions
- 34-157(a)(4) Narrative statement identifying and discussing any potential adverse impacts, as well as any measures included within the development plan, to mitigate those impacts
- 34-158(a)(6): other pertinent information (narrative, illustrative, etc.)
- All items noted on the Pre-Application Meeting Verification.

**Applicant** Aspen Topco II Acquistitions, LLC

**Signature** *David Helfrich* **Print** David Helfrich **Date** 01/04/22

**By Its:** LLC Member

(For entities, specify: Officer, Member, Manager, Trustee, etc.)



# City of Charlottesville

## Community Meeting

Project Name: 2005 Jefferson Park Avenue

Section 34-41(c)(2) of the Code of the City of Charlottesville (adopted \_\_\_\_\_, 2015) requires applicants seeking rezonings and special use permits to hold a community meeting. The purpose of a community meeting is to provide citizens an opportunity to receive information about a proposed development, about applicable zoning procedures, about applicable provisions of the comprehensive plan, and to give citizens an opportunity to ask questions. **No application for a rezoning shall be placed on any agenda for a public hearing, until the required community meeting has been held and the director of neighborhood development services determines that the application is ready for final review through the formal public hearing process.**

By signing this document, the applicant acknowledges that it is responsible for the following, in connection to the community meeting required for this project:

1. Following consultation with the city, the applicant will establish a date, time and location for the community meeting. The applicant is responsible for reserving the location, and for all related costs.
2. The applicant will mail, by U.S. mail, first-class, postage pre-paid, a notice of the community meeting to a list of addresses provided by the City. The notice will be mailed at least 14 calendar days prior to the date of the community meeting. The applicant is responsible for the cost of the mailing. At least 7 calendar days prior to the meeting, the applicant will provide the city with an affidavit confirming that the mailing was timely completed.
3. The applicant will attend the community meeting and present the details of the proposed application. If the applicant is a business or other legal entity (as opposed to an individual) then the meeting shall be attended by a corporate officer, an LLC member or manager, or another individual who can speak for the entity that is the applicant. Additionally, the meeting shall be attended by any design professional or consultant who has prepared plans or drawings submitted with the application. The applicant shall be prepared to explain all of the details of the proposed development, and to answer questions from citizens.
4. Depending on the nature and complexity of the application, the City may designate a planner to attend the community meeting. Regardless of whether a planner attends, the City will provide the applicant with guidelines, procedures, materials and recommended topics for the applicant's use in conducting the community meeting.
5. On the date of the meeting, the applicant shall make records of attendance and shall also document that the meeting occurred through photographs, video, or other evidence satisfactory to the City. Records of attendance may include using the mailing list referred to in #1 as a sign-in sheet (requesting attendees to check off their name(s)) and may include a supplemental attendance sheet. The City will provide a format acceptable for use as the supplemental attendance sheet.

**Applicant:** Aspen Topco II Acquistitions, LLC

**By:**

Signature  Print David Helfrich Date 01/04/22

Its: LLC Member (Officer, Member, Trustee, etc.)



# City of Charlottesville

## Owner's Authorizations

(Not Required)

### Right of Entry- Property Owner Permission

I, the undersigned, hereby grant the City of Charlottesville, its employees and officials, the right to enter the property that is the subject of this application, for the purpose of gathering information for the review of this Special Use Permit application.

Owner: Norman Lamson, Trustee of the Gradient TPA Land Trust under Agreement dated 1/3/2005 Date: 3-15-2022

By (sign name): \_\_\_\_\_ Print Name: Norman Lamson Trustee of the Gradient TPA Land Trust under Agreement dated 1/3/2005

Owner's: LLC Member      LLC Manager      Corporate Officer (specify): \_\_\_\_\_  
Other (specific): Trustee of a Land Trust      DATED 1/3/2005

### Owner's Agent

I, the undersigned, hereby certify that I have authorized the following named individual or entity to serve as my lawful agent, for the purpose of making application for this special use permit, and for all related purposes, including, without limitation: to make decisions and representations that will be binding upon my property and upon me, my successors and assigns.

Name of Individual Agent: David Helfrich

Name of Corporate or other legal entity authorized to serve as agent: Aspen Topco II Acquisitions, LLC

Owner: Norman Lamson Trustee of the Gradient TPA Land Trust under Agreement dated 1/3/2005 Date: 3-15-2022

By (sign name): \_\_\_\_\_ Print Name: NORMAN LAMSON Trustee of the Gradient TPA Land Trust under Agreement dated 1/3/2005

Circle one:  
Owner's: LLC Member      LLC Manager      Corporate Officer (specify): \_\_\_\_\_  
Other (specific): Trustee of a Land Trust



# City of Charlottesville

## Disclosure of Equitable Ownership

Section 34-8 of the Code of the City of Charlottesville requires that an applicant for a special use permit make complete disclosure of the equitable ownership "real parties in interest") of the real estate to be affected. Following below I have provided the names and addresses of each of the real parties in interest, including, without limitation: each stockholder or a corporation; each of the individual officers and directors of a corporation; each of the individual members of an LLC (limited liability companies, professional limited liability companies): the trustees and beneficiaries of a trust, etc. Where multiple corporations, companies or trusts are involved, identify real parties in interest for each entity listed.

**Name** Anthony Gadiant **Address** 2005 Jefferson Park Ave, 104 Observatory Ave., & 2007 Jefferson Park Ave Charlottesville VA 22903

**Name** Heinz Gadiant **Address** 2005 Jefferson Park Ave, 104 Observatory Ave., & 2007 Jefferson Park Ave Charlottesville VA 22903

The sole beneficiary of the land trust is Gadiant Enterprises, Inc. a Virginia stock corporation. The sole stockholders, directors and officers of Gadiant Enterprises Inc., are Anthony J. Gadiant and Heinz Gadiant. Anthony's personal residence is 529 Rockwood Place, Charlottesville, VA 22903. Heinz's personal residence is 25 White Pine St., Scottsville, VA 24590

**Attach additional sheets as needed.**

**Note:** The requirement of listing names of stockholders does not apply to a corporation whose stock is traded on a national or local stock exchange and which corporation has more than five hundred (500) shareholders.

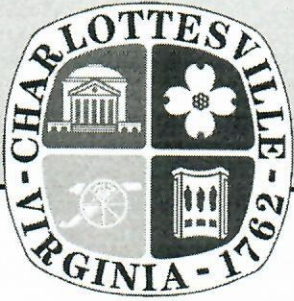
**Applicant:** Aspen Topco II Acquisitions, LLC

**Current Ownership:** Gadiant Land Trust  
**Beneficiary:** Gadiant Enterprises, Inc., A Virginia Corporation

**By:**

**Signature**  **Print** David Helfrich **Date** 03/15/22

**Its:** LLC Member (Officer, Member, Trustee, etc.)



# City of Charlottesville

## Fee Schedule

Project Name: 2005 Jefferson Park Avenue

Application Type	Quantity	Fee	Subtotal
Special Use Permit (Residential)		\$ 1,500	
Special Use Permit (Mixed Use/Non-Residential)		\$ 1,800	
Mailing Costs per letter		\$1 per letter	
Newspaper Notice		Payment Due Upon Invoice	
<b>TOTAL</b>			

### Office Use Only

Amount Received: \_\_\_\_\_ Date Paid \_\_\_\_\_ Received By: \_\_\_\_\_

Amount Received: \_\_\_\_\_ Date Paid \_\_\_\_\_ Received By: \_\_\_\_\_

Amount Received: \_\_\_\_\_ Date Paid \_\_\_\_\_ Received By: \_\_\_\_\_

Amount Received: \_\_\_\_\_ Date Paid \_\_\_\_\_ Received By: \_\_\_\_\_



# City of Charlottesville

## LID Checklist

Project Name: 2005 Jefferson Park Avenue

LID Measure	LID Checklist Points	Points
<b>Compensatory Plantings</b> (see City buffer mitigation manual). 90% of restorable stream buffers restored.	5 points or 1 point for each 18% of the total acreage	
<b>Pervious pavers</b> for parking and driveways with stone reservoir for storage of 0.5 inches of rainfall per impervious drainage area. Surface area must be >1,000 ft. <sup>2</sup> or ≥ 50% of the total parking and driveway surface area.	7 points or 1 point for each 7% of parking and driveway surface area.	
<b>Shared parking</b> (must have legally binding agreement) that eliminates >30% of on-site parking required.	5 points or 1 point for each 6% of parking surface eliminated.	
<b>Impervious Disconnection.</b> Follow design manual specifications to ensure adequate capture of roof runoff (e.g. cisterns, dry wells, rain gardens)	8 points	8
<b>Bioretention.</b> Percent of site treated must exceed 80%. Biofilter surface area must be ≥ 5% of impervious drainage area.	8 points or 1 point for each 10% of site treated.	5
<b>Rain gardens.</b> All lots, rain garden surface area for each lot ≥ 200 ft. <sup>2</sup> .	8 points or 1 point for each 10% of lots treated.	
<b>Designed/constructed swales.</b> Percent of site treated must exceed 80%, achieve non-erosive velocities, and able to convey peak discharge from 10 year storm.	8 points or 1 point for each 10% of site treated.	
<b>Manufactured sand filters, filter vaults</b> (must provide filtering rather than just hydrodynamic). Percent of site treated must exceed 80%. Sizing and volume for water quality treatment based on manufacturer's criteria.	8 points or 1 point for each 10% of site treated.	
<b>Green rooftop</b> to treat ≥ 50% of roof area	8 points	
<b>Other LID practices</b> as approved by NDS Engineer.	TBD, not to exceed 8 points	
<b>Off-site contribution</b> to project in City's water quality management plan. This measure to be considered when on site constraints (space, environmentally sensitive areas, hazards) limit application of LID measures. Requires pre-approval by NDS Director.	5 points	
<b>Total Points</b>		13

### Applicant's Signature

Signature *David Helfrich* Print David Helfrich Date 01/04/22

Section 34- 8 (b) Certification

OWNER: NORMAN LAMSON, TRUSTEE, of the Gadiant JPA Land Trust Under Trust Agreement dated January 3, 2005.

The Undersigned certifies that (i) no member of the Charlottesville Planning Commission, or their immediate family member, has any personal interest in the property or transaction that is the subject of the application; and (ii) no member of the city council, or their immediate family member, has any such interest. For the purposes of this certification, the term "personal interest" shall have the meaning set forth within the State and Local Government Conflicts of Interests Act, Code of Virginia, § 2.2-3101, and may refer to an interest accruing to a person individually, as a result of business or professional relationships.

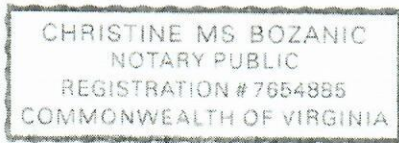
*Norman Lamson, trustee of the  
Gadiant JPA Land Trust Under Trust  
Agreement dated January 3, 2005*  
NORMAN LAMSON, TRUSTEE, of the Gadiant JPA  
Land Trust Under Trust Agreement dated January 3,  
2005

COMMONWEALTH OF VIRGINIA

CITY/COUNTY OF Charlottesville, to-wit:

Subscribed, sworn and acknowledged before me by on this 21 day of January, 2022  
by NORMAN LAMSON, TRUSTEE, of the Gadiant JPA Land Trust Under Trust Agreement dated  
January 3, 2005, as a trustee and not as an individual.

[SEAL]



*[Signature]*  
Notary Public

My commission expires: 31 December 2023

Notary registration number: 7654885



# 2005 JEFFERSON PARK AVENUE

CHARLOTTESVILLE, VA

**SPECIAL USE PERMIT APPLICATION**

MITCHELL MATTHEWS ARCHITECTS

*JANUARY 11, 2022*

REQUEST FOR INFORMAL REVIEW OF SPECIAL USE PERMIT REQUESTS (LISTED BELOW) AND ENTRANCE CORRIDOR CERTIFICATE OF APPROPRIATENESS

**INTRODUCTION:** 2005 JPA is a proposed multi-family residential development on Jefferson Park Avenue. The project consists of residential units over parking and is situated in close proximity (walking distance) to the University of Virginia’s central grounds. The project is within an entrance corridor.

**LOCATION:** 2005, 2007 Jefferson Park Avenue and 104 Observatory Avenue, an assemblage of 3 lots, with frontage on Jefferson Park Avenue between Observatory Avenue and Washington Avenue.

**ZONING:** The property is currently zoned R-3 in the City of Charlottesville.

**PROPOSED USE:** Multi-Family Residential

**SPECIAL USE PERMIT REQUEST:** A Special Use Permit (SUP) is being requested for:

**1) Additional Density:**

Allowable by right: Up to 21 DUA

Allowable by SUP: Up to 87 DUA.

PROPOSED: 70 DUA

**2) Additional Height:**

Allowable by right: 45’ max

Allowable by SUP: Up to 101’ (44-87 DUA)

PROPOSED: 75’, from average grade plane

**3) Rear yard setback reduction:**

Required: 75’ (for 44-87 DUA), with a 25’ S-3 buffer

PROPOSED: 36’, with a 25’ S-3 buffer

**4) Parking reduction:**

Required: Studios, One and Two Bedroom Apts: **1 space**  
Three or Four Bedroom Apts: **2 spaces**  
200 spaces

PROPOSED: 22% reduction in required spaces  
(125 spaces after allowable reductions)

**JUSTIFICATION FOR THE SPECIAL USE PERMIT FOLLOWS. REFER TO SECTION 1 (page 6) FOR INFORMATION ON THE SURROUNDING CONTEXT. REFER TO SECTION 2 (page 14) FOR ANALYSIS OF THE COMPREHENSIVE PLAN VISION FOR THIS AREA THROUGH THE LAST FEW DECADES. REFER TO SECTION 3 (page 24) FOR ILLUSTRATIVE INFORMATION EXPLAINING THE PROPOSED PROJECT.**

## Attachment B

### 1. Whether the proposed use or development will be harmonious with existing patterns of use and development within the neighborhood:

The proposed multi-family residential project is harmonious with the existing patterns of use in this neighborhood – residential, predominately student rentals. The neighborhood is coincident with Census Tract 6.0, which is characterized by 93% of the current dwellings being renter-occupied and 79% being non-family household types. The proposed project is also consistent with the goals of the current zoning ordinance, and recently approved projects on Jefferson Park Avenue. This project promotes a sustainable community – making efficient use of the land and placing carefully designed student housing in close proximity to UVA. We anticipate that the scale, material choices and detailing of this proposed residential building will strengthen the character of Jefferson Park Avenue and the whole JPA neighborhood.

### 2. Whether the proposed use or development and associated public facilities will substantially conform to the city’s comprehensive plan:

The redevelopment of 2005 JPA conforms to both the current and previous comprehensive plans in the following areas:

#### Chapter 4: Land Use:

This stretch of Jefferson Park Avenue is commonly considered a student housing corridor between UVA / UVA Hospital and the Fry’s Spring / Fontaine Ave Neighborhood Commercial area. It is predominately vehicular oriented and classified in the Streets that Work typology as Mixed Use B, the equivalent of West Main Street, Millmont Street, Cherry Avenue, and University Avenue. It is a multi-modal street that supports higher density development projects. The vitality of the street comes from its intensity of use for transportation – thus its designation as an Entrance Corridor. A wide range of residential densities and diverse architectural styles currently defines its character. JPA embodies the evolution of off-campus student housing around the University of Virginia. It is currently a corridor that is evolving, as expected. The ongoing comprehensive plan re-write currently envisions it as an urban mixed-use corridor, defined as higher-intensity mixed-use development linking employment, commercial and civic hubs. This project bridges between the current ordinance and the future vision of the corridor, by contributing to the establishment of a vibrant, engaged sense of place that can be replicated along Jefferson Park Avenue - one of a walkable, people-focused, urban project that aids the city in its supply of housing stock.

The project allows for an amenity space at street level for potential conversion to future commercial use – while still fitting the definition of an ancillary consumer service business, allowable within R-3 zoning. This will create a compatible condition that both meets current zoning, the 2013 comprehensive plan’s goal of a mix of uses within walking distance of residential that encourages small businesses, and the future vision outlined in the ongoing comprehensive plan work.

**Goal #7: Entrance Corridors** This proposed project will be a quality development along one of the city’s most frequented entrance corridors. Street trees and other landscape elements will enhance the streetscape and contribute to the urban design.

#### Chapter 5: Housing:

The proposed redevelopment of 2005 JPA will increase the neighborhood’s housing stock in a location that can both support increased density and that has been earmarked by the City for increased residential use. Specifically, it will increase purpose-built student housing, which will decrease the pressure on single-family residential neighborhoods that are increasingly being populated by student rentals, such as the adjacent Fry’s Spring Neighborhood, or the growth and expansion experienced on other sides of the University, into the Lewis Mountain and the 10th and Page neighborhoods. Displacement within established neighborhoods and affordability issues across the city are directly related to the historical lack of student housing supply.

Of utmost importance is an increase in city housing stock alongside the equitable impact of such development. Placing increased height and reasonable residential density in a predominately student rental neighborhood, along a transit oriented corridor, supports the city’s goals and vision.

Not only will this residential project add to the city’s existing housing stock, it will also trigger the affordable housing ordinance, supporting affordable housing throughout the city.

This residential building expands the diversity of housing choices in this area of the city, thereby balancing offerings with other areas such as along the West Main Street corridor, or Millmont Street. Increased density in close proximity to UVA, where increased

density is desirable, promotes a more sustainable city.

#### Chapter 6: Transportation:

The proposal will allow students to live in easy walking distance to both UVA and nearby commercial areas (the Corner and Fontaine)—as well as in close proximity to a bus stop - helping to minimize the use of private automobile transportation.

**Goal #1: Complete Streets** Observatory Avenue and Washington Ave will both benefit from increased pedestrian infrastructure as a result of this project. Jefferson Park Avenue is already a multi-modal through corridor with sufficient pedestrian, bicycle, and vehicular infrastructure to accommodate this project.

#### Goal #2: Coordination with Land Use & Community Design

The proposed development will increase pedestrian safety on all three adjacent streets by minimizing vehicular access points – an improvement over current conditions. All parking will be on site and hidden from view below grade, lessening the existing pressure for on street parking and assisting in the creation of a more pedestrian friendly environment. Ample on-site bicycle storage facilities will be provided.

### 3. Whether proposed use or development of any buildings or structures will comply with all applicable building code regulations:

The structures and site will be designed to comply with all applicable building code regulations.

**4. Whether the proposed use or development will have any potentially adverse impacts on the surrounding neighborhood, or the community in general; and if so, whether there are any reasonable conditions of approval that would satisfactorily mitigate such impacts. Potential adverse impacts to be considered include, but are not necessarily limited to, the following:**

- a. Traffic or parking congestion;** The project is located near the University of Virginia's central grounds; given this proximity, it is anticipated that residents would not commute daily by car, but would predominately walk. The project's parking enters from Washington Avenue, which is a through street between JPA and Stadium Road, as opposed to Observatory Avenue, which is a dead end. Similarly, the project is near the commercial area at the intersection of JPA Extended, Fontaine Ave, and Maury Ave, providing convenient walkable services and dining options nearby. The site is also located along the free trolley line, with an existing stop approximately a block away. JPA has significant bike infrastructure in place and the project will provide ample on-site bicycle storage facilities. The project is asking for a parking reduction to balance market demand with actual spaces provided. All of these conditions will limit the potential traffic and parking congestion.
- b. Noise, lights, dust, odor, fumes, vibration, and other factors, which adversely affect the natural environment;** No activities are anticipated that will adversely affect the natural environment. All exterior lighting will comply with the city's dark sky ordinance. The same functions currently on site will continue on site.
- c. Displacement of existing residents or businesses;** This project replaces 17 current residential units with 119 units – creating an overall gain of 102 units. Construction will not begin until all leases and occupancies for current tenants have terminated.
- d. Discouragement of economic development activities that may provide desirable employment or enlarge the tax base;** 2005 JPA will not discourage economic development, but rather will contribute to the vibrancy of a mixed use area along JPA, providing patrons to nearby commercial establishments. It will help spur the development and investment in this area by providing a residential population base in need of additional goods and services.

- e. Undue density of population or intensity of use in relation to the community facilities existing or available;** The proposed population and intensity of use are consistent with those anticipated under the current zoning designation and under all previous and current versions of the Comprehensive Plan. No adverse effects to the existing or available community facilities are expected. The project will likely have a positive effect of restoring detached single-family housing units within nearby neighborhoods like Fry's Spring, to their intended occupancy as single-family households. The request of 70 DUA is below the maximum available (87 DUA) under an SUP for this zoning district.
- f. Reduction in the availability of affordable housing in the neighborhood;** The proposed development will comply with the affordable housing ordinance via the cash contribution option. The site does not currently accommodate affordable housing – all units are market rate; therefore no committed affordable housing units will be lost.
- g. Impact on school population and facilities;** While the units are planned to be market rate rental units and available to the general public, given its proximity to UVA, it is anticipated that students, possibly young professionals and/or employees at the medical school and hospital will primarily occupy the units. It is expected that the project will have minimal to no impact on the school population and facilities.
- h. Destruction of or encroachment upon conservation or historic districts;** The proposed project is not within a conservation or historic district. No individually protected properties exist on this site. The project is within an entrance corridor overlay district and ERB review will be required.
- i. Conformity with federal, state and local laws, as demonstrated and certified by the applicant;** The proposed project will conform to all applicable federal, state, and local laws.
- j. Massing and scale of project.** From the street, the building massing originates with a two-story base along Jefferson Park Avenue, which disappears into grade along the two side streets due to the substantial (37') elevation drop across the site. Above this, the massing of the

building is a U-shape – with the open end facing JPA. This arrangement creates two narrow residential wings projecting towards the street, one extending farther than the other – reducing the massing and scale of the project along the JPA streetscape. At the more prominent corner of the site, at Washington Avenue, a vertical expression denotes both the primary, street-level pedestrian entrance, as well as the primary amenity spaces within. This vertical massing is carved away at the top floor to create an outdoor terrace.

The scale of the project is comparable to other projects along Jefferson Park Avenue, albeit with a more engaging streetscape and a more urban or contemporary form and aesthetic. The scale of the project changes relative to the elevation change across the site. The scale is consistent with the Urban Mixed Use Corridor zoning description – calling for 5 stories up to 8 along key neighborhood corridors designated in the Streets that Work plan (such as JPA). At the western façade, adjacent to R-2U zoning, the proposed project is 5 stories in height – consistent with the comprehensive plan height designation for the adjacent zoning designation – Higher-Intensity Residential.

Overall, the proposed massing and scale of the proposed project is consistent with the current ordinance and the recently approved comprehensive plan.

- 5. Whether the proposed use or development will be in harmony with the purposes of the specific zoning district in which it will be placed:** The proposed use will not change from its current use. The development is in harmony with the purposes of the zoning district, which calls for medium-density residential, including multi-family.
- 6. Whether the proposed use or development will meet applicable general and specific standards set forth within the zoning ordinance, subdivision regulations, or other city ordinances or regulations;** The proposed use is identical to the current use. This development is within the city's allowable uses, density (with SUP), and height (with SUP) provided for in this zoning district. The property is located within an entrance corridor overlay district and is subject to review by the Entrance Corridor Review Board. An application will be submitted to the ERB at a future date.

## Attachment B

- (1) A site plan when required by section 34-802 of the City Code; *provided as an attachment.*
- (2) A written disclosure of the information required by section 34-8 of the City Code and, if the applicant is not the owner of the property, written evidence of his status as (i) the authorized agent of the property owner, or (ii) a contract purchaser of the property whose application is with the permission of the property owner; *provided in the application.*
- (3) For developments including any non-residential uses, and developments proposing the construction of three (3) or more single- or two-family dwellings, the applicant shall provide a completed low-impact development (“LID”) methods worksheet; *provided in the application.*
- (4) For applications proposing the alteration of the footprint or height of an existing building, or the construction of one (1) or more new buildings: (i) a building massing diagram and (ii) elevations; *See accompanying graphic materials.*
- (5) Information and data identifying how many, if any, existing dwelling units on the development site meet the city’s definition of an “affordable dwelling unit” and whether any such existing units, or equivalent affordable units, will remain following the development; *Existing units on site do not meet the city’s definition of “affordable dwelling units”. Existing units will be replaced for a net gain of 102 units.*
- (6) Other supporting data sufficient to demonstrate compliance with the purposes and standards of this Zoning Ordinance, including, without limitation, graphic materials that illustrate the context of the project as well as information and data addressing the factors set forth within section 34-157 above. *See accompanying graphic materials.*

The project site is located on the southeastern side of the City, within blocks of the University's Central Grounds. It is situated in the middle of the JPA neighborhood, which is predominately renter occupied according to both recent census data and GIS records. The site is one block away from a commercial node, at the intersection of Maury Avenue and Jefferson Park Avenue. The project spans between two sides streets, Observatory Avenue - a dead end, and Washington Avenue, a through street between JPA and Stadium Road. The site has only one contiguous parcel or neighbor to the rear, which is renter occupied. Nearly all parcels across the bordering streets - JPA, Observatory Ave and Washington Ave, are renter occupied, less two - along Observatory Avenue.

The existing zoning of R-3, approved in 2009, stretches the length of JPA, on the northwest side, while University High Density was designated for the opposite side of the street and R-2U stretches behind to Stadium Road.

Existing conditions along JPA are varied. Newer projects range in scale from five to nine stories facing JPA. These projects have limited engagement with the street, presumably due to topographic challenges. Similarly, the 2005 JPA site drops 37' across the site.

# SECTION 1 EXISTING CONDITIONS

## SECTION 1:

- TABLE OF CONTENTS & SYNOPSIS
- VICINITY MAP
- NEIGHBORHOOD MAP
- LOCATION MAP
- RENTER OCCUPIED MAP
- ZONING SUMMARY
- CONTEXT PHOTOS
- SURVEY



Demographics

† Margin of error is at least 10 percent of the total value. Take care with this statistic.

Age

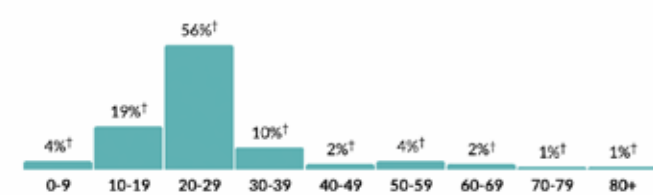
**21.5**

Median age

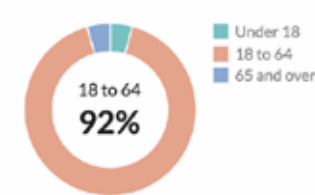
about two-thirds of the figure in Charlottesville: 31.6

about two-thirds of the figure in Charlottesville city: 31.6

Population by age range



Population by age category



Housing

Units & Occupancy

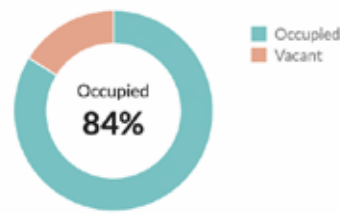
**1,385**

Number of housing units

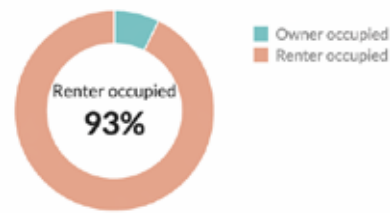
Charlottesville: 20,642

Charlottesville city: 20,642

Occupied vs. Vacant



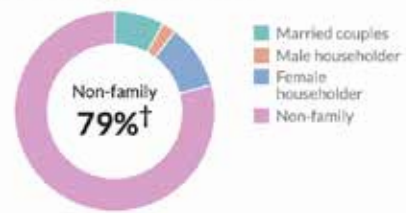
Ownership of occupied units



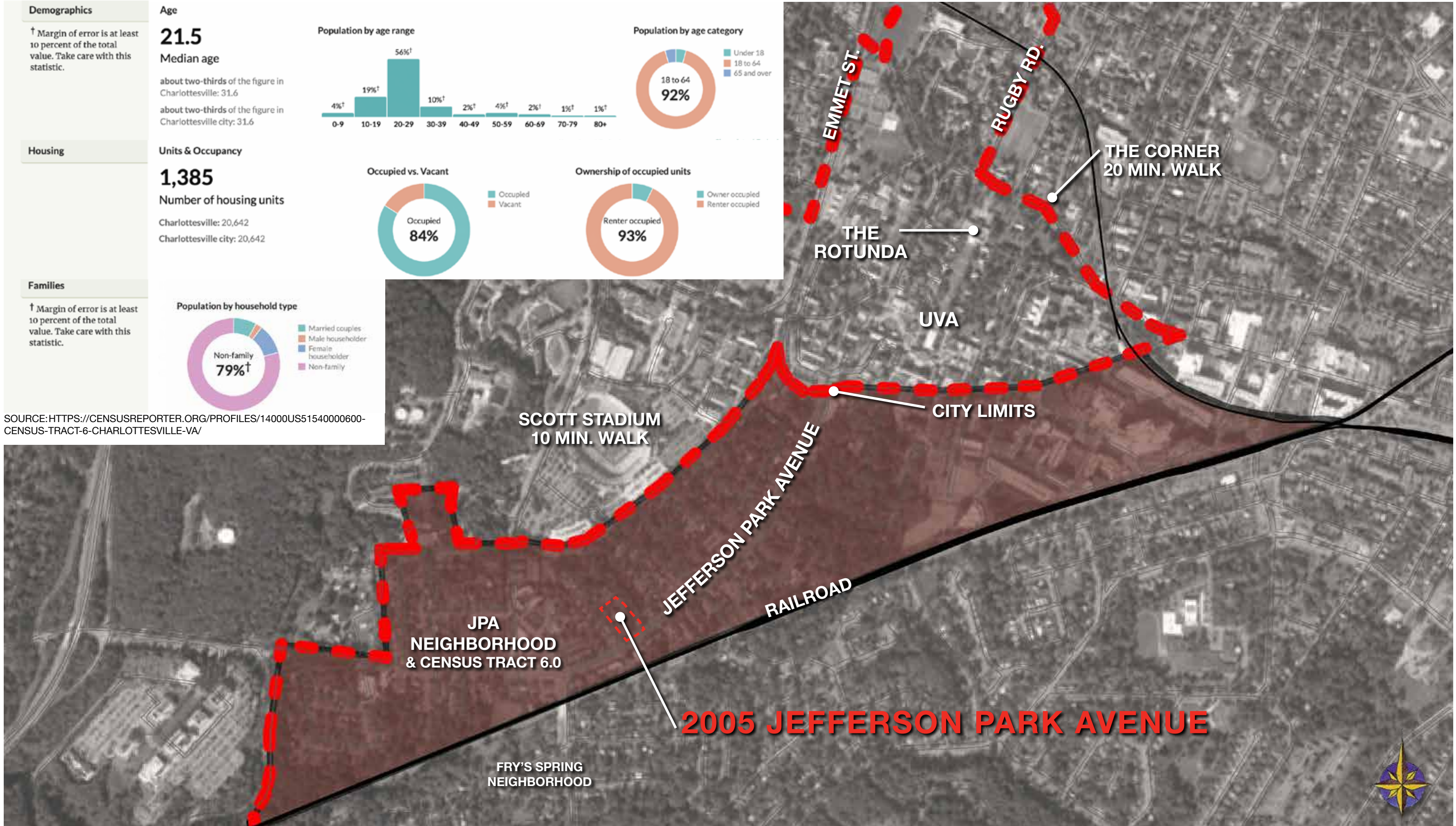
Families

† Margin of error is at least 10 percent of the total value. Take care with this statistic.

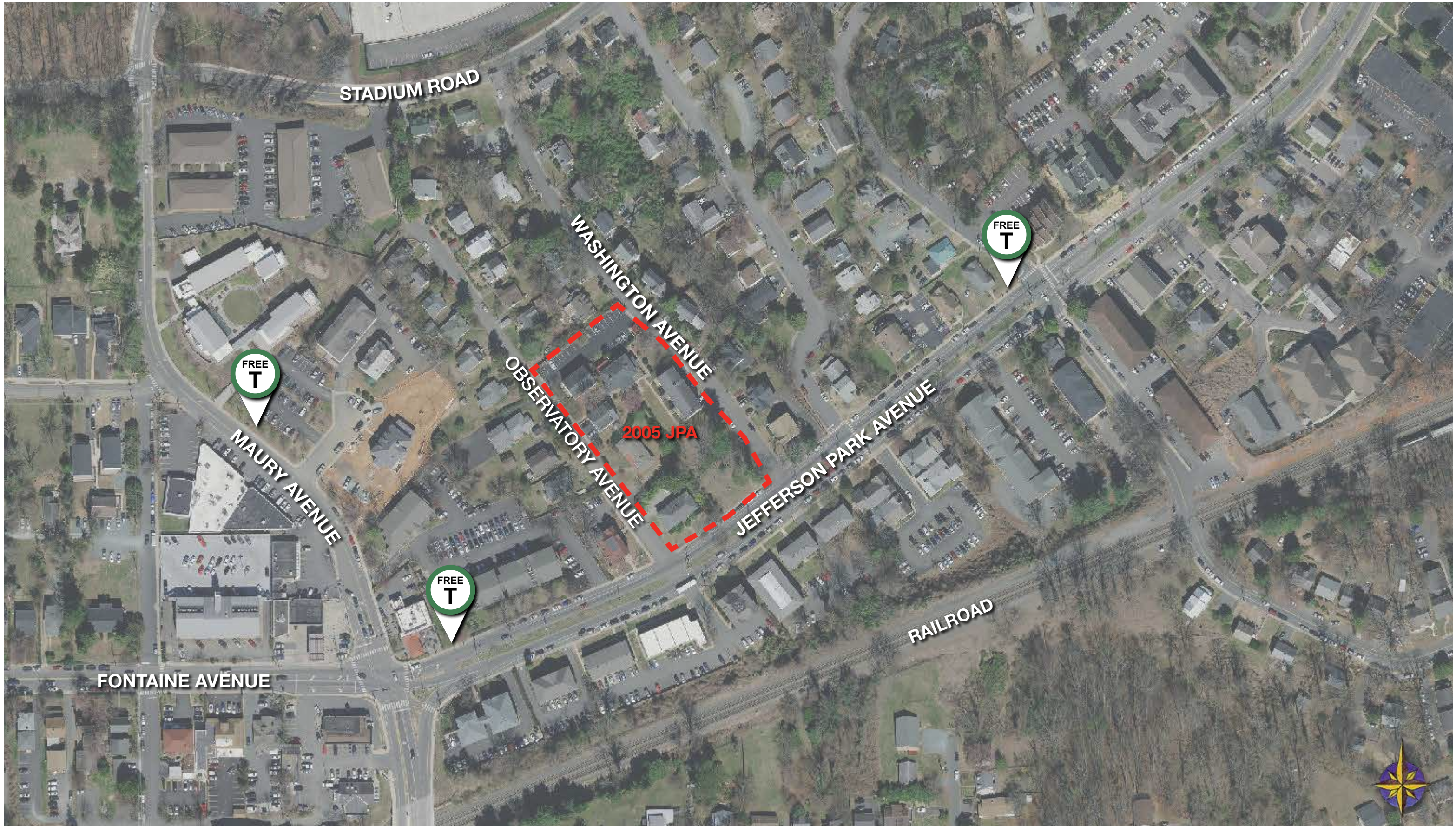
Population by household type



SOURCE: [HTTPS://CENSUSREPORTER.ORG/PROFILES/14000US51540000600-CENSUS-TRACT-6-CHARLOTTESVILLE-VA/](https://censusreporter.org/profiles/14000US51540000600-CENSUS-TRACT-6-CHARLOTTESVILLE-VA/)







## LOCATION MAP

All grades, counts and quantities are approximate and will change as design proceeds.

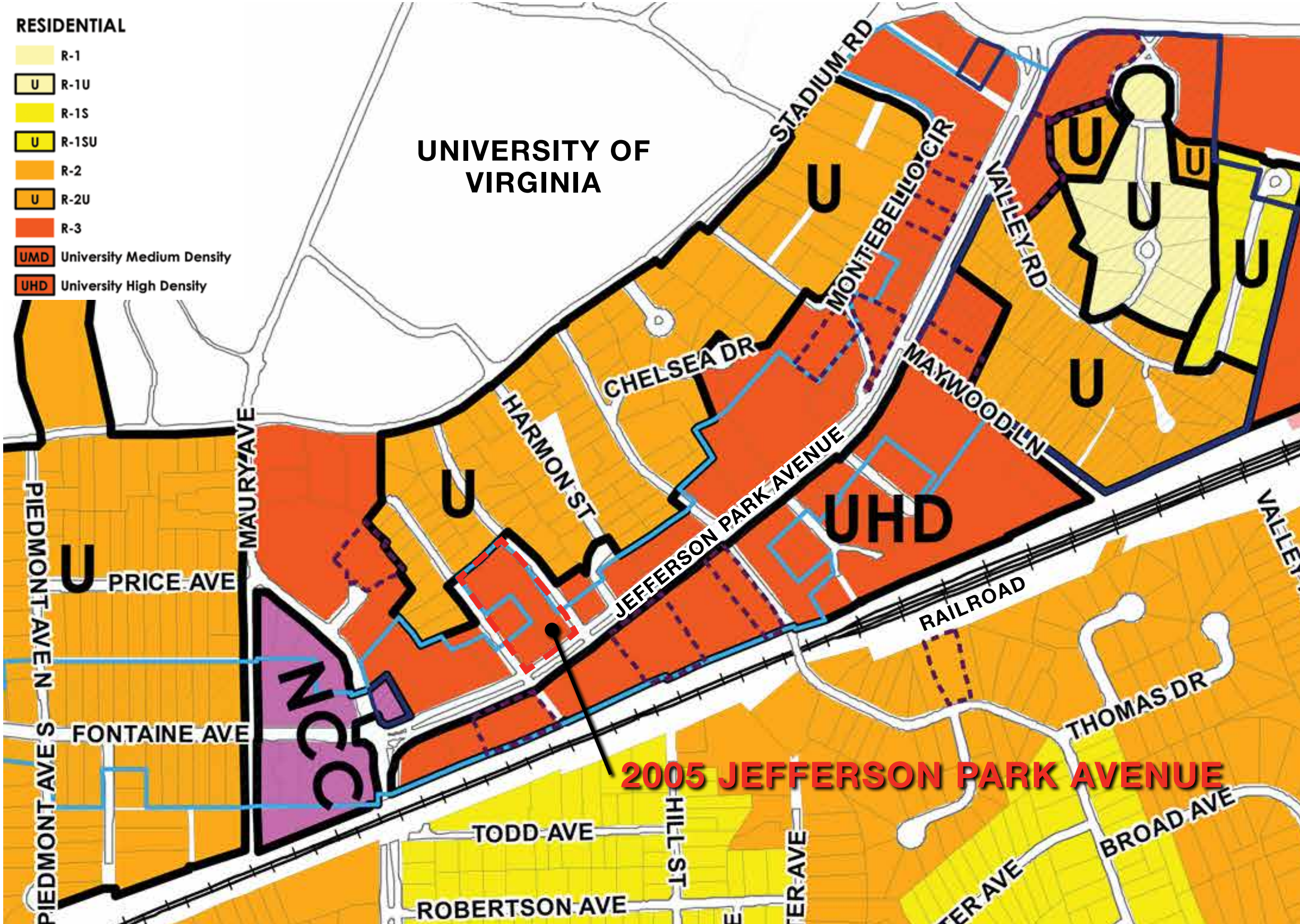


- RENTER OCCUPIED
- COMMERCIAL
- INSTITUTIONAL
- UNIVERSITY



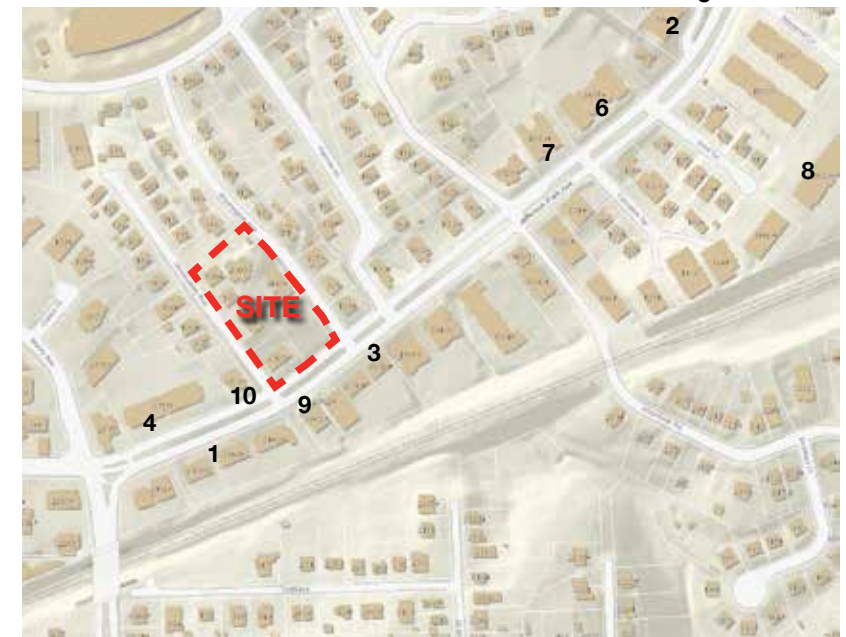
## RENTER OCCUPIED AND OTHER USES

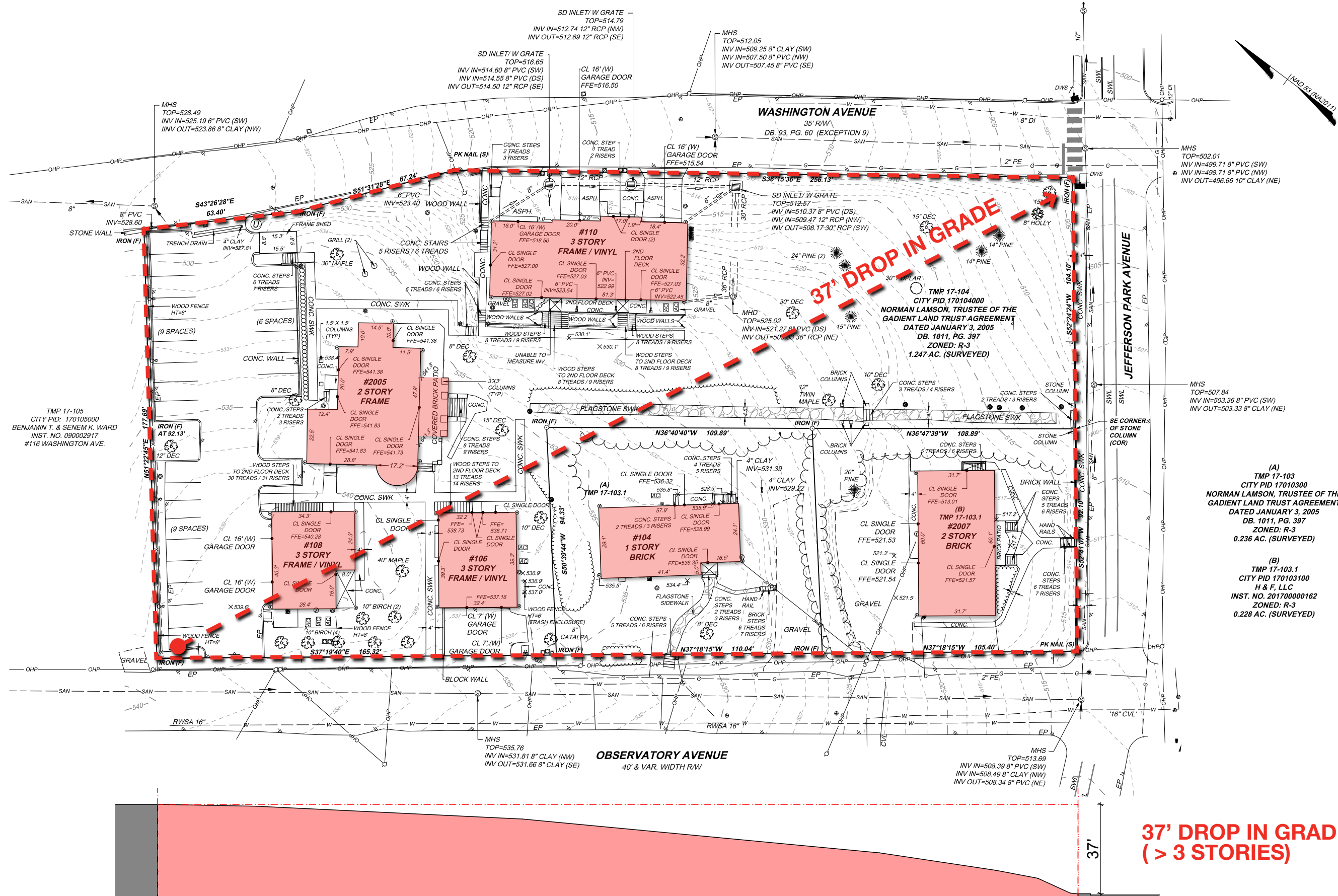
*All grades, counts and quantities are approximate and will change as design proceeds.*



Location	2005 Jefferson Park Ave.
Area	1.711 acres (74, 531.16 SF)
Zone	R-3
Residential Units	up to <b>21 DUA</b> (by right) <b>22 - 87 DUA</b> (by SUP)
Parking	Two bedroom apt. or smaller: <b>1 space</b>  Three or Four bedroom apt.: <b>2 spaces</b>
Height	<b>45'</b> (max) (by right) <b>80'</b> (22-43 DUA, by SUP) <b>101'</b> (44-87 DUA, by SUP)
Setbacks (front)	<b>26.35'</b> (average of neighboring properties)
Setbacks (side)	<b>20'</b> (corner, both sides)
Setbacks (rear)	<b>25' min.</b> <b>50'</b> (22-43 DUA, adjacent to low density residential) <b>75'</b> (44-87 DUA, adjacent to low density residential) (25' Type S-3 buffer, above 21 DUA)
Overlays	<b>Entrance Corridor</b>

Attachment B





**37' DROP IN GRADE ACROSS SITE (> 3 STORIES)**

**Additional justification for height and density (SUP REQUEST):**

## Comprehensive Plan Trends 2001 - PRESENT

**The comprehensive plans of the past 20 years show the community's expectation for increased density and height along the JPA corridor, specifically serving the residential needs of UVA students, as demonstrated by the exhibits in this section.**

Two decades ago, in the 2001 Comprehensive Plan, neighborhoods identified the conversion of single-family owner occupied residential homes to rental units to accommodate the increasing demand for student rentals as problematic. The Neighborhoods also identified locations closest to UVA as preferable by students. The planning commission identified higher density along transit corridors as preferable.

The 2003 Comprehensive Plan Land Use Map shows the same conditions as the present zoning.

The 2011 Housing Survey shows a density of housing units congregated 1) in the Venable neighborhood - both behind the Corner and along Madison Avenue, 2) along JPA, and 3) at public housing sites. Additions to this map have been made based on incomplete data of known built or under construction projects, showing the last decades' progress of additional housing units. While projects along West Main Street have garnered lots of attention locally, multi-family residential projects have generally been dispersed across the city's medium to high intensity zoning districts. Other than the projects

along West Main Street, no significant, new, purpose-built student housing has been created in close proximity to Central Grounds, even as expectations for it to occur along the JPA corridor have grown.

The 2013 Comprehensive Plan modified the zoning in the JPA neighborhood to increase its density. Rather than UHD, R-3 and R-2U spanning east to west between the railroad and Stadium Road, the entire area was designated as High-Density residential. This vision eliminated the different designation between the 2005 JPA site and the adjacent parcel to the rear.

The 2018 draft land use maps continued this trend, treating the entire cross section of the neighborhood as the same residential density - east to west, north to south, less the commercial area at the intersection of Maury and JPA and extending west along Fontaine.

The recently approved comprehensive plan returns to a vision of a higher density *or intensity* corridor - albeit with the same designation on either side of JPA and with the addition of a mixed-use condition rather than solely residential. The adjacent parcel to the rear, is a different designation (higher-intensity residential), with a suggested height of 5 stories. The 2005 JPA site is designated as Urban Mixed-use Corridor and suggests height may range from 5 to 8 stories. Upon implementation (via a zoning update) of these anticipated changes, the heights and densities of the two designations become more similar.

# SECTION 2

## COMP. PLAN TRENDS

**SECTION 2:**

<b>TABLE OF CONTENTS &amp; SYNOPSIS</b>
<b>2001 COMP PLAN CONCERNS</b>
<b>2003 COMP PLAN LUM</b>
<b>2011 HOUSING SURVEY MAP</b>
<b>2013 COMP PLAN LUM</b>
<b>2018 COMP PLAN FLUM (DRAFT)</b>
<b>2021 COMP PLAN FLUM (DRAFT)</b>
<b>2021 COMP PLAN INFO (DRAFT)</b>
<b>2016 STREETS THAT WORK</b>
<b>2021 COMP PLAN INFO</b>

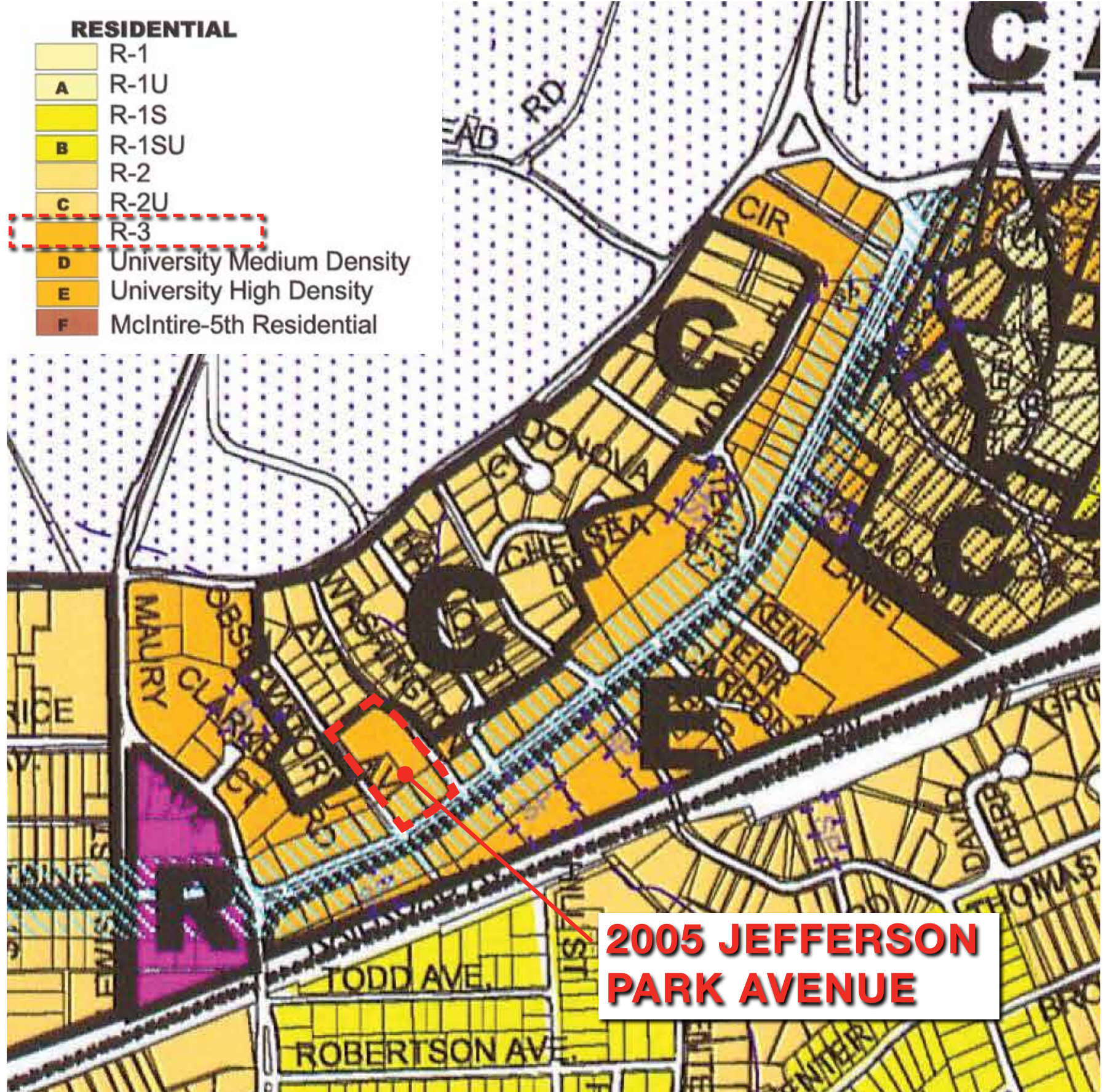
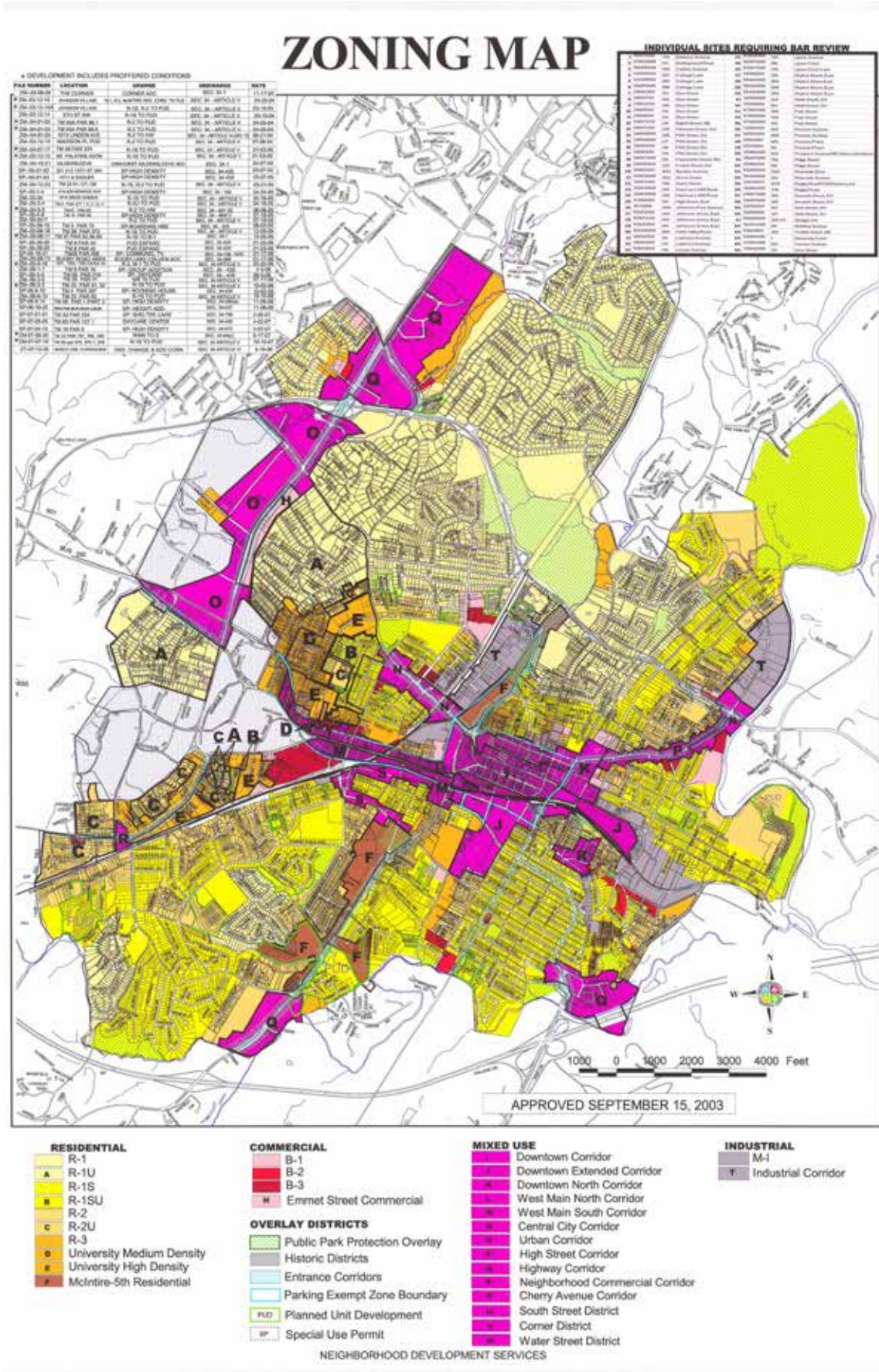
**Conversion of Owner Units to Rental:** The Housing Strategy, identified the conversion of owner occupied units to rental units and the declining percentage of owner occupied properties in the community as a major concern. There has been a great deal of discussion about how we impact this trend and turn it around to our betterment, including the City becoming actively involved by providing downpayment assistance, by providing tax breaks, and even through assisting in the construction of infrastructure to serve new developments that would in turn lower development costs and reduce the price of housing. **Source: Neighborhoods**

**University Housing:** The impacts of the University on neighborhoods are apparent to all that have been involved in this planning process. It is apparent that the University will only house 30% to 35% of its students on grounds in the future. It is becoming apparent also that students desire to live off grounds and in areas nearby the grounds and activities on the Corner. The neighborhoods are suffering because as more and more students desire to live in close proximity to the grounds, homes are being converted. **Source: Neighborhoods**

**Parking near UVA:** A major impact on neighborhoods surrounding the University is parking associated with the University and particularly the Health Sciences Center. The University has not provided the amount of parking that is necessary to support development on grounds or has not created the incentive to use those spaces available and as a result, students, faculty and employees are parking on streets in neighborhoods adjacent to the University and impacting the residents in a very negative way. **Source: Neighborhoods**

**Transit Corridors:** To increase the use of transit throughout the City and to make it a more viable transportation alternative, higher density of population will be necessary in the areas surrounding transit corridors. **Source: Planning Commission**

<https://www.charlottesville.org/departments-and-services/departments-h-z/neighborhood-development-services/comprehensive-plan/comprehensive-...> 1/18





# Housing Units

**KNOWN ADDITIONAL PROJECTS SINCE 2011**

## Number of Units on Parcel

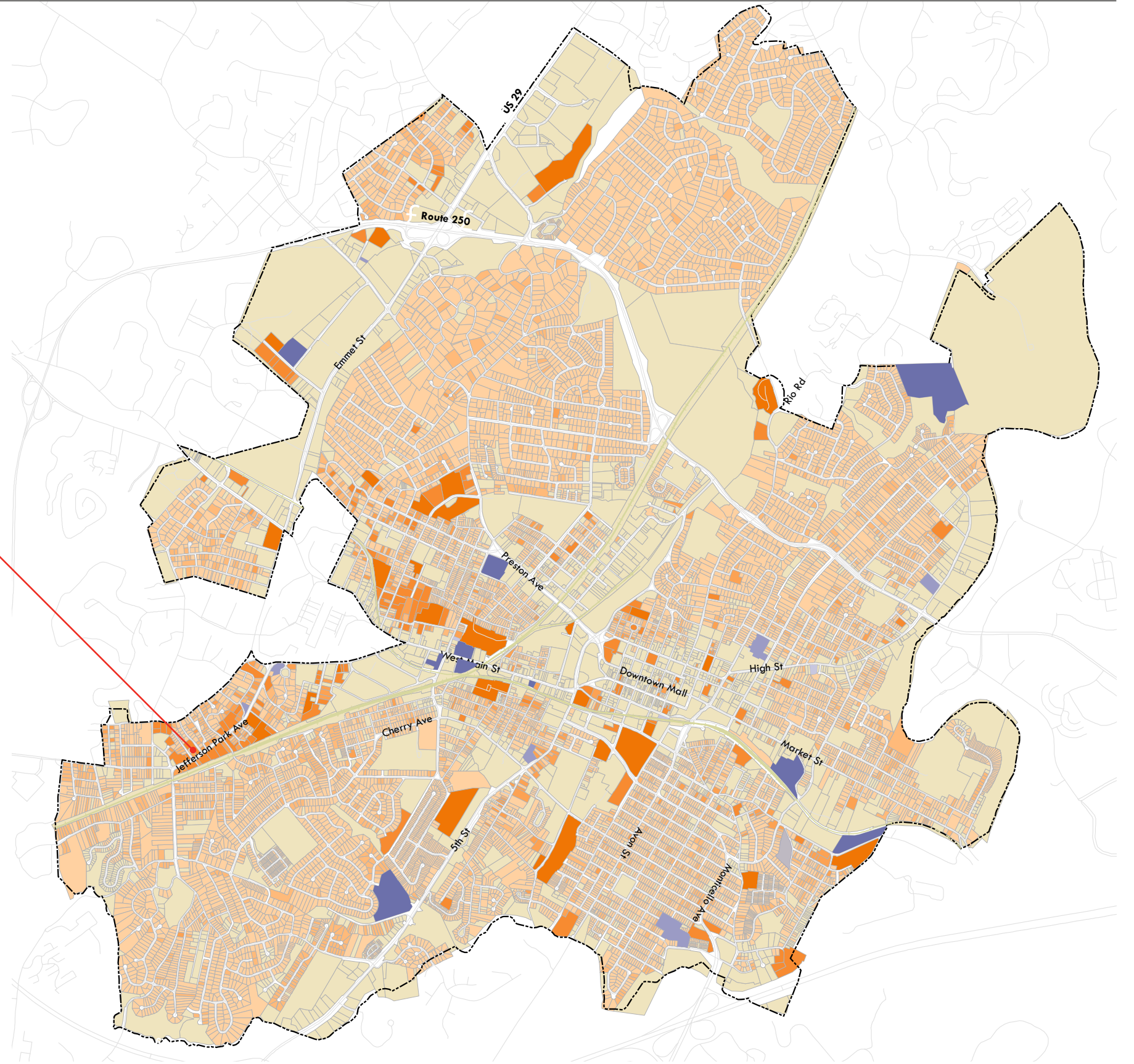
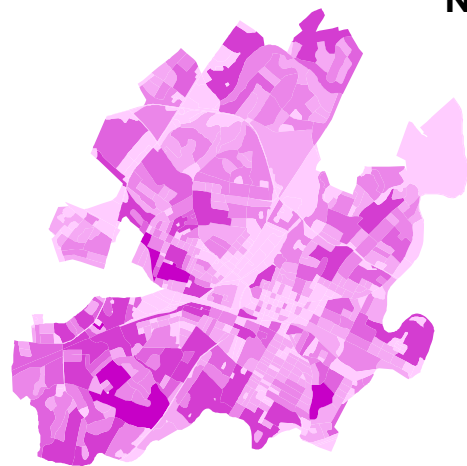
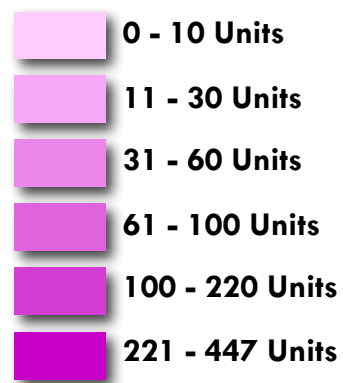


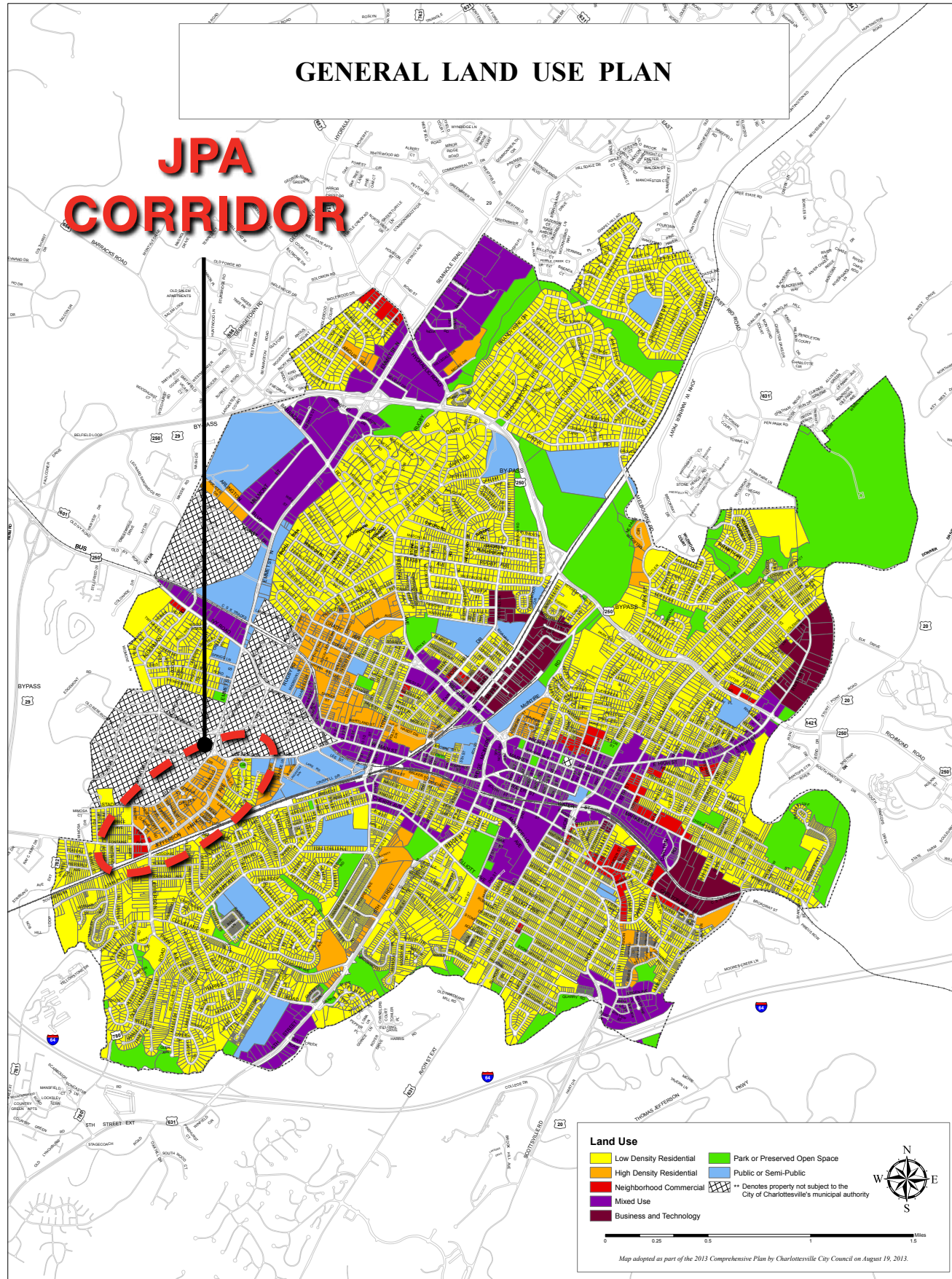
## 2005 JEFFERSON PARK AVENUE

### 2011 Land Use and Housing Survey and the 2010 US Census

The housing unit count from the survey and the same count from the Decennial census were within 0.66% of each other, despite the very different methodologies used. The 2011 survey counted 19,062 units and the 2010 Census counted 19,189 units. Most of the variation is accounted for in neighborhoods around the University of Virginia.

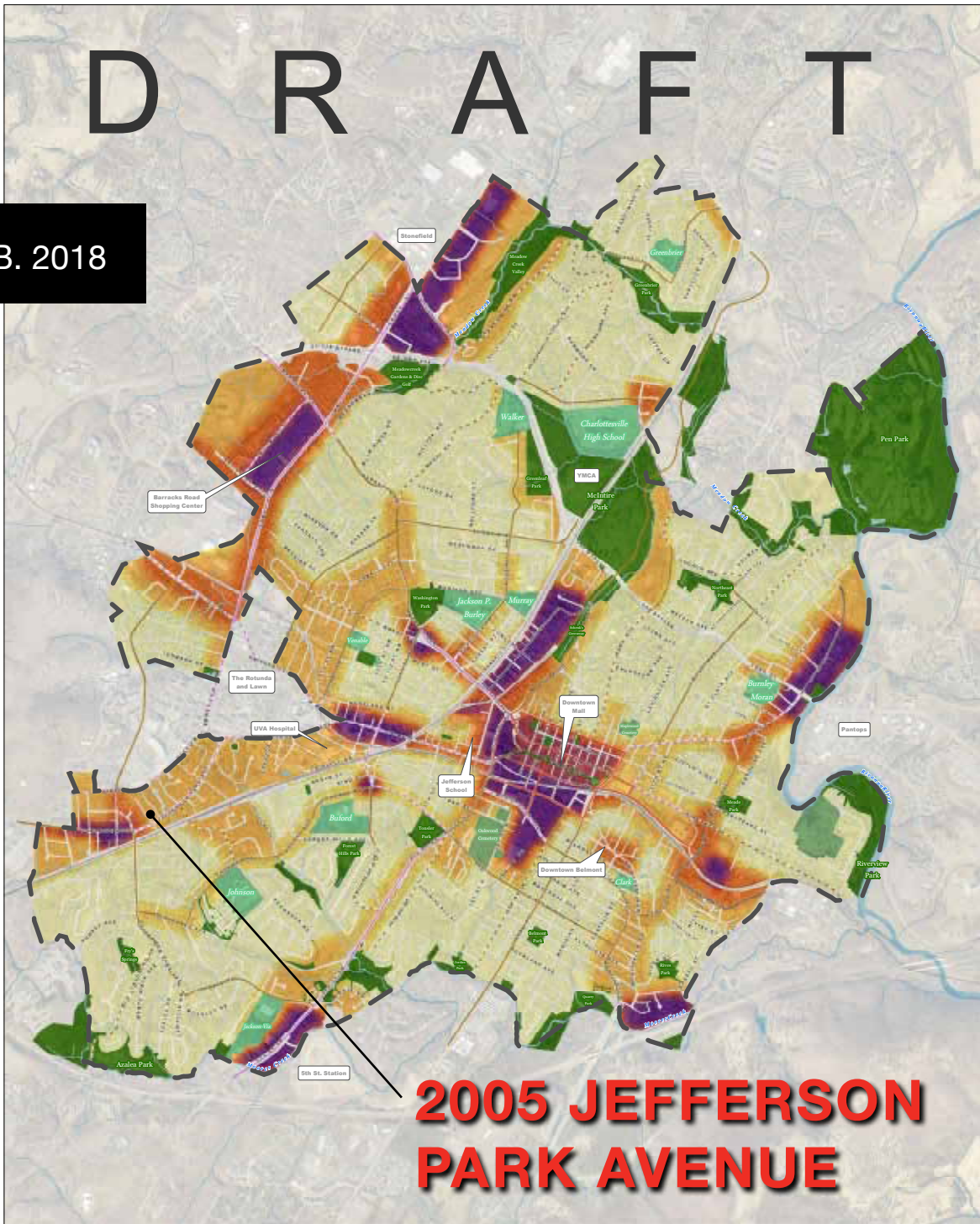
## Number of Units per Block





D R A F T

FEB. 2018



**City of Charlottesville  
Comprehensive Plan 2018  
General Land Use Plan**

1 inch = 1,000 feet  
1:12,000 on 24"x36"

0 0.5 1  
Mile

Map By: NDS, City of Charlottesville 12/06/2017  
Data Source: City of Charlottesville Planning Commission and City of Charlottesville GIS 12/06/2017  
Projection Information: Lambert Conformal Conic, NAD83, Virginia State Plane South

This product is for general information only and shall not be used for design, modification, or construction. There is no guarantee of completeness or accuracy. The City assumes no liability arising from use of this product.

**Land Use**

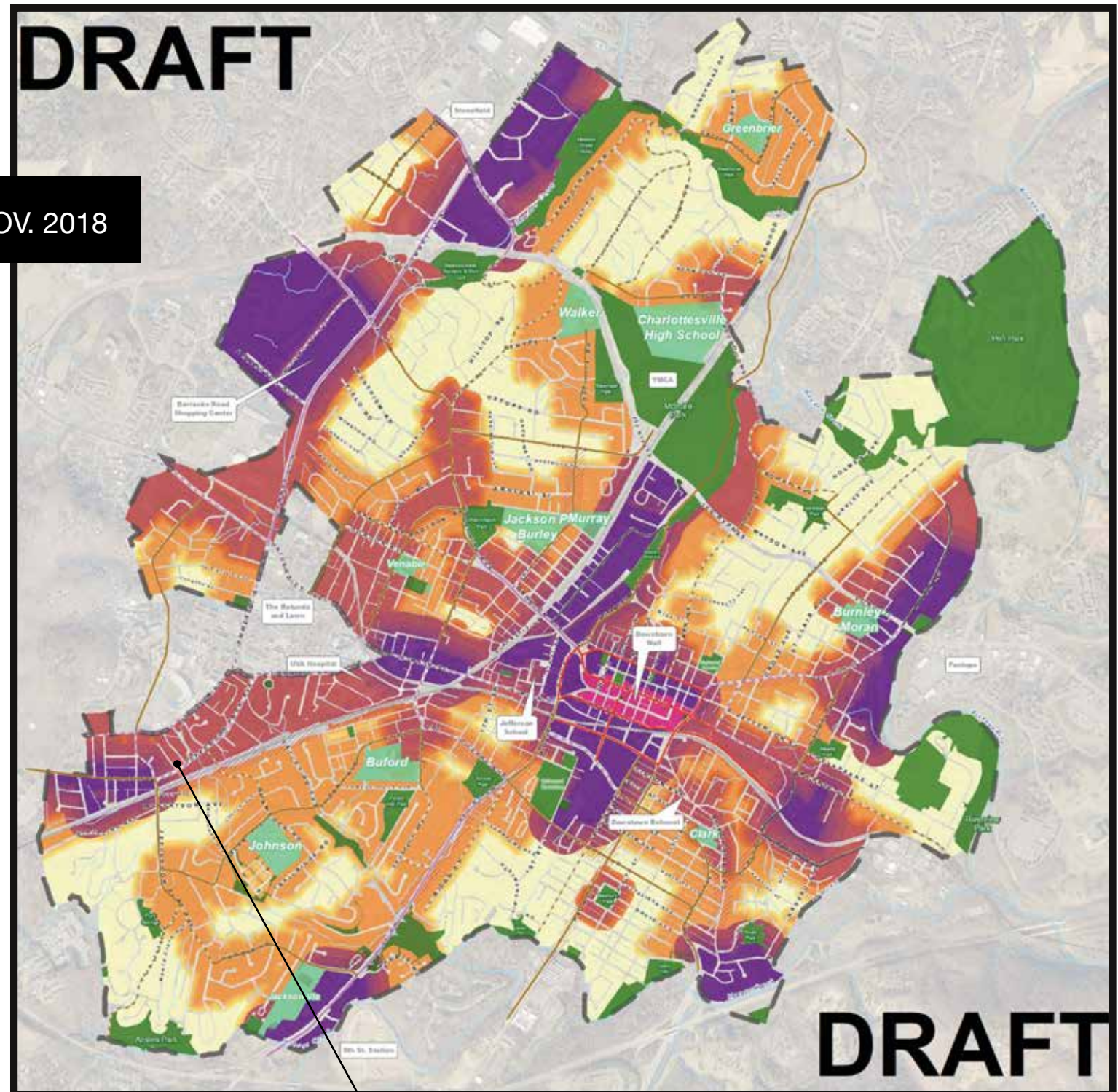
- Downtown High Intensity
- Low Intensity
- Park and Preserved Open Space
- School
- Cemetery

**STW Typology**

- Downtown
- Industrial
- Mixed Use A
- Mixed Use B
- Neighborhood A
- Neighborhood B

D R A F T

NOV. 2018



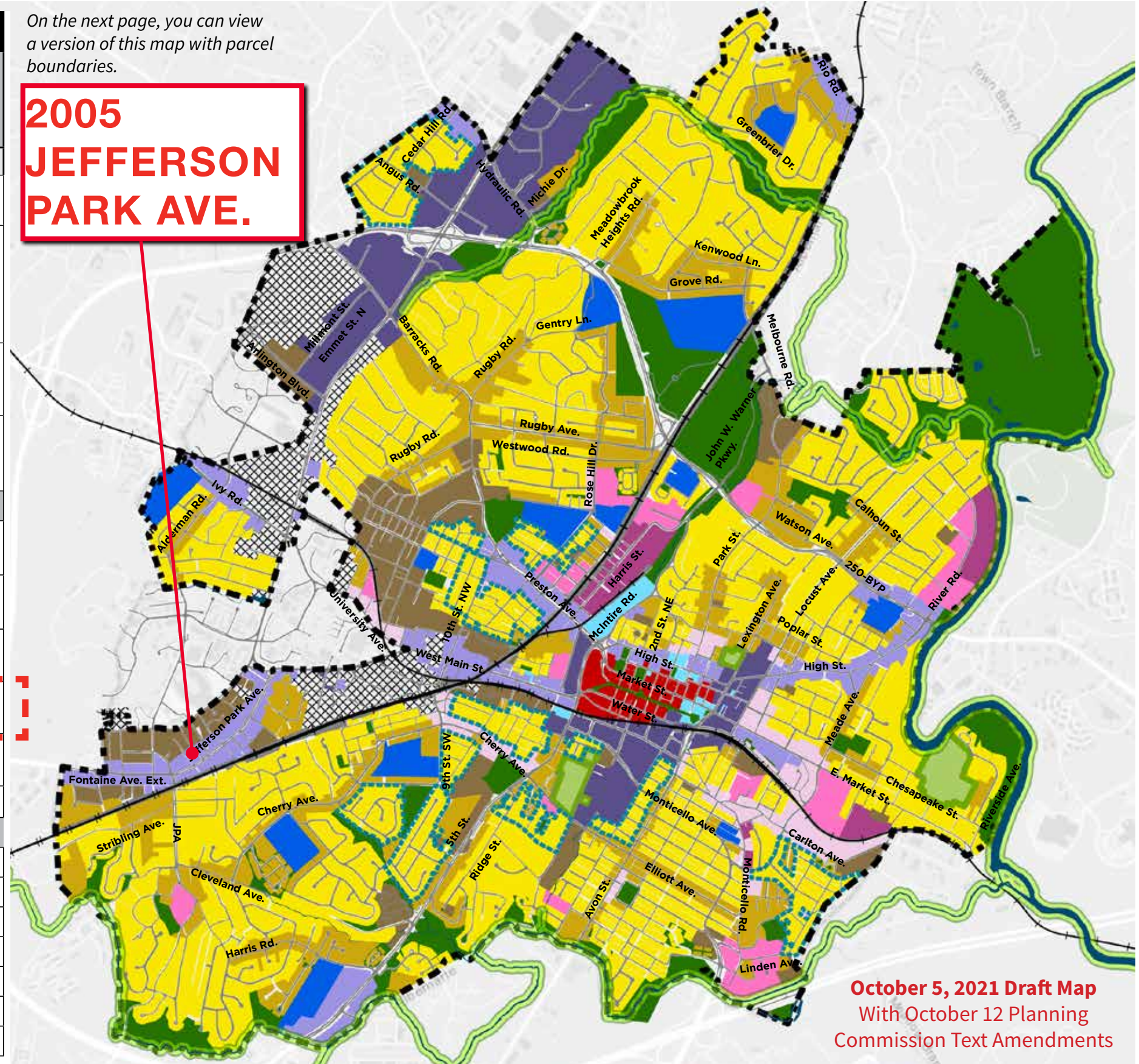
2005 JEFFERSON PARK AVENUE

D R A F T

Attachment B

On the next page, you can view a version of this map with parcel boundaries.

**2005 JEFFERSON PARK AVE.**



October 5, 2021 Draft Map  
With October 12 Planning  
Commission Text Amendments

**Future Land Use Map**

**RESIDENTIAL**

Limited commercial uses allowed in all residential districts, to be further described in the Zoning Ordinance. Zoning tools will regulate affordability and maximum allowable development for all categories and will consider demolition disincentives, as feasible.

Description	
	<b>General Residential:</b> Allow for additional housing choice within existing residential neighborhoods throughout the city.
	<b>General Residential (Sensitive Community Areas):</b> Allow for additional housing choice, and tools to mitigate displacement, within existing residential neighborhoods that have high proportions of populations that may be sensitive to displacement pressures. (Note: The boundaries for these areas should evolve during the zoning update process, as described on page 25 of the Comprehensive Plan.)
	<b>Medium Intensity Residential:</b> Increase opportunities for housing development including affordable housing, along neighborhoods corridors, near community amenities, employment centers, and in neighborhoods that are traditionally less affordable.
	<b>Higher-Intensity Residential:</b> Provide opportunities for higher density, multi-family focused development. Incentivize affordability and increased intensity to meet Affordable Housing Plan goals.
MIXED USE NODES AND CORRIDORS	
	<b>Neighborhood Mixed Use Corridor:</b> Neighborhood-scaled mixed use areas arranged along corridors that support existing residential districts.
	<b>Neighborhood Mixed Use Node:</b> Compact neighborhood centers that encompass a mix of land uses arranged in smaller scale buildings.
	<b>Business and Technology Mixed Use:</b> Light industrial and production uses, with other commercial and residential uses (where appropriate).
	<b>Urban Mixed Use Corridor:</b> Higher intensity mixed use development arranged along corridors between employment, commercial, and civic hubs of the city.
	<b>Urban Mixed Use Node:</b> Urban mixed use districts that support community housing, employment, and commercial development.
	<b>Downtown Core:</b> A primary, central mixed use activity hub for the city.
OTHER CATEGORIES	
	<b>Open Spaces and Parks:</b> Includes both public and private spaces
	<b>Cemetery:</b> Includes both public and private cemeteries
	<b>Civic:</b> Includes governmental buildings
	<b>Education:</b> Charlottesville City Schools and Non-City Schools
	<b>UVA:</b> Properties owned by the University of Virginia
	<b>Stream Buffer:</b> 100' buffer
	<b>City of Charlottesville Boundary and Urban Development Area</b>

# Mixed Use Corridors

## NEIGHBORHOOD MIXED USE CORRIDOR

Nearby mixed use areas arranged along corridors that support existing residential districts.

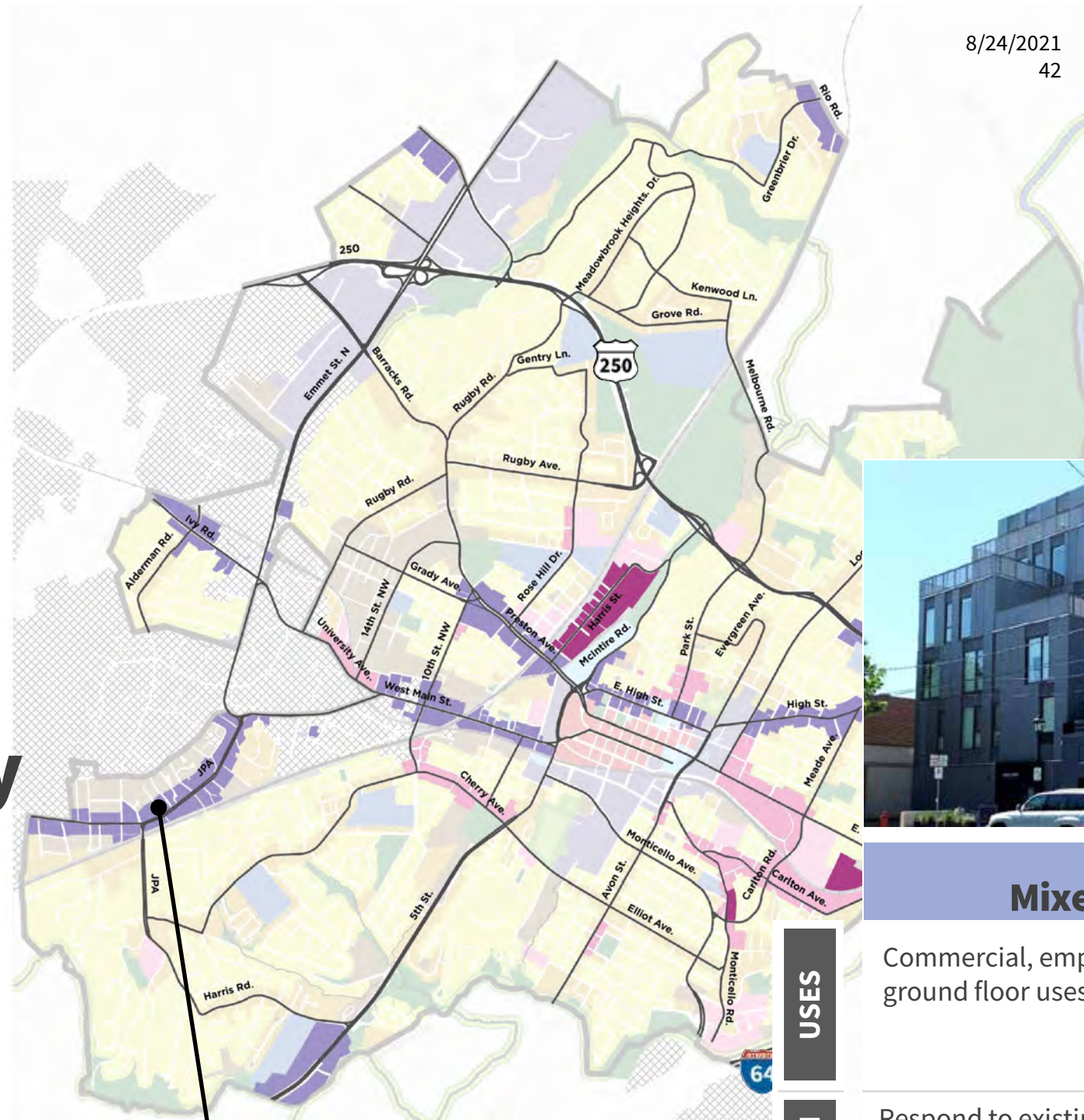
## URBAN MIXED USE CORRIDOR

Higher intensity mixed use development arranged along corridors that link the employment, commercial, and civic hubs of the city.

# Business & Technology

## BUSINESS AND TECHNOLOGY MIXED USE

Light industrial and production uses as well as additional commercial and residential uses (where appropriate).



**2005 JEFFERSON  
PARK AVENUE**



**Urban  
Mixed Use Corridor**

**USES**

Commercial, employment, residential. Active ground floor uses

**FORM**

Respond to existing residential, environmental and historic context

**HEIGHT**

5 stories, up to 8 at key intersections (such as intersections of Downtown, Industrial, Mixed Use, or Neighborhood corridors in the Streets That Work plan)

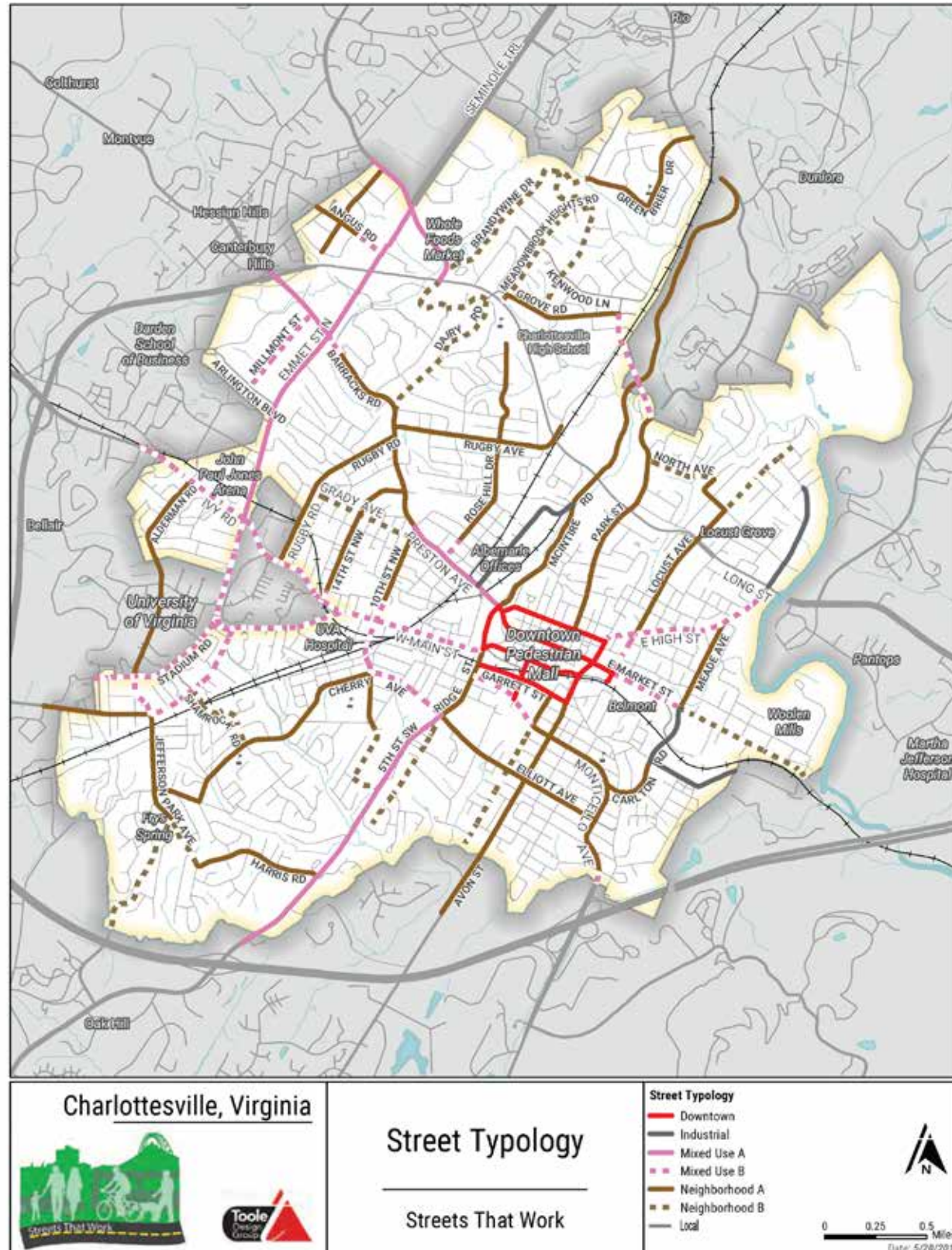


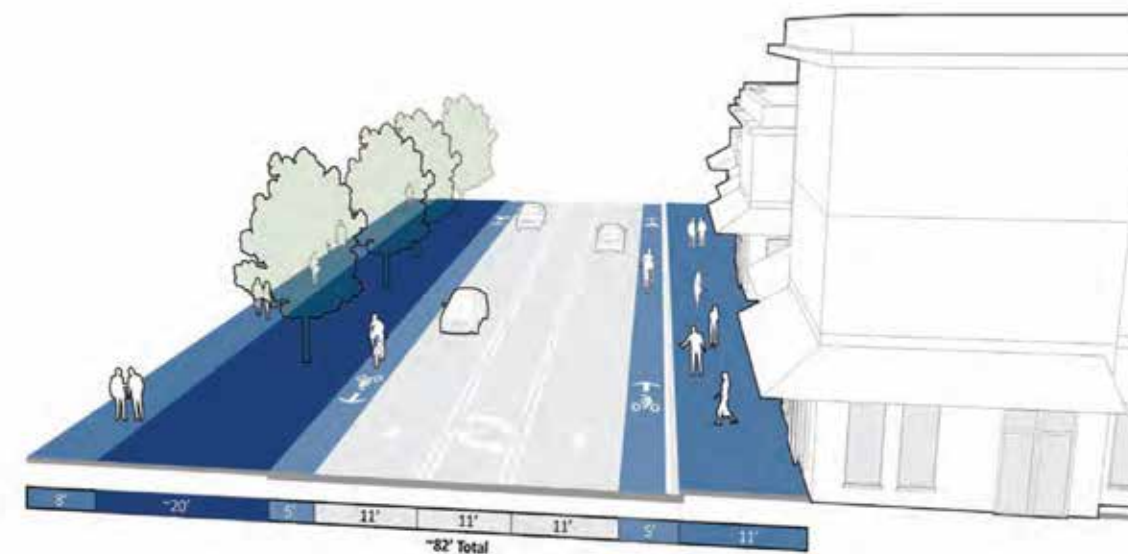
Figure 7: Charlottesville Street Typology Map

**JEFFERSON PARK AVENUE IS IDENTIFIED AS A MIXED USE B STREET**

**Mixed Use B**

University Avenue and segments of Jefferson Park Avenue are two examples of existing Mixed Use B streets. They are characterized by one vehicular travel lane in each direction, intermittent center turn lanes, sidewalks and bicycle facilities. These streets also may have on-street parking. The adjacent land uses may be commercial, higher density residential or institutional. These streets should support high levels of walking, bicycling, and transit as they connect important destinations within the City and surrounding county. Future development that occurs along these streets will likely include a dense mix of uses.

**Existing**



ADJACENT DESIGNATION

# Residential

## HIGHER-INTENSITY RESIDENTIAL

Neighborhoods and sites for multi-unit housing. Incentivize affordability and increased intensity to meet Affordable Housing Plan goals.

