

# Vista at Kings Point

## Traffic Impact Study



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**Submitted To:**

Kings Point Investment, LLC  
2707 E Willamette Lane  
Greenwood Village, CO 80121

**Submitted By:**

Fox Tuttle Transportation Group, LLC  
1580 Logan Street, 6<sup>th</sup> Floor  
Denver, CO 80203

**Vista at Kings Point Traffic Impact Study**  
**Updates from Previous Submittal – Change Log:**

Preface: This report represents version #3 of the Vista at Kings Point Traffic Impact Study. The following is a log of updates that were incorporated into this report based on the changes to the site plan and comments received from the City of Aurora:

1. Updated text as recommended.
2. Updated operations analysis for the access intersection on Aurora Parkway (#101) to include one eastbound right-turn lane.
3. Added delays, levels of service, and queues to the tables for the possible signalization of the access intersection on Aurora Parkway (#101) if Pine Drive is extended.
4. Updated analysis, tables, figures, and text as appropriate for the above changes.

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## VISTA AT KINGS POINT TRAFFIC IMPACT STUDY

### 1.0 Introduction

The Fox Tuttle Transportation Group has prepared this traffic impact study for the development of the Vista at Kings Point project. The 95± acres of vacant property is located within the City of Aurora about halfway between Parker Road and Ireland Way, southeast of E-470 and west of the Travois neighborhood. It is understood that the proposed development will consist of 166 single-family detached homes and 192 multifamily housing units. **Figure 1** provides a vicinity map for the proposed project.

The purpose of this study is to assist in identifying potential traffic impacts within the study area resulting from this project. The traffic study addresses existing, short-term, and long-term peak hour intersection conditions in the study area with and without the project-generated traffic, and with and without the Pine Drive Extension. The information contained in this study is anticipated to be used by the City of Aurora staff in identifying any intersection or roadway deficiencies and potential improvements for the build-out condition and long-term future scenarios. This study focused on the weekday AM and PM peak hours which represents the periods of highest trip generation for the proposed use and adjacent street traffic. The study is consistent with the requirements of the City of Aurora's Traffic Impact Study Guidelines (June 2015). The following supporting documents were reviewed and incorporated into this analysis as appropriate:

- Crown Point Development Traffic Impact Study. Felsburg Holt & Ullevig. August 2003. Including subsequent traffic letters for updates.
- Southeast Area Transportation Study. City of Aurora Planning & Development Services Department. August 2007.
- The Lighthouse at Crown Point, Kings Point South, Traffic Impact Study. Felsburg Holt & Ullevig. May 2013.
- NWC Parker & Cottonwood Retail. Kimley-Horn and Associates. October 2013.
- Kings Point Development Traffic Impact Study. Atkins. September 2017.

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- Parker Road Corridor Plan. Town of Parker and Kimley-Horn. December 2019.
  - Kings Point Development Traffic Impact Study. Fox Tuttle Transportation Group. February 2022. Including subsequent traffic impact letters. Now known as Prairie Point.
  - Douglas County 2040 Transportation Plan. David Evans and Associates, Inc. September 2019.
  - Aurora Places, The Comprehensive Plan for the City of Aurora, Colorado. City of Aurora Staff and Boards/Committees and Houseal Lavigne team. October 2018.
  - Town of Parker Roadway System Evaluation Update. Felsburg Holt & Ullevig. December 2020.
  - Parker 2035 Changes and Choices. Town of Parker Staff and Boards/Committees and Kezziah Watkins team. December 2018.
  - Overlook at Kings Point Traffic Impact Study. Fox Tuttle Transportation Group. February 2023.

## 2.0 Project Description

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The Vista at Kings Point project plans to develop vacant land with an internal roadway network that includes amenities for all road users: drivers, pedestrians, and bicyclists. The proposed plan is to construct up to:

- 166 single-family residential dwelling units (DU)
- 192 multi-family residential dwelling units (DU)

The Vista at Kings Point plans to provide one (1) access location on the north edge of the property from the future Aurora Parkway. There will be additional access on Aurora Parkway within the adjacent developments (Overlook at Kings Point and Kings Point South) that can be accesses through internal roadways of Vista at Kings Point. The construction of Aurora Parkway is anticipated to begin in Year 2023 as part of the larger development of Kings Point (now known as Prairie Point).

For the purpose of this traffic study, it was assumed that Vista at Kings Point will be completed by Year 2030 and Aurora Parkway will also be completed. Refer to **Section 5.2** for additional discussion on the completion of Aurora Parkway. Internally, local streets will be constructed to provide the most beneficial access into and around the site. A proposed site plan along with proposed access to the site are provided on **Figure 2**.

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## 3.0 Study Considerations

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### 3.1 Data Collection

Counts were collected in April 2022 at three (3) existing intersections: Parker Road at Long Avenue, Aurora Parkway at Gartrell Road, and Pine Drive at Inspiration Drive. Roadway volumes were also collected at three (3) locations: Ireland Way south of the E-470 overpass, Aurora Parkway west of Gartrell Road, and Pine Drive south of Inspiration Drive. Additionally, data from the Kings Point Development Traffic Impact Study (February 2022) was utilized to estimate traffic at three (3) future external intersections: Parker Road at Aurora Parkway, Aurora Parkway at Ireland Way, and Aurora Parkway at Kings Point Drive.

Future projections within and near the project area were gathered from adjacent development traffic studies; the Southeast Area Transportation Study (SEATS); DRCOG database; and from CDOT's database. The existing traffic volumes are illustrated on **Figure 3**. The existing intersection geometry and traffic control are also shown on this figure. Count data sheets are provided in the **Appendix**.

### 3.2 Approved Developments and New Roadways

The Southeast Aurora area is continuing to grow with new developments and new roadways to provide connections between current and future land uses. Adjacent to the Vista at Kings Point property, the following known development projects are approved, portions of the site are under construction, under review, or in the planning stages: (1) Eagle Bend, (2) Rockinghorse, (3) Kings Point South, (4) Crown Point, (5) Cottonwood, (6) Kings Point (now known as Prairie Point), (7) Overlook at Kings Point, and (8) Inspiration. The trips from each of these developments were assumed to be included within the background growth in SEATS and in previous traffic studies.

There are many recent and future roadway and intersection construction projects within or near the study area that will serve the existing and future traffic volumes. Several of the study intersections will be expanded to accommodate auxiliary lanes and/or upgraded to be signalized. With the Kings Point (aka Prairie Point) development and other projects in the area, Aurora Parkway will be extended west from where it ends near Quemoy Way to connect to Parker Road.



### 3.3 Evaluation Methodology

The traffic operations analysis addressed the signalized and unsignalized intersection operations using the procedures and methodologies set forth by the *Highway Capacity Manual (HCM)*<sup>1</sup>. Existing peak hour factors (PHF) by approach and peak hour were applied to the study intersections for the existing scenarios. For future scenarios, the PHF were set to 0.92 (0.95-0.98 on Parker Road) in the future unless the existing PHF was greater than these values. Study intersections were evaluated using Synchro software (v11).