### USES

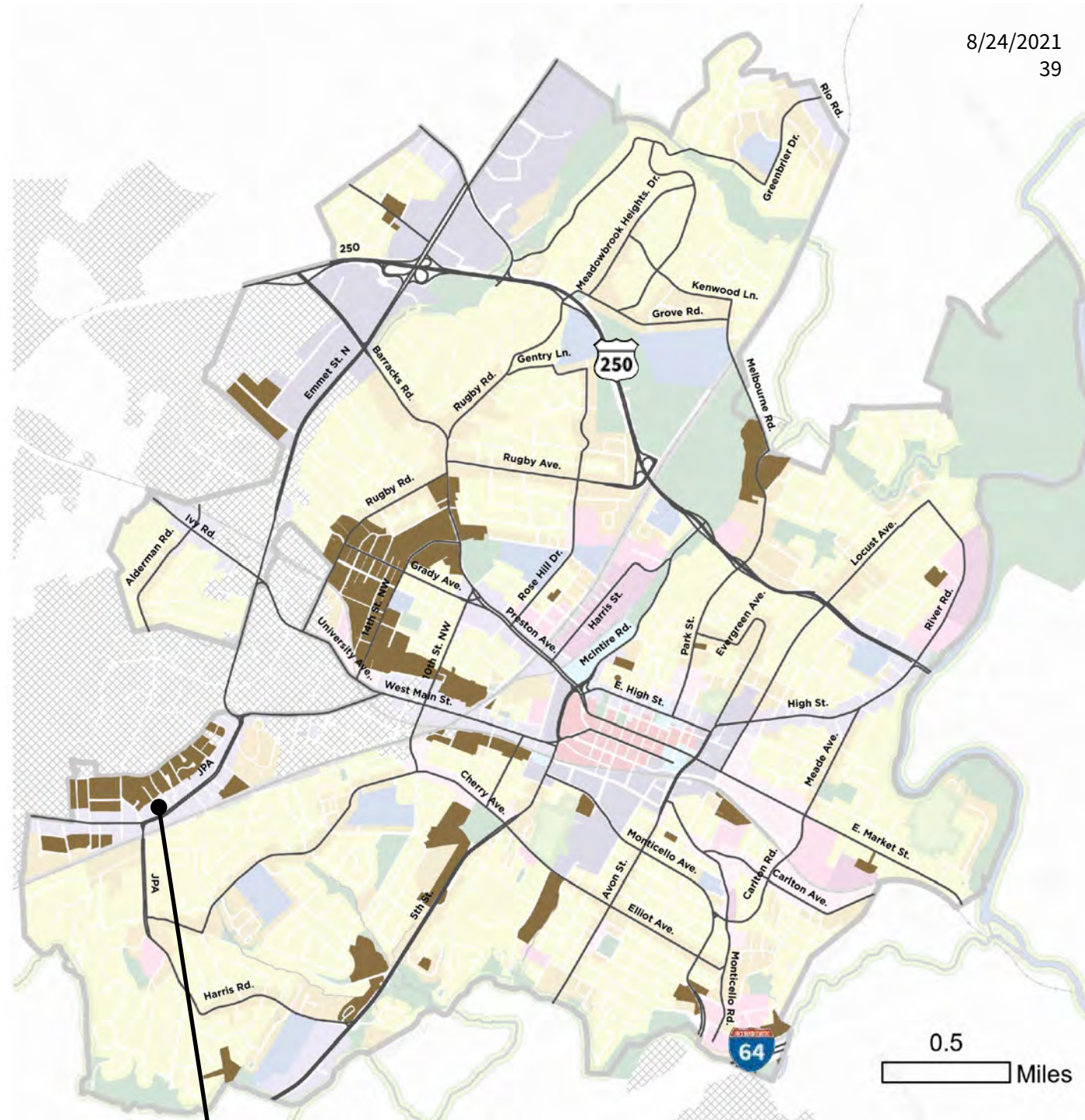
Multi-unit housing (13+). May include large and/or smaller-scaled buildings. Limited ground floor commercial uses encouraged.

### FORM

All residential categories: compatible with existing residential and historic neighborhood context. Highest building heights according to context. **Zoning tools will define building form and neighborhood compatibility criteria for development (e.g., lot coverage, topography, parking, etc.)**

### HEIGHT

Up to 5 stories.



## 2005 JEFFERSON PARK AVENUE

UNITS	119 units
SITE AREA	1.711 Acres
DUA	70 DUA <b>(SUP REQUEST)</b>
STORIES	7 stories at JPA, 5 stories adjacent to R-2U zoning
BUILDING HEIGHT	75', from average grade plane <b>(SUP REQUEST)</b>
PARKING	125 spaces provided

**Justification for rear yard setback reduction (SUP REQUEST):**

We are seeking a reduction in the rear yard setback from 75 feet to 36 feet. This request is based on the following argument that contends a setback of 75' is grossly excessive, disproportionate, and obsolete under today's view of (and vision for) this evolving neighborhood. Strict adherence to the Ordinance in this instance seems contrary to the intent originally envisioned - to protect single-family homes, and is in conflict with the long-held belief by City planners and others that reasonable increased density adjacent to the University is preferable and beneficial. The intent of the Ordinance was to separate single-family, owner-occupied homes from multi-family residential buildings. This is no longer the case in this neighborhood where only the smallest vestiges of single-family, owner-occupied residences remain. This is overwhelmingly a neighborhood of student rentals that continues its slow transition to increased density, more pedestrians, and more efficient land use where a 75-foot setback is not necessary.

For this project, the zoning ordinance requires a rear yard setback of 75' due to the property's adjacency to a low-density residential district and based upon the project's proposed density (Sec. 34-353 (b)(4)). The adjacent property has been a student rental for decades. Given, the compatible uses, we propose height as the governing metric of the setback requirement.

As suggested by planning staff, the project investigated the application of the West Main East zoning regulations on the proposed building site with regard to the rear yard setback adjacent to a low-density residential district. The WME regulations require a 20' minimum rear yard setback along with a bulk plane requirement and a 10' Type S-1 buffer. Height is limited to 52'. In comparison, the proposed design would have a 36' setback, and be approximately 56' tall adjacent to the R-2U zoning. The project would be under this hypothetical bulk plane – utilizing the WME zoning requirements of a 20' setback, and using the adjacent R-2U height of 35'. Refer to the conceptual section provided in this section.

Finally, if the city's zoning re-write implements the comprehensive plan work, the adjacent zoning district will no longer be low-density. The adjacency created will be 5 stories maximum on the adjacent site to 5-8 stories on this site – with both anticipating higher-intensity residential.

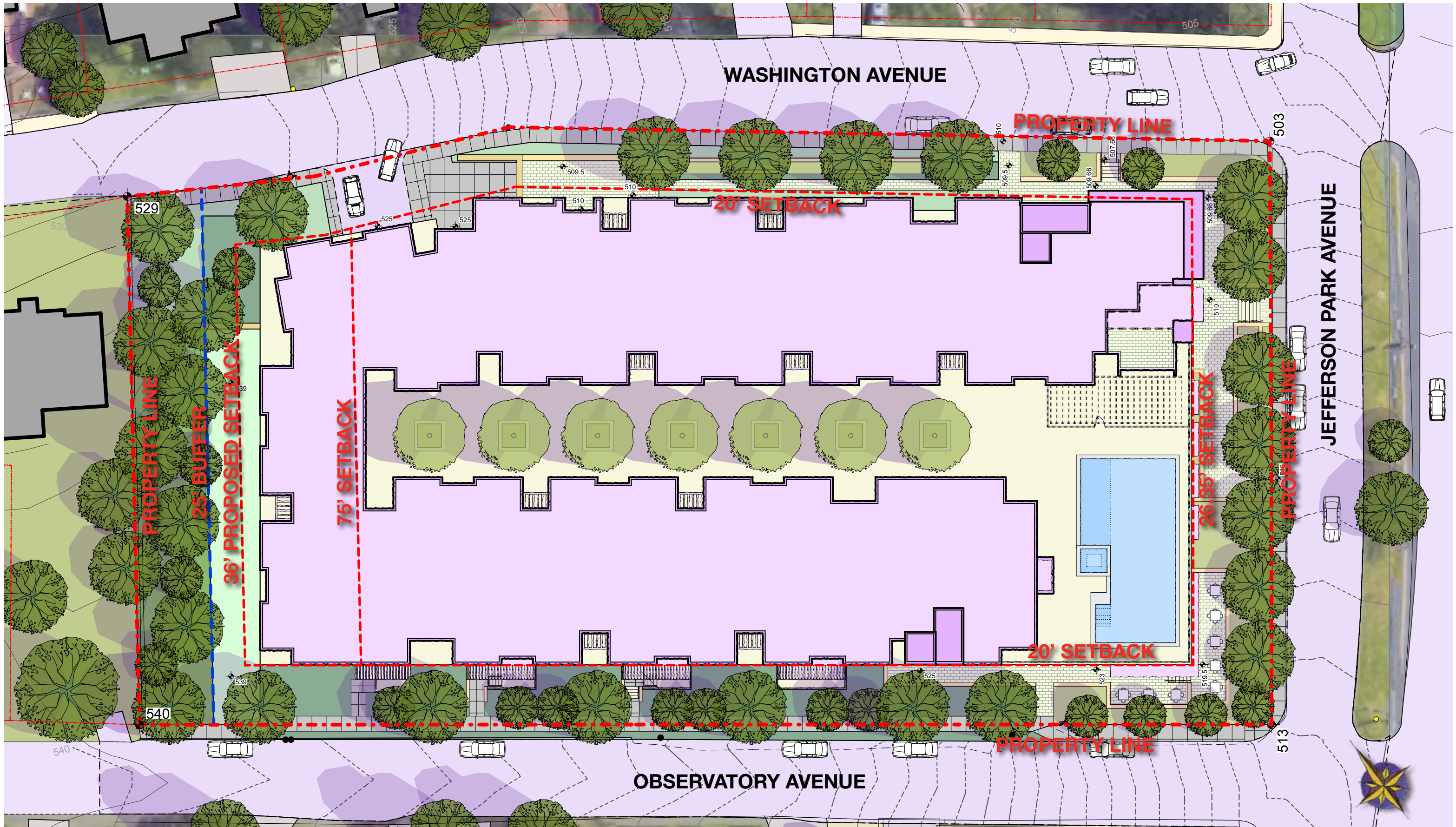
In conclusion, the 75-foot setback requirement is an anachronism no longer appropriate for this evolving neighborhood.

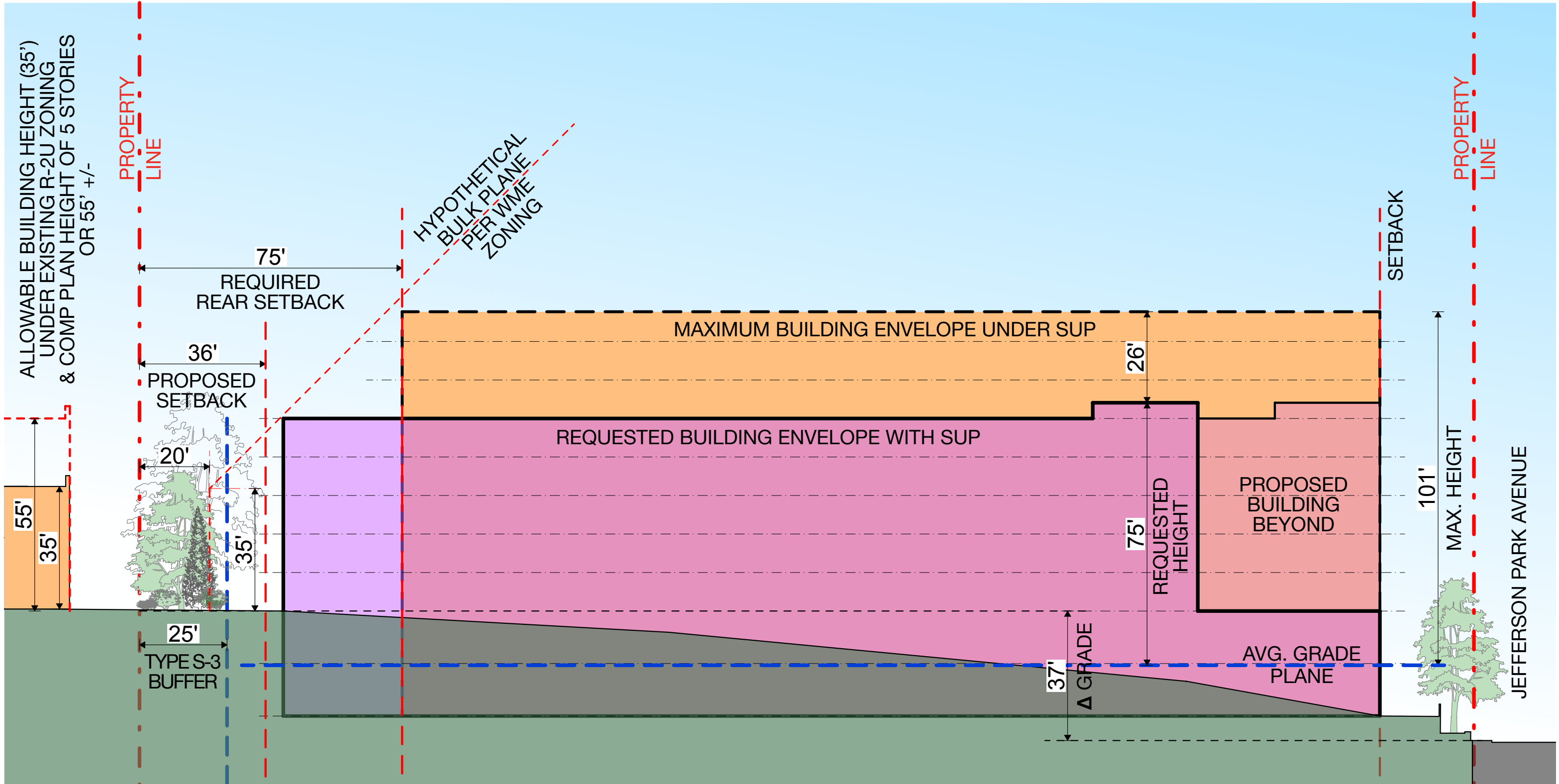
**SECTION 3  
PROPOSED DESIGN**

**SECTION 2:**

- TABLE OF CONTENTS, PROJECT DATA & JUSTIFICATION OF REAR YARD SETBACK REDUCTION**
- SITE PLAN**
- MASSING DIAGRAM (PERSPECTIVE)**
- MASSING DIAGRAM (SECTION)**
- STREETSCAPE PLAN**
- STREETSCAPE PERSPECTIVE**
- STREETSCAPE PERSPECTIVE**
- STREETSCAPE PERSPECTIVE**









OBSERVATORY AVENUE

WASHINGTON AVENUE

**PROGRESS DRAFT  
STILL IN DESIGN  
SUBJECT TO CHANGE**

### ELEVATION JEFFERSON PARK AVENUE

*All grades, counts and quantities are approximate and will change as design proceeds.*



## ELEVATION OBSERVATORY AVENUE

*All grades, counts and quantities are approximate and will change as design proceeds.*



## ELEVATION WASHINGTON AVENUE

*All grades, counts and quantities are approximate and will change as design proceeds.*



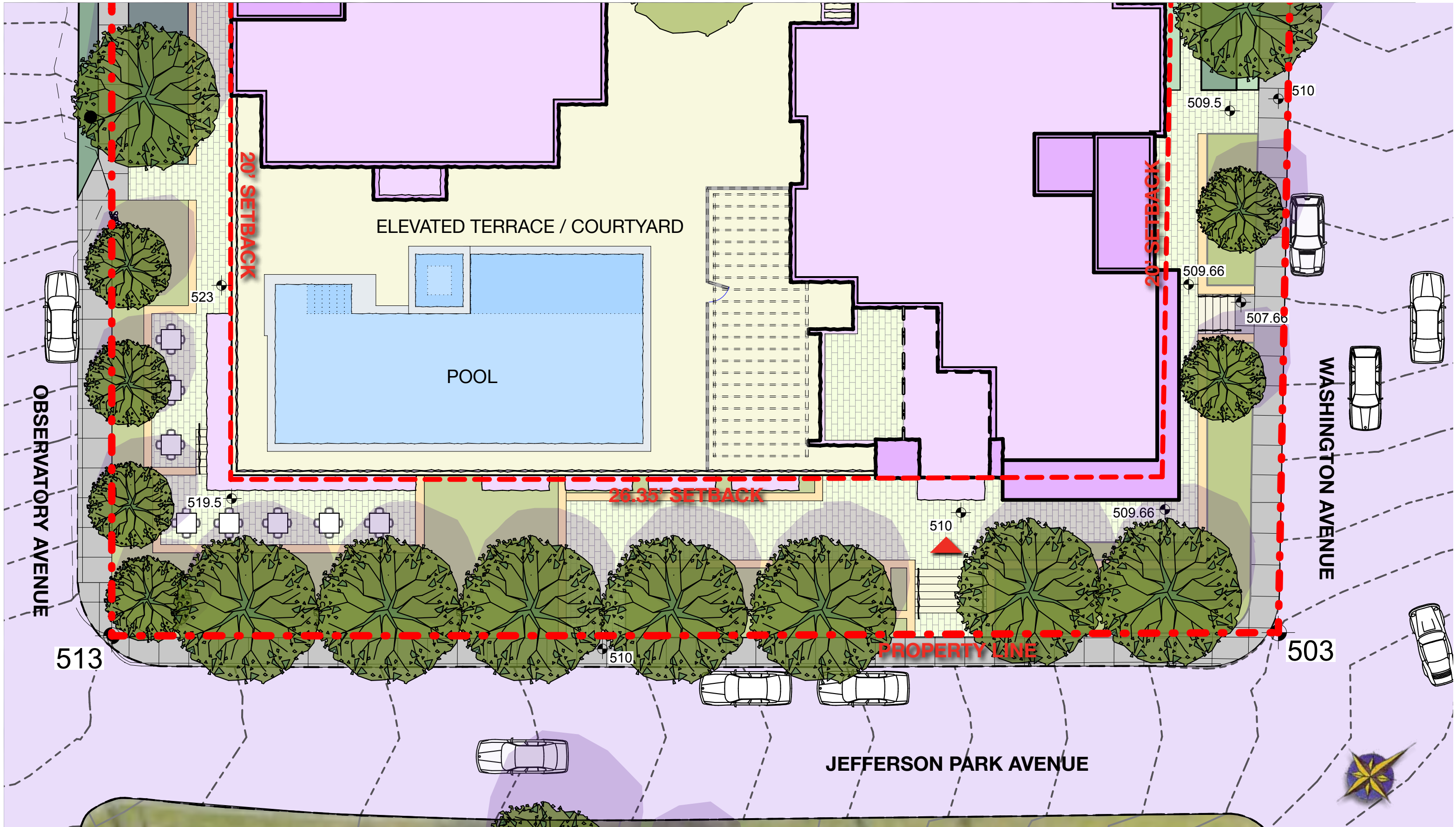
WASHINGTON AVENUE

OBSERVATORY AVENUE

**PROGRESS DRAFT  
STILL IN DESIGN  
SUBJECT TO CHANGE**

### ELEVATION REAR

*All grades, counts and quantities are approximate and will change as design proceeds.*





## PERSPECTIVE JPA & OBSERVATORY AVENUE CORNER

*All grades, counts and quantities are approximate and will change as design proceeds.*







## PERSPECTIVE JPA & WASHINGTON AVENUE CORNER

*All grades, counts and quantities are approximate and will change as design proceeds.*



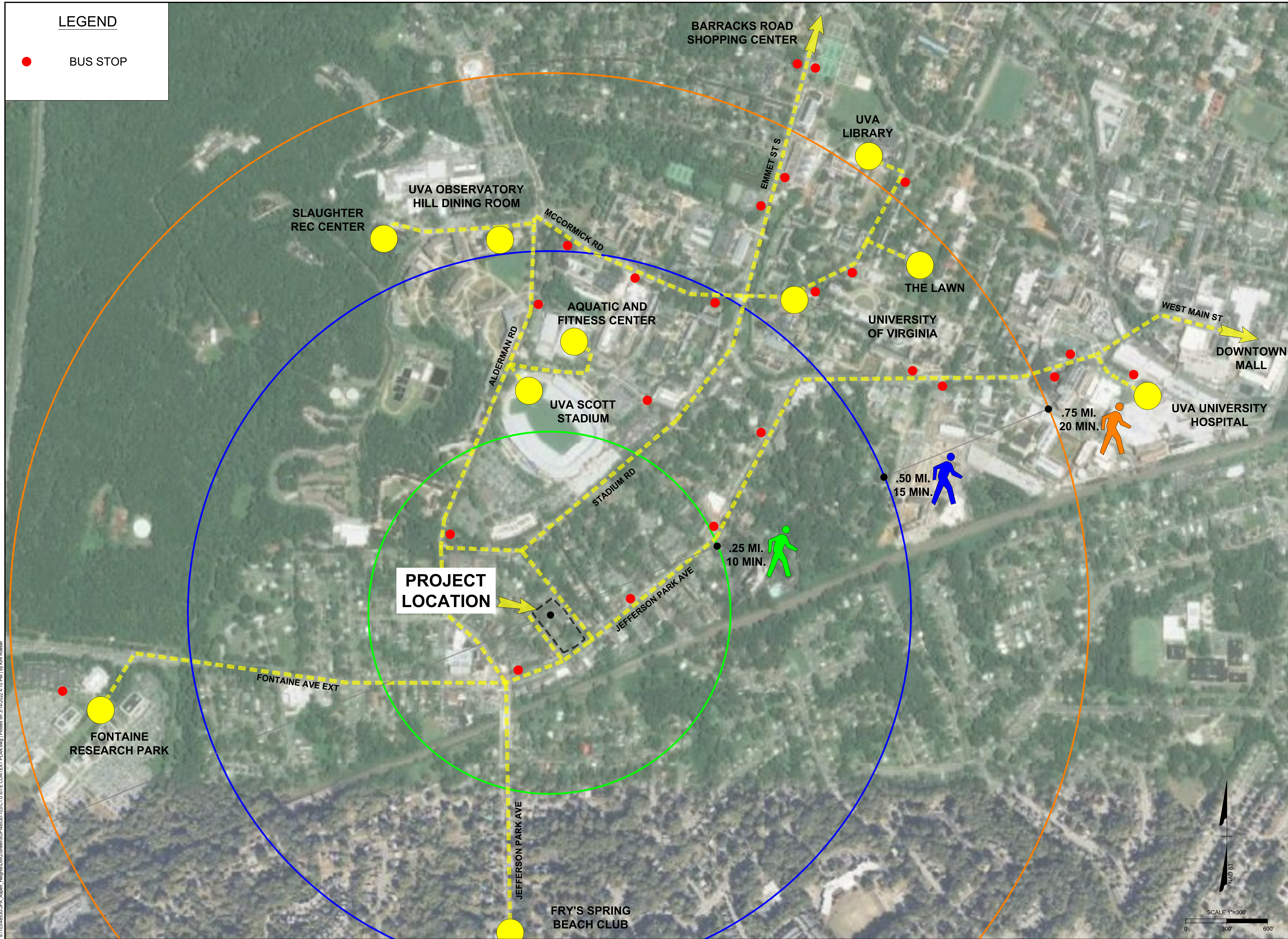
**PROGRESS DRAFT  
STILL IN DESIGN  
SUBJECT TO CHANGE**





**LEGEND**

● BUS STOP



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REVISION DESCRIPTION	DATE

YOUR VISION ACHIEVED THROUGH OURS.

DRAWN BY	T. BRIGHT
DESIGNED BY	T. BRIGHT
CHECKED BY	B. CICHOCKI
SCALE	1" = 300'

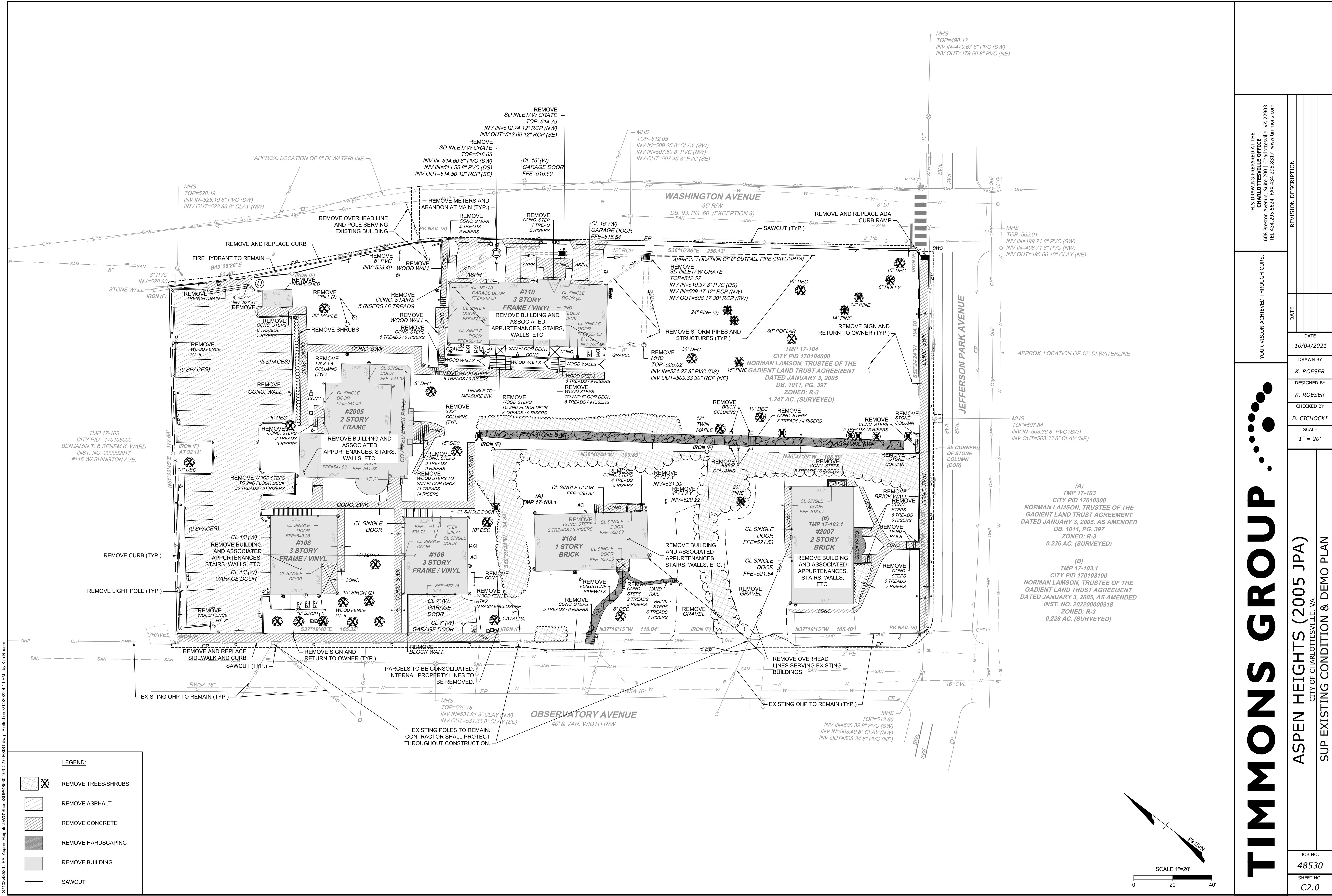
**TIMMONS GROUP**

ASPEN HEIGHTS (2005 JPA)  
 CITY OF CHARLOTTEVILLE, VA  
 SUP SITE CONTEXT

JOB NO.	48530
SHEET NO.	C1.0

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S:\10348530-JPA\_Aspen\_Heights\DWG\Sheets\JPA\48530-C1.0 SITE CONTEXT PLAN.dwg | Plotted on 3/14/2022 4:10 PM | by Kim Rowser



S:\10348530-UPA\_Aspen\_Heights\DWG\Sheets\UPA48530-102-C2-0-EXIST.dwg | Printed on 3/14/2022 4:11 PM | 13x Km Rooster

**ASPEN HEIGHTS (2005 JPA)**  
CITY OF CHARLOTTEVILLE, VA

**SUP EXISTING CONDITION & DEMO PLAN**

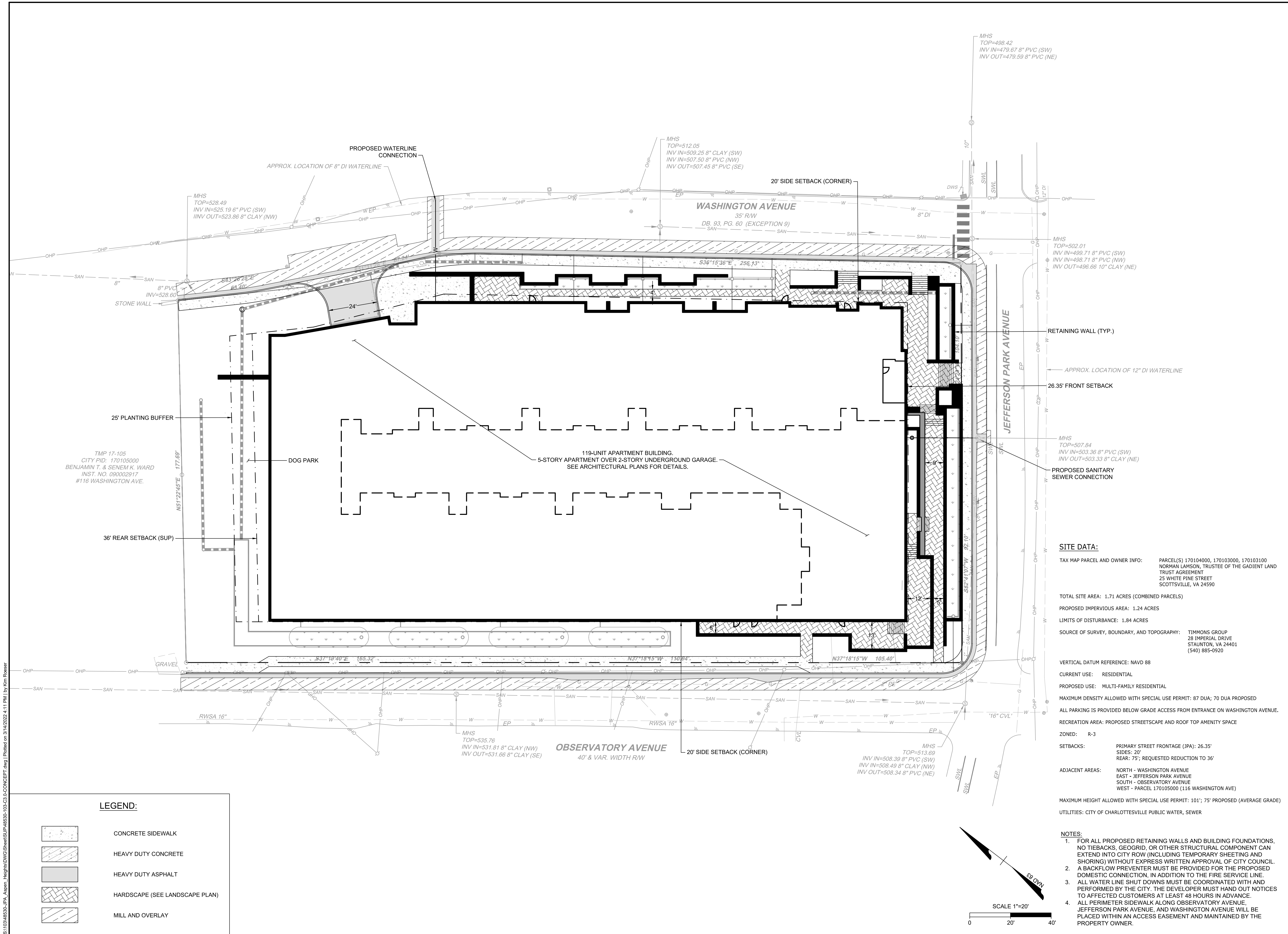
REVISION DESCRIPTION	DATE
YOUR VISION ACHIEVED THROUGH OURS.	10/04/2021

JOB NO.	48530
SHEET NO.	C2.0

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(A) TMP 17-103  
CITY PID 17010300  
NORMAN LAMSON, TRUSTEE OF THE  
GADIENT LAND TRUST AGREEMENT  
DATED JANUARY 3, 2005, AS AMENDED  
DB. 1011, PG. 397  
ZONED: R-3  
0.236 AC. (SURVEYED)

(B) TMP 17-103.1  
CITY PID 170103100  
NORMAN LAMSON, TRUSTEE OF THE  
GADIENT LAND TRUST AGREEMENT  
DATED JANUARY 3, 2005, AS AMENDED  
INST. NO. 202200000918  
ZONED: R-3  
0.228 AC. (SURVEYED)



TMP 17-105  
CITY PID: 170105000  
BENJAMIN T. & SENEM K. WARD  
INST. NO. 090002917  
#116 WASHINGTON AVE.

**LEGEND:**

	CONCRETE SIDEWALK
	HEAVY DUTY CONCRETE
	HEAVY DUTY ASPHALT
	HARDSCAPE (SEE LANDSCAPE PLAN)
	MILL AND OVERLAY

**SITE DATA:**

TAX MAP PARCEL AND OWNER INFO: PARCEL(S) 170104000, 170103000, 170103100  
NORMAN LAMSON, TRUSTEE OF THE GADIENT LAND TRUST AGREEMENT  
25 WHITE PINE STREET  
SCOTTSVILLE, VA 24590

TOTAL SITE AREA: 1.71 ACRES (COMBINED PARCELS)  
PROPOSED IMPERVIOUS AREA: 1.24 ACRES  
LIMITS OF DISTURBANCE: 1.84 ACRES

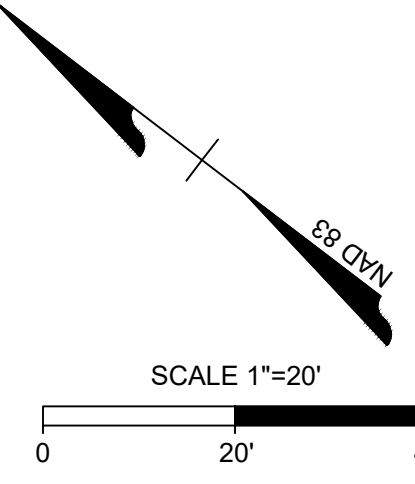
SOURCE OF SURVEY, BOUNDARY, AND TOPOGRAPHY: TIMMONS GROUP  
28 IMPERIAL DRIVE  
STAUNTON, VA 24401  
(540) 885-0920

VERTICAL DATUM REFERENCE: NAVD 88  
CURRENT USE: RESIDENTIAL  
PROPOSED USE: MULTI-FAMILY RESIDENTIAL  
MAXIMUM DENSITY ALLOWED WITH SPECIAL USE PERMIT: 87 DUA; 70 DUA PROPOSED  
ALL PARKING IS PROVIDED BELOW GRADE ACCESS FROM ENTRANCE ON WASHINGTON AVENUE.  
RECREATION AREA: PROPOSED STREETSCAPE AND ROOF TOP AMENITY SPACE  
ZONED: R-3  
SETBACKS: PRIMARY STREET FRONTAGE (JPA): 26.35'  
SIDES: 20'  
REAR: 75'; REQUESTED REDUCTION TO 36'

ADJACENT AREAS:  
NORTH - WASHINGTON AVENUE  
EAST - JEFFERSON PARK AVENUE  
SOUTH - OBSERVATORY AVENUE  
WEST - PARCEL 170105000 (116 WASHINGTON AVE)

MAXIMUM HEIGHT ALLOWED WITH SPECIAL USE PERMIT: 101'; 75' PROPOSED (AVERAGE GRADE)  
UTILITIES: CITY OF CHARLOTTEVILLE PUBLIC WATER, SEWER

- NOTES:**
- FOR ALL PROPOSED RETAINING WALLS AND BUILDING FOUNDATIONS, NO TIEBACKS, GEOGRID, OR OTHER STRUCTURAL COMPONENT CAN EXTEND INTO CITY ROW (INCLUDING TEMPORARY SHEETING AND SHORING) WITHOUT EXPRESS WRITTEN APPROVAL OF CITY COUNCIL.
  - A BACKFLOW PREVENTER MUST BE PROVIDED FOR THE PROPOSED DOMESTIC CONNECTION. IN ADDITION TO THE FIRE SERVICE LINE.
  - ALL WATER LINE SHUT DOWNS MUST BE COORDINATED WITH AND PERFORMED BY THE CITY. THE DEVELOPER MUST HAND OUT NOTICES TO AFFECTED CUSTOMERS AT LEAST 48 HOURS IN ADVANCE.
  - ALL PERIMETER SIDEWALK ALONG OBSERVATORY AVENUE, JEFFERSON PARK AVENUE, AND WASHINGTON AVENUE WILL BE PLACED WITHIN AN ACCESS EASEMENT AND MAINTAINED BY THE PROPERTY OWNER.



**TIMMONS GROUP**

**ASPEN HEIGHTS (2005 JPA)**  
CITY OF CHARLOTTEVILLE, VA  
SUP CONCEPT PLAN

THIS DRAWING PREPARED AT THE <b>CHARLOTTEVILLE OFFICE</b> 608 Preston Avenue, Suite 200   Charlottesville, VA 22903 TEL: 541.235.5624 FAX: 541.235.8317 www.timmons.com	YOUR VISION ACHIEVED THROUGH OURS.	REVISION DESCRIPTION	DATE
DATE 10/04/2021		DRAWN BY K. ROESER	
DESIGNED BY K. ROESER		CHECKED BY B. CICHOCKI	
SCALE 1" = 20'		JOB NO. 48530	
SHEET NO. C3.0		LIMITED TO CONSTRUCTION, BIDDING, AND/OR CONSTRUCTION STAKING WITHOUT THE EXPRESS WRITTEN CONSENT OF TIMMONS GROUP.	



**WATER QUALITY ANALYSIS (PRELIMINARY):**

**SITE DATA**  
 PRE DEVELOPED AREA  
 MANAGED TURF = 0.82 AC  
 IMPERVIOUS = 0.75 AC  
 PRE DEVELOPMENT LOAD (TP) (LB/YR) = 2.04 LB/YR  
 POST DEVELOPED AREA  
 MANAGED TURF = 0.33 AC  
 IMPERVIOUS = 1.24 AC  
 TOTAL POST DEVELOPMENT LOAD (TP) (LB/YR) = 3.36 LB/YR  
 TOTAL LOAD REDUCTION REQUIRED (LB/YR) = 1.48 LB/YR  
 ONSITE LOAD REDUCTION PROPOSED:  
 URBAN BIORETENTION PHOSPHORUS REMOVAL (LB/YR) = 1.31 LB/YR  
 DOWNSTREAM HYDRODYNAMIC PHOSPHORUS REMOVAL (LB/YR) = 0.21 LB/YR  
 TOTAL PHOSPHORUS REMOVED ON SITE = 1.52 LB/YR  
 THIS CONCEPTUAL EVALUATION DEMONSTRATES HOW AT SITE PLAN THE VIRGINIA STORMWATER MANAGEMENT PROGRAM REQUIREMENTS FOR WATER QUALITY WILL BE MET.

**WATER QUANTITY ANALYSIS (PRELIMINARY):**

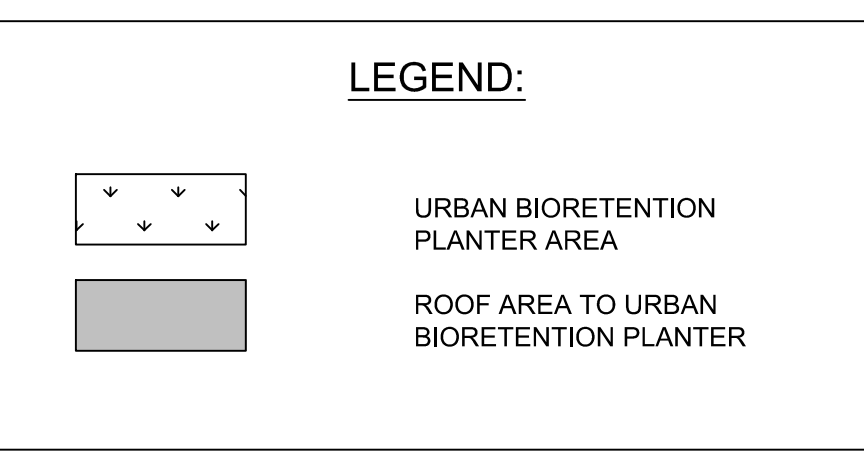
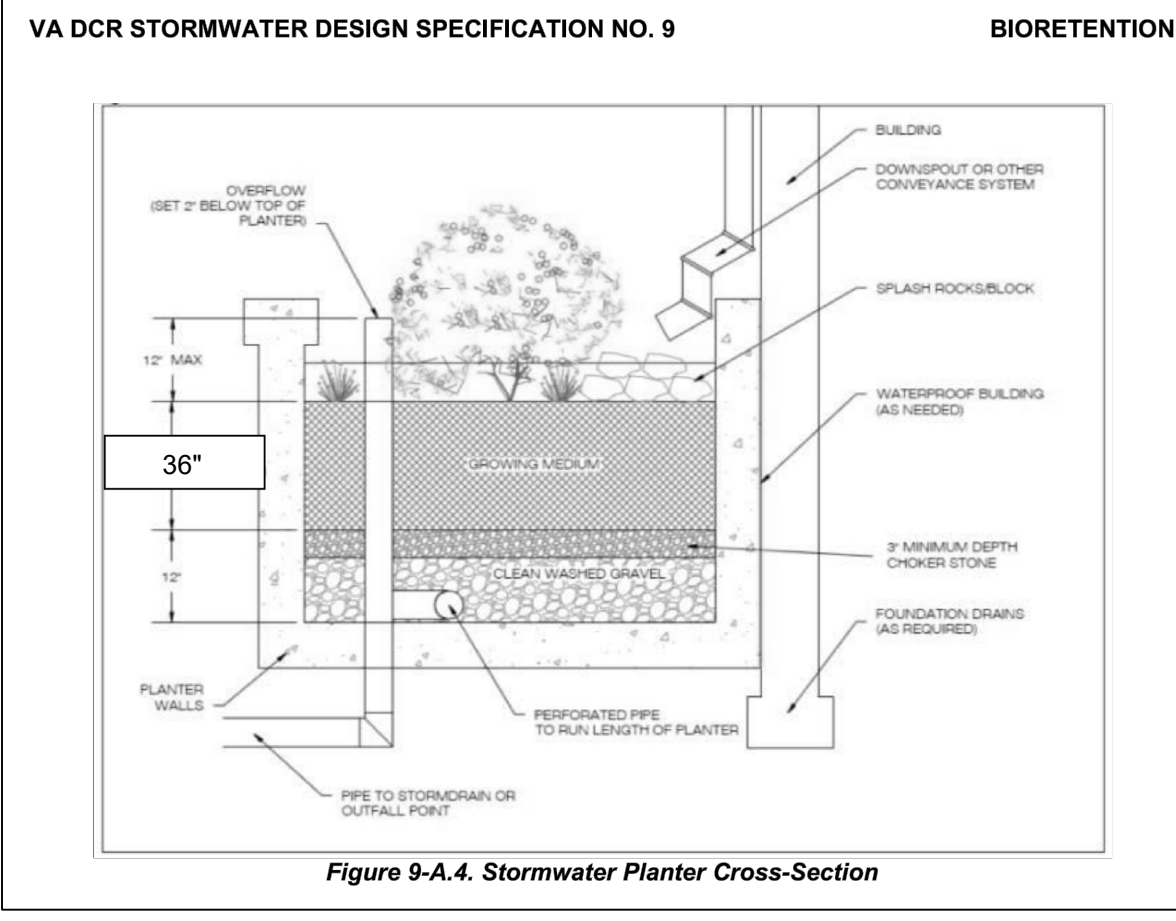
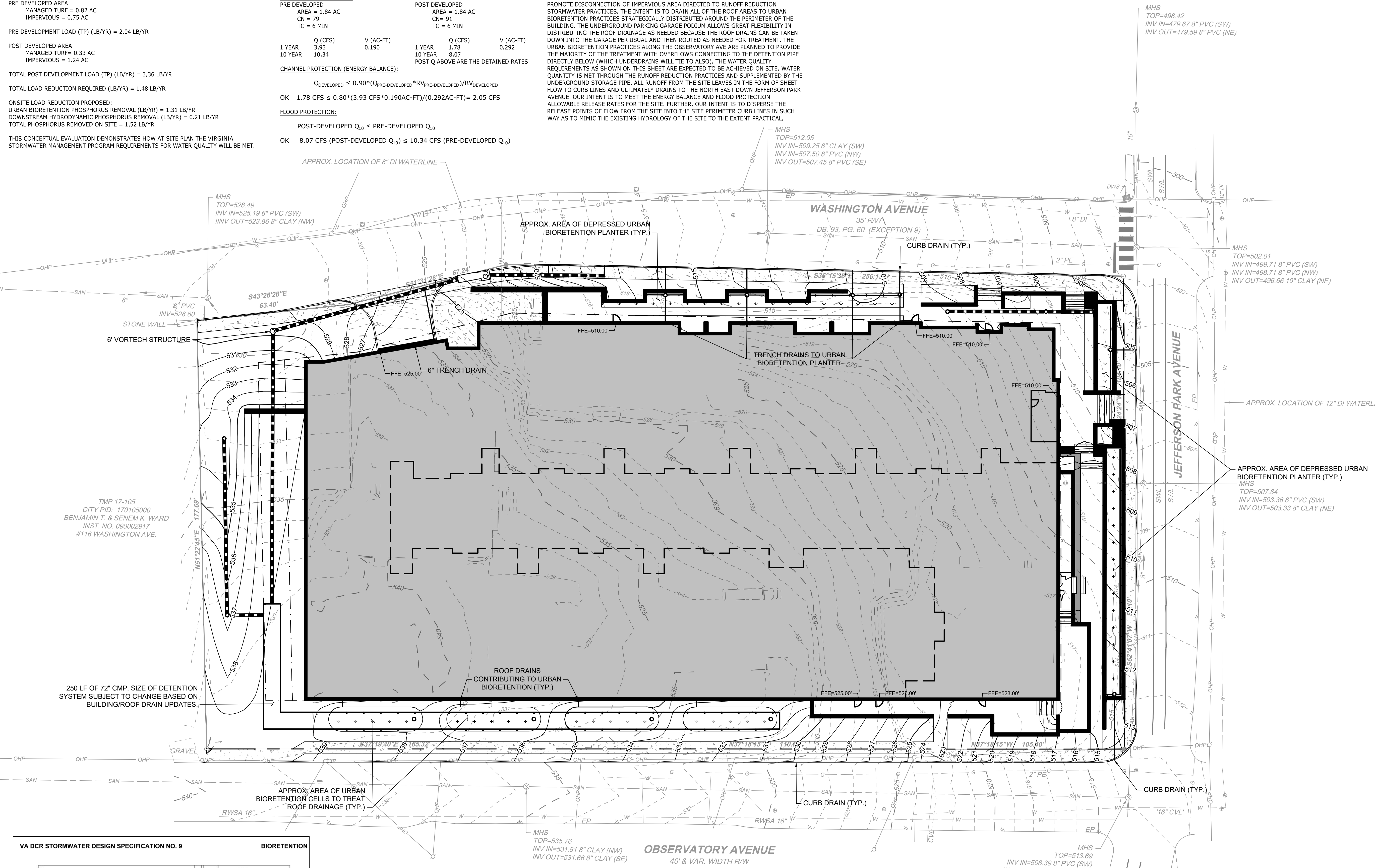
**DRAINAGE AREA ANALYSIS**  
 PRE DEVELOPED AREA = 1.84 AC  
 CN = 79  
 TC = 6 MIN  
 POST DEVELOPED AREA = 1.84 AC  
 CN = 91  
 TC = 6 MIN  

	Q (CFS)	V (AC-FT)	Q (CFS)	V (AC-FT)
1 YEAR	3.93	0.190	1.78	0.292
10 YEAR	10.34		8.07	

 POST Q ABOVE ARE THE DETAINED RATES  
**CHANNEL PROTECTION (ENERGY BALANCE):**  
 $Q_{DEVELOPED} \leq 0.90 * (Q_{PRE-DEVELOPED} * R_{PRE-DEVELOPED}) / R_{DEVELOPED}$   
 OK 1.78 CFS  $\leq$  0.80 \* (3.93 CFS \* 0.190 AC-FT) / (0.292 AC-FT) = 2.05 CFS  
**FLOOD PROTECTION:**  
 POST-DEVELOPED  $Q_{10} \leq$  PRE-DEVELOPED  $Q_{10}$   
 OK 8.07 CFS (POST-DEVELOPED  $Q_{10}$ )  $\leq$  10.34 CFS (PRE-DEVELOPED  $Q_{10}$ )

**STORMWATER MANAGEMENT NARRATIVE**

THE SITE TOPOGRAPHY AND BELOW GRADE PARKING GARAGE PODIUM WILL BE USED TO PROMOTE DISCONNECTION OF IMPERVIOUS AREA DIRECTED TO RUNOFF REDUCTION STORMWATER PRACTICES. THE INTENT IS TO DRAIN ALL OF THE ROOF AREAS TO URBAN BIORETENTION PRACTICES STRATEGICALLY DISTRIBUTED AROUND THE PERIMETER OF THE BUILDING. THE UNDERGROUND PARKING GARAGE PODIUM ALLOWS GREAT FLEXIBILITY IN DISTRIBUTING THE ROOF DRAINAGE AS NEEDED BECAUSE THE ROOF DRAINS CAN BE TAKEN DOWN INTO THE GARAGE PER USUAL AND THEN ROUTED AS NEEDED FOR TREATMENT. THE URBAN BIORETENTION PRACTICES ALONG THE OBSERVATORY AVE ARE PLANNED TO PROVIDE THE MAJORITY OF THE TREATMENT WITH OVERFLOWS CONNECTING TO THE DETENTION PIPE DIRECTLY BELOW (WHICH UNDERDRAINS WILL TIE TO ALSO). THE WATER QUALITY REQUIREMENTS AS SHOWN ON THIS SHEET ARE EXPECTED TO BE ACHIEVED ON SITE. WATER QUANTITY IS MET THROUGH THE RUNOFF REDUCTION PRACTICES AND SUPPLEMENTED BY THE UNDERGROUND STORAGE PIPE. ALL RUNOFF FROM THE SITE LEAVES IN THE FORM OF SHEET FLOW TO CURB LINES AND ULTIMATELY DRAINS TO THE NORTH EAST DOWN JEFFERSON PARK AVENUE. OUR INTENT IS TO MEET THE ENERGY BALANCE AND FLOOD PROTECTION ALLOWABLE RELEASE RATES FOR THE SITE. FURTHER, OUR INTENT IS TO DISPERSE THE RELEASE POINTS OF FLOW FROM THE SITE INTO THE SITE PERIMETER CURB LINES IN SUCH WAY AS TO MIMIC THE EXISTING HYDROLOGY OF THE SITE TO THE EXTENT PRACTICAL.



**TIMMONS GROUP**

ASPEN HEIGHTS (2005 JPA)  
 CITY OF CHARLOTTEVILLE, VA  
 SUP CONCEPT SWM & GRADING

DATE	10/04/2021
DRAWN BY	K. ROESER
DESIGNED BY	K. ROESER
CHECKED BY	B. CICHOCKI
SCALE	1" = 20'
JOB NO.	48530
SHEET NO.	C4.0

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REVISION DESCRIPTION

S:\10348530-JPA\_Aspen\_Heights\DWG\Sheets\SUP\48530-105-C4.0-GRAD-SWM.dwg [Plotted on 31/10/2022 4:11 PM] by Kim Roeser

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# Attachment C

## Affordable Dwelling Unit Ordinance Worksheet

### Step 1: Total Floor Area Ratio (FAR) of Site

A. Total size of development site:	1.71	acres			
B. Total square footage of site:	1.71	x	43,560.00	=	74,531.16 square feet (sf)
	(# of acres)				
C. 1.0 Floor Area Ratio (FAR):	74,531.16		<i>(total sf of site)</i>		
D. Gross Floor Area (GFA) of <b>ALL</b> buildings/uses:	183,648.00	sf			
E. Total site FAR:	183,648.00	÷	74,531.16	=	2.46
	<i>(total GFA of site)</i>		<i>(1.0 FAR)</i>		
F. Is E greater than or equal to 1.0 FAR?	NO: Your proposed development does not trigger the ADU ordinance.				
	YES: Proceed to Step 2 or Step 3.				

### Step 2: Number of ADUs Required

G. GFA in excess of 1.0 FAR:	183,648.00	-	74,531.16	=	109,116.84
	<i>(D: total site GFA)</i>		<i>(B: total SF of site)</i>		
H. Total GFA of ADUs required:	109,116.84	x	0.05	=	5,455.84
	<i>(G: GFA in excess of 1.0 FAR)</i>				
I. Equivalent density based on Units Per Acre:					
i. Dwelling Units per Acre (DUA) approved by SUP:	70.00				
ii. SF needed for ADUs:	5,455.84	÷	43,560.00	=	0.1252489 acres
	<i>(H: Total GFA of ADUs)</i>				
iii. Total number of ADUs required:	0.1252489	x	70.00	=	8.77
	<i>(ii: ADU acreage)</i>		<i>(i: DUA approved)</i>		

### Step 3: Cash-in-Lieu Payment

J. Cash-in-Lieu Amount Residential:	183,648.00	x	\$2.370	=	\$435,245.76
K. Cash-in-Lieu Amount Mixed-Use:					
Total GFA of development site:	183,648.00				
GFA Occupied Commercial Space:	0.00				
GFA Occupied Residential Space:	183,648.00				
Total GFA Occupied Space:	183,648.00	%	Residential:	1.00	
GFA Non-Occupied Space*:	0.00				
		Proportionate amount of non-occupied space GFA for residential use:	0.00		
Amount of Payment:	183,648.00	x	\$2.370	=	\$435,245.76

*\*GFA of non-occupied space shall include: (i) basements, elevator shafts and stairwells at each story, (ii) spaces used or occupied for mechanical equipment and having a structural head room of six (6) feet six (6) inches or more, (iii) penthouses, (iv) attic space, whether or not a floor has been laid, having a structural head room of six (6) feet six (6) inches or more, (v) interior balconies, and (vi) mezzanines. GFA shall not include outside balconies that do not exceed a projection of six (6) feet beyond the exterior walls of the building; parking structures below or above grade; or and roof top mechanical structures.*

# Attachment C

**Step 4: Minimum Term of Affordability**

L. Residential Project

i. Households earning up to 80% AMI:

Unit Type	Eff.	1BR	2BR	3BR	4BR	5BR	6BR
Number of Units							
Market Rent							
HUD Fair Market Rents	\$752.00	\$1,027.00	\$1,179.00	\$1,478.00	\$1,772.00	\$2,037.00	\$2,303.00
HUD Utility Allowance							
Difference per Month	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annual Cost of ADU	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Total Annual Cost of ADUs: 0.00 (Sum of Annual Cost of ADU)

Minimum Term of Affordability\*: #DIV/0! (Cash-in-lieu payment / Total annual cost of ADUs)

**\*If answer is less than 5, then minimum term of affordability will be 5 years.**

M. Mixed-Use Project

i. Households earning up to 80% AMI:

Unit Type	Eff.	1BR	2BR	3BR	4BR	5BR	6BR
Number of Units							
Market Rent							
HUD Fair Market Rents	\$752.00	\$1,027.00	\$1,179.00	\$1,478.00	\$1,772.00	\$2,037.00	\$2,303.00
HUD Utility Allowance							
Difference per Month	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annual Cost of ADU	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Total Annual Cost of ADUs: 0.00 (Sum of Annual Cost of ADU)

Minimum Term of Affordability\*: #DIV/0! (Cash-in-lieu payment / Total annual cost of ADUs)

**\*If answer is less than 5, then minimum term of affordability will be 5 years.**

## Attachment D

**From:** Karimi, Hamid Jim (hk6ty) hk6ty@virginia.edu   
**Subject:** Aspen Heights Building Plan  
**Date:** November 30, 2021 at 1:31 PM  
**To:** eh@mitchellmatthews.com  
**Cc:** afelem@charlottesville.gov



Dear Erin Hannegan,

Thank you for your recent letter regarding your upcoming request for a Special Use Permit for 104 Observatory Avenue.

I am the resident and owner of 113 Observatory Avenue. Reading your project proposal, I am primarily concerned about on-street parking. Occasionally, cars parked on the road block my way out of my driveway.

On-street parking has also presented a problem for the trash-pickup services, as their trucks are sometimes unable to navigate through Observatory Avenue.

You are proposing a 10% reduction in required parking spaces for your planned units. I would like to know what you anticipate as an effect of this on on-street parking. With so many new units being proposed, what recommendations do you have, if any, to regulate parking?

I very much appreciate any information and recommendations you may have to help alleviate this problem.

Thank you for your time and consideration.

Regards,

Hamid Karimi

## Attachment D

**From:** Bill Schaaf billschaafs@gmail.com  
**Subject:** 2005 JPA Project  
**Date:** December 15, 2021 at 2:35 PM  
**To:** eh@mitchellmatthews.com

---



Good Afternoon Erin,

The attached letter expressed my concerns with the proposed development. Please review and comment if you like. I was unable to view the virtual presentation.

Thank you,

Bill Schaaf  
814-882-769



Washington Ave  
2005 p...ect.odt

## Attachment D

December 15, 2021

Mitchell / Matthews Architects  
Erin Ferguson, Project manager  
PO Box 5603  
Chancellorsville, VA 22905

Good Morning Erin,

Thank you for the information on the **2005 JPA** proposed development. I was unable to attend the virtual meeting.

I own the property at 113 Washington Ave. If I understand the plans correctly the proposed ingress and egress for the parking garage would be very close to the front door of my property

I am most concerned that the proposed plan and related appeal would put an unreasonable amount of traffic on Washington Avenue. This street has a downward slope to the south from your parking entrance towards JPA and a rising slope approaching the garage entrance from the stadium. The result, in my opinion, would be creating a potential hazard for vehicles entering and exiting your garage. They would not see approaching vehicles on Washington Ave when turning into or leaving the garage. If everybody followed the speed limit it would be less of a problem, but they do not. This residential street was not designed to handle high density development. Ingress and egress would be more properly facing JPA. It solves the safety of visibility and the wider street would permit the higher density traffic.

The second concern is the request for a decrease in the total parking by 10 % The reality is that it should be increased. My 4 bedroom dwelling has 5 occupants and 5 cars. There is not adequate parking for them on the street and includes using the existing driveway. The typical college student comes to the University with a vehicle. The plan as presented does not address where the others will park. The plan does not recite the number of parking spaces that will be in the garage. The minimum requirement should be one parking space per bedroom.

I don't want to be a property owner that says "NIMBY" – Not in My Back Yard. However, the request for variances serve the best interest of the developers and not the interest of the neighborhood. Perhaps you are asking for the moon and will settle for something reasonable and acceptable to both. I ask you to look very closely at the impact of traffic and parking as you finalize your design.

Sincerely

William E. Schaaf  
5017 Westbury Farms Drive

Attachment D

Erie, PA 16506  
814-882-7696

cc: Mat Alfele

## Attachment D

KH

**From:** Kenneth Hill micasabe@gmail.com  
**Subject:** Fwd: 2005 JPA Project  
**Date:** January 6, 2022 at 5:02 PM  
**To:** eh@mitchellmatthews.com

Hi Erin:

I received notice from Mr. Shaaf about the 2005 JPA project, the next-door owner. My property is at 111 Washington Ave.

According to the project plan video, the vehicle exit and entryway are right across from my property, as well as the trash pickup area. I have serious concerns re 390 tenants and 125 and only parking spaces. I have 8 tenants in my duplex and each has their own car. Five of them park on the street.

It is hard enough to find a parking space on Washington Avenue now and little enforcement, so I can really see this by the numbers for what it is.

I would like to know when the public was first made aware of this project. I was not informed of such and believe a number of my non-resident neighbor owners were not as well.

I would like to know who to contact (emails preferably) in the transportation department and the planning commission to find out more information and to provide feedback accordingly.

Please put my email on a list of any information on the 2005 JPA project moving forward.

V/R  
Kenneth Hill  
111 Washington Ave owner  
703-280-1742

----- Forwarded message -----

**From:** Bill Schaaf <[billschaafsr@gmail.com](mailto:billschaafsr@gmail.com)>  
**Date:** Sat, Dec 18, 2021 at 10:58 AM  
**Subject:** Fwd: 2005 JPA Project  
**To:** <[micasabe@gmail.com](mailto:micasabe@gmail.com)>

----- Forwarded message -----

**From:** Bill Schaaf <[billschaafsr@gmail.com](mailto:billschaafsr@gmail.com)>  
**Date:** Wed, Dec 15, 2021 at 3:48 PM  
**Subject:** Re: 2005 JPA Project  
**To:** Erin Hannegan <[eh@mitchellmatthews.com](mailto:eh@mitchellmatthews.com)>

Thank you.

I reviewed the video. The parking and traffic seem to be identified by multiple viewers as being of concern. I would like the name and address of the planning commission that asked for a reduction in parking spaces so I can have dialogue with them. It is somewhat naive that students that can pay the rental prices of your building will not have cars available to them. One participant brought up the challenge of visitors and their parking.

Really concerned about those two issues.

Bill Schaaf  
814-882-7696

On Wed, Dec 15, 2021 at 2:55 PM Erin Hannegan <[eh@mitchellmatthews.com](mailto:eh@mitchellmatthews.com)> wrote:

Bill,

Thanks for your interest in our project and for your letter. Did you happen to leave me a voicemail just a little while ago? Your partial number below appears to match the voicemail, albeit, no name was left in the VM.

If so, follow the below link to access the archived video of Tuesday, Dec. 7th's Neighborhood meeting for our proposed project titled "2005 JPA". This will remain accessible throughout the review process. Please feel free to forward this email to neighbors who could not attend.

<https://transcripts.gotomeeting.com/#/s/9e98af90f4404d2dd2a2a7d7cca2cfaff77ec76ae4c36d12dfbefe6788c32>

Additionally, as one slide (#14) had an incorrect title, (explained during the meeting), here is a link to a pdf of the slides, with that title corrected:

<https://mitchellmatthewsarchitects.sharefile.com/d-se9d73fea857143d28596cd8eed6847d3>

A pdf of the original slides (used for the meeting) is also available for download from the video archive link (the first link) above.



## Attachment D

I will forward your letter on to our civil & traffic engineer.

Please continue to reach out with additional questions or comments. Thank you for your time.

Sincerely,  
Erin

Erin Hannegan, LEED AP  
Project Manager  
Mitchell/Matthews Architects & Planners  
a | P.O. Box 5603, Charlottesville, VA 22905  
e | [eh@mitchellmatthews.com](mailto:eh@mitchellmatthews.com)  
p | 434.979.7550 x 208  
c | 215.266.6943  
f | 434.979.5220

On Dec 15, 2021, at 2:35 PM, Bill Schaaf <[billschaafsr@gmail.com](mailto:billschaafsr@gmail.com)> wrote:

Good Afternoon Erin,

The attached letter expressed my concerns with the proposed development. Please review and comment if you like. I was unable to view the virtual presentation.

Thank you,

Bill Schaaf  
814-882-769

Attachment D

127 Observatory Avenue  
Charlottesville, VA 22909  
January 21, 2022

Mr. Matt Alfele  
AICP City Planner  
Department of Neighborhood  
Development  
City Hall

Dear Mr. Alfele

Re: Special Land Use Permit Request  
for 2005 Jefferson Park Avenue

Thank you for your letter of January 18  
concerning the above.

I attach my response statement and  
reasons for asking that this request be denied.  
In particular, water issues being my major  
concern: not only underground water weakening  
the foundations of the building and its underground  
parking, but also increase sewage disposal  
problems as well.

For these reasons alone I hope the special  
land use permit request will be denied.

Sincerely

Angela Johnson

January 21 2022

Re: Special Land Use permit  
for 2005 Jefferson Park Avenue

As a long-term home owner, residing on  
Observatory Avenue, I am asking that this  
Special Land Use permit <sup>request</sup> be denied.

This proposed construction, wedged in between  
Observatory Avenue and Washington Street  
to accommodate 390 students in 119 units  
with only 125 underground parking spaces in my  
view is Unthinkable.

When I retired from the Virginia Transportation  
Research Council <sup>Library</sup> in 2002, even then parking and  
traffic issues within the city were a high priority -  
even more so today. Already Observatory Avenue,  
a dead-end and narrow street has problems with  
delivery trucks and trash collection.

I mention too, the proposed construction site may not  
be able to support the weight of a heavy building,  
due to <sup>possible</sup> erosion from the streams underground that  
cross cross Observatory Avenue and Washington Street

Again, I respectfully ask you to consider denying  
this special land use permit request.

Angeli Andrews  
127 Observatory Avenue

**Alfele, Matthew**

---

**From:** Anne Benham <apbe4n@gmail.com>  
**Sent:** Thursday, February 10, 2022 5:39 PM  
**To:** Alfele, Matthew; Anne Benham  
**Subject:** ASPEN TOPCO II Special Use Permit (SUP) application / JPA and Observatory Ave  
**Attachments:** TRAFFIC\_Parking\_Observatory (2).jpg; TREES\_3STORYBLDGS\_104\_OBSERVATORY.jpg; TREES\_JPA\_SUP.jpg

**Follow Up Flag:** FollowUp  
**Flag Status:** Flagged

**WARNING:** This email has originated from **outside of the organization**. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Mr. Alfele

Re: ASPEN TOPCO II Special Use Permit (SUP) application / JPA and Observatory Ave

It's important to me that the City Department members who will review the above referenced SUP will read and acknowledge receipt of my comments on this application. Please confirm that you have received and read my message in an email to me. I thank you in advance for this.

As a long-time resident homeowner of Observatory Avenue, I'm writing to **urge that you reject** the Special Use Permit application by Aspen Topco II to build a large student complex on 2005-2007JPA /104 Observatory, for reasons of safety, building scale, density, and the required parking reduction inappropriate for our street. I also have concerns about the destruction of green space and about the reputation of the developer.

**Parking, Traffic, Safety Issues**

Observatory Avenue is a narrow dead end street, with only one lane of traffic available when there are vehicles parked on the street, which is most of the time. It's very difficult to back out of a driveway when there are cars parked on the street, especially in the snow. Last week I saw my neighbor struggle to avoid hitting a car parked across from her driveway as she backed out.

Large vehicles such as garbage or UPS trucks block traffic when they're on the street. They must back down the street to exit, because there is no space for them to turn around at the end of the street. A fire truck or ambulance would be unable to drive down Observatory if there were other large vehicles on the street or many parked cars. The proposed new complex calls for 390 students, with underground parking provided for only 125. This leaves scores of students without spaces, many of whom (and their visitors) will want to park on our street. Observatory Avenue can't possibly handle much more parking. SEE ATTACHED PHOTO, taken from my driveway last week, of traffic and parking conditions on Observatory.

**Scale, Height, Density, Duration of Construction**

The five to seven story building of the proposed project is much larger than and way out of proportion with the existing structures on Observatory, none of which is currently higher than three stories. PLEASE SEE

## Attachment D

ATTACHED PHOTO OF 3-STORY BUILDINGS CURRENTLY ON PROPOSED BUILDING SITE on Observatory. The proposed five to seven story building, at certain times of the day, will cast big shadows on adjacent properties, eliminating or reducing sunlight necessary for established plantings or growing flowers and vegetables in the summer on these properties, mine included. The proposed density of 390 occupants will bring more artificial light at night, more noise and more parked cars to the street, not to mention the destruction of a significant green space (see next item below).

The construction is estimated to take two years – a very long time for Observatory and Washington residents to have to bear the (unhealthy) dust, loud noise, additional parking by employees working on the building, and treeless, bleak, unsightly views of the construction process. The process and completion of the proposed complex will dramatically alter the character of Observatory and reduce quality of life for its residents, in terms of traffic, safety, health, the environment and aesthetics.

### **Destruction of Tree Canopy and Increased Heat Island Effect**

Currently, there are over two dozen trees on the SUP property. They form part of Charlottesville’s urban forest, [which continues to decline](#). These trees provide carbon sequestration, shade, cooling, air purification, and stormwater management. They mitigate the urban heat island effect in our neighborhood. If the SUP goes forward, 27 mature trees will be cut down. In their place small, young trees will be planted. However, it takes decades for young trees to provide the same cover as mature trees, as City Planning Commissioner Stolzenberg says in a [Charlottesville Tomorrow 2020 article](#).

According to [a Charlottesville Tomorrow 8/30/21 article](#) on heat islands, the JPA neighborhood is already one of the hottest parts of the city. This is corroborated by [a January 2021 article, in which Tree Commission Chair Brian Menard](#) is quoted: *Simply put, less shade equals higher levels of heat, negative health outcomes, and higher energy costs ...Neighborhoods with tree canopy below 40 percent are effectively unhealthy neighborhoods.* In the January 2021 article graphic the tree canopy percentage listed for the JPA area is 36.6%.

Removal of over two dozen shade-providing trees and the increase of impermeable surfaces, which will occur if this SUP is approved and the complex is built, can only increase the heat island effect in our neighborhood

PLEASE SEE ATTACHED PHOTOS for examples of the trees that would be removed if the proposed project is approved.

### **Concerns about Aspen Heights History**

I’m concerned about a company with major problems in its track record coming to build a complex in my neighborhood. Some reports on problems with their projects:

[2020 Baltimore Sun article on Towson students who filed lawsuit against Aspen Heights](#)

[2020 Texas law firm reports on a multimillion dollar lawsuit won against a company controlled by the Aspen Heights group of companies.](#)

[2014 Columbia Missourian article on high student housing utility bills and connection to Aspen Heights construction of student housing building.](#)

[2013 KOMU article reports on unpaid workers controversy concerning Columbia Mo. student housing built by Aspen Heights](#)

**Attachment D**

**Please Note:** Aspen Topco II, LLC is registered to Aspen Heights Partners CEO Greg Henry.

Sincerely,

Anne Benham

116 Observatory Ave

[apbe4n@gmail.com](mailto:apbe4n@gmail.com)







Attachment D



**Alfele, Matthew**

---

**From:** Bill Schaaf <billschaafs@gmail.com>  
**Sent:** Tuesday, February 15, 2022 12:21 PM  
**To:** Alfele, Matthew  
**Cc:** Kenneth Hill  
**Subject:** JPA 2005 project

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

**WARNING:** This email has originated from **outside of the organization**. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon Matt.

Let me begin by stating that I am not in opposition to this development as I have been a real estate investor for years. I own a property at 113 Washington Avenue that will be impacted by the proposed construction. I am confident that the project will move forward and neighbors' reasonable concerns will be responded to.

My big concern is that the parking is very inadequate. I base this on the fact that at my property I have 6 tenants and six cars attributed to them. My neighbor to the south has a similar situation. For the developers and planners to ignore this statistic is not a good answer to a significant concern. Of course, related to the vehicles is the single exit and ingress off Washington. Washington Ave is not designed to handle this traffic flow and the related impact on JPA. The garbage collection site is nearly opposite my property. I believe this will be an ongoing problem with smell, trash flying etc if it is not completely enclosed.

Is there any chance that I could appear virtually? I don't live in Charlottesville.  
You can reach me at 814-882-7696 to discuss these concerns.

Bill Schaaf

**Alfele, Matthew**

---

**From:** Erin Hannegan <eh@mitchellmatthews.com>  
**Sent:** Friday, December 3, 2021 12:36 PM  
**To:** Karimi, Hamid Jim (hk6ty)  
**Cc:** Alfele, Matthew; Matthews, John  
**Subject:** Re: Aspen Heights Building Plan

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

**WARNING:** This email has originated from **outside of the organization**. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Hamid,

Thank you for your inquiry into our proposed project and your recent follow up phone call.

As a team, we are aware that Observatory Avenue has owner occupied residences, (as opposed to Washington Avenue) and is a narrower street. I am sorry to hear that you are currently experiencing some parking problems on your street. After further review of the existing conditions, we understand that Observatory Avenue is a permit parking only street already. It appears that the existing street width is typically not wide enough to support on-street parking, which explains your concerns about navigation for trash trucks, etc.

It is our opinion that parking is a problem virtually everywhere in close proximity to the University and the Hospital, and is not specific to newer residential projects. New purpose-built student residences generally do a better job at providing adequate parking and other amenities for their residents when compared to the condition created by conversion of older homes to student residences. As I expect you realize, this project cannot stop illegal or nuisance parking issues, but we expect it will house all its parking needs on site, below grade and out of view, with no vehicular access to/from Observatory Avenue. This should be a major improvement over the current condition. In addition, trash services for our proposed project are also located off of Washington Avenue.

The request for a 10% reduction in parking is based on a few factors: 1) Planning Commission suggested we build less parking during our recent informal discussion, 2) calculation of existing on-street parking at the perimeter of the site, suggests there are at least 16 spaces - 8 available spaces on JPA, 4 spaces on Washington Avenue, and 4 spaces on Observatory Avenue. (Refer to attached image). Observatory Avenue does not appear wide enough to accommodate on-street parking for much of its length, however the city has not restricted the on street parking. The proposed design will eliminate many of the existing access points / driveways, and therefore potentially increase the available spaces on-street, if the city does not enforce its street width requirements. 3) the University has parking available to students at Scott Stadium, within easy walking distance of this project (and the neighborhood at large) as well as at other locations around Grounds accessible via the University Transit System and 4) finally, for your specific benefit as a resident of Observatory Ave, the main entrances to the building are on the corner of JPA and Washington - thus parking on Observatory will be the least convenient location compared to other available on-street parking on JPA and Washington Ave.

After we (the neighborhood and our team) jointly understand the city's current monitoring of the area, potential solutions could be improved 'permit parking only' signage and increased frequency of monitoring for non-compliant parking, by city parking enforcement. I would appreciate knowing if you felt these suggestions would be helpful to you and your neighbors.

## Attachment D

As requested over the phone, here's a link to our preliminary packet, used during our informal discussion with planning commission. I look forward to meeting you (virtually) on Tuesday. Get in touch if you have further questions.

<https://mitchellmatthewsarchitects.sharefile.com/d-s722f7162427c441bad7fccd3d407ba83>

Sincerely,  
Erin

Erin Hannegan, LEED AP  
Project Manager  
Mitchell/Matthews Architects & Planners  
a | P.O. Box 5603, Charlottesville, VA 22905  
e | [eh@mitchellmatthews.com](mailto:eh@mitchellmatthews.com)  
p | 434.979.7550 x 208  
c | 215.266.6943  
f | 434.979.5220



## Attachment D

On Nov 30, 2021, at 1:31 PM, Karimi, Hamid Jim (hk6ty) <[hk6ty@virginia.edu](mailto:hk6ty@virginia.edu)> wrote:

Dear Erin Hannegan,

Thank you for your recent letter regarding your upcoming request for a Special Use Permit for 104 Observatory Avenue.

I am the resident and owner of 113 Observatory Avenue. Reading your project proposal, I am primarily concerned about on-street parking. Occasionally, cars parked on the road block my way out of my driveway.

On-street parking has also presented a problem for the trash-pickup services, as their trucks are sometimes unable to navigate through Observatory Avenue.

You are proposing a 10% reduction in required parking spaces for your planned units. I would like to know what you anticipate as an effect of this on on-street parking. With so many new units being proposed, what recommendations do you have, if any, to regulate parking?

I very much appreciate any information and recommendations you may have to help alleviate this problem.

Thank you for your time and consideration.

Regards,

Hamid Karimi

## Attachment D

Dear Matt Alfere and City Regulators,

I am writing because I am concerned about Aspen Heights Partners' application for a more than threefold increase in by-right density and a reduction in required parking spaces for their proposed construction of new student housing on Observatory Avenue and the adjacent streets.

I am the resident and owner of 113 Observatory Avenue. I have lived on this address for nearly 10 years.

Occasionally, cars parked on the road block my way out of my driveway. There is a telephone post right at the corner of my driveway. Whenever a car is parked on the other side of the road across from my driveway, there is no way I can navigate my vehicle out and turn onto the road without hitting the car behind or the telephone post. On several occasions I have had to knock on my neighbor's door in the early hours of the morning to ask them to move their cars, so I could get out. It is never a pleasant experience to wake a neighbor early in the morning.

On-street parking has also presented a problem for the trash-pickup services, as their trucks are sometimes unable to pass through Observatory Avenue.

Last year I took the issue up with the local traffic authorities and Neighborhood Development, but I never heard back.

The suggestion, presented by Aspen Heights Partners and their architects, that many students do not own cars and commute on the buses is not at all what we are seeing in this neighborhood. Has their suggestion been independently verified? Our experience is that for every 3 or 4 students, there are 4 or 5 cars parked at and around their residencies. The extra cars belong to their visitors. The proposed 119 new units means many weekly student parties and overnight visitors, who will squeeze their cars into any space available on Observatory and Washington Avenue without worrying about the disruption this may cause for other residents.

I bought this house because Observatory Avenue is a nice and quiet neighborhood, conveniently located within walking distance of where I currently work. Aspen Heights Partners and their architects claim that building a giant edifice in this neighborhood will be nothing more than simply following a trend already happening in this area: homeownership being turned into rentals. Contrary to their claim, the percentage of owner-occupancy has increased on our street over the last few years (111 and 125 Observatory Ave were both rentals, now owner-occupied. I believe 113 was also a rental at some point in the past). This is roughly a 15% increase in owner-occupancy on Observatory Avenue. The proposed construction will not simply follow a trend. It may dictate a new trend: it may force out the existing homeowners, in particular professionals working at UVA and those seeking a retirement in peace, in favor of investors who themselves live outside of this community. I hope that the city officials will protect the interests of the residents in this neighborhood.

## Attachment D

I am not opposed to any project that improves student accommodation in our community. In my opinion, students add so much value to our city. I have a job because of them. I want our students to live well and have a good, vibrant time during their tenure at the university. I am only objecting to building a high-density-low-parking edifice that does not adequately address the concerns and the welfare of the existing residents. For this reason, I request that Aspen Heights Partners' application for Special Use Permits for increased density and reduced parking be denied in its current form. More density will bring more vehicles. Any student housing built on this site should provide for more parking spaces. There needs to be more regulations as conditions for any such project. In my view, the parking provisions should sufficiently accommodate not only the need for parking spaces for the residents of the units, but also take into account their guests and overnight visitors.

Thank you for your time and consideration.

Regards,

Hamid Karimi



**Alfele, Matthew**

---

**From:** Jennifer King <jenniferking@chaseinv.com>  
**Sent:** Tuesday, February 22, 2022 9:45 AM  
**To:** Dowell, Taneaia; Habbab, Karim; Lahendro, Jody; hosealmitchells@gmail.com; Palmer, William Charles; Russell, Liz; Solla-Yates, Lyle; Stolzenberg, Rory  
**Cc:** Alfele, Matthew  
**Subject:** SUP 2005-2007 JPA/104 Observatory Ave

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

**WARNING:** This email has originated from **outside of the organization**. Do not click links or open attachments unless you recognize the sender and know the content is safe.

To the Planning Commission:

The Jefferson Park Avenue Neighborhood Association Board respectfully requests that the Planning Commission and City Council REJECT the application of Aspen Topco II for Special Use Permits to construct a residential building aimed at student renters at 2005-2007 JPA/104 Observatory Ave. The developer requests a height of 75 feet, almost twice the height permitted by the current R-3 zoning of this location, and a density of 119 units, more than three times the density of 36 units permitted by zoning. They also request a reduction of rear setback from 75 feet to 36 feet and a 22% reduction in required parking.

This application, made soon after City Council approved the FLUM, anticipates a rezoning of the JPA neighborhood as “higher intensity residential” and a redesignation of Jefferson Park Avenue as an “urban mixed use corridor.” But this rezoning has not yet happened and it is not a given that it will happen precisely as the FLUM proposes. The 2021 Draft Comprehensive Plan projects rezoning to take 1-3 years, using a deliberative, community-collaborative, step-by-step rezoning process. Moreover, the rezoning proposed in the FLUM is highly controversial; it has already provoked a lawsuit. Aspen Topco II Acquisitions’ application not only jumps the gun on the City’s collaborative rezoning process, but even requests a radical increase in height (7 stories) compared to that envisaged by the FLUM for “higher intensity residential” (5 stories).

According to the [City Code guidelines for Special Use Permits](#) (Section 34-157, item 1) the Planning Commission must consider "whether the proposed use or development will be harmonious with existing patterns of use and development within the neighborhood". The SUP guidelines also specify that the Planning Commission must consider "whether the proposed use or development will have any potentially adverse impacts on the surrounding neighborhood, or the community in general", including traffic or parking congestion (item 4a), undue density of population or intensity of use (item 4e), and massing and scale of project (item 4j). This project has adverse effects in all these ways.

1. Parking and Safety.

Observatory Ave. is a narrow, dead-end street that already has more cars than it can tolerate. The developer proposes to provide only 125 parking spaces for a population of 390 students, on the grounds of proximity to [U.Va.](#) and to a bus stop. However, it is well known that students prefer to have cars for purposes other than going to school. Even if the developer increased the number of on-site parking spaces, the addition of hundreds of cars of both residents and their guests would add to the already hazardous traffic conditions on both Observatory Ave. and Washington Ave.

2. Massing and scale.

The developer proposes to place a 5-7 story building directly across from one-story houses on Observatory and two-story houses on Observatory and Washington, and in front of a one-story house on Washington. It would be grossly out

## Attachment D

of scale in relation to the surrounding neighborhood, and its shadow would deprive nearby homes of sunlight. Note that on p. 6 of their application the developer misleadingly states that "newer projects range in scale from five to nine stories facing JPA," and they include a photo of the 9-story building in the "neighborhood context photos" on p. 12. In fact that building, 1800 JPA, is located on the side of JPA that is in a higher density zone (University High Density) than the side where the proposed building would be located. 1800 JPA is also set considerably back from the street, unlike the proposed building. Furthermore, the developer also misleadingly claims that "the 2013 Comprehensive Plan modified the zoning in the JPA neighborhood ... Rather than UHD, R-3 and R-2U spanning east to west between the railroad and Stadium Road, the entire area was designated as High-Density residential" (p. 14). In fact, there has been no rezoning of the neighborhood, as shown by the developer's own zoning map on p. 11 of their application.

3. This project will not increase the City's inventory of badly-needed affordable housing. On the contrary, it will replace current units on the site that are relatively affordable with luxury units targeting [U.Va.](#) students. As stated in their December 7 presentation to the neighborhood, the developer plans to charge rents at "market rate".

4. Environmental concerns.

Considering that six buildings will be removed to make way for one large U-shaped building with underground parking, there are several environmental concerns. The impervious surface will be greatly enlarged, so the ground water absorption will be greatly reduced with increased water into city drainage systems and the local creek for the surface water runoff. The removal of 27 trees will reduce the canopy cover that the city aims to enhance. The addition of 390 students will increase litter, noise, lights and fumes from car uses and personal gatherings.

5. Entrance corridor concerns.

The City's [Entrance Corridor Design Guidelines](#) specify that "[n]ew building design should be compatible (in massing, scale, materials, colors) with those structures that contribute to the overall character and quality of the corridor" and that they "should complement the City's character and respect those qualities that distinguish the City's built environment." The proposed structure is hugely disproportionate in massing and scale with nearby buildings in the JPA corridor, and also starkly contrasts with them in materials and color.

6. Aspen Heights Partners, the Texas-based developer behind this project, has a problematic history. For example, according to [a 2020 article in the Baltimore Sun](#), a group of Towson University students sued Aspen Heights for charging them rent despite not having completed construction of the units they had leased. A [2014 article in the Columbia Missourian](#) describes extraordinarily high electricity bills in another Aspen Heights student building, possibly due to under-sized heating units. Other recent news stories mention [multi-million dollar lawsuits](#) against subcontractors controlled by this company.

In summary, this project will not benefit the City. Instead it will create hazardous parking and traffic conditions, will mar the environment, and will do serious harm to the quality of life of residents of the neighborhood. Please do not approve the Special Use Permits for this project.

Sincerely,

Nina Barnes, President  
Bobbie Williams, Vice President  
Bonnie Reilly, Treasurer  
Jennifer King, Secretary  
Ellen Contini-Morava, At-Large Member  
Nancy Haynes, At-Large Member

Jennifer King  
Interim Secretary, JPANA Board  
Phone: (434) 293-9104, option 4 or ext. 103

Attachment D

Fax: (434) 293-9002

[jenniferking@chaseinv.com](mailto:jenniferking@chaseinv.com)

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## Attachment D

Dear Planning Commissioners and City Councilors

I am writing to express my concern about the proposed apartment building at 2005 Jefferson Park Avenue and 104 Observatory, I reside at 125 Observatory Avenue. On the front end the project is asking for a special use permit, the developer want to exceed the by-right height for R-3 zoning by 30 feet, which is a seven stories on the JPA front going above and beyond, to triple the by-right density to accommodate close to 400 tenants. This towering structure will certainly impact the quality of life of residents negatively in parking alone the streets around here already maxed and the side entrances on the 5-7 floor structure will only invite more side street parking. The road especially Observatory is narrow to begin with my neighbors and I already are constantly making many too adjustments in turning just to get out of the driveway!

With the intended setbacks and reduce parking plans its a no brainer this is going to be ugly for us. I know there is some underground parking but there's no doubt with this dense high population apartment complex will bring agony for us residents on already crowded streets.

I respectfully ask you to deny Aspen Llc request for the special use permits.

I bought my house four years ago and I completely renovated the entire house from the 1928 days of the past all brick and tile block and stucco, I love this home the structure and style and plan on living here for a long time. Its great to be within walking distance to so many places the church, the school the restaurants, coffee shops etc. We like our calm and comfort here now and see that is going to change on the downside from this towering imposing structure. The word harmonious will transpire and will be sore ears, eyes and headaches for many many months, our living here will be rough then the other problems will begin, The car Parking Mostly.

I would also would venture to say the old waste lines on our street, are terra cotta and there are 100 years old, just believe they will rattle apart along with the shabby power lines when all this digging will start. (The city utility folks already know many of these waste lines are compromised already in these old neighborhoods.) as The rumbling will be going on for a good while I suppose. It is going to be noisy for sure.

We my neighbors and I urge the planning commissioners and city councilors to please give us some thought and ask yourself how would I like this if it were me living next to this expansive construction site for months and months on end. Please think about how this will affect the residents, thank you.

We ask for your help

Sincerely

John Ashworth

Attachment D

Matt Alfeffe  
Charlottesville City Planner  
Charlottesville, VA

Subject: Jefferson Park Avenue 2005 condominium project – landowner feedback

I am the owner of 111 Washington Ave (duplex) in Charlottesville near UVA.

A neighbor recently shared the Dec 7, 2021 public presentation by Mitchell/Matthews architects on the proposed "JPA 2005" condominium project, which I was not aware of until now.

After viewing the presentation, I would like to weigh in re the effect this project would have on the Washington Avenue thoroughfare area and my property.

I purchased my property 6 months ago but wasn't aware of the JPA 2005 project at that time, nor were the listing or buyer real estate agents.

The proposal is for 119 units of 1 or 2 and 3 or 4 bedroom size, equating to 290 potential tenants. Permission is being sought for 125-144 vehicles with a single entry point on Washington Avenue.

Parking: A review of the proposal by the city transportation official noted the project would not significantly impact traffic or parking in the area. While vehicle traffic would increase, no changes need to be made to existing traffic patterns or street parking.

I find this hard to believe. Why? Much traffic on that street comes off the bypass to Fontaine with a sharp left turn on Washington Avenue across a divided Jefferson Park Avenue, especially during peak periods. My duplex has 8 renters currently, each who have their own vehicle. Three park on my property while 5 are authorized street parking with a city permit. I can tell you first-hand that it's difficult to find parking on Washington Avenue as it is, so this issue needs further vetting by the city.

The proposed parking garage entry on Washington Ave is right in front of my property, which will be a noise and obsolescence factor for my tenants and those living on Washington Ave or nearby. Citing the proposed single parking entry location plan, the presenter noted reasons to put it on Washington Ave is based on:

- Washington Ave is exclusively renters
- Observatory Ave is mostly long-term residents
- Washington Ave is slightly wider than Observatory Ave
- Observatory Ave is a dead end street
- Washington Ave connects with Stadium Road for easy access to UVA

Given that the JPA proposal will have less than half the on premise parking slots for its tenants, overflow for visitors and other JPA 2005 tenants will invariably be on nearby streets, especially Washington Ave.

My view and that of others regarding parking is:

- There needs to be more on site JPA 2005 parking D
- There needs to be more than one entrance for parking given the number of tenants and cars

Trash service: Refuse bins will be kept within 2005 JPA, right next to the facility parking entrance. On trash pick-up days, a large number of trash bins will be placed on the street for pick-up once a week.

The issue with this proposal is that it will be right in front of my property and will affect traffic flows when many trash/recycle bins are picked up as well as cleanliness, litter and stench from it.

Given the factors mentioned above:

The JPA 2005 project plan requests authorization to build a 5-story structure up to 75 feet in height.

It is noted that the Graduate Housing complex at 110 Washington is on terrain that is a good deal higher than the houses on the other side of the street. As such, the 2005 JPA facility, if approved, will tower over residences across the street, with loss of shade provided by trees that will inevitably be removed.

In sum, the proposed project will result in denser activity on Washington Ave, more parked cars clogging nearby streets, stressed water and sewer pipes, more runoff from storm water with fewer trees, litter from the trash pick-up point and other concerns associated with a project of this scope and size.

I believe that the transportation aspects of this project needs to be studied further; the number of proposed parking slots; vehicle entrance location; trash pick-up plan and other aspects-- with revisions made to the developer's plan.

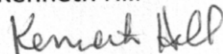
JPA 2005 is a massive project that stands to change a relatively quiet neighborhood and street leading to the university that is already receiving increased foot and vehicular traffic as the UVA student body and staff continue to grow.

Moreover, the proposed 18-month construction period—which will likely last 2-years or more--will have a major impact on a variety of area activities. It will cause disruptions as trucks, materials and worker movements affect the passage of vehicles, pedestrians, associated noise and all else in such a project.

I request that city planners take into consideration issues that I have outlined herein before approving it.

In a nutshell, landlords don't want their properties or bottom line to be negatively affected by activities such a large project will inevitably present, as well as tenants, nearby residents and others in the area.

Sincerely,  
Kenneth Hill



## Attachment D

Date: January 20, 2022

Subject: Aspen Topco II Acquisitions and Mitchell/Matthews's SUP application for 2005 Jefferson Park Avenue

To: Matt Alfele and the City departments contributing to the analysis

From: Lorna Martens, resident homeowner at 128 Observatory Avenue

Attachment: Photo of Observatory Avenue plat of 1928

Dear Matt and Reviewing Departments:

Aspen Topco II Acquisitions and Mitchell/Matthews have applied for four special use permits in order to construct an apartment building on the site they call 2005 Jefferson Park Avenue. This 1.71 acre site also includes a number of addresses on Observatory Avenue and Washington Avenue. Precisely the special use permits, if granted, would cause trouble if the developer were to build the proposed building. The developer is requesting close to double the by-right height (75' at average grade plane instead of 45') and more than three times the by-right density (119 units instead of 36 units). Nothing would mitigate the problems caused by this height and this density.

**1. Height.** The 1.7 acre lot is on an eminence. If you drive south from the university along Jefferson Park Avenue and pass Carrolton Terrace, the current buildings on the 2005 Jefferson Park Avenue site, i.e., the mansion and a side building, loom into view. They define the skyline. They are taller than anything else around. Imagine adding two stories to their height at the crest of the hill and four stories to their height where Observatory Avenue and Washington Avenue meet Jefferson Park Avenue. The result would be by far the tallest building in the neighborhood. It would not only block the light for houses on Observatory and Washington, but block afternoon light for houses on Harmon Street and Shamrock Road to the east and morning light for a stretch of residences to the west.

On Observatory Avenue and Washington Avenue, the effect of the height on the light as well as the view would be disastrous. The building would dwarf every structure on both streets. The property, which is currently zoned R-3, is adjacent to R-2 zoning. The developer proposes to erect a 5-7 story edifice directly across from one-story houses on Observatory and two-story houses on Observatory and Washington and in front of a one-story house on Washington. The disproportion is grotesque. The 45' by-right R-3 height is enough; 75' from average grade plane is far too much. The 2021 draft Comprehensive Plan emphasizes context-sensitivity in new development: "forms and scales that are respectful of the surrounding

neighborhood,” “adequate transitions such as step downs in scale and intensity to mitigate impacts on adjacent residential and historical areas,” and “viewsheds.”

The entrance corridor guidelines likewise state:

“When making transitions to lower density areas, modulate the mass of the building to relate to smaller buildings. Heights can be greater if the mass is modulated and other scale techniques are adopted. Reduce height near lower density uses (p. 52).”

**2. Density.** The main problem with increased density is cars. Seemingly every student who lives off grounds wants to have a car. There are no rules against this. For a student, it’s one of the perks of coming to UVA. You’ve noticed the difference in traffic in Charlottesville generally, and the difference in parking along JPA, during term and during vacations? When classes are in session and students are here, Charlottesville is overwhelmed by student traffic. The students don’t want cars in order to drive to classes; in the daytime, there is no place to park on Central Grounds. To get on-grounds parking you have to join a waiting list longer than any student’s stay at the university. Students want cars for the many other reasons it’s convenient to have a car: to get groceries, to drive to “places like Wal-Mart” (to quote what they’ve said in the past), to visit their friends, to drive to their local jobs, to drive home during vacations, to drive out of town. In any case, it’s not an exaggeration to plan for one car (thus, one parking space) per off-grounds student. 125 parking spots for 390 residents, which is what the developer requests, is a totally inadequate number. Yet even if the developer were to add additional spots, that would not solve the parking problem (see below on “Traffic” and “Safety”).

**Traffic on Observatory Avenue:**

Observatory Avenue is a 1-block long dead end on a steep upgrade from Jefferson Park Avenue that narrows halfway up. There is no turnaround. There is at most one sidewalk, and for stretches no sidewalk at all. On Washington Avenue, too, there is at most one sidewalk. City records show that in 1924 H. Gary Clarke acquired a tract of land whose description corresponds to the location of present-day Observatory Avenue and Washington Avenue (DB 46, pg 29). According to 1925 land records for Charlottesville’s “District #1,” lot sales on Observatory Avenue took place in that year, and the first houses were built. The “new street” Observatory Avenue, built by H.G. Clarke, is shown together with its numbered lots on a plat of September 1928 (DB 62, pg 362). Please refer to the attached photo of this plat. The size of the road shown on this plat of 1928 has not changed. It is a narrow, hilly little road. Nevertheless, it sees a remarkable amount of traffic for a one-block-long dead end. We homeowners on Observatory Ave. have long been plagued by people driving up our street by mistake and using our driveways to turn around. During the university terms, Observatory Ave. swells with student traffic—not just the cars owned by the student renters, but those brought by their many guests, who come for parties and other get-togethers particularly in the evenings.



Observatory Avenue is also targeted by football game goers looking for parking. Observatory and Washington were not built for such traffic.

**Safety on Observatory Avenue:**

Observatory Avenue narrows upwards of the large parking lot behind 108 Observatory. Observatory Avenue is 27" wide at the level of 108 Observatory, but only 21.5" wide at the telephone pole in front of 113 Observatory. Currently, if cars park on both sides of the street on the narrow stretch and stay on the asphalt, i.e., do not drive up onto somebody's grass, large vehicles like garbage trucks, fire trucks, and snow plows cannot squeeze through between two cars parked on opposite sides of the street. This has been an ongoing problem for decades and already constitutes a hazard. I've had to call garbage collection many times: why hasn't my trash been picked up? The answer is, the driver couldn't get up the road. Mail vehicles, delivery and other trucks, etc. routinely use the 108 Observatory parking lot (this is the parking lot that the proposed project wants to get rid of) to turn around so as to descend back onto JPA. In short, we have a problem with traffic and parking as it is. Observatory Avenue absolutely cannot support any more traffic of any kind. The 390 residents of 2005 JPA and their guests will exacerbate the traffic and parking problem, because they will park wherever they find space, regardless of the proposed underground parking spots.

Additionally, the exit from Observatory Avenue onto JPA is almost blind and therefore dangerous. If cars park in the legal parking spaces on JPA to the left of Observatory Avenue, then it is difficult to impossible to see traffic coming from the left when exiting Observatory Avenue. The taller the vehicles parked on JPA, and the smaller the vehicle coming from Observatory, the less visibility the driver has. (If you send somebody to check this out, please do not send a 6' 4" guy in a pickup truck! Such a person might actually be able to see over the parked cars. Instead, send somebody who can duplicate the residents' experience, such as a 5'5" woman in a Honda Civic.) The existence of the proposed building fronting on Jefferson Park Avenue as shown in the architect's diagrams would make the exit from Observatory Avenue more blind and more dangerous.

**Traffic on Jefferson Park Avenue and Emmett Street:**

During the university terms, traffic between Observatory Avenue and Grounds and Route 29 North (BUS), and between Observatory Avenue and UVA Hospital, is heavy and often backed up. Imagine adding several hundred cars (390 cars?) to that traffic. It is worth noting that the traffic analysis that Aspen commissioned is based on traffic observation on a Saturday, and hence not representative of the weekday traffic flow.

**Other:**

**Aesthetic considerations:** The buildings along the JPA entrance corridor, as well as on Observatory Avenue and Washington Avenue are largely made of brick, stucco,

and wood. The proposed building does not use these materials. It does not fit in with its surroundings, but—in its context—creates an eyesore. It looks as if it were designed for Stonefield Plaza.

**Trees:** “Keep Charlottesville green” is a priority in the new draft Comprehensive Plan. Currently, the property has many old trees and some newer flowering trees along Observatory Avenue. The 2005 Jefferson Park Avenue project proposes to get rid of all of them.

**Affordable Housing:** No affordable housing is envisaged at 2005 Jefferson Park Avenue. Meanwhile, a component of the “affordable housing” concept is “aging in place” (2021 draft Comprehensive Plan, pp. 18, 33). Observatory Avenue has six residents, five of them resident homeowners, over the age of 65. We all hope to be able to “age in place.”

For all these reasons, it is not advisable to grant the special use permits.

Sincerely,

Lorna Martens

362

DB 62

Given under my hand this 18 day of Sept. 1928.

(SEAL)

Eugene K. Ogilvie  
Notary Public.



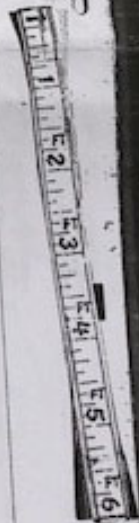
Sealed 10/28

PLAT  
 of a division of a block of lots  
 being parts as shown by dotted line of Harmon and Kixie prop.  
 situated in the  
 CITY OF CHARLOTTESVILLE, VIRGINIA,  
 the property of E. D. CLARKE  
 Hugh P. Simms, J.A.C. Sept. 1928.

VIRGINIA: In the Clerk's Office of the Corporation Court of the City of  
 Charlottesville.

The foregoing instrument of writing, together with certificate of acknowledgment thereto annexed, was presented and admitted to record on the 18th day of September, 1928, at 12:10 o'clock, P.M., and recorded in Deed Book No. 52, page 360.

Teste:-  
 C. C. Moran Clerk.



## Attachment D

### Aspen-Topco II's Application for Special Use Permits

I am a resident homeowner at 123 Observatory Ave., and I have objections to the proposed Special Use Permit requests of Aspen-Topco II for the 2005 Jefferson Park Avenue project.

My first objection is to the permit to increase the allowable residential density and to the permit to reduce the parking requirement.

Both of these SUP's would impact safety, related to parking congestion and traffic. (City Code Standard for Special Use Permits, Sec. 34-157: (4)a)

#### Parking:

Aspen-Topco II plans to house 390 students in 119 units, and provide 125 underground parking spots.

This would leave 265 residents with no on-site parking.

Observatory Ave is a narrow, one-block-long dead end.

If cars are parked all along both sides of the street, Fire Trucks, Rescue Squad Vehicles, Garbage Trucks, Repair Trucks, and Delivery Trucks couldn't travel in the narrow space between the cars.

As it is, delivery trucks need to back down the street after making their deliveries, until they find a place to partly back into a driveway to turn around.

If cars are parked on the street too close to a driveway, it's very hard to enter or exit the driveway.

If one driver is entering Observatory Ave. from JPA while another is driving on Observatory Ave. toward JPA, it's now possible for one driver to find a place to pull to one side so the other driver can continue in the single lane in the middle.

If cars were parked all along both sides of the street, this would be impossible.

Add snow/ice to all of this, and each of these problems would be worse.

There are city and university bus stops nearby, and a few places to eat or buy basics like bread and milk.

There are no complete grocery stores or general all-purpose stores close by.

Students would need/want to go to places not on the bus lines and not in walking distance, or at times that don't match a bus schedule.

## Attachment D

Would 265 residents be able or willing to park their cars in areas not adjacent to their building, or do without cars entirely?

The proposed building's residents would also have guests who would need to park.

### Traffic:

Visibility to the left when entering JPA from Observatory Ave. is minimal to non-existent due to cars parked all along JPA between Washington Ave. and Observatory Ave.

I've turned right onto JPA from Observatory Ave. to see a car, which I was unable to see from Observatory Ave., frighteningly close behind my car once on JPA.

Traffic will increase on JPA due to cars from the proposed building's underground parking area turning from Washington Ave. onto JPA.

Some of the increased traffic will turn right and pass Observatory Ave., increasing the possibility of an accident when exiting Observatory Ave. onto JPA.

My second objection is to the permit to increase height. This SUP is related to massing and scale of the project. (City Code Standard for Special Use Permits, Sec. 34-157: (4j))

A building of such height and mass would cast a very large shadow over the smaller houses on Observatory Ave., and would affect the amount of sunlight available for grass, gardens, shrubs, and smaller trees.

Some homeowners would live in almost continuous shadow.

**Alfele, Matthew**

---

**From:** Marilyn Poling <mg2mp5@gmail.com>  
**Sent:** Tuesday, December 7, 2021 8:48 PM  
**To:** Alfele, Matthew  
**Subject:** Re: 2005 JPA

**\*\* WARNING:** This email has originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.\*\*

I listened to the Dec. 7 meeting on my phone, and didn't have a way to "sign in." I do have some comments.

A house across the street from me has been rented to students since before I moved here, over 30 years ago. There has always been one car per student, and most students have used their cars almost daily. I don't think it'll be any different for 2005 JPA. If 390 people live in the building, there will be 390 cars. The presence of bus stops is irrelevant. As several people said, students will go places other than the university, that are not on the university or city bus lines, and are not in convenient walking or biking distance. To think otherwise is to indulge a fantasy. If the city were to issue parking permits for Observatory or Washington, I can foresee being unable to enter my own driveway, and trying to find a place to park on another street, for which I would have neither a parking permit nor a driveway. I'm 67 years old, and would find this a hardship. I believe there are people in their 70s who live on this street, and one in her 80s, who would find the situation even more difficult. At one point, the presenter seemed to imply that because there were parking issues here 10 and 20 years ago, it's fine that there will be more parking issues now. Expecting side streets that could barely deal with parking for 50 units/70 students to now deal with 119 units/390 students is unrealistic. What is possible in the comprehensive plan may have no correlation to what's possible on the ground.

> On Dec 6, 2021, at 8:53 AM, Alfele, Matthew <alfelem@charlottesville.gov> wrote:

>

> Marilyn,

> Thank you for the comments. I will make sure to include them in any report that goes to Planning Commission and City Council.

>

> -----Original Message-----

> From: Marilyn Poling <mg2mp5@gmail.com>

> Sent: Sunday, December 5, 2021 7:32 PM

> To: Alfele, Matthew <alfelem@charlottesville.gov>

> Subject: 2005 JPA

>

## Attachment D

> \*\* WARNING: This email has originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.\*\*

>

>

> I live at 123 Observatory Ave., and have concerns about the 2005 JPA project:

>

> 1) Parking—If the current buildings have the by-right maximum density now, it's 21 units/acre. The special use permit requests 70 units/acre, and, since its request is not final, it could change the request to 87 units/acre. Another special use permit requests 10% decrease in parking. The density would more than triple at 70 units/acre, and parking would decrease by 10%? Observatory Ave. is a narrow, one block long dead end. Residents have stickers for parking during weekdays, but one or two rented houses have their driveways filled and a car parked across on the street in front of their driveways when everyone is at home with current parking conditions. Currently, on home football game days, only one side of the street is allowed parked cars; cars on the other side of the street are ticketed/towed, because if cars are parked in available spaces on both sides of the street, no fire truck would be able to go up the street. If cars from the proposed 2005 JPA project are allowed to park along Observatory Ave., this inability of a fire truck (or garbage truck, or snow plow, or utility truck, or some trucks from private companies that need to do work at houses on the street) to go up the street would be a permanent condition. One day while I was in my yard, the driver of a truck that needed to get to a house beyond mine to work on the house was unable to pass my house because a car (not mine) was parked in front of my house and another car was parked directly across the street from it. The driver had to take all his equipment by hand from the truck to the house. A fire truck would not have been able to get as far up the street as my house. When cars are parked on both sides of the street, the middle is wide enough for one car, barely wide enough for an SUV, and two cars, one going up the street and one going down the street, could not pass each other. When cars are parked on both sides of the street with some distance between them, one car can pull between two cars to let the other pass—impossible if maximum cars are parked along the street. Also, cars would park very close to driveways, making it difficult/impossible to enter/exit driveways due to the narrowness of the street.

>

> 2) Entering JPA from Observatory Ave.—Visibility to the left when trying to pull into JPA currently is minimal to non-existent now, when cars are parked all along JPA to the left, as occurs whenever UVA is in session and businesses are open, particularly when it's a high-traffic time of day. Sometimes a minimal amount of visibility is possible if you look further down the street. If the planned building setback is very close to JPA and Observatory Ave., instead of the current building's further setback, even this occasional minimal visibility would not exist.

>

> 3) Height/bulk of proposed building—The “Perspective Rendering” of the proposed building in the information package from Mitchell/Matthews says the proposed building could be 5-8

## Attachment D

stories high. A building of that height and bulk would put quite a bit of Observatory Ave. into shadow, not just the houses directly across from or behind the building. I live on 123 Observatory Ave., three houses up from the back of the site. From the angles that sunlight comes into my windows, it seems that the building would cut off light to my house for part of the year. Would this be enough shadow in some places to interfere with growing lawns, flower/vegetable gardens, shrubs, trees? Could the architects calculate the area of shadow though the day and through the year, and present the results to the neighborhood association?

>

>

> Marilyn Poling

>

>



## Attachment D

Megan Buschi & Family  
126 Observatory Ave  
Charlottesville, VA 22903  
meganbuschi@gmail.com  
434.466.2632

March 5, 2022

Dear Planning Commissioners,

I'm writing to you to protest any special use permits (SUP) that have been presented to the City from Aspen Topco II Acquisitions, LLC and architects and planners Mitchell Matthews for the property **2005 Jefferson Park Ave.**

My family and I are residents of Observatory Ave and have lived here for over 15 years. We didn't buy the property as an investment, it was a decision made in good conscience to live close to where we work and recreate. I work for UVA (therefore walk to work) and my husband works for Blue Wheel Bicycle downtown (rides his bike to work), where we are part owners. We are a family of four, sometimes five when a parent stays for an extended visit. My husband and I have two elementary-age active boys that play in our yard and along the entire street.

Our community on Observatory Ave is unique...we have 15 houses, 9 are occupied by the homeowners. (*This does not include the homes on 2005 Jefferson Park Ave*). This is a much higher owner-occupied street than any other in the JPA neighborhood. When you're here you can feel the difference. We are active in our yards/gardens and use our surrounding amenities to the fullest. Many of our residents have lived here for over 25 years...one even 40 years.

We love our neighborhood and how close we are to the students and academic energy that the University provides. I have always enjoyed getting to know the students living in the rental properties and showing/teaching them what it means to be part of our Observatory community. We have had many students come back to visit after graduation.

**We oppose the SUP (special use permit) for increased density to 70 dwellings per acre and this amounts to 119 units total. That equals 390 occupants.**

This increase in dwellings will increase traffic on an already narrow street. The City of Charlottesville *rescue vehicles* and the City's garbage facilities have a difficult time getting to our street now...an increase in population (cars) will be unsafe!

**We oppose the SUP for increasing the height to 75 feet.**

This increased height is a direct reflection in the number of units needed. With the increase of units, is an increase in the population. The City of Charlottesville *rescue vehicles* and the City's garbage vehicles have a difficult time getting to our street now...an increase in population (vehicles) will be unsafe!

## Attachment D

**We oppose the SUP to reduce the rear setback.**

I believe the setback should not be reduced to shield the remaining parts of the street from the building. We would love to maintain the charm and character of our hundred-year-old homes.

**We oppose the SUP for reducing onsite parking by 22%.**

Our street is already at capacity with cars parking on both sides of our narrow road..reducing parking provided by the apartment complex would increase traffic to Observatory Ave.. Increased traffic will cause more issues for the *emergency vehicles*, snowplows, garbage trucks, delivery services.

Thank you for your communication and participation with the community of Observatory Ave and the JPA neighborhood.

Sincerely,  
Megan Buschi, Paul Buschi, Sam Buschi and Jack Buschi.

**Alfele, Matthew**

---

**From:** Megan Buschi <megantbuschi@gmail.com>  
**Sent:** Monday, January 31, 2022 6:53 PM  
**To:** Alfele, Matthew  
**Subject:** Fwd: SUP for 2005 Jefferson Park Ave.

**Follow Up Flag:** FollowUp  
**Flag Status:** Flagged

**WARNING:** This email has originated from **outside of the organization**. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Matt, I'm not sure where this letter goes after I send it to you but I would love to make sure it gets to the City Council. What's the best action from here...mailing an actual letter?

Best,  
Megan Buschi

----- Forwarded message -----  
From: **Megan Buschi** <[megantbuschi@gmail.com](mailto:megantbuschi@gmail.com)>  
Date: Mon, Jan 31, 2022 at 3:58 PM  
Subject: SUP for 2005 Jefferson Park Ave.  
To: Megan Buschi <[megantbuschi@gmail.com](mailto:megantbuschi@gmail.com)>

January 30, 2022  
Dear members of the Charlottesville City Council,

I'm writing to you to protest any special use permits (SUP) that have been presented to the City from Aspen Topco II Acquisitions, LLC and architects and planners Mitchell Matthews for the property **2005 Jefferson Park Ave.**

My family and I are residents of Observatory Ave and have lived here over 15 years. We didn't buy the property as an investment, it was a decision made in good conscience to live close to where we work and recreate. I work for UVA (therefore walk to work) and my husband works for Blue Wheel Bicycle downtown (rides his bike to work), where we are part owners. We are a family of four, sometimes five when a parent stays for an extended visit. My husband and I have two elementary age active boys that play in our yard and along the entire street.

Our community on Observatory Ave is unique...we have 15 houses, 8 are occupied by the homeowners. (*This does not include the homes on 2005 Jefferson Park Ave*). This is a much higher owner occupied street than any other in the JPA neighborhood. When you're here you can feel the difference. We are active in our yards/gardens and use our surrounding amenities to the fullest. Many of our residents have lived here for over 25 years...one even 40 years.

We love our neighborhood and how close we are with the students and academic energy that the University provides. I have always enjoyed getting to know the students living in the rental properties and showing/teaching them what it means to be part of our Observatory community. We have had many students come back to visit after graduation.

## Attachment D

### **We oppose the SUP (special use permit) for increased density to 70 dwellings.**

This increase in dwellings will increase traffic on an already narrow street. The City of Charlottesville *rescue vehicles* and the City's garbage facilities have a difficult time getting to our street now...an increase in population (cars) will be unsafe!

### **We oppose the SUP for increasing the height to 75 feet.**

This increased height is a direct reflection in the number of units needed. With the increase of units, is an increase in the population. The City of Charlottesville *rescue vehicles* and the City's garbage vehicles have a difficult time getting to our street now...an increase in population (vehicles) will be unsafe! Also, the height will severely and negatively alter the appearance of the neighborhood and reduce visibility to the sky.

### **We oppose the SUP to reduce the rear set back.**

I believe the setback should not be reduced to shield the remaining parts of the street from the building. We would love to maintain the charm and character of our hundred year old homes.

### **We oppose the SUP for reducing onsite parking by 22%.**

Our street is already at capacity with cars parking on both sides of our narrow road..reducing parking provided by the apartment complex would increase traffic to Observatory Ave.. Increased traffic will cause more issues for the *emergency vehicles*, snow plows, garbage trucks, delivery services.

Special notes and requests:

I believe that the apartment complex will have all of it's utilities placed underground in duct banks with conduit. Mitchell Matthews as architects and planners should offer this service to all the residents on Observatory Ave for no charge.

Any ingress and egress should remain on Washington Ave with no exceptions.

All landscaping plants should be native and any in need of replacement should be replaced with native plantings.

Underground parking should take into consideration exterior lighting. The exterior lighting should consider the residents of Observatory Ave and how the lights will flood their homes.

The dumpsters should be maintained from the garage level or well hidden behind a barrier.

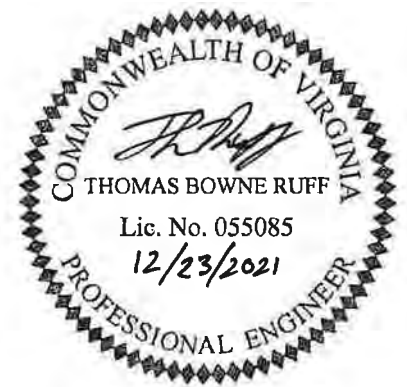
Thank you for your communication and participation with the community of Observatory Ave.

Sincerely,  
Megan Buschi, Paul Buschi, Sam Buschi and Jack Buschi.

# ASPEN HEIGHTS CITY OF CHARLOTTESVILLE, VIRGINIA

## Traffic Impact Analysis

December 23, 2021



*Prepared For:*  
Aspen Topco II Acquisitions, LLC

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## 1 EXECUTIVE SUMMARY

This report presents the findings of the traffic impact analysis prepared for the proposed Aspen Heights off-campus student housing development in the City of Charlottesville, Virginia.

The proposed development is located between Observatory Avenue and Washington Avenue to the east and west and Jefferson Park Avenue to the south as shown in Figure 1-1 (all figures are located at the end of their respective chapter).

The site is currently zoned R3. The proposed development will consist of 390 beds (119 units) of off-campus student housing apartments. The applicant is submitting this traffic impact analysis in support of a Special Use Permit (SUP).

Access to the site will be provided via one (1) full movement entrance on Washington Avenue. A conceptual plan is shown on Figure 1-2.

For the purposes of this analysis, the development was assumed to be complete and occupied by 2023.

When complete, the proposed development will generate a total of 38 trips (16 in and 22 out) during the AM peak, 55 trips (26 in and 29 out) during the Midday peak, 84 trips (42 in and 42 out) during the PM peak, and 1,070 average weekday daily trips.

The purpose of this analysis is to determine the impact of the proposed development on the surrounding roadway network. The scope of this study was developed in conjunction with the City of Charlottesville staff at a scoping meeting held (virtually) on August 23, 2021.

As agreed upon in the scoping meeting, the study limits include the following seven (7) existing intersections:

1. Jefferson Park Avenue and Shamrock Road (signalized);
2. Jefferson Park Avenue and Harmon Street (unsignalized);
3. Jefferson Park Avenue and Washington Street (unsignalized);
4. Jefferson Park Avenue and Observatory Avenue (unsignalized);
5. Jefferson Park Avenue and Fontaine Avenue/Maury Avenue (Signalized);
6. Maury Avenue/Alderman Road and Stadium Road (unsignalized); and
7. Stadium Road and Washington Avenue (unsignalized)

In addition, the site entrance will be analyzed in future conditions (2023 and 2028).

In accordance with the scoping agreement, analyses were completed for the following scenarios:

1. 2021 Existing Traffic Conditions;
2. 2023 Background Traffic Conditions (without development of the site);
3. 2028 Background Conditions (without development of the site);
4. 2023 Future Traffic Conditions (with development of the site); and
5. 2028 Future Traffic Conditions (with development of the site).

The following steps were taken to determine the potential traffic impacts associated with this project:

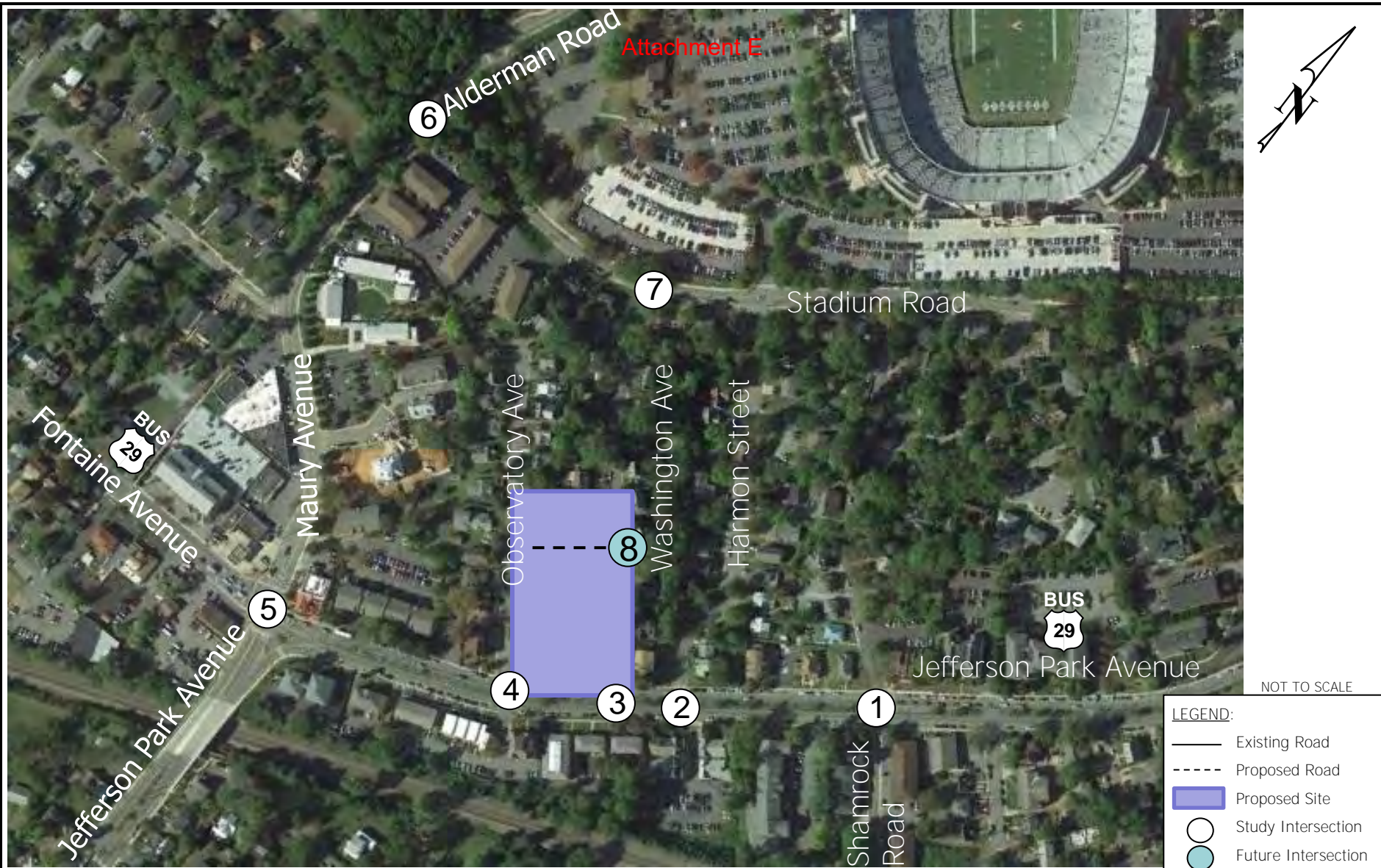
1. Data Collection – Existing AM, Midday, and PM peak hour traffic counts were collected at the existing study intersections on August 28, 2021. A 12-hour turning movement count was also conducted at Jefferson Park Avenue/Washington Avenue on the same date.
2. Traffic Growth – In order to be conservative and account for development outside the study area, a 0.2% annual growth rate was applied to the existing vehicle traffic counts and 1.0% annual growth rate was applied to the existing bike and pedestrian volumes at all study intersections for the 2023 and 2028 analysis scenarios.
3. Trip Generation – Traffic generated by the proposed development was estimated using the 10<sup>th</sup> edition of the Institute of Transportation Engineers' *Trip Generation Manual*.
4. Traffic Distributions – The distribution of trips generated by the proposed developed was based on the existing traffic volumes, the nature of the use, and local knowledge.
5. Site Traffic Projections – Future traffic volumes were determined by combining the 2023 and 2028 background traffic volumes with proposed new trips generated by the site to create the 2023 and 2028 total traffic volumes used in the analysis.
6. Traffic Capacity Analysis – Level of service calculations for existing, background, and future conditions were performed using SYNCHRO Version 10 with SimTraffic for signalized and unsignalized intersections.
7. Queuing Analysis – The 95<sup>th</sup> percentile queue lengths (Synchro) and maximum queues (SimTraffic) were reviewed at the intersections listed above.

Based on the operational analyses the following is offered:

- Across 2023 and 2028 background conditions during the PM peak, the westbound approach to the intersection of Jefferson Park Avenue/Maury Avenue experiences operational issues with congestion on the westbound approach and the queue extends through Observatory Avenue, Washington Avenue, and Harmon Street intersections. Under 2023 and 2028 total volume conditions, with the addition of the proposed Aspen Heights development site traffic, the westbound approach is expected to experience minimal increases with the proposed development over the 2023 and 2028 background conditions.
- The results of the signal warrant analysis at Jefferson Park Avenue/Washington Avenue under 2028 total build conditions indicate that none of the traffic volume thresholds in Warrants 1 through 3 were met. None of the other warrants were considered at this time.
- Under 2021 existing conditions:
  - All movements at unsignalized intersections within the study area on Jefferson Park Avenue and Stadium Road operate at level of service (LOS) C or better during the AM, Midday, and PM peak hours. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
  - At the signalized intersection of Jefferson Park Avenue and Shamrock Road, the overall intersection operates at a level of service (LOS) B during the AM/Midday/PM peak hours. All turning movements and approaches operate at a LOS C or better during the AM/Midday/PM peaks. All turn bays have adequate storage to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
  - At the signalized intersection of Jefferson Park Avenue and Maury Avenue/Fontaine Avenue, the overall intersection operates at a LOS C during the AM/PM peaks and a LOS B during the Midday peak. All turning movements and approaches generally operate at a LOS C or better during the AM/Midday/PM peaks. The westbound left queue fills the available storage (AM/Midday) and backs up into the through lane (PM). During the PM peak, the westbound approach queues through the adjacent intersection with Observatory Avenue. During the PM peak, the southbound through queue backs up through the adjacent intersection with Clark Court.
- Under 2023 and 2028 background conditions (without the proposed development):
  - Levels of service at the study intersections do not change significantly from 2021 existing to 2023 or 2028 background conditions. All unsignalized intersections continue to operate at LOS C or better during all peak hours. All signalized intersections continue to operate with LOS B or C during all peak hours.
  - There are no queuing concerns within the study area, with the exception of the westbound approach of Jefferson Park Avenue at Maury Avenue during the PM peak hour. The queues extend to intermittently block the intersections of Observatory Avenue, Washington Avenue, and Harmon Street.

- Under 2023 and 2028 total future conditions (with the proposed development):
  - Levels of service at the study intersections do not change significantly from background to total future conditions in 2023 or 2028.
  - All movements at unsignalized intersections within the study area on Jefferson Park Avenue and Stadium Road operate at level of service (LOS) C or better during the AM, MIDDAY, and PM peak hours. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
  - At the signalized intersection of Jefferson Park Avenue and Shamrock Road, the overall intersection operates at a level of service (LOS) B during the AM/MIDDAY/PM peak hours. All turning movements and approaches operate at a LOS C or better during the AM/MIDDAY/PM peaks. During the PM peak, the westbound left fills the available storage. All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
  - At the signalized intersection of Jefferson Park Avenue and Maury Avenue/Fontaine Avenue, the overall intersection operates at a LOS C during the AM/PM peaks and a LOS B during the MIDDAY peak. All turning movements and approaches generally operate at a LOS C or better during the AM/MIDDAY/PM peaks. The westbound left queue fills the available storage (AM/MIDDAY) and backs up into the through lane (PM). During the PM peak, the westbound approach queue backs up through the adjacent intersection with Observatory Avenue. During the PM peak, the southbound through queue backs up through the adjacent intersection with Clark Court.

Based on the results of the operational analysis, there are no vehicular and roadway network improvements required based on the additional development traffic volumes. The site will increase the residential density in the area and add to the pedestrian, bicycle, and transit volumes. To address the additional pedestrian, bicycle, and transit volumes, the applicant plans to install sidewalks along the entire frontage of the property.



Surrounding Roadway Network and Site Location  
Aspen Heights TIA  
City of Charlottesville, Virginia

Attachment E



P.0. / R.1. Parking Level 0 / Residential Level 1	
Floor Area:	45,838 GSF
MEP & Services:	471 GSF
Storage & Bike:	1,353 GSF
Gross Res. Area:	3,965 GSF
Circulation:	2,496 GSF
Net Res. Area:	3,630 NSF
Parking:	33,507 GSF
Total Parking:	93 Spaces
Standard Parking	91 Spaces
Compact Parking	0 Spaces
HC Parking	2 Spaces

**DRAFT IN PROGRESS**



NOT TO SCALE



Conceptual Site Plan  
Aspen Heights TIA  
City of Charlottesville, Virginia

Figure  
1-2



## 2 BACKGROUND INFORMATION

This report presents the findings of the traffic impact analysis prepared for the proposed Aspen Heights residential development in the City of Charlottesville, Virginia.

### 2.1 DESCRIPTION OF ON-SITE DEVELOPMENT

The proposed development is located north of Jefferson Park Avenue, between Observatory Avenue and Washington Avenue. The proposed development will consist of 388 bedrooms of off-campus student housing apartments (119 units).

Access to the site is proposed via one (1) full movement entrance on Washington Avenue. A conceptual plan is shown on Figure 1-2.

For purposes of this analysis, the development was assumed to be complete and occupied by 2023.

### 2.2 STUDY LIMITS

As agreed upon in the scoping agreement, the study limits include the following seven (7) existing intersections:

1. Jefferson Park Avenue and Shamrock Road (signalized);
2. Jefferson Park Avenue and Harmon Street (unsignalized);
3. Jefferson Park Avenue and Washington Street (unsignalized);
4. Jefferson Park Avenue and Observatory Avenue (unsignalized);
5. Jefferson Park Avenue and Fontaine Avenue/Maury Avenue (Signalized);
6. Maury Avenue/Alderman Road and Stadium Road (unsignalized); and
7. Stadium Road and Washington Avenue (unsignalized)

In addition, the proposed site entrance will be analyzed in future conditions (2023 and 2028)

### 2.3 EXISTING ROADWAYS NETWORK

Jefferson Park Avenue between Maury Avenue and Emmett Street is a two-lane divided principal arterial with a posted speed limit of 35 mph. According to the 2019 VDOT traffic counts, Jefferson Park Avenue services 12,000 vehicles per day. The roadway has one bike lane in each direction with on-street parking and sidewalks on both sides through the study area. Jefferson Park Avenue south of Fontaine Avenue is a two-lane divided minor arterial with a posted speed limit of 30 mph. According to the 2019 VDOT traffic counts, Jefferson Park Avenue services 11,000 vehicles per day. The roadway has one bike lane in each direction with on-street parking and sidewalks on both sides through the study area.

Fontaine Avenue is a two-lane undivided principal arterial with a posted speed limit of 35 mph. According to the 2019 VDOT traffic counts, Fontaine Avenue services 13,000 vehicles per day. The roadway has sidewalks on both sides through the study area.

Maury Avenue is a two-lane undivided minor arterial with a posted speed limit of 25 mph. According to the 2019 VDOT traffic counts, Fontaine Avenue services 6,200 vehicles per day. The roadway has sidewalks on one side through the study area.

Alderman Road is a two-lane undivided minor arterial with a posted speed limit of 25 mph. According to the 2019 VDOT traffic counts, Alderman Road services 6,200 vehicles per day. The roadway has sidewalks on one side through the study area.

Stadium Road is a two-lane undivided major collector with a posted speed limit of 25 mph. According to the 2019 VDOT traffic counts, Stadium Road services 3,800 vehicles per day. The roadway has sidewalks on one side through the study area.

Shamrock Road is a two-lane undivided major collector with a posted speed limit of 25 mph. According to the 2019 VDOT traffic counts, Shamrock Road services 3,500 vehicles per day. The roadway has sidewalks on one side through the study area.

Observatory Avenue is a two-lane undivided local road with a posted speed limit of 25 mph. The roadway has sidewalks on one side in some locations through the study area.

Washington Avenue is a two-lane undivided local road with a posted speed limit of 25 mph. The roadway has sidewalks on one side in some locations through the study area. Currently, it is not possible to walk from Jefferson Park Avenue to Stadium Road using a sidewalk.

Harmon Street is a two-lane undivided local road with a posted speed limit of 25 mph. The roadway has sidewalks on one side through the study area.

The 2021 existing lane use and traffic control at the study intersections is shown on Figure 2-1.

#### 2.4 FUTURE IMPROVEMENTS

Fontaine Avenue from the west city limits to Jefferson Park Avenue is proposed to have streetscape improvements. The proposed typical section is expected to consist of two travel and two bike lanes (one in each direction) and sidewalks on both sides. The project is not expected to change the existing lane configuration of the eastbound approach to the Fontaine Avenue/Jefferson Park Avenue intersection. Construction is tentatively scheduled to start in Fall 2023.

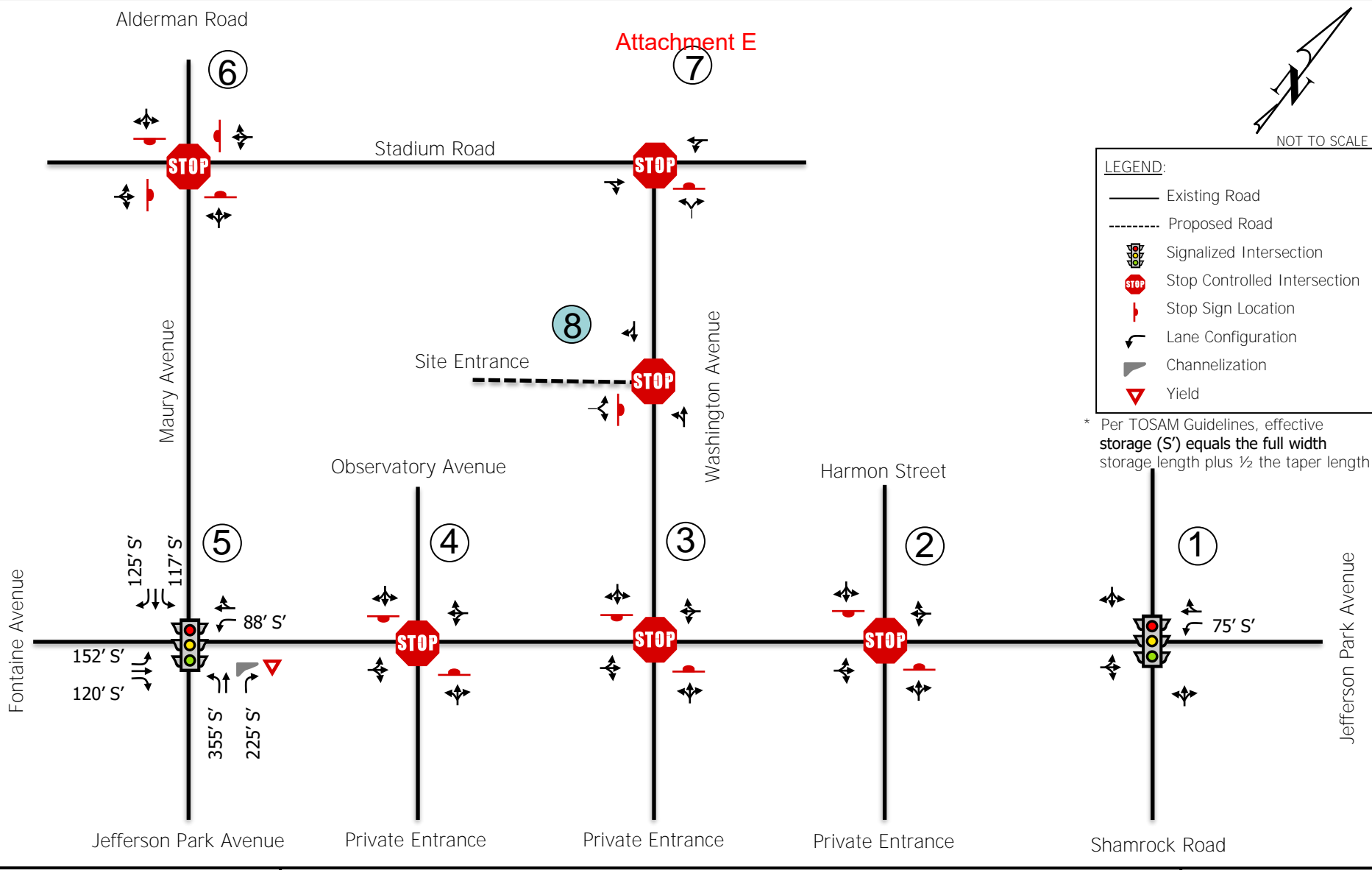
The applicant has committed to install new sidewalks along the frontage of the property on Observatory Avenue and Washington Avenue. In addition, a new north-south marked pedestrian crossing will be installed at the intersection of Observatory Avenue and Jefferson Park Avenue. This will provide access to the UVA Transit bus stop at the SE corner of the intersection.

#### 2.5 OTHER MODES OF TRANSPORTATION

Currently, there are sidewalks and bike lanes throughout the study area that connect the proposed Aspen Heights development to the UVA campus and greater Charlottesville. The applicant is proposing to maintain the existing pedestrian facilities with the construction of the site and to add sidewalks along the frontage of the property on Washington and Observatory Avenues. A map showing the proposed development and City trails and bike lanes is included on Figure 2-2.

It is anticipated that some site trips may be made via walking/biking/transit, however, a reduction from the vehicular trip generation rates provided by the ITE *Trip Generation Manual, 10<sup>th</sup> Edition*.

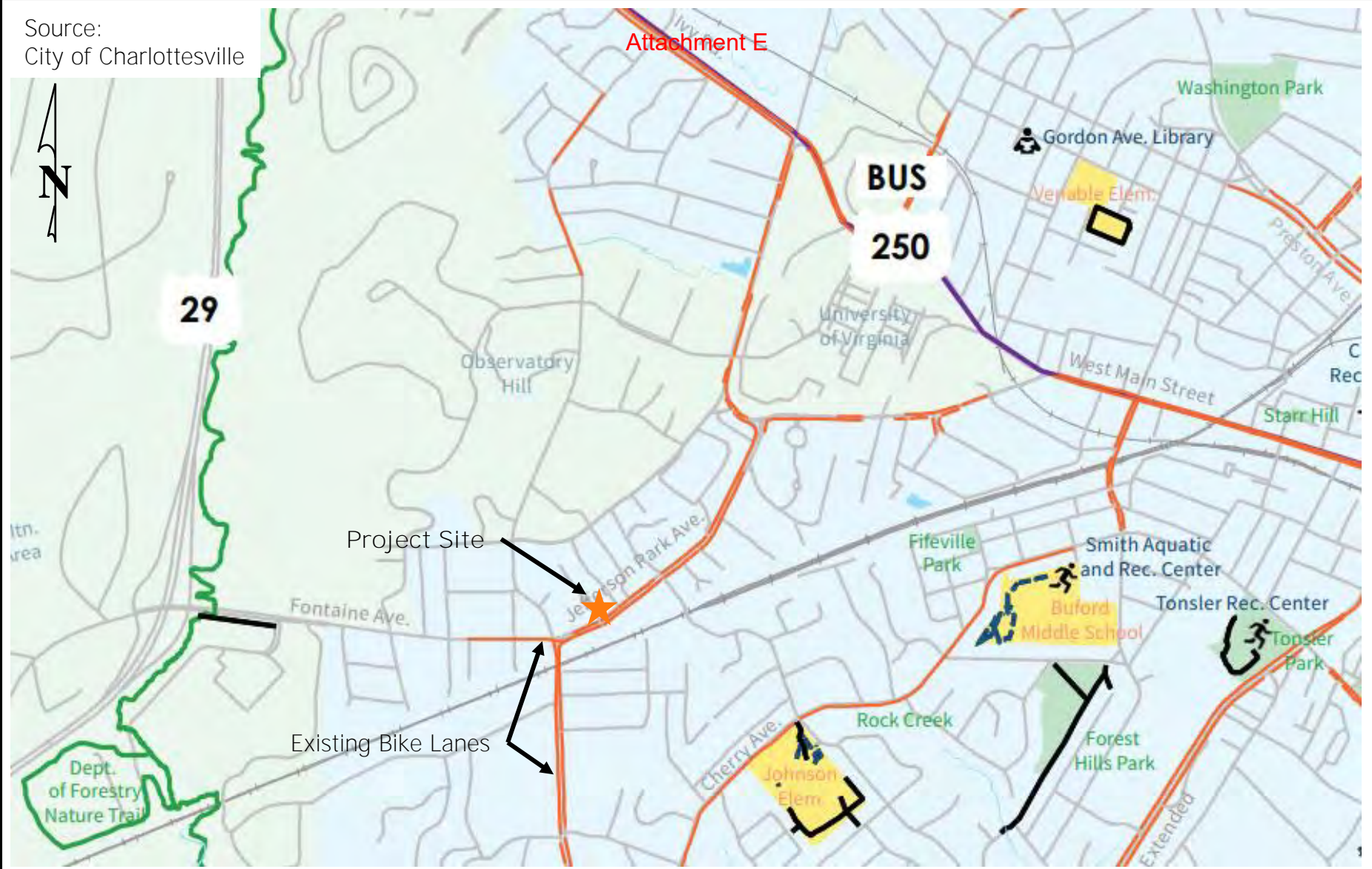
The Charlottesville Area Transit (CAT) Route T runs along Jefferson Park Avenue with a bus stop approximately 500 feet away from the proposed development at Jefferson Park Avenue/Maury Avenue. The UVA Transit Orange Line runs along Jefferson Park Avenue, with bus stops approximately 200 feet (Jefferson Park Avenue/Observatory Avenue) and 500 feet (Jefferson Park Avenue/Maury Avenue) away from the proposed development. Transit routes in the vicinity of the site are shown for CAT and UVA Transit on Figures 2-3 and 2-4, respectively.



Existing Intersection Geometry  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

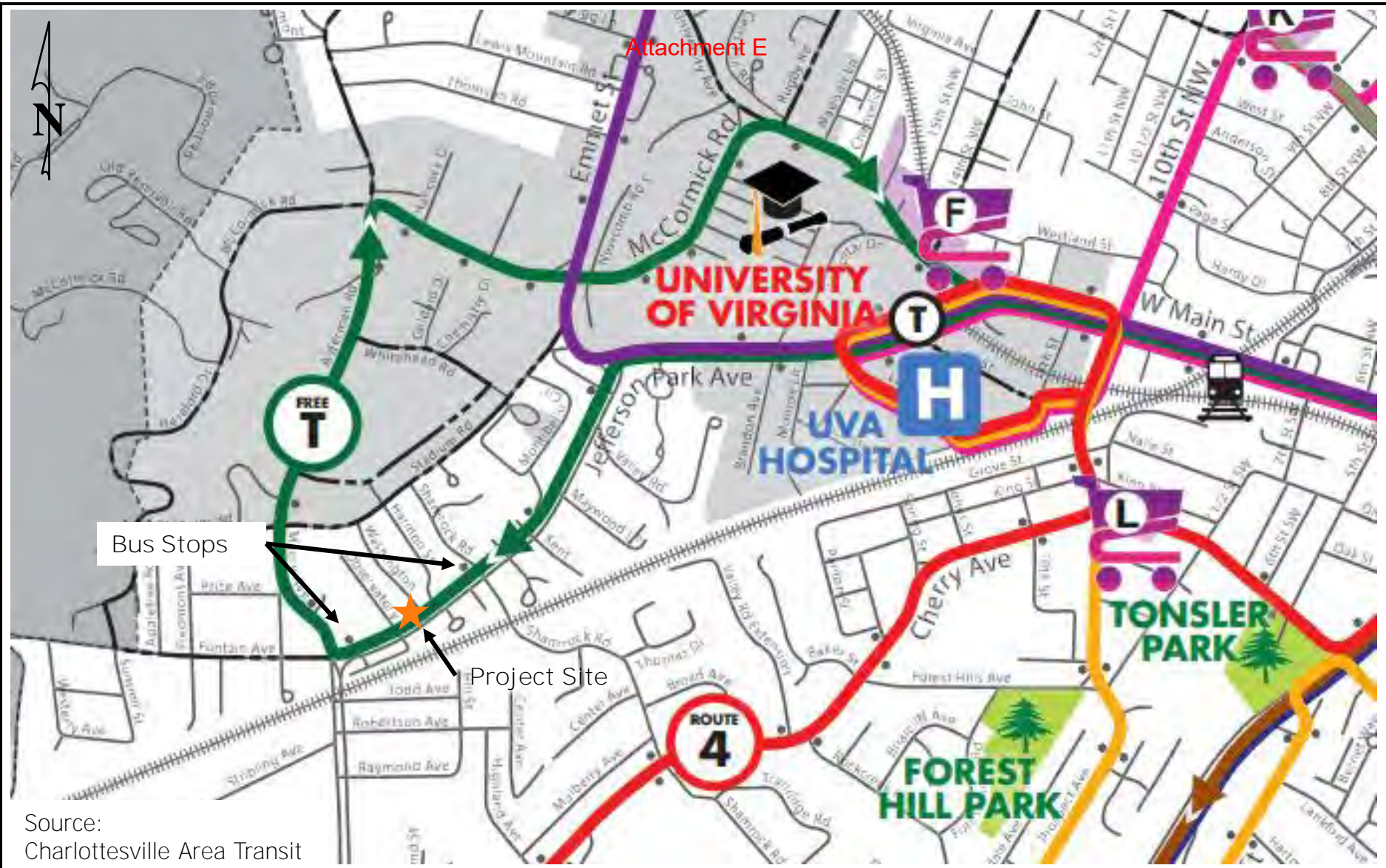
Figure  
 2-1

Source:  
City of Charlottesville



Charlottesville Trails and Bike Lanes  
Aspen Heights TIA  
City of Charlottesville, Virginia

Figure  
2-2

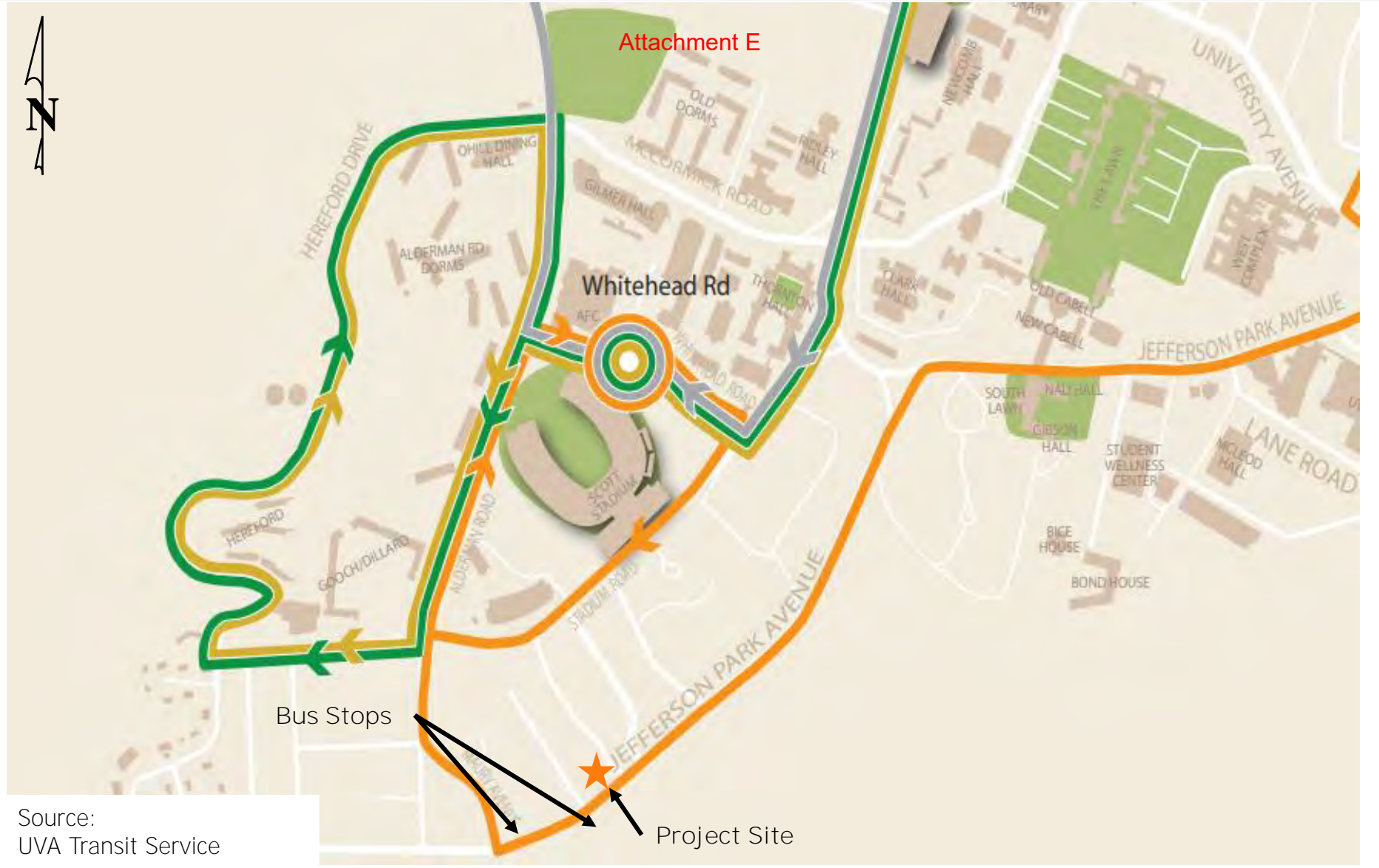


Source:  
Charlottesville Area Transit



Charlottesville Area Transit (CAT) Service Map  
Aspen Heights TIA  
City of Charlottesville, Virginia

Figure  
2-3



Source:  
UVA Transit Service



UVA University Transit Service Map  
Aspen Heights TIA  
City of Charlottesville, Virginia

Figure  
2-4

### 3 2021 EXISTING CONDITIONS

#### 3.1 EXISTING TRAFFIC VOLUMES

Existing peak hour turning movement counts were conducted at each of the study intersections during the AM (7:00-9:00), Midday (11:00-1:00), and PM (4:00-6:00) peak hour timeframes. The counts were conducted on August 28, 2021 on a typical weekday when public schools and the University of Virginia were in session. The counts included heavy vehicles by movement, pedestrians, and bikes.

The common peak hours across all study intersections were found to be 7:30–8:30 AM, 12:00–1:00 PM, and 4:45–5:45 PM. The existing vehicle traffic counts are shown on Figure 3-1; existing bike and pedestrian volumes are shown on Figures 3-2 and 3-3, respectively.

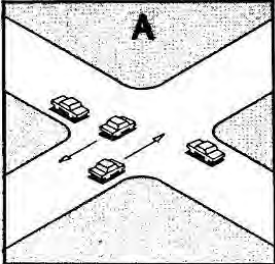
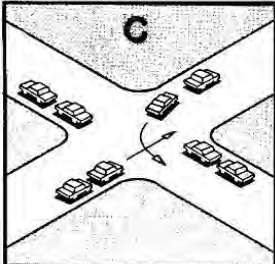
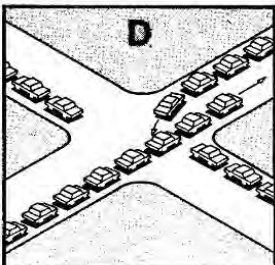
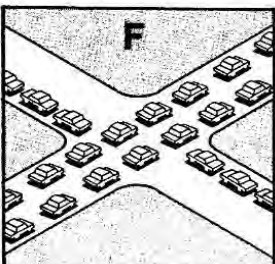
In addition, a 12-hour count at the intersection of Jefferson Park Avenue and Washington Avenue was conducted to support a traffic signal warrant analysis. The complete traffic data is included in Appendix A.

Existing signal timings for all intersections were provided by the City of Charlottesville and are included in Appendix B.

#### 3.2 CAPACITY ANALYSIS

Capacity analysis allows traffic engineers to determine the impacts of traffic on the surrounding roadway network. **The Transportation Research Board's (TRB) *Highway Capacity Manual* (HCM)** methodologies govern how the capacity analyses are conducted and how the results are interpreted. There are six letter grades of Levels of Service (LOS) from A to F, with LOS A representing the best operating conditions and LOS F the worst operating conditions. Table 3-1 shows in detail how each of these levels of service are interpreted.

Table 3-1: Level of Service Definitions

Level of Service	Roadway Segments or Controlled Access Highways	Intersections	
A	Free flow, low traffic density.	No vehicle waits longer than one signal indication.	
B	Delay is not unreasonable, stable traffic flow.	On a rare occasion motorists wait through more than one signal indication.	
C	Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists.	Intermittently drivers wait through more than one signal indication, and occasionally backups may develop behind left turning vehicles, traffic flow still stable and acceptable.	
D	Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive backups.	Delays at intersections may become extensive with some, especially left-turning vehicles waiting two or more signal indications, but enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive backups.	
E	Actual capacity of the roadway involves delay to all motorists due to congestion.	Very long queues may create lengthy delays, especially for left-turning vehicles.	
F	Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.	Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a storage area during part or all of an hour.	

SOURCE: "A Policy on Design of Design of Urban Highways and Arterial Streets" - AASHTO, 1973 based upon material published in "Highway Capacity Manual", National Academy of Sciences, 1965.



For signalized and unsignalized intersections, level of service is defined in terms of delay, a measure of driver discomfort, frustration, fuel consumption and lost travel time. Table 3-2 summarizes the delay associated with each LOS category:

Table 3-2: Signalized and Unsignalized Intersection Level of Service Criteria

Signalized Intersections		Unsignalized Intersections	
Level of Service	Control Delay per Vehicle (sec/veh)	Level of Service	Average Control Delay (sec/veh)
A	<b>≤ 10</b>	A	0 to 10
B	<b>&gt; 10 to ≤ 20</b>	B	<b>&gt; 10 to ≤ 15</b>
C	<b>&gt; 20 to ≤ 35</b>	C	<b>&gt; 15 to ≤ 25</b>
D	<b>&gt; 35 to ≤ 55</b>	D	<b>&gt; 25 to ≤ 35</b>
E	<b>&gt; 55 to ≤ 80</b>	E	<b>&gt; 35 to ≤ 50</b>
F	> 80	F	> 50

*Source: Exhibit 16-2 and Exhibit 17-2 from TRB's "Highway Capacity Manual 2000"*

Capacity analyses were performed to assess existing (2021), background (2025), and future (2031) operational conditions. The signalized and unsignalized intersections were analyzed using SYNCHRO Version 10 based on HCM 2000 methodologies with the following assumptions:

- Level terrain;
- 12-foot lane widths;
- Existing peak hour factor as determined by the traffic counts (by intersection) for existing scenario;
- The higher of the existing peak hour factor as determined by traffic counts (by intersection) or a peak hour factor of 0.92 for the background and total future scenarios.
- Heavy vehicle percentage as determined by the traffic counts (by movement); and
- Traffic signals timing data provided by the City of Charlottesville.

### 3.3 EXISTING CONDITIONS CAPACITY ANALYSIS RESULTS

Table 3-3 summarizes the 2021 existing intersection LOS, delay, 95<sup>th</sup> percentile queue lengths (Synchro), and longest queue lengths (SimTraffic) based on the 2021 existing intersection geometry (Figure 2-1) and peak hour traffic volumes shown on Figures 3-1, 3-2, and 3-3. The corresponding SYNCHRO and SimTraffic reports are included in Appendix C. Note that the intersection numbers shown on the LOS, delay, and queue length summary tables correspond with the intersection numbers used in the SYNCHRO models and report figures.

As shown in Table 3-1, under 2021 existing conditions:

- At the signalized intersection of Jefferson Park Avenue and Shamrock Road, the overall intersection operates at a LOS B during the AM/Midday/PM peak hours. During the AM/Midday/PM peaks, the mainline (east-west) approaches and movements operate at a LOS B or better; the side street (north-south) approaches operate at a LOS C. All turn bays have adequate storage to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Harmon Street, the mainline (east-west) approaches operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches operate at a LOS C or better during the AM/Midday/PM peaks. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Washington Avenue, the mainline (east-west) approaches operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches operate at a LOS C or better during the AM/Midday/PM peaks. During the PM peak, the westbound approach maximum queue length (79 feet) fills the distance to the adjacent intersection with Harmon Street (77 feet away). All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Observatory Avenue, the mainline (east-west) approaches operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches operate at a LOS B during the AM/Midday peaks and a LOS C during the PM peak. During the PM peak, the westbound maximum queue (157 feet) fills the distance to the adjacent intersection with Washington Avenue (174 feet away). All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the signalized intersection of Jefferson Park Avenue and Maury Avenue/Fontaine Avenue, the overall intersection operates at a LOS C during the AM/PM peaks and a LOS B during the Midday peak. The north- and southbound approaches and movements generally operate at a LOS C during the AM/Midday/PM peaks. The east- and westbound approaches and movements generally operate at a LOS C or better during the AM/PM peaks and LOS B during the Midday peak.

- During the AM/Midday peaks, the westbound left maximum queue (87 feet) fills the available storage (88 feet), spilling back into the through lane sometimes. During the PM peak, the 95<sup>th</sup> percentile queue (178 feet) exceeds the available storage (88 feet), spilling back into the through lane 20% of the time. During the PM peak, the westbound approach maximum queue (445 feet) backs up through the adjacent intersection with Observatory Avenue (432 feet away). Factoring in space for the intersection width, the queue continues past Observatory Avenue a further 157 feet. During the PM peak, the southbound through maximum queue (339 feet) effectively blocks the left and right turn lanes (125 feet max. storage) and backs up through the adjacent intersection with Clark Court (275 feet away). All other turn bays have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Maury Avenue/Alderman Road and Stadium Road, all approaches operate at a LOS B or better during the AM/Midday peaks. During the PM peak, the east- west- and northbound approaches operate at a LOS C or better. The southbound approach operates at a LOS D. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Stadium Road and Washington Avenue, all approaches operate at a LOS A during the AM/Midday/PM peaks. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.

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Table 3-3: Intersection Level of Service and Delay Summary  
2021 Existing Peak Hour Traffic

Intersection and Type of Control	Movement and Approach	Effective Turn Lane Storage (ft)	AM PEAK HOUR				MIDDAY PEAK HOUR				PM PEAK HOUR			
			Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)	Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)	Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)
1. Shamrock Road (N-S) and Jefferson Park Avenue (E-W) <i>Signalized</i>	<i>EB Approach</i>		13.8	B	320	299	11.8	B	272	248	14.4	B	212	253
	WB Left	75	6.4	A	18	66	6.6	A	25	74	8.7	A	47	74
	WB Thru - Right		5.9	A	46	140	6.8	A	147	199	10.5	B	296	354
	<i>WB Approach</i>		6.0	A	--	--	6.8	A	--	--	10.2	B	--	--
	<i>NB Approach</i>		31.4	C	157	197	28.8	C	93	146	28.0	C	113	152
	<i>SB Approach</i>		27.1	C	31	63	27.0	C	32	65	26.4	C	63	96
	Overall			15.2	B	--	--	11.9	B	--	--	14.2	B	--
2. Harmon Street (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.2	A	0	68	8.2	A	0	67	9.1	A	0	52
	<i>WB Approach</i>		8.5	A	0	56	8.4	A	0	78	8.2	A	0	159
	<i>NB Approach</i>		15.4	C	0	27	15.4	C	0	27	11.1	B	0	33
	<i>SB Approach</i>		15.8	C	0	31	12.6	B	2	33	18.7	C	6	66
3. Washington Avenue (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.4	A	0	65	8.7	A	0	68	9.2	A	0	80
	<i>WB Approach</i>		8.6	A	0	38	8.4	A	0	14	8.3	A	0	79
	<i>NB Approach</i>		12	B	0	22	16.9	C	2	62	11	B	0	25
	<i>SB Approach</i>		0	A	0	0	14.3	B	2	35	19.8	C	4	42
4. Observatory Avenue (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.2	A	0	55	8.2	A	0	11	9.3	A	0	91
	<i>WB Approach</i>		9.2	A	0	61	8.3	A	0	46	8.5	A	0	157
	<i>NB Approach</i>		14.3	B	0	31	14.4	B	0	35	19.1	C	2	41
	<i>SB Approach</i>		14.9	B	0	29	10.8	B	0	14	21.3	C	4	46
5. Maury Avenue/Jefferson Park Ave (N-S) and Fontaine Avenue (E-W) <i>Signalized</i>	EB Left	152	20.2	C	77	133	16.3	B	53	117	27.7	C	35	90
	EB Thru		25.2	C	275	292	19.9	B	226	237	24.5	C	58	210
	EB Right	120	9.2	A	19	120	11.3	B	20	120	16.8	B	48	120
	<i>EB Approach</i>		20.1	C	--	--	16.8	B	--	--	18.8	B	--	--
	WB Left	88	16.7	B	52	87	15.2	B	97	87	29.8	C	178	87
	WB Thru - Right		15.7	B	186	211	11.7	B	178	241	23.9	C	294	445
	<i>WB Approach</i>		15.9	B	--	--	12.9	B	--	--	26.1	C	--	--
	NB Left	355	34.1	C	#319	269	29.5	C	126	153	32.9	C	174	187
	NB Thru		27.5	C	215	221	28.0	C	86	113	30.8	C	101	133
	NB Right	200	0.0	A	53	111	0.0	A	32	0	0.0	A	15	0
	<i>NB Approach</i>		31.2	C	--	--	28.9	C	--	--	32.2	C	--	--
	SB Left	117	31.7	C	31	67	27.6	C	40	86	27.8	C	57	117
	SB Thru		32.3	C	59	93	29.4	C	111	157	36.9	D	284	339
	SB Right	125	31.6	C	0	66	27.9	C	0	107	28.1	C	0	125
<i>SB Approach</i>		32.1	C	--	--	28.7	C	--	--	34.7	C	--	--	
Overall			24.2	C	--	--	19.6	B	--	--	27.8	C	--	--
6. Maury Avenue/Alderman Road (N-S) and Stadium Road (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		11.7	B	31	101	8.5	A	4	42	10.4	B	6	63
	<i>WB Approach</i>		9.8	A	8	73	9.0	A	10	72	15.1	C	55	127
	<i>NB Approach</i>		14.6	B	74	224	9.1	A	20	103	11.4	B	25	122
	<i>SB Approach</i>		11.4	B	20	101	9.4	A	23	88	30.4	D	168	310
7. Washington Avenue (N-S) and Stadium Road (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		†	†	--	3	†	†	--	6	†	†	--	--
	<i>WB Approach</i>		7.6	A	0	--	7.5	A	0	12	7.6	A	0	28
	<i>NB Approach</i>		9.5	A	0	30	9.8	A	0	39	9.5	A	0	33

<sup>1</sup> Overall intersection LOS and delay cannot be reported for unsignalized intersections.

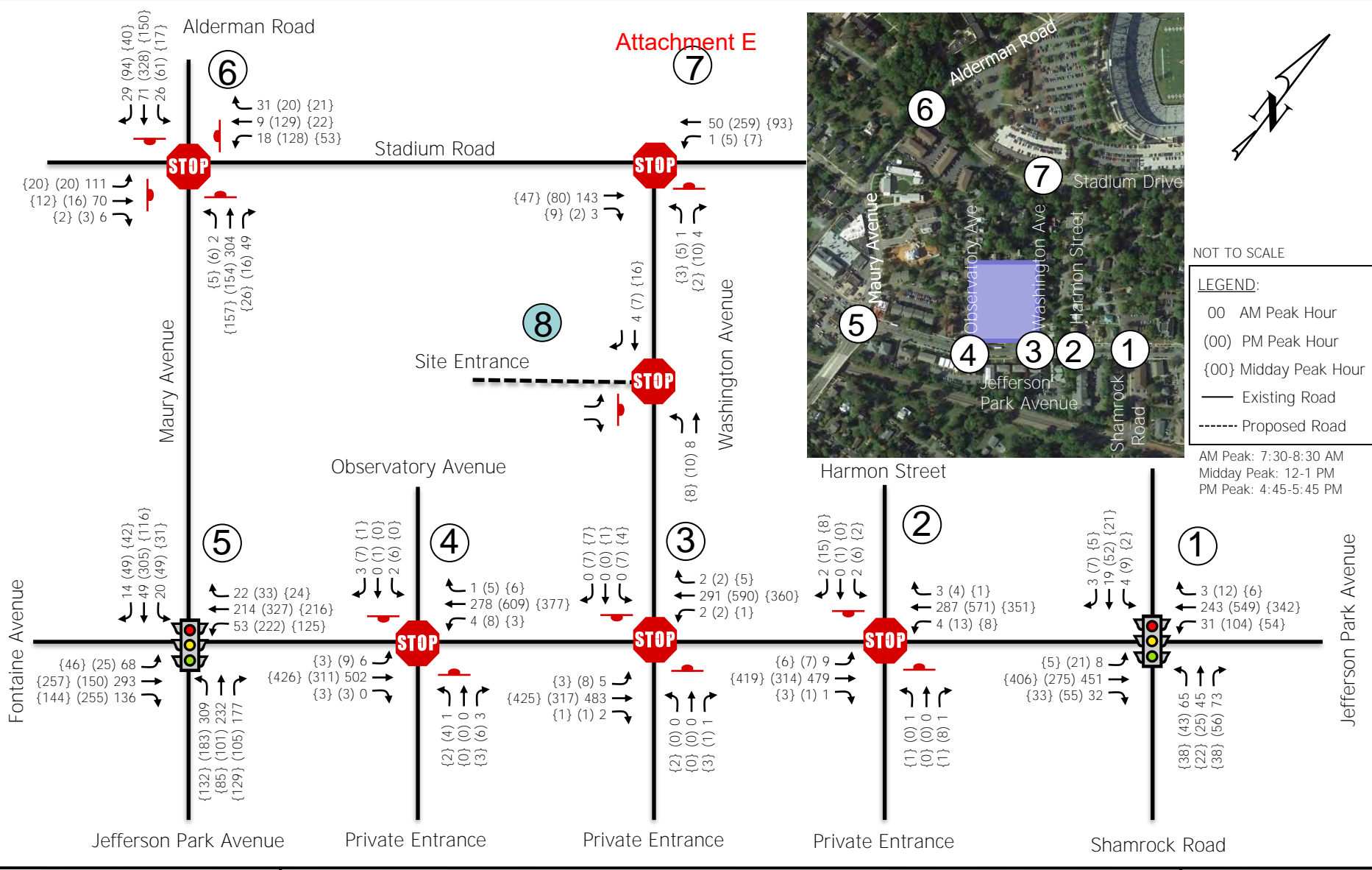
† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

# - 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

SimTraffic queues are average maximum queues after 10 runs of 60 minutes each.

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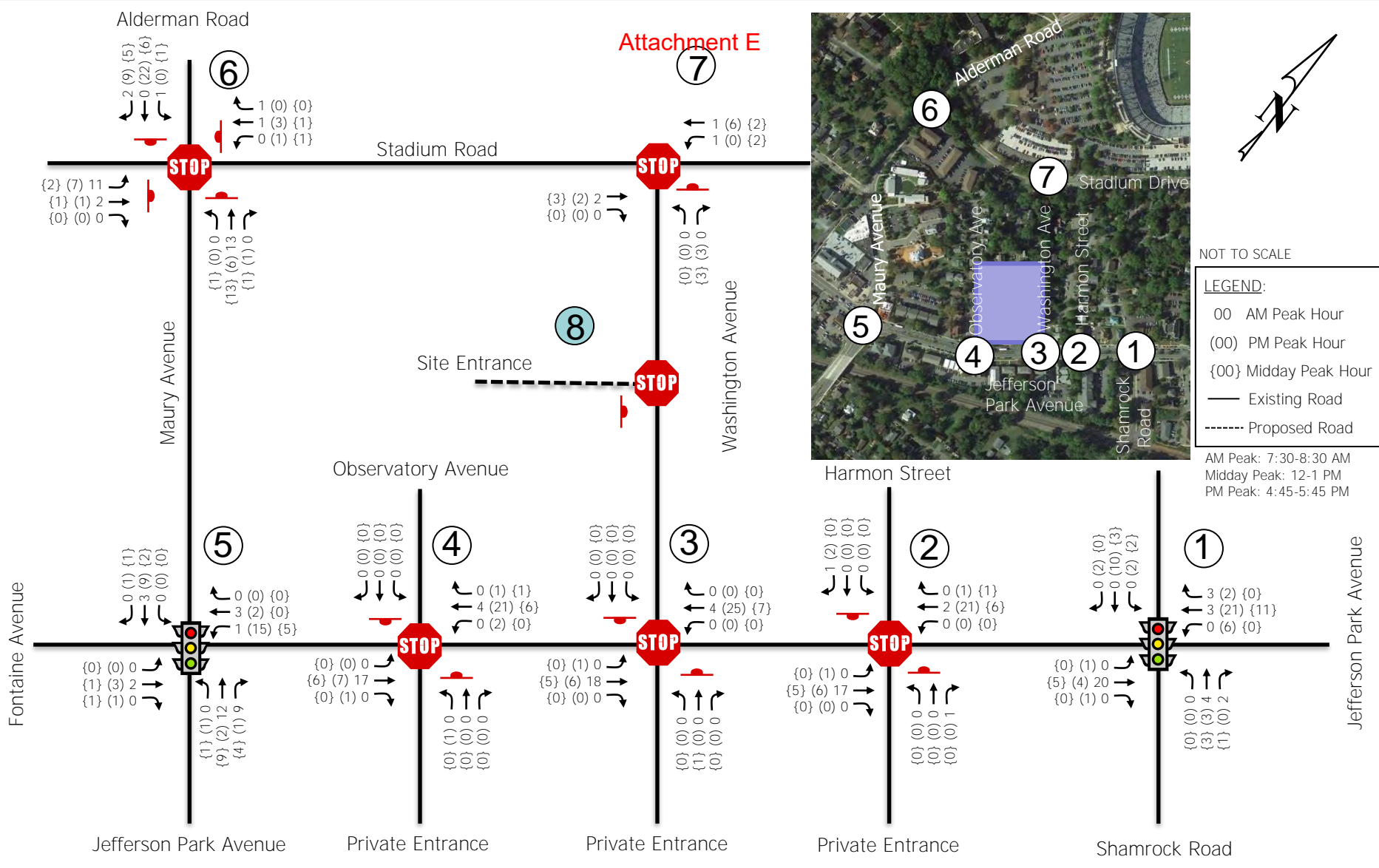
Attachment E



2021 Existing Peak Hour Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 3-1

Attachment E



2021 Existing Bicycle Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 3-2





2021 Existing Pedestrian Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 3-3

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## 4 2023 BACKGROUND CONDITIONS

The background 2023 volumes were analyzed assuming existing intersection geometry in conjunction with projected background traffic volumes.

The background vehicle volumes were developed based on a 0.2% annual growth rate. The background bike and pedestrian volumes were developed based on a 1% annual growth rate.

### 4.1 2023 BACKGROUND TRAFFIC VOLUMES

The 0.2% and 1% annual growth rates discussed above were compounded annually for the two-year period from 2021 to 2023 and was applied to all movements at the study intersections. The resulting 2023 vehicle background (existing + growth) volumes are shown on Figure 4-1; the 2023 bike and pedestrian background (existing + growth) volumes are shown on Figures 4-2 and 4-3, respectively.

### 4.2 APPROVED BACKGROUND 2023 DEVELOPMENTS

Per coordination with the City of Charlottesville, no background developments are expected to be completed within the vicinity of the proposed development.

### 4.3 BACKGROUND 2023 CAPACITY ANALYSIS RESULTS

Table 4-1 summarizes the 2023 background intersection LOS, delay, 95<sup>th</sup> percentile queue lengths (Synchro), and maximum queue lengths (SimTraffic) based on the intersection geometry (Figure 2-1) and 2023 background peak hour traffic volumes shown on Figures 4-1, 4-2, and 4-3. The corresponding SYNCHRO and SimTraffic reports are included in Appendix D. Note that the intersection numbers shown on the LOS, delay, and queue length summary tables correspond with the intersection numbers used in the SYNCHRO models and report figures.

As shown in Table 4-1 under 2023 background conditions:

- Levels of service at the study intersections are not expected to change significantly from 2021 existing to 2023 background conditions.
- At the signalized intersection of Jefferson Park Avenue and Shamrock Avenue, the overall intersection continues to operate at a LOS B during the AM/Midday/PM peak hours. During the AM/Midday/PM peaks, the mainline (east-west) approaches and movements continue to operate at a LOS B or better; the side street (north-south) approaches continue to operate at a LOS C. During the PM peak, the westbound left maximum queue (74 feet) fills the available storage (75 feet). All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Harmon Street, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS C or better during the AM/Midday/PM peaks. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Washington Avenue, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS C or better during the AM/Midday/PM peaks. During the PM peak, the westbound approach maximum queue length

(78 feet) fills the distance to the adjacent intersection with Harmon Street (77 feet away). All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.

- At the unsignalized intersection of Jefferson Park Avenue and Observatory Avenue, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS B during the AM/Midday peaks and a LOS C during the PM peak. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the signalized intersection of Jefferson Park Avenue and Maury Avenue/Fontaine Avenue, the overall intersection continues to operate at a LOS C during the AM/PM peaks and a LOS B during the Midday peak. The north- and southbound approaches and movements continue to generally operate at a LOS C during the AM/Midday/PM peaks. The east- and westbound approaches and movements continue to generally operate at a LOS C or better during the AM/PM peaks and LOS B during the Midday peak.
  - During the AM/Midday peaks, the westbound left maximum queue (87 feet) fills the available storage (88 feet), spilling back into the through lane sometimes. During the PM peak, the 95<sup>th</sup> percentile queue (179 feet) exceeds the available storage (88 feet), spilling back into the through lane 20% of the time. During the PM peak, the westbound approach maximum queue (442 feet) backs up through the adjacent intersection with Observatory Avenue (432 feet away). Factoring in space for the intersection width, the queue continues past Observatory Avenue a further 166 feet. During the PM peak, the southbound through maximum queue (350 feet) effectively blocks the left and right turn lanes (125 feet max. storage) and backs up through the adjacent intersection with Clark Court (275 feet away). All other turn bays have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Maury Avenue/Alderman Road and Stadium Road, all approaches continue to operate at a LOS B or better during the AM/Midday peaks. During the PM peak, the east- west- and northbound approaches continue to operate at a LOS C or better. The southbound approach operates at a LOS D. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Stadium Road and Washington Avenue, all approaches continue operate at a LOS A during the AM/Midday/PM peaks. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.

Table 4-1: Intersection Level of Service and Delay Summary  
2023 Total Background Peak Hour Traffic

Intersection and Type of Control	Movement and Approach	Effective Turn Lane Storage (ft)	AM PEAK HOUR				MIDDAY PEAK HOUR				PM PEAK HOUR			
			Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)	Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)	Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)
1. Shamrock Road (N-S) and Jefferson Park Avenue (E-W) <i>Signalized</i>	<i>EB Approach</i>		13.9	B	321	293	11.9	B	274	284	14.5	B	212	261
	WB Left	75	6.5	A	18	61	6.6	A	25	68	8.7	A	47	74
	WB Thru - Right		5.9	A	105	144	6.9	A	147	207	10.6	B	298	326
	<i>WB Approach</i>		6.0	A	--	--	6.9	A	--	--	10.3	B	--	--
	<i>NB Approach</i>		31.4	C	157	200	28.8	C	93	133	28.0	C	114	159
	<i>SB Approach</i>		27.1	C	31	63	27.0	C	32	53	26.4	C	63	111
	Overall			15.3	B	--	--	11.9	B	--	--	14.2	B	--
2. Harmon Street (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.2	A	0	73	8.2	A	0	63	9.1	A	0	62
	<i>WB Approach</i>		8.5	A	0	37	8.4	A	0	82	8.2	A	0	199
	<i>NB Approach</i>		15.4	C	0	21	15.5	C	0	21	11	B	0	33
	<i>SB Approach</i>		15.9	C	0	33	12.6	B	2	35	18.1	C	6	55
3. Washington Avenue (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.4	A	0	93	8.7	A	0	32	9.2	A	0	119
	<i>WB Approach</i>		8.6	A	0	35	8.4	A	0	11	8.3	A	0	78
	<i>NB Approach</i>		12	B	0	22	16.9	C	2	55	11	B	0	19
	<i>SB Approach</i>		0	A	0	0	14.4	B	2	38	19.6	C	4	44
4. Observatory Avenue (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.2	A	0	37	8.2	A	0	29	9.3	A	0	77
	<i>WB Approach</i>		9.2	A	0	26	8.4	A	0	51	8.5	A	0	166
	<i>NB Approach</i>		14.1	B	0	30	14.4	B	0	33	18.6	C	2	46
	<i>SB Approach</i>		14.7	B	0	31	10.8	B	0	9	20.7	C	4	42
5. Maury Avenue/Jefferson Park Ave (N-S) and Fontaine Avenue (E-W) <i>Signalized</i>	EB Left	152	20.8	C	77	143	16.3	B	53	141	27.9	C	35	80
	EB Thru		26.1	C	276	306	20.0	B	227	282	27.2	C	143	198
	EB Right	120	9.6	A	19	120	11.3	B	20	120	16.9	B	50	120
	<i>EB Approach</i>		20.9	C	--	--	16.8	B	--	--	21.2	C	--	--
	WB Left	88	17.2	B	52	87	15.2	B	98	87	36.6	D	179	88
	WB Thru - Right		16.4	B	187	203	11.7	B	178	256	24.0	C	295	442
	<i>WB Approach</i>		16.5	B	--	--	12.9	B	--	--	28.8	C	--	--
	NB Left	355	35.1	D	#320	269	29.5	C	127	145	32.9	C	175	190
	NB Thru		28.0	C	216	225	28.0	C	86	105	30.8	C	101	129
	NB Right	200	0.0	A	53	156	0.0	A	33	0	0.0	A	15	0
	<i>NB Approach</i>		32.1	C	--	--	28.9	C	--	--	32.2	C	--	--
	SB Left	117	31.4	C	31	65	27.6	C	40	95	27.8	C	57	117
	SB Thru		32.0	C	59	96	29.4	C	111	174	37.0	D	285	350
	SB Right	125	31.3	C	0	67	28.0	C	0	92	28.2	C	0	125
<i>SB Approach</i>		31.7	C	--	--	28.8	C	--	--	34.8	C	--	--	
Overall			24.9	C	--	--	19.6	B	--	--	28.9	C	--	--
6. Maury Avenue/Alderman Road (N-S) and Stadium Road (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		11.0	B	25	97	8.4	A	4	49	10.5	B	6	59
	<i>WB Approach</i>		9.4	A	6	78	8.9	A	10	7	15.2	C	55	133
	<i>NB Approach</i>		13	B	59	222	9	A	20	120	11.4	B	23	135
	<i>SB Approach</i>		10.8	B	18	105	9.3	A	23	119	30.8	D	170	294
7. Washington Avenue (N-S) and Stadium Road (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		†	†	--	3	†	†	--	6	†	†	--	11
	<i>WB Approach</i>		7.6	A	0	8	7.5	A	0	15	7.6	A	0	20
	<i>NB Approach</i>		9.3	A	0	30	9.8	A	0	46	10.0	A	2	40

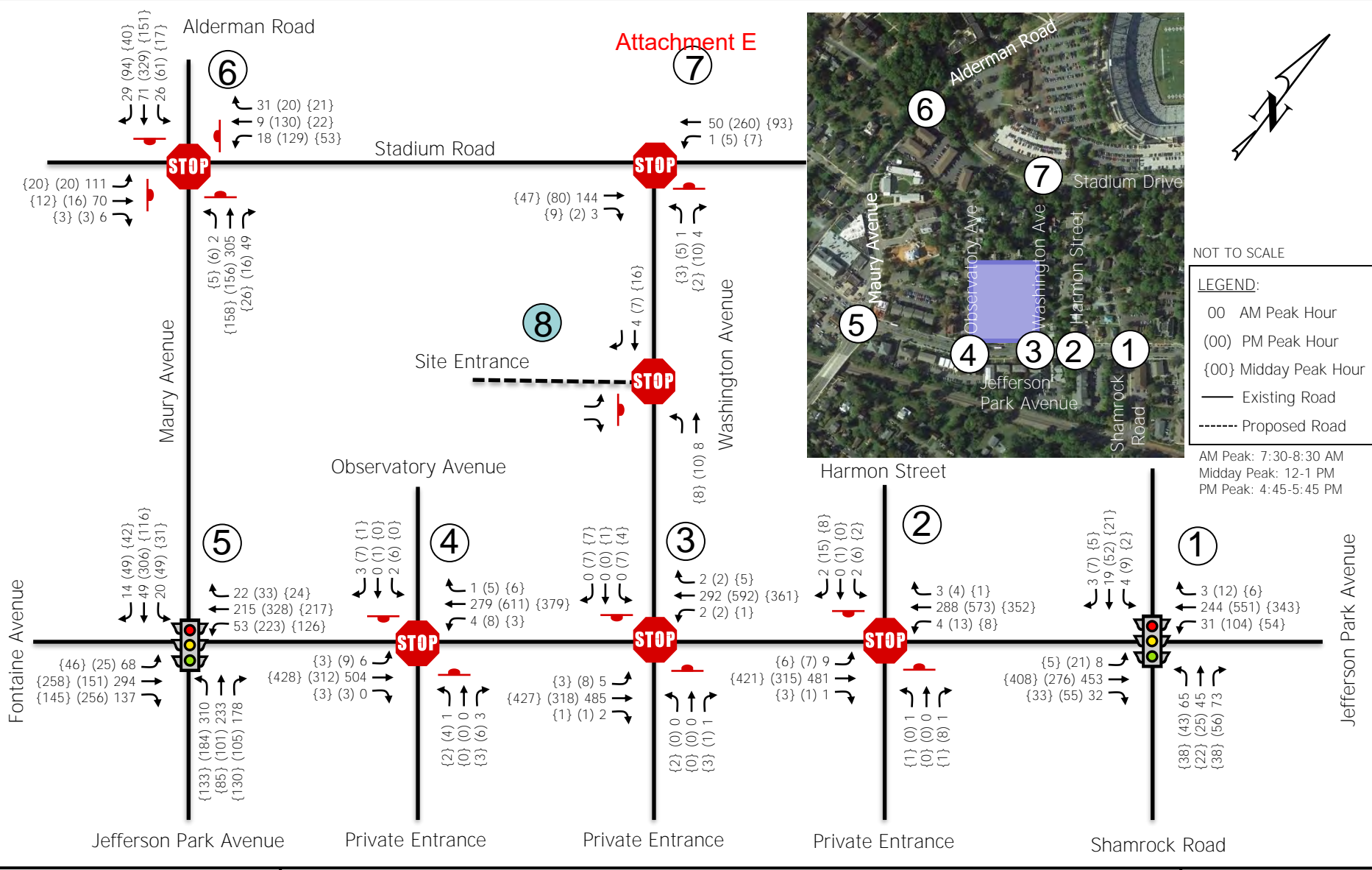
<sup>1</sup> Overall intersection LOS and delay cannot be reported for unsignalized intersections.

† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

# - 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

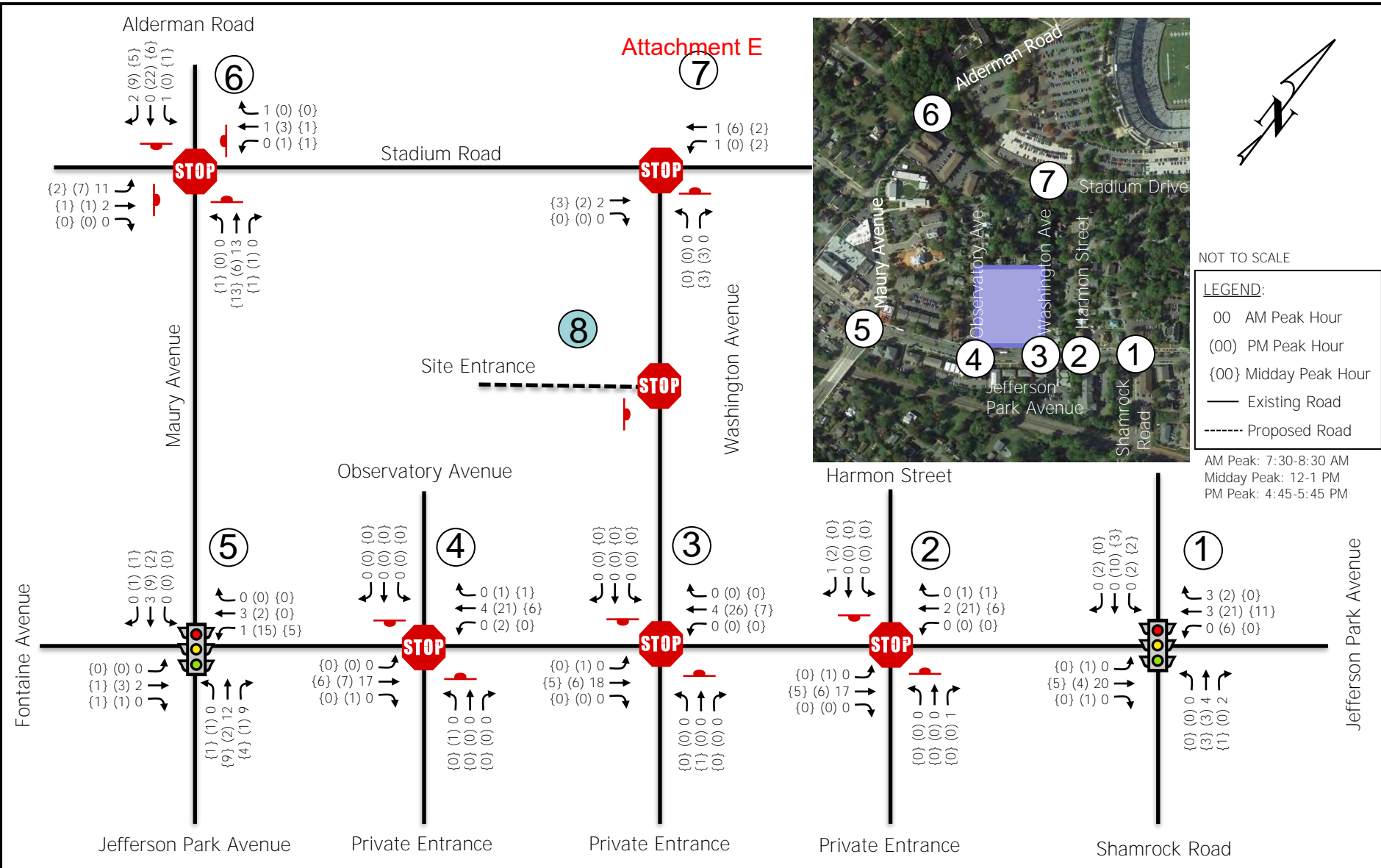
SimTraffic queues are average maximum queues after 10 runs of 60 minutes each.

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2023 Background Peak Hour Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 4-1



2023 Background Bicycle Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 4-2





2023 Background Pedestrian Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 4-3

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## 5 2028 BACKGROUND CONDITIONS

The background 2028 volumes were analyzed assuming existing intersection geometry in conjunction with projected background traffic volumes.

The background vehicle volumes were developed based on a 0.2% annual growth rate. The background bike and pedestrian volumes were developed based on a 1% annual growth rate.

### 5.1 2028 BACKGROUND TRAFFIC VOLUMES

The 0.2% and 1% annual growth rates discussed above were compounded annually for the 7-year period from 2021 to 2028 and was applied to all movements at the study intersections. The resulting 2028 vehicle background (existing + growth) volumes are shown on Figure 5-1; the 2028 bike and pedestrian background (existing + growth) volumes are shown on Figures 5-2 and 5-3, respectively.

### 5.2 BACKGROUND 2028 CAPACITY ANALYSIS RESULTS

Table 5-1 summarizes the 2028 background intersection LOS, delay, 95<sup>th</sup> percentile queue lengths (Synchro), and maximum queue lengths (SimTraffic) based on the intersection geometry (Figure 2-1) and 2028 background peak hour traffic volumes shown on Figures 5-1, 5-2, and 5-3. The corresponding SYNCHRO and SimTraffic reports are included in Appendix D. Note that the intersection numbers shown on the LOS, delay, and queue length summary tables correspond with the intersection numbers used in the SYNCHRO models and report figures.

As shown in Table 5-1 under 2028 background conditions:

- Levels of service at the study intersections are not expected to change significantly from 2021 existing to 2028 background conditions.
- At the signalized intersection of Jefferson Park Avenue and Shamrock Avenue, the overall intersection continues to operate at a LOS B during the AM/Midday/PM peak hours. During the AM/Midday/PM peaks, the mainline (east-west) approaches and movements continue to operate at a LOS B or better; the side street (north-south) approaches continue to operate at a LOS C. During the PM peak, the westbound left maximum queue (74 feet) fills the available storage (75 feet). All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Harmon Street, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS C or better during the AM/Midday/PM peaks. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Washington Avenue, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS C or better during the AM/Midday/PM peaks. During the PM peak, the westbound approach maximum queue length (82 feet) backs up through the adjacent intersection with Harmon Street (77 feet away). This queue is most often caused by the westbound approach queue at Jefferson Park Avenue/Maury Avenue. All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.

- At the unsignalized intersection of Jefferson Park Avenue and Observatory Avenue, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS B during the AM/Midday peaks and a LOS C during the PM peak. During the PM peak, the westbound approach maximum queue (184 feet) backs up through the adjacent intersection with Washington Avenue (174 feet away). This queue is most often caused by the westbound approach queue at Jefferson Park Avenue/Maury Avenue. All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the signalized intersection of Jefferson Park Avenue and Maury Avenue/Fontaine Avenue, the overall intersection continues to operate at a LOS C during the AM/PM peaks and a LOS B during the Midday peak. The north- and southbound approaches and movements continue to generally operate at a LOS C during the AM/Midday/PM peaks. The east- and westbound approaches and movements continue to generally operate at a LOS C or better during the AM/PM peaks and LOS B during the Midday peak.
  - During the AM/Midday peaks, the westbound left maximum queue (87 feet) fills the available storage (88 feet), spilling back into the through lane sometimes. During the PM peak, the 95<sup>th</sup> percentile queue (182 feet) exceeds the available storage (88 feet), spilling back into the through lane 24% of the time. During the PM peak, the westbound approach maximum queue (446 feet) backs up through the roadway network at Observatory Avenue (432 feet away), Washington Avenue (606 feet away) and Harmon Street (683 feet away). During the PM peak, the southbound through maximum queue (384 feet) effectively blocks the left and right turn lanes (125 feet max. storage) and backs up through the adjacent intersection with Clark Court (275 feet away). All other turn bays have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Maury Avenue/Alderman Road and Stadium Road, all approaches continue to operate at a LOS B or better during the AM/Midday peaks. During the PM peak, the east- west- and northbound approaches continue to operate at a LOS C or better. The southbound approach operates at a LOS D. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Stadium Road and Washington Avenue, all approaches continue operate at a LOS A during the AM/Midday/PM peaks. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.