### 3.4 Level of Service Capacity Analysis

A Level of Service analysis was conducted to determine the existing and future performance of the study area intersections and accesses to determine the most appropriate intersection traffic controls and auxiliary lanes for future conditions.

To measure and describe the operational status of the study intersections, transportation engineers and planners commonly use a grading system referred to as “Level of Service” (LOS) that is defined by the *HCM*. LOS characterizes the operational conditions of an intersections traffic flow, ranging from LOS A (indicating very good, free flow operations) and LOS F (indicating congested and sometimes oversaturated conditions). These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with traveling through the intersections. The intersection LOS is represented as a delay in seconds per vehicle for the intersection as a whole and for each turning movement.

Typically, LOS A through C is considered to be acceptable for the overall intersection operations and LOS D overall during peak hours is acceptable. Individual movements may be allowed to fall to LOS E at signalized intersections. Minor movements at unsignalized intersections, such as left turns onto a major arterial, may be allowed to fall below LOS D, specifically where there are low volumes and/or no viable alternative per the City of Aurora’s *Traffic Impact Study Guidelines*. Criteria contained in the *HCM* was applied for these analyses in order to determine peak hour LOS for each scenario. A more detailed discussion of LOS methodology is contained in the **Appendix** for reference.

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<sup>1</sup> *Highway Capacity Manual*, Highway Research Board Special Report 209, Transportation Research Board, National Research Council, 6<sup>th</sup> Edition (2016).

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## 4.0 Existing Conditions

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### 4.1 Roadways

The study area boundaries are based on the amount of traffic to be generated by the project and potential impact to the existing roadway network. The primary public roadways that serve the project site are discussed in the following text and illustrated on **Figure 1**.

**E-470** is a six-lane divided toll highway that provides regional access around the eastern and northern Denver metro area. The toll road currently extends 47 miles from C-470 at I-25 in Douglas County (west of the project site) to I-25 near 160<sup>th</sup> Avenue in Thornton where it becomes the Northwest Parkway. E-470 connects three counties, six municipalities, and Denver International Airport. E-470 has full-movement interchanges at Parker Road and Gartrell Road. This expressway has a posted speed limit of 75 miles per hour (mph) and serves approximately 46,600 vehicles per day (vpd) near the interchange with Parker Road.

**Parker Road (State Highway 83)** is a six-lane, north-south, regional arterial roadway that provides access through the Town of Parker and into south Aurora. This roadway is categorized by CDOT as a Non-Rural Principal Highway (NR-A) within the project vicinity. Parker Road connects the study area to the City of Denver to the north and the City of Colorado Springs to the south, while providing local access to several commercial areas, residential neighborhoods, civic services, and recreational facilities. The posted speed limit is 45 miles per hour (mph) within the study area. Parker Road currently serves approximately 46,600 vpd north of E-470 (CDOT, Year 2019). The SEATS report and Parker Road Corridor Study recommends this roadway remain six-lane in the vicinity of the Kings Point site.

**Gartrell Road** is a north-south, four-lane minor arterial that extends from Arapahoe Road to Inspiration Drive. This roadway provides local access to the Saddle Ranch Shopping Center, Rockinghorse community, Heritage Eagle Bend community, and Saddle Rock East community. There is a full-movement interchange with E-470. The speed limit in the vicinity of the site is 40 mph. Gartrell Road serves approximately 11,000 vpd south of E-470 (CDOT, Year 2019).

**Aurora Parkway** is a four-lane divided roadway that is an east-west parallel facility to E-470. It connects Gartrell Road to Smoky Hill Road where it changes to Gun Club Road. Currently, Aurora Parkway dead-ends approximately 1/3-mile west of Gartrell Road with the plan to extend west over E-470, intersecting Parker Road north of Cottonwood Drive, and ending west of Parker Road.

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The posted speed limit is 40 mph within the study area. Aurora Parkway serves approximately 7,700 vpd east of Gartrell Road (CDOT, Year 2019).

**Ireland Way/Travois Trail** is a north-south, two-lane roadway that provides local access to several residents with rural large single-family lots. This roadway connects Arapahoe Road (via Himalaya Way) to Inspiration Drive. The posted speed limit is 25 mph within the study area.

**Pine Drive** is a north-south arterial between Main Street, near downtown Parker, to Inspiration Drive where the roadways create a 90-degree bend for continued travel. Currently, the roadway provides access to several existing suburban and rural residential communities and is within four (4) municipal boundaries (City of Aurora, Town of Parker, Douglas County, and Arapahoe County). South of Lincoln Avenue, the cross-section of Pine Drive includes four travel lanes (two per direction) with a center median/left-turn lane. North of Lincoln Avenue, the roadway narrows to one lane per direction with gravel shoulders. The April 2022 count data indicated that there were 13,250 vehicles per day (vpd) on Pine Drive south of Inspiration Drive. The posted speed limit is 40 mph.

**Inspiration Drive** is an east-west, two-lane roadway that begins where Pine Drive ends and continues east to Piney Lake Road. Currently, Inspiration Drive provides access to rural residential properties and the newly built Inspiration community. The roadway has a posted speed limit of 40 mph, and it is assumed there are approximately 13,250 vpd on Inspiration Drive just east of the bend with Pine Drive. It is understood that Douglas County currently has plans to soften the curve between Pine Drive and Inspiration Drive; the details on the design and timeline for implementation are unknown.

Based on several municipal documents, the future plan for Pine Drive is to widen the two-lane section to four-lanes and to extend from Inspiration Drive to Aurora Parkway. The Aurora *Southeast Area Transportation Study (SEATS) (2007)* and the Aurora's Comprehensive Plan, *Aurora Places, (October 2018)* shows Pine Drive being extended as a four-lane minor arterial. The Douglas County *2040 Transportation Master Plan (2019)* and Parker's Transportation Master Plan, *Parker 2035: Changes and Choices (2018)*, also include the extension of Pine Drive and both documents recommended that Pine Drive be a four-lane minor arterial with Inspiration Drive remaining a two-lane collector. The Arapahoe County's *Transportation Master Plan (December 2021)* does not include Pine Drive or future connectivity to Aurora Parkway. For the purpose of this traffic impact study, all future backgrounds were evaluated with two (2) scenarios, without and with the Pine Drive Extension. Refer to **Section 5.2** for more detail.

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## 4.2 Intersections

The study area includes two (2) existing intersections that are listed below with the current traffic control and were analyzed for existing and future background year traffic operations:

1. Gartrell Road at Aurora Parkway [signalized]
2. Pine Drive at Inspiration Dr [stop-controlled]

The existing lane configuration at each of the study locations is illustrated on **Figure 3**. Note that three (3) future intersections are included in this analysis, but not discussed or evaluated until the future scenarios.