Table 5-1: Intersection Level of Service and Delay Summary  
2028 Total Background Peak Hour Traffic

Intersection and Type of Control	Movement and Approach	Effective Turn Lane Storage (ft)	AM PEAK HOUR				MIDDAY PEAK HOUR				PM PEAK HOUR			
			Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)	Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)	Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)
1. Shamrock Road (N-S) and Jefferson Park Avenue (E-W) <i>Signalized</i>	<i>EB Approach</i>		14.1	B	325	298	12.1	B	278	283	14.7	B	216	262
	WB Left	75	6.5	A	18	58	6.7	A	26	73	8.9	A	47	74
	WB Thru - Right		6.0	A	106	146	7.1	A	149	188	10.8	B	303	326
	<i>WB Approach</i>		6.0	A	--	--	7.0	A	--	--	10.5	B	--	--
	<i>NB Approach</i>		31.5	C	160	187	28.7	C	95	138	28.0	C	115	162
	<i>SB Approach</i>		27.1	C	31	59	26.9	C	32	63	26.3	C	64	97
	Overall			15.4	B	--	--	12.1	B	--	--	14.4	B	--
2. Harmon Street (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.2	A	0	64	8.2	A	0	69	9.1	A	0	61
	<i>WB Approach</i>		8.6	A	0	44	8.4	A	0	82	8.2	A	0	201
	<i>NB Approach</i>		15.6	C	0	27	15.8	C	0	21	11.1	B	0	31
	<i>SB Approach</i>		16.1	C	0	33	12.8	B	2	31	18.4	C	6	61
3. Washington Avenue (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.4	A	0	48	8.8	A	0	39	9.2	A	0	97
	<i>WB Approach</i>		8.6	A	0	17	8.4	A	0	3	8.4	A	0	82
	<i>NB Approach</i>		12	B	0	21	17.2	C	2	60	11.1	B	0	21
	<i>SB Approach</i>		0	A	0	0	14.5	B	2	31	19.9	C	4	42
4. Observatory Avenue (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.2	A	0	58	8.3	A	0	28	9.3	A	0	97
	<i>WB Approach</i>		9.2	A	0	39	8.4	A	0	52	8.5	A	0	184
	<i>NB Approach</i>		14.3	B	0	31	14.6	B	0	31	18.9	C	2	54
	<i>SB Approach</i>		14.9	B	0	33	10.9	B	0	20	21	C	4	55
5. Maury Avenue/Jefferson Park Ave (N-S) and Fontaine Avenue (E-W) <i>Signalized</i>	EB Left	152	21.1	C	78	141	16.5	B	55	132	28.3	C	35	68
	EB Thru		26.7	C	280	358	20.3	C	230	295	27.5	C	144	195
	EB Right	120	9.8	A	19	120	11.4	B	20	120	16.9	B	52	119
	<i>EB Approach</i>		21.3	C	--	--	17.0	B	--	--	27.3	C	--	--
	WB Left	88	17.5	B	52	87	15.5	B	98	87	37.6	D	181	87
	WB Thru - Right		16.7	B	188	219	11.9	B	180	237	24.4	C	299	446
	<i>WB Approach</i>		16.9	B	--	--	13.1	B	--	--	29.4	C	--	--
	NB Left	355	35.7	D	#326	312	29.5	C	129	145	33.0	C	176	206
	NB Thru		28.1	C	218	293	27.9	C	86	102	30.8	C	102	144
	NB Right	200	0.0	A	54	133	0.0	A	34	0	0.0	A	15	0
	<i>NB Approach</i>		32.4	C	--	--	28.9	C	--	--	32.2	C	--	--
	SB Left	117	31.4	C	31	75	27.6	C	40	98	27.9	C	59	117
	SB Thru		32.0	C	60	118	29.5	C	113	174	37.5	D	#289	384
	SB Right	125	31.4	C	0	65	28.0	C	0	99	28.2	C	0	125
	<i>SB Approach</i>		31.8	C	--	--	28.9	C	--	--	35.2	D	--	--
Overall			25.3	C	--	--	19.8	B	--	--	29.2	C	--	--
6. Maury Avenue/Alderman Road (N-S) and Stadium Road (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		11.1	B	27	87	8.4	A	4	41	10.5	B	6	60
	<i>WB Approach</i>		9.5	A	6	78	8.9	A	10	81	15.4	C	57	161
	<i>NB Approach</i>		13.2	B	60	225	9	A	20	100	11.5	B	25	150
	<i>SB Approach</i>		10.9	B	18	102	9.3	A	23	94	32.2	D	178	422
7. Washington Avenue (N-S) and Stadium Road (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		†	†	--	3	†	†	--	6	†	†	--	12
	<i>WB Approach</i>		7.6	A	0	6	7.5	A	0	20	7.6	A	0	18
	<i>NB Approach</i>		9.3	A	0	30	9.8	A	0	46	10.0	A	2	35

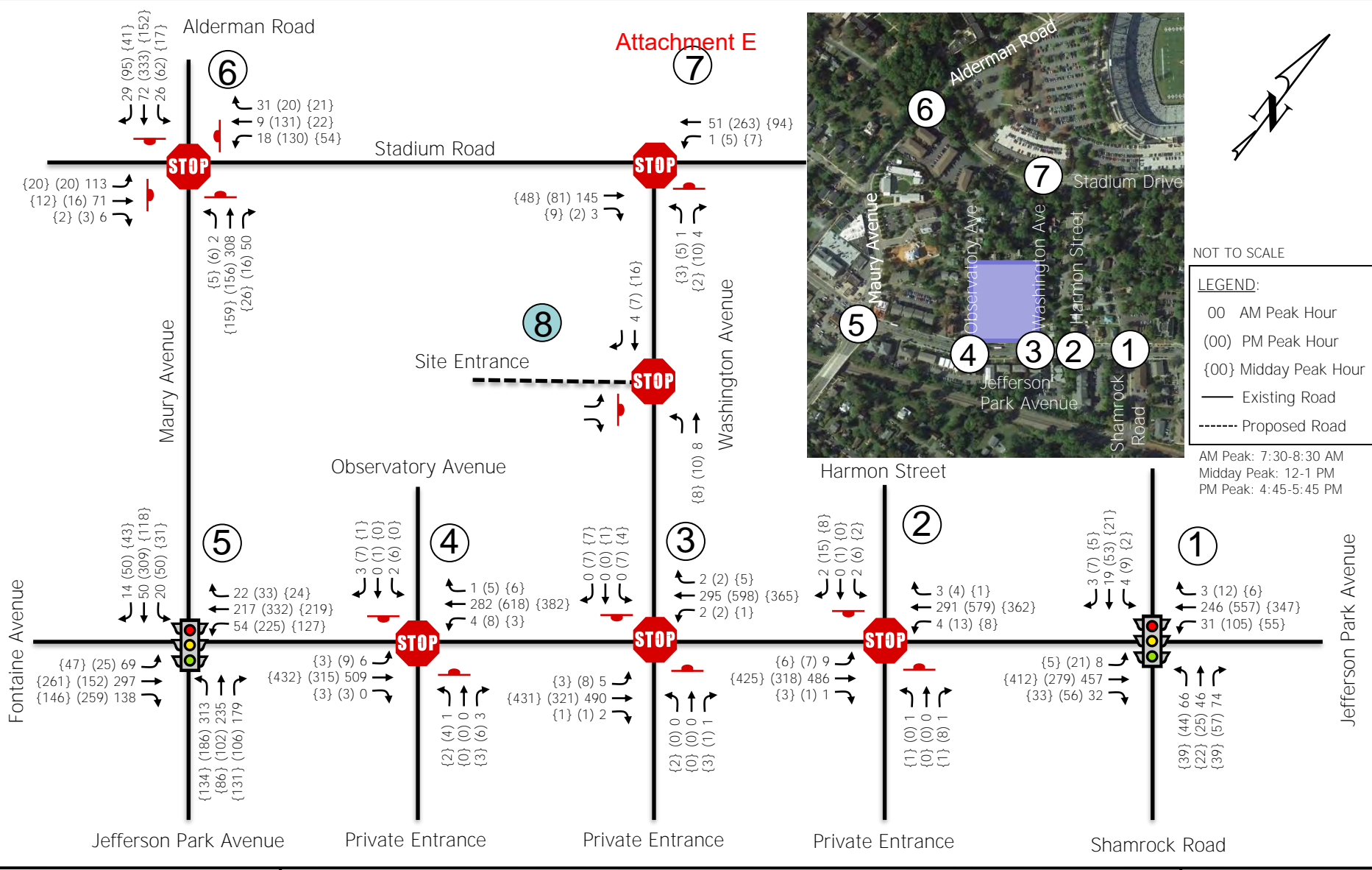
<sup>1</sup> Overall intersection LOS and delay cannot be reported for unsignalized intersections.

† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

# - 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

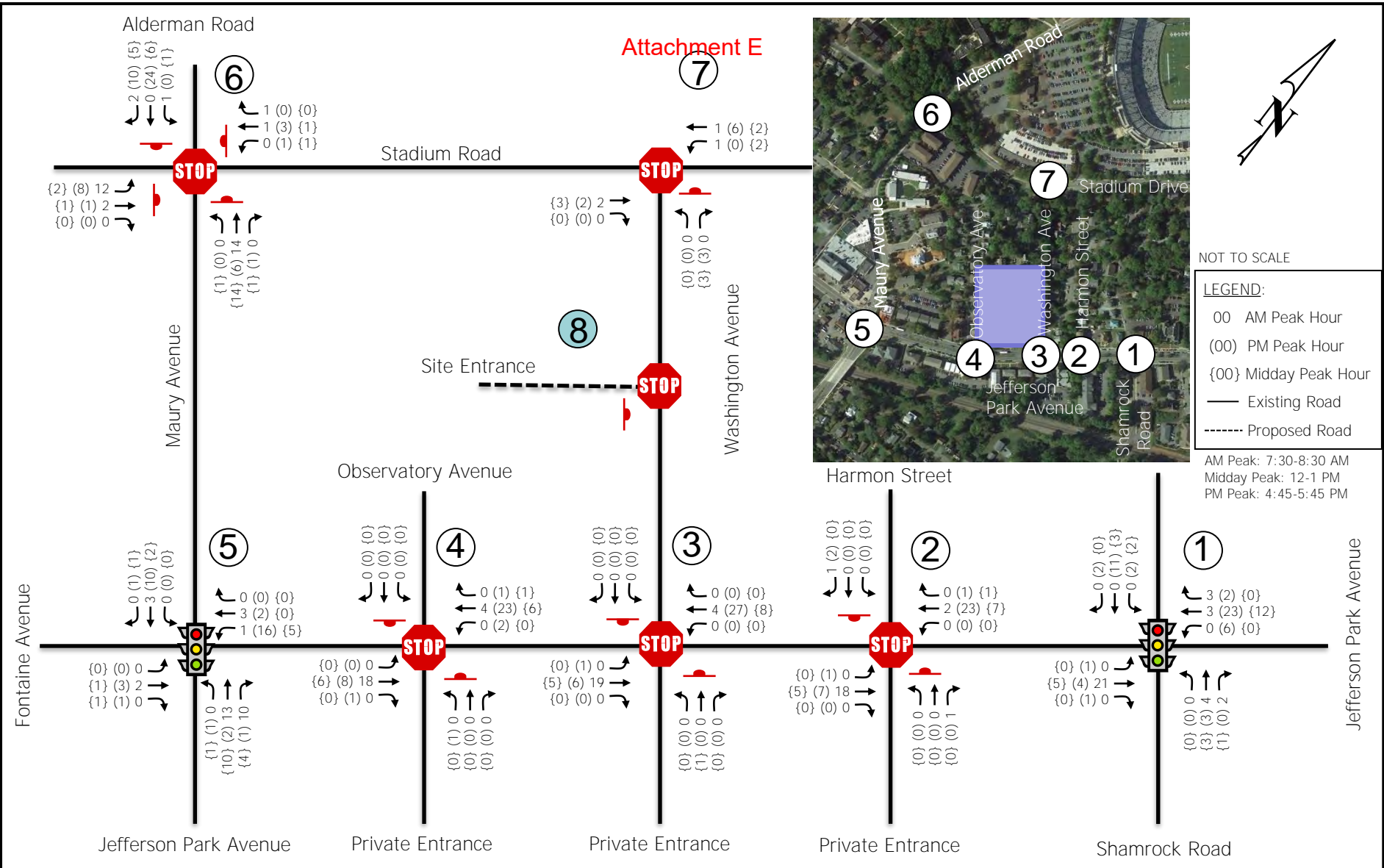
SimTraffic queues are average maximum queues after 10 runs of 60 minutes each.

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2028 Background Peak Hour Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

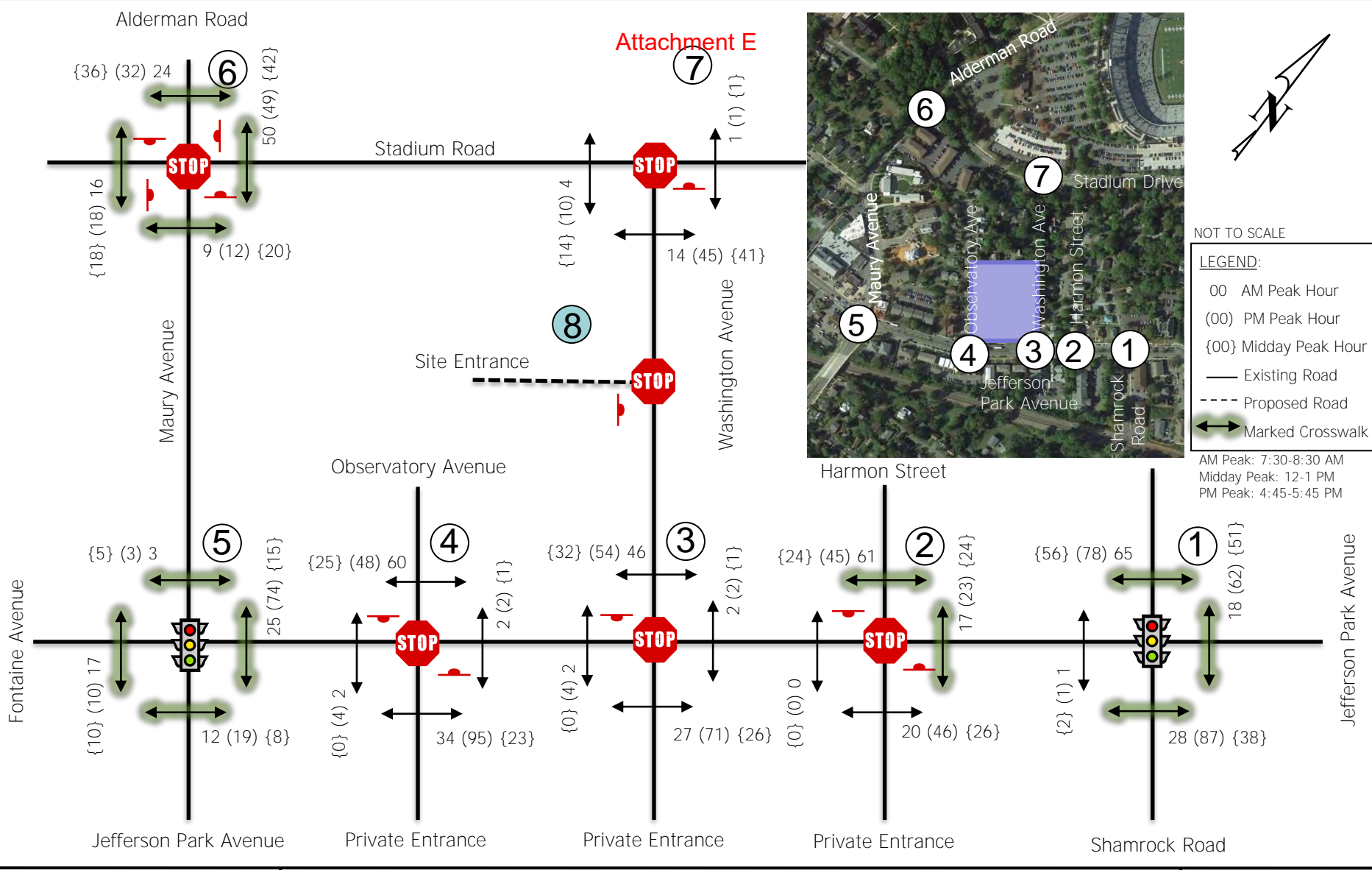
Figure  
 5-1



2028 Background Bicycle Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 5-2





2028 Background Pedestrian Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 5-3

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## 6 TRIP GENERATION

Site traffic for the proposed development was estimated based on the site characteristics and subsequently distributed to the surrounding roadway network.

The site is currently zoned R3. The proposed development will consist of 388 beds (119 units) of off-campus student housing apartments. The applicant is submitting this traffic impact analysis in support of a Special Use Permit (SUP) to allow for the additional density beyond the existing zoning. Access to the site is proposed via one (1) full movement entrance on Washington Avenue.

### 6.1 SITE TRIP GENERATION

The site-generated traffic volumes shown in Table 6-1 were estimated using the 10<sup>th</sup> Edition of the **Institute of Transportation Engineers’ (ITE) Trip Generation Manual** and were calculated using the number of beds as the independent variable **and with “adjacent to campus” subcategory**. A reduction of 13% was applied for external trips, corresponding with the 13% reduction for parking spaces allowed under City of Charlottesville code for this land use and location. The midday peak hour trips were calculated using Appendix A of the ITE *Trip Generation Manual*, time of day distributions for the midday peak hour (12:00 – 1:00 PM).

Table 6-1: Aspen Heights Trip Generation Summary

LAND USE	ITE CODE	AMOUNT (X)	UNITS	WEEKDAY VEHICULAR TRIPS										
				ADT	AM PEAK HOUR		MIDDAY PEAK HOUR <sup>(1)</sup>			PM PEAK HOUR				
					TOTAL	IN (41%)	OUT (59%)	TOTAL	IN (48%)	OUT (52%)	TOTAL	IN (50%)	OUT (50%)	TOTAL
Proposed Development														
Off Campus Student Apartment	225	388	Beds	1,230	18	26	44	30	33	63	48	48	96	
Trip Reduction	13%			(160)	(2)	(4)	(6)	(4)	(4)	(8)	(6)	(6)	(12)	
<b>Total External Primary Trips</b>				<b>1,070</b>	<b>16</b>	<b>22</b>	<b>38</b>	<b>26</b>	<b>29</b>	<b>55</b>	<b>42</b>	<b>42</b>	<b>84</b>	

SOURCE: Institute of Transportation Engineers’ *Trip Generation Manual 10th Edition (2017)*

(1) Midday peak hour based on the ITE *Trip Generation Manual 10th Edition*, Appendix A time of day distributions for the hour beginning at 12:00 PM

(2) Trip Reduction based on the same percentage used for the parking reduction and approved by the City.

As shown in Table 6-1, the proposed development will generate a total of 38 trips (16 in and 22 out) during the AM peak, 55 trips (26 in and 29 out) during the Midday peak, 84 trips (42 in and 42 out) during the PM peak, and 1,070 average weekday daily trips.

## 6.2 EXTERNAL TRIP DISTRIBUTIONS

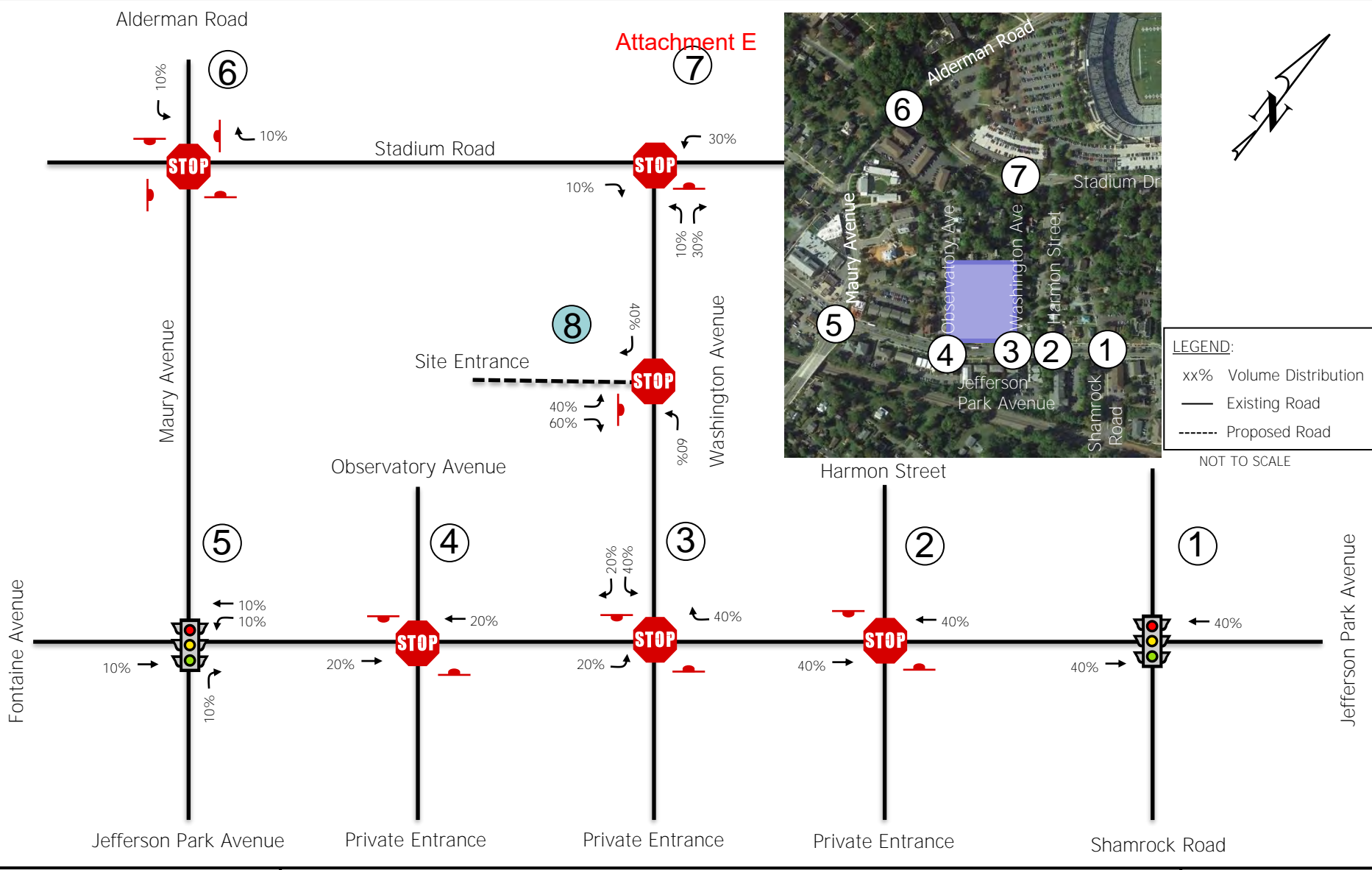
The distribution of external trips generated by the development was based on the existing travel patterns, the nature of the use, the 2021 existing traffic volumes, and local knowledge.

The following directional distributions were assumed for the site and are shown on Figure 6-1:

- 40% to/from the east on Jefferson Park Avenue;
- 30% to/from the east on Stadium Road;
- 10% to/from the west on Fontaine Avenue;
- 10% to/from the north on Alderman Road; and
- 10% to/from the south on Jefferson Park Avenue.

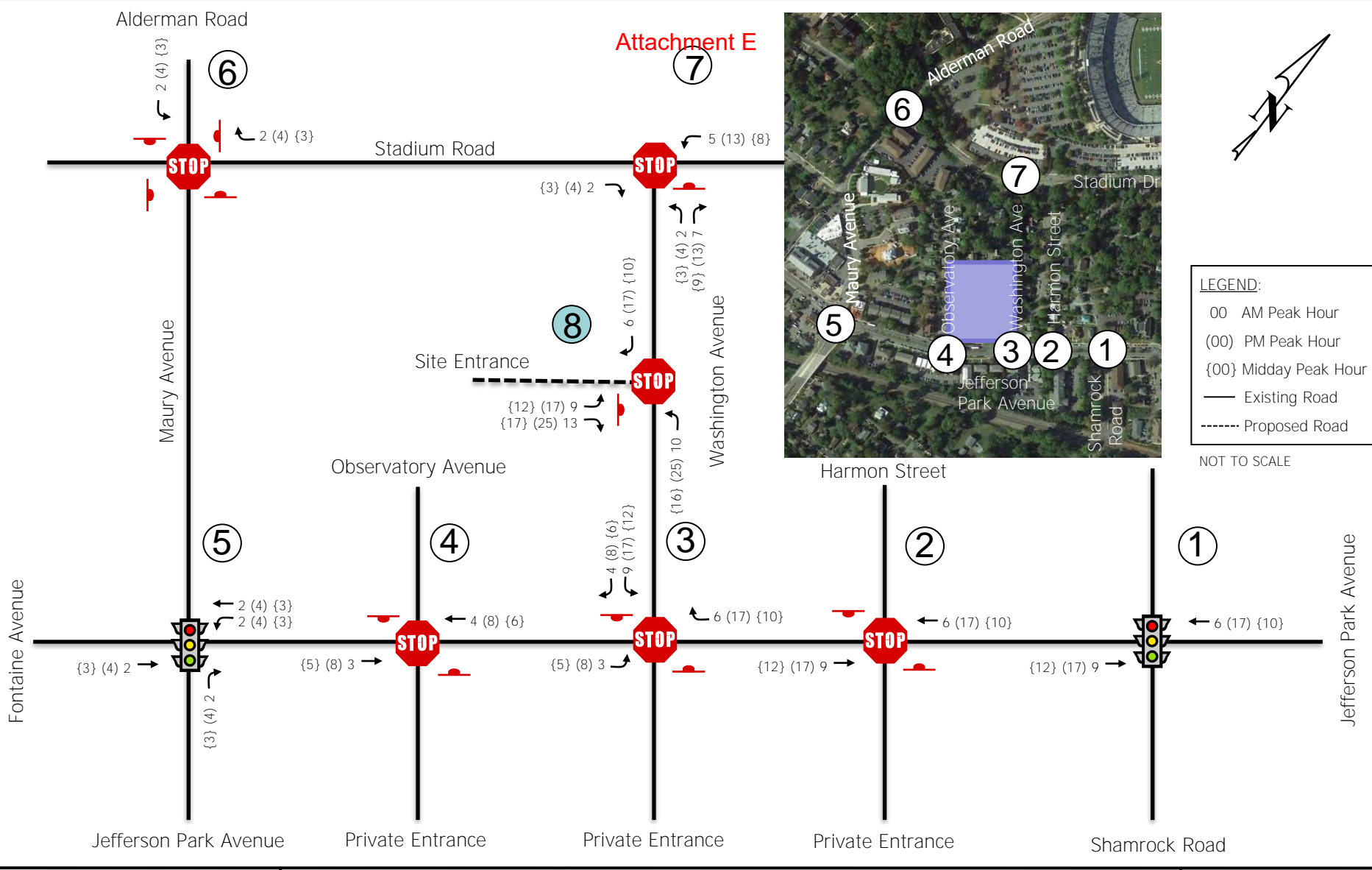
## 6.3 TRAFFIC ASSIGNMENT

The trip distribution percentages for the external trips from Figure 6-1 were applied to the trip generation table (Table 6-1) to distribute the external trips to the surrounding roadway network. The resulting site generated external trips are shown on Figure 6-2.



Site Peak Hour Trip Distributions  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 6-1



Total External Site Peak Hour Trips  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 6-2

## 7 2023 TOTAL FUTURE CONDITIONS

To complete the analysis of 2023 total conditions (with the proposed development), the estimated site trips were added to the background 2023 traffic volumes. The projected volumes were then used to complete the capacity analysis.

### 7.1 TOTAL FUTURE TRAFFIC VOLUMES

To generate the 2023 total future traffic volumes, the external site trips shown on Figure 6-2 and the background 2023 vehicle volumes shown in Figure 4-1 were summed. The resulting 2023 total future traffic volumes are shown on Figure 7-1.

### 7.2 2023 FUTURE CONDITIONS ANALYSIS RESULTS

Table 7-1 summarizes the 2023 total future intersection LOS, delay, 95<sup>th</sup> percentile queue lengths (Synchro), and maximum queue lengths (SimTraffic) based on the intersection geometry and 2023 total future peak hour traffic volumes shown on Figures 2-1 and 7-1, respectively. The corresponding SYNCHRO and SimTraffic reports are included in Appendix E. Note that the intersection numbers shown on the LOS, delay, and queue length summary tables correspond with the intersection numbers used in the SYNCHRO models and report figures.

As shown in Table 7-1, under 2023 total future conditions with development of the site:

- Levels of service at the study intersections are not expected to change significantly from 2023 background to 2023 total future conditions.
- At the signalized intersection of Jefferson Park Avenue and Shamrock Avenue, the overall intersection continues to operate at a LOS B during the AM/Midday/PM peak hours. During the AM/Midday/PM peaks, the mainline (east-west) approaches and movements continue to operate at a LOS B or better; the side street (north-south) approaches continue to operate at a LOS C. During the Midday/PM peaks, the westbound left maximum queue (75 feet) fills the available storage (75 feet). All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Harmon Street, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS C or better during the AM/Midday/PM peaks. During the PM peak, the eastbound approach maximum queue (75 feet) fills the distance to the adjacent intersection with Washington Avenue (77 feet away). All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Washington Avenue, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS C or better during the AM/Midday/PM peaks. During the PM peak, the westbound approach maximum queue length (85 feet) backs up through the adjacent intersection with Harmon Street (77 feet away). This queue is most often caused by the westbound approach queue at Jefferson Park Avenue/Maury Avenue. All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.

- At the unsignalized intersection of Jefferson Park Avenue and Observatory Avenue, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS B during the AM/Midday peaks and a LOS C during the PM peak. During the PM peak, the westbound approach maximum queue (184 feet) backs up through the adjacent intersection with Washington Avenue (174 feet away). This queue is most often caused by the westbound approach queue at Jefferson Park Avenue/Maury Avenue. All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the signalized intersection of Jefferson Park Avenue and Maury Avenue/Fontaine Avenue, the overall intersection continues to operate at a LOS C during the AM/PM peaks and a LOS B during the Midday peak. The north- and southbound approaches and movements continue to generally operate at a LOS C during the AM/Midday/PM peaks. The east- and westbound approaches and movements continue to generally operate at a LOS C or better during the AM/PM peaks and LOS B during the Midday peak.
  - During the AM/Midday peaks, the westbound left maximum queue (87 feet) fills the available storage (88 feet), spilling back into the through lane sometimes. During the PM peak, the 95<sup>th</sup> percentile queue (182 feet) exceeds the available storage (88 feet), spilling back into the through lane 24% of the time. During the PM peak, the westbound approach maximum queue (447 feet) backs up through the roadway network at Observatory Avenue (432 feet away), Washington Avenue (606 feet away) and Harmon Street (683 feet away). During the PM peak, the southbound through maximum queue (326 feet) effectively blocks the left and right turn lanes (125 feet max. storage) and backs up through the adjacent intersection with Clark Court (275 feet away). All other turn bays have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Maury Avenue/Alderman Road and Stadium Road, all approaches continue to operate at a LOS B or better during the AM/Midday peaks. During the PM peak, the east- west- and northbound approaches continue to operate at a LOS C or better. The southbound approach operates at a LOS D. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Stadium Road and Washington Avenue, all approaches continue operate at a LOS A during the AM/Midday/PM peaks, the exception being the northbound approach changing from a LOS A (10.0 seconds) to LOS B (10.1 seconds) during the PM peak. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of the Site Entrance and Washington Avenue, all approaches will operate at a LOS A during the AM/Midday/PM peaks. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.



Table 7-1: Intersection Level of Service and Delay Summary  
2023 Total Future Traffic

Intersection and Type of Control	Movement and Approach	Effective Turn Lane Storage (ft)	AM PEAK HOUR				MIDDAY PEAK HOUR				PM PEAK HOUR			
			Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)	Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)	Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)
1. Shamrock Road (N-S) and Jefferson Park Avenue (E-W) <i>Signalized</i>	<i>EB Approach</i>		14.1	B	330	297	12.0	B	285	268	14.8	B	226	265
	WB Left	75	6.5	A	18	63	6.6	A	25	75	8.8	A	47	74
	WB Thru - Right		6.0	A	108	142	7.0	A	152	213	10.8	B	312	402
	<i>WB Approach</i>		6.0	A	--	--	6.9	A	--	--	10.5	B	--	--
	<i>NB Approach</i>		31.4	C	157	189	28.7	C	93	124	28.0	C	114	151
	<i>SB Approach</i>		27.1	C	31	64	27.0	C	32	58	26.4	C	63	90
	Overall			15.3	B	--	--	12.0	B	--	--	14.4	B	--
2. Harmon Street (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.2	A	0	60	8.2	A	0	64	9.1	A	0	75
	<i>WB Approach</i>		8.6	A	0	62	8.4	A	0	89	8.3	A	0	225
	<i>NB Approach</i>		15.7	C	0	31	15.8	C	0	26	11.2	B	0	35
	<i>SB Approach</i>		16.1	C	0	31	12.8	B	2	35	18.7	C	6	61
3. Washington Avenue (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.5	A	0	72	8.8	A	0	73	9.3	A	0	139
	<i>WB Approach</i>		8.6	A	0	31	8.4	A	0	11	8.3	A	0	85
	<i>NB Approach</i>		12	B	0	12	17.3	C	2	58	11	B	0	22
	<i>SB Approach</i>		17.7	C	2	38	16.6	C	6	51	24.2	C	14	92
4. Observatory Avenue (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.2	A	0	34	8.2	A	0	15	9.3	A	0	114
	<i>WB Approach</i>		9.2	A	0	52	8.4	A	0	59	8.5	A	0	184
	<i>NB Approach</i>		14.2	B	0	31	14.5	B	0	31	19	C	2	53
	<i>SB Approach</i>		14.8	B	0	29	10.9	B	0	14	20.9	C	4	84
5. Maury Avenue/Jefferson Park Ave (N-S) and Fontaine Avenue (E-W) <i>Signalized</i>	EB Left	152	20.8	C	77	149	16.3	B	53	133	28.0	C	35	73
	EB Thru		26.3	C	279	289	20.1	C	230	268	27.3	C	146	201
	EB Right	120	9.7	A	19	120	11.3	B	20	120	16.9	B	50	120
	<i>EB Approach</i>		21.0	C	--	--	16.9	B	--	--	21.3	C	--	--
	WB Left	88	17.3	B	53	87	15.4	B	99	87	37.6	D	182	87
	WB Thru - Right		16.4	B	188	211	11.8	B	180	246	24.2	C	298	447
	<i>WB Approach</i>		16.6	B	--	--	13.0	B	--	--	29.3	C	--	--
	NB Left	355	35.1	D	#320	289	29.5	C	127	160	32.9	C	175	208
	NB Thru		28.0	C	216	221	28.0	C	86	109	30.8	C	101	129
	NB Right	200	0.0	A	53	111	0.0	A	35	0	0.0	A	18	0
	<i>NB Approach</i>		32.1	C	--	--	28.9	C	--	--	32.2	C	--	--
	SB Left	117	31.4	C	31	71	27.6	C	40	92	27.8	C	57	117
	SB Thru		32.0	C	59	96	29.4	C	111	146	37.0	D	285	326
	SB Right	125	31.4	C	0	61	28.0	C	0	108	28.2	C	0	125
<i>SB Approach</i>		31.7	C	--	--	28.8	C	--	--	34.8	C	--	--	
Overall			24.9	C	--	--	19.6	B	--	--	29.0	C	--	--
6. Maury Avenue/Alderman Road (N-S) and Stadium Road (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		11.0	B	25	102	8.4	A	4	40	10.5	B	6	51
	<i>WB Approach</i>		9.5	A	6	75	8.9	A	10	80	15.4	C	57	160
	<i>NB Approach</i>		13	B	60	208	9	A	20	106	11.5	B	25	135
	<i>SB Approach</i>		10.9	B	18	106	9.3	A	23	101	31.9	D	176	290
7. Washington Avenue (N-S) and Stadium Road (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		†	†	--	3	†	†	--	6	†	†	--	10
	<i>WB Approach</i>		7.6	A	0	24	7.5	A	0	24	7.6	A	0	35
	<i>NB Approach</i>		9.4	A	2	30	9.8	A	2	64	10.1	B	2	44
8. Washington Avenue (N-S) and Site Entrance (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.6	A	2	35	8.7	A	2	40	8.8	A	2	52
	<i>NB Approach</i>		7.2	A	0	--	4.9	A	0	12	7.3	A	2	25
	<i>SB Approach</i>		†	†	--	--	†	†	--	--	†	†	--	--

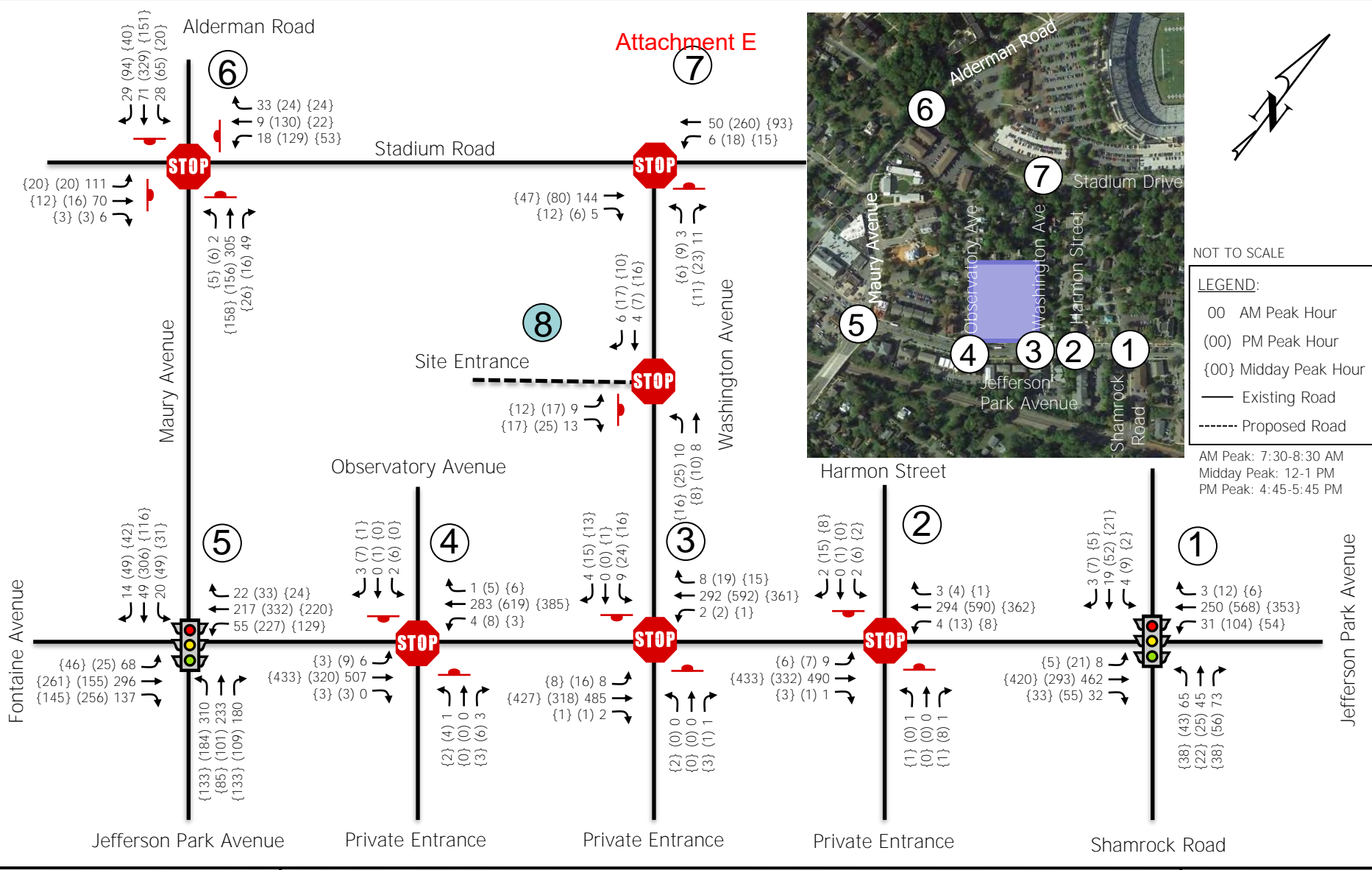
<sup>1</sup> Overall intersection LOS and delay cannot be reported for unsignalized intersections.

† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

# - 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

SimTraffic queues are average maximum queues after 10 runs of 60 minutes each.

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2023 Total Future Peak Hour Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 7-1

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## 8 2028 TOTAL FUTURE CONDITIONS

To complete the analysis of 2028 total conditions (with the proposed development), the estimated site trips were added to the background 2028 traffic volumes. The projected volumes were then used to complete the capacity analysis.

### 8.1 TOTAL FUTURE TRAFFIC VOLUMES

To generate the 2028 total future traffic volumes, the external site trips shown on Figure 6-2 and the background 2028 vehicle volumes shown in Figure 5-1 were summed. The resulting 2028 total future traffic volumes are shown on Figure 8-1.

### 8.2 2028 TOTAL FUTURE CONDITIONS ANALYSIS RESULTS

Table 8-1 summarizes the 2028 future intersection LOS, delay, 95<sup>th</sup> percentile queue lengths (Synchro), and maximum queue lengths (SimTraffic) based on the intersection geometry and 2028 future peak hour traffic volumes shown on Figures 2-1 and 8-1, respectively. The corresponding SYNCHRO and SimTraffic reports are included in Appendix E. Note that the intersection numbers shown on the LOS, delay, and queue length summary tables correspond with the intersection numbers used in the SYNCHRO models and report figures.

As shown in Table 8-1, under 2028 future conditions with development of the site:

- Levels of service at the study intersections are not expected to change significantly from 2028 background to 2028 total future conditions.
- At the signalized intersection of Jefferson Park Avenue and Shamrock Avenue, the overall intersection continues to operate at a LOS B during the AM/Midday/PM peak hours. During the AM/Midday/PM peaks, the mainline (east-west) approaches and movements continue to operate at a LOS B or better; the side street (north-south) approaches continue to operate at a LOS C. During the PM peaks, the westbound left maximum queue (74 feet) fills the available storage (75 feet). All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Harmon Street, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS C or better during the AM/Midday/PM peaks. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Jefferson Park Avenue and Washington Avenue, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS C or better during the AM/Midday/PM peaks. During the PM peak, the westbound approach maximum queue length (82 feet) backs up through the adjacent intersection with Harmon Street (77 feet away). This queue is most often caused by the westbound approach queue at Jefferson Park Avenue/Maury Avenue. All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.

- At the unsignalized intersection of Jefferson Park Avenue and Observatory Avenue, the mainline (east-west) approaches continue to operate at a LOS A during the AM/Midday/PM peaks. The side street (north-south) approaches continue to operate at a LOS B during the AM/Midday peaks and a LOS C during the PM peak. During the PM peak, the westbound approach maximum queue (160 feet) fills the distance to the adjacent intersection with Washington Avenue (174 feet away). This queue is most often caused by the westbound approach queue at Jefferson Park Avenue/Maury Avenue. All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the signalized intersection of Jefferson Park Avenue and Maury Avenue/Fontaine Avenue, the overall intersection continues to operate at a LOS C during the AM/PM peaks and a LOS B during the Midday peak. The north- and southbound approaches and movements continue to generally operate at a LOS C during the AM/Midday/PM peaks. The east- and westbound approaches and movements continue to generally operate at a LOS C or better during the AM/PM peaks and LOS B during the Midday peak.
  - During the AM/Midday peaks, the westbound left maximum queue (87 feet) fills the available storage (88 feet), spilling back into the through lane sometimes. During the PM peak, the 95<sup>th</sup> percentile queue (184 feet) exceeds the available storage (88 feet), spilling back into the through lane 22% of the time. During the PM peak, the westbound approach maximum queue (444 feet) backs up through the adjacent intersection with Observatory Avenue (432 feet away). During the PM peak, the southbound through maximum queue (402 feet) effectively blocks the left and right turn lanes (125 feet max. storage) and backs up through the adjacent intersection with Clark Court (275 feet away). All other turn bays have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Maury Avenue/Alderman Road and Stadium Road, all approaches continue to operate at a LOS B or better during the AM/Midday peaks. During the PM peak, the east- west- and northbound approaches continue to operate at a LOS C or better. The southbound approach operates at a LOS D. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of Stadium Road and Washington Avenue, all approaches continue operate at a LOS A during the AM/Midday/PM peaks, the exception being the northbound approach changing from a LOS A (10.0 seconds) to LOS B (10.1 seconds) during the PM peak. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
- At the unsignalized intersection of the Site Entrance and Washington Avenue, all approaches will operate at a LOS A during the AM/Midday/PM peaks. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.

Table 8-1: Intersection Level of Service and Delay Summary  
2028 Total Future Traffic

Intersection and Type of Control	Movement and Approach	Effective Turn Lane Storage (ft)	AM PEAK HOUR				MIDDAY PEAK HOUR				PM PEAK HOUR			
			Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)	Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)	Delay <sup>1</sup> (sec/veh)	LOS <sup>1</sup>	Synchro 95th Percentile Queue Length (ft)	SimTraffic Max Queue Length (ft)
1. Shamrock Road (N-S) and Jefferson Park Avenue (E-W) <i>Signalized</i>	<i>EB Approach</i>		14.2	B	335	293	12.3	B	288	275	15.0	B	230	294
	WB Left	75	6.5	A	18	56	6.7	A	26	72	8.9	A	47	74
	WB Thru - Right		6.0	A	109	150	7.2	A	154	215	11.1	B	318	356
	<i>WB Approach</i>		6.1	A	--	--	7.1	A	--	--	10.7	B	--	--
	<i>NB Approach</i>		31.5	C	160	193	28.7	C	95	118	28.0	C	115	154
	<i>SB Approach</i>		27.1	C	31	59	26.9	C	32	57	26.3	C	64	87
	Overall			15.4	B	--	--	12.1	B	--	--	14.6	B	--
2. Harmon Street (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.2	A	0	68	8.2	A	0	68	9.2	A	0	69
	<i>WB Approach</i>		8.6	A	0	52	8.5	A	0	31	8.3	A	0	149
	<i>NB Approach</i>		15.8	C	0	24	16	C	0	27	11.2	B	0	37
	<i>SB Approach</i>		16.3	C	0	31	12.9	B	2	31	19	C	6	56
3. Washington Avenue (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.5	A	0	58	8.8	A	0	76	9.4	A	2	130
	<i>WB Approach</i>		8.6	A	0	38	8.4	A	0	22	8.4	A	0	88
	<i>NB Approach</i>		12	B	0	22	17.6	C	2	57	11.1	B	0	18
	<i>SB Approach</i>		18	C	4	40	16.8	C	6	49	24.7	C	14	67
4. Observatory Avenue (N-S) and Jefferson Park Avenue (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.2	A	0	29	8.3	A	0	19	9.3	A	0	110
	<i>WB Approach</i>		9.2	A	0	71	8.4	A	0	35	8.6	A	0	160
	<i>NB Approach</i>		14.4	B	0	31	14.7	B	0	31	19.3	C	2	33
	<i>SB Approach</i>		15	B	0	26	10.9	B	0	20	21.4	C	4	48
5. Maury Avenue/Jefferson Park Ave (N-S) and Fontaine Avenue (E-W) <i>Signalized</i>	EB Left	152	21.2	C	78	143	16.5	B	55	129	28.6	C	35	76
	EB Thru		26.8	C	281	302	20.3	C	233	292	27.6	C	147	240
	EB Right	120	9.8	A	19	120	11.4	B	20	120	17.1	B	53	120
	<i>EB Approach</i>		21.4	C	--	--	17.1	B	--	--	21.4	C	--	--
	WB Left	88	17.6	B	53	87	15.7	B	100	87	38.6	D	184	87
	WB Thru - Right		16.7	B	190	234	12.0	B	182	259	24.6	C	304	444
	<i>WB Approach</i>		16.9	B	--	--	13.2	B	--	--	30.0	C	--	--
	NB Left	355	35.7	D	#326	259	29.5	C	129	148	33.0	C	176	188
	NB Thru		28.1	C	218	211	27.9	C	86	110	30.8	C	102	125
	NB Right	200	0.0	A	54	110	0.0	A	37	0	0.0	A	15	0
	<i>NB Approach</i>		32.4	C	--	--	28.9	C	--	--	32.2	C	--	--
	SB Left	117	31.4	C	31	74	27.6	C	40	93	27.9	C	59	117
	SB Thru		32.0	C	60	101	29.5	C	113	156	37.5	D	#289	402
	SB Right	125	31.4	C	0	55	28.0	C	0	101	28.3	C	0	125
<i>SB Approach</i>		31.8	C	--	--	28.9	C	--	--	35.2	D	--	--	
Overall			25.3	C	--	--	19.8	B	--	--	29.4	C	--	--
6. Maury Avenue/Alderman Road (N-S) and Stadium Road (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		11.1	B	27	90	8.5	A	4	47	10.6	B	6	59
	<i>WB Approach</i>		9.5	A	8	74	8.9	A	10	84	15.6	C	57	163
	<i>NB Approach</i>		13.2	B	60	210	9	A	20	111	11.6	B	25	143
	<i>SB Approach</i>		11	B	18	106	9.4	A	23	101	33.4	D	176	366
7. Washington Avenue (N-S) and Stadium Road (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		†	†	--	6	†	†	--	1	†	†	--	14
	<i>WB Approach</i>		7.6	A	0	21	7.5	A	0	25	7.6	A	0	37
	<i>NB Approach</i>		9.4	A	2	35	9.8	A	2	67	10.1	B	2	47
8. Washington Avenue (N-S) and Site Entrance (E-W) <i>Unsignalized</i>	<i>EB Approach</i>		8.6	A	2	38	8.7	A	2	44	8.8	A	2	47
	<i>NB Approach</i>		7.2	A	0	--	7.3	A	0	9	7.3	A	2	19
	<i>SB Approach</i>		†	†	--	--	†	†	--	--	†	†	--	--

<sup>1</sup> Overall intersection LOS and delay cannot be reported for unsignalized intersections.

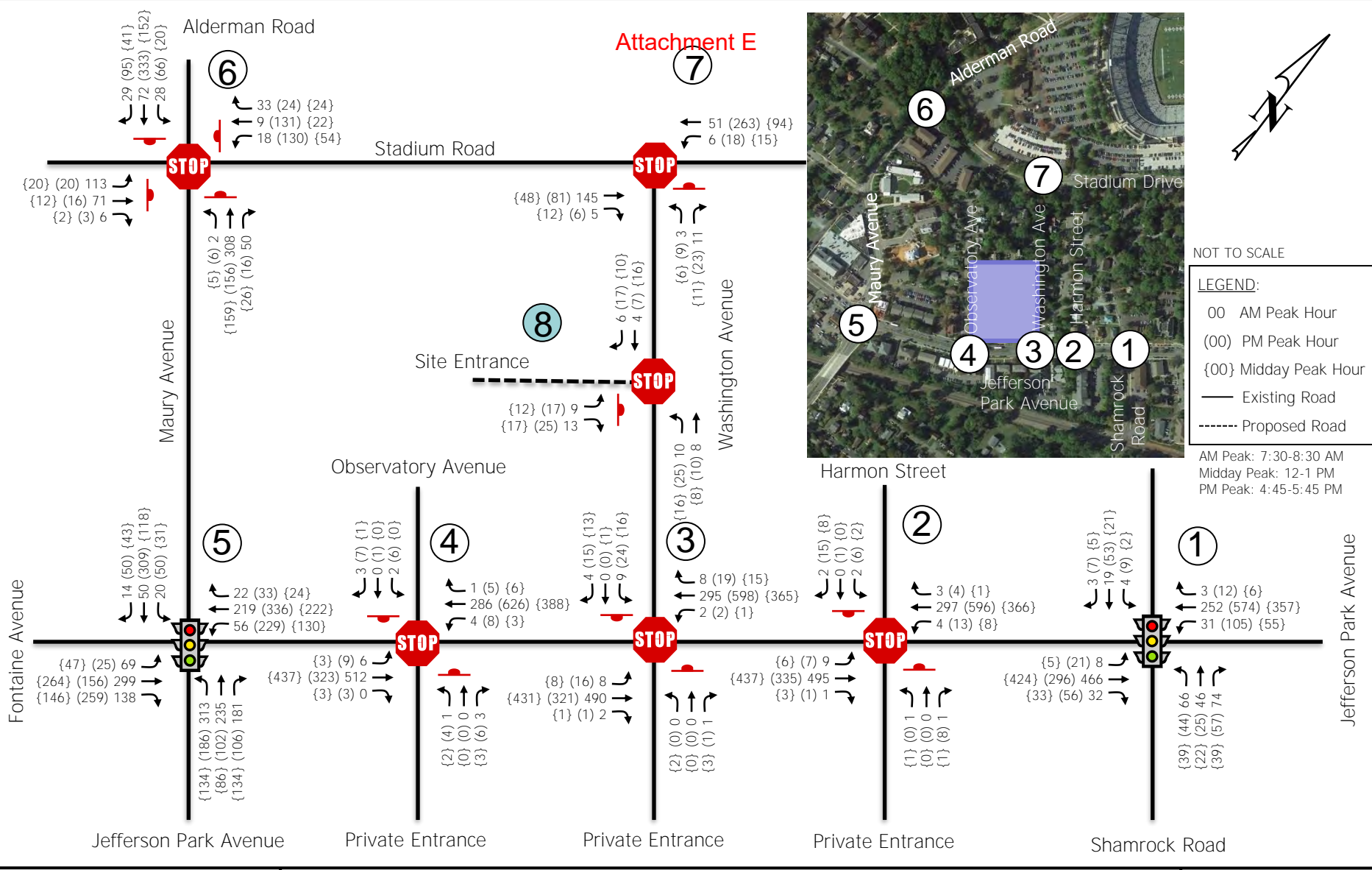
† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

# - 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

SimTraffic queues are average maximum queues after 10 runs of 60 minutes each.

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2028 Total Future Peak Hour Volumes  
 Aspen Heights TIA  
 City of Charlottesville, Virginia

Figure  
 8-1

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## 9 TRAFFIC SIGNAL WARRANT ANALYSIS

Signal warrant analyses were completed at the intersection of Jefferson Park Avenue and Washington Avenue using the 2028 total volumes from Figure 8-1. The warrant analyses were conducted following procedures from the 2009 edition of the *Manual on Uniform Traffic Control Devices* (MUTCD) and the hourly volumes from 7:00 AM to 7:00 PM. In accordance with VDOT standards, Warrant 1 (Eight-Hour), Warrant 2 (Four-Hour), and Warrant 3 (Peak Hour) outlined in the 2009 MUTCD was considered for the analyses and are described in detail below.

The MUTCD contains both 100% and 70% volume thresholds that can be used in the signal warrant analysis. The 100% volume thresholds were used to complete the analyses as the conditions for using the 70% volumes are not met in this case.

As noted above, this section of Jefferson Park Avenue has one (1) through travel lane in each direction. The lane geometry used in the traffic signal warrant analysis for the major street is assumed to be one (1) lane and the minor street as one (1) lane.

It is specifically noted in all hours of the warrant analysis that the higher minor street volume is on Washington Avenue. At no time does the traffic from the northbound approach from the private entrance opposite Washington Avenue have higher hourly volumes than the southbound approach from Washington Avenue.

### 9.1 WARRANT 1 (EIGHT-HOUR VEHICULAR VOLUME)

**According to the MUTCD, “the need for a traffic control signal shall be considered if an engineering study finds that one of the following conditions exist for each of any 8 hours of an average day”:**

#### Condition A:

This warrant is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

The need for a traffic control signal is considered when, for each of any eight (8) hours of an average day, a minimum of 500 vehicles per hour exist on the major street approaches and 150 vehicles per hour are present on the higher-volume minor street approach. These are the 100% volume thresholds for a one-lane major street approach and a one-lane minor street approach from the 2009 MUTCD Table 4C-1.

The analysis results indicate the required vehicle volume on the minor street approach was present for zero (0) of the eight (8) required hours under the 100% volume thresholds for the one-lane minor street approach. Therefore, this warrant is not considered met.

#### Condition B:

This warrant is intended for application at locations where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

The need for a traffic control signal is considered when for each of any eight (8) hours of an average day, a minimum of 750 vehicles per hour exist on the major street approaches and 75 vehicles are present on the higher-volume minor street approach. These are the 100% volume thresholds for a two-lane major street approach and a two-lane minor street approach from the 2009 MUTCD Table 4C-1.

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The analysis results indicate the required vehicle volume on the minor street approach was present for zero (0) of the eight (8) required hours under the 100% volume thresholds. Therefore, this warrant is considered not considered met under the 100% volume thresholds.

#### Combination of Conditions A and B

This warrant reduces the volume thresholds found in Conditions A and B by 20% and considers both conditions simultaneously.

The need for a traffic control signal is considered when for each of any eight (8) hours of an average day, a minimum of 400 vehicles are present on the major street approaches and 120 vehicles are present on the higher volumes minor street approach (Condition A) and a minimum of 600 vehicles are present on the major street approaches and 60 vehicles are present on the higher volumes minor street approach (Condition B). These are the 100% volume thresholds for a one-lane major street approach and a one-lane minor street approach from the 2009 MUTCD Table 4C-1.

The analysis results indicate the required vehicle volume on the minor street approach was present for zero (0) of the eight (8) required hours for Condition A and zero (0) of the eight (8) required hours for Condition B under the 100% volume thresholds. Therefore, this warrant is not considered met.

#### 9.2 WARRANT 2 (FOUR-HOUR VEHICULAR VOLUME)

This warrant is intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic signal. The need for a traffic control signal can be considered when, for each of any four (4) hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the minor street approach all fall above the applicable curve (on MUTCD Figures 4C-1 and 4C-2) for the existing combination of all approach lanes.

The analysis results indicate the required vehicle volumes were present for zero (0) of the four (4) required hours under the 100% volume thresholds. Therefore, this warrant is not considered met.

### 9.3 WARRANT 3 (PEAK-HOUR VEHICULAR VOLUME)

This warrant is intended to be applied at a location where traffic conditions are such that for a minimum of one hour of an average day, the minor-street traffic suffers due to undue delay when entering or crossing the major street. The need for a traffic control signal can be considered when, the following two categories are met:

#### Condition A:

For the same one hour (any four consecutive 15-minute periods) of an average day, the following conditions exist:

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: four vehicle-hours for a one lane approach of five vehicle hours for a two-lane approach; and
2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

#### Condition B:

The plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in the 2009 MUTCD Figure 4C-3 for the existing combination of approach lanes.

The analysis results indicate the required volumes were present for zero (0) of the one (1) required peak hour under the 100% volume thresholds. Therefore, this warrant is not considered met.

### 9.4 SIGNAL WARRANT ANALYSIS SUMMARY

The total volumes used in the traffic signal warrant analyses, along with the results, are summarized in Table 9-1. The analysis indicates a traffic signal is not warranted using Warrant 1 (8-hour), Warrant 2 (4-hour), or Warrant 3 (peak hour) for any of the 12 hours analyzed between 7 AM and 7 PM.

The proposed Aspen Heights development does not warrant a traffic signal at the intersection of Jefferson Park Avenue and Washington Avenue.

Table 9-1– Traffic Signal Warrant Analysis  
Jefferson Park Avenue/Washington Avenue Intersection

Time Period	Major Street Volume	Minor Street Volume (Highest Approach)	100% WARRANTS					
			#1 (8-hour)				#2 (4-hour)	#3 (Peak Hour)
			Condition A	Condition B	Combination			
					Condition A	Condition B		
07:00 - 08:00	674	13						
08:00 - 09:00	772	15						
09:00 - 10:00	735	22						
10:00 - 11:00	721	20						
11:00 - 12:00	669	19						
12:00 - 13:00	800	29						
13:00 - 14:00	754	24						
14:00 - 15:00	774	27						
15:00 - 16:00	856	29						
16:00 - 17:00	901	29						
17:00 - 18:00	926	39						
18:00 - 19:00	799	35						
# of Hours Warrant is Met			0	0	0	0	0	
# of Hours Warrant is Required to be Met			8	8	8	8	4	1
Is Warrant Satisfied?			No	No	No	No	No	

## 10 CONCLUSIONS

Based on the operational analyses the following is offered:

- Across 2023 and 2028 background conditions during the PM peak, the westbound approach to the intersection of Jefferson Park Avenue/Maury Avenue experiences operational issues with congestion on the westbound approach and the queue extends through Observatory Avenue, Washington Avenue, and Harmon Street intersections. Under 2023 and 2028 total volume conditions, with the addition of the proposed Aspen Heights development site traffic, the westbound approach is expected to experience minimal increases with the proposed development over the 2023 and 2028 background conditions.
- The results of the signal warrant analysis at Jefferson Park Avenue/Washington Avenue under 2028 total build conditions indicate that none of the traffic volume thresholds in Warrants 1 through 3 were met. None of the other warrants were considered at this time.
- Under 2021 existing conditions:
  - All movements at unsignalized intersections within the study area on Jefferson Park Avenue and Stadium Road operate at level of service (LOS) C or better during the AM, MIDDAY, and PM peak hours. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
  - At the signalized intersection of Jefferson Park Avenue and Shamrock Road, the overall intersection operates at a level of service (LOS) B during the AM/MIDDAY/PM peak hours. All turning movements and approaches operate at a LOS C or better during the AM/MIDDAY/PM peaks. All turn bays have adequate storage to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
  - At the signalized intersection of Jefferson Park Avenue and Maury Avenue/Fontaine Avenue, the overall intersection operates at a LOS C during the AM/PM peaks and a LOS B during the MIDDAY peak. All turning movements and approaches generally operate at a LOS C or better during the AM/MIDDAY/PM peaks. The westbound left queue fills the available storage (AM/MIDDAY) and backs up into the through lane (PM). During the PM peak, the westbound approach queues through the adjacent intersection with Observatory Avenue. During the PM peak, the southbound through queue backs up through the adjacent intersection with Clark Court.
- Under 2023 and 2028 background conditions (without the proposed development):
  - Levels of service at the study intersections do not change significantly from 2021 existing to 2023 or 2028 background conditions. All unsignalized intersections continue to operate at LOS C or better during all peak hours. All signalized intersections continue to operate with LOS B or C during all peak hours.
  - There are no queuing concerns within the study area, with the exception of the westbound approach of Jefferson Park Avenue at Maury Avenue during the PM peak hour. The queues extend to intermittently block the intersections of Observatory Avenue, Washington Avenue, and Harmon Street.

- Under 2023 and 2028 total future conditions (with the proposed development):
  - Levels of service at the study intersections do not change significantly from background to total future conditions in 2023 or 2028.
  - All movements at unsignalized intersections within the study area on Jefferson Park Avenue and Stadium Road operate at level of service (LOS) C or better during the AM, MIDDAY, and PM peak hours. All approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
  - At the signalized intersection of Jefferson Park Avenue and Shamrock Road, the overall intersection operates at a level of service (LOS) B during the AM/MIDDAY/PM peak hours. All turning movements and approaches operate at a LOS C or better during the AM/MIDDAY/PM peaks. During the PM peak, the westbound left fills the available storage. All other approaches have adequate distance to accommodate 95<sup>th</sup> percentile and maximum queue lengths.
  - At the signalized intersection of Jefferson Park Avenue and Maury Avenue/Fontaine Avenue, the overall intersection operates at a LOS C during the AM/PM peaks and a LOS B during the MIDDAY peak. All turning movements and approaches generally operate at a LOS C or better during the AM/MIDDAY/PM peaks. The westbound left queue fills the available storage (AM/MIDDAY) and backs up into the through lane (PM). During the PM peak, the westbound approach queue backs up through the adjacent intersection with Observatory Avenue. During the PM peak, the southbound through queue backs up through the adjacent intersection with Clark Court.

Based on the results of the operational analysis, there are no vehicular and roadway network improvements required based on the additional development traffic volumes. The site will increase the residential density in the area and add to the pedestrian, bicycle, and transit volumes. To address the additional pedestrian, bicycle, and transit volumes, the applicant plans to install sidewalks along the entire frontage of the property.



Appendix A  
Traffic Counts

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**Attachment E**

*December 2021*

*Aspen Heights TIA – City of Charlottesville*

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# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Shamrock  
 Site Code :  
 Start Date : 8/31/2021  
 Page No : 1

Groups Printed- Passenger Veh - Trucks

Start Time	Shamrock Rd From North					JPA From East					Shamrock Rd From South					JPA From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
07:00 AM	1	1	0	0	2	0	33	2	0	35	3	4	6	0	13	4	73	1	0	78	128
07:15 AM	0	1	0	0	1	2	39	9	1	51	10	11	12	0	33	4	100	1	1	106	191
07:30 AM	0	4	1	0	5	1	64	4	1	70	24	11	16	0	51	6	115	2	0	123	249
07:45 AM	1	6	1	0	8	0	67	6	0	73	15	13	19	0	47	6	103	3	1	113	241
<b>Total</b>	<b>2</b>	<b>12</b>	<b>2</b>	<b>0</b>	<b>16</b>	<b>3</b>	<b>203</b>	<b>21</b>	<b>2</b>	<b>229</b>	<b>52</b>	<b>39</b>	<b>53</b>	<b>0</b>	<b>144</b>	<b>20</b>	<b>391</b>	<b>7</b>	<b>2</b>	<b>420</b>	<b>809</b>
08:00 AM	2	3	1	0	6	1	54	14	0	69	15	11	12	0	38	13	113	0	1	127	240
08:15 AM	0	6	1	0	7	1	44	5	0	50	19	10	17	0	46	5	109	0	0	114	217
08:30 AM	0	1	1	0	2	1	42	8	1	52	13	11	17	0	41	4	132	1	0	137	232
08:45 AM	2	4	2	0	8	0	49	13	0	62	11	5	5	0	21	5	116	3	0	124	215
<b>Total</b>	<b>4</b>	<b>14</b>	<b>5</b>	<b>0</b>	<b>23</b>	<b>3</b>	<b>189</b>	<b>40</b>	<b>1</b>	<b>233</b>	<b>58</b>	<b>37</b>	<b>51</b>	<b>0</b>	<b>146</b>	<b>27</b>	<b>470</b>	<b>4</b>	<b>1</b>	<b>502</b>	<b>904</b>
11:00 AM	0	2	1	0	3	0	86	12	0	98	7	4	6	0	17	6	83	0	0	89	207
11:15 AM	0	3	0	0	3	0	56	8	0	64	6	4	5	0	15	9	62	1	1	73	155
11:30 AM	0	5	0	0	5	0	72	11	1	84	7	4	13	0	24	8	72	0	0	80	193
11:45 AM	1	3	2	0	6	2	63	7	0	72	16	6	12	0	34	10	92	4	0	106	218
<b>Total</b>	<b>1</b>	<b>13</b>	<b>3</b>	<b>0</b>	<b>17</b>	<b>2</b>	<b>277</b>	<b>38</b>	<b>1</b>	<b>318</b>	<b>36</b>	<b>18</b>	<b>36</b>	<b>0</b>	<b>90</b>	<b>33</b>	<b>309</b>	<b>5</b>	<b>1</b>	<b>348</b>	<b>773</b>
12:00 PM	1	5	0	0	6	2	82	13	0	97	8	6	9	0	23	9	88	1	0	98	224
12:15 PM	1	6	1	0	8	1	85	13	0	99	7	5	12	0	24	6	111	2	0	119	250
12:30 PM	1	5	1	0	7	0	70	13	1	84	4	6	11	0	21	9	81	2	0	92	204
12:45 PM	2	5	0	0	7	3	86	12	0	101	19	5	4	0	28	8	108	0	0	116	252
<b>Total</b>	<b>5</b>	<b>21</b>	<b>2</b>	<b>0</b>	<b>28</b>	<b>6</b>	<b>323</b>	<b>51</b>	<b>1</b>	<b>381</b>	<b>38</b>	<b>22</b>	<b>36</b>	<b>0</b>	<b>96</b>	<b>32</b>	<b>388</b>	<b>5</b>	<b>0</b>	<b>425</b>	<b>930</b>
04:00 PM	3	5	0	0	8	3	97	12	0	112	13	12	14	0	39	11	61	0	0	72	231
04:15 PM	0	10	1	0	11	3	121	20	0	144	16	7	13	0	36	13	82	1	0	96	287
04:30 PM	2	6	1	0	9	2	109	19	0	130	11	4	17	0	32	18	66	1	0	85	256
04:45 PM	1	20	3	0	24	2	135	20	0	157	19	8	12	0	39	10	67	0	1	78	298
<b>Total</b>	<b>6</b>	<b>41</b>	<b>5</b>	<b>0</b>	<b>52</b>	<b>10</b>	<b>462</b>	<b>71</b>	<b>0</b>	<b>543</b>	<b>59</b>	<b>31</b>	<b>56</b>	<b>0</b>	<b>146</b>	<b>52</b>	<b>276</b>	<b>2</b>	<b>1</b>	<b>331</b>	<b>1072</b>
05:00 PM	2	11	3	0	16	3	145	24	0	172	13	7	7	0	27	17	76	2	4	99	314
05:15 PM	2	12	1	0	15	2	140	24	0	166	11	7	11	0	29	13	63	3	0	79	289
05:30 PM	2	9	2	0	13	4	118	35	0	157	11	3	12	0	26	15	63	2	3	83	279
05:45 PM	2	19	0	0	21	3	113	10	2	128	14	5	9	0	28	8	63	0	1	72	249
<b>Total</b>	<b>8</b>	<b>51</b>	<b>6</b>	<b>0</b>	<b>65</b>	<b>12</b>	<b>516</b>	<b>93</b>	<b>2</b>	<b>623</b>	<b>49</b>	<b>22</b>	<b>39</b>	<b>0</b>	<b>110</b>	<b>53</b>	<b>265</b>	<b>7</b>	<b>8</b>	<b>333</b>	<b>1131</b>
<b>Grand Total</b>	<b>26</b>	<b>152</b>	<b>23</b>	<b>0</b>	<b>201</b>	<b>36</b>	<b>1970</b>	<b>314</b>	<b>7</b>	<b>2327</b>	<b>292</b>	<b>169</b>	<b>271</b>	<b>0</b>	<b>732</b>	<b>217</b>	<b>2099</b>	<b>30</b>	<b>13</b>	<b>2359</b>	<b>5619</b>
<b>Apprch %</b>	<b>12.9</b>	<b>75.6</b>	<b>11.4</b>	<b>0</b>		<b>1.5</b>	<b>84.7</b>	<b>13.5</b>	<b>0.3</b>		<b>39.9</b>	<b>23.1</b>	<b>37</b>	<b>0</b>		<b>9.2</b>	<b>89</b>	<b>1.3</b>	<b>0.6</b>		
<b>Total %</b>	<b>0.5</b>	<b>2.7</b>	<b>0.4</b>	<b>0</b>	<b>3.6</b>	<b>0.6</b>	<b>35.1</b>	<b>5.6</b>	<b>0.1</b>	<b>41.4</b>	<b>5.2</b>	<b>3</b>	<b>4.8</b>	<b>0</b>	<b>13</b>	<b>3.9</b>	<b>37.4</b>	<b>0.5</b>	<b>0.2</b>	<b>42</b>	

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Shamrock  
 Site Code :  
 Start Date : 8/31/2021  
 Page No : 2

Groups Printed- Passenger Veh - Trucks

	Shamrock Rd From North					JPA From East					Shamrock Rd From South					JPA From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Passenger Veh	26	152	22	0	200	33	1893	308	7	2241	287	168	265	0	720	212	2024	29	13	2278	5439
% Passenger Veh	100	100	95.7	0	99.5	91.7	96.1	98.1	100	96.3	98.3	99.4	97.8	0	98.4	97.7	96.4	96.7	100	96.6	96.8
Trucks	0	0	1	0	1	3	77	6	0	86	5	1	6	0	12	5	75	1	0	81	180
% Trucks	0	0	4.3	0	0.5	8.3	3.9	1.9	0	3.7	1.7	0.6	2.2	0	1.6	2.3	3.6	3.3	0	3.4	3.2

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Shamrock  
 Site Code :  
 Start Date : 8/31/2021  
 Page No : 3

Start Time	Shamrock Rd From North					JPA From East					Shamrock Rd From South					JPA From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	4	1	0	5	1	64	4	1	70	24	11	16	0	51	6	115	2	0	123	249
07:45 AM	1	6	1	0	8	0	67	6	0	73	15	13	19	0	47	6	103	3	1	113	241
08:00 AM	2	3	1	0	6	1	54	14	0	69	15	11	12	0	38	13	113	0	1	127	240
08:15 AM	0	6	1	0	7	1	44	5	0	50	19	10	17	0	46	5	109	0	0	114	217
Total Volume	3	19	4	0	26	3	229	29	1	262	73	45	64	0	182	30	440	5	2	477	947
% App. Total	11.5	73.1	15.4	0		1.1	87.4	11.1	0.4		40.1	24.7	35.2	0		6.3	92.2	1	0.4		
PHF	.375	.792	1.00	.000	.813	.750	.854	.518	.250	.897	.760	.865	.842	.000	.892	.577	.957	.417	.500	.939	.951
Passenger Veh	3	19	4	0	26	3	215	28	1	247	73	45	63	0	181	28	429	4	2	463	917
% Passenger Veh	100	100	100	0	100	100	93.9	96.6	100	94.3	100	100	98.4	0	99.5	93.3	97.5	80.0	100	97.1	96.8
Trucks	0	0	0	0	0	0	14	1	0	15	0	0	1	0	1	2	11	1	0	14	30
% Trucks	0	0	0	0	0	0	6.1	3.4	0	5.7	0	0	1.6	0	0.5	6.7	2.5	20.0	0	2.9	3.2

# Attachment E Data Collection Group

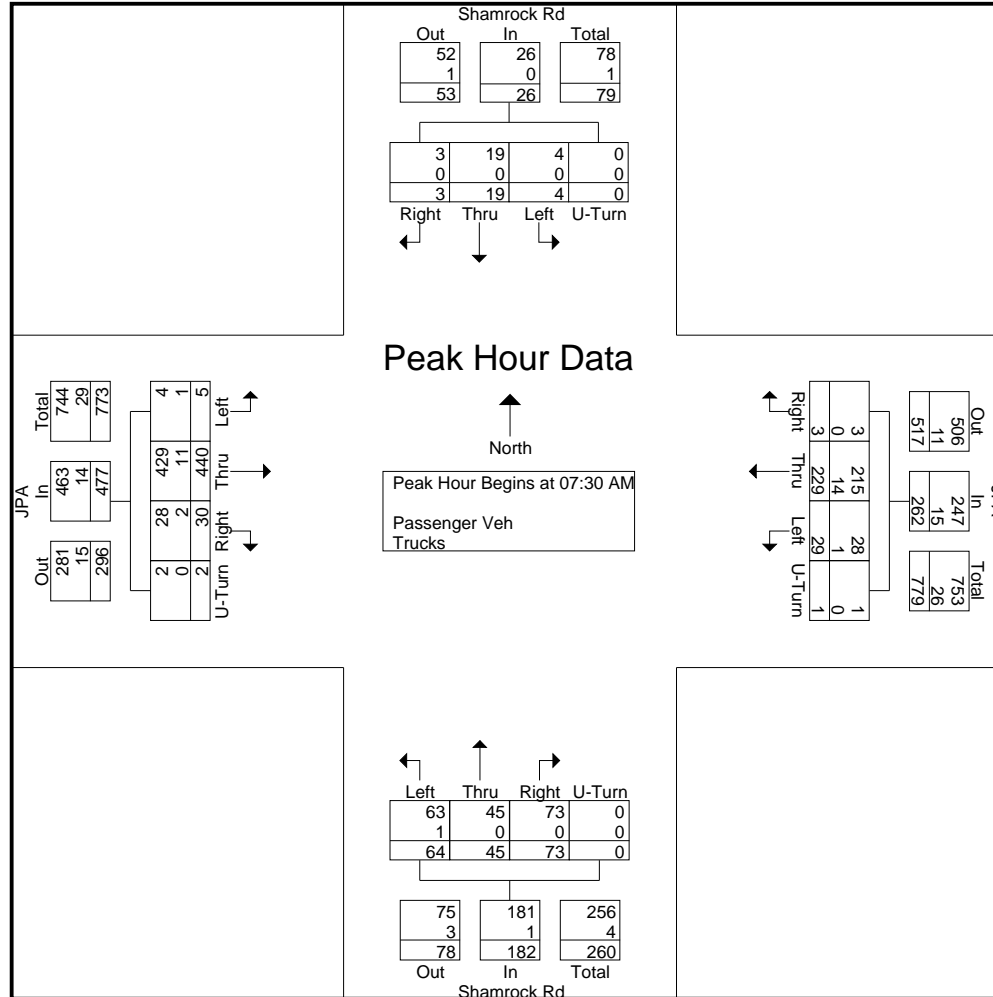
LSmith@DataCollectionGroup.net

File Name : JPA and Shamrock

Site Code :

Start Date : 8/31/2021

Page No : 4



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Shamrock  
 Site Code :  
 Start Date : 8/31/2021  
 Page No : 5

Start Time	Shamrock Rd From North					JPA From East					Shamrock Rd From South					JPA From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	1	5	0	0	6	2	82	13	0	97	8	6	9	0	23	9	88	1	0	98	224
12:15 PM	1	6	1	0	8	1	85	13	0	99	7	5	12	0	24	6	111	2	0	119	250
12:30 PM	1	5	1	0	7	0	70	13	1	84	4	6	11	0	21	9	81	2	0	92	204
12:45 PM	2	5	0	0	7	3	86	12	0	101	19	5	4	0	28	8	108	0	0	116	252
Total Volume	5	21	2	0	28	6	323	51	1	381	38	22	36	0	96	32	388	5	0	425	930
% App. Total	17.9	75	7.1	0		1.6	84.8	13.4	0.3		39.6	22.9	37.5	0		7.5	91.3	1.2	0		
PHF	.625	.875	.500	.000	.875	.500	.939	.981	.250	.943	.500	.917	.750	.000	.857	.889	.874	.625	.000	.893	.923
Passenger Veh	5	21	2	0	28	6	304	49	1	360	38	22	34	0	94	31	370	5	0	406	888
% Passenger Veh	100	100	100	0	100	100	94.1	96.1	100	94.5	100	100	94.4	0	97.9	96.9	95.4	100	0	95.5	95.5
Trucks	0	0	0	0	0	0	19	2	0	21	0	0	2	0	2	1	18	0	0	19	42
% Trucks	0	0	0	0	0	0	5.9	3.9	0	5.5	0	0	5.6	0	2.1	3.1	4.6	0	0	4.5	4.5

# Data Collection Group

Attachment E

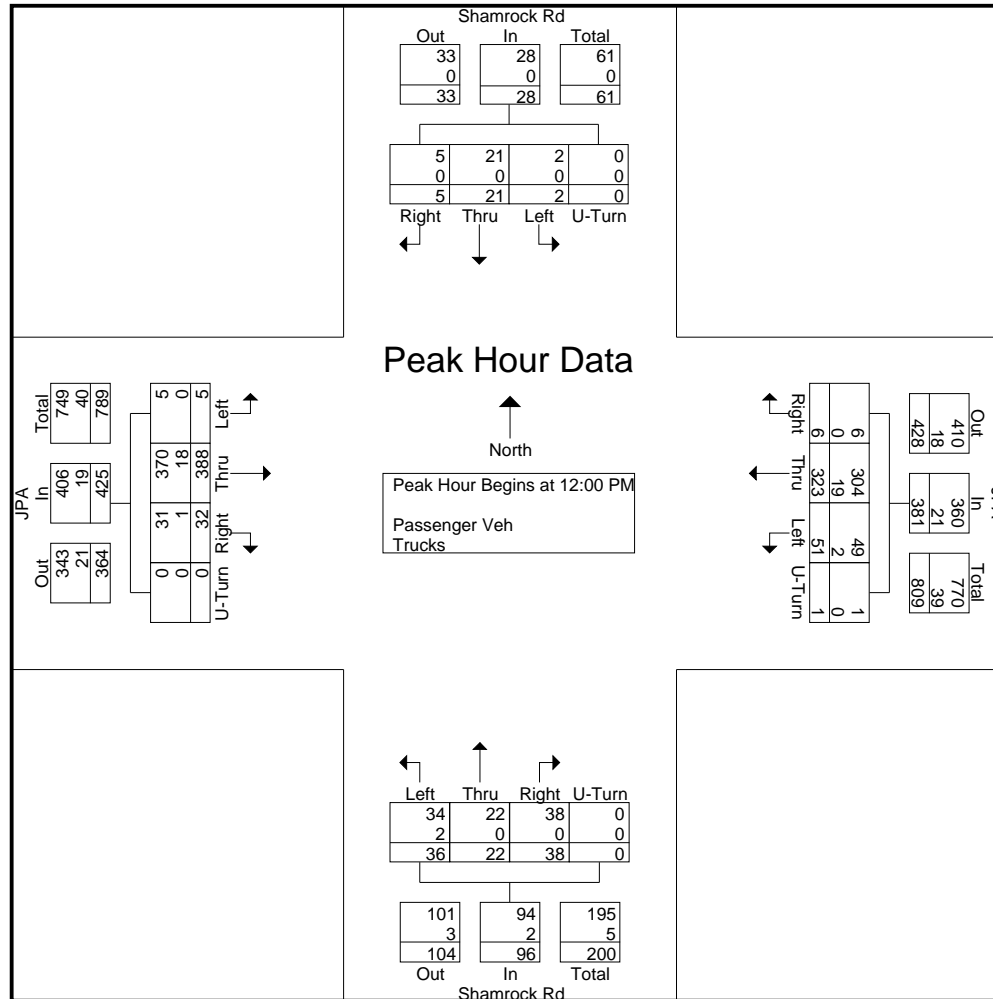
LSmith@DataCollectionGroup.net

File Name : JPA and Shamrock

Site Code :

Start Date : 8/31/2021

Page No : 6





# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Shamrock

Site Code :

Start Date : 8/31/2021

Page No : 7

Start Time	Shamrock Rd From North					JPA From East					Shamrock Rd From South					JPA From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	20	3	0	24	2	135	20	0	157	19	8	12	0	39	10	67	0	1	78	298
05:00 PM	2	11	3	0	16	3	145	24	0	172	13	7	7	0	27	17	76	2	4	99	314
05:15 PM	2	12	1	0	15	2	140	24	0	166	11	7	11	0	29	13	63	3	0	79	289
05:30 PM	2	9	2	0	13	4	118	35	0	157	11	3	12	0	26	15	63	2	3	83	279
Total Volume	7	52	9	0	68	11	538	103	0	652	54	25	42	0	121	55	269	7	8	339	1180
% App. Total	10.3	76.5	13.2	0		1.7	82.5	15.8	0		44.6	20.7	34.7	0		16.2	79.4	2.1	2.4		
PHF	.875	.650	.750	.000	.708	.688	.928	.736	.000	.948	.711	.781	.875	.000	.776	.809	.885	.583	.500	.856	.939
Passenger Veh	7	52	9	0	68	10	527	102	0	639	52	25	41	0	118	55	263	7	8	333	1158
% Passenger Veh	100	100	100	0	100	90.9	98.0	99.0	0	98.0	96.3	100	97.6	0	97.5	100	97.8	100	100	98.2	98.1
Trucks	0	0	0	0	0	1	11	1	0	13	2	0	1	0	3	0	6	0	0	6	22
% Trucks	0	0	0	0	0	9.1	2.0	1.0	0	2.0	3.7	0	2.4	0	2.5	0	2.2	0	0	1.8	1.9

# Data Collection Group

Attachment E

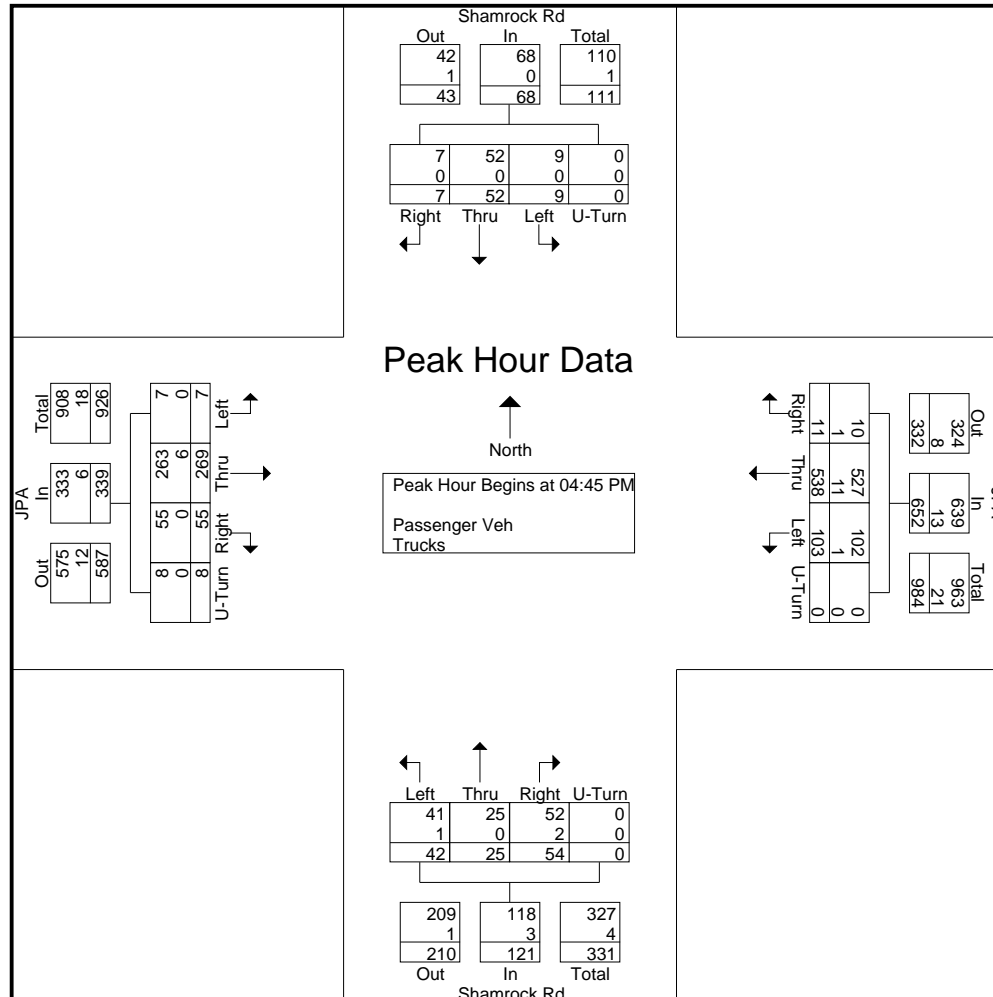
LSmith@DataCollectionGroup.net

File Name : JPA and Shamrock

Site Code :

Start Date : 8/31/2021

Page No : 8



# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Shamrock  
 Site Code :  
 Start Date : 8/31/2021  
 Page No : 1

Groups Printed- Bikes - Peds

Start Time	Shamrock Rd From North					JPA From East					Shamrock Rd From South					JPA From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	3	3	0	0	0	2	2	1	0	0	8	9	0	0	0	0	0	14
07:15 AM	0	0	0	3	3	0	1	0	4	5	0	0	0	8	8	0	3	0	0	3	19
07:30 AM	0	0	0	10	10	0	1	0	3	4	0	0	0	24	24	0	0	0	0	0	38
07:45 AM	0	0	0	4	4	1	2	0	7	10	2	0	0	24	26	0	9	0	0	9	49
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>20</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>16</b>	<b>21</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>64</b>	<b>67</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>120</b>
08:00 AM	0	0	0	4	4	1	0	0	4	5	0	2	0	7	9	0	5	0	1	6	24
08:15 AM	0	0	0	8	8	1	0	0	4	5	0	2	0	6	8	0	0	0	0	0	21
08:30 AM	0	0	0	4	4	0	1	0	5	6	1	1	0	13	15	0	6	0	1	7	32
08:45 AM	0	0	0	8	8	0	1	0	10	11	0	3	0	13	16	0	5	0	0	5	40
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>24</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>23</b>	<b>27</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>39</b>	<b>48</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>2</b>	<b>18</b>	<b>117</b>
11:00 AM	0	0	0	6	6	0	1	0	6	7	1	1	0	15	17	0	2	1	0	3	33
11:15 AM	0	0	0	6	6	0	0	0	6	6	0	2	0	9	11	0	1	0	0	1	24
11:30 AM	0	0	0	3	3	0	1	1	2	4	0	0	0	8	8	0	1	0	0	1	16
11:45 AM	0	0	0	5	5	0	1	0	5	6	0	0	0	6	6	0	0	0	0	0	17
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>20</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>19</b>	<b>23</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>38</b>	<b>42</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>90</b>
12:00 PM	0	2	2	5	9	0	3	0	15	18	0	2	0	16	18	0	0	0	0	0	45
12:15 PM	0	0	0	14	14	0	7	0	16	23	1	1	0	13	15	0	3	0	1	4	56
12:30 PM	0	0	0	10	10	0	0	0	10	10	0	0	0	15	15	0	0	0	1	1	36
12:45 PM	0	1	0	6	7	0	1	0	6	7	0	0	0	8	8	0	2	0	0	2	24
<b>Total</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>35</b>	<b>40</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>47</b>	<b>58</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>52</b>	<b>56</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>7</b>	<b>161</b>
04:00 PM	0	0	0	8	8	0	0	0	6	6	0	0	0	10	10	0	0	0	1	1	25
04:15 PM	0	0	0	5	5	0	6	0	7	13	1	0	0	11	12	0	0	0	1	1	31
04:30 PM	0	2	0	3	5	0	7	1	8	16	0	0	0	10	10	0	1	0	1	2	33
04:45 PM	1	7	2	8	18	1	9	2	19	31	0	2	0	10	12	0	0	1	1	2	63
<b>Total</b>	<b>1</b>	<b>9</b>	<b>2</b>	<b>24</b>	<b>36</b>	<b>1</b>	<b>22</b>	<b>3</b>	<b>40</b>	<b>66</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>41</b>	<b>44</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>6</b>	<b>152</b>
05:00 PM	1	1	0	21	23	0	8	0	22	30	0	0	0	34	34	1	0	0	0	1	88
05:15 PM	0	0	0	41	41	0	2	2	10	14	0	1	0	17	18	0	1	0	0	1	74
05:30 PM	1	2	0	11	14	1	2	2	7	12	0	0	0	12	12	0	3	0	0	3	41
05:45 PM	0	2	0	33	35	0	5	2	6	13	0	0	0	19	19	0	0	0	0	0	67
<b>Total</b>	<b>2</b>	<b>5</b>	<b>0</b>	<b>106</b>	<b>113</b>	<b>1</b>	<b>17</b>	<b>6</b>	<b>45</b>	<b>69</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>82</b>	<b>83</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>270</b>
<b>Grand Total</b>	<b>3</b>	<b>17</b>	<b>4</b>	<b>229</b>	<b>253</b>	<b>5</b>	<b>59</b>	<b>10</b>	<b>190</b>	<b>264</b>	<b>7</b>	<b>17</b>	<b>0</b>	<b>316</b>	<b>340</b>	<b>1</b>	<b>42</b>	<b>2</b>	<b>8</b>	<b>53</b>	<b>910</b>
Apprch %	1.2	6.7	1.6	90.5		1.9	22.3	3.8	72		2.1	5	0	92.9		1.9	79.2	3.8	15.1		
Total %	0.3	1.9	0.4	25.2	27.8	0.5	6.5	1.1	20.9	29	0.8	1.9	0	34.7	37.4	0.1	4.6	0.2	0.9	5.8	

# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Shamrock  
 Site Code :  
 Start Date : 8/31/2021  
 Page No : 2

Groups Printed- Bikes - Peds

	Shamrock Rd From North					JPA From East					Shamrock Rd From South					JPA From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Bikes	3	17	4	0	24	5	59	10	0	74	7	17	0	0	24	1	42	2	0	45	167
% Bikes	100	100	100	0	9.5	100	100	100	0	28	100	100	0	0	7.1	100	100	100	0	84.9	18.4
Peds	0	0	0	229	229	0	0	0	190	190	0	0	0	316	316	0	0	0	8	8	743
% Peds	0	0	0	100	90.5	0	0	0	100	72	0	0	0	100	92.9	0	0	0	100	15.1	81.6

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Harmon  
 Site Code : 00000115  
 Start Date : 8/31/2021  
 Page No : 1

Groups Printed- Passenger Veh - Trucks

Start Time	Harmon From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Utturns	App. Total	Right	Thru	Left	Utturns	App. Total	Right	Thru	Left	Utturns	App. Total	Right	Thru	Left	Utturns	App. Total	
07:00 AM	0	0	1	0	1	0	43	1	0	44	1	0	0	0	1	0	76	0	0	76	122
07:15 AM	1	0	0	0	1	1	49	0	0	50	1	0	0	0	1	0	102	0	0	102	154
07:30 AM	0	0	0	0	0	2	74	0	1	77	0	0	0	0	0	1	122	3	0	126	203
07:45 AM	0	0	2	0	2	0	86	0	1	87	1	0	1	0	2	0	117	4	1	122	213
<b>Total</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>4</b>	<b>3</b>	<b>252</b>	<b>1</b>	<b>2</b>	<b>258</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>417</b>	<b>7</b>	<b>1</b>	<b>426</b>	<b>692</b>
08:00 AM	1	0	0	0	1	0	68	0	0	68	0	0	0	0	0	0	124	0	0	124	193
08:15 AM	1	0	0	0	1	1	59	0	2	62	0	0	0	0	0	0	116	1	0	117	180
08:30 AM	2	0	0	1	3	0	59	0	0	59	0	0	0	0	0	0	135	1	0	136	198
08:45 AM	1	0	2	0	3	1	49	0	2	52	0	0	1	0	1	0	128	3	2	133	189
<b>Total</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>2</b>	<b>235</b>	<b>0</b>	<b>4</b>	<b>241</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>503</b>	<b>5</b>	<b>2</b>	<b>510</b>	<b>760</b>
*** BREAK ***																					
11:00 AM	1	0	0	0	1	2	89	1	0	92	1	0	0	0	1	1	83	1	0	85	179
11:15 AM	0	0	1	0	1	0	62	0	2	64	0	0	1	0	1	1	70	0	0	71	137
11:30 AM	0	0	0	0	0	0	79	0	3	82	0	0	0	0	0	0	73	2	0	75	157
11:45 AM	2	0	0	0	2	1	75	0	0	76	1	0	0	0	1	0	101	2	0	103	182
<b>Total</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>3</b>	<b>305</b>	<b>1</b>	<b>5</b>	<b>314</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>327</b>	<b>5</b>	<b>0</b>	<b>334</b>	<b>655</b>
12:00 PM	0	0	0	0	0	0	86	0	1	87	0	0	0	0	0	1	106	0	0	107	194
12:15 PM	3	0	1	0	4	0	98	0	1	99	1	0	0	0	1	1	108	3	0	112	216
12:30 PM	3	0	0	0	3	0	81	2	1	84	0	0	0	0	0	0	92	2	0	94	181
12:45 PM	2	0	1	0	3	1	86	0	3	90	0	0	1	0	1	1	113	1	0	115	209
<b>Total</b>	<b>8</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>10</b>	<b>1</b>	<b>351</b>	<b>2</b>	<b>6</b>	<b>360</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>419</b>	<b>6</b>	<b>0</b>	<b>428</b>	<b>800</b>
*** BREAK ***																					
04:00 PM	2	0	1	0	3	2	116	0	1	119	2	0	0	0	2	0	75	1	0	76	200
04:15 PM	1	0	0	0	1	0	130	1	0	131	2	0	0	0	2	0	92	0	0	92	226
04:30 PM	4	0	0	0	4	0	128	0	1	129	1	0	1	0	2	2	80	1	0	83	218
04:45 PM	3	0	1	0	4	1	146	0	1	148	2	0	0	0	2	1	74	3	1	79	233
<b>Total</b>	<b>10</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>12</b>	<b>3</b>	<b>520</b>	<b>1</b>	<b>3</b>	<b>527</b>	<b>7</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>8</b>	<b>3</b>	<b>321</b>	<b>5</b>	<b>1</b>	<b>330</b>	<b>877</b>
05:00 PM	7	1	2	0	10	1	151	3	3	158	1	0	0	0	1	0	93	1	0	94	263
05:15 PM	2	0	1	0	3	1	142	0	3	146	1	0	0	0	1	0	76	0	0	76	226
05:30 PM	3	0	2	0	5	1	132	0	3	136	4	0	0	0	4	0	71	2	0	73	218
05:45 PM	3	0	1	0	4	1	117	2	0	120	1	0	0	0	1	0	67	1	1	69	194
<b>Total</b>	<b>15</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>22</b>	<b>4</b>	<b>542</b>	<b>5</b>	<b>9</b>	<b>560</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>307</b>	<b>4</b>	<b>1</b>	<b>312</b>	<b>901</b>
<b>Grand Total</b>	<b>42</b>	<b>1</b>	<b>16</b>	<b>1</b>	<b>60</b>	<b>16</b>	<b>2205</b>	<b>10</b>	<b>29</b>	<b>2260</b>	<b>20</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>25</b>	<b>9</b>	<b>2294</b>	<b>32</b>	<b>5</b>	<b>2340</b>	<b>4685</b>
Apprch %	70	1.7	26.7	1.7		0.7	97.6	0.4	1.3		80	0	20	0		0.4	98	1.4	0.2		
Total %	0.9	0	0.3	0	1.3	0.3	47.1	0.2	0.6	48.2	0.4	0	0.1	0	0.5	0.2	49	0.7	0.1	49.9	

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Harmon

Site Code : 00000115

Start Date : 8/31/2021

Page No : 2

Groups Printed- Passenger Veh - Trucks

	Harmon From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	
Passenger Veh	40	1	16	1	58	16	2117	10	29	2172	20	0	5	0	25	9	2219	32	5	2265	4520
% Passenger Veh	95.2	100	100	100	96.7	100	96	100	100	96.1	100	0	100	0	100	100	96.7	100	100	96.8	96.5
Trucks	2	0	0	0	2	0	88	0	0	88	0	0	0	0	0	0	75	0	0	75	165
% Trucks	4.8	0	0	0	3.3	0	4	0	0	3.9	0	0	0	0	0	0	3.3	0	0	3.2	3.5

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

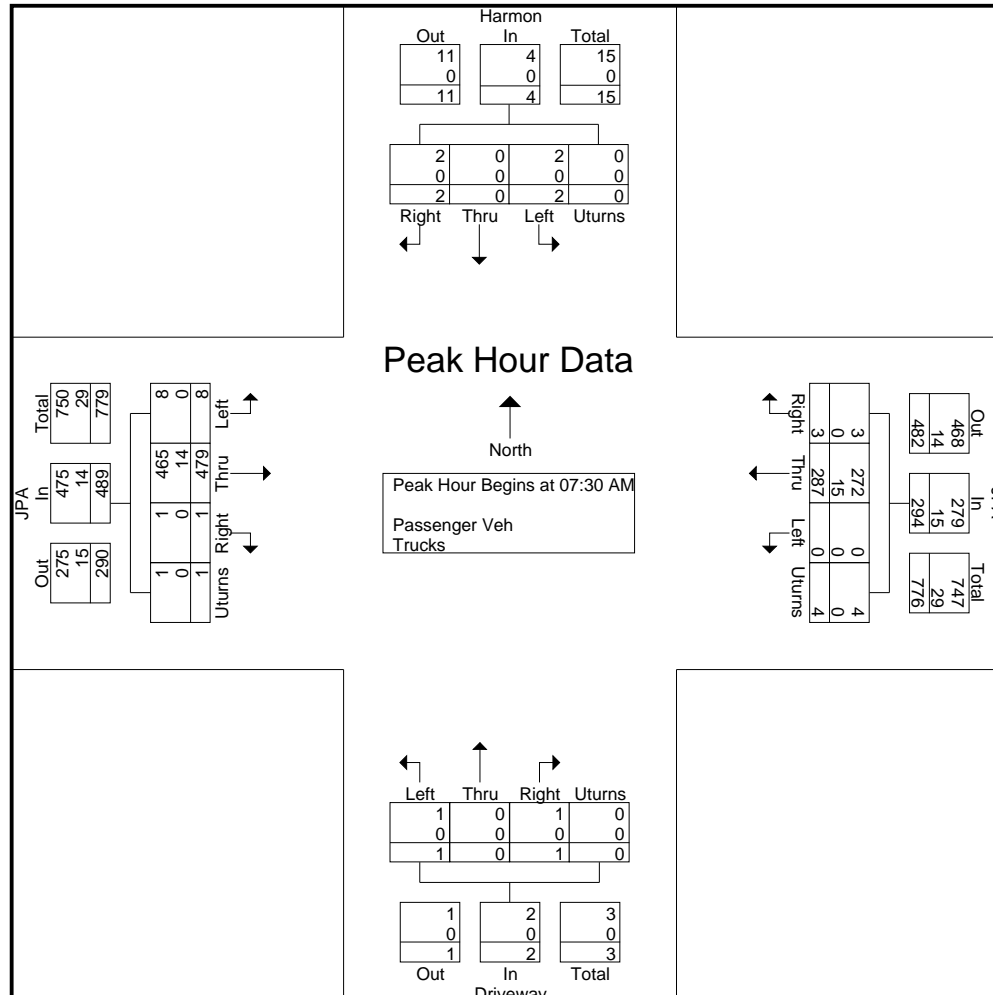
File Name : JPA and Harmon  
 Site Code : 00000115  
 Start Date : 8/31/2021  
 Page No : 3

Start Time	Harmon From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	2	74	0	1	77	0	0	0	0	0	1	122	3	0	126	203
07:45 AM	0	0	2	0	2	0	86	0	1	87	1	0	1	0	2	0	117	4	1	122	213
08:00 AM	1	0	0	0	1	0	68	0	0	68	0	0	0	0	0	0	124	0	0	124	193
08:15 AM	1	0	0	0	1	1	59	0	2	62	0	0	0	0	0	0	116	1	0	117	180
Total Volume	2	0	2	0	4	3	287	0	4	294	1	0	1	0	2	1	479	8	1	489	789
% App. Total	50	0	50	0		1	97.6	0	1.4		50	0	50	0		0.2	98	1.6	0.2		
PHF	.500	.000	.250	.000	.500	.375	.834	.000	.500	.845	.250	.000	.250	.000	.250	.250	.966	.500	.250	.970	.926
Passenger Veh	2	0	2	0	4	3	272	0	4	279	1	0	1	0	2	1	465	8	1	475	760
% Passenger Veh	100	0	100	0	100	100	94.8	0	100	94.9	100	0	100	0	100	100	97.1	100	100	97.1	96.3
Trucks	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	14	0	0	14	29
% Trucks	0	0	0	0	0	0	5.2	0	0	5.1	0	0	0	0	0	0	2.9	0	0	2.9	3.7

# Attachment E Data Collection Group

LSmith@DataCollectionGroup.net

File Name : JPA and Harmon  
 Site Code : 00000115  
 Start Date : 8/31/2021  
 Page No : 4





# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

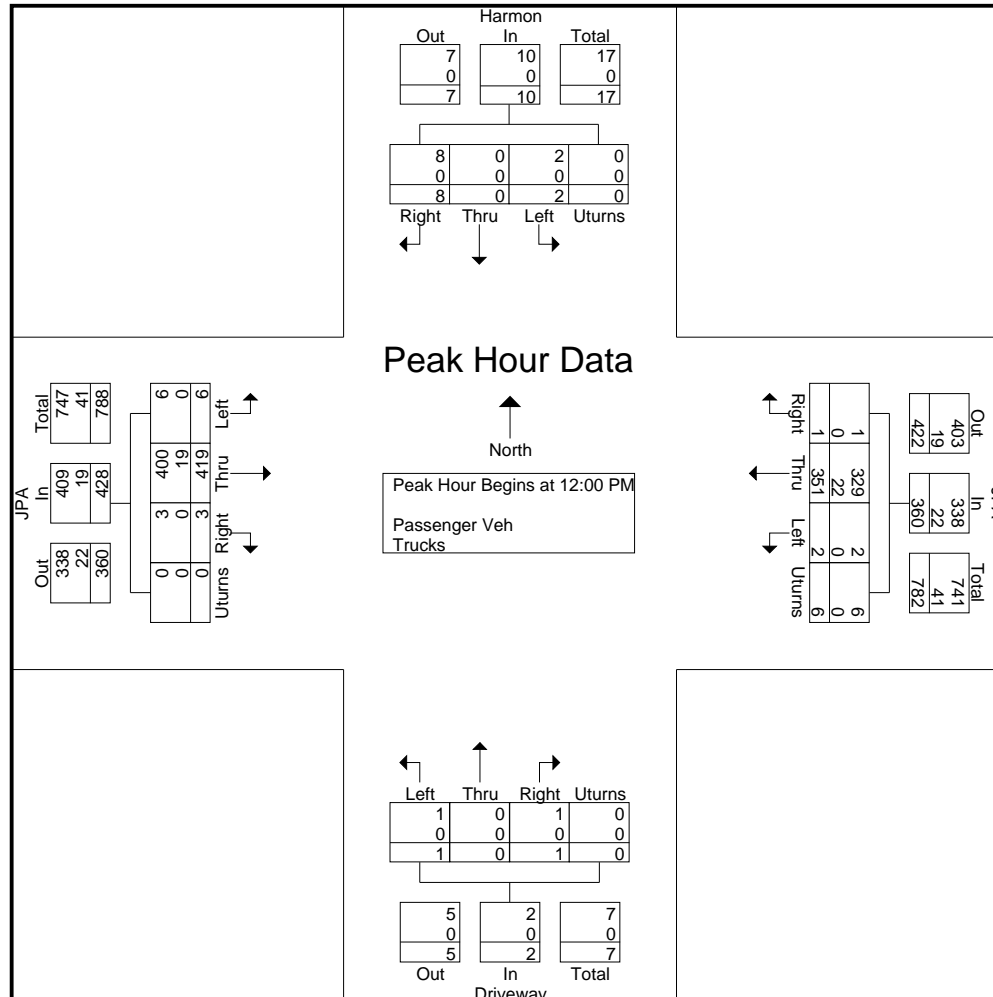
File Name : JPA and Harmon  
 Site Code : 00000115  
 Start Date : 8/31/2021  
 Page No : 5

Start Time	Harmon From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	0	0	0	0	0	86	0	1	87	0	0	0	0	0	1	106	0	0	107	194
12:15 PM	3	0	1	0	4	0	98	0	1	99	1	0	0	0	1	1	108	3	0	112	216
12:30 PM	3	0	0	0	3	0	81	2	1	84	0	0	0	0	0	0	92	2	0	94	181
12:45 PM	2	0	1	0	3	1	86	0	3	90	0	0	1	0	1	1	113	1	0	115	209
Total Volume	8	0	2	0	10	1	351	2	6	360	1	0	1	0	2	3	419	6	0	428	800
% App. Total	80	0	20	0		0.3	97.5	0.6	1.7		50	0	50	0		0.7	97.9	1.4	0		
PHF	.667	.000	.500	.000	.625	.250	.895	.250	.500	.909	.250	.000	.250	.000	.500	.750	.927	.500	.000	.930	.926
Passenger Veh	8	0	2	0	10	1	329	2	6	338	1	0	1	0	2	3	400	6	0	409	759
% Passenger Veh	100	0	100	0	100	100	93.7	100	100	93.9	100	0	100	0	100	100	95.5	100	0	95.6	94.9
Trucks	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	19	0	0	19	41
% Trucks	0	0	0	0	0	0	6.3	0	0	6.1	0	0	0	0	0	0	4.5	0	0	4.4	5.1

# Attachment E Data Collection Group

LSmith@DataCollectionGroup.net

File Name : JPA and Harmon  
 Site Code : 00000115  
 Start Date : 8/31/2021  
 Page No : 6



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

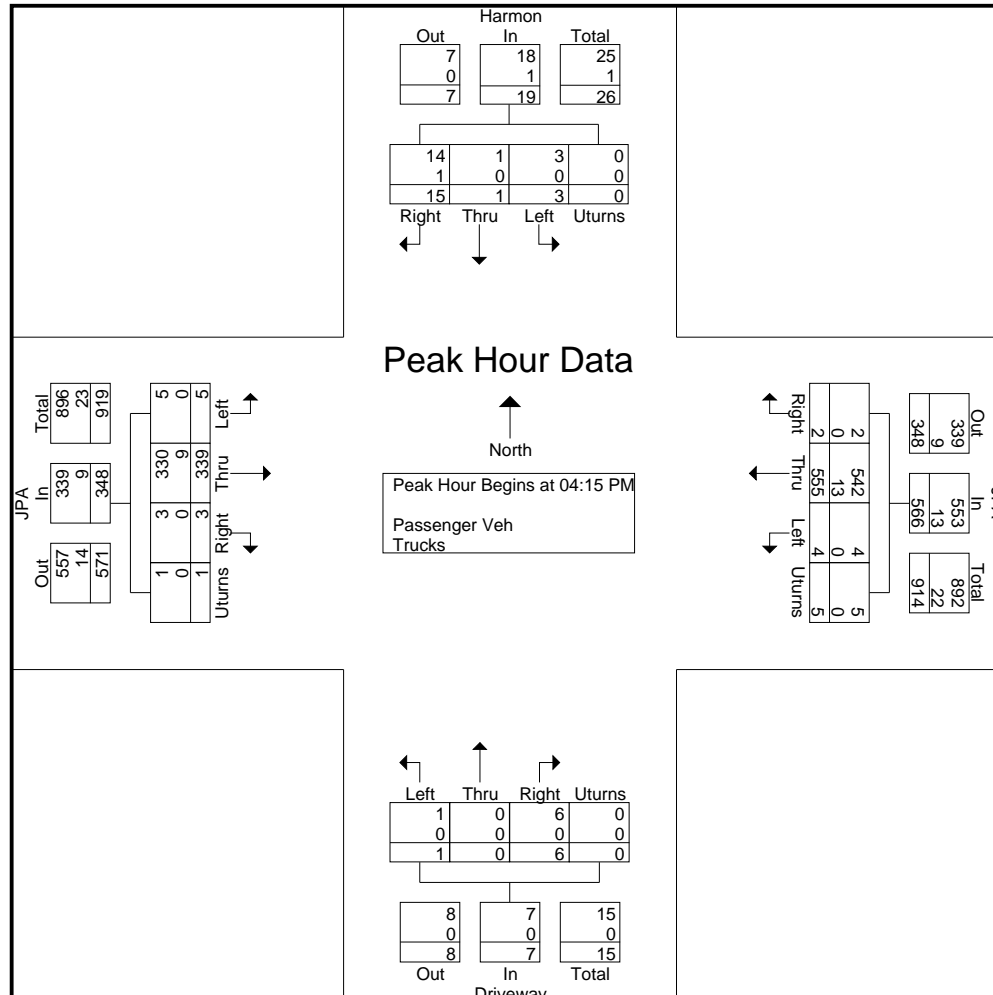
File Name : JPA and Harmon  
 Site Code : 00000115  
 Start Date : 8/31/2021  
 Page No : 7

Start Time	Harmon From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	1	0	0	0	1	0	130	1	0	131	2	0	0	0	2	0	92	0	0	92	226
04:30 PM	4	0	0	0	4	0	128	0	1	129	1	0	1	0	2	2	80	1	0	83	218
04:45 PM	3	0	1	0	4	1	146	0	1	148	2	0	0	0	2	1	74	3	1	79	233
05:00 PM	7	1	2	0	10	1	151	3	3	158	1	0	0	0	1	0	93	1	0	94	263
Total Volume	15	1	3	0	19	2	555	4	5	566	6	0	1	0	7	3	339	5	1	348	940
% App. Total	78.9	5.3	15.8	0		0.4	98.1	0.7	0.9		85.7	0	14.3	0		0.9	97.4	1.4	0.3		
PHF	.536	.250	.375	.000	.475	.500	.919	.333	.417	.896	.750	.000	.250	.000	.875	.375	.911	.417	.250	.926	.894
Passenger Veh	14	1	3	0	18	2	542	4	5	553	6	0	1	0	7	3	330	5	1	339	917
% Passenger Veh	93.3	100	100	0	94.7	100	97.7	100	100	97.7	100	0	100	0	100	100	97.3	100	100	97.4	97.6
Trucks	1	0	0	0	1	0	13	0	0	13	0	0	0	0	0	0	9	0	0	9	23
% Trucks	6.7	0	0	0	5.3	0	2.3	0	0	2.3	0	0	0	0	0	0	2.7	0	0	2.6	2.4

# Attachment E Data Collection Group

LSmith@DataCollectionGroup.net

File Name : JPA and Harmon  
 Site Code : 00000115  
 Start Date : 8/31/2021  
 Page No : 8



# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Harmon  
 Site Code : 00000115  
 Start Date : 8/31/2021  
 Page No : 1

Groups Printed- Bikes - Peds

Start Time	Harmon From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	5	5	0	0	0	1	1	0	0	0	4	4	0	2	0	0	2	12
07:15 AM	0	0	0	2	2	0	1	0	1	2	0	0	0	11	11	0	3	0	0	3	18
07:30 AM	0	0	0	8	8	0	1	0	6	7	0	0	0	26	26	0	0	0	0	0	41
07:45 AM	1	0	0	3	4	0	1	0	4	5	0	0	0	15	15	0	8	0	0	8	32
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>19</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>12</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>56</b>	<b>56</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>103</b>
08:00 AM	0	0	0	3	3	0	0	0	3	3	1	0	0	4	5	0	7	0	0	7	18
08:15 AM	0	0	0	5	5	0	0	0	3	3	0	0	0	12	12	0	2	0	0	2	22
08:30 AM	0	0	0	4	4	0	1	0	3	4	0	0	0	14	14	0	5	0	0	5	27
08:45 AM	0	0	0	7	7	0	1	0	3	4	0	0	0	12	12	0	9	0	0	9	32
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>19</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>12</b>	<b>14</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>42</b>	<b>43</b>	<b>0</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>99</b>
*** BREAK ***																					
11:00 AM	0	0	0	3	3	0	1	0	3	4	0	0	0	3	3	0	0	0	0	0	10
11:15 AM	0	0	0	5	5	0	0	0	2	2	0	0	0	1	1	0	2	0	0	2	10
11:30 AM	0	0	0	2	2	0	1	0	3	4	0	0	0	6	6	0	1	0	0	1	13
11:45 AM	0	0	0	2	2	0	1	0	3	4	0	0	0	4	4	0	1	0	0	1	11
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>12</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>11</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>44</b>
12:00 PM	0	0	0	3	3	0	2	0	3	5	0	0	0	8	8	0	1	0	0	1	17
12:15 PM	0	0	0	3	3	1	3	0	7	11	0	0	0	1	1	0	2	0	0	2	17
12:30 PM	0	0	0	4	4	0	0	0	9	9	0	0	0	4	4	0	0	0	0	0	17
12:45 PM	0	0	0	4	4	0	1	0	3	4	0	0	0	1	1	0	2	0	0	2	11
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>22</b>	<b>29</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>62</b>
*** BREAK ***																					
04:00 PM	0	0	0	4	4	0	0	0	6	6	0	0	0	7	7	0	0	0	0	0	17
04:15 PM	0	0	0	3	3	0	5	0	2	7	0	0	0	3	3	0	1	0	0	1	14
04:30 PM	0	0	0	4	4	0	8	0	9	17	0	0	0	5	5	0	1	0	0	1	27
04:45 PM	1	0	0	1	2	0	7	0	5	12	0	0	0	3	3	0	0	1	0	1	18
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>13</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>22</b>	<b>42</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>18</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>76</b>
05:00 PM	0	0	0	2	2	1	7	0	10	18	0	0	0	19	19	0	2	0	0	2	41
05:15 PM	1	0	0	34	35	0	4	0	6	10	0	0	0	13	13	0	1	0	0	1	59
05:30 PM	0	0	0	6	6	0	3	0	0	3	0	0	0	7	7	0	3	0	0	3	19
05:45 PM	1	0	0	26	27	0	6	0	2	8	0	0	0	6	6	0	0	0	0	0	41
<b>Total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>68</b>	<b>70</b>	<b>1</b>	<b>20</b>	<b>0</b>	<b>18</b>	<b>39</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>45</b>	<b>45</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>160</b>
<b>Grand Total</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>143</b>	<b>147</b>	<b>2</b>	<b>54</b>	<b>0</b>	<b>97</b>	<b>153</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>189</b>	<b>190</b>	<b>0</b>	<b>53</b>	<b>1</b>	<b>0</b>	<b>54</b>	<b>544</b>
Apprch %	2.7	0	0	97.3		1.3	35.3	0	63.4		0.5	0	0	99.5		0	98.1	1.9	0		
Total %	0.7	0	0	26.3	27	0.4	9.9	0	17.8	28.1	0.2	0	0	34.7	34.9	0	9.7	0.2	0	9.9	

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Harmon  
 Site Code : 00000115  
 Start Date : 8/31/2021  
 Page No : 2

Groups Printed- Bikes - Peds

	Harmon From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Bikes	4	0	0	0	4	2	54	0	0	56	1	0	0	0	1	0	53	1	0	54	115
% Bikes	100	0	0	0	2.7	100	100	0	0	36.6	100	0	0	0	0.5	0	100	100	0	100	21.1
Peds	0	0	0	143	143	0	0	0	97	97	0	0	0	189	189	0	0	0	0	0	429
% Peds	0	0	0	100	97.3	0	0	0	100	63.4	0	0	0	100	99.5	0	0	0	0	0	78.9

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Washington

Site Code :

Start Date : 8/31/2021

Page No : 1

Groups Printed- Passenger Veh - Trucks

Start Time	Washington Ave From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
07:00 AM	0	0	0	0	0	0	41	0	0	41	1	0	0	0	1	0	72	0	0	72	114
07:15 AM	1	0	1	0	2	0	50	0	0	50	0	0	0	0	0	0	107	1	0	108	160
07:30 AM	0	0	0	0	0	1	76	0	0	77	0	0	0	0	0	0	120	1	0	121	198
07:45 AM	0	0	0	0	0	1	89	0	0	90	0	0	0	0	0	0	126	0	1	127	217
Total	1	0	1	0	2	2	256	0	0	258	1	0	0	0	1	0	425	2	1	428	689
08:00 AM	0	0	0	0	0	0	69	0	0	69	1	0	0	0	1	0	118	1	0	119	189
08:15 AM	0	0	0	0	0	0	57	2	0	59	0	0	0	0	0	0	119	1	0	120	179
08:30 AM	0	0	0	0	0	1	59	1	0	61	1	0	1	0	2	1	136	0	1	138	201
08:45 AM	2	0	0	0	2	0	55	0	0	55	0	0	0	0	0	0	131	0	0	131	188
Total	2	0	0	0	2	1	240	3	0	244	2	0	1	0	3	1	504	2	1	508	757
09:00 AM	0	0	0	0	0	0	56	0	0	56	1	0	0	0	1	0	133	2	0	135	192
09:15 AM	1	0	2	0	3	1	59	1	0	61	2	0	0	0	2	0	119	2	0	121	187
09:30 AM	3	0	0	0	3	0	53	0	1	54	0	0	0	0	0	0	111	3	0	114	171
09:45 AM	2	0	0	0	2	2	58	0	0	60	1	0	0	0	1	0	109	2	0	111	174
Total	6	0	2	0	8	3	226	1	1	231	4	0	0	0	4	0	472	9	0	481	724
10:00 AM	1	0	1	0	2	1	76	0	0	77	1	0	1	0	2	0	98	1	0	99	180
10:15 AM	1	0	1	0	2	1	57	0	0	58	1	0	0	0	1	1	120	1	0	122	183
10:30 AM	1	0	1	0	2	0	59	1	1	61	0	0	0	0	0	0	104	0	0	104	167
10:45 AM	0	0	0	0	0	0	64	0	0	64	0	0	0	0	0	2	112	1	0	115	179
Total	3	0	3	0	6	2	256	1	1	260	2	0	1	0	3	3	434	3	0	440	709
11:00 AM	0	0	0	0	0	0	90	0	0	90	3	0	0	0	3	0	81	2	0	83	176
11:15 AM	2	0	0	0	2	0	61	0	0	61	0	0	0	0	0	0	72	0	0	72	135
11:30 AM	0	0	0	0	0	1	82	0	0	83	0	0	0	0	0	0	78	0	0	78	161
11:45 AM	1	1	0	0	2	0	77	0	0	77	1	0	0	0	1	0	103	1	0	104	184
Total	3	1	0	0	4	1	310	0	0	311	4	0	0	0	4	0	334	3	0	337	656
12:00 PM	3	0	1	0	4	1	90	0	0	91	0	0	0	0	0	0	110	1	0	111	206
12:15 PM	1	1	1	0	3	3	97	0	0	100	0	0	0	0	0	0	108	0	2	110	213
12:30 PM	2	0	1	0	3	0	82	0	0	82	1	0	0	0	1	0	92	0	0	92	178
12:45 PM	1	0	1	0	2	1	91	1	0	93	2	0	0	0	2	0	115	0	0	115	212
Total	7	1	4	0	12	5	360	1	0	366	3	0	0	0	3	0	425	1	2	428	809
01:00 PM	1	0	2	0	3	0	82	1	0	83	0	0	0	0	0	0	96	1	0	97	183
01:15 PM	1	0	0	0	1	2	82	0	0	84	0	0	0	0	0	0	93	1	0	94	179
01:30 PM	1	0	0	0	1	0	95	1	0	96	0	0	1	0	1	0	82	2	0	84	182

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Washington

Site Code :

Start Date : 8/31/2021

Page No : 2

Groups Printed- Passenger Veh - Trucks

Start Time	Washington Ave From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
01:45 PM	0	0	1	0	1	0	91	1	0	92	0	0	0	0	0	0	99	1	0	100	193
Total	3	0	3	0	6	2	350	3	0	355	0	0	1	0	1	0	370	5	0	375	737
02:00 PM	0	0	1	0	1	1	110	0	1	112	1	0	0	0	1	0	86	0	0	86	200
02:15 PM	2	0	3	0	5	3	96	0	0	99	0	0	0	0	0	0	72	1	0	73	177
02:30 PM	0	0	1	0	1	1	92	2	0	95	0	0	1	0	1	0	88	0	0	88	185
02:45 PM	1	0	1	0	2	1	92	0	1	94	3	0	0	0	3	0	101	0	0	101	200
Total	3	0	6	0	9	6	390	2	2	400	4	0	1	0	5	0	347	1	0	348	762
03:00 PM	1	0	0	0	1	0	91	0	1	92	1	0	0	0	1	0	103	0	0	103	197
03:15 PM	0	0	1	0	1	1	112	0	1	114	1	0	0	0	1	1	88	0	0	89	205
03:30 PM	4	0	1	0	5	1	150	0	2	153	1	0	0	0	1	0	80	1	0	81	240
03:45 PM	0	1	2	0	3	1	111	0	2	114	0	0	0	0	0	0	79	1	0	80	197
Total	5	1	4	0	10	3	464	0	6	473	3	0	0	0	3	1	350	2	0	353	839
04:00 PM	2	0	0	0	2	2	112	0	0	114	0	0	0	0	0	0	79	0	0	79	195
04:15 PM	1	0	1	0	2	1	132	0	0	133	1	0	0	0	1	1	93	1	1	96	232
04:30 PM	3	0	0	0	3	0	132	0	0	132	1	0	0	0	1	0	82	2	1	85	221
04:45 PM	1	0	0	0	1	1	152	1	0	154	0	0	0	0	0	0	76	0	0	76	231
Total	7	0	1	0	8	4	528	1	0	533	2	0	0	0	2	1	330	3	2	336	879
05:00 PM	2	0	4	0	6	0	157	0	0	157	0	0	0	0	0	1	92	0	1	94	257
05:15 PM	2	0	0	0	2	1	140	1	0	142	1	0	0	0	1	0	81	0	0	81	226
05:30 PM	2	0	3	0	5	0	141	0	0	141	0	0	0	0	0	0	68	7	0	75	221
05:45 PM	2	0	0	0	2	1	124	0	0	125	0	0	1	0	1	1	69	2	3	75	203
Total	8	0	7	0	15	2	562	1	0	565	1	0	1	0	2	2	310	9	4	325	907
06:00 PM	0	0	1	0	1	1	96	0	0	97	0	0	0	0	0	0	84	2	2	88	186
06:15 PM	2	0	0	0	2	1	124	2	0	127	1	0	1	0	2	0	90	1	1	92	223
06:30 PM	1	0	1	0	2	0	95	0	1	96	0	0	0	0	0	0	109	0	1	110	208
06:45 PM	4	0	2	0	6	1	79	0	0	80	2	1	0	0	3	0	72	1	2	75	164
Total	7	0	4	0	11	3	394	2	1	400	3	1	1	0	5	0	355	4	6	365	781
Grand Total	55	3	35	0	93	34	4336	15	11	4396	29	1	6	0	36	8	4656	44	16	4724	9249
Apprch %	59.1	3.2	37.6	0		0.8	98.6	0.3	0.3		80.6	2.8	16.7	0		0.2	98.6	0.9	0.3		
Total %	0.6	0	0.4	0	1	0.4	46.9	0.2	0.1	47.5	0.3	0	0.1	0	0.4	0.1	50.3	0.5	0.2	51.1	
Passenger Veh	53	3	35	0	91	30	4171	15	10	4226	27	1	6	0	34	7	4487	43	15	4552	8903
% Passenger Veh	96.4	100	100	0	97.8	88.2	96.2	100	90.9	96.1	93.1	100	100	0	94.4	87.5	96.4	97.7	93.8	96.4	96.3
Trucks	2	0	0	0	2	4	165	0	1	170	2	0	0	0	2	1	169	1	1	172	346
% Trucks	3.6	0	0	0	2.2	11.8	3.8	0	9.1	3.9	6.9	0	0	0	5.6	12.5	3.6	2.3	6.2	3.6	3.7



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Washington

Site Code :

Start Date : 8/31/2021

Page No : 3

Start Time	Washington Ave From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	1	89	0	0	90	0	0	0	0	0	0	126	0	1	127	217
08:00 AM	0	0	0	0	0	0	69	0	0	69	1	0	0	0	1	0	118	1	0	119	189
08:15 AM	0	0	0	0	0	0	57	2	0	59	0	0	0	0	0	0	119	1	0	120	179
08:30 AM	0	0	0	0	0	1	59	1	0	61	1	0	1	0	2	1	136	0	1	138	201
Total Volume	0	0	0	0	0	2	274	3	0	279	2	0	1	0	3	1	499	2	2	504	786
% App. Total	0	0	0	0	0	0.7	98.2	1.1	0	99.3	66.7	0	33.3	0	100	0.2	99	0.4	0.4	100	786
PHF	.000	.000	.000	.000	.000	.500	.770	.375	.000	.775	.500	.000	.250	.000	.375	.250	.917	.500	.500	.913	.906
Passenger Veh	0	0	0	0	0	1	259	3	0	263	2	0	1	0	3	1	485	2	1	489	755
% Passenger Veh	0	0	0	0	0	50.0	94.5	100	0	94.3	100	0	100	0	100	100	97.2	100	50.0	97.0	96.1
Trucks	0	0	0	0	0	1	15	0	0	16	0	0	0	0	0	0	14	0	1	15	31
% Trucks	0	0	0	0	0	50.0	5.5	0	0	5.7	0	0	0	0	0	0	2.8	0	50.0	3.0	3.9

# Data Collection Group

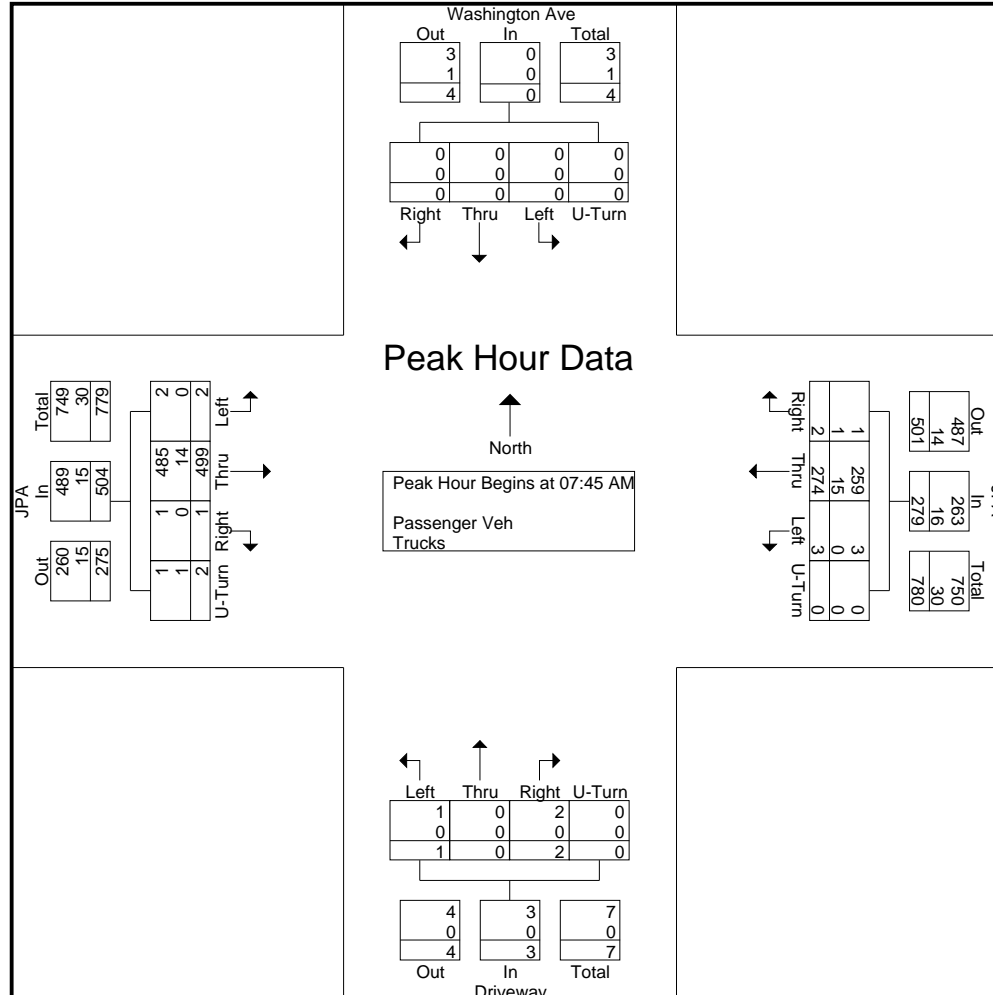
Attachment E  
LSmith@DataCollectionGroup.net

File Name : JPA and Washington

Site Code :

Start Date : 8/31/2021

Page No : 4



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Washington

Site Code :

Start Date : 8/31/2021

Page No : 5

Start Time	Washington Ave From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	3	0	1	0	4	1	90	0	0	91	0	0	0	0	0	0	110	1	0	111	206
12:15 PM	1	1	1	0	3	3	97	0	0	100	0	0	0	0	0	0	108	0	2	110	213
12:30 PM	2	0	1	0	3	0	82	0	0	82	1	0	0	0	1	0	92	0	0	92	178
12:45 PM	1	0	1	0	2	1	91	1	0	93	2	0	0	0	2	0	115	0	0	115	212
Total Volume	7	1	4	0	12	5	360	1	0	366	3	0	0	0	3	0	425	1	2	428	809
% App. Total	58.3	8.3	33.3	0		1.4	98.4	0.3	0		100	0	0	0		0	99.3	0.2	0.5		
PHF	.583	.250	1.00	.000	.750	.417	.928	.250	.000	.915	.375	.000	.000	.000	.375	.000	.924	.250	.250	.930	.950
Passenger Veh	7	1	4	0	12	5	338	1	0	344	3	0	0	0	3	0	406	0	2	408	767
% Passenger Veh	100	100	100	0	100	100	93.9	100	0	94.0	100	0	0	0	100	0	95.5	0	100	95.3	94.8
Trucks	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	19	1	0	20	42
% Trucks	0	0	0	0	0	0	6.1	0	0	6.0	0	0	0	0	0	0	4.5	100	0	4.7	5.2

# Data Collection Group

Attachment E

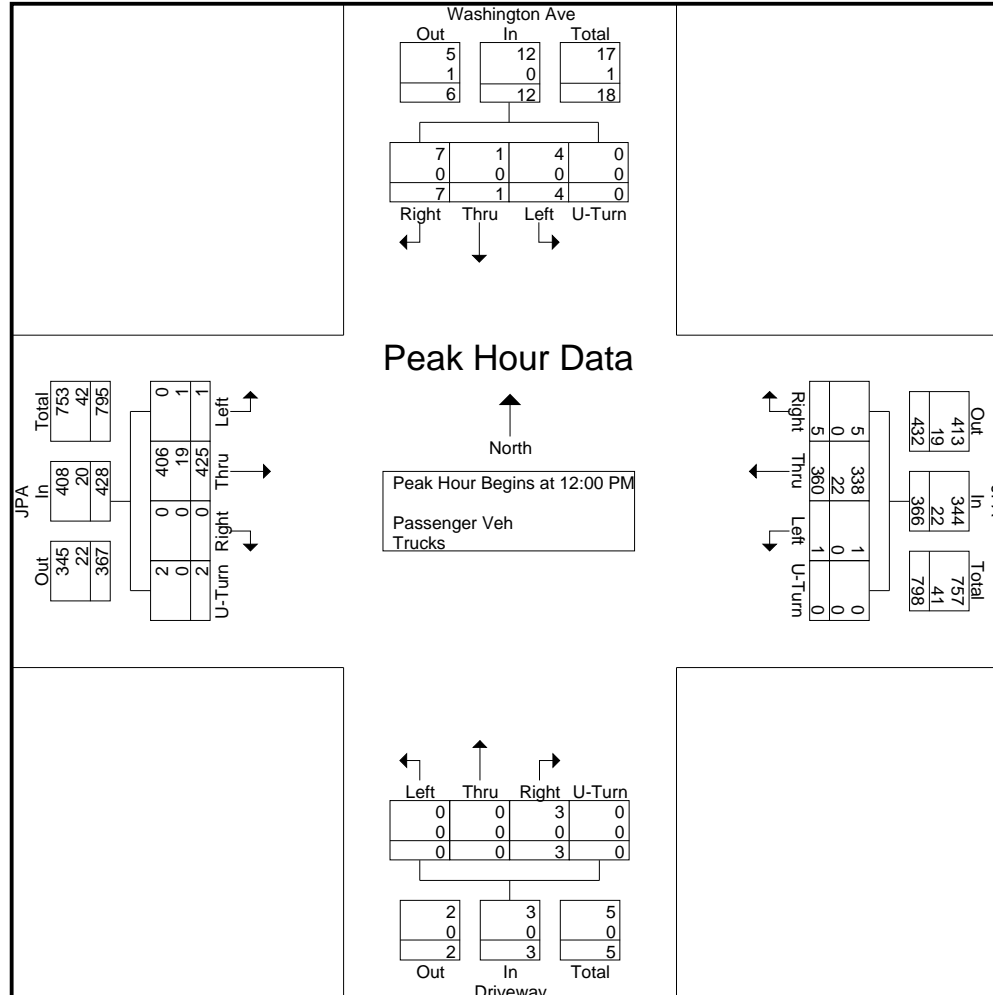
LSmith@DataCollectionGroup.net

File Name : JPA and Washington

Site Code :

Start Date : 8/31/2021

Page No : 6



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Washington

Site Code :

Start Date : 8/31/2021

Page No : 7

Start Time	Washington Ave From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	1	0	1	0	2	1	132	0	0	133	1	0	0	0	1	1	93	1	1	96	232
04:30 PM	3	0	0	0	3	0	132	0	0	132	1	0	0	0	1	0	82	2	1	85	221
04:45 PM	1	0	0	0	1	1	152	1	0	154	0	0	0	0	0	0	76	0	0	76	231
05:00 PM	2	0	4	0	6	0	157	0	0	157	0	0	0	0	0	1	92	0	1	94	257
Total Volume	7	0	5	0	12	2	573	1	0	576	2	0	0	0	2	2	343	3	3	351	941
% App. Total	58.3	0	41.7	0		0.3	99.5	0.2	0		100	0	0	0		0.6	97.7	0.9	0.9		
PHF	.583	.000	.313	.000	.500	.500	.912	.250	.000	.917	.500	.000	.000	.000	.500	.500	.922	.375	.750	.914	.915
Passenger Veh	7	0	5	0	12	2	560	1	0	563	2	0	0	0	2	2	333	3	3	341	918
% Passenger Veh	100	0	100	0	100	100	97.7	100	0	97.7	100	0	0	0	100	100	97.1	100	100	97.2	97.6
Trucks	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	10	0	0	10	23
% Trucks	0	0	0	0	0	0	2.3	0	0	2.3	0	0	0	0	0	0	2.9	0	0	2.8	2.4

# Data Collection Group

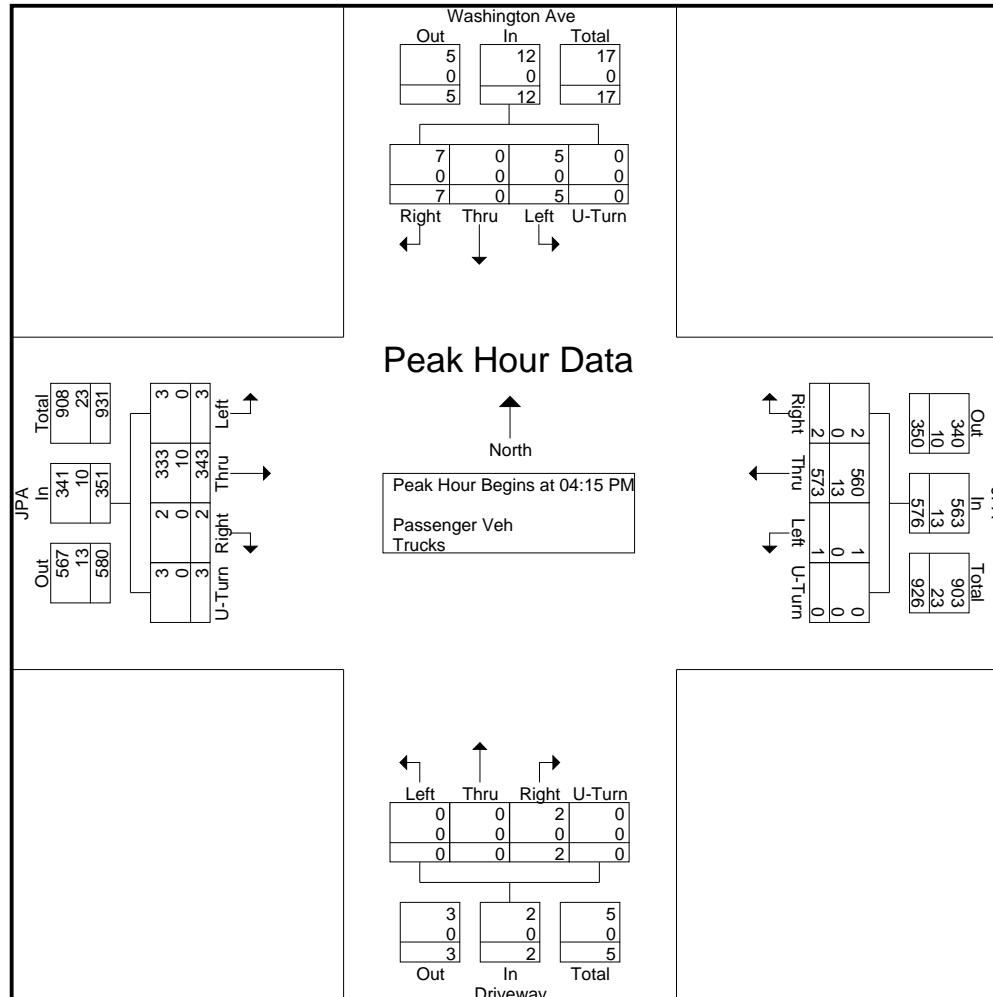
Attachment E  
LSmith@DataCollectionGroup.net

File Name : JPA and Washington

Site Code :

Start Date : 8/31/2021

Page No : 8



# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Washington

Site Code :

Start Date : 8/31/2021

Page No : 1

Groups Printed- Bikes - Peds

Start Time	Washington Ave From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	5	5	0	0	0	0	0	0	0	0	1	1	0	2	0	0	2	8
07:15 AM	0	0	0	2	2	0	1	0	0	1	0	0	0	7	7	0	3	0	0	3	13
07:30 AM	0	0	0	9	9	0	2	0	0	2	0	0	0	18	18	0	0	0	0	0	29
07:45 AM	0	0	0	4	4	0	2	0	0	2	0	0	0	10	10	0	9	0	0	9	25
Total	0	0	0	20	20	0	5	0	0	5	0	0	0	36	36	0	14	0	0	14	75
08:00 AM	0	0	0	9	9	0	0	0	1	1	0	0	0	3	3	0	7	0	1	8	21
08:15 AM	0	0	0	4	4	0	0	0	1	1	0	0	0	12	12	0	2	0	1	3	20
08:30 AM	0	0	0	4	4	0	0	0	2	2	0	0	0	7	7	0	6	0	2	8	21
08:45 AM	0	0	0	3	3	0	0	0	0	0	0	0	0	9	9	0	8	0	0	8	20
Total	0	0	0	20	20	0	0	0	4	4	0	0	0	31	31	0	23	0	4	27	82
09:00 AM	0	0	0	16	16	0	0	0	1	1	0	0	0	32	32	0	8	1	0	9	58
09:15 AM	0	0	0	10	10	0	2	0	0	2	0	1	0	11	12	0	11	0	0	11	35
09:30 AM	0	0	0	5	5	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	8
09:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	4	4	0	4	0	0	4	9
Total	0	0	0	32	32	0	2	0	1	3	0	1	0	49	50	0	23	1	1	25	110
10:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	6	6	0	3	0	0	3	10
10:15 AM	0	0	0	3	3	0	0	0	1	1	0	0	0	9	9	0	4	0	0	4	17
10:30 AM	0	0	0	9	9	0	1	0	0	1	0	0	0	12	12	0	4	0	0	4	26
10:45 AM	0	0	2	5	7	0	3	0	0	3	0	0	0	6	6	0	8	0	0	8	24
Total	0	0	2	18	20	0	4	0	1	5	0	0	0	33	33	0	19	0	0	19	77
11:00 AM	0	0	0	3	3	0	1	0	1	2	0	0	0	3	3	0	2	0	0	2	10
11:15 AM	0	0	0	5	5	0	0	0	0	0	0	1	0	4	5	0	2	0	0	2	12
11:30 AM	0	0	0	3	3	0	1	0	0	1	0	0	0	4	4	0	1	0	0	1	9
11:45 AM	0	0	0	1	1	0	1	0	1	2	0	0	0	2	2	0	1	0	0	1	6
Total	0	0	0	12	12	0	3	0	2	5	0	1	0	13	14	0	6	0	0	6	37
12:00 PM	0	0	0	6	6	0	2	0	0	2	0	0	0	10	10	0	1	0	0	1	19
12:15 PM	0	0	0	6	6	0	4	0	0	4	0	0	0	9	9	0	2	0	0	2	21
12:30 PM	0	0	0	6	6	0	0	0	1	1	0	0	0	8	8	0	0	0	0	0	15
12:45 PM	0	0	0	6	6	0	1	0	0	1	0	1	0	3	4	0	2	0	0	2	13
Total	0	0	0	24	24	0	7	0	1	8	0	1	0	30	31	0	5	0	0	5	68
01:00 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	3	3	0	1	0	0	1	7
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	0	0	0	0	0	9
01:30 PM	0	0	0	3	3	0	2	0	2	4	0	0	0	11	11	0	2	0	0	2	20

# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Washington

Site Code :

Start Date : 8/31/2021

Page No : 2

Groups Printed- Bikes - Peds

Start Time	Washington Ave From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
01:45 PM	0	0	1	6	7	0	6	0	0	6	0	0	0	4	4	0	3	0	0	3	20
Total	0	0	1	12	13	0	8	0	2	10	0	0	0	27	27	0	6	0	0	6	56
02:00 PM	0	0	0	8	8	0	5	0	0	5	0	0	0	5	5	0	0	0	0	0	18
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	5
02:30 PM	0	0	0	3	3	0	3	0	0	3	0	0	0	3	3	0	0	0	1	1	10
02:45 PM	0	1	0	2	3	0	2	0	0	2	0	0	0	6	6	0	2	0	0	2	13
Total	0	1	0	13	14	0	10	0	0	10	0	0	0	19	19	0	2	0	1	3	46
03:00 PM	0	0	0	5	5	0	2	0	0	2	0	0	0	9	9	0	1	0	1	2	18
03:15 PM	0	0	0	6	6	0	3	1	2	6	0	0	0	18	18	0	2	0	0	2	32
03:30 PM	0	0	0	8	8	0	2	0	0	2	0	0	0	11	11	0	0	0	1	1	22
03:45 PM	0	0	0	6	6	0	2	0	1	3	0	0	0	5	5	0	0	0	3	3	17
Total	0	0	0	25	25	0	9	1	3	13	0	0	0	43	43	0	3	0	5	8	89
04:00 PM	0	0	0	6	6	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	8
04:15 PM	0	0	0	5	5	0	7	0	0	7	0	0	0	12	12	1	1	0	0	2	26
04:30 PM	0	0	0	9	9	0	7	0	0	7	0	0	0	9	9	0	1	0	0	1	26
04:45 PM	0	0	0	5	5	0	9	0	2	11	0	0	0	12	12	0	0	0	2	2	30
Total	0	0	0	25	25	0	23	0	2	25	0	0	0	34	34	1	2	0	3	6	90
05:00 PM	0	0	0	14	14	0	8	0	0	8	0	0	0	21	21	0	2	0	1	3	46
05:15 PM	0	0	0	38	38	0	5	0	0	5	0	0	0	20	20	0	1	0	0	1	64
05:30 PM	0	0	0	9	9	0	3	0	0	3	0	0	0	9	9	0	3	1	1	5	26
05:45 PM	0	0	0	31	31	0	6	0	0	6	0	0	0	14	14	0	0	1	0	1	52
Total	0	0	0	92	92	0	22	0	0	22	0	0	0	64	64	0	6	2	2	10	188
06:00 PM	0	0	0	4	4	0	4	0	0	4	0	0	0	11	11	0	0	0	0	0	19
06:15 PM	0	1	0	11	12	0	3	0	0	3	0	0	0	17	17	0	1	0	1	2	34
06:30 PM	0	0	0	11	11	1	5	0	0	6	0	0	0	8	8	0	2	0	0	2	27
06:45 PM	0	0	0	11	11	0	3	0	2	5	0	0	0	7	7	0	1	0	1	2	25
Total	0	1	0	37	38	1	15	0	2	18	0	0	0	43	43	0	4	0	2	6	105
<b>Grand Total</b>	0	2	3	330	335	1	108	1	18	128	0	3	0	422	425	1	113	3	18	135	1023
Apprch %	0	0.6	0.9	98.5		0.8	84.4	0.8	14.1		0	0.7	0	99.3		0.7	83.7	2.2	13.3		
Total %	0	0.2	0.3	32.3	32.7	0.1	10.6	0.1	1.8	12.5	0	0.3	0	41.3	41.5	0.1	11	0.3	1.8	13.2	
Bikes	0	2	3	0	5	1	108	1	0	110	0	3	0	0	3	1	113	3	0	117	235
% Bikes	0	100	100	0	1.5	100	100	100	0	85.9	0	100	0	0	0.7	100	100	100	0	86.7	23
Peds	0	0	0	330	330	0	0	0	18	18	0	0	0	422	422	0	0	0	18	18	788
% Peds	0	0	0	100	98.5	0	0	0	100	14.1	0	0	0	100	99.3	0	0	0	100	13.3	77



# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Observatory  
 Site Code : 12222222  
 Start Date : 8/31/2021  
 Page No : 1

Groups Printed- Passenger Veh - Trucks

Start Time	Observatory From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	
07:00 AM	0	0	0	0	0	0	42	0	0	42	0	0	0	0	0	0	86	0	0	86	128
07:15 AM	0	0	0	0	0	0	59	0	0	59	1	0	0	0	1	1	102	0	0	103	163
07:30 AM	1	0	0	0	1	0	81	0	0	81	0	0	1	0	1	0	131	0	4	135	218
07:45 AM	0	0	0	2	2	0	80	1	0	81	0	0	0	0	0	0	140	0	0	140	223
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>262</b>	<b>1</b>	<b>0</b>	<b>263</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>459</b>	<b>0</b>	<b>4</b>	<b>464</b>	<b>732</b>
08:00 AM	1	0	0	0	1	1	66	1	0	68	1	0	0	0	1	0	117	0	0	117	187
08:15 AM	1	0	0	0	1	0	51	0	2	53	3	0	0	0	3	0	114	0	2	116	173
08:30 AM	3	0	0	0	3	0	55	0	0	55	1	0	0	0	1	0	132	0	0	132	191
08:45 AM	2	0	0	0	2	2	52	1	1	56	0	0	0	0	0	2	131	2	2	137	195
<b>Total</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>3</b>	<b>224</b>	<b>2</b>	<b>3</b>	<b>232</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>2</b>	<b>494</b>	<b>2</b>	<b>4</b>	<b>502</b>	<b>746</b>
*** BREAK ***																					
11:00 AM	0	0	1	0	1	1	92	0	0	93	4	0	0	0	4	1	76	1	0	78	176
11:15 AM	0	0	1	0	1	1	64	0	0	65	2	0	0	0	2	0	74	0	0	74	142
11:30 AM	0	0	0	0	0	0	85	0	0	85	3	0	1	0	4	2	77	0	0	79	168
11:45 AM	0	0	0	0	0	0	79	1	0	80	1	0	0	0	1	1	115	0	1	117	198
<b>Total</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>320</b>	<b>1</b>	<b>0</b>	<b>323</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>11</b>	<b>4</b>	<b>342</b>	<b>1</b>	<b>1</b>	<b>348</b>	<b>684</b>
12:00 PM	0	0	0	0	0	3	102	0	1	106	1	0	0	0	1	0	104	1	0	105	212
12:15 PM	1	0	0	0	1	3	98	0	0	101	0	0	0	0	0	1	107	0	1	109	211
12:30 PM	0	0	0	0	0	0	81	0	0	81	1	0	0	0	1	1	101	0	0	102	184
12:45 PM	0	0	0	0	0	0	96	2	0	98	1	0	2	0	3	1	114	0	1	116	217
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>377</b>	<b>2</b>	<b>1</b>	<b>386</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>3</b>	<b>426</b>	<b>1</b>	<b>2</b>	<b>432</b>	<b>824</b>
*** BREAK ***																					
04:00 PM	1	0	0	0	1	1	119	0	1	121	0	0	0	0	0	0	73	2	0	75	197
04:15 PM	2	0	1	0	3	1	139	0	0	140	1	0	2	0	3	0	89	1	0	90	236
04:30 PM	1	0	0	0	1	1	132	1	1	135	0	0	0	0	0	0	91	0	0	91	227
04:45 PM	3	0	3	0	6	1	147	0	0	148	1	0	0	0	1	1	70	0	1	72	227
<b>Total</b>	<b>7</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>11</b>	<b>4</b>	<b>537</b>	<b>1</b>	<b>2</b>	<b>544</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>323</b>	<b>3</b>	<b>1</b>	<b>328</b>	<b>887</b>
05:00 PM	3	0	0	0	3	1	175	1	1	178	1	0	0	0	1	0	90	0	1	91	273
05:15 PM	1	0	2	0	3	1	133	2	0	136	2	0	1	0	3	1	84	1	2	88	230
05:30 PM	0	1	1	0	2	2	154	1	0	157	2	0	3	0	5	1	67	1	3	72	236
05:45 PM	2	0	2	0	4	4	127	0	1	132	0	0	0	0	0	0	72	3	1	76	212
<b>Total</b>	<b>6</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>12</b>	<b>8</b>	<b>589</b>	<b>4</b>	<b>2</b>	<b>603</b>	<b>5</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>9</b>	<b>2</b>	<b>313</b>	<b>5</b>	<b>7</b>	<b>327</b>	<b>951</b>
<b>Grand Total</b>	<b>22</b>	<b>1</b>	<b>11</b>	<b>2</b>	<b>36</b>	<b>23</b>	<b>2309</b>	<b>11</b>	<b>8</b>	<b>2351</b>	<b>26</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>36</b>	<b>13</b>	<b>2357</b>	<b>12</b>	<b>19</b>	<b>2401</b>	<b>4824</b>
Apprch %	61.1	2.8	30.6	5.6		1	98.2	0.5	0.3		72.2	0	27.8	0		0.5	98.2	0.5	0.8		
Total %	0.5	0	0.2	0	0.7	0.5	47.9	0.2	0.2	48.7	0.5	0	0.2	0	0.7	0.3	48.9	0.2	0.4	49.8	

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Observatory

Site Code : 12222222

Start Date : 8/31/2021

Page No : 2

Groups Printed- Passenger Veh - Trucks

	Observatory From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	
Passenger Veh	21	1	11	2	35	22	2250	10	8	2290	25	0	10	0	35	13	2295	12	19	2339	4699
% Passenger Veh	95.5	100	100	100	97.2	95.7	97.4	90.9	100	97.4	96.2	0	100	0	97.2	100	97.4	100	100	97.4	97.4
Trucks	1	0	0	0	1	1	59	1	0	61	1	0	0	0	1	0	62	0	0	62	125
% Trucks	4.5	0	0	0	2.8	4.3	2.6	9.1	0	2.6	3.8	0	0	0	2.8	0	2.6	0	0	2.6	2.6

# Data Collection Group

Attachment E  
LSmith@DataCollectionGroup.net

File Name : JPA and Observatory  
Site Code : 12222222  
Start Date : 8/31/2021  
Page No : 3

Start Time	Observatory From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	0	0	0	1	0	81	0	0	81	0	0	1	0	1	0	131	0	4	135	218
07:45 AM	0	0	0	2	2	0	80	1	0	81	0	0	0	0	0	0	140	0	0	140	223
08:00 AM	1	0	0	0	1	1	66	1	0	68	1	0	0	0	1	0	117	0	0	117	187
08:15 AM	1	0	0	0	1	0	51	0	2	53	3	0	0	0	3	0	114	0	2	116	173
Total Volume	3	0	0	2	5	1	278	2	2	283	4	0	1	0	5	0	502	0	6	508	801
% App. Total	60	0	0	40		0.4	98.2	0.7	0.7		80	0	20	0		0	98.8	0	1.2		
PHF	.750	.000	.000	.250	.625	.250	.858	.500	.250	.873	.333	.000	.250	.000	.417	.000	.896	.000	.375	.907	.898
Passenger Veh	3	0	0	2	5	1	268	1	2	272	3	0	1	0	4	0	491	0	6	497	778
% Passenger Veh	100	0	0	100	100	100	96.4	50.0	100	96.1	75.0	0	100	0	80.0	0	97.8	0	100	97.8	97.1
Trucks	0	0	0	0	0	0	10	1	0	11	1	0	0	0	1	0	11	0	0	11	23
% Trucks	0	0	0	0	0	0	3.6	50.0	0	3.9	25.0	0	0	0	20.0	0	2.2	0	0	2.2	2.9

# Attachment E Data Collection Group

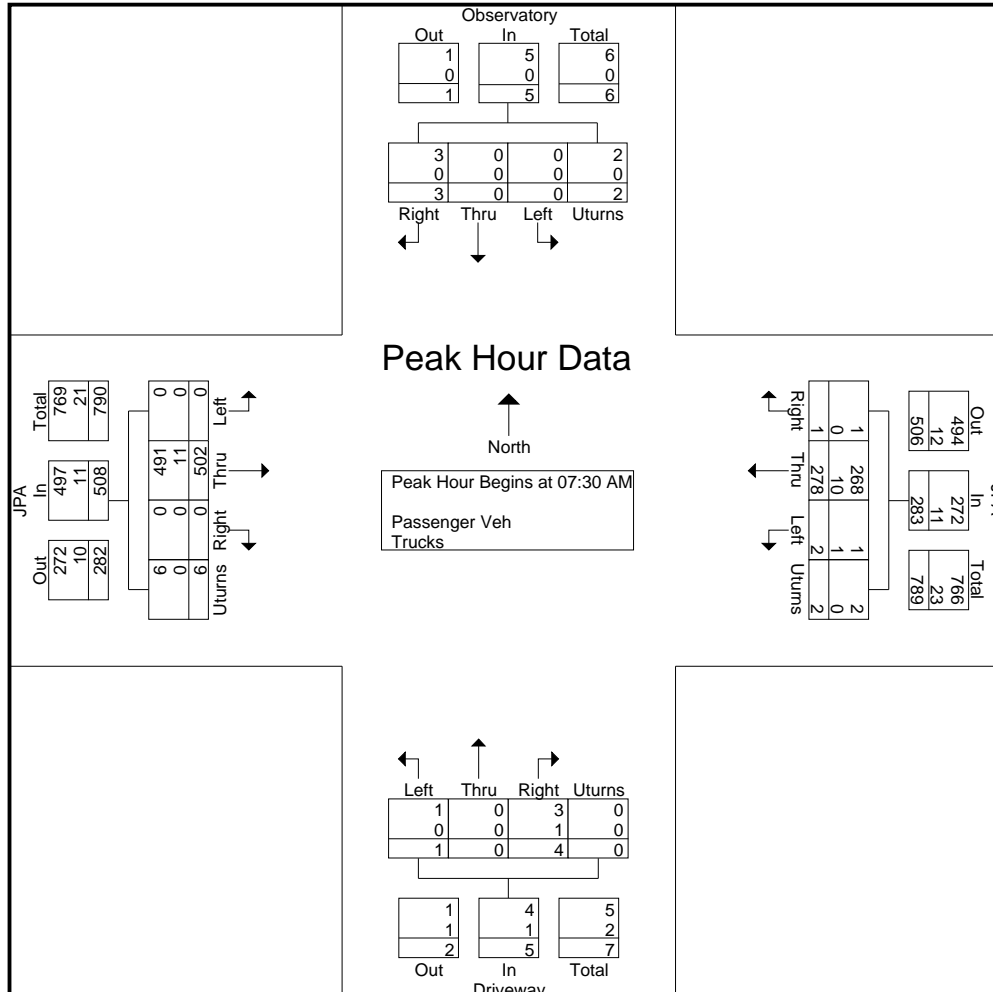
LSmith@DataCollectionGroup.net

File Name : JPA and Observatory

Site Code : 12222222

Start Date : 8/31/2021

Page No : 4



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Observatory  
 Site Code : 12222222  
 Start Date : 8/31/2021  
 Page No : 5

Start Time	Observatory From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	0	0	0	0	3	102	0	1	106	1	0	0	0	1	0	104	1	0	105	212
12:15 PM	1	0	0	0	1	3	98	0	0	101	0	0	0	0	0	1	107	0	1	109	211
12:30 PM	0	0	0	0	0	0	81	0	0	81	1	0	0	0	1	1	101	0	0	102	184
12:45 PM	0	0	0	0	0	0	96	2	0	98	1	0	2	0	3	1	114	0	1	116	217
Total Volume	1	0	0	0	1	6	377	2	1	386	3	0	2	0	5	3	426	1	2	432	824
% App. Total	100	0	0	0		1.6	97.7	0.5	0.3		60	0	40	0		0.7	98.6	0.2	0.5		
PHF	.250	.000	.000	.000	.250	.500	.924	.250	.250	.910	.750	.000	.250	.000	.417	.750	.934	.250	.500	.931	.949
Passenger Veh	1	0	0	0	1	6	363	2	1	372	3	0	2	0	5	3	411	1	2	417	795
% Passenger Veh	100	0	0	0	100	100	96.3	100	100	96.4	100	0	100	0	100	100	96.5	100	100	96.5	96.5
Trucks	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	15	0	0	15	29
% Trucks	0	0	0	0	0	0	3.7	0	0	3.6	0	0	0	0	0	0	3.5	0	0	3.5	3.5

# Data Collection Group

Attachment E

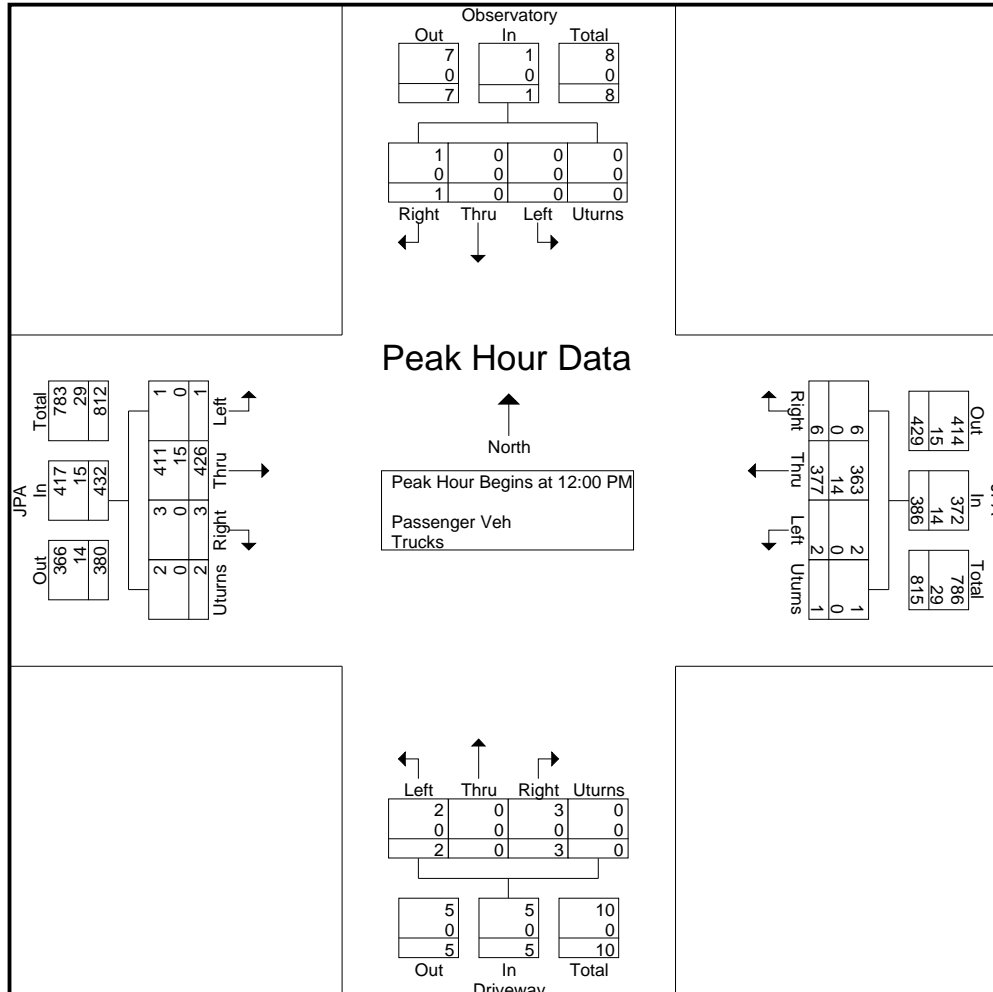
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File Name : JPA and Observatory

Site Code : 12222222

Start Date : 8/31/2021

Page No : 6



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Observatory  
 Site Code : 12222222  
 Start Date : 8/31/2021  
 Page No : 7

Start Time	Observatory From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	3	0	3	0	6	1	147	0	0	148	1	0	0	0	1	1	70	0	1	72	227
05:00 PM	3	0	0	0	3	1	175	1	1	178	1	0	0	0	1	0	90	0	1	91	273
05:15 PM	1	0	2	0	3	1	133	2	0	136	2	0	1	0	3	1	84	1	2	88	230
05:30 PM	0	1	1	0	2	2	154	1	0	157	2	0	3	0	5	1	67	1	3	72	236
Total Volume	7	1	6	0	14	5	609	4	1	619	6	0	4	0	10	3	311	2	7	323	966
% App. Total	50	7.1	42.9	0		0.8	98.4	0.6	0.2		60	0	40	0		0.9	96.3	0.6	2.2		
PHF	.583	.250	.500	.000	.583	.625	.870	.500	.250	.869	.750	.000	.333	.000	.500	.750	.864	.500	.583	.887	.885
Passenger Veh	7	1	6	0	14	5	599	4	1	609	6	0	4	0	10	3	307	2	7	319	952
% Passenger Veh	100	100	100	0	100	100	98.4	100	100	98.4	100	0	100	0	100	100	98.7	100	100	98.8	98.6
Trucks	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	4	0	0	4	14
% Trucks	0	0	0	0	0	0	1.6	0	0	1.6	0	0	0	0	0	0	1.3	0	0	1.2	1.4

# Attachment E Data Collection Group

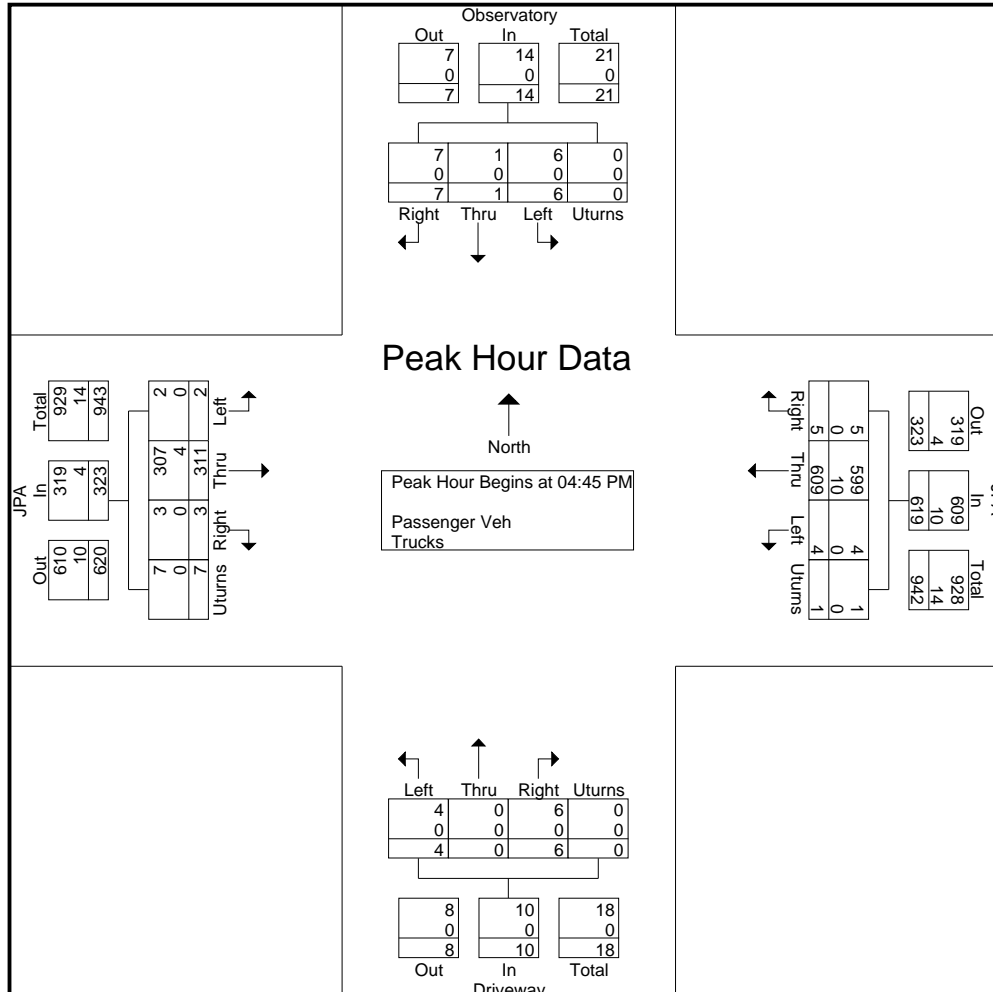
LSmith@DataCollectionGroup.net

File Name : JPA and Observatory

Site Code : 12222222

Start Date : 8/31/2021

Page No : 8





# Data Collection Group

Attachment E  
LSmith@DataCollectionGroup.net

File Name : JPA and Observatory  
Site Code : 12222222  
Start Date : 8/31/2021  
Page No : 1

## Groups Printed- Bikes - Peds

Start Time	Observatory From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	5	5	0	0	0	0	0	0	0	0	7	7	0	3	0	0	3	15
07:15 AM	0	0	0	2	2	0	1	0	0	1	0	0	0	12	12	0	3	1	0	4	19
07:30 AM	0	0	0	12	12	0	2	0	0	2	0	0	0	22	22	0	3	0	0	3	39
07:45 AM	0	0	0	2	2	0	2	0	0	2	0	0	0	11	11	0	7	0	0	7	22
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>21</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>52</b>	<b>52</b>	<b>0</b>	<b>16</b>	<b>1</b>	<b>0</b>	<b>17</b>	<b>95</b>
08:00 AM	0	0	0	11	11	0	0	0	1	1	0	0	0	5	5	0	6	0	0	6	23
08:15 AM	0	0	0	7	7	0	0	0	0	0	0	0	0	18	18	0	1	0	1	2	27
08:30 AM	0	0	0	6	6	0	1	0	1	2	0	0	0	12	12	0	5	0	0	5	25
08:45 AM	0	0	0	6	6	0	0	0	3	3	0	0	0	11	11	0	9	0	1	10	30
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>30</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>46</b>	<b>46</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>2</b>	<b>23</b>	<b>105</b>
*** BREAK ***																					
11:00 AM	0	0	0	2	2	0	1	0	3	4	0	0	0	2	2	0	1	0	0	1	9
11:15 AM	0	0	0	4	4	0	0	0	0	0	0	0	0	5	5	0	1	0	0	1	10
11:30 AM	0	0	0	2	2	0	1	0	0	1	0	0	0	2	2	0	1	0	0	1	6
11:45 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2	0	3	0	0	3	7
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>10</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>11</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>32</b>
12:00 PM	0	0	0	6	6	0	2	0	2	4	0	0	0	8	8	0	0	0	1	1	19
12:15 PM	0	0	0	6	6	0	4	0	0	4	0	0	0	7	7	0	3	0	0	3	20
12:30 PM	0	0	0	5	5	0	0	0	0	0	0	0	0	6	6	0	0	0	5	5	16
12:45 PM	0	0	0	4	4	1	0	0	0	1	0	0	0	2	2	0	3	0	0	3	10
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>21</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>2</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>23</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>12</b>	<b>65</b>
*** BREAK ***																					
04:00 PM	0	0	0	8	8	0	2	0	0	2	0	0	0	8	8	0	1	0	1	2	20
04:15 PM	0	0	0	5	5	0	5	0	0	5	0	0	0	8	8	0	1	0	0	1	19
04:30 PM	0	0	1	10	11	0	8	0	2	10	0	0	0	7	7	0	1	0	1	2	30
04:45 PM	0	0	0	11	11	0	9	1	0	10	0	0	0	3	3	0	0	0	0	0	24
<b>Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>34</b>	<b>35</b>	<b>0</b>	<b>24</b>	<b>1</b>	<b>2</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>26</b>	<b>26</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>5</b>	<b>93</b>
05:00 PM	0	0	0	11	11	1	5	1	3	10	0	0	0	17	17	0	2	0	0	2	40
05:15 PM	0	0	0	55	55	0	4	0	2	6	0	0	1	15	16	1	2	0	0	3	80
05:30 PM	0	0	0	12	12	0	3	0	0	3	0	0	0	10	10	0	3	0	1	4	29
05:45 PM	0	0	0	38	38	0	5	0	1	6	0	0	0	16	16	0	1	0	0	1	61
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>116</b>	<b>116</b>	<b>1</b>	<b>17</b>	<b>1</b>	<b>6</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>58</b>	<b>59</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>10</b>	<b>210</b>
<b>Grand Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>232</b>	<b>233</b>	<b>2</b>	<b>55</b>	<b>2</b>	<b>18</b>	<b>77</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>216</b>	<b>217</b>	<b>1</b>	<b>60</b>	<b>1</b>	<b>11</b>	<b>73</b>	<b>600</b>
Apprch %	0	0	0.4	99.6		2.6	71.4	2.6	23.4		0	0	0.5	99.5		1.4	82.2	1.4	15.1		
Total %	0	0	0.2	38.7	38.8	0.3	9.2	0.3	3	12.8	0	0	0.2	36	36.2	0.2	10	0.2	1.8	12.2	

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Observatory

Site Code : 12222222

Start Date : 8/31/2021

Page No : 2

Groups Printed- Bikes - Peds

	Observatory From North					JPA From East					Driveway From South					JPA From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Bikes	0	0	1	0	1	2	55	2	0	59	0	0	1	0	1	1	60	1	0	62	123
% Bikes	0	0	100	0	0.4	100	100	100	0	76.6	0	0	100	0	0.5	100	100	100	0	84.9	20.5
Peds	0	0	0	232	232	0	0	0	18	18	0	0	0	216	216	0	0	0	11	11	477
% Peds	0	0	0	100	99.6	0	0	0	100	23.4	0	0	0	100	99.5	0	0	0	100	15.1	79.5

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Maury

Site Code :

Start Date : 8/31/2021

Page No : 1

### Groups Printed- Passenger Veh - Trucks

Start Time	Maury From North					JPA From East					JPA From South					Fontaine From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
07:00 AM	3	5	2	0	10	4	28	11	0	43	17	34	30	0	81	18	56	23	0	97	231
07:15 AM	1	11	3	0	15	4	34	12	0	50	39	35	40	0	114	30	62	20	0	112	291
07:30 AM	4	9	2	0	15	3	69	8	0	80	39	68	66	0	173	25	86	23	0	134	402
07:45 AM	2	10	7	0	19	4	62	16	0	82	50	62	98	0	210	31	73	14	0	118	429
<b>Total</b>	<b>10</b>	<b>35</b>	<b>14</b>	<b>0</b>	<b>59</b>	<b>15</b>	<b>193</b>	<b>47</b>	<b>0</b>	<b>255</b>	<b>145</b>	<b>199</b>	<b>234</b>	<b>0</b>	<b>578</b>	<b>104</b>	<b>277</b>	<b>80</b>	<b>0</b>	<b>461</b>	<b>1353</b>
08:00 AM	5	14	8	0	27	11	39	18	0	68	38	55	77	0	170	45	72	18	0	135	400
08:15 AM	3	16	3	0	22	4	44	11	0	59	50	47	68	0	165	35	62	13	0	110	356
08:30 AM	8	19	7	0	34	3	44	15	0	62	54	44	70	0	168	31	70	14	0	115	379
08:45 AM	6	14	4	0	24	3	30	17	0	50	51	47	61	0	159	36	79	10	0	125	358
<b>Total</b>	<b>22</b>	<b>63</b>	<b>22</b>	<b>0</b>	<b>107</b>	<b>21</b>	<b>157</b>	<b>61</b>	<b>0</b>	<b>239</b>	<b>193</b>	<b>193</b>	<b>276</b>	<b>0</b>	<b>662</b>	<b>147</b>	<b>283</b>	<b>55</b>	<b>0</b>	<b>485</b>	<b>1493</b>
11:00 AM	4	23	3	0	30	6	44	39	0	89	24	15	28	0	67	30	54	10	0	94	280
11:15 AM	9	18	3	0	30	6	32	22	0	60	21	23	26	0	70	35	41	6	0	82	242
11:30 AM	8	24	7	0	39	4	51	25	0	80	24	23	32	0	79	33	48	9	0	90	288
11:45 AM	13	28	6	0	47	5	44	24	0	73	33	15	42	0	90	35	74	11	0	120	330
<b>Total</b>	<b>34</b>	<b>93</b>	<b>19</b>	<b>0</b>	<b>146</b>	<b>21</b>	<b>171</b>	<b>110</b>	<b>0</b>	<b>302</b>	<b>102</b>	<b>76</b>	<b>128</b>	<b>0</b>	<b>306</b>	<b>133</b>	<b>217</b>	<b>36</b>	<b>0</b>	<b>386</b>	<b>1140</b>
12:00 PM	6	36	4	0	46	4	58	35	0	97	19	22	30	1	72	31	68	13	0	112	327
12:15 PM	14	29	7	0	50	9	54	34	0	97	43	21	27	0	91	47	58	16	0	121	359
12:30 PM	10	30	11	0	51	8	46	29	0	83	34	19	30	0	83	34	52	9	0	95	312
12:45 PM	12	21	9	0	42	3	58	27	0	88	33	23	44	0	100	32	79	8	0	119	349
<b>Total</b>	<b>42</b>	<b>116</b>	<b>31</b>	<b>0</b>	<b>189</b>	<b>24</b>	<b>216</b>	<b>125</b>	<b>0</b>	<b>365</b>	<b>129</b>	<b>85</b>	<b>131</b>	<b>1</b>	<b>346</b>	<b>144</b>	<b>257</b>	<b>46</b>	<b>0</b>	<b>447</b>	<b>1347</b>
04:00 PM	14	49	8	0	71	7	75	28	0	110	15	20	53	0	88	51	44	5	0	100	369
04:15 PM	12	41	8	0	61	10	81	48	0	139	32	17	37	0	86	65	57	5	0	127	413
04:30 PM	16	64	13	0	93	6	81	51	0	138	30	11	45	0	86	67	43	4	0	114	431
04:45 PM	14	69	11	0	94	5	80	54	0	139	26	29	41	0	96	59	33	9	0	101	430
<b>Total</b>	<b>56</b>	<b>223</b>	<b>40</b>	<b>0</b>	<b>319</b>	<b>28</b>	<b>317</b>	<b>181</b>	<b>0</b>	<b>526</b>	<b>103</b>	<b>77</b>	<b>176</b>	<b>0</b>	<b>356</b>	<b>242</b>	<b>177</b>	<b>23</b>	<b>0</b>	<b>442</b>	<b>1643</b>
05:00 PM	15	74	20	0	109	7	91	62	0	160	26	28	40	0	94	70	38	4	0	112	475
05:15 PM	10	84	11	0	105	13	79	48	0	140	30	25	52	0	107	68	42	6	0	116	468
05:30 PM	10	78	7	0	95	8	77	58	0	143	23	19	50	0	92	58	37	6	0	101	431
05:45 PM	10	59	12	0	81	13	69	57	0	139	27	25	50	0	102	45	42	15	0	102	424
<b>Total</b>	<b>45</b>	<b>295</b>	<b>50</b>	<b>0</b>	<b>390</b>	<b>41</b>	<b>316</b>	<b>225</b>	<b>0</b>	<b>582</b>	<b>106</b>	<b>97</b>	<b>192</b>	<b>0</b>	<b>395</b>	<b>241</b>	<b>159</b>	<b>31</b>	<b>0</b>	<b>431</b>	<b>1798</b>
<b>Grand Total</b>	<b>209</b>	<b>825</b>	<b>176</b>	<b>0</b>	<b>1210</b>	<b>150</b>	<b>1370</b>	<b>749</b>	<b>0</b>	<b>2269</b>	<b>778</b>	<b>727</b>	<b>1137</b>	<b>1</b>	<b>2643</b>	<b>1011</b>	<b>1370</b>	<b>271</b>	<b>0</b>	<b>2652</b>	<b>8774</b>
<b>Apprch %</b>	<b>17.3</b>	<b>68.2</b>	<b>14.5</b>	<b>0</b>		<b>6.6</b>	<b>60.4</b>	<b>33</b>	<b>0</b>		<b>29.4</b>	<b>27.5</b>	<b>43</b>	<b>0</b>		<b>38.1</b>	<b>51.7</b>	<b>10.2</b>	<b>0</b>		
<b>Total %</b>	<b>2.4</b>	<b>9.4</b>	<b>2</b>	<b>0</b>	<b>13.8</b>	<b>1.7</b>	<b>15.6</b>	<b>8.5</b>	<b>0</b>	<b>25.9</b>	<b>8.9</b>	<b>8.3</b>	<b>13</b>	<b>0</b>	<b>30.1</b>	<b>11.5</b>	<b>15.6</b>	<b>3.1</b>	<b>0</b>	<b>30.2</b>	

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Maury

Site Code :

Start Date : 8/31/2021

Page No : 2

Groups Printed- Passenger Veh - Trucks

	Maury From North					JPA From East					JPA From South					Fontaine From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Passenger Veh	197	814	155	0	1166	119	1331	735	0	2185	766	705	1110	1	2582	985	1325	258	0	2568	8501
% Passenger Veh	94.3	98.7	88.1	0	96.4	79.3	97.2	98.1	0	96.3	98.5	97	97.6	100	97.7	97.4	96.7	95.2	0	96.8	96.9
Trucks	12	11	21	0	44	31	39	14	0	84	12	22	27	0	61	26	45	13	0	84	273
% Trucks	5.7	1.3	11.9	0	3.6	20.7	2.8	1.9	0	3.7	1.5	3	2.4	0	2.3	2.6	3.3	4.8	0	3.2	3.1

# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

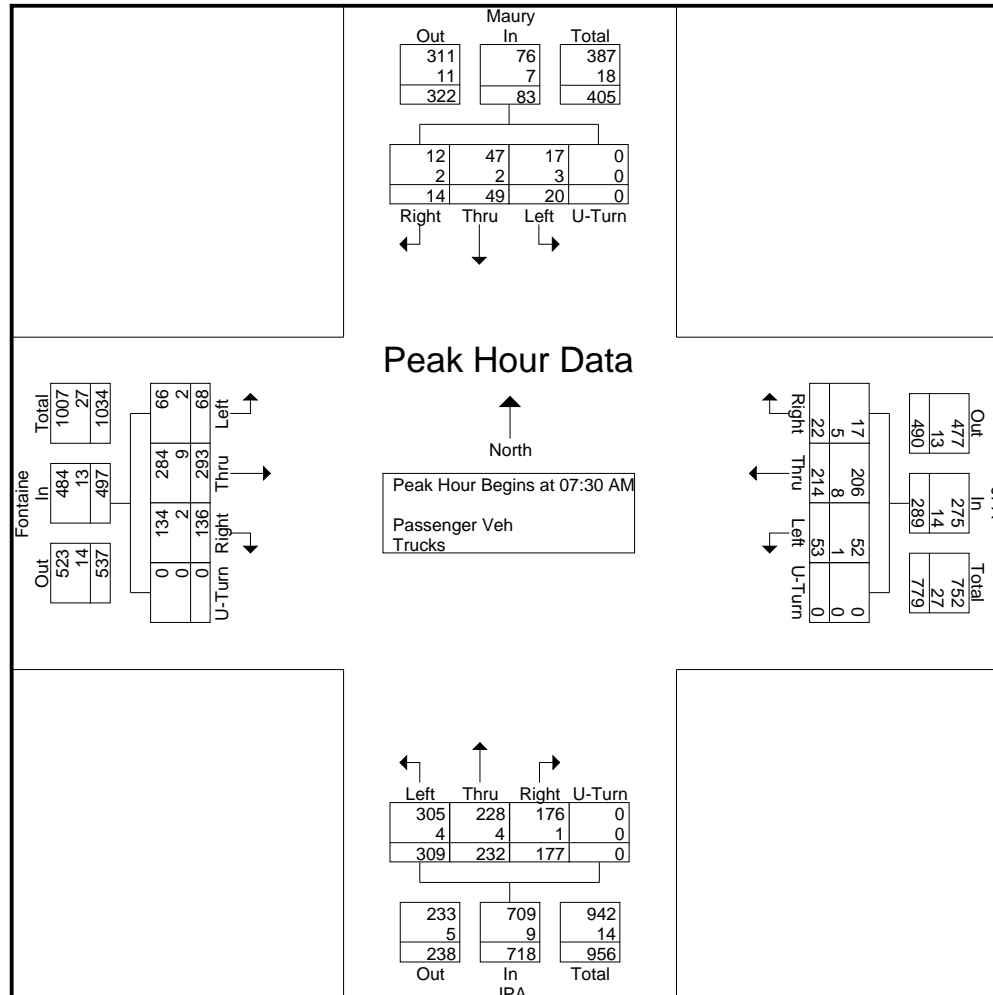
File Name : JPA and Maury  
 Site Code :  
 Start Date : 8/31/2021  
 Page No : 3

Start Time	Maury From North					JPA From East					JPA From South					Fontaine From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	4	9	2	0	15	3	<b>69</b>	8	0	80	39	<b>68</b>	66	0	173	25	<b>86</b>	<b>23</b>	0	134	402
07:45 AM	2	10	7	0	19	4	62	16	0	<b>82</b>	<b>50</b>	62	<b>98</b>	0	<b>210</b>	31	73	14	0	118	<b>429</b>
08:00 AM	<b>5</b>	14	<b>8</b>	0	<b>27</b>	<b>11</b>	39	<b>18</b>	0	68	38	55	77	0	170	<b>45</b>	72	18	0	<b>135</b>	400
08:15 AM	3	<b>16</b>	3	0	22	4	44	11	0	59	50	47	68	0	165	35	62	13	0	110	356
Total Volume	14	49	20	0	83	22	214	53	0	289	177	232	309	0	718	136	293	68	0	497	1587
% App. Total	16.9	59	24.1	0		7.6	74	18.3	0		24.7	32.3	43	0		27.4	59	13.7	0		
PHF	.700	.766	.625	.000	.769	.500	.775	.736	.000	.881	.885	.853	.788	.000	.855	.756	.852	.739	.000	.920	.925
Passenger Veh	12	47	17	0	76	17	206	52	0	275	176	228	305	0	709	134	284	66	0	484	1544
% Passenger Veh	85.7	95.9	85.0	0	91.6	77.3	96.3	98.1	0	95.2	99.4	98.3	98.7	0	98.7	98.5	96.9	97.1	0	97.4	97.3
Trucks	2	2	3	0	7	5	8	1	0	14	1	4	4	0	9	2	9	2	0	13	43
% Trucks	14.3	4.1	15.0	0	8.4	22.7	3.7	1.9	0	4.8	0.6	1.7	1.3	0	1.3	1.5	3.1	2.9	0	2.6	2.7

# Attachment E Data Collection Group

LSmith@DataCollectionGroup.net

File Name : JPA and Maury  
 Site Code :  
 Start Date : 8/31/2021  
 Page No : 4



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Maury

Site Code :