## 4.3 Pedestrian and Bicycle

Currently, there are sidewalks on both sides of Gartrell Road and along the south side of Aurora Parkway. There are no sidewalks along Parker Road, Long Avenue, Ireland Way, or Himalaya Way.

The High Plains Trail/E-470 Regional Trail follows the alignment of the toll road connecting several communities including the Town of Parker, City of Aurora, and City of Lone Tree. This multi-use path provides access to Chatfield Reservoir, the Platte River Trail, the Cherry Creek Trail, and several local recreational/commuter trails. Just west of Parker Road is the Cherry Creek Trail that travels through the Town of Parker, City of Aurora, and City of Centennial into the Cherry Creek Reservoir State Park. The trail continues along the Cherry Creek into downtown Denver ending at Confluence Park. There is trailhead parking on Broncos Parkway and Cottonwood Drive. In addition to these two regional multi-use paths, there are several local trails including Happy Canyon Trail and Bridle trails throughout the Chenango community.

There are no on-street bike facilities or designated bike routes within the project study area. Bikes are encouraged to travel on the multi-use paths and are permitted to travel within general purpose lanes or shoulders.

## 4.4 Transit

Currently, there is one bus route that serve the study area. The City of Aurora and Town of Parker are serviced by Regional Transportation District (RTD). Route 483 travels along Parker Road from Nine Mile Station to the Parker park-n-ride and then travel along Twenty Mile Road and Lincoln Avenue to the Lincoln Station. This bus route has stops at the following locations on Parker Road within the study area: on the far sides of Pine Lane intersection; south of Cottonwood Drive; far sides of the Valley Hi Drive intersection.

#### 4.5 Year 2022 Existing Intersection Capacity Analysis

The existing volumes, lane configuration, and traffic control are illustrated on **Figure 3**. The results of the LOS calculations for the intersections are summarized in **Table 1**. The details of LOS for each movement are provided in **Table 2** (see **Appendix**). The intersection Level of Service worksheets are attached in the **Appendix**. **Both study intersections currently operate overall at LOS C or better in both peak hours. All movements currently operate at LOS C or better in both peak hours.**

**Table 1: Existing Overall Level of Service Summary**

No.	Intersection	Traffic Control	AM Peak Hour	PM Peak Hour
1	Gartrell Road at Aurora Parkway	Signal	B	C
2	Pine Drive at Inspiration Drive	Stop	A (A)	A (B)

*Note: Level of Service for unsignalized intersections is listed as Overall (Worse Movement)*

## 5.0 Future Conditions

### 5.1 Annual Growth Factor and Future Volume Methodology

In order to forecast the future peak hour traffic volumes, background traffic growth assumptions were estimated based on the City's SEATS report, the Parker Road Corridor Study, DRCOG forecasts, and municipal comprehensive or transportation plans. The forecasted volumes included the completion of Aurora Parkway and Kings Point Drive and the completion of several development projects including: (1) Eagle Bend, (2) Rockinghorse, (3) Kings Point South, (4) Crown Point, (5) Cottonwood, (6) Kings Point (Prairie Point), (7) Overlook at Kings Point, and (8) Inspiration. The trips from each of these developments were assumed to be included within the background growth in SEATS and in previous traffic studies.

Based on a comparison of the projections, the annual growth rates on the existing roadways range from 0.5% to 2.1%, with an average of 1.2% annually. The volumes on Aurora Parkway were calculated to grow at a rate of 3.0% annually, which is expected with the completion of several developments along this arterial. The average rate of 1.2% was applied to the traffic at the existing study intersections. It was assumed that 30% of Kings Point (Prairie Point) and 100% of Overlook at Kings Point will be completed by Year 2030. It was assumed that Kings Point South will be completed after Year 2030 and before Year 2040.

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The future intersections of Parker Road at Aurora Parkway; Aurora Parkway at Ireland Way/Travois Trail; and Aurora Parkway at Kings Point Drive were included in the background analyses to compare project impacts and to redirect traffic to the new through roadway. Volumes on Aurora Parkway were estimated from previous traffic studies and adjusted with updated information related to the projects near Vista at Kings Point.

Based on recent information on the design of the intersection of Parker Road and Aurora Parkway, the signal phasing is planned to be split phasing for the eastbound and westbound approaches due to conflicting truck turning templates of the left-turns. It should be noted that split phasing increases the delay on many movements of the intersection due to the additional time needed to serve the side-streets that cannot occur simultaneously.

Using these assumptions, the Year 2030 background traffic is summarized on **Figure 4A** (without Pine Drive extension) and **Figure 4B** (with Pine Drive extension). The Year 2040 background traffic is summarized on **Figure 5A** (without Pine Drive extension) and **Figure 5B** (with Pine Drive extension).

## 5.2 Future Anticipated Transportation Network

For comparison purposes, this traffic study assumes that the planned roadways and auxiliary lanes shown in other development traffic studies will be completed by Year 2030 background. If the future scenarios were evaluated with the existing roadway network, then it would be difficult to compare intersection operations when many of the intersections will be altered due to future volumes, capacity, and routing that are not associated with the project. The following roadway and intersection improvements were assumed to be completed by Year 2030:

- **Aurora Parkway** – Construct two lanes per direction from the end point near Quemoy Way to just west of Parker Road. It is understood that portions of this roadway will be built with the Kings Point (Prairie Point) project. Other portions will be built with the other developments within the Kings Point area, including Overlook at Kings Point.

It is understood that the first phase of constructing Aurora Parkway will include only the north half of the cross-section with the Prairie Point development project that will provide one lane per direction. Below is a high-level analysis of when segments of Aurora Parkway are expected to need to be widened to two (2) lanes per direction (based on traffic volumes):

- *West of Kings Point Drive:* Assuming a consistent growth rate, it was estimated that this segment of the roadway will need to be four (4) lanes by Year 2032.

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- *East of Kings Point Drive to Ireland Way:* It was estimated that volumes will be up to 11,200 vpd in Year 2040 which is below the City's threshold to trigger the need to widen two (2) lanes per direction [ $>12,000$  vpd]. Assuming a consistent growth rate, it was estimated that this segment of the roadway will need to be four (4) lanes by Year 2045.
  - *East of Ireland Way to Quemoy Way:* It was estimated that volumes will be up to 11,300 vpd in Year 2040 which is below the City's threshold to trigger the need to widen two (2) lanes per direction [ $>12,000$  vpd]. Assuming a consistent growth rate, it was estimated that this segment of the roadway will need to be four (4) lanes by Year 2045.
  - **Kings Point Drive** – Construct one lane per direction from the end point of Dry Creek Road to connect with Aurora Parkway halfway between Parker Road and E-470. It is understood that this roadway will be built with the Kings Point (Prairie Point) project.