Start Date : 8/31/2021

Page No : 5

Start Time	Maury From North					JPA From East					JPA From South					Fontaine From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	6	<b>36</b>	4	0	46	4	<b>58</b>	<b>35</b>	0	<b>97</b>	19	22	30	<b>1</b>	72	31	68	13	0	112	327
12:15 PM	<b>14</b>	29	7	0	50	<b>9</b>	54	34	0	97	<b>43</b>	21	27	0	91	<b>47</b>	58	<b>16</b>	0	<b>121</b>	<b>359</b>
12:30 PM	10	30	<b>11</b>	0	<b>51</b>	8	46	29	0	83	34	19	30	0	83	34	52	9	0	95	312
12:45 PM	12	21	9	0	42	3	58	27	0	88	33	<b>23</b>	<b>44</b>	0	<b>100</b>	32	<b>79</b>	8	0	119	349
Total Volume	42	116	31	0	189	24	216	125	0	365	129	85	131	1	346	144	257	46	0	447	1347
% App. Total	22.2	61.4	16.4	0		6.6	59.2	34.2	0		37.3	24.6	37.9	0.3		32.2	57.5	10.3	0		
PHF	.750	.806	.705	.000	.926	.667	.931	.893	.000	.941	.750	.924	.744	.250	.865	.766	.813	.719	.000	.924	.938
Passenger Veh	38	116	26	0	180	19	204	121	0	344	126	82	127	1	336	140	248	43	0	431	1291
% Passenger Veh	90.5	100	83.9	0	95.2	79.2	94.4	96.8	0	94.2	97.7	96.5	96.9	100	97.1	97.2	96.5	93.5	0	96.4	95.8
Trucks	4	0	5	0	9	5	12	4	0	21	3	3	4	0	10	4	9	3	0	16	56
% Trucks	9.5	0	16.1	0	4.8	20.8	5.6	3.2	0	5.8	2.3	3.5	3.1	0	2.9	2.8	3.5	6.5	0	3.6	4.2

# Attachment E Data Collection Group

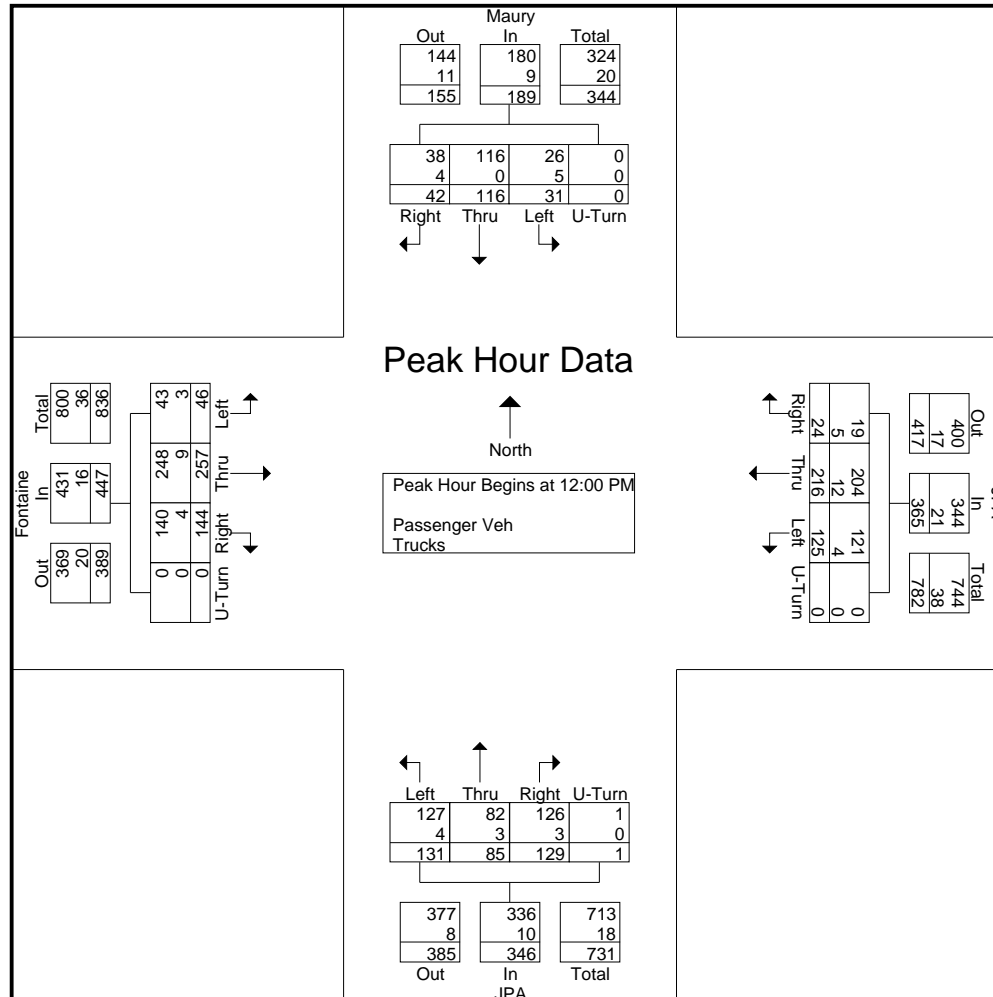
LSmith@DataCollectionGroup.net

File Name : JPA and Maury

Site Code :

Start Date : 8/31/2021

Page No : 6





# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

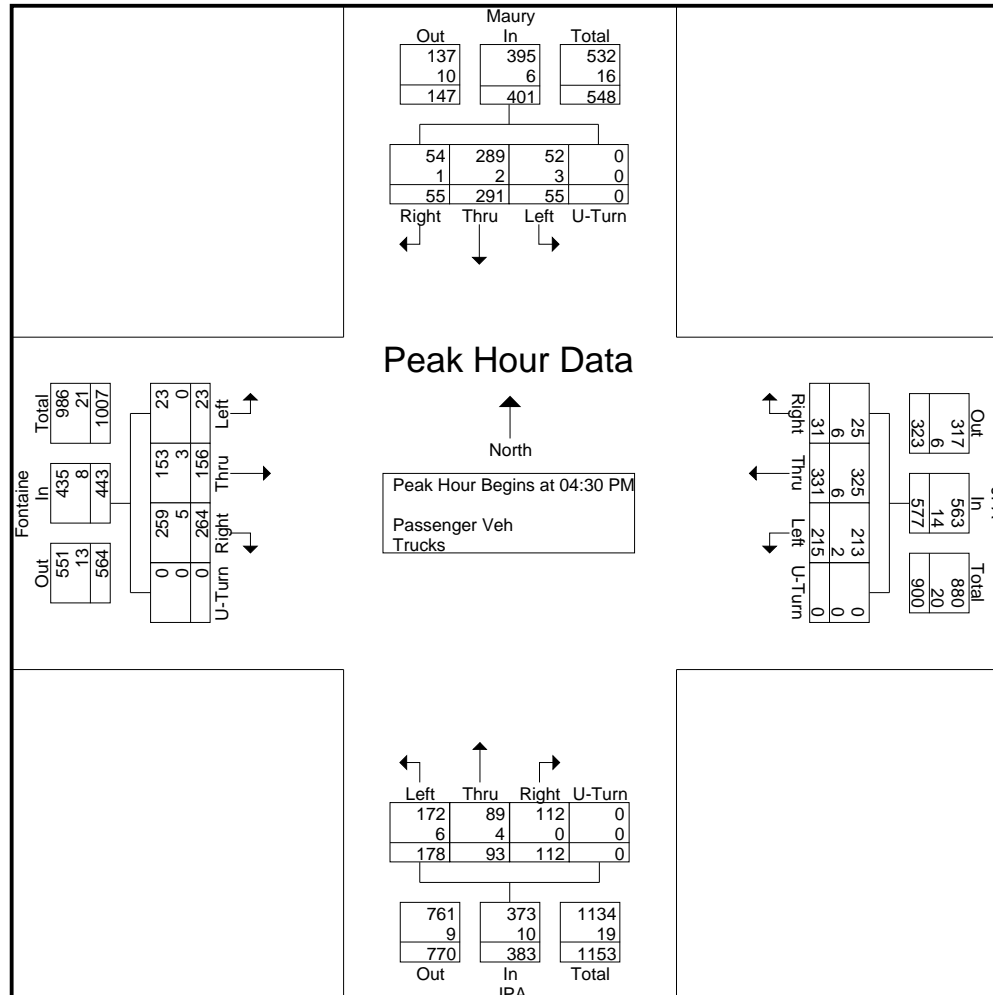
File Name : JPA and Maury  
 Site Code :  
 Start Date : 8/31/2021  
 Page No : 7

Start Time	Maury From North					JPA From East					JPA From South					Fontaine From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	16	64	13	0	93	6	81	51	0	138	30	11	45	0	86	67	43	4	0	114	431
04:45 PM	14	69	11	0	94	5	80	54	0	139	26	29	41	0	96	59	33	9	0	101	430
05:00 PM	15	74	20	0	109	7	91	62	0	160	26	28	40	0	94	70	38	4	0	112	475
05:15 PM	10	84	11	0	105	13	79	48	0	140	30	25	52	0	107	68	42	6	0	116	468
Total Volume	55	291	55	0	401	31	331	215	0	577	112	93	178	0	383	264	156	23	0	443	1804
% App. Total	13.7	72.6	13.7	0		5.4	57.4	37.3	0		29.2	24.3	46.5	0		59.6	35.2	5.2	0		
PHF	.859	.866	.688	.000	.920	.596	.909	.867	.000	.902	.933	.802	.856	.000	.895	.943	.907	.639	.000	.955	.949
Passenger Veh	54	289	52	0	395	25	325	213	0	563	112	89	172	0	373	259	153	23	0	435	1766
% Passenger Veh	98.2	99.3	94.5	0	98.5	80.6	98.2	99.1	0	97.6	100	95.7	96.6	0	97.4	98.1	98.1	100	0	98.2	97.9
Trucks	1	2	3	0	6	6	6	2	0	14	0	4	6	0	10	5	3	0	0	8	38
% Trucks	1.8	0.7	5.5	0	1.5	19.4	1.8	0.9	0	2.4	0	4.3	3.4	0	2.6	1.9	1.9	0	0	1.8	2.1

# Attachment E Data Collection Group

LSmith@DataCollectionGroup.net

File Name : JPA and Maury  
 Site Code :  
 Start Date : 8/31/2021  
 Page No : 8



# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Maury

Site Code :

Start Date : 8/31/2021

Page No : 1

Groups Printed- Bikes - Peds

Start Time	Maury From North					JPA From East					JPA From South					Fontaine From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	1	1	0	0	0	9	9	1	1	0	0	2	0	0	0	0	0	12
07:15 AM	0	1	0	2	3	0	1	0	6	7	1	1	0	3	5	0	0	0	2	2	17
07:30 AM	0	0	0	3	3	0	2	0	3	5	0	3	0	3	6	0	0	0	1	1	15
07:45 AM	0	0	0	1	1	0	1	1	1	3	3	2	0	6	11	0	0	0	6	6	21
<b>Total</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>8</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>19</b>	<b>24</b>	<b>5</b>	<b>7</b>	<b>0</b>	<b>12</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>9</b>	<b>65</b>
08:00 AM	0	2	0	2	4	0	0	0	8	8	6	3	0	2	11	0	1	0	3	4	27
08:15 AM	0	1	0	0	1	0	0	0	11	11	0	4	0	0	4	0	1	0	6	7	23
08:30 AM	0	1	0	0	1	0	0	0	5	5	1	0	0	2	3	1	1	0	5	7	16
08:45 AM	0	0	0	2	2	0	1	0	13	14	4	0	1	8	13	1	1	0	1	3	32
<b>Total</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>37</b>	<b>38</b>	<b>11</b>	<b>7</b>	<b>1</b>	<b>12</b>	<b>31</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>15</b>	<b>21</b>	<b>98</b>
11:00 AM	0	1	0	1	2	0	0	1	2	3	1	2	0	3	6	1	1	0	1	3	14
11:15 AM	0	0	0	1	1	0	0	0	5	5	0	1	0	2	3	1	1	0	2	4	13
11:30 AM	0	2	0	1	3	0	0	1	1	2	1	1	0	3	5	0	0	0	0	0	10
11:45 AM	0	0	0	0	0	0	0	2	1	3	1	2	0	0	3	1	0	0	1	2	8
<b>Total</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>9</b>	<b>13</b>	<b>3</b>	<b>6</b>	<b>0</b>	<b>8</b>	<b>17</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>9</b>	<b>45</b>
12:00 PM	0	0	0	0	0	0	0	1	4	5	0	1	0	5	6	1	1	0	2	4	15
12:15 PM	1	1	0	1	3	0	0	4	5	9	2	6	0	1	9	0	0	0	2	2	23
12:30 PM	0	1	0	2	3	0	0	0	3	3	0	0	1	1	2	0	0	0	3	3	11
12:45 PM	0	0	0	2	2	0	0	0	2	2	2	2	0	0	4	0	0	0	2	2	10
<b>Total</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>14</b>	<b>19</b>	<b>4</b>	<b>9</b>	<b>1</b>	<b>7</b>	<b>21</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>9</b>	<b>11</b>	<b>59</b>
04:00 PM	0	2	0	4	6	0	0	0	2	2	0	0	0	3	3	0	0	0	6	6	17
04:15 PM	0	1	0	1	2	1	2	2	8	13	0	0	0	4	4	0	2	0	2	4	23
04:30 PM	0	6	1	0	7	0	0	6	7	13	0	0	1	6	7	0	0	0	2	2	29
04:45 PM	0	2	0	2	4	0	1	6	9	16	0	2	0	6	8	0	0	0	1	1	29
<b>Total</b>	<b>0</b>	<b>11</b>	<b>1</b>	<b>7</b>	<b>19</b>	<b>1</b>	<b>3</b>	<b>14</b>	<b>26</b>	<b>44</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>19</b>	<b>22</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>11</b>	<b>13</b>	<b>98</b>
05:00 PM	0	1	1	1	3	0	1	4	7	12	0	0	0	6	6	0	1	0	3	4	25
05:15 PM	0	4	0	0	4	0	0	2	39	41	0	0	1	5	6	0	0	0	5	5	56
05:30 PM	0	2	0	0	2	0	0	3	14	17	1	0	0	1	2	1	2	0	0	3	24
05:45 PM	0	0	0	3	3	0	0	4	31	35	2	1	0	0	3	0	0	0	1	1	42
<b>Total</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>4</b>	<b>12</b>	<b>0</b>	<b>1</b>	<b>13</b>	<b>91</b>	<b>105</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>12</b>	<b>17</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>9</b>	<b>13</b>	<b>147</b>
<b>Grand Total</b>	<b>1</b>	<b>28</b>	<b>2</b>	<b>30</b>	<b>61</b>	<b>1</b>	<b>9</b>	<b>37</b>	<b>196</b>	<b>243</b>	<b>26</b>	<b>32</b>	<b>4</b>	<b>70</b>	<b>132</b>	<b>7</b>	<b>12</b>	<b>0</b>	<b>57</b>	<b>76</b>	<b>512</b>
Apprch %	1.6	45.9	3.3	49.2		0.4	3.7	15.2	80.7		19.7	24.2	3	53		9.2	15.8	0	75		
Total %	0.2	5.5	0.4	5.9	11.9	0.2	1.8	7.2	38.3	47.5	5.1	6.2	0.8	13.7	25.8	1.4	2.3	0	11.1	14.8	

# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : JPA and Maury

Site Code :

Start Date : 8/31/2021

Page No : 2

Groups Printed- Bikes - Peds

	Maury From North					JPA From East					JPA From South					Fontaine From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Bikes	1	28	2	0	31	1	9	37	0	47	26	32	4	0	62	7	12	0	0	19	159
% Bikes	100	100	100	0	50.8	100	100	100	0	19.3	100	100	100	0	47	100	100	0	0	25	31.1
Peds	0	0	0	30	30	0	0	0	196	196	0	0	0	70	70	0	0	0	57	57	353
% Peds	0	0	0	100	49.2	0	0	0	100	80.7	0	0	0	100	53	0	0	0	100	75	68.9

# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : Maury and Stadium  
 Site Code : 23333333  
 Start Date : 8/31/2021  
 Page No : 1

Groups Printed- Passenger Veh - Trucks

Start Time	Alderman From North					Stadium From East					Maury From South					Stadium From West					Int. Total
	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	
07:00 AM	3	12	7	0	22	3	3	2	0	8	9	65	1	0	75	1	17	31	0	49	154
07:15 AM	8	9	9	0	26	4	1	1	0	6	12	72	1	0	85	1	16	32	0	49	166
07:30 AM	4	10	9	0	23	6	3	5	0	14	16	96	1	0	113	1	20	45	0	66	216
07:45 AM	10	16	6	0	32	9	2	4	0	15	10	84	0	0	94	3	21	45	0	69	210
<b>Total</b>	<b>25</b>	<b>47</b>	<b>31</b>	<b>0</b>	<b>103</b>	<b>22</b>	<b>9</b>	<b>12</b>	<b>0</b>	<b>43</b>	<b>47</b>	<b>317</b>	<b>3</b>	<b>0</b>	<b>367</b>	<b>6</b>	<b>74</b>	<b>153</b>	<b>0</b>	<b>233</b>	<b>746</b>
08:00 AM	6	24	8	0	38	8	2	7	0	17	14	70	1	0	85	1	19	11	0	31	171
08:15 AM	9	21	3	0	33	8	2	2	0	12	9	54	0	0	63	1	10	10	0	21	129
08:30 AM	6	31	4	0	41	5	5	3	0	13	9	58	0	0	67	1	13	15	0	29	150
08:45 AM	7	23	2	0	32	3	2	2	0	7	10	51	2	0	63	0	10	11	0	21	123
<b>Total</b>	<b>28</b>	<b>99</b>	<b>17</b>	<b>0</b>	<b>144</b>	<b>24</b>	<b>11</b>	<b>14</b>	<b>0</b>	<b>49</b>	<b>42</b>	<b>233</b>	<b>3</b>	<b>0</b>	<b>278</b>	<b>3</b>	<b>52</b>	<b>47</b>	<b>0</b>	<b>102</b>	<b>573</b>
*** BREAK ***																					
11:00 AM	4	32	6	0	42	2	4	6	0	12	4	27	1	0	32	1	6	6	0	13	99
11:15 AM	6	23	2	0	31	5	6	6	0	17	9	24	0	0	33	1	7	5	0	13	94
11:30 AM	13	29	1	0	43	3	8	9	0	20	11	30	1	0	42	1	4	7	0	12	117
11:45 AM	5	44	2	0	51	4	3	8	0	15	2	28	3	0	33	1	6	5	0	12	111
<b>Total</b>	<b>28</b>	<b>128</b>	<b>11</b>	<b>0</b>	<b>167</b>	<b>14</b>	<b>21</b>	<b>29</b>	<b>0</b>	<b>64</b>	<b>26</b>	<b>109</b>	<b>5</b>	<b>0</b>	<b>140</b>	<b>4</b>	<b>23</b>	<b>23</b>	<b>0</b>	<b>50</b>	<b>421</b>
12:00 PM	3	45	4	0	52	6	7	8	0	21	7	44	1	0	52	0	0	4	0	4	129
12:15 PM	11	34	4	0	49	9	3	11	0	23	7	49	0	0	56	0	6	7	0	13	141
12:30 PM	10	38	5	0	53	4	6	16	0	26	4	27	2	0	33	0	3	6	0	9	121
12:45 PM	10	30	3	0	43	2	6	15	0	23	8	27	2	0	37	2	3	3	0	8	111
<b>Total</b>	<b>34</b>	<b>147</b>	<b>16</b>	<b>0</b>	<b>197</b>	<b>21</b>	<b>22</b>	<b>50</b>	<b>0</b>	<b>93</b>	<b>26</b>	<b>147</b>	<b>5</b>	<b>0</b>	<b>178</b>	<b>2</b>	<b>12</b>	<b>20</b>	<b>0</b>	<b>34</b>	<b>502</b>
*** BREAK ***																					
04:00 PM	16	64	13	0	93	10	14	18	0	42	4	26	1	0	31	0	3	4	0	7	173
04:15 PM	20	59	11	0	90	6	23	24	0	53	2	32	3	0	37	2	3	3	0	8	188
04:30 PM	21	74	8	0	103	2	21	38	0	61	2	15	1	0	18	2	5	7	0	14	196
04:45 PM	23	84	12	0	119	9	30	32	0	71	4	41	1	0	46	1	5	5	0	11	247
<b>Total</b>	<b>80</b>	<b>281</b>	<b>44</b>	<b>0</b>	<b>405</b>	<b>27</b>	<b>88</b>	<b>112</b>	<b>0</b>	<b>227</b>	<b>12</b>	<b>114</b>	<b>6</b>	<b>0</b>	<b>132</b>	<b>5</b>	<b>16</b>	<b>19</b>	<b>0</b>	<b>40</b>	<b>804</b>
05:00 PM	25	76	10	0	111	1	35	34	0	70	6	36	0	0	42	2	2	3	0	7	230
05:15 PM	19	78	12	0	109	5	40	30	0	75	2	38	3	0	43	0	6	3	0	9	236
05:30 PM	20	87	6	0	113	5	24	29	0	58	4	30	2	0	36	0	3	8	0	11	218
05:45 PM	8	70	10	0	88	6	16	15	0	37	6	31	1	0	38	3	4	8	0	15	178
<b>Total</b>	<b>72</b>	<b>311</b>	<b>38</b>	<b>0</b>	<b>421</b>	<b>17</b>	<b>115</b>	<b>108</b>	<b>0</b>	<b>240</b>	<b>18</b>	<b>135</b>	<b>6</b>	<b>0</b>	<b>159</b>	<b>5</b>	<b>15</b>	<b>22</b>	<b>0</b>	<b>42</b>	<b>862</b>
<b>Grand Total</b>	<b>267</b>	<b>1013</b>	<b>157</b>	<b>0</b>	<b>1437</b>	<b>125</b>	<b>266</b>	<b>325</b>	<b>0</b>	<b>716</b>	<b>171</b>	<b>1055</b>	<b>28</b>	<b>0</b>	<b>1254</b>	<b>25</b>	<b>192</b>	<b>284</b>	<b>0</b>	<b>501</b>	<b>3908</b>
<b>Apprch %</b>	<b>18.6</b>	<b>70.5</b>	<b>10.9</b>	<b>0</b>		<b>17.5</b>	<b>37.2</b>	<b>45.4</b>	<b>0</b>		<b>13.6</b>	<b>84.1</b>	<b>2.2</b>	<b>0</b>		<b>5</b>	<b>38.3</b>	<b>56.7</b>	<b>0</b>		
<b>Total %</b>	<b>6.8</b>	<b>25.9</b>	<b>4</b>	<b>0</b>	<b>36.8</b>	<b>3.2</b>	<b>6.8</b>	<b>8.3</b>	<b>0</b>	<b>18.3</b>	<b>4.4</b>	<b>27</b>	<b>0.7</b>	<b>0</b>	<b>32.1</b>	<b>0.6</b>	<b>4.9</b>	<b>7.3</b>	<b>0</b>	<b>12.8</b>	

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : Maury and Stadium

Site Code : 23333333

Start Date : 8/31/2021

Page No : 2

Groups Printed- Passenger Veh - Trucks

	Alderman From North					Stadium From East					Maury From South					Stadium From West					Int. Total
	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	
Passenger Veh	232	999	86	0	1317	124	263	306	0	693	171	994	27	0	1192	25	192	282	0	499	3701
% Passenger Veh	86.9	98.6	54.8	0	91.6	99.2	98.9	94.2	0	96.8	100	94.2	96.4	0	95.1	100	100	99.3	0	99.6	94.7
Trucks	35	14	71	0	120	1	3	19	0	23	0	61	1	0	62	0	0	2	0	2	207
% Trucks	13.1	1.4	45.2	0	8.4	0.8	1.1	5.8	0	3.2	0	5.8	3.6	0	4.9	0	0	0.7	0	0.4	5.3

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : Maury and Stadium

Site Code : 23333333

Start Date : 8/31/2021

Page No : 3

Start Time	Alderman From North					Stadium From East					Maury From South					Stadium From West					Int. Total
	Right	Thru	Left	Uturn S	App. Total	Right	Thru	Left	Uturns	App. Total	Right	Thru	Left	Uturns	App. Total	Right	Thru	Left	Uturns	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	8	9	9	0	26	4	1	1	0	6	12	72	1	0	85	1	16	32	0	49	166
07:30 AM	4	10	9	0	23	6	3	5	0	14	16	96	1	0	113	1	20	45	0	66	216
07:45 AM	10	16	6	0	32	9	2	4	0	15	10	84	0	0	94	3	21	45	0	69	210
08:00 AM	6	24	8	0	38	8	2	7	0	17	14	70	1	0	85	1	19	11	0	31	171
Total Volume	28	59	32	0	119	27	8	17	0	52	52	322	3	0	377	6	76	133	0	215	763
% App. Total	23.5	49.6	26.9	0		51.9	15.4	32.7	0		13.8	85.4	0.8	0		2.8	35.3	61.9	0		
PHF	.700	.615	.889	.000	.783	.750	.667	.607	.000	.765	.813	.839	.750	.000	.834	.500	.905	.739	.000	.779	.883
Passenger Veh	24	57	12	0	93	27	7	13	0	47	52	311	3	0	366	6	76	133	0	215	721
% Passenger Veh	85.7	96.6	37.5	0	78.2	100	87.5	76.5	0	90.4	100	96.6	100	0	97.1	100	100	100	0	100	94.5
Trucks	4	2	20	0	26	0	1	4	0	5	0	11	0	0	11	0	0	0	0	0	42
% Trucks	14.3	3.4	62.5	0	21.8	0	12.5	23.5	0	9.6	0	3.4	0	0	2.9	0	0	0	0	0	5.5

# Attachment E Data Collection Group

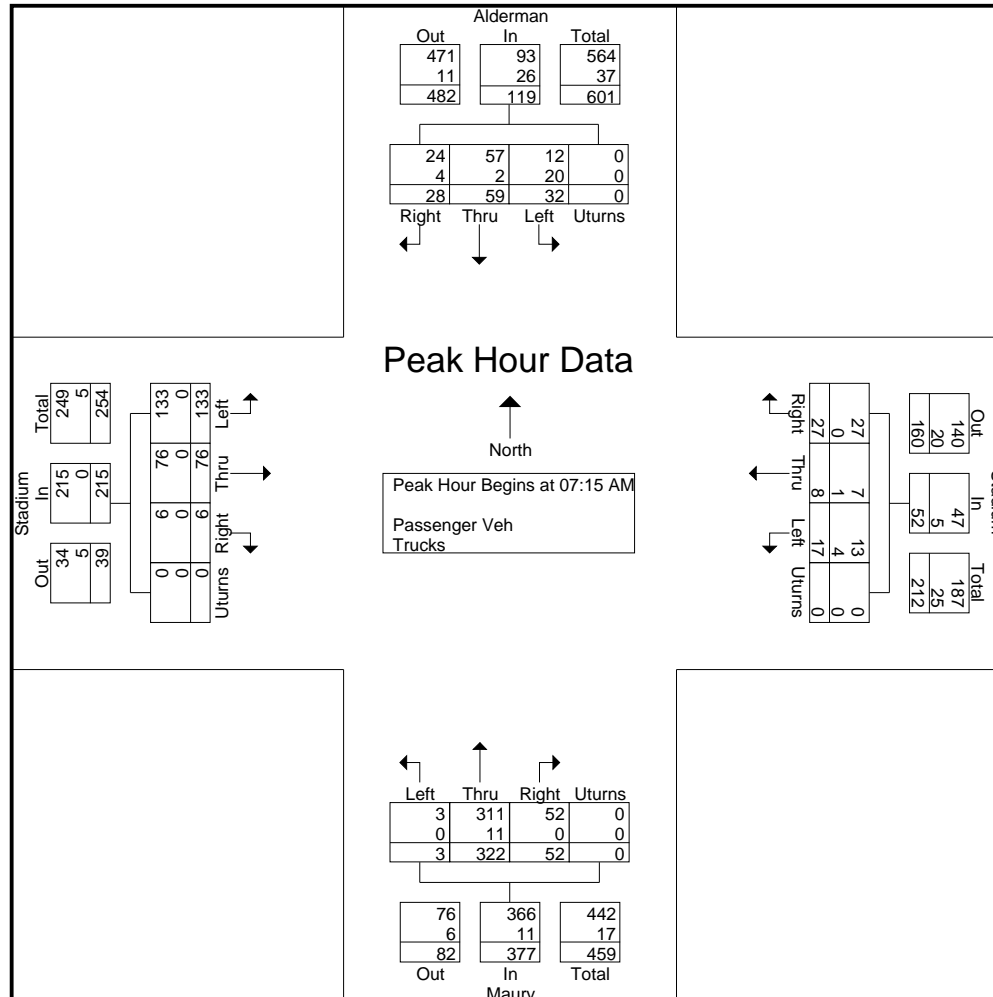
LSmith@DataCollectionGroup.net

File Name : Maury and Stadium

Site Code : 23333333

Start Date : 8/31/2021

Page No : 4





# Data Collection Group

Attachment E

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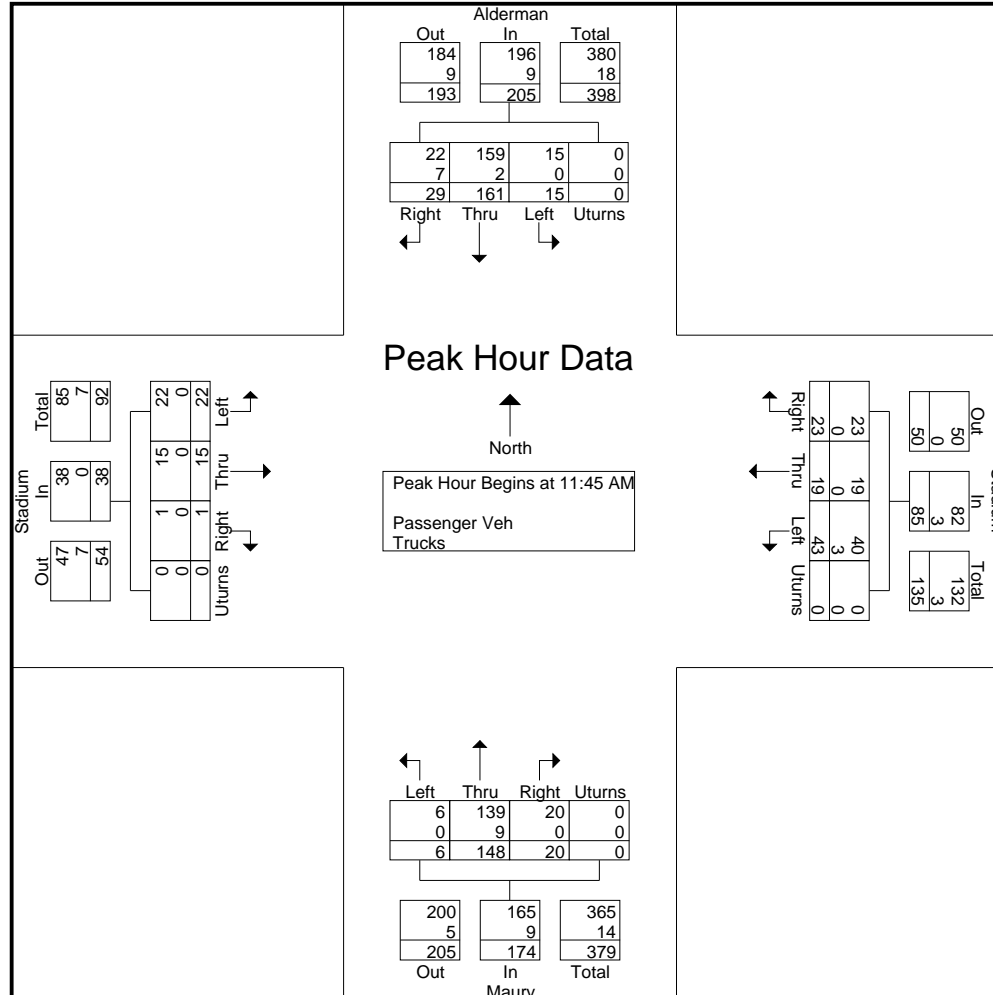
File Name : Maury and Stadium  
 Site Code : 23333333  
 Start Date : 8/31/2021  
 Page No : 5

Start Time	Alderman From North					Stadium From East					Maury From South					Stadium From West					Int. Total
	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45 AM																					
11:45 AM	5	44	2	0	51	4	3	8	0	15	2	28	3	0	33	1	6	5	0	12	111
12:00 PM	3	45	4	0	52	6	7	8	0	21	7	44	1	0	52	0	0	4	0	4	129
12:15 PM	11	34	4	0	49	9	3	11	0	23	7	49	0	0	56	0	6	7	0	13	141
12:30 PM	10	38	5	0	53	4	6	16	0	26	4	27	2	0	33	0	3	6	0	9	121
Total Volume	29	161	15	0	205	23	19	43	0	85	20	148	6	0	174	1	15	22	0	38	502
% App. Total	14.1	78.5	7.3	0		27.1	22.4	50.6	0		11.5	85.1	3.4	0		2.6	39.5	57.9	0		
PHF	.659	.894	.750	.000	.967	.639	.679	.672	.000	.817	.714	.755	.500	.000	.777	.250	.625	.786	.000	.731	.890
Passenger Veh	22	159	15	0	196	23	19	40	0	82	20	139	6	0	165	1	15	22	0	38	481
% Passenger Veh	75.9	98.8	100	0	95.6	100	100	93.0	0	96.5	100	93.9	100	0	94.8	100	100	100	0	100	95.8
Trucks	7	2	0	0	9	0	0	3	0	3	0	9	0	0	9	0	0	0	0	0	21
% Trucks	24.1	1.2	0	0	4.4	0	0	7.0	0	3.5	0	6.1	0	0	5.2	0	0	0	0	0	4.2

# Attachment E Data Collection Group

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File Name : Maury and Stadium  
 Site Code : 23333333  
 Start Date : 8/31/2021  
 Page No : 6



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : Maury and Stadium

Site Code : 23333333

Start Date : 8/31/2021

Page No : 7

Start Time	Alderman From North					Stadium From East					Maury From South					Stadium From West					Int. Total
	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	Right	Thru	Left	Utorns	App. Total	
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	23	84	12	0	119	9	30	32	0	71	4	41	1	0	46	1	5	5	0	11	247
05:00 PM	25	76	10	0	111	1	35	34	0	70	6	36	0	0	42	2	2	3	0	7	230
05:15 PM	19	78	12	0	109	5	40	30	0	75	2	38	3	0	43	0	6	3	0	9	236
05:30 PM	20	87	6	0	113	5	24	29	0	58	4	30	2	0	36	0	3	8	0	11	218
Total Volume	87	325	40	0	452	20	129	125	0	274	16	145	6	0	167	3	16	19	0	38	931
% App. Total	19.2	71.9	8.8	0		7.3	47.1	45.6	0		9.6	86.8	3.6	0		7.9	42.1	50	0		
PHF	.870	.934	.833	.000	.950	.556	.806	.919	.000	.913	.667	.884	.500	.000	.908	.375	.667	.594	.000	.864	.942
Passenger Veh	80	322	19	0	421	20	129	122	0	271	16	136	6	0	158	3	16	18	0	37	887
% Passenger Veh	92.0	99.1	47.5	0	93.1	100	100	97.6	0	98.9	100	93.8	100	0	94.6	100	100	94.7	0	97.4	95.3
Trucks	7	3	21	0	31	0	0	3	0	3	0	9	0	0	9	0	0	1	0	1	44
% Trucks	8.0	0.9	52.5	0	6.9	0	0	2.4	0	1.1	0	6.2	0	0	5.4	0	0	5.3	0	2.6	4.7

# Attachment E Data Collection Group

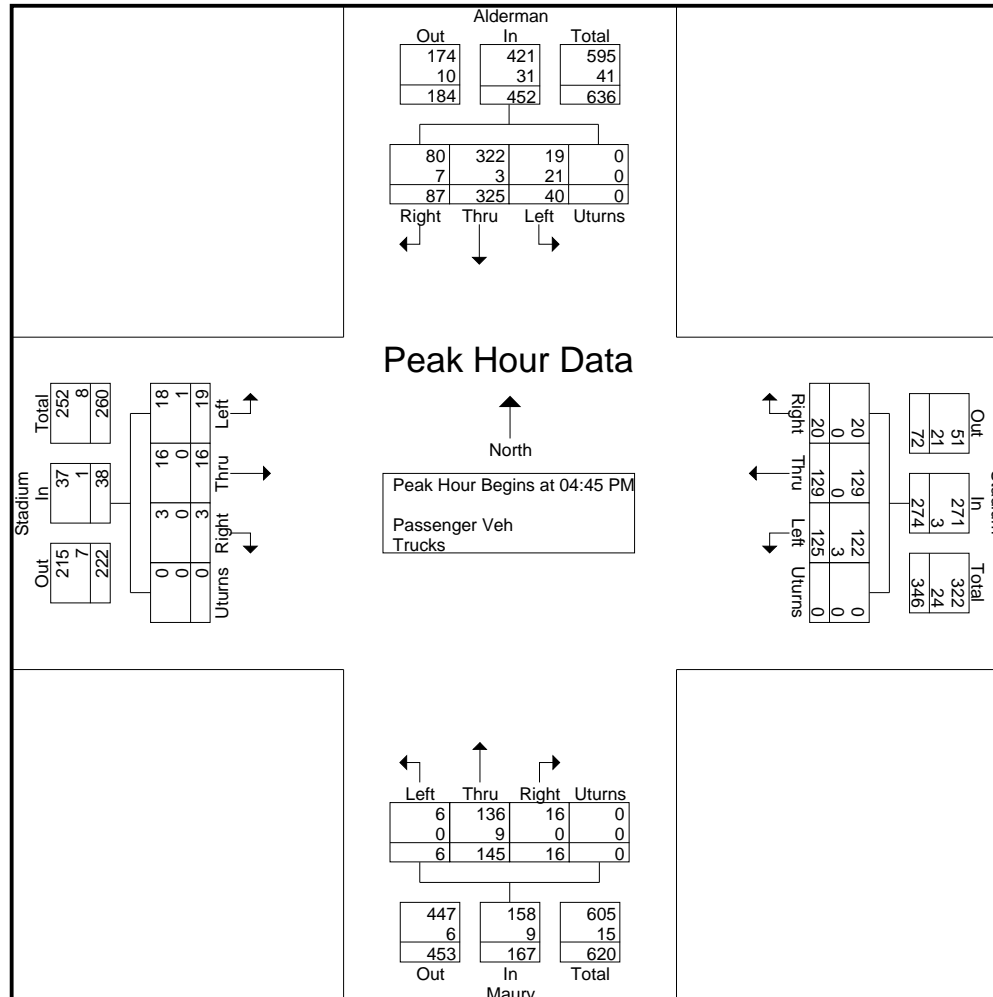
LSmith@DataCollectionGroup.net

File Name : Maury and Stadium

Site Code : 23333333

Start Date : 8/31/2021

Page No : 8



# Data Collection Group

Attachment E  
LSmith@DataCollectionGroup.net

File Name : Maury and Stadium  
Site Code : 23333333  
Start Date : 8/31/2021  
Page No : 1

## Groups Printed- Bikes - Peds

Start Time	Alderman From North					Stadium From East					Maury From South					Stadium From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	2	0	2	4	0	0	0	9	9	2	5	0	0	7	0	0	0	1	1	21
07:15 AM	0	1	0	6	7	0	0	0	7	7	0	2	0	1	3	0	1	1	3	5	22
07:30 AM	0	0	0	2	2	1	0	0	10	11	0	1	0	3	4	0	0	3	2	5	22
07:45 AM	0	0	0	1	1	0	0	0	6	6	0	5	0	0	5	0	0	1	5	6	18
<b>Total</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>11</b>	<b>14</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>33</b>	<b>2</b>	<b>13</b>	<b>0</b>	<b>4</b>	<b>19</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>11</b>	<b>17</b>	<b>83</b>
08:00 AM	0	0	0	2	2	0	0	0	16	16	0	2	0	2	4	0	1	3	1	5	27
08:15 AM	2	0	1	12	15	0	1	0	15	16	0	5	0	3	8	0	1	4	7	12	51
08:30 AM	0	1	0	12	13	0	0	0	16	16	0	1	0	2	3	0	0	1	7	8	40
08:45 AM	0	0	0	12	12	0	0	0	19	19	0	4	0	0	4	0	0	4	5	9	44
<b>Total</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>38</b>	<b>42</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>66</b>	<b>67</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>7</b>	<b>19</b>	<b>0</b>	<b>2</b>	<b>12</b>	<b>20</b>	<b>34</b>	<b>162</b>
*** BREAK ***																					
11:00 AM	1	2	0	5	8	1	1	0	11	13	0	3	0	4	7	0	0	1	3	4	32
11:15 AM	0	1	0	2	3	0	0	0	4	4	0	1	0	0	1	0	0	0	3	3	11
11:30 AM	1	1	0	5	7	1	0	0	2	3	0	0	0	1	1	0	0	2	3	5	16
11:45 AM	0	2	0	7	9	0	0	0	8	8	0	2	0	1	3	0	0	0	1	1	21
<b>Total</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>19</b>	<b>27</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>25</b>	<b>28</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>10</b>	<b>13</b>	<b>80</b>
12:00 PM	0	0	1	12	13	0	0	1	8	9	0	3	1	5	9	0	0	1	2	3	34
12:15 PM	2	3	0	9	14	0	1	0	15	16	1	8	0	3	12	0	1	1	6	8	50
12:30 PM	1	2	0	8	11	0	0	0	12	12	0	0	0	2	2	0	0	0	8	8	33
12:45 PM	2	1	0	5	8	0	0	0	4	4	0	2	0	1	3	0	0	0	1	1	16
<b>Total</b>	<b>5</b>	<b>6</b>	<b>1</b>	<b>34</b>	<b>46</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>39</b>	<b>41</b>	<b>1</b>	<b>13</b>	<b>1</b>	<b>11</b>	<b>26</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>17</b>	<b>20</b>	<b>133</b>
*** BREAK ***																					
04:00 PM	1	1	0	6	8	0	1	0	6	7	0	0	0	0	0	0	0	0	0	0	15
04:15 PM	1	3	0	3	7	0	0	0	12	12	0	1	1	3	5	0	0	1	9	10	34
04:30 PM	0	7	0	12	19	1	0	0	13	14	0	0	0	3	3	0	0	0	2	2	38
04:45 PM	3	6	0	5	14	0	1	1	13	15	1	0	0	3	4	0	0	3	6	9	42
<b>Total</b>	<b>5</b>	<b>17</b>	<b>0</b>	<b>26</b>	<b>48</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>44</b>	<b>48</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>9</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>17</b>	<b>21</b>	<b>129</b>
05:00 PM	3	2	0	14	19	0	0	0	16	16	0	1	0	2	3	0	1	1	4	6	44
05:15 PM	1	9	0	7	17	0	2	0	6	8	0	4	0	10	14	0	0	1	5	6	45
05:30 PM	2	5	0	4	11	0	0	0	11	11	0	1	0	4	5	0	0	2	2	4	31
05:45 PM	1	0	0	12	13	0	1	0	12	13	0	3	0	5	8	0	0	0	5	5	39
<b>Total</b>	<b>7</b>	<b>16</b>	<b>0</b>	<b>37</b>	<b>60</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>45</b>	<b>48</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>21</b>	<b>30</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>16</b>	<b>21</b>	<b>159</b>
<b>Grand Total</b>	<b>21</b>	<b>49</b>	<b>2</b>	<b>165</b>	<b>237</b>	<b>4</b>	<b>8</b>	<b>2</b>	<b>251</b>	<b>265</b>	<b>4</b>	<b>54</b>	<b>2</b>	<b>58</b>	<b>118</b>	<b>0</b>	<b>5</b>	<b>30</b>	<b>91</b>	<b>126</b>	<b>746</b>
Apprch %	8.9	20.7	0.8	69.6		1.5	3	0.8	94.7		3.4	45.8	1.7	49.2		0	4	23.8	72.2		
Total %	2.8	6.6	0.3	22.1	31.8	0.5	1.1	0.3	33.6	35.5	0.5	7.2	0.3	7.8	15.8	0	0.7	4	12.2	16.9	

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : Maury and Stadium

Site Code : 23333333

Start Date : 8/31/2021

Page No : 2

Groups Printed- Bikes - Peds

	Alderman From North					Stadium From East					Maury From South					Stadium From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Bikes	21	49	2	0	72	4	8	2	0	14	4	54	2	0	60	0	5	30	0	35	181
% Bikes	100	100	100	0	30.4	100	100	100	0	5.3	100	100	100	0	50.8	0	100	100	0	27.8	24.3
Peds	0	0	0	165	165	0	0	0	251	251	0	0	0	58	58	0	0	0	91	91	565
% Peds	0	0	0	100	69.6	0	0	0	100	94.7	0	0	0	100	49.2	0	0	0	100	72.2	75.7

# Data Collection Group

Attachment E  
LSmith@DataCollectionGroup.net

File Name : Stadium and Washington

Site Code : 11111111

Start Date : 8/31/2021

Page No : 1

## Groups Printed- Passenger Veh - Trucks

Start Time	From North					Stadium From East					Washington From South					Stadium From West					Int. Total
	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	
07:00 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	34	0	0	34	40
07:15 AM	0	0	0	0	0	0	8	0	0	8	0	0	1	0	1	1	34	0	0	35	44
07:30 AM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	1	46	0	0	47	56
07:45 AM	0	0	0	0	0	0	14	0	0	14	1	0	1	0	2	0	35	0	0	35	51
Total	0	0	0	0	0	0	37	0	0	37	1	0	2	0	3	2	149	0	0	151	191
08:00 AM	0	0	0	0	0	0	16	1	0	17	2	0	0	0	2	1	42	0	0	43	62
08:15 AM	0	0	0	0	0	0	11	0	0	11	1	0	0	0	1	1	20	0	0	21	33
08:30 AM	0	0	0	0	0	0	14	0	0	14	1	0	1	0	2	0	24	0	0	24	40
08:45 AM	0	0	0	0	0	0	7	4	0	11	0	0	1	0	1	1	17	0	0	18	30
Total	0	0	0	0	0	0	48	5	0	53	4	0	2	0	6	3	103	0	0	106	165
*** BREAK ***																					
11:00 AM	0	0	0	0	0	0	16	1	0	17	1	0	1	0	2	1	15	0	0	16	35
11:15 AM	0	0	0	0	0	0	14	1	0	15	0	0	2	0	2	3	14	0	0	17	34
11:30 AM	0	0	0	0	0	0	15	0	0	15	0	0	1	0	1	2	16	0	0	18	34
11:45 AM	0	0	0	0	0	0	16	2	0	18	2	0	1	0	3	1	11	0	0	12	33
Total	0	0	0	0	0	0	61	4	0	65	3	0	5	0	8	7	56	0	0	63	136
12:00 PM	0	0	0	0	0	0	22	1	0	23	1	0	1	0	2	2	9	0	0	11	36
12:15 PM	0	0	0	0	0	0	20	3	0	23	0	0	2	0	2	2	13	0	0	15	40
12:30 PM	0	0	0	0	0	0	27	1	0	28	1	0	0	0	1	4	11	0	0	15	44
12:45 PM	0	0	0	0	0	0	24	2	0	26	0	0	0	0	0	1	14	0	0	15	41
Total	0	0	0	0	0	0	93	7	0	100	2	0	3	0	5	9	47	0	0	56	161
*** BREAK ***																					
04:00 PM	0	0	0	0	0	0	37	0	0	37	2	0	0	0	2	2	17	0	0	19	58
04:15 PM	0	0	0	0	0	0	57	1	0	58	1	0	1	0	2	0	13	0	0	13	73
04:30 PM	0	0	0	0	0	0	63	0	0	63	2	0	0	0	2	0	16	0	0	16	81
04:45 PM	0	0	0	0	0	0	70	3	0	73	1	0	2	0	3	1	23	0	0	24	100
Total	0	0	0	0	0	0	227	4	0	231	6	0	3	0	9	3	69	0	0	72	312
05:00 PM	0	0	0	0	0	0	71	1	0	72	1	0	2	0	3	0	20	0	0	20	95
05:15 PM	0	0	0	0	0	0	61	1	0	62	5	0	0	0	5	1	22	0	0	23	90
05:30 PM	0	0	0	0	0	0	57	0	0	57	3	0	1	0	4	0	15	0	0	15	76
05:45 PM	0	0	0	0	0	0	39	2	0	41	1	0	2	0	3	5	15	0	0	20	64
Total	0	0	0	0	0	0	228	4	0	232	10	0	5	0	15	6	72	0	0	78	325
Grand Total	0	0	0	0	0	0	694	24	0	718	26	0	20	0	46	30	496	0	0	526	1290
Apprch %	0	0	0	0	0	0	96.7	3.3	0	96.7	56.5	0	43.5	0	56.5	5.7	94.3	0	0	94.3	
Total %	0	0	0	0	0	0	53.8	1.9	0	55.7	2	0	1.6	0	3.6	2.3	38.4	0	0	40.8	

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : Stadium and Washington

Site Code : 11111111

Start Date : 8/31/2021

Page No : 2

Groups Printed- Passenger Veh - Trucks

	From North					Stadium From East					Washington From South					Stadium From West					Int. Total
	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	Right	Thru	Left	Ut r n s	App. Total	
Passenger Veh	0	0	0	0	0	0	673	23	0	696	25	0	19	0	44	30	425	0	0	455	1195
% Passenger Veh	0	0	0	0	0	0	97	95.8	0	96.9	96.2	0	95	0	95.7	100	85.7	0	0	86.5	92.6
Trucks	0	0	0	0	0	0	21	1	0	22	1	0	1	0	2	0	71	0	0	71	95
% Trucks	0	0	0	0	0	0	3	4.2	0	3.1	3.8	0	5	0	4.3	0	14.3	0	0	13.5	7.4



# Data Collection Group

Attachment E  
LSmith@DataCollectionGroup.net

File Name : Stadium and Washington

Site Code : 11111111

Start Date : 8/31/2021

Page No : 3

Start Time	From North					Stadium From East					Washington From South					Stadium From West					Int. Total
	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	0	8	0	0	8	0	0	1	0	1	1	34	0	0	35	44
07:30 AM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	1	46	0	0	47	56
07:45 AM	0	0	0	0	0	0	14	0	0	14	1	0	1	0	2	0	35	0	0	35	51
08:00 AM	0	0	0	0	0	0	16	1	0	17	2	0	0	0	2	1	42	0	0	43	62
Total Volume	0	0	0	0	0	0	47	1	0	48	3	0	2	0	5	3	157	0	0	160	213
% App. Total	0	0	0	0	0	0	97.9	2.1	0	100	60	0	40	0	100	1.9	98.1	0	0	100	100
PHF	.000	.000	.000	.000	.000	.000	.734	.250	.000	.706	.375	.000	.500	.000	.625	.750	.853	.000	.000	.851	.859
Passenger Veh	0	0	0	0	0	0	42	1	0	43	3	0	2	0	5	3	138	0	0	141	189
% Passenger Veh	0	0	0	0	0	0	89.4	100	0	89.6	100	0	100	0	100	100	87.9	0	0	88.1	88.7
Trucks	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	19	0	0	19	24
% Trucks	0	0	0	0	0	0	10.6	0	0	10.4	0	0	0	0	0	0	12.1	0	0	11.9	11.3

# Attachment E Data Collection Group

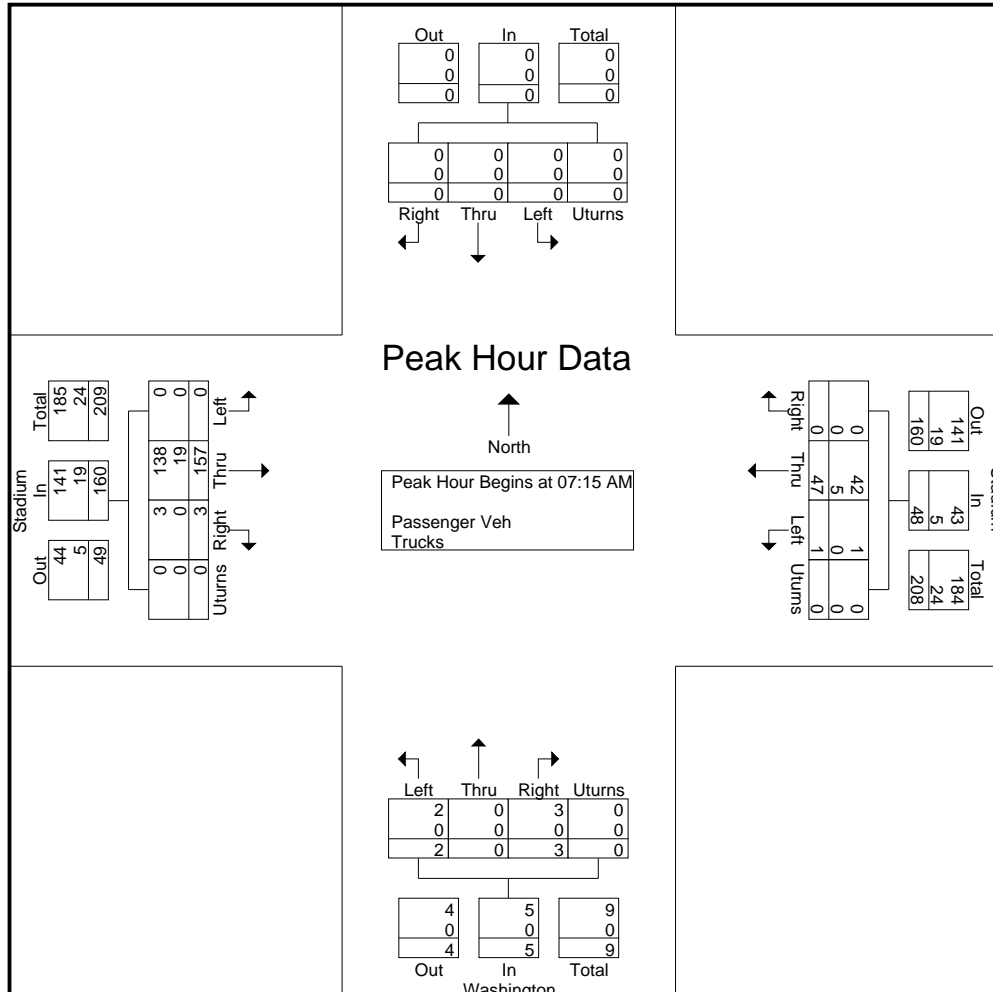
LSmith@DataCollectionGroup.net

File Name : Stadium and Washington

Site Code : 11111111

Start Date : 8/31/2021

Page No : 4



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : Stadium and Washington

Site Code : 11111111

Start Date : 8/31/2021

Page No : 5

Start Time	From North					Stadium From East					Washington From South					Stadium From West					Int. Total
	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	0	0	0	0	0	22	1	0	23	1	0	1	0	2	2	9	0	0	11	36
12:15 PM	0	0	0	0	0	0	20	3	0	23	0	0	2	0	2	2	13	0	0	15	40
12:30 PM	0	0	0	0	0	0	27	1	0	28	1	0	0	0	1	4	11	0	0	15	44
12:45 PM	0	0	0	0	0	0	24	2	0	26	0	0	0	0	0	1	14	0	0	15	41
Total Volume	0	0	0	0	0	0	93	7	0	100	2	0	3	0	5	9	47	0	0	56	161
% App. Total	0	0	0	0	0	0	93	7	0	100	40	0	60	0	100	16.1	83.9	0	0	100	161
PHF	.000	.000	.000	.000	.000	.000	.861	.583	.000	.893	.500	.000	.375	.000	.625	.563	.839	.000	.000	.933	.915
Passenger Veh	0	0	0	0	0	0	90	7	0	97	1	0	3	0	4	9	46	0	0	55	156
% Passenger Veh	0	0	0	0	0	0	96.8	100	0	97.0	50.0	0	100	0	80.0	100	97.9	0	0	98.2	96.9
Trucks	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	1	0	0	1	5
% Trucks	0	0	0	0	0	0	3.2	0	0	3.0	50.0	0	0	0	20.0	0	2.1	0	0	1.8	3.1

# Attachment E Data Collection Group

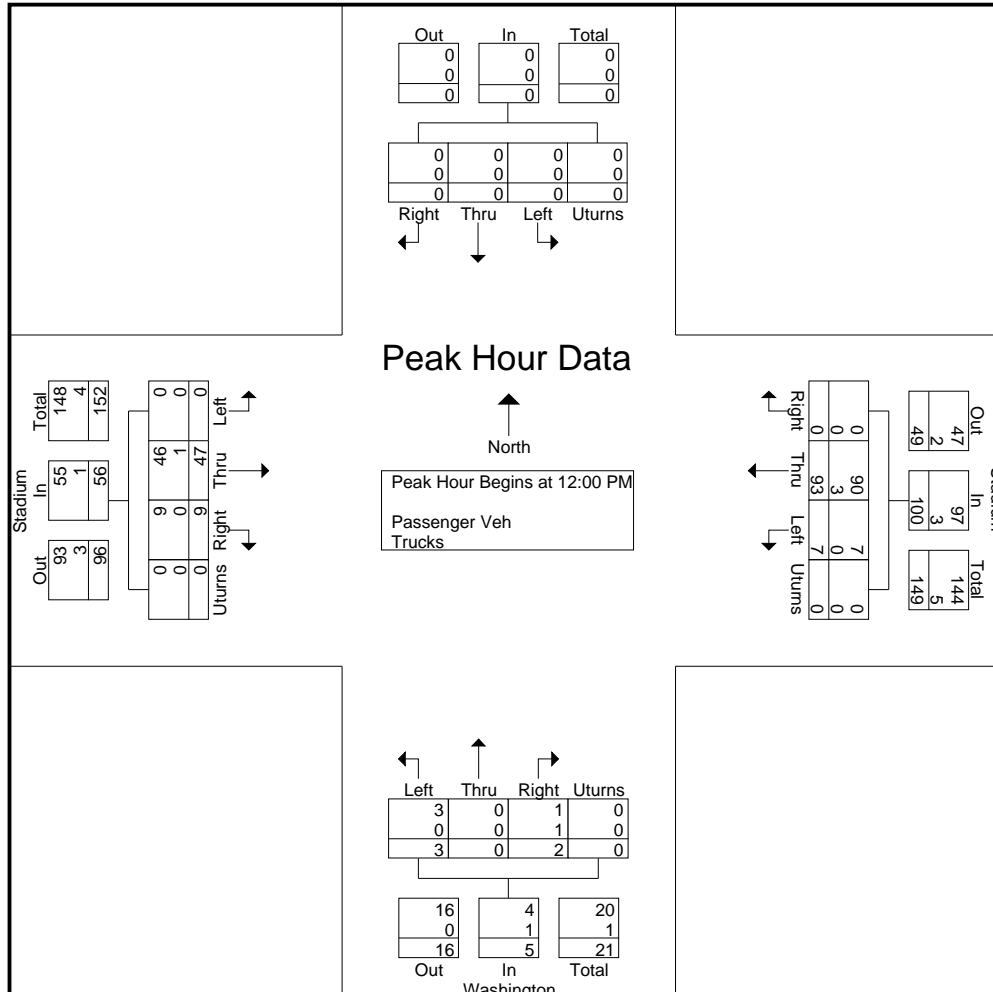
LSmith@DataCollectionGroup.net

File Name : Stadium and Washington

Site Code : 11111111

Start Date : 8/31/2021

Page No : 6



# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : Stadium and Washington

Site Code : 11111111

Start Date : 8/31/2021

Page No : 7

Start Time	From North					Stadium From East					Washington From South					Stadium From West					Int. Total
	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	Right	Thru	Left	UtURNS	App. Total	
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	63	0	0	63	2	0	0	0	2	0	16	0	0	16	81
04:45 PM	0	0	0	0	0	0	70	3	0	73	1	0	2	0	3	1	23	0	0	24	100
05:00 PM	0	0	0	0	0	0	71	1	0	72	1	0	2	0	3	0	20	0	0	20	95
05:15 PM	0	0	0	0	0	0	61	1	0	62	5	0	0	0	5	1	22	0	0	23	90
Total Volume	0	0	0	0	0	0	265	5	0	270	9	0	4	0	13	2	81	0	0	83	366
% App. Total	0	0	0	0	0	0	98.1	1.9	0		69.2	0	30.8	0		2.4	97.6	0	0		
PHF	.000	.000	.000	.000	.000	.000	.933	.417	.000	.925	.450	.000	.500	.000	.650	.500	.880	.000	.000	.865	.915
Passenger Veh	0	0	0	0	0	0	263	5	0	268	9	0	4	0	13	2	57	0	0	59	340
% Passenger Veh	0	0	0	0	0	0	99.2	100	0	99.3	100	0	100	0	100	100	70.4	0	0	71.1	92.9
Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	24	0	0	24	26
% Trucks	0	0	0	0	0	0	0.8	0	0	0.7	0	0	0	0	0	0	29.6	0	0	28.9	7.1

# Attachment E Data Collection Group

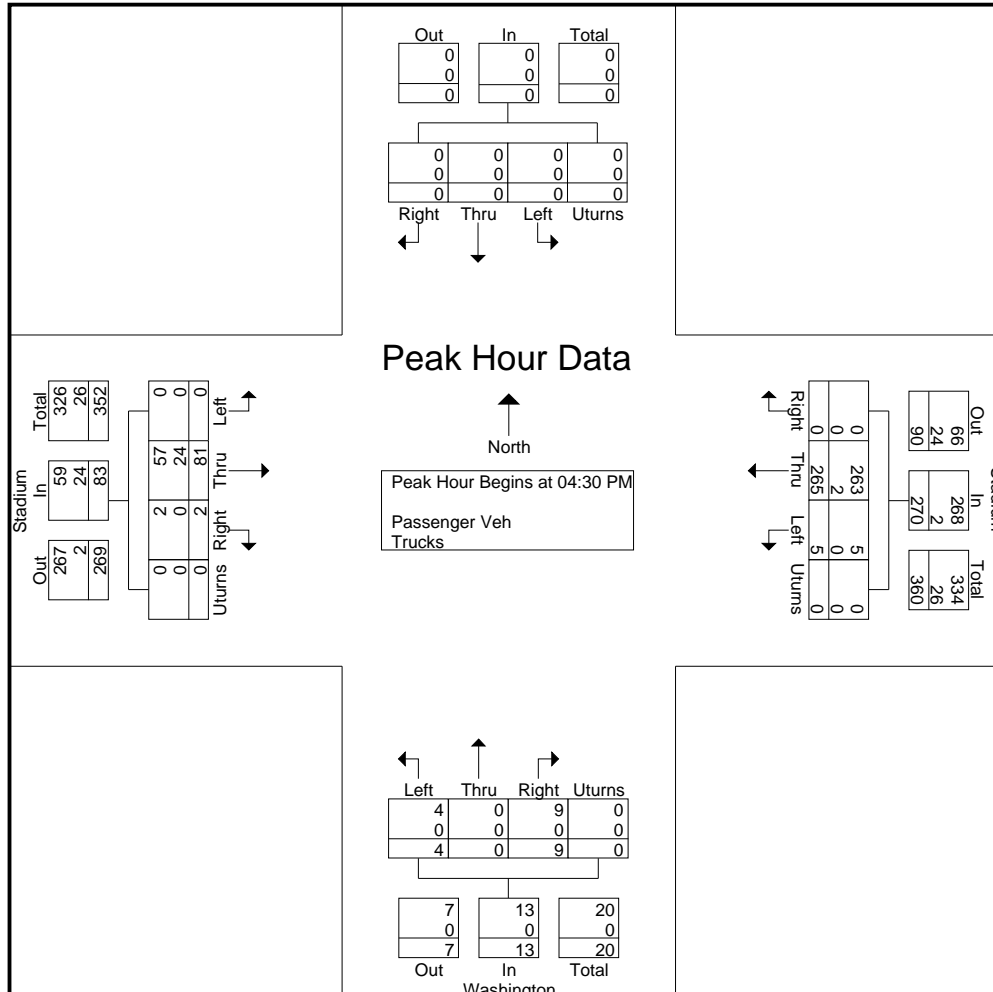
LSmith@DataCollectionGroup.net

File Name : Stadium and Washington

Site Code : 11111111

Start Date : 8/31/2021

Page No : 8



# Data Collection Group Attachment E

LSmith@DataCollectionGroup.net

File Name : Stadium and Washington

Site Code : 11111111

Start Date : 8/31/2021

Page No : 1

## Groups Printed- Bikes - Peds

Start Time	From North					Stadium From East					Washington From South					Stadium From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2	0	0	2	4
07:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	3	3	0	1	0	0	1	5
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	3
07:45 AM	0	0	0	0	0	0	0	0	3	3	0	0	0	3	3	0	0	0	0	0	6
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>11</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>18</b>
08:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	3	3	0	0	0	0	0	5
08:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	0	2	0	1	3	8
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	2
08:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	1	0	0	1	4
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>9</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>6</b>	<b>19</b>
*** BREAK ***																					
11:00 AM	0	0	0	0	0	0	0	1	1	2	1	0	0	5	6	0	0	0	0	0	8
11:15 AM	0	0	0	0	0	0	0	0	2	2	0	0	1	4	5	0	0	0	0	0	7
11:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	5	5	0	1	0	1	2	8
11:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	4	4	0	0	0	0	0	5
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>18</b>	<b>20</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>28</b>
12:00 PM	0	0	0	0	0	0	0	0	5	5	3	0	0	12	15	0	1	0	0	1	21
12:15 PM	0	0	0	0	0	0	2	2	6	10	0	0	0	14	14	0	2	0	0	2	26
12:30 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	8	8	0	0	0	0	0	10
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	1	1	5
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>13</b>	<b>17</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>38</b>	<b>41</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>62</b>
*** BREAK ***																					
04:00 PM	0	0	0	0	0	0	1	1	2	4	0	0	0	3	3	0	0	0	0	0	7
04:15 PM	0	0	0	0	0	0	0	2	1	3	0	0	0	4	4	0	0	0	0	0	7
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	8	8	0	0	0	0	0	9
04:45 PM	0	0	0	0	0	0	2	0	3	5	2	0	0	8	10	0	0	0	0	0	15
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>3</b>	<b>6</b>	<b>13</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>38</b>
05:00 PM	0	0	0	0	0	0	2	0	4	6	0	0	0	6	6	0	2	0	0	2	14
05:15 PM	0	0	0	0	0	0	2	0	1	3	0	0	0	21	21	0	0	0	0	0	24
05:30 PM	0	0	0	0	0	0	0	0	1	1	1	0	0	7	8	0	0	0	1	1	10
05:45 PM	0	0	0	0	0	0	0	1	4	5	2	0	0	8	10	0	0	0	0	0	15
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>10</b>	<b>15</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>42</b>	<b>45</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>63</b>
<b>Grand Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>8</b>	<b>38</b>	<b>59</b>	<b>9</b>	<b>0</b>	<b>1</b>	<b>141</b>	<b>151</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>5</b>	<b>18</b>	<b>228</b>
Apprch %	0	0	0	0	0	0	22	13.6	64.4	59	6	0	0.7	93.4	151	0	72.2	0	27.8	18	228
Total %	0	0	0	0	0	0	5.7	3.5	16.7	25.9	3.9	0	0.4	61.8	66.2	0	5.7	0	2.2	7.9	

# Data Collection Group

Attachment E

LSmith@DataCollectionGroup.net

File Name : Stadium and Washington

Site Code : 11111111

Start Date : 8/31/2021

Page No : 2

Groups Printed- Bikes - Peds

	From North					Stadium From East					Washington From South					Stadium From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Bikes	0	0	0	0	0	0	13	8	0	21	9	0	1	0	10	0	13	0	1	14	45
% Bikes	0	0	0	0	0	0	100	100	0	35.6	100	0	100	0	6.6	0	100	0	20	77.8	19.7
Peds	0	0	0	0	0	0	0	0	38	38	0	0	0	141	141	0	0	0	4	4	183
% Peds	0	0	0	0	0	0	0	0	100	64.4	0	0	0	100	93.4	0	0	0	80	22.2	80.3



## Appendix B

# Traffic Signal Timings

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Attachment E

December 2021

Aspen Heights TIA – City of Charlottesville

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## Attachment E

1000066 - JPA @ Shamrock

Table 2 - Overlaps Page 0

10/6/2021

4:51 PM

9 + Key			C + F + Key		
FUNCTION	KEY	VALUE	FUNCTION	KEY	VALUE
Short Power Down	0	4	Page ID	0	0
Long Power Down	1	4	Reserved	1	0
EVA Delay Type	2	0	Reserved	2	0
EVB Delay Type	3	0	Reserved	3	0
EVC Delay Type	4	0	OLA Red	4	0.0
EVD Delay Type	5	0	OLB Red	5	0.0
RR Delay Type	6	0	OLC Red	6	0.0
Ped Inhibit	7	0	OLD Red	7	0.0
OLA Green	8	0.0			12345678
OLA Yellow	9	0.0	Overlap E	8	
OLB Green	A	0.0	Overlap F	9	
OLB Yellow	B	0.0	Red Rest	A	
OLC Green	C	0.0	Max Recall	B	
OLC Yellow	D	0.0	Flash Green	C	
OLD Green	E	0.0	Flash Walk	D	
OLD Yellow	F	0.0	Advance Walk	E	
			Restrictive Phase	F	

## Attachment E

1000066 - JPA @ Shamrock  
 Table 3 - Preempts  
 10/6/2021  
 4:51 PM

C + Key			E + Key		
FUNCTION	KEY	VALUE	FUNCTION	KEY	VALUE
Year	0	0	EVA Delay	0	0
Month	1	0	EVA Minimum	1	5
Day of Month	2	0	EVB Delay	2	0
		1234567	EVB Minimum	3	5
Day of Week	3		EVC Delay	4	0
		VALUE	EVC Minimum	5	5
Hour	4	0	EVD Delay	6	0
Minute	5	0	EVD Minimum	7	5
Second	6	0	OL Red Revert	8	0.0
Reserved	7	0	RR Delay	9	0
Triggers On In Flash	8	0	RR Clear	A	0
		12345678			12345678
Startup Yellow	9		RR Clear Phases	B	
EVA Phases	A		RR Permit	C	
EVB Phases	B		RR OL Permit	D	
EVC Phases	C		NEMA Hold Phases	E	
EVD Phases	D		Reserved	F	
Handicap Ped	E				
Reserved	F				

## Attachment E

1000066 - JPA @ Shamrock  
 Table 6 - Coordination Functions  
 10/6/2021  
 4:51 PM

B + 0 + Key			D + Key		
FUNCTION	KEY	VALUE	FUNCTION	KEY	VALUE
Present Plan	0	0	Floating Ped	2E	0
TOD/DOW Plan	1	0	ID Number	2F	66
Hardwire Plan	2	0	No Coord Ped Recall	3E	1
Modem Plan	3	0	Rest In Walk	3F	0
Mode (0-4)	4	0	Adv Warning EOG	4E	0
Master (0 = Off)	5	0	Adv Warning SOG	4F	0
Master Clock	6	0	RR Red Clear	5E	0
Local Clock	7	0	RR Clear Color	5F	0
Dwell Clock	8	0	Bus Delay	6D	0.0
Reserved	9	0	Bus Free T1	6E	0
Reserved	A	0	Bus Free T3	6F	0
Reserved	B	0	EV Min After Clear	7E	1
		12345678	EV Indicators	7F	1
Reserved	C		NEMA Inputs	66	0
NEMA CNA Phase	D		Reserved		0
Adv Warning Phase	E		Reserved		0
MRI Phase	F				

## Attachment E

1000066 - JPA @ Shamrock  
 Table 8 - Bus Preemption  
 10/6/2021  
 4:51 PM

B + A + Key			B + B + Key			B + C + Key		
FUNCTION	KEY	VALUE	FUNCTION	KEY	VALUE	FUNCTION	KEY	VALUE
Bus P1 T1	0	0	Bus P4 T1	0	0	Bus P7 T1	0	0
Bus P1 T2	1	0	Bus P4 T2	1	0	Bus P7 T2	1	0
Bus P1 T3	2	0	Bus P4 T3	2	0	Bus P7 T3	2	0
Bus P2 T1	3	0	Bus P5 T1	3	0	Bus P8 T1	3	0
Bus P2 T2	4	0	Bus P5 T2	4	0	Bus P8 T2	4	0
Bus P2 T3	5	0	Bus P5 T3	5	0	Bus P8 T3	5	0
Bus P3 T1	6	0	Bus P6 T1	6	0	Bus P9 T1	6	0
Bus P3 T2	7	0	Bus P6 T2	7	0	Bus P9 T2	7	0
Bus P3 T3	8	0	Bus P6 T3	8	0	Bus P9 T3	8	0
Perm 2 P1	9	0	Perm 2 P4	9	0	Perm 2 P7	9	0
Perm 2 P2	A	0	Perm 2 P5	A	0	Perm 2 P8	A	0
Perm 2 P3	B	0	Perm 2 P6	B	0	Perm 2 P9	B	0
		12345678			12345678			12345678
Flash Yellow	C	2 6	OL Flash Yellow	C		Coordinated Max	C	
Flash Circuit	D		OL Flash Clear	D		TOD Red Rest	D	
TOD/DOW Max	E		TOD/DOW Ped	E		OLA Switchpack	E	
OLB Switchpack	F		OLC Switchpack	F		OLD Switchpack	F	

## Attachment E

1000066 - JPA @ Shamrock  
 Table 9 - Input Reassignments Page 0  
 10/6/2021  
 4:51 PM

A + 4 + Key			A + 5 + Key			A + 6 + Key		
C1 PIN	KEY	VALUE	C1 PIN	KEY	VALUE	C1 PIN	KEY	VALUE
39	0	34	55	0	0	67	0	0
40	1	32	56	1	12	68	1	0
41	2	0	57	2	0	69	2	0
42	3	0	58	3	11	70	3	0
43	4	0	59	4	0	71	4	0
44	5	0	60	5	0	72	5	0
45	6	0	61	6	0	73	6	0
46	7	22	62	7	0	74	7	0
47	8	0	N/U	8	0	75	8	0
48	9	18	N/U	9	0	76	9	0
49	A	0	N/U	A	0	77	A	0
50	B	0	N/U	B	0	78	B	0
51	C	0	63	C	0	79	C	0
52	D	0	64	D	0	80	D	0
53	E	0	65	E	0	81	E	0
54	F	0	66	F	0	82	F	0



## Attachment E

1000066 - JPA @ Shamrock  
 Table 13 - Additional Overlaps  
 10/6/2021  
 4:51 PM

D + 9 + 0 + Key			D + 9 + 3 + Key			E + F + Key		
FUNCTION	KEY	12345678	FUNCTION	KEY	VALUE	FUNCTION	KEY	VALUE
Overlap H	0		OLH Green	0	0.0	RR Max II	0	0
Overlap J	1		OLH Yellow	1	0.0	Ped Perm Plan 1	1	0
Overlap K	2		OLH Red	2	0.0	Ped Perm Plan 2	2	0
Overlap L	3		OLJ Green	3	0.0	Ped Perm Plan 3	3	0
OLH Switchpack	4		OLJ Yellow	4	0.0	Ped Perm Plan 4	4	0
OLJ Switchpack	5		OLJ Red	5	0.0	Ped Perm Plan 5	5	0
OLK Switchpack	6		OLK Green	6	0.0	Ped Perm Plan 6	6	0
OLL Switchpack	7		OLK Yellow	7	0.0	Ped Perm Plan 7	7	0
Reserved	8		OLK Red	8	0.0	Ped Perm Plan 8	8	0
Reserved	9		OLL Green	9	0.0	Ped Perm Plan 9	9	0
Reserved	A		OLL Yellow	A	0.0	Long Power Outs	A	0
Reserved	B		OLL Red	B	0.0	Short Power Outs	B	0
Reserved	C		Reserved	C	0	Failed Detectors	C	0
Reserved	D		Reserved	D	0	Max II On	D	0
Reserved	E		Reserved	E	0	No Daylight Savings	E	165
Reserved	F		Reserved	F	0	Revision Level	F	60



## Appendix C

# Synchro/SimTraffic Outputs for 2021 Existing Conditions

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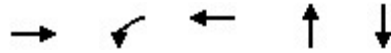
Attachment E

December 2021

Aspen Heights TIA – City of Charlottesville

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Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	517	33	259	192	27
v/c Ratio	0.59	0.06	0.24	0.66	0.09
Control Delay	17.0	6.4	7.1	41.9	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	6.4	7.1	41.9	24.6
Queue Length 50th (ft)	162	5	46	92	10
Queue Length 95th (ft)	320	18	104	157	31
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	883	516	1065	447	469
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.06	0.24	0.43	0.06

Intersection Summary

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2021 Existing AM  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	8	451	32	31	243	3	65	45	73	4	19	3
Future Volume (veh/h)	8	451	32	31	243	3	65	45	73	4	19	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	1.00		0.93	0.96		0.95	0.97		0.95
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	1707	1870	1811	1856	1811	1900	1870	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	475	34	33	256	3	68	47	77	4	20	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	13	2	6	3	6	0	2	0	0	0	0	0
Cap, veh/h	49	916	65	575	1180	14	143	97	121	74	283	38
Arrive On Green	0.54	0.54	0.54	0.05	0.66	0.66	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	8	1701	120	1767	1784	21	436	505	630	122	1475	200
Grp Volume(v), veh/h	517	0	0	33	0	259	192	0	0	27	0	0
Grp Sat Flow(s),veh/h/ln	1829	0	0	1767	0	1805	1571	0	0	1797	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	4.6	5.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	14.8	0.0	0.0	0.6	0.0	4.6	9.0	0.0	0.0	1.0	0.0	0.0
Prop In Lane	0.02		0.07	1.00		0.01	0.35		0.40	0.15		0.11
Lane Grp Cap(c), veh/h	1030	0	0	575	0	1194	361	0	0	396	0	0
V/C Ratio(X)	0.50	0.00	0.00	0.06	0.00	0.22	0.53	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1030	0	0	575	0	1194	517	0	0	571	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.1	0.0	0.0	6.3	0.0	5.5	30.2	0.0	0.0	27.1	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.2	0.0	0.4	1.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.0	0.2	0.0	1.5	3.5	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	0.0	0.0	6.4	0.0	5.9	31.4	0.0	0.0	27.1	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		517			292			192				27
Approach Delay, s/veh		13.8			6.0			31.4				27.1
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	50.0		21.7		60.0		21.7				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	2.6	16.8		3.0		6.6		11.0				
Green Ext Time (p_c), s	0.0	3.5		0.0		1.6		0.5				

Intersection Summary

HCM 6th Ctrl Delay				15.2								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	479	1	4	287	3	1	0	1	2	0	2
Future Vol, veh/h	9	479	1	4	287	3	1	0	1	2	0	2
Conflicting Peds, #/hr	57	0	19	19	0	57	0	0	16	16	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	10	515	1	4	309	3	1	0	1	2	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	369	0	0	535	0	0	875	932	551	928	931	368
Stage 1	-	-	-	-	-	-	555	555	-	376	376	-
Stage 2	-	-	-	-	-	-	320	377	-	552	555	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1201	-	-	1043	-	-	272	269	538	250	269	682
Stage 1	-	-	-	-	-	-	520	516	-	649	620	-
Stage 2	-	-	-	-	-	-	696	619	-	522	516	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1136	-	-	1024	-	-	263	246	520	229	246	645
Mov Cap-2 Maneuver	-	-	-	-	-	-	263	246	-	229	246	-
Stage 1	-	-	-	-	-	-	504	501	-	606	583	-
Stage 2	-	-	-	-	-	-	690	582	-	507	501	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			15.4			15.8		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	349	1136	-	-	1024	-	-	338
HCM Lane V/C Ratio	0.006	0.009	-	-	0.004	-	-	0.013
HCM Control Delay (s)	15.4	8.2	0	-	8.5	0	-	15.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	483	2	2	291	2	0	0	1	0	0	0
Future Vol, veh/h	5	483	2	2	291	2	0	0	1	0	0	0
Conflicting Peds, #/hr	43	0	26	26	0	43	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	20	3	100	0	5	0	0	0	0	0	0	0
Mvmt Flow	6	537	2	2	323	2	0	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	368	0	0	565	0	0	906	948	566	924	948	369
Stage 1	-	-	-	-	-	-	576	576	-	371	371	-
Stage 2	-	-	-	-	-	-	330	372	-	553	577	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1098	-	-	1017	-	-	259	263	528	252	263	681
Stage 1	-	-	-	-	-	-	506	505	-	653	623	-
Stage 2	-	-	-	-	-	-	687	622	-	521	505	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1053	-	-	992	-	-	250	244	514	239	244	652
Mov Cap-2 Maneuver	-	-	-	-	-	-	250	244	-	239	244	-
Stage 1	-	-	-	-	-	-	489	488	-	621	596	-
Stage 2	-	-	-	-	-	-	684	595	-	515	488	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			12			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	514	1053	-	-	992	-	-	-
HCM Lane V/C Ratio	0.002	0.005	-	-	0.002	-	-	-
HCM Control Delay (s)	12	8.4	0	-	8.6	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-



Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	502	0	4	278	1	1	0	3	2	0	3
Future Vol, veh/h	6	502	0	4	278	1	1	0	3	2	0	3
Conflicting Peds, #/hr	56	0	32	32	0	56	2	0	1	1	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	25	4	0	0	0	0	0	0	0
Mvmt Flow	7	558	0	4	309	1	1	0	3	2	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	366	0	0	590	0	0	925	978	591	949	978	368
Stage 1	-	-	-	-	-	-	604	604	-	374	374	-
Stage 2	-	-	-	-	-	-	321	374	-	575	604	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1204	-	-	882	-	-	252	252	511	242	252	682
Stage 1	-	-	-	-	-	-	489	491	-	651	621	-
Stage 2	-	-	-	-	-	-	695	621	-	507	491	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1140	-	-	855	-	-	240	228	495	225	228	644
Mov Cap-2 Maneuver	-	-	-	-	-	-	240	228	-	225	228	-
Stage 1	-	-	-	-	-	-	470	472	-	611	584	-
Stage 2	-	-	-	-	-	-	686	584	-	499	472	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			14.3			14.9		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	391	1140	-	-	855	-	-	369
HCM Lane V/C Ratio	0.011	0.006	-	-	0.005	-	-	0.015
HCM Control Delay (s)	14.3	8.2	0	-	9.2	0	-	14.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	318	148	58	257	336	252	192	22	53	15
v/c Ratio	0.19	0.50	0.15	0.16	0.33	0.77	0.55	0.38	0.12	0.24	0.05
Control Delay	26.8	28.9	1.6	18.4	18.9	41.8	32.4	6.8	34.0	36.0	0.3
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	26.8	28.9	1.6	18.4	18.9	41.8	32.4	6.8	34.0	36.0	0.3
Queue Length 50th (ft)	28	135	0	17	82	152	107	0	10	26	0
Queue Length 95th (ft)	77	275	19	52	186	#319	215	53	31	59	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	382	641	1048	359	786	559	582	595	491	571	530
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	0.19	0.50	0.14	0.16	0.33	0.60	0.43	0.32	0.04	0.09	0.03

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Attachment E

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2021 Existing AM  
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	293	136	53	214	22	309	232	177	20	49	14
Future Volume (veh/h)	68	293	136	53	214	22	309	232	177	20	49	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.99	1.00		1.00	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1885	1870	1841	1559	1885	1870	1885	1678	1841	1693
Adj Flow Rate, veh/h	74	318	148	58	233	24	336	252	0	22	53	15
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, %	3	3	1	2	4	23	1	2	1	15	4	14
Cap, veh/h	445	596	868	324	712	73	409	427		172	199	143
Arrive On Green	0.32	0.32	0.32	0.04	0.43	0.43	0.23	0.23	0.00	0.11	0.11	0.11
Sat Flow, veh/h	1100	1856	1570	1781	1639	169	1795	1870	1598	1598	1841	1328
Grp Volume(v), veh/h	74	318	148	58	0	257	336	252	0	22	53	15
Grp Sat Flow(s),veh/h/ln	1100	1856	1570	1781	0	1808	1795	1870	1598	1598	1841	1328
Q Serve(g_s), s	3.8	11.0	3.7	1.6	0.0	7.3	13.9	9.4	0.0	1.0	2.1	0.8
Cycle Q Clear(g_c), s	3.8	11.0	3.7	1.6	0.0	7.3	13.9	9.4	0.0	1.0	2.1	0.8
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	596	868	324	0	785	409	427		172	199	143
V/C Ratio(X)	0.17	0.53	0.17	0.18	0.00	0.33	0.82	0.59		0.13	0.27	0.10
Avail Cap(c_a), veh/h	445	596	868	349	0	785	550	573		490	564	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	21.8	8.8	16.6	0.0	14.6	28.7	27.0	0.0	31.6	32.1	31.5
Incr Delay (d2), s/veh	0.8	3.4	0.4	0.1	0.0	1.1	5.3	0.5	0.0	0.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	5.0	2.0	0.6	0.0	3.0	6.4	4.1	0.0	0.4	0.9	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.2	25.2	9.2	16.7	0.0	15.7	34.1	27.5	0.0	31.7	32.3	31.6
LnGrp LOS	C	C	A	B	A	B	C	C		C	C	C
Approach Vol, veh/h		540			315			588	A		90	
Approach Delay, s/veh		20.1			15.9			31.2			32.1	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.9	31.1		14.4		40.0		23.9				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	3.6	13.0		4.1		9.3		15.9				
Green Ext Time (p_c), s	0.0	2.0		0.2		1.4		1.0				

Intersection Summary

HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

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

JPA Aspen Heights  
6: Maury Ave/Alderman Road & Stadium Drive

2021 Existing AM  
HCM 6th AWSC




Intersection												
Intersection Delay, s/veh	12.9											
Intersection LOS	B											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	111	70	6	18	9	31	2	304	49	26	71	29
Future Vol, veh/h	111	70	6	18	9	31	2	304	49	26	71	29
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	0	0	0	22	11	0	0	3	0	54	4	21
Mvmt Flow	132	83	7	21	11	37	2	362	58	31	85	35
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	11.7	9.8	14.6	11.4
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	59%	31%	21%
Vol Thru, %	86%	37%	16%	56%
Vol Right, %	14%	3%	53%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	355	187	58	126
LT Vol	2	111	18	26
Through Vol	304	70	9	71
RT Vol	49	6	31	29
Lane Flow Rate	423	223	69	150
Geometry Grp	1	1	1	1
Degree of Util (X)	0.581	0.35	0.115	0.258
Departure Headway (Hd)	4.948	5.659	5.982	6.202
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	731	634	598	579
Service Time	2.978	3.696	4.028	4.241
HCM Lane V/C Ratio	0.579	0.352	0.115	0.259
HCM Control Delay	14.6	11.7	9.8	11.4
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	3.8	1.6	0.4	1

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	143	3	1	50	1	4
Future Vol, veh/h	143	3	1	50	1	4
Conflicting Peds, #/hr	0	13	13	0	4	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	10	0	0	8	0	0
Mvmt Flow	177	4	1	62	1	5
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	194	0	260	193
Stage 1	-	-	-	-	192	-
Stage 2	-	-	-	-	68	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1391	-	733	854
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	960	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1374	-	721	843
Mov Cap-2 Maneuver	-	-	-	-	721	-
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	955	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.1	9.5			
HCM LOS						A
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	815	-	-	1374	-	
HCM Lane V/C Ratio	0.008	-	-	0.001	-	
HCM Control Delay (s)	9.5	-	-	7.6	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	8	4	0
Future Vol, veh/h	0	0	0	8	4	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	9	4	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	13	4	4	0	0
Stage 1	4	-	-	-	-
Stage 2	9	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	1011	1085	1631	-	-
Stage 1	1024	-	-	-	-
Stage 2	1019	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	1011	1085	1631	-	-
Mov Cap-2 Maneuver	1011	-	-	-	-
Stage 1	1024	-	-	-	-
Stage 2	1019	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1631	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	299	66	140	197	63
Average Queue (ft)	143	16	54	103	18
95th Queue (ft)	260	45	112	169	51
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	1				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		0	3		
Queuing Penalty (veh)		0	1		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	56	27	31
Average Queue (ft)	7	4	2	4
95th Queue (ft)	37	25	12	20
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	1			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	65	38	22
Average Queue (ft)	5	2	1
95th Queue (ft)	35	20	9
Link Distance (ft)	174	77	261
Upstream Blk Time (%)	0	0	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	55	61	31	29
Average Queue (ft)	3	4	4	5
95th Queue (ft)	24	30	20	22
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	133	292	120	87	211	269	221	111	67	93	66
Average Queue (ft)	38	117	39	36	93	152	112	6	14	32	14
95th Queue (ft)	92	223	113	82	178	237	188	63	47	72	45
Link Distance (ft)		774			432		770			538	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150		120	88		355		225	117		125
Storage Blk Time (%)	0	7	0	0	9	0	0	0		0	0
Queuing Penalty (veh)	0	14	1	0	5	0	1	0		0	0

**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	101	73	224	101
Average Queue (ft)	49	33	106	47
95th Queue (ft)	79	64	183	83
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				



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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	3	6	30
Average Queue (ft)	0	0	4
95th Queue (ft)	3	4	22
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**

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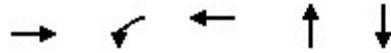
Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

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**Network Summary**

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Network wide Queuing Penalty: 24
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Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	482	59	379	106	30
v/c Ratio	0.44	0.10	0.32	0.49	0.12
Control Delay	11.6	5.2	6.1	37.6	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	5.2	6.1	37.6	25.1
Queue Length 50th (ft)	126	7	57	48	11
Queue Length 95th (ft)	272	25	147	93	32
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	1084	612	1198	444	499
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.10	0.32	0.24	0.06

## Intersection Summary

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2021 Existing Midday  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	5	406	33	54	342	6	38	22	38	2	21	5
Future Volume (veh/h)	5	406	33	54	342	6	38	22	38	2	21	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	0.99		0.93	0.89		0.88	0.91		0.88
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	1900	1841	1856	1841	1811	1900	1826	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	441	36	59	372	7	41	24	41	2	23	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	4	3	4	6	0	5	0	0	0	0	0
Cap, veh/h	47	910	74	576	1162	22	149	90	112	53	287	59
Arrive On Green	0.55	0.55	0.55	0.04	0.66	0.66	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	4	1660	134	1753	1769	33	445	458	570	30	1455	297
Grp Volume(v), veh/h	482	0	0	59	0	379	106	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	1799	0	0	1753	0	1802	1474	0	0	1783	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	7.5	1.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.6	0.0	0.0	1.1	0.0	7.5	4.7	0.0	0.0	1.1	0.0	0.0
Prop In Lane	0.01		0.07	1.00		0.02	0.39		0.39	0.07		0.17
Lane Grp Cap(c), veh/h	1030	0	0	576	0	1184	351	0	0	398	0	0
V/C Ratio(X)	0.47	0.00	0.00	0.10	0.00	0.32	0.30	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	1030	0	0	598	0	1184	486	0	0	563	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.5	0.0	0.0	6.5	0.0	6.1	28.3	0.0	0.0	26.9	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	0.0	0.7	0.5	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	0.0	0.4	0.0	2.5	1.8	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	0.0	0.0	6.6	0.0	6.8	28.8	0.0	0.0	27.0	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		482			438			106				30
Approach Delay, s/veh		11.8			6.8			28.8				27.0
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.0	51.0		22.2		60.0		22.2				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	3.1	15.6		3.1		9.5		6.7				
Green Ext Time (p_c), s	0.0	3.2		0.0		2.5		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				11.9								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	419	3	8	351	1	1	0	1	2	0	8
Future Vol, veh/h	6	419	3	8	351	1	1	0	1	2	0	8
Conflicting Peds, #/hr	22	0	24	24	0	22	0	0	22	22	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	5	0	0	6	0	0	0	0	0	0	0
Mvmt Flow	6	451	3	9	377	1	1	0	1	2	0	9

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	400	0	0	478	0	0	889	907	499	905	908	400
Stage 1	-	-	-	-	-	-	489	489	-	418	418	-
Stage 2	-	-	-	-	-	-	400	418	-	487	490	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1170	-	-	1095	-	-	266	278	576	260	277	654
Stage 1	-	-	-	-	-	-	564	553	-	616	594	-
Stage 2	-	-	-	-	-	-	630	594	-	566	552	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1145	-	-	1070	-	-	253	261	551	245	260	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	253	261	-	245	260	-
Stage 1	-	-	-	-	-	-	547	536	-	599	575	-
Stage 2	-	-	-	-	-	-	615	575	-	549	535	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		0.2		15.4		12.6	
HCM LOS					C		B	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	
Capacity (veh/h)	347	1145	-	-	1070	-	-	484	
HCM Lane V/C Ratio	0.006	0.006	-	-	0.008	-	-	0.022	
HCM Control Delay (s)	15.4	8.2	0	-	8.4	0	-	12.6	
HCM Lane LOS		C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)		0	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	425	1	1	360	5	2	0	3	4	1	7
Future Vol, veh/h	3	425	1	1	360	5	2	0	3	4	1	7
Conflicting Peds, #/hr	30	0	24	24	0	30	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	33	4	100	0	6	0	100	0	0	0	0	0
Mvmt Flow	3	447	1	1	379	5	2	0	3	4	1	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	414	0	0	472	0	0	866	894	473	870	892	412
Stage 1	-	-	-	-	-	-	478	478	-	414	414	-
Stage 2	-	-	-	-	-	-	388	416	-	456	478	-
Critical Hdwy	4.43	-	-	4.1	-	-	8.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	7.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.497	-	-	2.2	-	-	4.4	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	997	-	-	1100	-	-	189	283	595	274	283	644
Stage 1	-	-	-	-	-	-	421	559	-	620	597	-
Stage 2	-	-	-	-	-	-	478	595	-	588	559	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	969	-	-	1075	-	-	181	267	581	264	267	626
Mov Cap-2 Maneuver	-	-	-	-	-	-	181	267	-	264	267	-
Stage 1	-	-	-	-	-	-	410	544	-	600	579	-
Stage 2	-	-	-	-	-	-	471	577	-	582	544	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0			16.9			14.3		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	969	-	-	1075	-	-	399
HCM Lane V/C Ratio	0.017	0.003	-	-	0.001	-	-	0.032
HCM Control Delay (s)	16.9	8.7	0	-	8.4	0	-	14.3
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	426	3	3	377	6	2	0	3	0	0	1
Future Vol, veh/h	3	426	3	3	377	6	2	0	3	0	0	1
Conflicting Peds, #/hr	23	0	21	21	0	23	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	3	448	3	3	397	6	2	0	3	0	0	1