In addition to the roadways listed above, this study considers the potential extension of **Pine Drive** from Inspiration Drive north to the future Aurora Parkway. The future transportation plans for the City of Aurora, Town of Parker, and Douglas County include Pine Drive being widened to four (4) lanes and extending north. However, the projects near the Pine Drive extension prefer to remove the extension since it would be difficult to accommodate and would bisect the future communities. Per recent discussions with staff from the City of Aurora and Douglas County, it was agreed that the ability to have Pine Drive is important and that the cross-section should be a collector (one lane per direction). Based on current forecasts, Pine Drive was estimated to serve up to 6,600 vpd in Year 2040 which is well below the municipal's thresholds to trigger the need for a four (4) lane roadway [ $>12,000$  vpd].

All future backgrounds were evaluated with two (2) scenarios without and with the Pine Drive Extension to understand the impacts of both situations:

- **Scenario A, No Extension:** Pine Drive continues to end at Inspiration Drive (same as existing).
- **Scenario B, With Extension:** Pine Drive is extended north from Inspiration Drive to the future Aurora Parkway.
  - *Assumptions with Extension:*
    - Volumes along Pine Drive, Inspiration Drive, Gartrell Road, and future Aurora Parkway were adjusted and redirected, as appropriate.
      - Approximately 20% of westbound traffic were assumed to redirect to Aurora Parkway and the Pine Drive Extension.

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- Approximately 40% of eastbound traffic were assumed to redirect to Aurora Parkway and the Pine Drive Extension.
  - Pine Drive south of Inspiration Drive will be widened to four (4) lanes (two per direction).
  - Pine Drive north of Inspiration Drive will be constructed with two (2) lanes (one per direction).
  - The intersection of Pine Drive and Inspiration Drive warrants a traffic signal<sup>2</sup> based on preliminary warrant analysis (see worksheets in **Appendix**). It is anticipated this intersection will include one westbound left-turn lane, one shared westbound left-turn/right-turn lane, one northbound through lane, one northbound right-turn lane, one southbound through lane, and one southbound left-turn lane.
  - The intersection of Pine Drive at Aurora Parkway is anticipated to provide one eastbound through lane, one shared eastbound through/right-turn lane, one westbound left-turn lane, two westbound through lanes, one northbound left-turn lane, and one northbound right-turn lane.
    - With the extension, the volumes at this intersection are above signal warrant thresholds (four-hour and peak hour), however, the capacity analysis and queue analysis indicated a signal is not needed.

These future roadway and intersection improvements were assumed to be in place in the short-term background condition and are shown on **Figure 4A** (without Pine Drive extension) and **Figure 4B** (with Pine Drive extension). These assumed lane configuration in the long-term background condition are shown on **Figure 5A** (without Pine Drive extension) and **Figure 5B** (with Pine Drive extension).

Parker Road is currently three (3) lanes per direction and the future plans for this regional arterial do not include widening and is not recommended although traffic volumes are high, and congestion is experienced in peak periods.

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<sup>2</sup> Per the *Manual on Uniform Traffic Control Devices* (MUTCD), determination of the need for a traffic signal should be based on analysis of the following eight traffic signal warrants (as applicable for the given situation): Eight-Hour Vehicular Volume, Four-Hour Vehicular Volume, Peak Hour, Pedestrian Volume, School Crossing, Coordinated Signal System, Crash Experience, and Roadway Network. Warrants 2 and 3 were evaluated.



### 5.3 Year 2030 Background Intersection Capacity Analysis

The study area intersections were evaluated to determine baseline operations for the Year 2030 background scenario and to identify any capacity constraints associated with background traffic (refer to **Section 5.1** for growth assumptions). It was assumed that the roadway and intersection improvements listed in **Section 5.2** will be implemented by Year 2030 background. The background volumes, lane configuration, and traffic control are illustrated on **Figure 4A** (without Pine Drive extension) and **Figure 4B** (with Pine Drive extension).

The Level of Service criteria discussed previously was applied to the study area intersections to determine the impacts with the short-term background volumes. This analysis assumes signal timing throughout the network would be adjusted to accommodate the additional lanes and changes in traffic volumes. It should be noted that the peak hour factor was adjusted 0.92 (if the existing factor is less than 0.92) on the arterials and local streets since it is assumed that the peak periods will become longer with peak hour traffic spread more evenly over the hour as traffic increases beyond what is experienced today.

The results of the LOS calculations for the intersections are summarized in **Table 3**. The details of LOS for each movement are provided in **Table 2** (refer to **Appendix**). The intersection Level of Service worksheets are attached in the **Appendix**.

**Table 3: Year 2030 Background Overall Level of Service Summary**

No.	Intersection	Traffic Control	Scenario A		Scenario B	
			No Pine Dr Ext.		With Pine Dr Ext.	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Gartrell Rd at Aurora Pkwy	Signal	B	C	B	C
2	Pine Dr at Inspiration Dr	Stop => Signal	A (A)	A (B)	A	B
3	Parker Rd at Aurora Pkwy	Signal	C	C	Same as Scenario A	
4	Ireland Way at Aurora Pkwy	Stop	A (C)	A (B)	A (C)	A (C)
5	Aurora Pkwy at Kings Point Dr	Roundabout	A (A)	A (A)	Same as Scenario A	
101	Aurora Pkwy at Pine Drive	Stop	not applicable		A (C)	A (C)

*Note: Level of Service for unsignalized intersections is listed as Overall (Worse Movement)*

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In summary, all study intersections will continue to operate overall at LOS C or better in both peak hours. The following intersection had movements calculated to operate at LOS E in one or both peak hours in Year 2030 background as described below:

- **#3 – Parker Road at Aurora Parkway:** This future signalized intersection is anticipated to operate overall at LOS C in the AM peak hour and LOS C in the PM peak hour and the intersection performance is not impacted by the Pine Drive extension. During the morning peak, the southbound left-turn was estimated to operate at LOS E with 95<sup>th</sup> percentile queues up to 101 feet in length (about four vehicles). During the PM peak hour, the eastbound right-turn, the westbound left-turn, and southbound left-turn movements were estimated to operate at LOS E. The 95<sup>th</sup> percentile queue for the eastbound right-turn was calculated to be zero (0) feet and 100 feet (about four vehicles) on the westbound left-turn movement. The 95<sup>th</sup> percentile queue for the southbound left-turn movement was calculated to be up to 129 feet (about five vehicles). All peak hour turning movement are the same for both Scenarios A and B.

**Recommendations:** No mitigation measures are recommended. It is typical for protected only left-turn movements and side-streets with split phasing to experience delay due to limited green time. It is anticipated that the side-street right-turns will have limited opportunities to turn onto Parker Road during the red phase. Queues are anticipated to be contained within the future storage lengths.

#### 5.4 Year 2040 Background Intersection Capacity Analysis

The study area intersections were evaluated to determine baseline operations for the Year 2040 background scenario and to identify any capacity constraints associated with background traffic in the long-term scenario (refer to **Section 5.1** for growth assumptions). The long-term background volumes, lane configuration, and traffic control are illustrated on **Figure 5A** (without Pine Drive extension) and **Figure 5B** (with Pine Drive extension).

The Level of Service criteria discussed previously was applied to the study area intersections to determine the impacts with the long-term background volumes. The analysis assumed the signal timing at all signalized intersections would be adjusted to accommodate the additional lanes and change in traffic volumes.

The results of the LOS calculations for the intersections are summarized in **Table 4**. The details of LOS for each movement are provided in **Table 2** (refer to **Appendix**). The intersection Level of Service worksheets are attached in the **Appendix**.

**Table 4: Year 2040 Background Overall Level of Service Summary**

No.	Intersection	Traffic Control	Scenario A		Scenario B	
			No Pine Dr Ext.		With Pine Dr Ext.	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Gartrell Rd at Aurora Pkwy	Signal	B	C	C	C
2	Pine Dr at Inspiration Dr	Stop => Signal	A (A)	A (B)	B	B
3	Parker Rd at Aurora Pkwy	Signal	D	D	Same as Scenario A	
4	Ireland Way at Aurora Pkwy	Stop	A (C)	A (C)	A (D)	A (D)
5	Aurora Pkwy at Kings Point Dr	Roundabout	A (A)	A (A)	Same as Scenario A	
101	Aurora Pkwy at Pine Drive	Stop	not applicable		A (D)	A (C)

*Note: Level of Service for unsignalized intersections is listed as Overall (Worse Movement)*

**In summary, the majority of the of the study intersections were estimated to operate similarly to the Year 2030 background scenario with slight increases in delay expected at the congested intersections.**

Movements that operated at LOS E/F in the short-term background scenarios were estimated to continue to operate at these levels. The following intersection was calculated to have one movement begin to operate at LOS E in one or both peak hour in Year 2040 background as described below:

- **#3 – Parker Road at Aurora Parkway:** This future signalized intersection is anticipated to operate overall at LOS D in both the AM and PM peak hours, and the intersection performance is not significantly impacted by the Pine Drive Extension. During the morning peak, the eastbound through and all four (4) left-turns were estimated to operate at LOS E. During the afternoon peak, the eastbound and westbound through, all four (4) left-turns, and the eastbound right-turn were estimated to operate at LOS E.

The 95<sup>th</sup> percentile queue for the eastbound left-turn was calculated to be up to 87 feet (about four vehicles), up to 20 feet (one vehicle or less) for the eastbound through, and zero (0) feet for the eastbound right-turn. The 95<sup>th</sup> percentile queue for the westbound left-turn was calculated to be up to 252 feet (about 10 vehicles) and up to 18 feet (one vehicle or less) for the westbound through movement. The 95<sup>th</sup> percentile queue for the northbound left-turn was estimated to be up to 69 feet (about three vehicles) and up to 265 feet (about 11 vehicles) for the southbound

left-turn movement. The queued vehicles are anticipated to be maintained in the storage based on the minimum anticipated storage length (see **Table 9**).

**Recommendations:** No mitigation measures are recommended. It is typical for protected only left-turn movements and side-street split phasing to experience delay due to limited green time. It is anticipated that the side-street right-turns will have limited opportunities to turn onto Parker Road during the red phase. Queues are anticipated to be contained within the proposed storage lengths.

## 6.0 Future Conditions with Vista at Kings Point Development

The Vista at Kings Point development is anticipated to consist of 166 single-family residential homes and 192 multi-family residential dwelling units. The site is planned to be developed over several years. For the purpose of this traffic study, it was assumed that all the dwelling units (358 total units) will be completed by the Year 2030.

The two (2) options for Pine Drive were included in the future project scenarios: Scenario A is without the Pine Drive extension but Pine Drive widening to four lanes south of Inspiration Drive and Scenario B consists of the municipal-planned extension of Pine Drive north of Inspiration Drive through the Overlook and Vista at Kings Point project areas. In Scenario B, the trips associated with Vista at Kings Point and Overlook at Kings Point destined for locations south of the Kings Point area were redirected to the extension (Refer to **Section 5.2** for details on assumptions).

### 6.1 Trip Generation

A trip generation estimate was performed to determine the traffic characteristics of the proposed density and land uses of the Vista at Kings Point development. The trip rates for “Single-Family Detached Housing” (ITE #210) and “Multifamily Housing (Mid-Rise)” (ITE #221) as contained in the Institute of Transportation Engineers’ (ITE) *Trip Generation Manual*<sup>3</sup> were applied to estimate the traffic generated by the proposed land use.

<sup>3</sup> *Trip Generation Manual, 11<sup>th</sup> Edition*, Institute of Transportation Engineers, 2021.

**Table 5** provides the detailed trip generation estimates for the Vista at Kings Point project (refer to the **Appendix**). The proposed project is expected to experience mostly new trips, also known as ‘primary trips’, as well as non-auto trips which are discussed below:

Primary Trips. These trips are made specifically to visit the site and are considered “new” trips. Primary trips would not have been made if the proposed project did not exist. Therefore, this is the only trip type that increases the total number of trips made on a regional basis.

Non-Auto Trips. These trips are those that are completed by walking, biking, or transit. The non-auto trips were assumed to be 5%.

**The Vista at Kings Point project was estimated to generate approximately 2,315 daily trips with 177 trips in the AM peak hour and 219 trips in the PM peak hour.**

## 6.2 Trip Distribution and Assignment

The estimated trip volumes were distributed onto the study area street network based on existing traffic characteristics, land uses, and traffic patterns in the area, as well as regional growth and future roadway infrastructure. The trip distributions also considered travel patterns utilized for adjacent developments. The following distributions for project trips in both Scenarios A and B are presented below in **Table 6** and on **Figure 6A** (without Pine Drive extension) and **Figure 6B** (with Pine Drive extension).

**Table 6: Distribution Summary**

To/From	Scenario A (without Pine Dr. Extension)	Scenario B (with Pine Dr. Extension)
North via Parker Road	35%	35%
South via Parker Road	31%	18%
North via Kings Point Drive	2%	2%
North via Ireland Way	2%	2%
South via Ireland Way	3%	0%
North via Gartrell Road	19%	19%
South via Gartrell Road	3%	1%
East via Aurora Parkway	5%	5%
South via Pine Drive	0%	13%
South via Inspiration Drive	0%	5%

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Using these distribution assumptions, the projected site traffic was assigned to the study area roadway network and appropriate accesses for the weekday AM and PM peak hour periods based on the most convenient route. The trip distributions are shown on **Figure 6A** (without Pine Drive extension) and **Figure 6B** (with Pine Drive extension).