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	426	0	0	472	0	0	884	909	472	887	907	423
Stage 1	-	-	-	-	-	-	477	477	-	429	429	-
Stage 2	-	-	-	-	-	-	407	432	-	458	478	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1144	-	-	1100	-	-	268	277	596	267	278	635
Stage 1	-	-	-	-	-	-	573	559	-	608	587	-
Stage 2	-	-	-	-	-	-	625	586	-	587	559	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1119	-	-	1078	-	-	260	263	584	258	264	621
Mov Cap-2 Maneuver	-	-	-	-	-	-	260	263	-	258	264	-
Stage 1	-	-	-	-	-	-	559	546	-	592	572	-
Stage 2	-	-	-	-	-	-	621	571	-	581	546	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		0.1		14.4		10.8	
HCM LOS					B		B	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	390	1119	-	-	1078	-	-	621
HCM Lane V/C Ratio	0.013	0.003	-	-	0.003	-	-	0.002
HCM Control Delay (s)	14.4	8.2	0	-	8.3	0	-	10.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	49	273	153	133	256	140	90	137	33	123	45
v/c Ratio	0.13	0.44	0.18	0.31	0.30	0.51	0.31	0.36	0.14	0.44	0.12
Control Delay	23.0	24.9	1.8	17.1	15.8	36.3	31.5	6.3	30.3	35.2	0.7
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	23.0	24.9	1.8	17.1	15.8	36.3	31.5	6.3	30.3	35.2	0.7
Queue Length 50th (ft)	15	92	0	31	63	58	36	0	13	51	0
Queue Length 95th (ft)	53	226	20	97	178	126	86	32	40	111	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	363	627	1100	436	846	601	639	627	534	652	639
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	0.44	0.14	0.31	0.30	0.23	0.14	0.22	0.06	0.19	0.07

Intersection Summary

Attachment E

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2021 Existing Midday  
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	257	144	125	216	24	132	85	129	31	116	42
Future Volume (veh/h)	46	257	144	125	216	24	132	85	129	31	116	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		1.00	1.00		0.94
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	1796	1841	1856	1856	1811	1589	1856	1870	1885	1663	1900	1900
Adj Flow Rate, veh/h	49	273	153	133	230	26	140	90	0	33	123	45
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, %	7	4	3	3	6	21	3	2	1	16	0	0
Cap, veh/h	470	631	743	421	775	88	235	249		197	236	189
Arrive On Green	0.34	0.34	0.34	0.06	0.49	0.49	0.13	0.13	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1071	1841	1556	1767	1597	180	1767	1870	1598	1584	1900	1519
Grp Volume(v), veh/h	49	273	153	133	0	256	140	90	0	33	123	45
Grp Sat Flow(s),veh/h/ln	1071	1841	1556	1767	0	1777	1767	1870	1598	1584	1900	1519
Q Serve(g_s), s	2.2	8.0	4.0	3.3	0.0	6.1	5.2	3.1	0.0	1.3	4.2	1.9
Cycle Q Clear(g_c), s	2.2	8.0	4.0	3.3	0.0	6.1	5.2	3.1	0.0	1.3	4.2	1.9
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	470	631	743	421	0	863	235	249		197	236	189
V/C Ratio(X)	0.10	0.43	0.21	0.32	0.00	0.30	0.60	0.36		0.17	0.52	0.24
Avail Cap(c_a), veh/h	470	631	743	421	0	863	606	641		543	651	521
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	17.7	10.7	13.2	0.0	10.8	28.6	27.6	0.0	27.4	28.7	27.7
Incr Delay (d2), s/veh	0.4	2.2	0.6	2.0	0.0	0.9	0.9	0.3	0.0	0.1	0.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.5	1.8	1.4	0.0	2.3	2.2	1.3	0.0	0.5	1.9	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	19.9	11.3	15.2	0.0	11.7	29.5	28.0	0.0	27.6	29.4	27.9
LnGrp LOS	B	B	B	B	A	B	C	C		C	C	C
Approach Vol, veh/h		475			389			230	A		201	
Approach Delay, s/veh		16.8			12.9			28.9			28.7	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		14.7		40.0		15.3				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	5.3	10.0		6.2		8.1		7.2				
Green Ext Time (p_c), s	0.0	1.9		0.5		1.5		0.4				

Intersection Summary

HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

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



**Intersection**




Intersection Delay, s/veh 9.2

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	12	2	53	22	21	5	157	26	17	150	40
Future Vol, veh/h	20	12	2	53	22	21	5	157	26	17	150	40
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	6	0	0	0	6	0	6	2	15
Mvmt Flow	22	13	2	60	25	24	6	176	29	19	169	45
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
<b>Approach</b>	<b>EB</b>		<b>WB</b>			<b>NB</b>			<b>SB</b>			
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	8.5		9			9.1			9.4			
HCM LOS	A		A			A			A			

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	59%	55%	8%
Vol Thru, %	84%	35%	23%	72%
Vol Right, %	14%	6%	22%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	188	34	96	207
LT Vol	5	20	53	17
Through Vol	157	12	22	150
RT Vol	26	2	21	40
Lane Flow Rate	211	38	108	233
Geometry Grp	1	1	1	1
Degree of Util (X)	0.261	0.054	0.151	0.291
Departure Headway (Hd)	4.455	5.134	5.028	4.509
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	805	695	711	795
Service Time	2.489	3.186	3.073	2.541
HCM Lane V/C Ratio	0.262	0.055	0.152	0.293
HCM Control Delay	9.1	8.5	9	9.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.2	0.5	1.2

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	47	9	7	93	3	2
Future Vol, veh/h	47	9	7	93	3	2
Conflicting Peds, #/hr	0	38	38	0	13	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	0	0	3	0	50
Mvmt Flow	52	10	8	102	3	2
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	100	0	226	96
Stage 1	-	-	-	-	95	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	-	-	4.1	-	6.4	6.7
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.75
Pot Cap-1 Maneuver	-	-	1505	-	767	844
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	900	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1451	-	726	813
Mov Cap-2 Maneuver	-	-	-	-	726	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	884	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.5	9.8			
HCM LOS				A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	758	-	-	1451	-	
HCM Lane V/C Ratio	0.007	-	-	0.005	-	
HCM Control Delay (s)	9.8	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	8	16	0
Future Vol, veh/h	0	0	0	8	16	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	9	17	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	26	17	17	0	-
Stage 1	17	-	-	-	-
Stage 2	9	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	995	1068	1613	-	-
Stage 1	1011	-	-	-	-
Stage 2	1019	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	995	1068	1613	-	-
Mov Cap-2 Maneuver	995	-	-	-	-
Stage 1	1011	-	-	-	-
Stage 2	1019	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1613	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	248	74	199	146	65
Average Queue (ft)	113	28	78	60	18
95th Queue (ft)	218	64	156	112	50
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		0	6		
Queuing Penalty (veh)		1	3		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	67	78	27	33
Average Queue (ft)	7	9	2	9
95th Queue (ft)	36	45	14	32
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	14	62	35
Average Queue (ft)	3	0	8	12
95th Queue (ft)	32	8	37	36
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	11	46	35	14
Average Queue (ft)	1	3	4	1
95th Queue (ft)	7	22	22	10
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	L	T	R
Maximum Queue (ft)	117	237	120	87	241	153	113	86	157	107
Average Queue (ft)	28	105	45	57	93	72	44	23	68	25
95th Queue (ft)	77	195	118	96	184	127	90	62	121	69
Link Distance (ft)		774			432		770		538	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		120	88		355		117		125
Storage Blk Time (%)	0	5	0	2	7			0	2	0
Queuing Penalty (veh)	0	9	1	5	9			0	1	0

**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	42	72	103	88
Average Queue (ft)	21	37	54	49
95th Queue (ft)	47	61	85	76
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	6	12	39
Average Queue (ft)	0	1	4
95th Queue (ft)	5	10	24
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**

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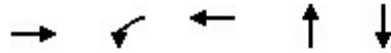
Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

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**Network Summary**

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Network wide Queuing Penalty: 30
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Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	374	111	597	133	72
v/c Ratio	0.44	0.18	0.53	0.56	0.27
Control Delay	13.3	6.2	9.6	39.4	28.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	6.2	9.6	39.4	28.5
Queue Length 50th (ft)	93	15	119	61	29
Queue Length 95th (ft)	212	47	296	113	63
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	841	606	1130	424	479
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.18	0.53	0.31	0.15
<b>Intersection Summary</b>					

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2021 Existing - PM  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	21	275	55	104	549	12	43	25	56	9	52	7
Future Volume (veh/h)	21	275	55	104	549	12	43	25	56	9	52	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.89	0.99		0.91	0.89		0.88	0.91		0.88
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	1900	1870	1900	1885	1870	1781	1870	1900	1841	1900	1900	1900
Adj Flow Rate, veh/h	22	293	59	111	584	13	46	27	60	10	55	7
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, %	0	2	0	1	2	8	2	0	4	0	0	0
Cap, veh/h	68	715	138	642	1138	25	149	94	154	77	346	40
Arrive On Green	0.51	0.51	0.51	0.05	0.63	0.63	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	47	1402	271	1795	1818	40	397	399	654	124	1474	172
Grp Volume(v), veh/h	374	0	0	111	0	597	133	0	0	72	0	0
Grp Sat Flow(s),veh/h/ln	1720	0	0	1795	0	1858	1451	0	0	1769	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	15.3	2.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.2	0.0	0.0	2.4	0.0	15.3	6.2	0.0	0.0	2.7	0.0	0.0
Prop In Lane	0.06		0.16	1.00		0.02	0.35		0.45	0.14		0.10
Lane Grp Cap(c), veh/h	922	0	0	642	0	1164	397	0	0	463	0	0
V/C Ratio(X)	0.41	0.00	0.00	0.17	0.00	0.51	0.34	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	922	0	0	642	0	1164	458	0	0	537	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.1	0.0	0.0	8.1	0.0	8.9	27.5	0.0	0.0	26.3	0.0	0.0
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.6	0.0	1.6	0.5	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	0.0	0.9	0.0	5.7	2.3	0.0	0.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.4	0.0	0.0	8.7	0.0	10.5	28.0	0.0	0.0	26.4	0.0	0.0
LnGrp LOS	B	A	A	A	A	B	C	A	A	C	A	A
Approach Vol, veh/h		374			708			133				72
Approach Delay, s/veh		14.4			10.2			28.0				26.4
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	50.0		26.2		60.0		26.2				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	4.4	13.2		4.7		17.3		8.2				
Green Ext Time (p_c), s	0.0	2.5		0.1		4.4		0.3				

Intersection Summary

HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B



Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	314	1	13	571	4	0	0	8	6	1	15
Future Vol, veh/h	7	314	1	13	571	4	0	0	8	6	1	15
Conflicting Peds, #/hr	42	0	43	43	0	42	0	0	21	21	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	7
Mvmt Flow	8	353	1	15	642	4	0	0	9	7	1	17

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	688	0	0	397	0	0	1096	1131	418	1111	1129	686
Stage 1	-	-	-	-	-	-	413	413	-	716	716	-
Stage 2	-	-	-	-	-	-	683	718	-	395	413	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.363
Pot Cap-1 Maneuver	916	-	-	1173	-	-	193	205	639	188	206	439
Stage 1	-	-	-	-	-	-	620	597	-	424	437	-
Stage 2	-	-	-	-	-	-	442	436	-	634	597	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	879	-	-	1125	-	-	173	183	601	170	184	421
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	183	-	170	184	-
Stage 1	-	-	-	-	-	-	588	566	-	402	411	-
Stage 2	-	-	-	-	-	-	414	410	-	605	566	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.2		0.2		11.1		18.7	
HCM LOS					B		C	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	601	879	-	-	1125	-	-	288
HCM Lane V/C Ratio	0.015	0.009	-	-	0.013	-	-	0.086
HCM Control Delay (s)	11.1	9.1	0	-	8.2	0	-	18.7
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	317	1	2	590	2	0	0	1	7	0	7
Future Vol, veh/h	8	317	1	2	590	2	0	0	1	7	0	7
Conflicting Peds, #/hr	50	0	66	66	0	50	4	0	2	2	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	9	348	1	2	648	2	0	0	1	8	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	700	0	0	415	0	0	1094	1137	417	1072	1136	703
Stage 1	-	-	-	-	-	-	433	433	-	703	703	-
Stage 2	-	-	-	-	-	-	661	704	-	369	433	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	906	-	-	1155	-	-	193	203	640	200	204	441
Stage 1	-	-	-	-	-	-	605	585	-	431	443	-
Stage 2	-	-	-	-	-	-	455	443	-	655	585	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	863	-	-	1082	-	-	175	178	599	187	179	418
Mov Cap-2 Maneuver	-	-	-	-	-	-	175	178	-	187	179	-
Stage 1	-	-	-	-	-	-	560	541	-	405	420	-
Stage 2	-	-	-	-	-	-	444	420	-	644	541	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0			11			19.8		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	599	863	-	-	1082	-	-	258
HCM Lane V/C Ratio	0.002	0.01	-	-	0.002	-	-	0.06
HCM Control Delay (s)	11	9.2	0	-	8.3	0	-	19.8
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	311	3	8	609	5	4	0	6	6	1	7
Future Vol, veh/h	9	311	3	8	609	5	4	0	6	6	1	7
Conflicting Peds, #/hr	45	0	89	89	0	45	4	0	2	2	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	1	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	10	349	3	9	684	6	4	0	7	7	1	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	735	0	0	441	0	0	1174	1213	442	1126	1211	736
Stage 1	-	-	-	-	-	-	460	460	-	750	750	-
Stage 2	-	-	-	-	-	-	714	753	-	376	461	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	879	-	-	1130	-	-	170	183	620	184	184	422
Stage 1	-	-	-	-	-	-	585	569	-	407	422	-
Stage 2	-	-	-	-	-	-	425	420	-	649	569	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	841	-	-	1034	-	-	148	156	566	170	156	402
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	156	-	170	156	-
Stage 1	-	-	-	-	-	-	528	513	-	384	398	-
Stage 2	-	-	-	-	-	-	408	396	-	630	513	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			19.1			21.3		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	266	841	-	-	1034	-	-	237
HCM Lane V/C Ratio	0.042	0.012	-	-	0.009	-	-	0.066
HCM Control Delay (s)	19.1	9.3	0	-	8.5	0	-	21.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	158	268	234	379	193	106	111	52	321	52
v/c Ratio	0.09	0.30	0.33	0.55	0.52	0.63	0.34	0.31	0.14	0.80	0.12
Control Delay	28.0	28.8	4.2	27.4	24.5	43.3	34.5	3.7	29.4	48.7	0.5
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	28.0	28.8	4.2	27.4	24.5	43.3	34.5	3.7	29.4	48.7	0.5
Queue Length 50th (ft)	10	67	16	85	149	98	51	0	23	163	0
Queue Length 95th (ft)	35	142	50	178	294	174	101	15	57	284	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	288	529	966	426	732	502	524	493	483	534	540
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	0.30	0.28	0.55	0.52	0.38	0.20	0.23	0.11	0.60	0.10

Intersection Summary
























Attachment E

JPA Aspen Heights

2021 Existing - PM

5: Jefferson Park Ave & Fontaine Ave & Maury Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	150	255	222	327	33	183	101	105	49	305	49
Future Volume (veh/h)	25	150	255	222	327	33	183	101	105	49	305	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.99		0.98	1.00		1.00	1.00		0.84
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	1900	1870	1900	1885	1870	1678	1870	1856	1900	1811	1885	1841
Adj Flow Rate, veh/h	26	158	268	234	344	35	193	106	0	52	321	52
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	1	2	15	2	3	0	6	1	4
Cap, veh/h	308	509	731	359	642	65	340	355		379	414	289
Arrive On Green	0.27	0.27	0.27	0.05	0.39	0.39	0.19	0.19	0.00	0.22	0.22	0.22
Sat Flow, veh/h	1002	1870	1557	1795	1666	169	1781	1856	1610	1725	1885	1315
Grp Volume(v), veh/h	26	158	268	234	0	379	193	106	0	52	321	52
Grp Sat Flow(s),veh/h/ln	1002	1870	1557	1795	0	1835	1781	1856	1610	1725	1885	1315
Q Serve(g_s), s	1.8	5.9	9.8	4.0	0.0	14.1	8.7	4.3	0.0	2.1	14.1	2.8
Cycle Q Clear(g_c), s	5.9	5.9	9.8	4.0	0.0	14.1	8.7	4.3	0.0	2.1	14.1	2.8
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	308	509	731	359	0	707	340	355		379	414	289
V/C Ratio(X)	0.08	0.31	0.37	0.65	0.00	0.54	0.57	0.30		0.14	0.78	0.18
Avail Cap(c_a), veh/h	308	509	731	359	0	707	485	505		469	513	358
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	25.5	15.4	27.3	0.0	21.0	32.4	30.6	0.0	27.7	32.4	28.0
Incr Delay (d2), s/veh	0.5	1.6	1.4	8.9	0.0	2.9	0.6	0.2	0.0	0.1	4.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.8	5.1	3.3	0.0	6.3	3.7	1.9	0.0	0.9	6.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7	27.1	16.8	36.2	0.0	23.9	32.9	30.8	0.0	27.8	36.9	28.1
LnGrp LOS	C	C	B	D	A	C	C	C		C	D	C
Approach Vol, veh/h		452			613			299	A		425	
Approach Delay, s/veh		21.0			28.6			32.2			34.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		25.4		40.0		22.9				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	6.0	11.8		16.1		16.1		10.7				
Green Ext Time (p_c), s	0.0	1.6		1.0		2.1		0.5				

Intersection Summary

HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Notes

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

Intersection												
Intersection Delay, s/veh	21.8											
Intersection LOS	C											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	16	3	128	129	20	6	154	16	61	328	94
Future Vol, veh/h	20	16	3	128	129	20	6	154	16	61	328	94
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
Heavy Vehicles, %	5	0	0	2	0	0	0	6	0	34	1	7
Mvmt Flow	21	17	3	136	137	21	6	164	17	65	349	100
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		NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right		SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.4	15.1	11.4	30.4
HCM LOS	B	C	B	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	51%	46%	13%
Vol Thru, %	88%	41%	47%	68%
Vol Right, %	9%	8%	7%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	39	277	483
LT Vol	6	20	128	61
Through Vol	154	16	129	328
RT Vol	16	3	20	94
Lane Flow Rate	187	41	295	514
Geometry Grp	1	1	1	1
Degree of Util (X)	0.302	0.079	0.497	0.825
Departure Headway (Hd)	5.802	6.859	6.074	5.778
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	616	526	589	627
Service Time	3.879	4.859	4.145	3.834
HCM Lane V/C Ratio	0.304	0.078	0.501	0.82
HCM Control Delay	11.4	10.4	15.1	30.4
HCM Lane LOS	B	B	C	D
HCM 95th-tile Q	1.3	0.3	2.8	8.6

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	80	2	5	259	5	10
Future Vol, veh/h	80	2	5	259	5	10
Conflicting Peds, #/hr	0	42	42	0	9	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	26	0	0	1	0	0
Mvmt Flow	99	2	6	320	6	12
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	143	0	483	143
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	341	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1452	-	546	910
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	725	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1394	-	517	873
Mov Cap-2 Maneuver	-	-	-	-	517	-
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	715	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.1	10.2			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	710	-	-	1394	-	
HCM Lane V/C Ratio	0.026	-	-	0.004	-	
HCM Control Delay (s)	10.2	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	0	0	0	10	7	0
Future Vol, veh/h	0	0	0	10	7	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	11	8	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	19	8	8	0	0
Stage 1	8	-	-	-	-
Stage 2	11	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	1004	1080	1625	-	-
Stage 1	1020	-	-	-	-
Stage 2	1017	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	1004	1080	1625	-	-
Mov Cap-2 Maneuver	1004	-	-	-	-
Stage 1	1020	-	-	-	-
Stage 2	1017	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1625	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	253	74	354	152	96
Average Queue (ft)	125	41	154	73	40
95th Queue (ft)	225	78	288	128	80
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		1	17		
Queuing Penalty (veh)		5	18		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	159	33	66
Average Queue (ft)	6	34	8	19
95th Queue (ft)	31	161	31	49
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0	1		
Queuing Penalty (veh)	0	3		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	80	79	25	42
Average Queue (ft)	7	14	1	14
95th Queue (ft)	40	65	12	41
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)		4		
Queuing Penalty (veh)		22		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	91	157	41	46
Average Queue (ft)	6	41	9	13
95th Queue (ft)	39	149	33	42
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)		4		
Queuing Penalty (veh)		25		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	L	T	R
Maximum Queue (ft)	90	210	120	87	445	187	133	117	339	125
Average Queue (ft)	18	78	62	83	296	96	58	42	184	46
95th Queue (ft)	56	156	122	99	489	163	112	112	295	125
Link Distance (ft)		774			432		770		538	
Upstream Blk Time (%)					7					
Queuing Penalty (veh)					43					
Storage Bay Dist (ft)	150		120	88		355		117		125
Storage Blk Time (%)	0	2	0	21	38			0	27	0
Queuing Penalty (veh)	0	5	1	76	85			0	26	1

**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	60	165	124	271
Average Queue (ft)	25	67	65	117
95th Queue (ft)	53	121	105	213
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	18	35
Average Queue (ft)	1	13
95th Queue (ft)	9	37
Link Distance (ft)	658	455
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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**Intersection: 8: Washington Ave & Site Entrance**

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Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

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**Network Summary**

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Network wide Queuing Penalty: 311
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## Attachment E

## Appendix D

# Synchro/SimTraffic Outputs for 2023/2028 Background Conditions

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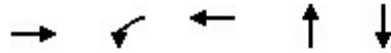
Attachment E

December 2021

Aspen Heights TIA – City of Charlottesville

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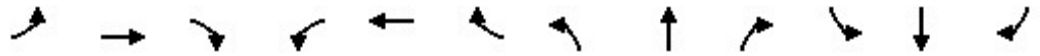
Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	519	33	260	192	27
v/c Ratio	0.59	0.06	0.24	0.66	0.09
Control Delay	17.1	6.4	7.1	41.9	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	6.4	7.1	41.9	24.6
Queue Length 50th (ft)	164	5	46	92	10
Queue Length 95th (ft)	321	18	105	157	31
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	882	515	1064	447	469
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.06	0.24	0.43	0.06

Intersection Summary

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2023 Background AM  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	8	453	32	31	244	3	65	45	73	4	19	3
Future Volume (veh/h)	8	453	32	31	244	3	65	45	73	4	19	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	1.00		0.93	0.96		0.93	0.97		0.95
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	1707	1870	1811	1856	1811	1900	1870	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	477	34	33	257	3	68	47	77	4	20	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	13	2	6	3	6	0	2	0	0	0	0	0
Cap, veh/h	49	915	64	572	1179	14	143	96	120	74	284	39
Arrive On Green	0.54	0.54	0.54	0.05	0.66	0.66	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	8	1700	120	1767	1785	21	431	499	623	123	1476	200
Grp Volume(v), veh/h	519	0	0	33	0	260	192	0	0	27	0	0
Grp Sat Flow(s),veh/h/ln	1829	0	0	1767	0	1806	1554	0	0	1798	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	4.7	6.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	14.9	0.0	0.0	0.6	0.0	4.7	9.1	0.0	0.0	1.0	0.0	0.0
Prop In Lane	0.02		0.07	1.00		0.01	0.35		0.40	0.15		0.11
Lane Grp Cap(c), veh/h	1029	0	0	572	0	1192	359	0	0	397	0	0
V/C Ratio(X)	0.50	0.00	0.00	0.06	0.00	0.22	0.53	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1029	0	0	572	0	1192	512	0	0	571	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.2	0.0	0.0	6.3	0.0	5.5	30.2	0.0	0.0	27.0	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.2	0.0	0.4	1.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.0	0.2	0.0	1.5	3.5	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.9	0.0	0.0	6.5	0.0	5.9	31.4	0.0	0.0	27.1	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		519			293			192				27
Approach Delay, s/veh		13.9			6.0			31.4				27.1
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	50.0		21.8		60.0		21.8				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	2.6	16.9		3.0		6.7		11.1				
Green Ext Time (p_c), s	0.0	3.5		0.0		1.6		0.5				

Intersection Summary												
HCM 6th Ctrl Delay				15.3								
HCM 6th LOS				B								



Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	481	1	4	288	3	1	0	1	2	0	2
Future Vol, veh/h	9	481	1	4	288	3	1	0	1	2	0	2
Conflicting Peds, #/hr	58	0	19	19	0	58	0	0	16	16	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	10	517	1	4	310	3	1	0	1	2	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	371	0	0	537	0	0	878	936	553	932	935	370
Stage 1	-	-	-	-	-	-	557	557	-	378	378	-
Stage 2	-	-	-	-	-	-	321	379	-	554	557	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1199	-	-	1041	-	-	271	267	537	249	267	680
Stage 1	-	-	-	-	-	-	518	515	-	648	619	-
Stage 2	-	-	-	-	-	-	695	618	-	520	515	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1133	-	-	1022	-	-	262	244	519	228	244	642
Mov Cap-2 Maneuver	-	-	-	-	-	-	262	244	-	228	244	-
Stage 1	-	-	-	-	-	-	502	500	-	605	582	-
Stage 2	-	-	-	-	-	-	689	581	-	505	500	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			15.4			15.9		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	
Capacity (veh/h)	348	1133	-	-	1022	-	-	336	
HCM Lane V/C Ratio	0.006	0.009	-	-	0.004	-	-	0.013	
HCM Control Delay (s)	15.4	8.2	0	-	8.5	0	-	15.9	
HCM Lane LOS		C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)		0	0	-	-	0	-	-	0

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	485	2	2	292	2	0	0	1	0	0	0
Future Vol, veh/h	5	485	2	2	292	2	0	0	1	0	0	0
Conflicting Peds, #/hr	44	0	27	27	0	44	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	20	3	100	0	5	0	0	0	0	0	0	0
Mvmt Flow	5	527	2	2	317	2	0	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	363	0	0	556	0	0	889	932	557	907	932	364
Stage 1	-	-	-	-	-	-	565	565	-	366	366	-
Stage 2	-	-	-	-	-	-	324	367	-	541	566	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1103	-	-	1025	-	-	266	269	534	259	269	685
Stage 1	-	-	-	-	-	-	513	511	-	657	626	-
Stage 2	-	-	-	-	-	-	692	626	-	529	511	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1057	-	-	999	-	-	257	249	519	246	249	655
Mov Cap-2 Maneuver	-	-	-	-	-	-	257	249	-	246	249	-
Stage 1	-	-	-	-	-	-	496	494	-	625	598	-
Stage 2	-	-	-	-	-	-	689	598	-	523	494	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			12			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	519	1057	-	-	999	-	-	-
HCM Lane V/C Ratio	0.002	0.005	-	-	0.002	-	-	-
HCM Control Delay (s)	12	8.4	0	-	8.6	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	504	0	4	279	1	1	0	3	2	0	3
Future Vol, veh/h	6	504	0	4	279	1	1	0	3	2	0	3
Conflicting Peds, #/hr	57	0	32	32	0	57	2	0	1	1	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	25	4	0	0	0	0	0	0	0
Mvmt Flow	7	548	0	4	303	1	1	0	3	2	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	361	0	0	580	0	0	909	963	581	934	963	363
Stage 1	-	-	-	-	-	-	594	594	-	369	369	-
Stage 2	-	-	-	-	-	-	315	369	-	565	594	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1209	-	-	890	-	-	258	258	517	248	258	686
Stage 1	-	-	-	-	-	-	495	496	-	655	624	-
Stage 2	-	-	-	-	-	-	700	624	-	513	496	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1143	-	-	863	-	-	246	233	501	230	233	648
Mov Cap-2 Maneuver	-	-	-	-	-	-	246	233	-	230	233	-
Stage 1	-	-	-	-	-	-	476	477	-	614	587	-
Stage 2	-	-	-	-	-	-	691	587	-	505	477	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			14.1			14.7		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	398	1143	-	-	863	-	-	375
HCM Lane V/C Ratio	0.011	0.006	-	-	0.005	-	-	0.014
HCM Control Delay (s)	14.1	8.2	0	-	9.2	0	-	14.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	320	149	58	258	337	253	193	22	53	15
v/c Ratio	0.19	0.50	0.15	0.16	0.33	0.77	0.55	0.38	0.12	0.24	0.05
Control Delay	26.8	29.1	1.5	18.4	19.0	41.9	32.5	6.9	34.0	36.0	0.3
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	26.8	29.1	1.5	18.4	19.0	41.9	32.5	6.9	34.0	36.0	0.3
Queue Length 50th (ft)	28	136	0	17	83	153	108	0	10	26	0
Queue Length 95th (ft)	77	276	19	52	187	#320	216	53	31	59	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	382	641	1047	358	785	559	582	587	491	571	528
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	0.19	0.50	0.14	0.16	0.33	0.60	0.43	0.33	0.04	0.09	0.03

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Attachment E

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2023 Background AM  
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	294	137	53	215	22	310	233	178	20	49	14
Future Volume (veh/h)	68	294	137	53	215	22	310	233	178	20	49	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.96	1.00		1.00	1.00		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1885	1870	1841	1559	1885	1870	1885	1678	1841	1693
Adj Flow Rate, veh/h	74	320	149	58	234	24	337	253	0	22	53	15
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, %	3	3	1	2	4	23	1	2	1	15	4	14
Cap, veh/h	438	586	848	315	699	72	408	425		190	219	150
Arrive On Green	0.32	0.32	0.32	0.04	0.43	0.43	0.23	0.23	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1099	1856	1535	1781	1636	168	1795	1870	1598	1598	1841	1258
Grp Volume(v), veh/h	74	320	149	58	0	258	337	253	0	22	53	15
Grp Sat Flow(s),veh/h/ln	1099	1856	1535	1781	0	1803	1795	1870	1598	1598	1841	1258
Q Serve(g_s), s	3.9	11.3	3.9	1.7	0.0	7.6	14.2	9.6	0.0	1.0	2.1	0.8
Cycle Q Clear(g_c), s	3.9	11.3	3.9	1.7	0.0	7.6	14.2	9.6	0.0	1.0	2.1	0.8
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	438	586	848	315	0	771	408	425		190	219	150
V/C Ratio(X)	0.17	0.55	0.18	0.18	0.00	0.33	0.83	0.60		0.12	0.24	0.10
Avail Cap(c_a), veh/h	438	586	848	339	0	771	542	564		482	555	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	22.5	9.2	17.1	0.0	15.2	29.2	27.5	0.0	31.3	31.8	31.2
Incr Delay (d2), s/veh	0.8	3.6	0.5	0.1	0.0	1.2	5.9	0.5	0.0	0.1	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	5.2	2.1	0.6	0.0	3.1	6.6	4.2	0.0	0.4	0.9	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	26.1	9.6	17.2	0.0	16.4	35.1	28.0	0.0	31.4	32.0	31.4
LnGrp LOS	C	C	A	B	A	B	D	C		C	C	C
Approach Vol, veh/h		543			316			590	A		90	
Approach Delay, s/veh		20.9			16.5			32.1			31.7	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.9	31.1		15.5		40.0		24.1				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	3.7	13.3		4.1		9.6		16.2				
Green Ext Time (p_c), s	0.0	2.0		0.2		1.4		1.0				

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

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

**Intersection**

Intersection Delay, s/veh 11.8

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	111	70	6	18	9	31	2	305	49	26	71	29
Future Vol, veh/h	111	70	6	18	9	31	2	305	49	26	71	29
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
Heavy Vehicles, %	0	0	0	22	11	0	0	3	0	54	4	21
Mvmt Flow	121	76	7	20	10	34	2	332	53	28	77	32
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	11	9.4	13	10.8
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	59%	31%	21%
Vol Thru, %	86%	37%	16%	56%
Vol Right, %	14%	3%	53%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	356	187	58	126
LT Vol	2	111	18	26
Through Vol	305	70	9	71
RT Vol	49	6	31	29
Lane Flow Rate	387	203	63	137
Geometry Grp	1	1	1	1
Degree of Util (X)	0.52	0.31	0.101	0.229
Departure Headway (Hd)	4.84	5.485	5.761	6.029
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	751	657	622	596
Service Time	2.84	3.515	3.798	4.058
HCM Lane V/C Ratio	0.515	0.309	0.101	0.23
HCM Control Delay	13	11	9.4	10.8
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	3	1.3	0.3	0.9

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	144	3	1	50	1	4
Future Vol, veh/h	144	3	1	50	1	4
Conflicting Peds, #/hr	0	13	13	0	4	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	0	0	8	0	0
Mvmt Flow	157	3	1	54	1	4
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	173	0	232	173
Stage 1	-	-	-	-	172	-
Stage 2	-	-	-	-	60	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1416	-	761	876
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	968	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1398	-	748	864
Mov Cap-2 Maneuver	-	-	-	-	748	-
Stage 1	-	-	-	-	853	-
Stage 2	-	-	-	-	963	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.1	9.3			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	838	-	-	1398	-	
HCM Lane V/C Ratio	0.006	-	-	0.001	-	
HCM Control Delay (s)	9.3	-	-	7.6	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	0	0	0	8	4	0
Future Vol, veh/h	0	0	0	8	4	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	9	4	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	13	4	4	0	0
Stage 1	4	-	-	-	-
Stage 2	9	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	1011	1085	1631	-	-
Stage 1	1024	-	-	-	-
Stage 2	1019	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	1011	1085	1631	-	-
Mov Cap-2 Maneuver	1011	-	-	-	-
Stage 1	1024	-	-	-	-
Stage 2	1019	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1631	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



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**Intersection: 1: Shamrock Rd & Jefferson Park Ave**


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Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	293	61	144	200	63
Average Queue (ft)	142	15	54	98	19
95th Queue (ft)	264	44	113	169	51
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	1				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		0	4		
Queuing Penalty (veh)		0	1		

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**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	73	37	21	33
Average Queue (ft)	9	3	2	3
95th Queue (ft)	41	25	15	19
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	1			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**


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Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	93	35	22
Average Queue (ft)	7	2	2
95th Queue (ft)	50	15	12
Link Distance (ft)	174	77	261
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	37	26	30	31
Average Queue (ft)	3	2	4	5
95th Queue (ft)	18	15	20	23
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**


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Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	143	306	120	87	203	269	225	156	65	96	67
Average Queue (ft)	43	128	42	40	93	147	114	8	15	37	13
95th Queue (ft)	105	256	117	86	170	230	192	76	45	79	45
Link Distance (ft)		774			432		770			538	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150		120	88		355		225	117		125
Storage Blk Time (%)	0	9	0	0	8		0	0	0	0	
Queuing Penalty (veh)	0	18	1	0	4		2	0	0	0	

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**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	97	78	222	105
Average Queue (ft)	48	33	108	48
95th Queue (ft)	78	63	186	86
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**


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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	3	8	30
Average Queue (ft)	0	0	4
95th Queue (ft)	3	6	20
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**


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Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

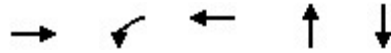
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**Network Summary**


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Network wide Queuing Penalty: 30

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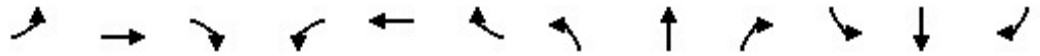


Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	484	59	380	106	30
v/c Ratio	0.45	0.10	0.32	0.49	0.12
Control Delay	11.6	5.2	6.1	37.7	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	5.2	6.1	37.7	25.1
Queue Length 50th (ft)	127	7	58	48	11
Queue Length 95th (ft)	274	25	147	93	32
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	1084	610	1198	443	498
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.10	0.32	0.24	0.06
<b>Intersection Summary</b>					

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2023 Background Midday  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	5	408	33	54	343	6	38	22	38	2	21	5
Future Volume (veh/h)	5	408	33	54	343	6	38	22	38	2	21	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.93	0.99		0.93	0.89		0.86	0.91		0.86
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	1900	1841	1856	1841	1811	1900	1826	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	443	36	59	373	7	41	24	41	2	23	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	4	3	4	6	0	5	0	0	0	0	0
Cap, veh/h	47	909	73	573	1160	22	148	90	112	53	287	59
Arrive On Green	0.55	0.55	0.55	0.04	0.66	0.66	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	4	1662	134	1753	1769	33	441	452	563	30	1447	295
Grp Volume(v), veh/h	484	0	0	59	0	380	106	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	1800	0	0	1753	0	1802	1456	0	0	1772	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	7.6	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.7	0.0	0.0	1.1	0.0	7.6	4.8	0.0	0.0	1.1	0.0	0.0
Prop In Lane	0.01		0.07	1.00		0.02	0.39		0.39	0.07		0.17
Lane Grp Cap(c), veh/h	1029	0	0	573	0	1182	350	0	0	398	0	0
V/C Ratio(X)	0.47	0.00	0.00	0.10	0.00	0.32	0.30	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	1029	0	0	595	0	1182	481	0	0	559	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.5	0.0	0.0	6.6	0.0	6.2	28.3	0.0	0.0	26.9	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	0.0	0.7	0.5	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	0.0	0.4	0.0	2.5	1.8	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	0.0	0.0	6.6	0.0	6.9	28.8	0.0	0.0	27.0	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		484			439			106				30
Approach Delay, s/veh		11.9			6.9			28.8				27.0
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.0	51.0		22.3		60.0		22.3				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	3.1	15.7		3.1		9.6		6.8				
Green Ext Time (p_c), s	0.0	3.2		0.0		2.5		0.3				

Intersection Summary												
HCM 6th Ctrl Delay				11.9								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	421	3	8	352	1	1	0	1	2	0	8
Future Vol, veh/h	6	421	3	8	352	1	1	0	1	2	0	8
Conflicting Peds, #/hr	22	0	25	25	0	22	0	0	22	22	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	5	0	0	6	0	0	0	0	0	0	0
Mvmt Flow	6	453	3	9	378	1	1	0	1	2	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	401	0	0	481	0	0	893	911	502	908	912	401
Stage 1	-	-	-	-	-	-	492	492	-	419	419	-
Stage 2	-	-	-	-	-	-	401	419	-	489	493	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1169	-	-	1092	-	-	264	276	573	258	276	653
Stage 1	-	-	-	-	-	-	562	551	-	616	593	-
Stage 2	-	-	-	-	-	-	630	593	-	564	550	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1145	-	-	1066	-	-	251	259	548	244	259	639
Mov Cap-2 Maneuver	-	-	-	-	-	-	251	259	-	244	259	-
Stage 1	-	-	-	-	-	-	545	534	-	599	574	-
Stage 2	-	-	-	-	-	-	615	574	-	547	533	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			15.5			12.6		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	344	1145	-	-	1066	-	-	483
HCM Lane V/C Ratio	0.006	0.006	-	-	0.008	-	-	0.022
HCM Control Delay (s)	15.5	8.2	0	-	8.4	0	-	12.6
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	427	1	1	361	5	2	0	3	4	1	7
Future Vol, veh/h	3	427	1	1	361	5	2	0	3	4	1	7
Conflicting Peds, #/hr	31	0	25	25	0	31	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	33	4	100	0	6	0	100	0	0	0	0	0
Mvmt Flow	3	449	1	1	380	5	2	0	3	4	1	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	416	0	0	475	0	0	870	899	476	874	897	414
Stage 1	-	-	-	-	-	-	481	481	-	416	416	-
Stage 2	-	-	-	-	-	-	389	418	-	458	481	-
Critical Hdwy	4.43	-	-	4.1	-	-	8.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	7.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.497	-	-	2.2	-	-	4.4	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	995	-	-	1098	-	-	188	281	593	272	281	643
Stage 1	-	-	-	-	-	-	419	557	-	618	595	-
Stage 2	-	-	-	-	-	-	477	594	-	587	557	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	966	-	-	1072	-	-	180	265	578	261	265	624
Mov Cap-2 Maneuver	-	-	-	-	-	-	180	265	-	261	265	-
Stage 1	-	-	-	-	-	-	407	541	-	598	577	-
Stage 2	-	-	-	-	-	-	470	576	-	581	541	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0			16.9			14.4		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	307	966	-	-	1072	-	-	396
HCM Lane V/C Ratio	0.017	0.003	-	-	0.001	-	-	0.032
HCM Control Delay (s)	16.9	8.7	0	-	8.4	0	-	14.4
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	428	3	3	379	6	2	0	3	0	0	1
Future Vol, veh/h	3	428	3	3	379	6	2	0	3	0	0	1
Conflicting Peds, #/hr	23	0	21	21	0	23	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	3	451	3	3	399	6	2	0	3	0	0	1

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	428	0	0	475	0	0	889	914	475	892	912	425
Stage 1	-	-	-	-	-	-	480	480	-	431	431	-
Stage 2	-	-	-	-	-	-	409	434	-	461	481	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1142	-	-	1098	-	-	266	275	594	265	276	634
Stage 1	-	-	-	-	-	-	571	558	-	607	586	-
Stage 2	-	-	-	-	-	-	623	585	-	584	557	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1117	-	-	1076	-	-	259	262	582	256	262	620
Mov Cap-2 Maneuver	-	-	-	-	-	-	259	262	-	256	262	-
Stage 1	-	-	-	-	-	-	557	545	-	591	571	-
Stage 2	-	-	-	-	-	-	619	570	-	578	544	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		0.1		14.4		10.8	
HCM LOS					B		B	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	388	1117	-	-	1076	-	-	620
HCM Lane V/C Ratio	0.014	0.003	-	-	0.003	-	-	0.002
HCM Control Delay (s)	14.4	8.2	0	-	8.4	0	-	10.8
HCM Lane LOS		B	A	A	-	A	A	-
HCM 95th %tile Q(veh)		0	0	-	-	0	-	0





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	49	274	154	134	257	141	90	138	33	123	45
v/c Ratio	0.14	0.44	0.18	0.31	0.30	0.51	0.31	0.37	0.14	0.44	0.12
Control Delay	23.0	24.9	1.8	17.2	15.8	36.3	31.5	6.5	30.3	35.2	0.7
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	23.0	24.9	1.8	17.2	15.8	36.3	31.5	6.5	30.3	35.2	0.7
Queue Length 50th (ft)	15	92	0	31	64	59	36	0	13	51	0
Queue Length 95th (ft)	53	227	20	98	178	127	86	33	40	111	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	362	627	1099	434	846	601	639	620	534	652	637
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	0.14	0.44	0.14	0.31	0.30	0.23	0.14	0.22	0.06	0.19	0.07

Intersection Summary

Attachment E

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2023 Background Midday  
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	258	145	126	217	24	133	85	130	31	116	42
Future Volume (veh/h)	46	258	145	126	217	24	133	85	130	31	116	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.99	1.00		1.00	1.00		0.92
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	1796	1841	1856	1856	1811	1589	1856	1870	1885	1663	1900	1900
Adj Flow Rate, veh/h	49	274	154	134	231	26	141	90	0	33	123	45
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, %	7	4	3	3	6	21	3	2	1	16	0	0
Cap, veh/h	470	631	732	420	775	87	236	250		197	236	184
Arrive On Green	0.34	0.34	0.34	0.06	0.49	0.49	0.13	0.13	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1070	1841	1524	1767	1597	180	1767	1870	1598	1584	1900	1480
Grp Volume(v), veh/h	49	274	154	134	0	257	141	90	0	33	123	45
Grp Sat Flow(s),veh/h/ln	1070	1841	1524	1767	0	1777	1767	1870	1598	1584	1900	1480
Q Serve(g_s), s	2.2	8.1	4.1	3.3	0.0	6.1	5.3	3.1	0.0	1.3	4.2	1.9
Cycle Q Clear(g_c), s	2.2	8.1	4.1	3.3	0.0	6.1	5.3	3.1	0.0	1.3	4.2	1.9
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	470	631	732	420	0	863	236	250		197	236	184
V/C Ratio(X)	0.10	0.43	0.21	0.32	0.00	0.30	0.60	0.36		0.17	0.52	0.24
Avail Cap(c_a), veh/h	470	631	732	420	0	863	606	641		543	651	507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	17.8	10.7	13.2	0.0	10.8	28.6	27.6	0.0	27.4	28.7	27.7
Incr Delay (d2), s/veh	0.4	2.2	0.7	2.0	0.0	0.9	0.9	0.3	0.0	0.1	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.5	1.8	1.4	0.0	2.3	2.2	1.3	0.0	0.5	1.9	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	20.0	11.3	15.2	0.0	11.7	29.5	28.0	0.0	27.6	29.4	28.0
LnGrp LOS	B	B	B	B	A	B	C	C		C	C	C
Approach Vol, veh/h		477			391			231	A		201	
Approach Delay, s/veh		16.8			12.9			28.9			28.8	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		14.7		40.0		15.3				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	5.3	10.1		6.2		8.1		7.3				
Green Ext Time (p_c), s	0.0	2.0		0.5		1.5		0.4				

Intersection Summary

HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

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

**Intersection**

Intersection Delay, s/veh 9.1

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	12	2	53	22	21	5	158	26	17	151	40
Future Vol, veh/h	20	12	2	53	22	21	5	158	26	17	151	40
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
Heavy Vehicles, %	0	0	0	6	0	0	0	6	0	6	2	15
Mvmt Flow	22	13	2	58	24	23	5	172	28	18	164	43
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
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	8.4			8.9			9			9.3		
HCM LOS	A			A			A			A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	59%	55%	8%
Vol Thru, %	84%	35%	23%	73%
Vol Right, %	14%	6%	22%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	34	96	208
LT Vol	5	20	53	17
Through Vol	158	12	22	151
RT Vol	26	2	21	40
Lane Flow Rate	205	37	104	226
Geometry Grp	1	1	1	1
Degree of Util (X)	0.253	0.052	0.145	0.282
Departure Headway (Hd)	4.432	5.097	4.997	4.486
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	809	700	716	800
Service Time	2.464	3.147	3.04	2.518
HCM Lane V/C Ratio	0.253	0.053	0.145	0.282
HCM Control Delay	9	8.4	8.9	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.2	0.5	1.2

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	47	9	7	93	3	2
Future Vol, veh/h	47	9	7	93	3	2
Conflicting Peds, #/hr	0	39	39	0	13	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	0	0	3	0	50
Mvmt Flow	52	10	8	102	3	2
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	101	0	227	97
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	-	-	4.1	-	6.4	6.7
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.75
Pot Cap-1 Maneuver	-	-	1504	-	766	843
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	900	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1448	-	725	811
Mov Cap-2 Maneuver	-	-	-	-	725	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	884	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.5	9.8			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	757	-	-	1448	-	
HCM Lane V/C Ratio	0.007	-	-	0.005	-	
HCM Control Delay (s)	9.8	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	8	16	0
Future Vol, veh/h	0	0	0	8	16	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	9	17	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	26	17	17	0	-
Stage 1	17	-	-	-	-
Stage 2	9	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	995	1068	1613	-	-
Stage 1	1011	-	-	-	-
Stage 2	1019	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	995	1068	1613	-	-
Mov Cap-2 Maneuver	995	-	-	-	-
Stage 1	1011	-	-	-	-
Stage 2	1019	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1613	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	284	68	207	133	53
Average Queue (ft)	121	25	76	61	18
95th Queue (ft)	243	59	153	112	48
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	1				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		0	7		
Queuing Penalty (veh)		1	4		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	63	82	21	35
Average Queue (ft)	8	6	2	8
95th Queue (ft)	39	36	14	31
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	1			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	32	11	55	38
Average Queue (ft)	2	1	7	10
95th Queue (ft)	15	9	34	34
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	29	51	33	9
Average Queue (ft)	1	2	5	0
95th Queue (ft)	19	24	24	6
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**


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Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	L	T	R
Maximum Queue (ft)	141	282	120	87	256	145	105	95	174	92
Average Queue (ft)	34	114	48	58	102	71	47	26	70	28
95th Queue (ft)	93	218	122	99	209	122	90	71	133	71
Link Distance (ft)		774			432		770		538	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		120	88		355		117		125
Storage Blk Time (%)	0	6	0	2	7			0	2	0
Queuing Penalty (veh)	0	11	1	5	9			0	1	0

---

**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	49	73	120	119
Average Queue (ft)	22	38	57	54
95th Queue (ft)	46	63	93	93
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	6	15	46
Average Queue (ft)	0	0	6
95th Queue (ft)	5	6	29
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**

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Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

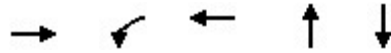
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**Network Summary**

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Network wide Queuing Penalty: 35
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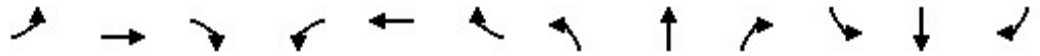
Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	375	111	599	133	72
v/c Ratio	0.45	0.18	0.53	0.56	0.27
Control Delay	13.3	6.2	9.6	39.5	28.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	6.2	9.6	39.5	28.5
Queue Length 50th (ft)	94	15	119	61	29
Queue Length 95th (ft)	212	47	298	114	63
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	841	604	1130	423	478
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.18	0.53	0.31	0.15

Intersection Summary

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2023 Background PM  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	21	276	55	104	551	12	43	25	56	9	52	7
Future Volume (veh/h)	21	276	55	104	551	12	43	25	56	9	52	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.90	0.99		0.90	0.89		0.85	0.91		0.84
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	1900	1870	1900	1885	1870	1781	1870	1900	1841	1900	1900	1900
Adj Flow Rate, veh/h	22	294	59	111	586	13	46	27	60	10	55	7
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, %	0	2	0	1	2	8	2	0	4	0	0	0
Cap, veh/h	68	715	138	640	1137	25	149	93	152	77	346	40
Arrive On Green	0.51	0.51	0.51	0.05	0.63	0.63	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	47	1404	271	1795	1818	40	392	393	646	124	1466	171
Grp Volume(v), veh/h	375	0	0	111	0	599	133	0	0	72	0	0
Grp Sat Flow(s),veh/h/ln	1722	0	0	1795	0	1858	1432	0	0	1761	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	15.4	2.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.3	0.0	0.0	2.4	0.0	15.4	6.3	0.0	0.0	2.7	0.0	0.0
Prop In Lane	0.06		0.16	1.00		0.02	0.35		0.45	0.14		0.10
Lane Grp Cap(c), veh/h	922	0	0	640	0	1162	394	0	0	463	0	0
V/C Ratio(X)	0.41	0.00	0.00	0.17	0.00	0.52	0.34	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	922	0	0	640	0	1162	452	0	0	534	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.2	0.0	0.0	8.2	0.0	8.9	27.5	0.0	0.0	26.3	0.0	0.0
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.6	0.0	1.6	0.5	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	0.9	0.0	5.7	2.3	0.0	0.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	0.0	0.0	8.7	0.0	10.6	28.0	0.0	0.0	26.4	0.0	0.0
LnGrp LOS	B	A	A	A	A	B	C	A	A	C	A	A
Approach Vol, veh/h		375			710			133				72
Approach Delay, s/veh		14.5			10.3			28.0				26.4
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	50.0		26.4		60.0		26.4				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	4.4	13.3		4.7		17.4		8.3				
Green Ext Time (p_c), s	0.0	2.5		0.1		4.4		0.4				

Intersection Summary												
HCM 6th Ctrl Delay				14.2								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	315	1	13	573	4	0	0	8	6	1	15
Future Vol, veh/h	7	315	1	13	573	4	0	0	8	6	1	15
Conflicting Peds, #/hr	43	0	44	44	0	43	0	0	21	21	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	0	2	0	0	0	0	0	0	7
Mvmt Flow	8	342	1	14	623	4	0	0	9	7	1	16

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	670	0	0	387	0	0	1065	1101	408	1080	1099	668
Stage 1	-	-	-	-	-	-	403	403	-	696	696	-
Stage 2	-	-	-	-	-	-	662	698	-	384	403	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.363
Pot Cap-1 Maneuver	930	-	-	1183	-	-	202	214	648	197	214	450
Stage 1	-	-	-	-	-	-	628	603	-	435	446	-
Stage 2	-	-	-	-	-	-	454	445	-	643	603	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	892	-	-	1133	-	-	181	191	608	178	191	432
Mov Cap-2 Maneuver	-	-	-	-	-	-	181	191	-	178	191	-
Stage 1	-	-	-	-	-	-	595	571	-	412	420	-
Stage 2	-	-	-	-	-	-	427	419	-	614	571	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.2		0.2		11		18.1	
HCM LOS					B		C	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	608	892	-	-	1133	-	-	299
HCM Lane V/C Ratio	0.014	0.009	-	-	0.012	-	-	0.08
HCM Control Delay (s)	11	9.1	0	-	8.2	0	-	18.1
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	318	1	2	592	2	0	0	1	7	0	7
Future Vol, veh/h	8	318	1	2	592	2	0	0	1	7	0	7
Conflicting Peds, #/hr	51	0	67	67	0	51	4	0	2	2	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	9	346	1	2	643	2	0	0	1	8	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	696	0	0	414	0	0	1088	1132	416	1066	1131	699
Stage 1	-	-	-	-	-	-	432	432	-	699	699	-
Stage 2	-	-	-	-	-	-	656	700	-	367	432	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	909	-	-	1156	-	-	195	205	641	202	205	443
Stage 1	-	-	-	-	-	-	606	586	-	434	445	-
Stage 2	-	-	-	-	-	-	458	444	-	657	586	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	865	-	-	1082	-	-	176	180	599	189	180	420
Mov Cap-2 Maneuver	-	-	-	-	-	-	176	180	-	189	180	-
Stage 1	-	-	-	-	-	-	560	541	-	408	422	-
Stage 2	-	-	-	-	-	-	447	421	-	646	541	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0			11			19.6		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	599	865	-	-	1082	-	-	261
HCM Lane V/C Ratio	0.002	0.01	-	-	0.002	-	-	0.058
HCM Control Delay (s)	11	9.2	0	-	8.3	0	-	19.6
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	312	3	8	611	5	4	0	6	6	1	7
Future Vol, veh/h	9	312	3	8	611	5	4	0	6	6	1	7
Conflicting Peds, #/hr	46	0	91	91	0	46	4	0	2	2	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	1	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	10	339	3	9	664	5	4	0	7	7	1	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	715	0	0	433	0	0	1145	1185	434	1097	1184	717
Stage 1	-	-	-	-	-	-	452	452	-	731	731	-
Stage 2	-	-	-	-	-	-	693	733	-	366	453	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	895	-	-	1137	-	-	178	191	626	192	191	433
Stage 1	-	-	-	-	-	-	591	574	-	416	430	-
Stage 2	-	-	-	-	-	-	437	429	-	657	573	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	856	-	-	1038	-	-	155	162	571	177	162	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	162	-	177	162	-
Stage 1	-	-	-	-	-	-	532	517	-	392	405	-
Stage 2	-	-	-	-	-	-	420	405	-	639	516	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			18.6			20.7		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	275	856	-	-	1038	-	-	245
HCM Lane V/C Ratio	0.04	0.011	-	-	0.008	-	-	0.062
HCM Control Delay (s)	18.6	9.3	0	-	8.5	0	-	20.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2


























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	159	269	235	380	194	106	111	52	322	52
v/c Ratio	0.09	0.30	0.34	0.55	0.52	0.64	0.34	0.31	0.14	0.80	0.12
Control Delay	28.2	29.0	4.3	27.7	24.7	43.7	34.7	3.8	29.3	48.1	0.5
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	28.2	29.0	4.3	27.7	24.7	43.7	34.7	3.8	29.3	48.1	0.5
Queue Length 50th (ft)	10	67	17	86	150	98	51	0	23	164	0
Queue Length 95th (ft)	35	143	50	179	295	175	101	15	57	285	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	287	528	963	425	730	501	523	490	482	533	533
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	0.30	0.28	0.55	0.52	0.39	0.20	0.23	0.11	0.60	0.10

Intersection Summary

Attachment E

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2023 Background PM  
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	151	256	223	328	33	184	101	105	49	306	49
Future Volume (veh/h)	25	151	256	223	328	33	184	101	105	49	306	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.96	1.00		1.00	1.00		0.81
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	1900	1870	1900	1885	1870	1678	1870	1856	1900	1811	1885	1841
Adj Flow Rate, veh/h	26	159	269	235	345	35	194	106	0	52	322	52
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	1	2	15	2	3	0	6	1	4
Cap, veh/h	305	508	721	358	640	65	342	356		379	414	278
Arrive On Green	0.27	0.27	0.27	0.05	0.38	0.38	0.19	0.19	0.00	0.22	0.22	0.22
Sat Flow, veh/h	1002	1870	1519	1795	1662	169	1781	1856	1610	1725	1885	1265
Grp Volume(v), veh/h	26	159	269	235	0	380	194	106	0	52	322	52
Grp Sat Flow(s),veh/h/ln	1002	1870	1519	1795	0	1831	1781	1856	1610	1725	1885	1265
Q Serve(g_s), s	1.8	6.0	10.2	4.0	0.0	14.2	8.7	4.3	0.0	2.1	14.2	3.0
Cycle Q Clear(g_c), s	6.1	6.0	10.2	4.0	0.0	14.2	8.7	4.3	0.0	2.1	14.2	3.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	508	721	358	0	704	342	356		379	414	278
V/C Ratio(X)	0.09	0.31	0.37	0.66	0.00	0.54	0.57	0.30		0.14	0.78	0.19
Avail Cap(c_a), veh/h	305	508	721	358	0	704	484	504		469	512	344
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	25.6	15.5	27.5	0.0	21.1	32.4	30.6	0.0	27.7	32.4	28.0
Incr Delay (d2), s/veh	0.5	1.6	1.5	9.1	0.0	3.0	0.6	0.2	0.0	0.1	4.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.8	5.1	3.4	0.0	6.3	3.7	1.9	0.0	0.9	6.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.9	27.2	16.9	36.6	0.0	24.0	32.9	30.8	0.0	27.8	37.0	28.2
LnGrp LOS	C	C	B	D	A	C	C	C		C	D	C
Approach Vol, veh/h		454			615			300	A		426	
Approach Delay, s/veh		21.2			28.8			32.2			34.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		25.4		40.0		22.9				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	6.0	12.2		16.2		16.2		10.7				
Green Ext Time (p_c), s	0.0	1.6		1.0		2.1		0.5				

Intersection Summary

HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

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

Intersection	
Intersection Delay, s/veh	22
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	16	3	129	130	20	6	155	16	61	329	94
Future Vol, veh/h	20	16	3	129	130	20	6	155	16	61	329	94
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
Heavy Vehicles, %	5	0	0	2	0	0	0	6	0	34	1	7
Mvmt Flow	21	17	3	137	138	21	6	165	17	65	350	100
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	10.5	15.2	11.4	30.8
HCM LOS	B	C	B	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	51%	46%	13%
Vol Thru, %	88%	41%	47%	68%
Vol Right, %	9%	8%	7%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	177	39	279	484
LT Vol	6	20	129	61
Through Vol	155	16	130	329
RT Vol	16	3	20	94
Lane Flow Rate	188	41	297	515
Geometry Grp	1	1	1	1
Degree of Util (X)	0.304	0.079	0.502	0.828
Departure Headway (Hd)	5.817	6.877	6.085	5.79
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	614	524	591	623
Service Time	3.894	4.877	4.154	3.847
HCM Lane V/C Ratio	0.306	0.078	0.503	0.827
HCM Control Delay	11.4	10.5	15.2	30.8
HCM Lane LOS	B	B	C	D
HCM 95th-tile Q	1.3	0.3	2.8	8.7



Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	80	2	5	260	5	10
Future Vol, veh/h	80	2	5	260	5	10
Conflicting Peds, #/hr	0	42	42	0	9	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	26	0	0	1	0	0
Mvmt Flow	87	2	5	283	5	11
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	131	0	432	131
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	302	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1467	-	584	924
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	755	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1408	-	554	886
Mov Cap-2 Maneuver	-	-	-	-	554	-
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	745	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.1	10			
HCM LOS				B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	738	-	-	1408	-	
HCM Lane V/C Ratio	0.022	-	-	0.004	-	
HCM Control Delay (s)	10	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	0	0	0	10	7	0
Future Vol, veh/h	0	0	0	10	7	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	11	8	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	19	8	8	0	0
Stage 1	8	-	-	-	-
Stage 2	11	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	1004	1080	1625	-	-
Stage 1	1020	-	-	-	-
Stage 2	1017	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	1004	1080	1625	-	-
Mov Cap-2 Maneuver	1004	-	-	-	-
Stage 1	1020	-	-	-	-
Stage 2	1017	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1625	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

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**Intersection: 1: Shamrock Rd & Jefferson Park Ave**


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Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	261	74	326	159	111
Average Queue (ft)	123	45	154	75	40
95th Queue (ft)	228	80	273	133	84
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		1	18		
Queuing Penalty (veh)		6	19		

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**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	199	33	55
Average Queue (ft)	8	29	7	19
95th Queue (ft)	39	130	28	47
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	1	1		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	119	78	19	44
Average Queue (ft)	12	13	1	12
95th Queue (ft)	59	60	10	38
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)	0	2		
Queuing Penalty (veh)	0	13		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	77	166	46	42
Average Queue (ft)	7	41	11	11
95th Queue (ft)	38	152	47	35
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)		3		
Queuing Penalty (veh)		19		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**


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Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	L	T	R
Maximum Queue (ft)	80	198	120	88	442	190	129	117	350	125
Average Queue (ft)	19	76	59	81	298	98	58	44	191	54
95th Queue (ft)	52	155	116	102	491	164	110	115	305	139
Link Distance (ft)		774			432		770		538	
Upstream Blk Time (%)					6					
Queuing Penalty (veh)					40					
Storage Bay Dist (ft)	150		120	88		355		117		125
Storage Blk Time (%)	0	2	0	20	37			0	28	0
Queuing Penalty (veh)	0	6	1	72	82			1	28	1

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**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	59	133	135	294
Average Queue (ft)	25	70	66	131
95th Queue (ft)	52	113	109	245
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**


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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	11	20	40
Average Queue (ft)	0	1	13
95th Queue (ft)	6	13	38
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**


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Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

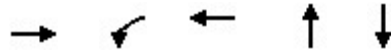
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**Network Summary**


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Network wide Queuing Penalty: 288

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Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	523	33	262	195	27
v/c Ratio	0.59	0.06	0.25	0.67	0.09
Control Delay	17.3	6.4	7.2	42.2	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	6.4	7.2	42.2	24.5
Queue Length 50th (ft)	167	5	47	93	10
Queue Length 95th (ft)	325	18	106	160	31
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	881	512	1063	446	469
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.06	0.25	0.44	0.06
<b>Intersection Summary</b>					

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2028 Background AM  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	8	457	32	31	246	3	66	46	74	4	19	3
Future Volume (veh/h)	8	457	32	31	246	3	66	46	74	4	19	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	1.00		0.93	0.96		0.93	0.97		0.95
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	1707	1870	1811	1856	1811	1900	1870	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	481	34	33	259	3	69	48	78	4	20	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	13	2	6	3	6	0	2	0	0	0	0	0
Cap, veh/h	49	914	64	568	1177	14	143	97	121	74	286	39
Arrive On Green	0.54	0.54	0.54	0.05	0.66	0.66	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	8	1701	119	1767	1785	21	433	500	622	124	1476	200
Grp Volume(v), veh/h	523	0	0	33	0	262	195	0	0	27	0	0
Grp Sat Flow(s),veh/h/ln	1828	0	0	1767	0	1806	1554	0	0	1799	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	4.7	6.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.1	0.0	0.0	0.6	0.0	4.7	9.3	0.0	0.0	1.0	0.0	0.0
Prop In Lane	0.02		0.07	1.00		0.01	0.35		0.40	0.15		0.11
Lane Grp Cap(c), veh/h	1027	0	0	568	0	1191	361	0	0	399	0	0
V/C Ratio(X)	0.51	0.00	0.00	0.06	0.00	0.22	0.54	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1027	0	0	568	0	1191	511	0	0	570	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.3	0.0	0.0	6.3	0.0	5.6	30.2	0.0	0.0	27.0	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.2	0.0	0.4	1.3	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	0.0	0.2	0.0	1.6	3.6	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	0.0	0.0	6.5	0.0	6.0	31.5	0.0	0.0	27.1	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		523			295			195				27
Approach Delay, s/veh		14.1			6.0			31.5				27.1
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	50.0		21.9		60.0		21.9				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	2.6	17.1		3.0		6.7		11.3				
Green Ext Time (p_c), s	0.0	3.5		0.0		1.6		0.5				

Intersection Summary

HCM 6th Ctrl Delay				15.4								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	486	1	4	291	3	1	0	1	2	0	2
Future Vol, veh/h	9	486	1	4	291	3	1	0	1	2	0	2
Conflicting Peds, #/hr	61	0	20	20	0	61	0	0	17	17	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	10	523	1	4	313	3	1	0	1	2	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	377	0	0	544	0	0	888	949	561	945	948	376
Stage 1	-	-	-	-	-	-	564	564	-	384	384	-
Stage 2	-	-	-	-	-	-	324	385	-	561	564	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1193	-	-	1035	-	-	267	262	531	244	263	675
Stage 1	-	-	-	-	-	-	514	512	-	643	615	-
Stage 2	-	-	-	-	-	-	692	614	-	516	512	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1124	-	-	1015	-	-	257	238	512	223	239	636
Mov Cap-2 Maneuver	-	-	-	-	-	-	257	238	-	223	239	-
Stage 1	-	-	-	-	-	-	498	496	-	598	576	-
Stage 2	-	-	-	-	-	-	686	575	-	500	496	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			15.6			16.1		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	342	1124	-	-	1015	-	-	330
HCM Lane V/C Ratio	0.006	0.009	-	-	0.004	-	-	0.013
HCM Control Delay (s)	15.6	8.2	0	-	8.6	0	-	16.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0



Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	490	2	2	295	2	0	0	1	0	0	0
Future Vol, veh/h	5	490	2	2	295	2	0	0	1	0	0	0
Conflicting Peds, #/hr	46	0	27	27	0	46	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	20	3	100	0	5	0	0	0	0	0	0	0
Mvmt Flow	5	533	2	2	321	2	0	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	369	0	0	562	0	0	899	944	563	919	944	370
Stage 1	-	-	-	-	-	-	571	571	-	372	372	-
Stage 2	-	-	-	-	-	-	328	373	-	547	572	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1097	-	-	1019	-	-	262	264	530	254	264	680
Stage 1	-	-	-	-	-	-	509	508	-	653	622	-
Stage 2	-	-	-	-	-	-	689	622	-	525	508	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1049	-	-	993	-	-	253	244	515	240	244	649
Mov Cap-2 Maneuver	-	-	-	-	-	-	253	244	-	240	244	-
Stage 1	-	-	-	-	-	-	492	491	-	620	593	-
Stage 2	-	-	-	-	-	-	686	593	-	519	491	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			12			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	515	1049	-	-	993	-	-	-
HCM Lane V/C Ratio	0.002	0.005	-	-	0.002	-	-	-
HCM Control Delay (s)	12	8.4	0	-	8.6	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	509	0	4	282	1	1	0	3	2	0	3
Future Vol, veh/h	6	509	0	4	282	1	1	0	3	2	0	3
Conflicting Peds, #/hr	60	0	34	34	0	60	2	0	1	1	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	25	4	0	0	0	0	0	0	0
Mvmt Flow	7	553	0	4	307	1	1	0	3	2	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	368	0	0	587	0	0	920	977	588	946	977	370
Stage 1	-	-	-	-	-	-	601	601	-	376	376	-
Stage 2	-	-	-	-	-	-	319	376	-	570	601	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1202	-	-	884	-	-	254	253	513	243	253	680
Stage 1	-	-	-	-	-	-	491	493	-	649	620	-
Stage 2	-	-	-	-	-	-	697	620	-	510	493	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1133	-	-	855	-	-	241	227	496	225	227	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	227	-	225	227	-
Stage 1	-	-	-	-	-	-	471	473	-	606	581	-
Stage 2	-	-	-	-	-	-	688	581	-	502	473	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			14.3			14.9		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	392	1133	-	-	855	-	-	368
HCM Lane V/C Ratio	0.011	0.006	-	-	0.005	-	-	0.015
HCM Control Delay (s)	14.3	8.2	0	-	9.2	0	-	14.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	323	150	59	260	340	255	195	22	54	15
v/c Ratio	0.20	0.50	0.15	0.17	0.33	0.77	0.56	0.39	0.12	0.24	0.05
Control Delay	26.9	29.2	1.6	18.5	19.1	42.1	32.5	6.9	34.1	36.1	0.3
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	26.9	29.2	1.6	18.5	19.1	42.1	32.5	6.9	34.1	36.1	0.3
Queue Length 50th (ft)	28	138	0	17	84	155	109	0	11	26	0
Queue Length 95th (ft)	78	280	19	52	188	#326	218	54	31	60	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	381	640	1046	354	785	558	581	585	490	570	526
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	0.20	0.50	0.14	0.17	0.33	0.61	0.44	0.33	0.04	0.09	0.03

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Attachment E

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2028 Background AM  
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	297	138	54	217	22	313	235	179	20	50	14
Future Volume (veh/h)	69	297	138	54	217	22	313	235	179	20	50	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.96	1.00		1.00	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1885	1870	1841	1559	1885	1870	1885	1678	1841	1693
Adj Flow Rate, veh/h	75	323	150	59	236	24	340	255	0	22	54	15
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, %	3	3	1	2	4	23	1	2	1	15	4	14
Cap, veh/h	433	581	845	309	695	71	411	428		195	224	152
Arrive On Green	0.31	0.31	0.31	0.04	0.42	0.42	0.23	0.23	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1096	1856	1532	1781	1637	166	1795	1870	1598	1598	1841	1250
Grp Volume(v), veh/h	75	323	150	59	0	260	340	255	0	22	54	15
Grp Sat Flow(s),veh/h/ln	1096	1856	1532	1781	0	1803	1795	1870	1598	1598	1841	1250
Q Serve(g_s), s	4.0	11.6	4.0	1.7	0.0	7.8	14.4	9.7	0.0	1.0	2.1	0.9
Cycle Q Clear(g_c), s	4.0	11.6	4.0	1.7	0.0	7.8	14.4	9.7	0.0	1.0	2.1	0.9
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	433	581	845	309	0	766	411	428		195	224	152
V/C Ratio(X)	0.17	0.56	0.18	0.19	0.00	0.34	0.83	0.60		0.11	0.24	0.10
Avail Cap(c_a), veh/h	433	581	845	333	0	766	538	561		479	552	375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	22.9	9.3	17.4	0.0	15.5	29.4	27.6	0.0	31.3	31.8	31.2
Incr Delay (d2), s/veh	0.9	3.8	0.5	0.1	0.0	1.2	6.3	0.5	0.0	0.1	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	5.4	2.1	0.7	0.0	3.2	6.7	4.3	0.0	0.4	1.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	26.7	9.8	17.5	0.0	16.7	35.7	28.1	0.0	31.4	32.0	31.4
LnGrp LOS	C	C	A	B	A	B	D	C		C	C	C
Approach Vol, veh/h		548			319			595	A		91	
Approach Delay, s/veh		21.3			16.9			32.4			31.8	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.9	31.1		15.8		40.0		24.3				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	3.7	13.6		4.1		9.8		16.4				
Green Ext Time (p_c), s	0.0	2.0		0.2		1.5		1.0				

Intersection Summary

HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR] 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	113	71	6	18	9	31	2	308	50	26	72	29
Future Vol, veh/h	113	71	6	18	9	31	2	308	50	26	72	29
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
Heavy Vehicles, %	0	0	0	22	11	0	0	3	0	54	4	21
Mvmt Flow	123	77	7	20	10	34	2	335	54	28	78	32
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	11.1	9.5	13.2	10.9
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	59%	31%	20%
Vol Thru, %	86%	37%	16%	57%
Vol Right, %	14%	3%	53%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	360	190	58	127
LT Vol	2	113	18	26
Through Vol	308	71	9	72
RT Vol	50	6	31	29
Lane Flow Rate	391	207	63	138
Geometry Grp	1	1	1	1
Degree of Util (X)	0.528	0.316	0.101	0.232
Departure Headway (Hd)	4.855	5.504	5.787	6.048
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	747	653	618	594
Service Time	2.855	3.536	3.827	4.08
HCM Lane V/C Ratio	0.523	0.317	0.102	0.232
HCM Control Delay	13.2	11.1	9.5	10.9
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	3.1	1.4	0.3	0.9

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	145	3	1	51	1	4
Future Vol, veh/h	145	3	1	51	1	4
Conflicting Peds, #/hr	0	14	14	0	4	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	0	0	8	0	0
Mvmt Flow	158	3	1	55	1	4
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	175	0	235	175
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	61	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1414	-	758	874
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	967	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1395	-	744	862
Mov Cap-2 Maneuver	-	-	-	-	744	-
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	962	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.1	9.3			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	835	-	-	1395	-	
HCM Lane V/C Ratio	0.007	-	-	0.001	-	
HCM Control Delay (s)	9.3	-	-	7.6	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	
Traffic Vol, veh/h	0	0	0	8	4	0
Future Vol, veh/h	0	0	0	8	4	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	9	4	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	13	4	4	0	0
Stage 1	4	-	-	-	-
Stage 2	9	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	1011	1085	1631	-	-
Stage 1	1024	-	-	-	-
Stage 2	1019	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	1011	1085	1631	-	-
Mov Cap-2 Maneuver	1011	-	-	-	-
Stage 1	1024	-	-	-	-
Stage 2	1019	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1631	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

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**Intersection: 1: Shamrock Rd & Jefferson Park Ave**


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Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	298	58	146	187	59
Average Queue (ft)	149	16	51	100	19
95th Queue (ft)	270	45	110	163	50
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	1				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		0	3		
Queuing Penalty (veh)		0	1		

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**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	64	44	27	33
Average Queue (ft)	9	4	2	5
95th Queue (ft)	41	24	15	24
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	1			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**


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Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	48	17	21
Average Queue (ft)	4	1	1
95th Queue (ft)	24	10	9
Link Distance (ft)	174	77	261
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			



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**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	58	39	31	33
Average Queue (ft)	3	3	4	5
95th Queue (ft)	25	26	20	22
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**


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Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	141	358	120	87	219	312	293	133	75	118	65
Average Queue (ft)	43	123	45	37	96	164	117	8	14	35	13
95th Queue (ft)	100	252	123	83	182	265	215	75	47	82	43
Link Distance (ft)		774			432		770			538	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150		120	88		355		225	117		125
Storage Blk Time (%)	0	8	0	0	9	0	0	0	0	0	
Queuing Penalty (veh)	0	16	1	1	5	1	1	0	0	0	

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**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	87	78	225	102
Average Queue (ft)	47	32	107	48
95th Queue (ft)	74	64	183	81
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**


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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	3	6	30
Average Queue (ft)	0	0	6
95th Queue (ft)	3	6	25
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**


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Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

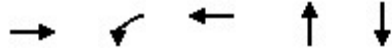
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**Network Summary**


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Network wide Queuing Penalty: 28

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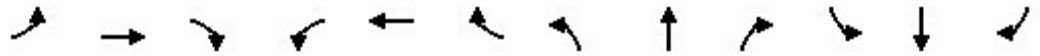
Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	489	60	384	108	30
v/c Ratio	0.45	0.10	0.32	0.50	0.12
Control Delay	11.7	5.3	6.2	37.9	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	5.3	6.2	37.9	25.0
Queue Length 50th (ft)	129	7	59	49	11
Queue Length 95th (ft)	278	26	149	95	32
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	1083	605	1197	440	497
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.10	0.32	0.25	0.06

Intersection Summary

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2028 Background Midday  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↘			↕			↕	
Traffic Volume (veh/h)	5	412	33	55	347	6	39	22	39	2	21	5
Future Volume (veh/h)	5	412	33	55	347	6	39	22	39	2	21	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.93	0.99		0.93	0.88		0.85	0.90		0.85
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	1900	1841	1856	1841	1811	1900	1826	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	448	36	60	377	7	42	24	42	2	23	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	4	3	4	6	0	5	0	0	0	0	0
Cap, veh/h	46	905	72	566	1155	21	150	89	114	53	292	60
Arrive On Green	0.54	0.54	0.54	0.04	0.65	0.65	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	4	1663	133	1753	1769	33	444	440	563	31	1444	295
Grp Volume(v), veh/h	489	0	0	60	0	384	108	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	1800	0	0	1753	0	1802	1447	0	0	1769	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	7.8	1.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	14.0	0.0	0.0	1.2	0.0	7.8	4.9	0.0	0.0	1.1	0.0	0.0
Prop In Lane	0.01		0.07	1.00		0.02	0.39		0.39	0.07		0.17
Lane Grp Cap(c), veh/h	1023	0	0	566	0	1176	353	0	0	404	0	0
V/C Ratio(X)	0.48	0.00	0.00	0.11	0.00	0.33	0.31	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1023	0	0	587	0	1176	476	0	0	556	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	6.7	0.0	6.3	28.2	0.0	0.0	26.8	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	0.0	0.7	0.5	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	0.0	0.4	0.0	2.6	1.9	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	0.0	0.0	6.7	0.0	7.1	28.7	0.0	0.0	26.9	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		489			444			108				30
Approach Delay, s/veh		12.1			7.0			28.7				26.9
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.0	51.0		22.7		60.0		22.7				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	3.2	16.0		3.1		9.8		6.9				
Green Ext Time (p_c), s	0.0	3.3		0.0		2.5		0.3				

Intersection Summary

HCM 6th Ctrl Delay				12.1								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	425	3	8	362	1	1	0	1	2	0	8
Future Vol, veh/h	6	425	3	8	362	1	1	0	1	2	0	8
Conflicting Peds, #/hr	24	0	26	26	0	24	0	0	24	24	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	5	0	0	6	0	0	0	0	0	0	0
Mvmt Flow	6	457	3	9	389	1	1	0	1	2	0	9

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	414	0	0	486	0	0	909	929	509	927	930	414
Stage 1	-	-	-	-	-	-	497	497	-	432	432	-
Stage 2	-	-	-	-	-	-	412	432	-	495	498	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1156	-	-	1087	-	-	258	270	568	251	269	643
Stage 1	-	-	-	-	-	-	559	548	-	606	586	-
Stage 2	-	-	-	-	-	-	621	586	-	560	548	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1130	-	-	1060	-	-	245	253	541	236	252	628
Mov Cap-2 Maneuver	-	-	-	-	-	-	245	253	-	236	252	-
Stage 1	-	-	-	-	-	-	541	530	-	588	566	-
Stage 2	-	-	-	-	-	-	606	566	-	542	530	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		0.2		15.8		12.8	
HCM LOS					C		B	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	337	1130	-	-	1060	-	-	471
HCM Lane V/C Ratio	0.006	0.006	-	-	0.008	-	-	0.023
HCM Control Delay (s)	15.8	8.2	0	-	8.4	0	-	12.8
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	431	1	1	365	5	2	0	3	4	1	7
Future Vol, veh/h	3	431	1	1	365	5	2	0	3	4	1	7
Conflicting Peds, #/hr	32	0	26	26	0	32	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	33	4	100	0	6	0	100	0	0	0	0	0
Mvmt Flow	3	454	1	1	384	5	2	0	3	4	1	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	421	0	0	481	0	0	880	910	482	884	908	419
Stage 1	-	-	-	-	-	-	487	487	-	421	421	-
Stage 2	-	-	-	-	-	-	393	423	-	463	487	-
Critical Hdwy	4.43	-	-	4.1	-	-	8.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	7.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.497	-	-	2.2	-	-	4.4	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	990	-	-	1092	-	-	184	277	588	268	277	638
Stage 1	-	-	-	-	-	-	416	554	-	614	592	-
Stage 2	-	-	-	-	-	-	475	591	-	583	554	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	960	-	-	1065	-	-	176	261	573	257	261	619
Mov Cap-2 Maneuver	-	-	-	-	-	-	176	261	-	257	261	-
Stage 1	-	-	-	-	-	-	404	538	-	593	574	-
Stage 2	-	-	-	-	-	-	468	573	-	577	538	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0			17.2			14.5		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	301	960	-	-	1065	-	-	391
HCM Lane V/C Ratio	0.017	0.003	-	-	0.001	-	-	0.032
HCM Control Delay (s)	17.2	8.8	0	-	8.4	0	-	14.5
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	432	3	3	382	6	2	0	3	0	0	1
Future Vol, veh/h	3	432	3	3	382	6	2	0	3	0	0	1
Conflicting Peds, #/hr	25	0	23	23	0	25	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	3	455	3	3	402	6	2	0	3	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	433	0	0	481	0	0	898	925	481	901	923	430
Stage 1	-	-	-	-	-	-	486	486	-	436	436	-
Stage 2	-	-	-	-	-	-	412	439	-	465	487	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1137	-	-	1092	-	-	262	271	589	261	272	629
Stage 1	-	-	-	-	-	-	566	554	-	603	583	-
Stage 2	-	-	-	-	-	-	621	582	-	581	554	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1110	-	-	1068	-	-	254	257	576	252	258	614
Mov Cap-2 Maneuver	-	-	-	-	-	-	254	257	-	252	258	-
Stage 1	-	-	-	-	-	-	551	540	-	586	567	-
Stage 2	-	-	-	-	-	-	617	566	-	575	540	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			14.6			10.9		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	382	1110	-	-	1068	-	-	614
HCM Lane V/C Ratio	0.014	0.003	-	-	0.003	-	-	0.002
HCM Control Delay (s)	14.6	8.3	0	-	8.4	0	-	10.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	50	278	155	135	259	143	91	139	33	126	46
v/c Ratio	0.14	0.44	0.18	0.31	0.31	0.51	0.31	0.37	0.14	0.45	0.13
Control Delay	23.1	25.1	1.8	17.4	15.9	36.4	31.6	6.6	30.3	35.4	0.7
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	23.1	25.1	1.8	17.4	15.9	36.4	31.6	6.6	30.3	35.4	0.7
Queue Length 50th (ft)	15	94	0	32	64	60	37	0	13	53	0
Queue Length 95th (ft)	55	230	20	98	180	129	86	34	40	113	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	361	625	1096	429	845	600	638	617	533	650	635
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	0.14	0.44	0.14	0.31	0.31	0.24	0.14	0.23	0.06	0.19	0.07

Intersection Summary



Attachment E

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2028 Background Midday  
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	261	146	127	219	24	134	86	131	31	118	43
Future Volume (veh/h)	47	261	146	127	219	24	134	86	131	31	118	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.99	1.00		1.00	1.00		0.92
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	1796	1841	1856	1856	1811	1589	1856	1870	1885	1663	1900	1900
Adj Flow Rate, veh/h	50	278	155	135	233	26	143	91	0	33	126	46
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, %	7	4	3	3	6	21	3	2	1	16	0	0
Cap, veh/h	466	628	732	414	772	86	240	254		199	238	185
Arrive On Green	0.34	0.34	0.34	0.06	0.48	0.48	0.14	0.14	0.00	0.13	0.13	0.13
Sat Flow, veh/h	1067	1841	1521	1767	1599	178	1767	1870	1598	1584	1900	1475
Grp Volume(v), veh/h	50	278	155	135	0	259	143	91	0	33	126	46
Grp Sat Flow(s),veh/h/ln	1067	1841	1521	1767	0	1777	1767	1870	1598	1584	1900	1475
Q Serve(g_s), s	2.3	8.3	4.2	3.3	0.0	6.2	5.4	3.1	0.0	1.3	4.4	2.0
Cycle Q Clear(g_c), s	2.3	8.3	4.2	3.3	0.0	6.2	5.4	3.1	0.0	1.3	4.4	2.0
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	466	628	732	414	0	858	240	254		199	238	185
V/C Ratio(X)	0.11	0.44	0.21	0.33	0.00	0.30	0.60	0.36		0.17	0.53	0.25
Avail Cap(c_a), veh/h	466	628	732	414	0	858	602	638		540	648	503
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	18.0	10.7	13.4	0.0	11.0	28.6	27.6	0.0	27.5	28.8	27.8
Incr Delay (d2), s/veh	0.5	2.3	0.7	2.1	0.0	0.9	0.9	0.3	0.0	0.1	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	1.8	1.4	0.0	2.3	2.2	1.4	0.0	0.5	2.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	20.3	11.4	15.5	0.0	11.9	29.5	27.9	0.0	27.6	29.5	28.0
LnGrp LOS	B	C	B	B	A	B	C	C		C	C	C
Approach Vol, veh/h		483			394			234	A		205	
Approach Delay, s/veh		17.0			13.1			28.9			28.9	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		14.8		40.0		15.6				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	5.3	10.3		6.4		8.2		7.4				
Green Ext Time (p_c), s	0.0	2.0		0.5		1.5		0.4				

Intersection Summary

HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

Notes

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

**Intersection**

Intersection Delay, s/veh 9.1

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	12	2	54	22	21	5	159	26	17	152	41
Future Vol, veh/h	20	12	2	54	22	21	5	159	26	17	152	41
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
Heavy Vehicles, %	0	0	0	6	0	0	0	6	0	6	2	15
Mvmt Flow	22	13	2	59	24	23	5	173	28	18	165	45
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
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	8.4			8.9			9			9.3		
HCM LOS	A			A			A			A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	59%	56%	8%
Vol Thru, %	84%	35%	23%	72%
Vol Right, %	14%	6%	22%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	34	97	210
LT Vol	5	20	54	17
Through Vol	159	12	22	152
RT Vol	26	2	21	41
Lane Flow Rate	207	37	105	228
Geometry Grp	1	1	1	1
Degree of Util (X)	0.255	0.052	0.147	0.285
Departure Headway (Hd)	4.438	5.107	5.007	4.49
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	808	698	714	799
Service Time	2.472	3.159	3.052	2.522
HCM Lane V/C Ratio	0.256	0.053	0.147	0.285
HCM Control Delay	9	8.4	8.9	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.2	0.5	1.2

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	48	9	7	94	3	2
Future Vol, veh/h	48	9	7	94	3	2
Conflicting Peds, #/hr	0	41	41	0	14	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	3	0	50
Mvmt Flow	52	10	8	102	3	2
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	103	0	230	99
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	132	-
Critical Hdwy	-	-	4.1	-	6.4	6.7
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.75
Pot Cap-1 Maneuver	-	-	1502	-	763	840
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	899	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1443	-	720	806
Mov Cap-2 Maneuver	-	-	-	-	720	-
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	882	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.5	9.8			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	752	-	-	1443	-	
HCM Lane V/C Ratio	0.007	-	-	0.005	-	
HCM Control Delay (s)	9.8	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	0	0	8	16	0
Future Vol, veh/h	0	0	0	8	16	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	9	17	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	26	17	17	0	-
Stage 1	17	-	-	-	-
Stage 2	9	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	995	1068	1613	-	-
Stage 1	1011	-	-	-	-
Stage 2	1019	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	995	1068	1613	-	-
Mov Cap-2 Maneuver	995	-	-	-	-
Stage 1	1011	-	-	-	-
Stage 2	1019	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1613	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	283	73	188	138	63
Average Queue (ft)	126	27	80	62	19
95th Queue (ft)	247	63	155	111	52
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		0	7		
Queuing Penalty (veh)		1	4		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	69	82	21	31
Average Queue (ft)	8	9	1	9
95th Queue (ft)	39	42	10	31
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	1			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	39	3	60	31
Average Queue (ft)	2	0	7	9
95th Queue (ft)	21	3	33	31
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	28	52	31	20
Average Queue (ft)	1	3	5	2
95th Queue (ft)	15	24	22	12
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	L	T	R
Maximum Queue (ft)	132	295	120	87	237	145	102	98	174	99
Average Queue (ft)	31	118	51	58	99	70	44	24	68	26
95th Queue (ft)	82	226	125	96	198	124	85	68	128	67
Link Distance (ft)		774			432		770		538	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		120	88		355		117		125
Storage Blk Time (%)	0	7	0	2	9			0	2	0
Queuing Penalty (veh)	0	13	1	4	11			0	1	0

**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	41	81	100	94
Average Queue (ft)	22	39	55	52
95th Queue (ft)	46	65	86	83
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	6	20	46
Average Queue (ft)	0	1	4
95th Queue (ft)	6	12	24
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**

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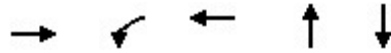
Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

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**Network Summary**

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Network wide Queuing Penalty: 36
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Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	379	112	606	135	73
v/c Ratio	0.45	0.19	0.54	0.57	0.27
Control Delay	13.5	6.3	9.8	39.7	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	6.3	9.8	39.7	28.4
Queue Length 50th (ft)	96	15	123	62	29
Queue Length 95th (ft)	216	47	303	115	64
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	837	597	1128	421	479
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.19	0.54	0.32	0.15

Intersection Summary



Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2028 Background PM  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	21	279	56	105	557	12	44	25	57	9	53	7
Future Volume (veh/h)	21	279	56	105	557	12	44	25	57	9	53	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.89	0.99		0.90	0.89		0.87	0.90		0.87
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	1900	1870	1900	1885	1870	1781	1870	1900	1841	1900	1900	1900
Adj Flow Rate, veh/h	22	297	60	112	593	13	47	27	61	10	56	7
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, %	0	2	0	1	2	8	2	0	4	0	0	0
Cap, veh/h	68	710	138	633	1133	25	151	93	155	76	352	40
Arrive On Green	0.51	0.51	0.51	0.05	0.62	0.62	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	46	1399	272	1795	1818	40	399	390	651	122	1477	170
Grp Volume(v), veh/h	379	0	0	112	0	606	135	0	0	73	0	0
Grp Sat Flow(s),veh/h/ln	1717	0	0	1795	0	1858	1440	0	0	1768	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	15.8	2.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.6	0.0	0.0	2.4	0.0	15.8	6.4	0.0	0.0	2.7	0.0	0.0
Prop In Lane	0.06		0.16	1.00		0.02	0.35		0.45	0.14		0.10
Lane Grp Cap(c), veh/h	916	0	0	633	0	1158	399	0	0	469	0	0
V/C Ratio(X)	0.41	0.00	0.00	0.18	0.00	0.52	0.34	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	916	0	0	633	0	1158	453	0	0	535	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	8.3	0.0	9.1	27.5	0.0	0.0	26.2	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.6	0.0	1.7	0.5	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	0.0	0.9	0.0	5.9	2.4	0.0	0.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	0.0	0.0	8.9	0.0	10.8	28.0	0.0	0.0	26.3	0.0	0.0
LnGrp LOS	B	A	A	A	A	B	C	A	A	C	A	A
Approach Vol, veh/h		379			718			135				73
Approach Delay, s/veh		14.7			10.5			28.0				26.3
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	50.0		26.7		60.0		26.7				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	4.4	13.6		4.7		17.8		8.4				
Green Ext Time (p_c), s	0.0	2.6		0.1		4.4		0.4				