The trip generation volumes from **Table 5** were multiplied by the trip distribution percentages to assign the trips throughout the study area. The new site-generated trips in Scenario A (no Pine Drive extension) are shown on **Figure 7A** and the new site-generated trips in Scenario B (with the Pine Drive extension) are shown on **Figure 7B**.

### 6.3 Proposed Roadway Network and Access

Primary access to the Vista at Kings Point site is planned via the future extension of Aurora Parkway, along the north boundary of the property. It is proposed that there will be one (1) direct access onto Aurora Parkway. Secondary access is planned via a connection into the Overlook at Kings Point to the east and a connection into Kings Point South, which are both planned to have a roadway that leads to Aurora Parkway as well.

If the Pine Drive extension (Scenario B) were implemented, then Vista at Kings Point would have another access directly onto the Pine Drive extension which will lead south into the Town of Parker.

The proposed access intersections and the anticipated lane configuration and traffic control are illustrated on **Figures 7A and 7B**. The need for turn lanes was based the State Highway Access Code (SHAC) criteria for NR-B (Non-Rural Arterial). As discussed previously, the future volumes with the extension of Pine Drive (Scenario B) were estimated to warrant a signal at the intersections with Aurora Parkway and with Inspiration Drive. Signal warrant worksheets are attached in the **Appendix**.

Internally, local streets will be constructed to provide the most beneficial access into and around the site with pedestrian and bicycle friendly amenities.

### 6.4 Future Pedestrian and Bicycle Facilities

The Vista at Kings Point project proposes to have sidewalks throughout the property to connect internally and externally. Refer to the design plans for the locations, widths, and connections of the pedestrian and bicycle facilities associated with this project.

Aurora Parkway will have on-street bike lanes, except on the segment just east of Parker Road. Cyclists will be directed to the High Plans Regional Trail. According to the City of Aurora's Bike Map, it is planned

that the High Plans Regional Trail be incorporated into the south sidewalk of Aurora Parkway to connect the E-470 Trail to the Cherry Creek Trail.

## 6.5 Year 2030 Background + Project Intersection Capacity Analysis

This section discusses impacts associated with the addition of the Vista at Kings Point development trips in the short-term condition. The site-generated volumes were added to the Year 2030 background volumes and are illustrated on **Figure 8A** (without Pine Drive extension) and **Figure 8B** (with Pine Drive extension). These figures also illustrate the necessary traffic control and lane configurations for all of the study intersections and proposed accesses. The recommended improvements in the Year 2030 background scenario were assumed to be implemented. The analysis assumed the signal timing at all existing and future signalized intersections would be adjusted to accommodate future conditions, therefore, optimized timing was utilized.

The results of the LOS calculations for the intersections are summarized in **Tables 7**. The details of the LOS for each movement are listed in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

**Table 7: Year 2030 Background + Project Overall Level of Service Summary**

No.	Intersection	Traffic Control	Scenario A		Scenario B	
			No Pine Dr Ext.		With Pine Dr Ext.	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Gartrell Rd at Aurora Pkwy	Signal	B	C	B	C
2	Pine Dr at Inspiration Dr	Stop => Signal	A (A)	A (B)	B	B
3	Parker Rd at Aurora Pkwy	Signal	C	C	Same as Scenario A	
4	Ireland Way at Aurora Pkwy	Stop	A (C)	A (C)	A (C)	A (C)
5	Aurora Pkwy at Kings Point Dr	Roundabout	A (A)	A (A)	Same as Scenario A	
101	Aurora Pkwy at Pine Drive	Stop	A (C)	A (C)	A (D)	A (C)

*Note: Level of Service for unsignalized intersections is listed as Overall (Worse Movement)*

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**Scenario A (no Pine Drive extension):** In summary, the Vista at Kings Point project trips have little to no impact to the study intersection operations. The analysis indicated that the movements at Parker Road and Aurora Parkway that were estimated to operate at LOS E in the background scenario will continue to do so with the additional trips with minimal changes to delays. The majority of other increases in delay at the study intersections were calculated to be minimal (three seconds or less) and the increase in the 95<sup>th</sup> percentile queues were calculated to be one (1) vehicle or less.

**Scenario B (with Pine Drive extension):** In summary, the Vista at Kings Point project trips have little to no impact to the study intersection operations. Similar to Scenario A, the westbound and southbound left-turn movements at Parker Road and Aurora Parkway was calculated to continue to operate at LOS E during one or both peak hours, which is not of concern since the delay is reasonable for a side-street left-turn and the queues will be contained with the future storage lengths. The majority of other increases in delay were calculated to be minimal (less than nine seconds) and the increase in the 95<sup>th</sup> percentile queues were calculated to be up to three (3) vehicles.

## 6.6 Year 2040 Background + Project Intersection Capacity Analysis

The site-generated volumes for the Vista at Kings Point project in the Year 2040 include trips for dwelling units. Total trips were added to the Year 2040 background volumes and are illustrated on **Figure 9A** (without Pine Drive extension) and **Figure 9B** (with Pine Drive extension). These figures also illustrate the necessary traffic control and lane configurations for all of the study intersections and proposed accesses. The recommended improvements in the previous conditions were assumed to be implemented. The results of the LOS calculations for the intersections are summarized in **Table 8**. The details of the LOS for each movement are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.



**Table 8: Year 2040 Background + Project Overall Level of Service Summary**

No.	Intersection	Traffic Control	Scenario A		Scenario B	
			No Pine Dr Ext.		With Pine Dr Ext.	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Gartrell Rd at Aurora Pkwy	Signal	B	C	C	C
2	Pine Dr at Inspiration Dr	Stop => Signal	A (A)	A (B)	B	B
3	Parker Rd at Aurora Pkwy	Signal	D	D	Same as Scenario A	
4	Ireland Way at Aurora Pkwy	Stop	A (C)	A (C)	A (D)	A (D)
5	Aurora Pkwy at Kings Point Dr	Roundabout	A (B)	A (A)	Same as Scenario A	
101	Aurora Pkwy at Pine Drive	Stop => Signal	A (C)	A (C)	A (E)	A (E)

Note: Level of Service for unsignalized intersections is listed as Overall (Worse Movement)

**Scenario A (no Pine Drive extension):** In summary, the Vista at Kings Point project trips have little to no impact to the study intersection operations. The analysis indicated that majority of the overall levels of service and majority of movements are the same as the long-term background performance. The overall levels of service for all study intersections were estimated to be LOS D or better in both peak hours. Majority of movements were calculated to operate at LOS D or better. At the intersection of Parker Road and Aurora Parkway, the left-turn movements and side-street movements that were calculated to operate at LOS E in the background scenario will continue to operate at LOS E with the project trips. The southbound left-turn was estimated to begin to operate at LOS F in the AM peak hour.

Throughout the study area, the increases in delay were calculated to be 16 seconds or less and the increase in the 95<sup>th</sup> percentile queues were calculated to be mostly one (1) vehicle or less with one movement up to three (3) vehicles (westbound left-turn at Parker Road and Aurora Parkway).

**Scenario B (with Pine Drive extension):** In summary, the Vista at Kings Point project trips have little to no impact to the majority of the study intersection operations. The analysis indicated that all of the overall levels of service and majority of movements are the same as the long-term background performance, LOS D or better. Majority of movement operations were calculated to be LOS D or better in both peak hours. At the intersection of Parker Road and Aurora Parkway, the left-turn movements and side-street movements that were calculated to operate at LOS E in the background scenario will continue to operate at LOS E with the project trips.

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The largest impact was calculated at the intersection of Aurora Parkway at Pine Drive (access to Vista at Kings Point) due to the increase in side-street traffic. The analysis indicated that the northbound left-turn lane would operate at LOS E in the AM peak hour with a 95<sup>th</sup> percentile queue of 78 feet (about three vehicles) and at LOS E in the PM peak hour with a 95<sup>th</sup> percentile queue of 38 feet (about two vehicles).

A high-level signal warrant analysis was performed for the intersections of Pine Drive at Aurora Parkway and at Inspiration Drive. The volumes warrant a signal if Pine Drive were to be extended to connect the two (2) roadways due to the additional traffic when compared to the four-hour and peak hour warrants. Refer to the **Appendix** for the signal warrant worksheets.

At the other study intersections, the increases in delay were calculated to be minimal (eight seconds or less) and the increase in the 95<sup>th</sup> percentile queues were calculated to be up to three (3) vehicles.

## 7.0 Queuing Analysis

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A queuing analysis was performed to determine if the 95<sup>th</sup> percentile queues would be accommodated by the existing storage length, to determine the storage lengths for future auxiliary lanes, and if any of the queues would impact an upstream intersection/access. **Table 9** provides the existing and proposed storage lengths, as well as the 95<sup>th</sup> percentile queues for each existing and future scenario as calculated by Synchro (assuming each vehicle utilizes 25 feet of space). It should be noted that the 95<sup>th</sup> percentile queue length is a theoretical queue that is 1.65 standard deviations above the average queue length. In theory, the 95<sup>th</sup> percentile queue would be exceeded 5% of the time based on the average queue length, but it is also possible that a queue this long may not occur.

As shown in **Table 9**, all of the queues are shorter than the provided or proposed storage lengths in all scenarios. The project trips do not significantly increase queues at the existing study intersections.

Recommended turn lanes storage lengths and taper lengths are listed in **Table 9**, which are based on CDOT's State Highway Access Code for the assumed posted speed of each study roadway. Classification of NR-A was utilized on Parker Road and NB-B on the other study roadways.

## 8.0 Conclusions

The Vista at Kings Point development project proposes to develop up to 166 single-family homes and 192 multi-family dwelling units. The vacant property is located in the City of Aurora about halfway between Parker Road and Ireland Way southeast of E-470 and west of the Travois neighborhood. Primary access to the property will be located on the future expansion of Aurora Parkway. It is assumed Vista at Kings Point will be completed within the next five (5) years. Internally, local streets will be constructed to provide the most beneficial access into and around the site for people driving, walking, and biking.

The project's residential housing is estimated to generate approximately 2,315 daily trips with about 177 trips occurring in the AM peak hour and 219 trips occurring in the PM peak hour at full build-out. **It was determined that the existing and proposed roadway system can adequately accommodate the projected traffic volumes for buildout conditions.** The analysis included the evaluation of Pine Drive remaining the same as currently exists and with the planned extension to the north per municipal transportation/comprehensive plans. **From a traffic operations perspective, the analysis does not indicate a need for the Pine Drive extension,** which has been discussed with the City of Aurora and Douglas County. It has been agreed that both municipalities want the right-of-way for a collector cross-section to be provided within Vista at Kings Point to have the opportunity to connect to Inspiration Drive in the future when warranted and funded.

Pine Drive will be a difficult roadway to accommodate with existing property ownership, physical obstacles, and funding sources. The list of challenges is below:

- Limited available right-of-way due to large overhead electric lines and property boundaries, especially for a four-lane roadway.
- Limited alignment options due to large overhead electric lines.
- Challenging topography and drainage.
- Existing substation along the west side of the alignment may impact the ability to extend Pine Drive.
- Several property owners that do not want Pine Drive extended north due to the right-of-way dedication needed and impact to the existing and future residents.

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The following recommendations should be considered:

**Background Conditions (Non-Project Related):**

- **Aurora Parkway:** Construct from Parker Road to Quemoy Way with two lanes per direction when warranted. The segment west of Kings Point Drive will trigger the need to be the full cross-section by Year 2032 and the remaining portion will likely need to be widened by Year 2045.
- **Pine Drive (south of Inspiration Drive):** Widen to two lanes per direction by Year 2040 if volumes exceed 16,000 vehicles per day.
- **Pine Drive (north of Inspiration Drive):** Construct as a collector roadway with one (1) lane per direction and end at property line for the possibility of a future connection to Inspiration Drive.
- **Inspiration Drive at Pine Drive:** When Pine Drive is extended north towards Aurora Parkway, this intersection will warrant a signal. Signal warrant worksheets are attached in the **Appendix**.
- **Parker Road at Aurora Parkway:** Signal when constructed. Construct the intersection including eastbound- one left-turn lane, one through lane, and one right-turn lane; westbound- dual left-turn lanes, one through lane, and dual right-turn lanes; northbound- one left-turn lane, three through lanes, one right-turn lane; southbound- dual left-turn lanes, three through lanes, and one right-turn lane. Note that the design by Prairie Point requires split phasing of the eastbound and westbound approaches.
- **Aurora Parkway at Kings Point Drive:** Construct intersection as a roundabout. Include two lanes on the eastbound and westbound approaches and one lane on the northbound and southbound approaches.
- **All signalized intersections:** Adjust signal timing as appropriate for increases in volume. Balance the green time to serve all the movements and pedestrian crossings. All adjustments to signal timing on Parker Road will need to be evaluated for progression along the corridor.

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**Project Conditions:**

- **Aurora Parkway:** Reserve right-of-way along project frontage and participate in completion of future roadway (to be determined with municipal discussions and agreements). The segment of Aurora Parkway adjacent to Vista at Kings Point was estimated to remain one lane per direction through Year 2044.
- **Aurora Parkway at Pine Drive (#101):** Construct with eastbound- two through lanes and one right-turn lane; westbound- one left-turn lane and two through lanes; northbound- one left-turn lane and one right-turn lane.
  - If Pine Drive is not extended, this intersection is recommended to be side-street stop-controlled.
  - If the Pine Drive Extension is required, this intersection will warrant a signal by Year 2040 due to the additional traffic utilizing the connected roadway. Signal warrant worksheets are attached in the **Appendix**.