Intersection Summary

HCM 6th Ctrl Delay			14.4									
HCM 6th LOS			B									

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	318	1	13	579	4	0	0	8	6	1	15
Future Vol, veh/h	7	318	1	13	579	4	0	0	8	6	1	15
Conflicting Peds, #/hr	45	0	46	46	0	45	0	0	23	23	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	0	2	0	0	0	0	0	0	7
Mvmt Flow	8	346	1	14	629	4	0	0	9	7	1	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	678	0	0	393	0	0	1077	1115	416	1094	1113	676
Stage 1	-	-	-	-	-	-	409	409	-	704	704	-
Stage 2	-	-	-	-	-	-	668	706	-	390	409	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.363
Pot Cap-1 Maneuver	923	-	-	1177	-	-	198	210	641	193	210	445
Stage 1	-	-	-	-	-	-	623	600	-	431	443	-
Stage 2	-	-	-	-	-	-	451	442	-	638	600	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	883	-	-	1125	-	-	177	186	599	174	186	426
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	186	-	174	186	-
Stage 1	-	-	-	-	-	-	589	567	-	408	416	-
Stage 2	-	-	-	-	-	-	424	415	-	608	567	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.2			11.1			18.4		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	599	883	-	-	1125	-	-	293
HCM Lane V/C Ratio	0.015	0.009	-	-	0.013	-	-	0.082
HCM Control Delay (s)	11.1	9.1	0	-	8.2	0	-	18.4
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	321	1	2	598	2	0	0	1	7	0	7
Future Vol, veh/h	8	321	1	2	598	2	0	0	1	7	0	7
Conflicting Peds, #/hr	54	0	71	71	0	54	4	0	2	2	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	9	349	1	2	650	2	0	0	1	8	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	706	0	0	421	0	0	1102	1149	423	1079	1148	709
Stage 1	-	-	-	-	-	-	439	439	-	709	709	-
Stage 2	-	-	-	-	-	-	663	710	-	370	439	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	902	-	-	1149	-	-	191	200	635	198	200	438
Stage 1	-	-	-	-	-	-	601	582	-	428	440	-
Stage 2	-	-	-	-	-	-	454	440	-	654	582	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	856	-	-	1071	-	-	172	174	591	185	174	414
Mov Cap-2 Maneuver	-	-	-	-	-	-	172	174	-	185	174	-
Stage 1	-	-	-	-	-	-	553	535	-	401	416	-
Stage 2	-	-	-	-	-	-	443	416	-	643	535	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	11.1	19.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	591	856	-	-	1071	-	-	256
HCM Lane V/C Ratio	0.002	0.01	-	-	0.002	-	-	0.059
HCM Control Delay (s)	11.1	9.2	0	-	8.4	0	-	19.9
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	315	3	8	618	5	4	0	6	6	1	7
Future Vol, veh/h	9	315	3	8	618	5	4	0	6	6	1	7
Conflicting Peds, #/hr	48	0	95	95	0	48	4	0	2	2	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	1	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	10	342	3	9	672	5	4	0	7	7	1	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	725	0	0	440	0	0	1160	1202	441	1110	1201	727
Stage 1	-	-	-	-	-	-	459	459	-	741	741	-
Stage 2	-	-	-	-	-	-	701	743	-	369	460	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	887	-	-	1131	-	-	174	186	621	188	186	427
Stage 1	-	-	-	-	-	-	586	570	-	411	426	-
Stage 2	-	-	-	-	-	-	433	425	-	655	569	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	846	-	-	1029	-	-	151	157	564	173	157	406
Mov Cap-2 Maneuver	-	-	-	-	-	-	151	157	-	173	157	-
Stage 1	-	-	-	-	-	-	525	511	-	386	401	-
Stage 2	-	-	-	-	-	-	416	400	-	636	510	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			18.9			21		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	269	846	-	-	1029	-	-	240
HCM Lane V/C Ratio	0.04	0.012	-	-	0.008	-	-	0.063
HCM Control Delay (s)	18.9	9.3	0	-	8.5	0	-	21
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	160	273	237	384	196	107	112	53	325	53
v/c Ratio	0.09	0.30	0.34	0.56	0.53	0.64	0.34	0.31	0.14	0.80	0.12
Control Delay	28.3	29.1	4.5	28.1	25.1	43.7	34.7	3.9	29.4	48.5	0.5
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	28.3	29.1	4.5	28.1	25.1	43.7	34.7	3.9	29.4	48.5	0.5
Queue Length 50th (ft)	10	68	18	87	154	100	51	0	23	166	0
Queue Length 95th (ft)	35	144	52	181	299	176	102	15	59	#289	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	285	526	958	423	727	500	521	485	480	531	537
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	0.30	0.28	0.56	0.53	0.39	0.21	0.23	0.11	0.61	0.10
























Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Attachment E

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2028 Background PM  
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	152	259	225	332	33	186	102	106	50	309	50
Future Volume (veh/h)	25	152	259	225	332	33	186	102	106	50	309	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.99		0.98	1.00		1.00	1.00		0.83
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	1900	1870	1900	1885	1870	1678	1870	1856	1900	1811	1885	1841
Adj Flow Rate, veh/h	26	160	273	237	349	35	196	107	0	53	325	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	1	2	15	2	3	0	6	1	4
Cap, veh/h	300	506	732	354	639	64	345	360		380	416	286
Arrive On Green	0.27	0.27	0.27	0.05	0.38	0.38	0.19	0.19	0.00	0.22	0.22	0.22
Sat Flow, veh/h	997	1870	1554	1795	1668	167	1781	1856	1610	1725	1885	1298
Grp Volume(v), veh/h	26	160	273	237	0	384	196	107	0	53	325	53
Grp Sat Flow(s),veh/h/ln	997	1870	1554	1795	0	1835	1781	1856	1610	1725	1885	1298
Q Serve(g_s), s	1.9	6.1	10.1	4.0	0.0	14.5	8.8	4.4	0.0	2.2	14.4	2.9
Cycle Q Clear(g_c), s	6.4	6.1	10.1	4.0	0.0	14.5	8.8	4.4	0.0	2.2	14.4	2.9
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	300	506	732	354	0	703	345	360		380	416	286
V/C Ratio(X)	0.09	0.32	0.37	0.67	0.00	0.55	0.57	0.30		0.14	0.78	0.19
Avail Cap(c_a), veh/h	300	506	732	354	0	703	482	502		466	510	351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	25.8	15.5	27.9	0.0	21.4	32.4	30.6	0.0	27.8	32.6	28.1
Incr Delay (d2), s/veh	0.6	1.6	1.5	9.7	0.0	3.0	0.5	0.2	0.0	0.1	4.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.8	5.2	3.5	0.0	6.5	3.8	1.9	0.0	0.9	7.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	27.5	16.9	37.6	0.0	24.4	33.0	30.8	0.0	27.9	37.5	28.2
LnGrp LOS	C	C	B	D	A	C	C	C		C	D	C
Approach Vol, veh/h		459			621			303	A		431	
Approach Delay, s/veh		21.3			29.4			32.2			35.2	
Approach LOS		C			C			C			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		25.6		40.0		23.2				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	6.0	12.1		16.4		16.5		10.8				
Green Ext Time (p_c), s	0.0	1.6		1.0		2.1		0.5				

Intersection Summary

HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

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

**Intersection**

Intersection Delay, s/veh 22.8

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	16	3	130	131	20	6	156	16	62	333	95
Future Vol, veh/h	20	16	3	130	131	20	6	156	16	62	333	95
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
Heavy Vehicles, %	5	0	0	2	0	0	0	6	0	34	1	7
Mvmt Flow	21	17	3	138	139	21	6	166	17	66	354	101
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
<b>Approach</b>	<b>EB</b>			<b>WB</b>			<b>NB</b>			<b>SB</b>		
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	10.5			15.4			11.5			32.2		
HCM LOS	B			C			B			D		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	51%	46%	13%
Vol Thru, %	88%	41%	47%	68%
Vol Right, %	9%	8%	7%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	178	39	281	490
LT Vol	6	20	130	62
Through Vol	156	16	131	333
RT Vol	16	3	20	95
Lane Flow Rate	189	41	299	521
Geometry Grp	1	1	1	1
Degree of Util (X)	0.307	0.08	0.507	0.841
Departure Headway (Hd)	5.844	6.919	6.109	5.806
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	610	521	586	620
Service Time	3.923	4.919	4.184	3.863
HCM Lane V/C Ratio	0.31	0.079	0.51	0.84
HCM Control Delay	11.5	10.5	15.4	32.2
HCM Lane LOS	B	B	C	D
HCM 95th-tile Q	1.3	0.3	2.9	9.1

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	81	2	5	263	5	10
Future Vol, veh/h	81	2	5	263	5	10
Conflicting Peds, #/hr	0	45	45	0	10	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	26	0	0	1	0	0
Mvmt Flow	88	2	5	286	5	11
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	135	0	440	135
Stage 1	-	-	-	-	134	-
Stage 2	-	-	-	-	306	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1462	-	578	919
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	751	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1399	-	546	879
Mov Cap-2 Maneuver	-	-	-	-	546	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	741	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.1	10			
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	730	-	-	1399	-	
HCM Lane V/C Ratio	0.022	-	-	0.004	-	
HCM Control Delay (s)	10	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	



Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	0	0	0	10	7	0
Future Vol, veh/h	0	0	0	10	7	0
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	11	8	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	19	8	8	0	0
Stage 1	8	-	-	-	-
Stage 2	11	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	1004	1080	1625	-	-
Stage 1	1020	-	-	-	-
Stage 2	1017	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	1004	1080	1625	-	-
Mov Cap-2 Maneuver	1004	-	-	-	-
Stage 1	1020	-	-	-	-
Stage 2	1017	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1625	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

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**Intersection: 1: Shamrock Rd & Jefferson Park Ave**


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Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	262	74	326	162	97
Average Queue (ft)	117	42	154	77	40
95th Queue (ft)	215	78	284	135	82
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0		0		
Queuing Penalty (veh)	0		0		
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		1	18		
Queuing Penalty (veh)		6	19		

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**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	61	201	31	61
Average Queue (ft)	7	39	7	20
95th Queue (ft)	36	162	28	55
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0	1		
Queuing Penalty (veh)	0	5		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	97	82	21	42
Average Queue (ft)	8	18	1	11
95th Queue (ft)	46	72	10	37
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)	0	4		
Queuing Penalty (veh)	0	25		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	97	184	54	55
Average Queue (ft)	7	59	13	13
95th Queue (ft)	45	183	47	46
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)	6			
Queuing Penalty (veh)	34			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**


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Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	L	T	R
Maximum Queue (ft)	68	195	119	87	446	206	144	117	384	125
Average Queue (ft)	19	78	62	83	329	105	60	42	203	55
95th Queue (ft)	51	156	124	100	512	175	117	111	330	138
Link Distance (ft)	774			432			770		538	
Upstream Blk Time (%)	10									
Queuing Penalty (veh)	66									
Storage Bay Dist (ft)	150	120		88	355			117	125	
Storage Blk Time (%)	2		1	24	41	0			30	0
Queuing Penalty (veh)	5		1	87	92	1			30	1

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**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**


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Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	60	161	150	422
Average Queue (ft)	24	73	67	148
95th Queue (ft)	52	126	117	313
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**


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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	12	18	35
Average Queue (ft)	0	1	13
95th Queue (ft)	9	8	37
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**


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Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

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**Network Summary**


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Network wide Queuing Penalty: 373

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## Appendix E

# Synchro/SimTraffic Outputs for 2023/2028 Total Future Conditions

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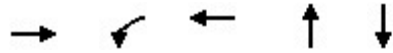
Attachment E

December 2021

Aspen Heights TIA – City of Charlottesville

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

















Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	528	33	266	192	27
v/c Ratio	0.60	0.06	0.25	0.66	0.09
Control Delay	17.4	6.4	7.2	41.9	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	6.4	7.2	41.9	24.6
Queue Length 50th (ft)	168	5	47	92	10
Queue Length 95th (ft)	330	18	108	157	31
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	882	511	1064	447	469
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.06	0.25	0.43	0.06
<b>Intersection Summary</b>					

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2023 Total AM  
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	462	32	31	250	3	65	45	73	4	19	3
Future Volume (veh/h)	8	462	32	31	250	3	65	45	73	4	19	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	1.00		0.93	0.96		0.93	0.97		0.95
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	1707	1870	1811	1856	1811	1900	1870	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	486	34	33	263	3	68	47	77	4	20	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	13	2	6	3	6	0	2	0	0	0	0	0
Cap, veh/h	49	917	63	566	1179	13	143	96	120	74	284	39
Arrive On Green	0.54	0.54	0.54	0.05	0.66	0.66	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	8	1703	118	1767	1785	20	431	499	623	123	1476	200
Grp Volume(v), veh/h	528	0	0	33	0	266	192	0	0	27	0	0
Grp Sat Flow(s),veh/h/ln	1829	0	0	1767	0	1806	1554	0	0	1798	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	4.8	6.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.3	0.0	0.0	0.6	0.0	4.8	9.1	0.0	0.0	1.0	0.0	0.0
Prop In Lane	0.02		0.06	1.00		0.01	0.35		0.40	0.15		0.11
Lane Grp Cap(c), veh/h	1029	0	0	566	0	1193	359	0	0	397	0	0
V/C Ratio(X)	0.51	0.00	0.00	0.06	0.00	0.22	0.53	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1029	0	0	566	0	1193	512	0	0	571	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.2	0.0	0.0	6.3	0.0	5.5	30.2	0.0	0.0	27.0	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.2	0.0	0.4	1.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.0	0.0	0.2	0.0	1.6	3.5	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	0.0	0.0	6.5	0.0	6.0	31.4	0.0	0.0	27.1	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		528			299			192				27
Approach Delay, s/veh		14.1			6.0			31.4				27.1
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	50.0		21.8		60.0		21.8				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	2.6	17.3		3.0		6.8		11.1				
Green Ext Time (p_c), s	0.0	3.6		0.0		1.6		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				15.3								
HCM 6th LOS				B								



Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	490	1	4	294	3	1	0	1	2	0	2
Future Vol, veh/h	9	490	1	4	294	3	1	0	1	2	0	2
Conflicting Peds, #/hr	58	0	19	19	0	58	0	0	16	16	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	10	527	1	4	316	3	1	0	1	2	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	377	0	0	547	0	0	894	952	563	948	951	376
Stage 1	-	-	-	-	-	-	567	567	-	384	384	-
Stage 2	-	-	-	-	-	-	327	385	-	564	567	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1193	-	-	1033	-	-	264	261	530	243	262	675
Stage 1	-	-	-	-	-	-	512	510	-	643	615	-
Stage 2	-	-	-	-	-	-	690	614	-	514	510	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1127	-	-	1014	-	-	255	238	512	223	239	638
Mov Cap-2 Maneuver	-	-	-	-	-	-	255	238	-	223	239	-
Stage 1	-	-	-	-	-	-	496	494	-	599	578	-
Stage 2	-	-	-	-	-	-	684	577	-	499	494	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			15.7			16.1		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	340	1127	-	-	1014	-	-	330
HCM Lane V/C Ratio	0.006	0.009	-	-	0.004	-	-	0.013
HCM Control Delay (s)	15.7	8.2	0	-	8.6	0	-	16.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	485	2	2	292	8	0	0	1	9	0	4
Future Vol, veh/h	8	485	2	2	292	8	0	0	1	9	0	4
Conflicting Peds, #/hr	44	0	27	27	0	44	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	20	3	100	0	5	0	0	0	0	0	0	0
Mvmt Flow	9	527	2	2	317	9	0	0	1	10	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	370	0	0	556	0	0	903	947	557	919	944	368
Stage 1	-	-	-	-	-	-	573	573	-	370	370	-
Stage 2	-	-	-	-	-	-	330	374	-	549	574	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1096	-	-	1025	-	-	260	263	534	254	264	682
Stage 1	-	-	-	-	-	-	508	507	-	654	624	-
Stage 2	-	-	-	-	-	-	687	621	-	524	506	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1050	-	-	999	-	-	249	242	519	240	243	652
Mov Cap-2 Maneuver	-	-	-	-	-	-	249	242	-	240	243	-
Stage 1	-	-	-	-	-	-	489	488	-	619	597	-
Stage 2	-	-	-	-	-	-	680	594	-	516	487	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			12			17.7		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	519	1050	-	-	999	-	-	298
HCM Lane V/C Ratio	0.002	0.008	-	-	0.002	-	-	0.047
HCM Control Delay (s)	12	8.5	0	-	8.6	0	-	17.7
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	507	0	4	283	1	1	0	3	2	0	3
Future Vol, veh/h	6	507	0	4	283	1	1	0	3	2	0	3
Conflicting Peds, #/hr	57	0	32	32	0	57	2	0	1	1	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	25	4	0	0	0	0	0	0	0
Mvmt Flow	7	551	0	4	308	1	1	0	3	2	0	3

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	366	0	0	583	0	0	917	971	584	942	971	368
Stage 1	-	-	-	-	-	-	597	597	-	374	374	-
Stage 2	-	-	-	-	-	-	320	374	-	568	597	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1204	-	-	887	-	-	255	255	515	245	255	682
Stage 1	-	-	-	-	-	-	493	495	-	651	621	-
Stage 2	-	-	-	-	-	-	696	621	-	511	495	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1139	-	-	860	-	-	243	231	499	227	231	644
Mov Cap-2 Maneuver	-	-	-	-	-	-	243	231	-	227	231	-
Stage 1	-	-	-	-	-	-	474	476	-	610	584	-
Stage 2	-	-	-	-	-	-	687	584	-	503	476	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		0.1		14.2		14.8	
HCM LOS					B		B	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	395	1139	-	-	860	-	-	371
HCM Lane V/C Ratio	0.011	0.006	-	-	0.005	-	-	0.015
HCM Control Delay (s)	14.2	8.2	0	-	9.2	0	-	14.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	322	149	60	260	337	253	196	22	53	15
v/c Ratio	0.19	0.50	0.15	0.17	0.33	0.77	0.55	0.39	0.12	0.24	0.05
Control Delay	26.8	29.1	1.5	18.5	19.0	41.9	32.5	6.8	34.0	36.0	0.3
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	26.8	29.1	1.5	18.5	19.0	41.9	32.5	6.8	34.0	36.0	0.3
Queue Length 50th (ft)	28	137	0	18	84	153	108	0	10	26	0
Queue Length 95th (ft)	77	279	19	53	188	#320	216	53	31	59	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	382	641	1047	356	786	559	582	589	491	571	528
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	0.19	0.50	0.14	0.17	0.33	0.60	0.43	0.33	0.04	0.09	0.03

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
























Attachment E

JPA Aspen Heights

2023 Total AM

5: Jefferson Park Ave & Fontaine Ave & Maury Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	296	137	55	217	22	310	233	180	20	49	14
Future Volume (veh/h)	68	296	137	55	217	22	310	233	180	20	49	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.96	1.00		1.00	1.00		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1885	1870	1841	1559	1885	1870	1885	1678	1841	1693
Adj Flow Rate, veh/h	74	322	149	60	236	24	337	253	0	22	53	15
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, %	3	3	1	2	4	23	1	2	1	15	4	14
Cap, veh/h	436	585	847	314	700	71	408	425		190	219	150
Arrive On Green	0.32	0.32	0.32	0.04	0.43	0.43	0.23	0.23	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1097	1856	1535	1781	1637	166	1795	1870	1598	1598	1841	1258
Grp Volume(v), veh/h	74	322	149	60	0	260	337	253	0	22	53	15
Grp Sat Flow(s),veh/h/ln	1097	1856	1535	1781	0	1804	1795	1870	1598	1598	1841	1258
Q Serve(g_s), s	3.9	11.4	3.9	1.7	0.0	7.7	14.2	9.6	0.0	1.0	2.1	0.8
Cycle Q Clear(g_c), s	3.9	11.4	3.9	1.7	0.0	7.7	14.2	9.6	0.0	1.0	2.1	0.8
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	436	585	847	314	0	771	408	425		190	219	150
V/C Ratio(X)	0.17	0.55	0.18	0.19	0.00	0.34	0.83	0.60		0.12	0.24	0.10
Avail Cap(c_a), veh/h	436	585	847	337	0	771	542	564		482	555	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	22.6	9.2	17.2	0.0	15.2	29.2	27.5	0.0	31.3	31.8	31.2
Incr Delay (d2), s/veh	0.8	3.7	0.5	0.1	0.0	1.2	5.9	0.5	0.0	0.1	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	5.3	2.1	0.7	0.0	3.1	6.6	4.2	0.0	0.4	0.9	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	26.3	9.7	17.3	0.0	16.4	35.1	28.0	0.0	31.4	32.0	31.4
LnGrp LOS	C	C	A	B	A	B	D	C		C	C	C
Approach Vol, veh/h		545			320			590	A		90	
Approach Delay, s/veh		21.0			16.6			32.1			31.7	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.9	31.1		15.5		40.0		24.1				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	3.7	13.4		4.1		9.7		16.2				
Green Ext Time (p_c), s	0.0	2.0		0.2		1.5		1.0				

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

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

JPA Aspen Heights  
6: Maury Ave/Alderman Road & Stadium Drive

2023 Total AM  
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 11.8

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	111	70	6	18	9	33	2	305	49	28	71	29
Future Vol, veh/h	111	70	6	18	9	33	2	305	49	28	71	29
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
Heavy Vehicles, %	0	0	0	22	11	0	0	3	0	54	4	21
Mvmt Flow	121	76	7	20	10	36	2	332	53	30	77	32
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	11	9.5	13	10.9
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	59%	30%	22%
Vol Thru, %	86%	37%	15%	55%
Vol Right, %	14%	3%	55%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	356	187	60	128
LT Vol	2	111	18	28
Through Vol	305	70	9	71
RT Vol	49	6	33	29
Lane Flow Rate	387	203	65	139
Geometry Grp	1	1	1	1
Degree of Util (X)	0.521	0.31	0.104	0.233
Departure Headway (Hd)	4.85	5.498	5.759	6.041
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	747	654	622	595
Service Time	2.85	3.528	3.796	4.07
HCM Lane V/C Ratio	0.518	0.31	0.105	0.234
HCM Control Delay	13	11	9.5	10.9
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	3.1	1.3	0.3	0.9

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	144	5	6	50	3	11
Future Vol, veh/h	144	5	6	50	3	11
Conflicting Peds, #/hr	0	13	13	0	4	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	0	0	8	0	0
Mvmt Flow	157	5	7	54	3	12
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	175	0	245	174
Stage 1	-	-	-	-	173	-
Stage 2	-	-	-	-	72	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1414	-	748	875
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	956	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1396	-	732	863
Mov Cap-2 Maneuver	-	-	-	-	732	-
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	947	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.8	9.4			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	831	-	-	1396	-	
HCM Lane V/C Ratio	0.018	-	-	0.005	-	
HCM Control Delay (s)	9.4	-	-	7.6	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

JPA Aspen Heights  
8: Washington Ave & Site Entrance

2023 Total AM  
HCM 6th TWSC

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	9	13	10	8	4	6
Future Vol, veh/h	9	13	10	8	4	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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	10	14	11	9	4	7

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	39	8	11	0	0
Stage 1	8	-	-	-	-
Stage 2	31	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	978	1080	1621	-	-
Stage 1	1020	-	-	-	-
Stage 2	997	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	971	1080	1621	-	-
Mov Cap-2 Maneuver	971	-	-	-	-
Stage 1	1013	-	-	-	-
Stage 2	997	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1621	-	1033	-	-
HCM Lane V/C Ratio	0.007	-	0.023	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	297	63	142	189	64
Average Queue (ft)	151	16	50	98	19
95th Queue (ft)	268	46	107	166	50
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	1				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		0	3		
Queuing Penalty (veh)		0	1		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	60	62	31	31
Average Queue (ft)	7	4	3	5
95th Queue (ft)	33	30	17	24
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	1			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	72	31	12	38
Average Queue (ft)	7	2	0	11
95th Queue (ft)	39	17	6	35
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 4: Private Entrance/Observatory Ave &amp; Jefferson Park Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	34	52	31	29
Average Queue (ft)	2	3	5	4
95th Queue (ft)	16	27	24	19
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 5: Jefferson Park Ave &amp; Fontaine Ave &amp; Maury Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	149	289	120	87	211	289	221	111	71	96	61
Average Queue (ft)	42	114	41	38	94	154	117	4	13	33	12
95th Queue (ft)	102	220	116	83	178	247	191	52	44	74	41
Link Distance (ft)		774			432		770			538	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150		120	88		355		225	117		125
Storage Blk Time (%)	0	6	0	0	9	0	0	0		0	
Queuing Penalty (veh)	0	12	1	1	5	0	1	0		0	

## Intersection: 6: Maury Ave/Alderman Road &amp; Stadium Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	102	75	208	106
Average Queue (ft)	50	33	109	51
95th Queue (ft)	81	61	183	89
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	3	24	30
Average Queue (ft)	0	1	11
95th Queue (ft)	3	10	35
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**

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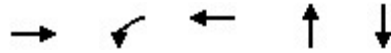
Movement	EB
Directions Served	LR
Maximum Queue (ft)	35
Average Queue (ft)	17
95th Queue (ft)	42
Link Distance (ft)	156
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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**Network Summary**

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Network wide Queuing Penalty: 24
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Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	498	59	391	106	30
v/c Ratio	0.46	0.10	0.33	0.49	0.12
Control Delay	11.8	5.2	6.2	37.7	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	5.2	6.2	37.7	25.1
Queue Length 50th (ft)	132	7	60	48	11
Queue Length 95th (ft)	285	25	152	93	32
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	1084	602	1198	443	499
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.10	0.33	0.24	0.06
<b>Intersection Summary</b>					

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2023 Total Midday  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	5	420	33	54	353	6	38	22	38	2	21	5
Future Volume (veh/h)	5	420	33	54	353	6	38	22	38	2	21	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	1.00		0.93	0.89		0.88	0.91		0.88
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	1900	1841	1856	1841	1811	1900	1826	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	457	36	59	384	7	41	24	41	2	23	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	4	3	4	6	0	5	0	0	0	0	0
Cap, veh/h	47	911	71	563	1161	21	149	91	113	53	288	59
Arrive On Green	0.55	0.55	0.55	0.04	0.66	0.66	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	4	1666	130	1753	1770	32	445	457	569	30	1455	297
Grp Volume(v), veh/h	498	0	0	59	0	391	106	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	1800	0	0	1753	0	1803	1471	0	0	1782	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	7.8	1.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	14.2	0.0	0.0	1.1	0.0	7.8	4.7	0.0	0.0	1.1	0.0	0.0
Prop In Lane	0.01		0.07	1.00		0.02	0.39		0.39	0.07		0.17
Lane Grp Cap(c), veh/h	1029	0	0	563	0	1182	352	0	0	400	0	0
V/C Ratio(X)	0.48	0.00	0.00	0.10	0.00	0.33	0.30	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1029	0	0	586	0	1182	485	0	0	562	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.7	0.0	0.0	6.6	0.0	6.2	28.3	0.0	0.0	26.9	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.8	0.5	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	0.0	0.4	0.0	2.6	1.8	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.0	0.0	0.0	6.6	0.0	7.0	28.7	0.0	0.0	27.0	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		498			450			106				30
Approach Delay, s/veh		12.0			6.9			28.7				27.0
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.0	51.0		22.3		60.0		22.3				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	3.1	16.2		3.1		9.8		6.7				
Green Ext Time (p_c), s	0.0	3.3		0.0		2.6		0.3				

Intersection Summary

HCM 6th Ctrl Delay				12.0								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	433	3	8	362	1	1	0	1	2	0	8
Future Vol, veh/h	6	433	3	8	362	1	1	0	1	2	0	8
Conflicting Peds, #/hr	22	0	25	25	0	22	0	0	22	22	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	5	0	0	6	0	0	0	0	0	0	0
Mvmt Flow	6	466	3	9	389	1	1	0	1	2	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	412	0	0	494	0	0	917	935	515	932	936	412
Stage 1	-	-	-	-	-	-	505	505	-	430	430	-
Stage 2	-	-	-	-	-	-	412	430	-	502	506	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1158	-	-	1080	-	-	255	267	564	249	267	644
Stage 1	-	-	-	-	-	-	553	544	-	607	587	-
Stage 2	-	-	-	-	-	-	621	587	-	555	543	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1134	-	-	1054	-	-	242	250	539	235	250	631
Mov Cap-2 Maneuver	-	-	-	-	-	-	242	250	-	235	250	-
Stage 1	-	-	-	-	-	-	536	527	-	590	568	-
Stage 2	-	-	-	-	-	-	606	568	-	538	526	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			15.8			12.8		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	334	1134	-	-	1054	-	-	472
HCM Lane V/C Ratio	0.006	0.006	-	-	0.008	-	-	0.023
HCM Control Delay (s)	15.8	8.2	0	-	8.4	0	-	12.8
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Attachment E

JPA Aspen Heights  
3: Private Entrance/Washington Ave & Jefferson Park Ave

2023 Total Midday  
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	427	1	1	361	15	2	0	3	16	1	13
Future Vol, veh/h	8	427	1	1	361	15	2	0	3	16	1	13
Conflicting Peds, #/hr	31	0	25	25	0	31	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	33	4	100	0	6	0	100	0	0	0	0	0
Mvmt Flow	8	449	1	1	380	16	2	0	3	17	1	14

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	427	0	0	475	0	0	889	920	476	889	912	419
Stage 1	-	-	-	-	-	-	491	491	-	421	421	-
Stage 2	-	-	-	-	-	-	398	429	-	468	491	-
Critical Hdwy	4.43	-	-	4.1	-	-	8.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	7.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.497	-	-	2.2	-	-	4.4	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	985	-	-	1098	-	-	182	273	593	266	276	638
Stage 1	-	-	-	-	-	-	413	552	-	614	592	-
Stage 2	-	-	-	-	-	-	471	587	-	579	552	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	956	-	-	1072	-	-	172	255	578	254	258	619
Mov Cap-2 Maneuver	-	-	-	-	-	-	172	255	-	254	258	-
Stage 1	-	-	-	-	-	-	399	533	-	589	574	-
Stage 2	-	-	-	-	-	-	459	569	-	569	533	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	17.3	16.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	297	956	-	-	1072	-	-	341
HCM Lane V/C Ratio	0.018	0.009	-	-	0.001	-	-	0.093
HCM Control Delay (s)	17.3	8.8	0	-	8.4	0	-	16.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	433	3	3	385	6	2	0	3	0	0	1
Future Vol, veh/h	3	433	3	3	385	6	2	0	3	0	0	1
Conflicting Peds, #/hr	23	0	21	21	0	23	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	3	456	3	3	405	6	2	0	3	0	0	1

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	434	0	0	480	0	0	900	925	480	903	923	431
Stage 1	-	-	-	-	-	-	485	485	-	437	437	-
Stage 2	-	-	-	-	-	-	415	440	-	466	486	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1136	-	-	1093	-	-	262	271	590	260	272	629
Stage 1	-	-	-	-	-	-	567	555	-	602	583	-
Stage 2	-	-	-	-	-	-	619	581	-	581	554	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1111	-	-	1071	-	-	255	258	578	251	259	615
Mov Cap-2 Maneuver	-	-	-	-	-	-	255	258	-	251	259	-
Stage 1	-	-	-	-	-	-	553	542	-	586	568	-
Stage 2	-	-	-	-	-	-	615	566	-	575	541	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		0.1		14.5		10.9	
HCM LOS					B		B	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	384	1111	-	-	1071	-	-	615
HCM Lane V/C Ratio	0.014	0.003	-	-	0.003	-	-	0.002
HCM Control Delay (s)	14.5	8.2	0	-	8.4	0	-	10.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0




























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	49	278	154	137	260	141	90	141	33	123	45
v/c Ratio	0.14	0.44	0.18	0.32	0.31	0.51	0.31	0.38	0.14	0.44	0.12
Control Delay	23.0	25.0	1.8	17.3	15.9	36.3	31.5	6.8	30.3	35.2	0.7
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	23.0	25.0	1.8	17.3	15.9	36.3	31.5	6.8	30.3	35.2	0.7
Queue Length 50th (ft)	15	94	0	32	64	59	36	0	13	51	0
Queue Length 95th (ft)	53	230	20	99	180	127	86	35	40	111	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	362	627	1099	431	846	601	639	620	534	652	637
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	0.14	0.44	0.14	0.32	0.31	0.23	0.14	0.23	0.06	0.19	0.07

Intersection Summary

Attachment E

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2023 Total Midday  
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	261	145	129	220	24	133	85	133	31	116	42
Future Volume (veh/h)	46	261	145	129	220	24	133	85	133	31	116	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.99	1.00		1.00	1.00		0.92
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	1796	1841	1856	1856	1811	1589	1856	1870	1885	1663	1900	1900
Adj Flow Rate, veh/h	49	278	154	137	234	26	141	90	0	33	123	45
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, %	7	4	3	3	6	21	3	2	1	16	0	0
Cap, veh/h	469	631	732	417	777	86	236	250		197	236	184
Arrive On Green	0.34	0.34	0.34	0.06	0.49	0.49	0.13	0.13	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1067	1841	1524	1767	1600	178	1767	1870	1598	1584	1900	1480
Grp Volume(v), veh/h	49	278	154	137	0	260	141	90	0	33	123	45
Grp Sat Flow(s),veh/h/ln	1067	1841	1524	1767	0	1778	1767	1870	1598	1584	1900	1480
Q Serve(g_s), s	2.2	8.2	4.1	3.4	0.0	6.2	5.3	3.1	0.0	1.3	4.2	1.9
Cycle Q Clear(g_c), s	2.2	8.2	4.1	3.4	0.0	6.2	5.3	3.1	0.0	1.3	4.2	1.9
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	469	631	732	417	0	863	236	250		197	236	184
V/C Ratio(X)	0.10	0.44	0.21	0.33	0.00	0.30	0.60	0.36		0.17	0.52	0.24
Avail Cap(c_a), veh/h	469	631	732	417	0	863	606	641		543	651	507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	17.8	10.7	13.3	0.0	10.9	28.6	27.6	0.0	27.4	28.7	27.7
Incr Delay (d2), s/veh	0.4	2.2	0.7	2.1	0.0	0.9	0.9	0.3	0.0	0.1	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	1.8	1.4	0.0	2.3	2.2	1.3	0.0	0.5	1.9	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	20.1	11.3	15.4	0.0	11.8	29.5	28.0	0.0	27.6	29.4	28.0
LnGrp LOS	B	C	B	B	A	B	C	C		C	C	C
Approach Vol, veh/h		481			397			231	A		201	
Approach Delay, s/veh		16.9			13.0			28.9			28.8	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		14.7		40.0		15.3				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	5.4	10.2		6.2		8.2		7.3				
Green Ext Time (p_c), s	0.0	2.0		0.5		1.5		0.4				

Intersection Summary												
HCM 6th Ctrl Delay				19.6								
HCM 6th LOS				B								

Notes

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

**Intersection**

Intersection Delay, s/veh 9.1

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	12	2	53	22	24	5	158	26	20	151	40
Future Vol, veh/h	20	12	2	53	22	24	5	158	26	20	151	40
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
Heavy Vehicles, %	0	0	0	6	0	0	0	6	0	6	2	15
Mvmt Flow	22	13	2	58	24	26	5	172	28	22	164	43
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	8.4	8.9	9	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	59%	54%	9%
Vol Thru, %	84%	35%	22%	72%
Vol Right, %	14%	6%	24%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	34	99	211
LT Vol	5	20	53	20
Through Vol	158	12	22	151
RT Vol	26	2	24	40
Lane Flow Rate	205	37	108	229
Geometry Grp	1	1	1	1
Degree of Util (X)	0.254	0.052	0.149	0.287
Departure Headway (Hd)	4.443	5.111	4.988	4.499
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	807	698	717	798
Service Time	2.477	3.163	3.033	2.531
HCM Lane V/C Ratio	0.254	0.053	0.151	0.287
HCM Control Delay	9	8.4	8.9	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.2	0.5	1.2

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	47	12	15	93	6	11
Future Vol, veh/h	47	12	15	93	6	11
Conflicting Peds, #/hr	0	39	39	0	13	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	0	0	3	0	50
Mvmt Flow	52	13	16	102	7	12
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	104	0	245	99
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	147	-
Critical Hdwy	-	-	4.1	-	6.4	6.7
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.75
Pot Cap-1 Maneuver	-	-	1500	-	748	840
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1444	-	703	808
Mov Cap-2 Maneuver	-	-	-	-	703	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	864	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	1	9.8			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	768	-	-	1444	-	
HCM Lane V/C Ratio	0.024	-	-	0.011	-	
HCM Control Delay (s)	9.8	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	12	17	16	8	16	10
Future Vol, veh/h	12	17	16	8	16	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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	13	18	17	9	17	11

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	66	23	28	0	0
Stage 1	23	-	-	-	-
Stage 2	43	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	944	1060	1599	-	-
Stage 1	1005	-	-	-	-
Stage 2	985	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	934	1060	1599	-	-
Mov Cap-2 Maneuver	934	-	-	-	-
Stage 1	994	-	-	-	-
Stage 2	985	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	4.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1599	-	1004	-	-
HCM Lane V/C Ratio	0.011	-	0.031	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	268	75	213	124	58
Average Queue (ft)	119	29	83	58	20
95th Queue (ft)	236	64	169	108	51
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		0	7		
Queuing Penalty (veh)		1	4		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	64	89	26	35
Average Queue (ft)	8	8	2	10
95th Queue (ft)	36	46	13	34
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	73	11	58	51
Average Queue (ft)	7	0	7	22
95th Queue (ft)	44	8	34	49
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	15	59	31	14
Average Queue (ft)	1	4	5	1
95th Queue (ft)	9	32	22	8
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	L	T	R
Maximum Queue (ft)	133	268	120	87	246	160	109	92	146	108
Average Queue (ft)	30	108	43	59	94	69	49	23	64	27
95th Queue (ft)	82	206	113	100	184	128	92	63	118	69
Link Distance (ft)		774			432		770		538	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		120	88		355		117		125
Storage Blk Time (%)	0	6	0	2	6			0	1	0
Queuing Penalty (veh)	0	12	1	5	8			0	1	0

**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	40	80	106	101
Average Queue (ft)	21	39	56	50
95th Queue (ft)	46	64	89	80
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	6	24	64
Average Queue (ft)	0	2	19
95th Queue (ft)	4	13	55
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**

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Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	40	12
Average Queue (ft)	19	0
95th Queue (ft)	44	6
Link Distance (ft)	156	281
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

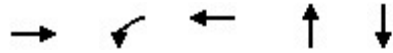
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**Network Summary**

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Network wide Queuing Penalty: 31
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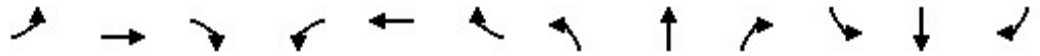


Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	393	111	617	133	72
v/c Ratio	0.47	0.19	0.55	0.56	0.27
Control Delay	13.7	6.3	9.9	39.5	28.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	6.3	9.9	39.5	28.5
Queue Length 50th (ft)	100	15	125	61	29
Queue Length 95th (ft)	226	47	312	114	63
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	843	593	1131	423	478
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.19	0.55	0.31	0.15
<b>Intersection Summary</b>					

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2023 Total PM  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	21	293	55	104	568	12	43	25	56	9	52	7
Future Volume (veh/h)	21	293	55	104	568	12	43	25	56	9	52	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.89	0.99		0.90	0.89		0.85	0.91		0.84
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	1900	1870	1900	1885	1870	1781	1870	1900	1841	1900	1900	1900
Adj Flow Rate, veh/h	22	312	59	111	604	13	46	27	60	10	55	7
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, %	0	2	0	1	2	8	2	0	4	0	0	0
Cap, veh/h	67	723	132	626	1137	24	149	93	152	77	346	40
Arrive On Green	0.51	0.51	0.51	0.05	0.63	0.63	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	45	1420	259	1795	1819	39	392	393	646	124	1466	171
Grp Volume(v), veh/h	393	0	0	111	0	617	133	0	0	72	0	0
Grp Sat Flow(s),veh/h/ln	1723	0	0	1795	0	1858	1432	0	0	1761	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	16.1	2.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.0	0.0	0.0	2.4	0.0	16.1	6.3	0.0	0.0	2.7	0.0	0.0
Prop In Lane	0.06		0.15	1.00		0.02	0.35		0.45	0.14		0.10
Lane Grp Cap(c), veh/h	922	0	0	626	0	1162	394	0	0	463	0	0
V/C Ratio(X)	0.43	0.00	0.00	0.18	0.00	0.53	0.34	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	922	0	0	626	0	1162	452	0	0	534	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	8.2	0.0	9.1	27.5	0.0	0.0	26.3	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.6	0.0	1.7	0.5	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0	0.9	0.0	6.0	2.3	0.0	0.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	0.0	0.0	8.8	0.0	10.8	28.0	0.0	0.0	26.4	0.0	0.0
LnGrp LOS	B	A	A	A	A	B	C	A	A	C	A	A
Approach Vol, veh/h		393			728			133				72
Approach Delay, s/veh		14.8			10.5			28.0				26.4
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	50.0		26.4		60.0		26.4				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	4.4	14.0		4.7		18.1		8.3				
Green Ext Time (p_c), s	0.0	2.7		0.1		4.6		0.4				

Intersection Summary												
HCM 6th Ctrl Delay				14.4								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	332	1	13	590	4	0	0	8	6	1	15
Future Vol, veh/h	7	332	1	13	590	4	0	0	8	6	1	15
Conflicting Peds, #/hr	43	0	44	44	0	43	0	0	21	21	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	0	2	0	0	0	0	0	0	7
Mvmt Flow	8	361	1	14	641	4	0	0	9	7	1	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	688	0	0	406	0	0	1102	1138	427	1117	1136	686
Stage 1	-	-	-	-	-	-	422	422	-	714	714	-
Stage 2	-	-	-	-	-	-	680	716	-	403	422	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.363
Pot Cap-1 Maneuver	916	-	-	1164	-	-	191	203	632	186	204	439
Stage 1	-	-	-	-	-	-	613	592	-	425	438	-
Stage 2	-	-	-	-	-	-	444	437	-	628	592	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	878	-	-	1115	-	-	171	181	593	168	182	421
Mov Cap-2 Maneuver	-	-	-	-	-	-	171	181	-	168	182	-
Stage 1	-	-	-	-	-	-	581	561	-	403	412	-
Stage 2	-	-	-	-	-	-	417	411	-	600	561	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.2			11.2			18.7		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	593	878	-	-	1115	-	-	286
HCM Lane V/C Ratio	0.015	0.009	-	-	0.013	-	-	0.084
HCM Control Delay (s)	11.2	9.1	0	-	8.3	0	-	18.7
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	318	1	2	592	19	0	0	1	24	0	15
Future Vol, veh/h	16	318	1	2	592	19	0	0	1	24	0	15
Conflicting Peds, #/hr	51	0	67	67	0	51	4	0	2	2	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	17	346	1	2	643	21	0	0	1	26	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	715	0	0	414	0	0	1118	1167	416	1092	1157	709
Stage 1	-	-	-	-	-	-	448	448	-	709	709	-
Stage 2	-	-	-	-	-	-	670	719	-	383	448	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	895	-	-	1156	-	-	186	195	641	194	198	438
Stage 1	-	-	-	-	-	-	594	576	-	428	440	-
Stage 2	-	-	-	-	-	-	450	436	-	644	576	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	852	-	-	1082	-	-	163	169	599	180	171	415
Mov Cap-2 Maneuver	-	-	-	-	-	-	163	169	-	180	171	-
Stage 1	-	-	-	-	-	-	542	526	-	397	417	-
Stage 2	-	-	-	-	-	-	429	413	-	626	526	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0			11			24.2		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	599	852	-	-	1082	-	-	230
HCM Lane V/C Ratio	0.002	0.02	-	-	0.002	-	-	0.184
HCM Control Delay (s)	11	9.3	0	-	8.3	0	-	24.2
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.7

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	320	3	8	619	5	4	0	6	6	1	7
Future Vol, veh/h	9	320	3	8	619	5	4	0	6	6	1	7
Conflicting Peds, #/hr	46	0	91	91	0	46	4	0	2	2	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	1	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	10	348	3	9	673	5	4	0	7	7	1	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	724	0	0	442	0	0	1163	1203	443	1115	1202	726
Stage 1	-	-	-	-	-	-	461	461	-	740	740	-
Stage 2	-	-	-	-	-	-	702	742	-	375	462	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	888	-	-	1129	-	-	173	186	619	187	186	428
Stage 1	-	-	-	-	-	-	584	569	-	412	426	-
Stage 2	-	-	-	-	-	-	432	425	-	650	568	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	849	-	-	1031	-	-	150	158	564	173	158	408
Mov Cap-2 Maneuver	-	-	-	-	-	-	150	158	-	173	158	-
Stage 1	-	-	-	-	-	-	526	512	-	388	402	-
Stage 2	-	-	-	-	-	-	415	401	-	632	511	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			19			20.9		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	268	849	-	-	1031	-	-	241				
HCM Lane V/C Ratio	0.041	0.012	-	-	0.008	-	-	0.063				
HCM Control Delay (s)	19	9.3	0	-	8.5	0	-	20.9				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2				

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2023 Total PM  
Queues



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	163	269	239	384	194	106	115	52	322	52
v/c Ratio	0.09	0.31	0.34	0.57	0.53	0.64	0.34	0.32	0.14	0.80	0.12
Control Delay	28.2	29.0	4.3	28.1	24.9	43.7	34.7	4.1	29.3	48.1	0.5
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	28.2	29.0	4.3	28.1	24.9	43.7	34.7	4.1	29.3	48.1	0.5
Queue Length 50th (ft)	10	69	17	88	153	98	51	0	23	164	0
Queue Length 95th (ft)	35	146	50	182	298	175	101	18	57	285	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	286	528	962	423	730	501	523	490	482	533	533
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	0.31	0.28	0.57	0.53	0.39	0.20	0.23	0.11	0.60	0.10

Intersection Summary
























Attachment E

JPA Aspen Heights

2023 Total PM

5: Jefferson Park Ave & Fontaine Ave & Maury Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	155	256	227	332	33	184	101	109	49	306	49
Future Volume (veh/h)	25	155	256	227	332	33	184	101	109	49	306	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.96	1.00		1.00	1.00		0.81
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	1900	1870	1900	1885	1870	1678	1870	1856	1900	1811	1885	1841
Adj Flow Rate, veh/h	26	163	269	239	349	35	194	106	0	52	322	52
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	1	2	15	2	3	0	6	1	4
Cap, veh/h	303	508	721	355	640	64	342	356		379	414	278
Arrive On Green	0.27	0.27	0.27	0.05	0.38	0.38	0.19	0.19	0.00	0.22	0.22	0.22
Sat Flow, veh/h	998	1870	1519	1795	1664	167	1781	1856	1610	1725	1885	1265
Grp Volume(v), veh/h	26	163	269	239	0	384	194	106	0	52	322	52
Grp Sat Flow(s),veh/h/ln	998	1870	1519	1795	0	1831	1781	1856	1610	1725	1885	1265
Q Serve(g_s), s	1.8	6.1	10.2	4.0	0.0	14.4	8.7	4.3	0.0	2.1	14.2	3.0
Cycle Q Clear(g_c), s	6.3	6.1	10.2	4.0	0.0	14.4	8.7	4.3	0.0	2.1	14.2	3.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	303	508	721	355	0	705	342	356		379	414	278
V/C Ratio(X)	0.09	0.32	0.37	0.67	0.00	0.54	0.57	0.30		0.14	0.78	0.19
Avail Cap(c_a), veh/h	303	508	721	355	0	705	484	504		469	512	344
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	25.7	15.5	27.8	0.0	21.2	32.4	30.6	0.0	27.7	32.4	28.0
Incr Delay (d2), s/veh	0.6	1.7	1.5	9.8	0.0	3.0	0.6	0.2	0.0	0.1	4.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.9	5.1	3.6	0.0	6.4	3.7	1.9	0.0	0.9	6.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.0	27.3	16.9	37.6	0.0	24.2	32.9	30.8	0.0	27.8	37.0	28.2
LnGrp LOS	C	C	B	D	A	C	C	C		C	D	C
Approach Vol, veh/h		458			623			300	A		426	
Approach Delay, s/veh		21.3			29.3			32.2			34.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		25.4		40.0		22.9				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	6.0	12.2		16.2		16.4		10.7				
Green Ext Time (p_c), s	0.0	1.6		1.0		2.1		0.5				

Intersection Summary

HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

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

JPA Aspen Heights  
6: Maury Ave/Alderman Road & Stadium Drive

2023 Total PM  
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 22.7

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	16	3	129	130	24	6	155	16	65	329	94
Future Vol, veh/h	20	16	3	129	130	24	6	155	16	65	329	94
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
Heavy Vehicles, %	5	0	0	2	0	0	0	6	0	34	1	7
Mvmt Flow	21	17	3	137	138	26	6	165	17	69	350	100
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	10.5	15.4	11.5	31.9
HCM LOS	B	C	B	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	51%	46%	13%
Vol Thru, %	88%	41%	46%	67%
Vol Right, %	9%	8%	8%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	177	39	283	488
LT Vol	6	20	129	65
Through Vol	155	16	130	329
RT Vol	16	3	24	94
Lane Flow Rate	188	41	301	519
Geometry Grp	1	1	1	1
Degree of Util (X)	0.306	0.08	0.51	0.838
Departure Headway (Hd)	5.846	6.915	6.093	5.81
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	610	521	587	623
Service Time	3.926	4.915	4.167	3.87
HCM Lane V/C Ratio	0.308	0.079	0.513	0.833
HCM Control Delay	11.5	10.5	15.4	31.9
HCM Lane LOS	B	B	C	D
HCM 95th-tile Q	1.3	0.3	2.9	9



JPA Aspen Heights  
7: Washington Ave & Stadium Drive

2023 Total PM  
HCM 6th TWSC

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	80	6	18	260	9	23
Future Vol, veh/h	80	6	18	260	9	23
Conflicting Peds, #/hr	0	42	42	0	9	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	26	0	0	1	0	0
Mvmt Flow	87	7	20	283	10	25
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	136	0	465	134
Stage 1	-	-	-	-	133	-
Stage 2	-	-	-	-	332	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1461	-	559	920
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	731	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1403	-	523	882
Mov Cap-2 Maneuver	-	-	-	-	523	-
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	713	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.5	10.1			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	739	-	-	1403	-	
HCM Lane V/C Ratio	0.047	-	-	0.014	-	
HCM Control Delay (s)	10.1	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

JPA Aspen Heights  
8: Washington Ave & Site Entrance

2023 Total PM  
HCM 6th TWSC

Intersection						
Int Delay, s/veh	5.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	17	25	25	10	7	17
Future Vol, veh/h	17	25	25	10	7	17
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	18	27	27	11	8	18

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	82	17	26	0	0
Stage 1	17	-	-	-	-
Stage 2	65	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	925	1068	1601	-	-
Stage 1	1011	-	-	-	-
Stage 2	963	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	909	1068	1601	-	-
Mov Cap-2 Maneuver	909	-	-	-	-
Stage 1	994	-	-	-	-
Stage 2	963	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	5.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1601	-	997	-	-
HCM Lane V/C Ratio	0.017	-	0.046	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	265	74	402	151	90
Average Queue (ft)	130	42	171	76	40
95th Queue (ft)	233	79	335	133	74
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0		0		
Queuing Penalty (veh)	1		0		
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		1	20		
Queuing Penalty (veh)		6	20		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	75	225	35	61
Average Queue (ft)	10	45	6	20
95th Queue (ft)	47	188	26	51
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	1	1		
Queuing Penalty (veh)	2	4		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	139	85	22	92
Average Queue (ft)	24	20	1	34
95th Queue (ft)	96	75	11	79
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)	0	5		
Queuing Penalty (veh)	1	28		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 4: Private Entrance/Observatory Ave &amp; Jefferson Park Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	114	184	53	84
Average Queue (ft)	11	62	16	25
95th Queue (ft)	59	189	69	99
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)	6			
Queuing Penalty (veh)	38			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 5: Jefferson Park Ave &amp; Fontaine Ave &amp; Maury Ave

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	L	T	R
Maximum Queue (ft)	73	201	120	87	447	208	129	117	326	125
Average Queue (ft)	19	79	60	83	330	105	56	47	192	52
95th Queue (ft)	51	163	118	101	525	174	107	118	301	133
Link Distance (ft)	774			432			770			538
Upstream Blk Time (%)	11									
Queuing Penalty (veh)	69									
Storage Bay Dist (ft)	150		120	88		355		117		125
Storage Blk Time (%)	0	2	1	24	42			0	29	0
Queuing Penalty (veh)	0	5	1	88	96			1	28	1

## Intersection: 6: Maury Ave/Alderman Road &amp; Stadium Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	51	160	135	290
Average Queue (ft)	24	75	64	138
95th Queue (ft)	49	125	109	248
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	10	35	44
Average Queue (ft)	0	3	21
95th Queue (ft)	7	19	44
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**

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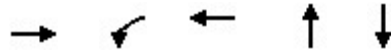
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	52	25
Average Queue (ft)	25	1
95th Queue (ft)	48	9
Link Distance (ft)	156	281
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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**Network Summary**

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Network wide Queuing Penalty: 389
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Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	533	33	268	195	27
v/c Ratio	0.60	0.07	0.25	0.67	0.09
Control Delay	17.6	6.4	7.2	42.2	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	6.4	7.2	42.2	24.5
Queue Length 50th (ft)	171	5	48	93	10
Queue Length 95th (ft)	335	18	109	160	31
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	881	507	1063	446	469
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.07	0.25	0.44	0.06

Intersection Summary

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2028 Total AM  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	8	466	32	31	252	3	66	46	74	4	19	3
Future Volume (veh/h)	8	466	32	31	252	3	66	46	74	4	19	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	1.00		0.93	0.96		0.93	0.97		0.95
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	1707	1870	1811	1856	1811	1900	1870	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	491	34	33	265	3	69	48	78	4	20	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	13	2	6	3	6	0	2	0	0	0	0	0
Cap, veh/h	49	916	63	561	1177	13	143	97	121	74	286	39
Arrive On Green	0.54	0.54	0.54	0.05	0.66	0.66	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	8	1704	117	1767	1785	20	433	500	622	124	1476	200
Grp Volume(v), veh/h	533	0	0	33	0	268	195	0	0	27	0	0
Grp Sat Flow(s),veh/h/ln	1829	0	0	1767	0	1806	1554	0	0	1799	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	4.9	6.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.5	0.0	0.0	0.6	0.0	4.9	9.3	0.0	0.0	1.0	0.0	0.0
Prop In Lane	0.02		0.06	1.00		0.01	0.35		0.40	0.15		0.11
Lane Grp Cap(c), veh/h	1027	0	0	561	0	1191	361	0	0	399	0	0
V/C Ratio(X)	0.52	0.00	0.00	0.06	0.00	0.23	0.54	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1027	0	0	561	0	1191	511	0	0	570	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	6.3	0.0	5.6	30.2	0.0	0.0	27.0	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	0.2	0.0	0.4	1.3	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.0	0.2	0.0	1.6	3.6	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	0.0	0.0	6.5	0.0	6.0	31.5	0.0	0.0	27.1	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		533			301			195				27
Approach Delay, s/veh		14.2			6.1			31.5				27.1
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	50.0		21.9		60.0		21.9				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	2.6	17.5		3.0		6.9		11.3				
Green Ext Time (p_c), s	0.0	3.6		0.0		1.7		0.5				

Intersection Summary

HCM 6th Ctrl Delay				15.4								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	495	1	4	297	3	1	0	1	2	0	2
Future Vol, veh/h	9	495	1	4	297	3	1	0	1	2	0	2
Conflicting Peds, #/hr	61	0	20	20	0	61	0	0	17	17	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	10	532	1	4	319	3	1	0	1	2	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	383	0	0	553	0	0	903	964	570	960	963	382
Stage 1	-	-	-	-	-	-	573	573	-	390	390	-
Stage 2	-	-	-	-	-	-	330	391	-	570	573	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1187	-	-	1027	-	-	260	257	525	238	258	670
Stage 1	-	-	-	-	-	-	508	507	-	638	611	-
Stage 2	-	-	-	-	-	-	687	611	-	510	507	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1118	-	-	1007	-	-	251	233	507	217	234	631
Mov Cap-2 Maneuver	-	-	-	-	-	-	251	233	-	217	234	-
Stage 1	-	-	-	-	-	-	492	491	-	593	573	-
Stage 2	-	-	-	-	-	-	681	573	-	494	491	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			15.8			16.3		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	336	1118	-	-	1007	-	-	323
HCM Lane V/C Ratio	0.006	0.009	-	-	0.004	-	-	0.013
HCM Control Delay (s)	15.8	8.2	0	-	8.6	0	-	16.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0



Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	490	2	2	295	8	0	0	1	9	0	4
Future Vol, veh/h	8	490	2	2	295	8	0	0	1	9	0	4
Conflicting Peds, #/hr	46	0	27	27	0	46	2	0	2	2	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	20	3	100	0	5	0	0	0	0	0	0	0
Mvmt Flow	9	533	2	2	321	9	0	0	1	10	0	4
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	376	0	0	562	0	0	913	959	563	931	956	374
Stage 1	-	-	-	-	-	-	579	579	-	376	376	-
Stage 2	-	-	-	-	-	-	334	380	-	555	580	-
Critical Hdwy	4.3	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1090	-	-	1019	-	-	256	259	530	249	260	677
Stage 1	-	-	-	-	-	-	504	504	-	649	620	-
Stage 2	-	-	-	-	-	-	684	617	-	520	503	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1042	-	-	993	-	-	245	238	515	235	239	646
Mov Cap-2 Maneuver	-	-	-	-	-	-	245	238	-	235	239	-
Stage 1	-	-	-	-	-	-	485	485	-	613	591	-
Stage 2	-	-	-	-	-	-	677	589	-	512	484	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			12			18		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	515	1042	-	-	993	-	-	292				
HCM Lane V/C Ratio	0.002	0.008	-	-	0.002	-	-	0.048				
HCM Control Delay (s)	12	8.5	0	-	8.6	0	-	18				
HCM Lane LOS	B	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2				

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	512	0	4	286	1	1	0	3	2	0	3
Future Vol, veh/h	6	512	0	4	286	1	1	0	3	2	0	3
Conflicting Peds, #/hr	60	0	34	34	0	60	2	0	1	1	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	25	4	0	0	0	0	0	0	0
Mvmt Flow	7	557	0	4	311	1	1	0	3	2	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	372	0	0	591	0	0	928	985	592	954	985	374
Stage 1	-	-	-	-	-	-	605	605	-	380	380	-
Stage 2	-	-	-	-	-	-	323	380	-	574	605	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1198	-	-	881	-	-	250	250	510	240	250	677
Stage 1	-	-	-	-	-	-	488	491	-	646	617	-
Stage 2	-	-	-	-	-	-	693	617	-	507	491	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1130	-	-	852	-	-	238	225	493	222	225	637
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	225	-	222	225	-
Stage 1	-	-	-	-	-	-	468	471	-	603	578	-
Stage 2	-	-	-	-	-	-	684	578	-	499	471	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			14.4			15		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	389	1130	-	-	852	-	-	364
HCM Lane V/C Ratio	0.011	0.006	-	-	0.005	-	-	0.015
HCM Control Delay (s)	14.4	8.2	0	-	9.2	0	-	15
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	325	150	61	262	340	255	197	22	54	15
v/c Ratio	0.20	0.51	0.15	0.17	0.33	0.77	0.56	0.39	0.12	0.24	0.05
Control Delay	26.9	29.3	1.6	18.6	19.1	42.1	32.5	6.9	34.1	36.1	0.3
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	26.9	29.3	1.6	18.6	19.1	42.1	32.5	6.9	34.1	36.1	0.3
Queue Length 50th (ft)	28	139	0	18	85	155	109	0	11	26	0
Queue Length 95th (ft)	78	281	19	53	190	#326	218	54	31	60	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	380	640	1046	353	785	558	581	586	490	570	526
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	0.20	0.51	0.14	0.17	0.33	0.61	0.44	0.34	0.04	0.09	0.03

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Attachment E

JPA Aspen Heights

2028 Total AM

5: Jefferson Park Ave & Fontaine Ave & Maury Ave

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	299	138	56	219	22	313	235	181	20	50	14
Future Volume (veh/h)	69	299	138	56	219	22	313	235	181	20	50	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.96	1.00		1.00	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1885	1870	1841	1559	1885	1870	1885	1678	1841	1693
Adj Flow Rate, veh/h	75	325	150	61	238	24	340	255	0	22	54	15
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, %	3	3	1	2	4	23	1	2	1	15	4	14
Cap, veh/h	432	580	844	308	696	70	411	428		195	224	152
Arrive On Green	0.31	0.31	0.31	0.04	0.42	0.42	0.23	0.23	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1094	1856	1532	1781	1638	165	1795	1870	1598	1598	1841	1250
Grp Volume(v), veh/h	75	325	150	61	0	262	340	255	0	22	54	15
Grp Sat Flow(s),veh/h/ln	1094	1856	1532	1781	0	1804	1795	1870	1598	1598	1841	1250
Q Serve(g_s), s	4.1	11.7	4.0	1.8	0.0	7.8	14.4	9.7	0.0	1.0	2.1	0.9
Cycle Q Clear(g_c), s	4.1	11.7	4.0	1.8	0.0	7.8	14.4	9.7	0.0	1.0	2.1	0.9
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	432	580	844	308	0	766	411	428		195	224	152
V/C Ratio(X)	0.17	0.56	0.18	0.20	0.00	0.34	0.83	0.60		0.11	0.24	0.10
Avail Cap(c_a), veh/h	432	580	844	331	0	766	538	561		479	552	375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	22.9	9.3	17.5	0.0	15.5	29.4	27.6	0.0	31.3	31.8	31.2
Incr Delay (d2), s/veh	0.9	3.9	0.5	0.1	0.0	1.2	6.3	0.5	0.0	0.1	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	5.4	2.1	0.7	0.0	3.2	6.7	4.3	0.0	0.4	1.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.2	26.8	9.8	17.6	0.0	16.7	35.7	28.1	0.0	31.4	32.0	31.4
LnGrp LOS	C	C	A	B	A	B	D	C		C	C	C
Approach Vol, veh/h		550			323			595	A		91	
Approach Delay, s/veh		21.4			16.9			32.4			31.8	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.0	31.0		15.8		40.0		24.3				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	3.8	13.7		4.1		9.8		16.4				
Green Ext Time (p_c), s	0.0	2.0		0.2		1.5		1.0				

Intersection Summary

HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

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

JPA Aspen Heights  
6: Maury Ave/Alderman Road & Stadium Drive

2028 Total AM  
HCM 6th AWSC

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	113	71	6	18	9	33	2	308	50	28	72	29
Future Vol, veh/h	113	71	6	18	9	33	2	308	50	28	72	29
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
Heavy Vehicles, %	0	0	0	22	11	0	0	3	0	54	4	21
Mvmt Flow	123	77	7	20	10	36	2	335	54	30	78	32
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	11.1	9.5	13.2	11
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	59%	30%	22%
Vol Thru, %	86%	37%	15%	56%
Vol Right, %	14%	3%	55%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	360	190	60	129
LT Vol	2	113	18	28
Through Vol	308	71	9	72
RT Vol	50	6	33	29
Lane Flow Rate	391	207	65	140
Geometry Grp	1	1	1	1
Degree of Util (X)	0.529	0.316	0.105	0.236
Departure Headway (Hd)	4.867	5.517	5.786	6.062
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	747	653	619	593
Service Time	2.867	3.55	3.825	4.094
HCM Lane V/C Ratio	0.523	0.317	0.105	0.236
HCM Control Delay	13.2	11.1	9.5	11
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	3.1	1.4	0.4	0.9

JPA Aspen Heights  
7: Washington Ave & Stadium Drive

2028 Total AM  
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	145	5	6	51	3	11
Future Vol, veh/h	145	5	6	51	3	11
Conflicting Peds, #/hr	0	14	14	0	4	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	0	0	8	0	0
Mvmt Flow	158	5	7	55	3	12
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	177	0	248	176
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	73	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1411	-	745	872
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	955	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1392	-	729	860
Mov Cap-2 Maneuver	-	-	-	-	729	-
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	946	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.8	9.4			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	828	-	-	1392	-	
HCM Lane V/C Ratio	0.018	-	-	0.005	-	
HCM Control Delay (s)	9.4	-	-	7.6	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

JPA Aspen Heights  
8: Washington Ave & Site Entrance

2028 Total AM  
HCM 6th TWSC

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	9	13	10	8	4	6
Future Vol, veh/h	9	13	10	8	4	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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	10	14	11	9	4	7

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	39	8	11	0	0
Stage 1	8	-	-	-	-
Stage 2	31	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	978	1080	1621	-	-
Stage 1	1020	-	-	-	-
Stage 2	997	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	971	1080	1621	-	-
Mov Cap-2 Maneuver	971	-	-	-	-
Stage 1	1013	-	-	-	-
Stage 2	997	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1621	-	1033	-	-
HCM Lane V/C Ratio	0.007	-	0.023	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	293	56	150	193	59
Average Queue (ft)	153	15	58	104	20
95th Queue (ft)	274	44	121	169	51
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	1				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		0	4		
Queuing Penalty (veh)		0	1		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	52	24	31
Average Queue (ft)	7	5	2	4
95th Queue (ft)	35	26	13	20
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	1			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	58	38	22	40
Average Queue (ft)	6	2	1	10
95th Queue (ft)	32	17	12	34
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				



## Intersection: 4: Private Entrance/Observatory Ave &amp; Jefferson Park Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	29	71	31	26
Average Queue (ft)	1	5	4	3
95th Queue (ft)	12	34	21	16
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 5: Jefferson Park Ave &amp; Fontaine Ave &amp; Maury Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	143	302	120	87	234	259	211	110	74	101	55
Average Queue (ft)	42	125	44	39	101	147	107	6	15	37	11
95th Queue (ft)	101	243	123	85	195	233	181	62	48	79	40
Link Distance (ft)		774			432		770			538	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150		120	88		355		225	117		125
Storage Blk Time (%)	0	8	0	0	10		0	0	0	0	
Queuing Penalty (veh)	0	16	1	0	6		1	0	0	0	

## Intersection: 6: Maury Ave/Alderman Road &amp; Stadium Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	90	74	210	106
Average Queue (ft)	48	32	104	51
95th Queue (ft)	76	59	177	87
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	6	21	35
Average Queue (ft)	0	1	13
95th Queue (ft)	5	11	37
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**

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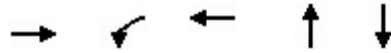
Movement	EB
Directions Served	LR
Maximum Queue (ft)	38
Average Queue (ft)	15
95th Queue (ft)	40
Link Distance (ft)	156
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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**Network Summary**

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Network wide Queuing Penalty: 28
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















Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	502	60	395	108	30
v/c Ratio	0.46	0.10	0.33	0.50	0.12
Control Delay	11.9	5.3	6.3	37.9	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	5.3	6.3	37.9	25.0
Queue Length 50th (ft)	134	7	61	49	11
Queue Length 95th (ft)	288	26	154	95	32
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	1083	599	1197	440	498
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.10	0.33	0.25	0.06

Intersection Summary

Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2028 Total Midday  
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	424	33	55	357	6	39	22	39	2	21	5
Future Volume (veh/h)	5	424	33	55	357	6	39	22	39	2	21	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.93	1.00		0.93	0.88		0.85	0.90		0.87
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	1900	1841	1856	1841	1811	1900	1826	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	461	36	60	388	7	42	24	42	2	23	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	4	3	4	6	0	5	0	0	0	0	0
Cap, veh/h	46	907	70	556	1156	21	150	89	114	53	294	60
Arrive On Green	0.54	0.54	0.54	0.04	0.65	0.65	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	4	1668	129	1753	1771	32	444	440	563	31	1452	297
Grp Volume(v), veh/h	502	0	0	60	0	395	108	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	1801	0	0	1753	0	1803	1447	0	0	1779	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	8.1	1.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	14.5	0.0	0.0	1.2	0.0	8.1	4.9	0.0	0.0	1.1	0.0	0.0
Prop In Lane	0.01		0.07	1.00		0.02	0.39		0.39	0.07		0.17
Lane Grp Cap(c), veh/h	1024	0	0	556	0	1177	353	0	0	406	0	0
V/C Ratio(X)	0.49	0.00	0.00	0.11	0.00	0.34	0.31	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1024	0	0	578	0	1177	476	0	0	559	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.9	0.0	0.0	6.7	0.0	6.4	28.2	0.0	0.0	26.8	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.8	0.5	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	0.0	0.4	0.0	2.7	1.9	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	0.0	0.0	6.7	0.0	7.2	28.7	0.0	0.0	26.9	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		502			455			108				30
Approach Delay, s/veh		12.3			7.1			28.7				26.9
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.0	51.0		22.7		60.0		22.7				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	3.2	16.5		3.1		10.1		6.9				
Green Ext Time (p_c), s	0.0	3.4		0.0		2.6		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				12.1								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	437	3	8	366	1	1	0	1	2	0	8
Future Vol, veh/h	6	437	3	8	366	1	1	0	1	2	0	8
Conflicting Peds, #/hr	24	0	26	26	0	24	0	0	24	24	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	5	0	0	6	0	0	0	0	0	0	0
Mvmt Flow	6	470	3	9	394	1	1	0	1	2	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	419	0	0	499	0	0	927	947	522	945	948	419
Stage 1	-	-	-	-	-	-	510	510	-	437	437	-
Stage 2	-	-	-	-	-	-	417	437	-	508	511	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1151	-	-	1075	-	-	251	263	559	244	263	638
Stage 1	-	-	-	-	-	-	550	541	-	602	583	-
Stage 2	-	-	-	-	-	-	617	583	-	551	540	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1125	-	-	1048	-	-	238	246	533	229	246	623
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	246	-	229	246	-
Stage 1	-	-	-	-	-	-	532	524	-	584	563	-
Stage 2	-	-	-	-	-	-	602	563	-	534	523	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			16			12.9		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	329	1125	-	-	1048	-	-	464
HCM Lane V/C Ratio	0.007	0.006	-	-	0.008	-	-	0.023
HCM Control Delay (s)	16	8.2	0	-	8.5	0	-	12.9
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	431	1	1	365	15	2	0	3	16	1	13
Future Vol, veh/h	8	431	1	1	365	15	2	0	3	16	1	13
Conflicting Peds, #/hr	32	0	26	26	0	32	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	33	4	100	0	6	0	100	0	0	0	0	0
Mvmt Flow	8	454	1	1	384	16	2	0	3	17	1	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	432	0	0	481	0	0	899	931	482	899	923	424
Stage 1	-	-	-	-	-	-	497	497	-	426	426	-
Stage 2	-	-	-	-	-	-	402	434	-	473	497	-
Critical Hdwy	4.43	-	-	4.1	-	-	8.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	7.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.497	-	-	2.2	-	-	4.4	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	981	-	-	1092	-	-	178	269	588	262	272	634
Stage 1	-	-	-	-	-	-	410	548	-	610	589	-
Stage 2	-	-	-	-	-	-	469	585	-	576	548	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	951	-	-	1065	-	-	168	251	573	250	254	615
Mov Cap-2 Maneuver	-	-	-	-	-	-	168	251	-	250	254	-
Stage 1	-	-	-	-	-	-	396	528	-	585	571	-
Stage 2	-	-	-	-	-	-	457	567	-	566	528	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0			17.6			16.8		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	292	951	-	-	1065	-	-	337
HCM Lane V/C Ratio	0.018	0.009	-	-	0.001	-	-	0.094
HCM Control Delay (s)	17.6	8.8	0	-	8.4	0	-	16.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	437	3	3	388	6	2	0	3	0	0	1
Future Vol, veh/h	3	437	3	3	388	6	2	0	3	0	0	1
Conflicting Peds, #/hr	25	0	23	23	0	25	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	3	460	3	3	408	6	2	0	3	0	0	1

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	439	0	0	486	0	0	909	936	486	912	934	436
Stage 1	-	-	-	-	-	-	491	491	-	442	442	-
Stage 2	-	-	-	-	-	-	418	445	-	470	492	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1132	-	-	1087	-	-	258	267	585	257	268	625
Stage 1	-	-	-	-	-	-	563	552	-	598	580	-
Stage 2	-	-	-	-	-	-	616	578	-	578	551	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1105	-	-	1063	-	-	250	253	572	248	254	610
Mov Cap-2 Maneuver	-	-	-	-	-	-	250	253	-	248	254	-
Stage 1	-	-	-	-	-	-	548	538	-	581	564	-
Stage 2	-	-	-	-	-	-	612	562	-	572	537	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		0.1		14.7		10.9	
HCM LOS					B		B	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	378	1105	-	-	1063	-	-	610
HCM Lane V/C Ratio	0.014	0.003	-	-	0.003	-	-	0.002
HCM Control Delay (s)	14.7	8.3	0	-	8.4	0	-	10.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	50	281	155	138	262	143	91	143	33	126	46
v/c Ratio	0.14	0.45	0.18	0.32	0.31	0.51	0.31	0.38	0.14	0.45	0.13
Control Delay	23.1	25.2	1.8	17.5	16.0	36.4	31.6	7.1	30.3	35.4	0.7
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	23.1	25.2	1.8	17.5	16.0	36.4	31.6	7.1	30.3	35.4	0.7
Queue Length 50th (ft)	15	95	0	33	65	60	37	0	13	53	0
Queue Length 95th (ft)	55	233	20	100	182	129	86	37	40	113	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	359	625	1096	427	845	600	638	617	533	650	635
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	0.14	0.45	0.14	0.32	0.31	0.24	0.14	0.23	0.06	0.19	0.07

Intersection Summary



Attachment E

JPA Aspen Heights  
5: Jefferson Park Ave & Fontaine Ave & Maury Ave

2028 Total Midday  
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	264	146	130	222	24	134	86	134	31	118	43
Future Volume (veh/h)	47	264	146	130	222	24	134	86	134	31	118	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.99	1.00		1.00	1.00		0.92
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	1796	1841	1856	1856	1811	1589	1856	1870	1885	1663	1900	1900
Adj Flow Rate, veh/h	50	281	155	138	236	26	143	91	0	33	126	46
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, %	7	4	3	3	6	21	3	2	1	16	0	0
Cap, veh/h	465	628	732	412	773	85	240	254		199	238	185
Arrive On Green	0.34	0.34	0.34	0.06	0.48	0.48	0.14	0.14	0.00	0.13	0.13	0.13
Sat Flow, veh/h	1064	1841	1521	1767	1601	176	1767	1870	1598	1584	1900	1475
Grp Volume(v), veh/h	50	281	155	138	0	262	143	91	0	33	126	46
Grp Sat Flow(s),veh/h/ln	1064	1841	1521	1767	0	1778	1767	1870	1598	1584	1900	1475
Q Serve(g_s), s	2.3	8.4	4.2	3.4	0.0	6.3	5.4	3.1	0.0	1.3	4.4	2.0
Cycle Q Clear(g_c), s	2.3	8.4	4.2	3.4	0.0	6.3	5.4	3.1	0.0	1.3	4.4	2.0
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	465	628	732	412	0	859	240	254		199	238	185
V/C Ratio(X)	0.11	0.45	0.21	0.34	0.00	0.31	0.60	0.36		0.17	0.53	0.25
Avail Cap(c_a), veh/h	465	628	732	412	0	859	602	638		540	648	503
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	18.0	10.7	13.5	0.0	11.0	28.6	27.6	0.0	27.5	28.8	27.8
Incr Delay (d2), s/veh	0.5	2.3	0.7	2.2	0.0	0.9	0.9	0.3	0.0	0.1	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	1.8	1.5	0.0	2.4	2.2	1.4	0.0	0.5	2.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	20.3	11.4	15.7	0.0	12.0	29.5	27.9	0.0	27.6	29.5	28.0
LnGrp LOS	B	C	B	B	A	B	C	C		C	C	C
Approach Vol, veh/h		486			400			234	A		205	
Approach Delay, s/veh		17.1			13.2			28.9			28.9	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		14.8		40.0		15.6				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	5.4	10.4		6.4		8.3		7.4				
Green Ext Time (p_c), s	0.0	2.0		0.5		1.5		0.4				

Intersection Summary

HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

Notes

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

**Intersection**

Intersection Delay, s/veh 9.1

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	12	2	54	22	24	5	159	26	20	152	41
Future Vol, veh/h	20	12	2	54	22	24	5	159	26	20	152	41
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
Heavy Vehicles, %	0	0	0	6	0	0	0	6	0	6	2	15
Mvmt Flow	22	13	2	59	24	26	5	173	28	22	165	45
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	8.5	8.9	9	9.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	59%	54%	9%
Vol Thru, %	84%	35%	22%	71%
Vol Right, %	14%	6%	24%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	34	100	213
LT Vol	5	20	54	20
Through Vol	159	12	22	152
RT Vol	26	2	24	41
Lane Flow Rate	207	37	109	232
Geometry Grp	1	1	1	1
Degree of Util (X)	0.255	0.053	0.151	0.29
Departure Headway (Hd)	4.453	5.12	4.999	4.504
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	805	697	715	796
Service Time	2.486	3.173	3.044	2.537
HCM Lane V/C Ratio	0.257	0.053	0.152	0.291
HCM Control Delay	9	8.5	8.9	9.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.2	0.5	1.2

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	48	12	15	94	6	11
Future Vol, veh/h	48	12	15	94	6	11
Conflicting Peds, #/hr	0	41	41	0	14	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	3	0	50
Mvmt Flow	52	13	16	102	7	12
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	106	0	248	101
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	148	-
Critical Hdwy	-	-	4.1	-	6.4	6.7
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.75
Pot Cap-1 Maneuver	-	-	1498	-	745	838
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	884	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1440	-	698	805
Mov Cap-2 Maneuver	-	-	-	-	698	-
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	862	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	1	9.8			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	764	-	-	1440	-	
HCM Lane V/C Ratio	0.024	-	-	0.011	-	
HCM Control Delay (s)	9.8	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

JPA Aspen Heights  
8: Washington Ave & Site Entrance

2028 Total Midday  
HCM 6th TWSC

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	12	17	16	8	16	10
Future Vol, veh/h	12	17	16	8	16	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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	13	18	17	9	17	11

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	66	23	28	0	0
Stage 1	23	-	-	-	-
Stage 2	43	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	944	1060	1599	-	-
Stage 1	1005	-	-	-	-
Stage 2	985	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	934	1060	1599	-	-
Mov Cap-2 Maneuver	934	-	-	-	-
Stage 1	994	-	-	-	-
Stage 2	985	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	4.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1599	-	1004	-	-
HCM Lane V/C Ratio	0.011	-	0.031	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	275	72	215	118	57
Average Queue (ft)	111	28	81	59	18
95th Queue (ft)	220	63	163	104	49
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		0	7		
Queuing Penalty (veh)		1	4		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	91	27	31
Average Queue (ft)	6	8	2	11
95th Queue (ft)	34	44	14	34
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	76	22	57	49
Average Queue (ft)	8	1	6	21
95th Queue (ft)	43	11	32	48
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	19	35	31	20
Average Queue (ft)	1	2	5	1
95th Queue (ft)	18	15	23	9
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	L	T	R
Maximum Queue (ft)	129	292	120	87	259	148	110	93	156	101
Average Queue (ft)	35	117	51	61	103	76	48	24	68	26
95th Queue (ft)	89	226	127	101	203	135	93	67	122	71
Link Distance (ft)		774			432		770		538	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		120	88		355		117		125
Storage Blk Time (%)	0	6	0	2	8			0	1	0
Queuing Penalty (veh)	0	13	1	6	10			0	1	0

**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	47	84	111	101
Average Queue (ft)	20	38	57	52
95th Queue (ft)	46	65	90	84
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	3	25	67
Average Queue (ft)	0	1	18
95th Queue (ft)	5	10	54
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**

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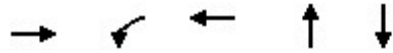
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	44	9
Average Queue (ft)	21	0
95th Queue (ft)	45	4
Link Distance (ft)	156	281
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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**Network Summary**

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Network wide Queuing Penalty: 37
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Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	397	112	624	135	73
v/c Ratio	0.47	0.19	0.55	0.57	0.27
Control Delay	13.9	6.3	10.1	39.7	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	6.3	10.1	39.7	28.4
Queue Length 50th (ft)	103	15	129	62	29
Queue Length 95th (ft)	230	47	318	115	64
Internal Link Dist (ft)	301		481	515	490
Turn Bay Length (ft)		75			
Base Capacity (vph)	841	587	1128	421	478
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.19	0.55	0.32	0.15
<b>Intersection Summary</b>					



Attachment E

JPA Aspen Heights  
1: Shamrock Rd & Jefferson Park Ave

2028 Total PM  
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (veh/h)	21	296	56	105	574	12	44	25	57	9	53	7
Future Volume (veh/h)	21	296	56	105	574	12	44	25	57	9	53	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.89	0.99		0.90	0.89		0.85	0.90		0.84
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	1900	1870	1900	1885	1870	1781	1870	1900	1841	1900	1900	1900
Adj Flow Rate, veh/h	22	315	60	112	611	13	47	27	61	10	56	7
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, %	0	2	0	1	2	8	2	0	4	0	0	0
Cap, veh/h	66	721	132	620	1134	24	150	92	153	76	351	40
Arrive On Green	0.51	0.51	0.51	0.05	0.62	0.62	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	45	1420	261	1795	1820	39	395	385	643	122	1470	169
Grp Volume(v), veh/h	397	0	0	112	0	624	135	0	0	73	0	0
Grp Sat Flow(s),veh/h/ln	1725	0	0	1795	0	1858	1423	0	0	1760	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	16.5	2.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.2	0.0	0.0	2.4	0.0	16.5	6.5	0.0	0.0	2.7	0.0	0.0
Prop In Lane	0.06		0.15	1.00		0.02	0.35		0.45	0.14		0.10
Lane Grp Cap(c), veh/h	920	0	0	620	0	1158	395	0	0	467	0	0
V/C Ratio(X)	0.43	0.00	0.00	0.18	0.00	0.54	0.34	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	920	0	0	620	0	1158	448	0	0	532	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.5	0.0	0.0	8.3	0.0	9.3	27.5	0.0	0.0	26.2	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.6	0.0	1.8	0.5	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	0.0	0.9	0.0	6.2	2.4	0.0	0.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	0.0	0.0	8.9	0.0	11.1	28.0	0.0	0.0	26.3	0.0	0.0
LnGrp LOS	B	A	A	A	A	B	C	A	A	C	A	A
Approach Vol, veh/h		397			736			135				73
Approach Delay, s/veh		15.0			10.7			28.0				26.3
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	50.0		26.7		60.0		26.7				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	44.0		24.0		54.0		24.0				
Max Q Clear Time (g_c+I1), s	4.4	14.2		4.7		18.5		8.5				
Green Ext Time (p_c), s	0.0	2.7		0.1		4.6		0.4				

Intersection Summary

HCM 6th Ctrl Delay				14.6								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	335	1	13	596	4	0	0	8	6	1	15
Future Vol, veh/h	7	335	1	13	596	4	0	0	8	6	1	15
Conflicting Peds, #/hr	45	0	46	46	0	45	0	0	23	23	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	0	2	0	0	0	0	0	0	7
Mvmt Flow	8	364	1	14	648	4	0	0	9	7	1	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	697	0	0	411	0	0	1114	1152	434	1131	1150	695
Stage 1	-	-	-	-	-	-	427	427	-	723	723	-
Stage 2	-	-	-	-	-	-	687	725	-	408	427	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.363
Pot Cap-1 Maneuver	909	-	-	1159	-	-	187	199	626	182	200	434
Stage 1	-	-	-	-	-	-	610	589	-	421	434	-
Stage 2	-	-	-	-	-	-	440	433	-	624	589	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	870	-	-	1108	-	-	167	176	585	164	177	415
Mov Cap-2 Maneuver	-	-	-	-	-	-	167	176	-	164	177	-
Stage 1	-	-	-	-	-	-	576	557	-	398	407	-
Stage 2	-	-	-	-	-	-	413	406	-	594	557	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.2			11.2			19		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	585	870	-	-	1108	-	-	281
HCM Lane V/C Ratio	0.015	0.009	-	-	0.013	-	-	0.085
HCM Control Delay (s)	11.2	9.2	0	-	8.3	0	-	19
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	321	1	2	598	19	0	0	1	24	0	15
Future Vol, veh/h	16	321	1	2	598	19	0	0	1	24	0	15
Conflicting Peds, #/hr	54	0	71	71	0	54	4	0	2	2	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	17	349	1	2	650	21	0	0	1	26	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	725	0	0	421	0	0	1132	1184	423	1105	1174	719
Stage 1	-	-	-	-	-	-	455	455	-	719	719	-
Stage 2	-	-	-	-	-	-	677	729	-	386	455	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	887	-	-	1149	-	-	182	191	635	190	193	432
Stage 1	-	-	-	-	-	-	589	572	-	423	436	-
Stage 2	-	-	-	-	-	-	446	431	-	641	572	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	841	-	-	1071	-	-	159	164	591	176	166	408
Mov Cap-2 Maneuver	-	-	-	-	-	-	159	164	-	176	166	-
Stage 1	-	-	-	-	-	-	535	520	-	391	412	-
Stage 2	-	-	-	-	-	-	425	408	-	623	520	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0			11.1			24.7		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	591	841	-	-	1071	-	-	225
HCM Lane V/C Ratio	0.002	0.021	-	-	0.002	-	-	0.188
HCM Control Delay (s)	11.1	9.4	0	-	8.4	0	-	24.7
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.7

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	323	3	8	626	5	4	0	6	6	1	7
Future Vol, veh/h	9	323	3	8	626	5	4	0	6	6	1	7
Conflicting Peds, #/hr	48	0	95	95	0	48	4	0	2	2	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	0	1	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	10	351	3	9	680	5	4	0	7	7	1	8

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	733	0	0	449	0	0	1177	1219	450	1127	1218	735
Stage 1	-	-	-	-	-	-	468	468	-	749	749	-
Stage 2	-	-	-	-	-	-	709	751	-	378	469	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	881	-	-	1122	-	-	169	182	613	183	182	423
Stage 1	-	-	-	-	-	-	579	565	-	407	422	-
Stage 2	-	-	-	-	-	-	428	421	-	648	564	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	841	-	-	1020	-	-	146	153	556	169	153	402
Mov Cap-2 Maneuver	-	-	-	-	-	-	146	153	-	169	153	-
Stage 1	-	-	-	-	-	-	519	506	-	383	397	-
Stage 2	-	-	-	-	-	-	411	396	-	630	505	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.3		0.1		19.3		21.4	
HCM LOS					C		C	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	262	841	-	-	1020	-	-	235
HCM Lane V/C Ratio	0.041	0.012	-	-	0.009	-	-	0.065
HCM Control Delay (s)	19.3	9.3	0	-	8.6	0	-	21.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	164	273	241	389	196	107	112	53	325	53
v/c Ratio	0.09	0.31	0.34	0.58	0.53	0.64	0.34	0.31	0.14	0.80	0.12
Control Delay	28.3	29.2	4.6	28.6	25.2	43.7	34.7	3.9	29.4	48.5	0.6
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	28.3	29.2	4.6	28.6	25.2	43.7	34.7	3.9	29.4	48.5	0.6
Queue Length 50th (ft)	10	70	19	89	156	100	51	0	23	166	0
Queue Length 95th (ft)	35	147	53	184	304	176	102	15	59	#289	0
Internal Link Dist (ft)		751			428		732			533	
Turn Bay Length (ft)	150		120	88		355		225	117		125
Base Capacity (vph)	284	526	957	419	728	500	521	484	480	531	530
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	0.31	0.29	0.58	0.53	0.39	0.21	0.23	0.11	0.61	0.10

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
























Attachment E

JPA Aspen Heights

2028 Total PM

5: Jefferson Park Ave & Fontaine Ave & Maury Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	156	259	229	336	33	186	102	106	50	309	50
Future Volume (veh/h)	25	156	259	229	336	33	186	102	106	50	309	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.95	1.00		1.00	1.00		0.80
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	1900	1870	1900	1885	1870	1678	1870	1856	1900	1811	1885	1841
Adj Flow Rate, veh/h	26	164	273	241	354	35	196	107	0	53	325	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	1	2	15	2	3	0	6	1	4
Cap, veh/h	296	506	722	352	638	63	345	360		380	416	276
Arrive On Green	0.27	0.27	0.27	0.05	0.38	0.38	0.19	0.19	0.00	0.22	0.22	0.22
Sat Flow, veh/h	993	1870	1516	1795	1667	165	1781	1856	1610	1725	1885	1250
Grp Volume(v), veh/h	26	164	273	241	0	389	196	107	0	53	325	53
Grp Sat Flow(s),veh/h/ln	993	1870	1516	1795	0	1831	1781	1856	1610	1725	1885	1250
Q Serve(g_s), s	1.9	6.2	10.4	4.0	0.0	14.8	8.9	4.4	0.0	2.2	14.4	3.1
Cycle Q Clear(g_c), s	6.6	6.2	10.4	4.0	0.0	14.8	8.9	4.4	0.0	2.2	14.4	3.1
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	296	506	722	352	0	701	345	360		380	416	276
V/C Ratio(X)	0.09	0.32	0.38	0.69	0.00	0.55	0.57	0.30		0.14	0.78	0.19
Avail Cap(c_a), veh/h	296	506	722	352	0	701	481	502		466	510	338
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	25.9	15.6	28.2	0.0	21.5	32.4	30.6	0.0	27.8	32.6	28.2
Incr Delay (d2), s/veh	0.6	1.7	1.5	10.4	0.0	3.1	0.5	0.2	0.0	0.1	4.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.9	5.3	3.7	0.0	6.6	3.8	1.9	0.0	0.9	7.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	27.6	17.1	38.6	0.0	24.6	33.0	30.8	0.0	27.9	37.5	28.3
LnGrp LOS	C	C	B	D	A	C	C	C		C	D	C
Approach Vol, veh/h		463			630			303	A		431	
Approach Delay, s/veh		21.4			30.0			32.2			35.2	
Approach LOS		C			C			C			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	30.0		25.6		40.0		23.2				
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s	4.0	24.0		24.0		34.0		24.0				
Max Q Clear Time (g_c+I1), s	6.0	12.4		16.4		16.8		10.9				
Green Ext Time (p_c), s	0.0	1.6		1.0		2.1		0.5				

Intersection Summary

HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes

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

JPA Aspen Heights  
6: Maury Ave/Alderman Road & Stadium Drive

2028 Total PM  
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 23.5

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	16	3	130	131	24	6	156	16	66	333	95
Future Vol, veh/h	20	16	3	130	131	24	6	156	16	66	333	95
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
Heavy Vehicles, %	5	0	0	2	0	0	0	6	0	34	1	7
Mvmt Flow	21	17	3	138	139	26	6	166	17	70	354	101
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	10.6			15.6			11.6			33.4		
HCM LOS	B			C			B			D		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	51%	46%	13%
Vol Thru, %	88%	41%	46%	67%
Vol Right, %	9%	8%	8%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	178	39	285	494
LT Vol	6	20	130	66
Through Vol	156	16	131	333
RT Vol	16	3	24	95
Lane Flow Rate	189	41	303	526
Geometry Grp	1	1	1	1
Degree of Util (X)	0.309	0.08	0.515	0.85
Departure Headway (Hd)	5.87	6.955	6.118	5.824
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	608	518	585	620
Service Time	3.952	4.955	4.194	3.884
HCM Lane V/C Ratio	0.311	0.079	0.518	0.848
HCM Control Delay	11.6	10.6	15.6	33.4
HCM Lane LOS	B	B	C	D
HCM 95th-tile Q	1.3	0.3	2.9	9.4

JPA Aspen Heights  
7: Washington Ave & Stadium Drive

2028 Total PM  
HCM 6th TWSC

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	81	6	18	263	9	23
Future Vol, veh/h	81	6	18	263	9	23
Conflicting Peds, #/hr	0	45	45	0	10	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	26	0	0	1	0	0
Mvmt Flow	88	7	20	286	10	25
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	140	0	473	138
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	336	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1456	-	553	916
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	728	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1394	-	515	876
Mov Cap-2 Maneuver	-	-	-	-	515	-
Stage 1	-	-	-	-	857	-
Stage 2	-	-	-	-	709	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.5	10.2			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	732	-	-	1394	-	
HCM Lane V/C Ratio	0.048	-	-	0.014	-	
HCM Control Delay (s)	10.2	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	



JPA Aspen Heights  
8: Washington Ave & Site Entrance

2028 Total PM  
HCM 6th TWSC

Intersection						
Int Delay, s/veh	5.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	17	25	25	10	7	17
Future Vol, veh/h	17	25	25	10	7	17
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	18	27	27	11	8	18

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	82	17	26	0	0
Stage 1	17	-	-	-	-
Stage 2	65	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	925	1068	1601	-	-
Stage 1	1011	-	-	-	-
Stage 2	963	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	909	1068	1601	-	-
Mov Cap-2 Maneuver	909	-	-	-	-
Stage 1	994	-	-	-	-
Stage 2	963	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	5.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1601	-	997	-	-
HCM Lane V/C Ratio	0.017	-	0.046	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

**Intersection: 1: Shamrock Rd & Jefferson Park Ave**

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	294	74	356	154	87
Average Queue (ft)	141	43	159	75	42
95th Queue (ft)	245	81	289	135	82
Link Distance (ft)	304		532	559	534
Upstream Blk Time (%)	0		0		
Queuing Penalty (veh)	0		0		
Storage Bay Dist (ft)		75			
Storage Blk Time (%)		1	18		
Queuing Penalty (veh)		7	19		

**Intersection: 2: Private Entrance/Harmon St & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	69	149	37	56
Average Queue (ft)	8	25	9	18
95th Queue (ft)	39	105	32	47
Link Distance (ft)	77	304	320	536
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	1	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 3: Private Entrance/Washington Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	130	88	18	67
Average Queue (ft)	17	12	1	28
95th Queue (ft)	71	57	9	58
Link Distance (ft)	174	77	261	281
Upstream Blk Time (%)	0	2		
Queuing Penalty (veh)	0	11		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 4: Private Entrance/Observatory Ave & Jefferson Park Ave**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	110	160	33	48
Average Queue (ft)	12	35	7	13
95th Queue (ft)	59	138	28	40
Link Distance (ft)	432	174	314	534
Upstream Blk Time (%)		3		
Queuing Penalty (veh)		15		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 5: Jefferson Park Ave & Fontaine Ave & Maury Ave**

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB	SB	B22
Directions Served	L	T	R	L	TR	L	T	L	T	R	T
Maximum Queue (ft)	76	240	120	87	444	188	125	117	402	125	4
Average Queue (ft)	19	88	66	82	285	101	57	49	205	50	0
95th Queue (ft)	52	182	127	101	474	169	108	123	344	130	4
Link Distance (ft)		774			432		770		538		452
Upstream Blk Time (%)					6				0		
Queuing Penalty (veh)					39				0		
Storage Bay Dist (ft)	150		120	88		355		117		125	
Storage Blk Time (%)		3	1	22	36			0	29	0	
Queuing Penalty (veh)		8	1	82	83			1	29	1	

**Intersection: 6: Maury Ave/Alderman Road & Stadium Drive**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	59	163	143	366
Average Queue (ft)	25	73	65	147
95th Queue (ft)	53	127	110	296
Link Distance (ft)	544	504	452	665
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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**Intersection: 7: Washington Ave & Stadium Drive**

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Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	14	37	47
Average Queue (ft)	1	4	21
95th Queue (ft)	8	22	47
Link Distance (ft)	504	658	455
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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**Intersection: 8: Washington Ave & Site Entrance**

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Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	47	19
Average Queue (ft)	24	1
95th Queue (ft)	46	10
Link Distance (ft)	156	281
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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**Network Summary**

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Network wide Queuing Penalty: 298
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