Note that the traffic study provides technical information and evaluates the need for transportation mitigation as traffic grows, but it does not address infrastructure commitments or obligations of the Vista at Kings Point project.

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## Tables and Figures:

Table 1 – Existing Overall Level of Service Summary [IN REPORT]

**Table 2 – Peak Hour Intersection LOS Summary for Existing Intersections**

Table 3 – Year 2030 Background Overall Level of Service Summary [IN REPORT]

Table 4 – Year 2040 Background Overall Level of Service Summary [IN REPORT]

**Table 5 – Trip Generation Summary**

Table 6 – Distribution Summary [IN REPORT]

Table 7 – Year 2030 Background + Project Overall Level of Service Summary [IN REPORT]

Table 8 – Year 2040 Background + Project Overall Level of Service Summary [IN REPORT]

**Table 9 – Peak Hour Estimated 95<sup>th</sup> Percentile Queue Lengths**

Table 10 – Year 2040 Roadway Level of Service Summary [IN REPORT]

Figure 1 – Vicinity Map

Figure 2 – Site Plan

Figure 3 – Year 2022 Existing Traffic Volumes

Figure 4A – Year 2030 Background Traffic Volumes [without Pine Dr Extension]

Figure 4B – Year 2030 Background Traffic Volumes [with Pine Dr Extension]

Figure 5A – Year 2040 Background Traffic Volumes [without Pine Dr Extension]

Figure 5B – Year 2040 Background Traffic Volumes [with Pine Drive Extension]

Figure 6A – Trip Distribution [without Pine Dr Extension]

Figure 6B – Trip Distribution [with Pine Drive Extension]

Figure 7A – Site-Generated Trip Volumes - [without Pine Dr Extension]

Figure 7B – Site-Generated Trip Volumes [with Pine Dr Extension]

Figure 8A – Year 2030 Bkgrd + Project Traffic Volumes - [without Pine Dr Extension]

Figure 8B – Year 2030 Bkgrd + Project Traffic Volumes - [with Pine Dr Extension]

Figure 9A – Year 2040 Bkgrd + Project Traffic Volumes - [without Pine Dr Extension]

Figure 9B – Year 2040 Bkgrd + Project Traffic Volumes - [with Pine Dr Extension]

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Table 2 - Peak Hour Intersection Level of Service Summary

Intersection and Lanes Groups	2022 Existing				2030 Background Scenario A - No Extension				2030 Background Scenario B - w/ Pine Dr. Ext.				2030 Bkgrd + Project Scenario A - No Extension				2030 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.				2040 Background Scenario A - No Extension				2040 Background Scenario B - w/ Pine Dr. Ext.				2040 Bkgrd + Project Scenario A - No Extension				2040 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak					
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS				
STOP SIGN CONTROL																																				
2. Pine Dr at Inspiration Dr	0	A	0	A	0	A	0	A			0	A	0	A			0	A	0	A			0	A	0	A			0	A	0	A				
Westbound Left+Right	0	A	0	A	0	A	0	A	Analyzed with signal control		0	A	0	A	Analyzed with signal control		0	A	0	A	Analyzed with signal control		0	A	0	A	Analyzed with signal control		0	A	0	A	Analyzed with signal control			
Northbound Through+Right	0	A	0	A	0	A	0	A			0	A	0	A			0	A	0	A			0	A	0	A			0	A	0	A				
Southbound Left+Through	0	A	11	B	0	A	12	B			0	A	12	B			0	A	13	B			0	A	13	B			0	A	13	B				
4. Ireland Way at Aurora Pkwy					2	A	3	A	2	A	2	A	3	A	2	A	2	A	3	A	3	A	3	A	3	A	3	A	3	A	3	A	3	A		
Eastbound Left	Future Intersection				8	A	8	A	9	A	8	A	8	A	9	A	8	A	8	A	9	A	8	A	8	A	9	A	8	A	8	A	9	A		
Eastbound Through+Right					0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A		
Westbound Left					8	A	8	A	8	A	9	A	8	A	8	A	9	A	8	A	8	A	9	A	8	A	8	A	9	A	8	A	9	A		
Westbound Through+Right					0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A		
Northbound Left+Through+Right					15	C	14	B	22	C	22	C	16	C	15	C	23	C	24	C	14	B	15	C	23	C	29	D	18	C	18	C	28	D		
Southbound Left+Through+Right					16	C	14	B	23	C	20	C	17	C	14	B	25	C	21	C	18	C	14	B	29	D	25	D	19	C	16	C	31	D		
101. Aurora Pkwy at Pine Dr									3	A	5	A	3	A	2	A	5	A	6	A			3	A	5	A	3	A	2	A	6	A	6	A		
Eastbound Through	Future Intersection				Not Analyzed in this Scenario				0	A	0	A	0	A	0	A	0	A	0	A	Not Analyzed in this Scenario		0	A	0	A	0	A	0	A	0	A	0	A		
Eastbound Right									0	A	0	A	0	A	0	A	0	A	0	A			0	A	0	A	0	A	0	A	0	A	0	A		
Westbound Left									8	A	9	A	8	A	9	A	8	A	9	A			9	A	9	A	8	A	9	A	9	A	10	A		
Westbound Through									0	A	0	A	0	A	0	A	0	A	0	A			0	A	0	A	0	A	0	A	0	A	0	A		
Northbound Left+Right													15	B	16	C											18	C	18	C						
Northbound Left									21	C	17	C					31	D	23	C			25	C	22	C					45	E	32	D		
Northbound Right									10	A	13	B					10	B	13	B			10	B	14	B					11	B	14	B		
SIGNAL CONTROL																																				
1. Gartrell Rd at Aurora Pkwy	16	B	21	C	19	B	26	C	20	B	23	C	19	B	26	C	20	B	23	C	19	B	27	C	21	C	24	C	19	B	27	C	23	C		
Eastbound Left	19	B	25	C	17	B	23	C	17	B	20	B	17	B	23	C	18	B	20	C	17	B	23	C	23	C	22	C	18	B	23	C	31	C		
Eastbound Through	20	C	27	C	22	C	30	C	21	C	25	C	22	C	30	C	22	C	25	C	22	C	30	C	23	C	26	C	22	C	31	C	24	C		
Eastbound Right	20	C	27	C	23	C	31	C	22	C	25	C	23	C	31	C	22	C	25	C	23	C	34	C	24	C	27	C	24	C	34	C	25	C		
Westbound Left	14	B	20	B	16	B	24	C	16	B	19	B	17	B	24	C	16	B	19	B	17	B	27	C	18	B	20	B	17	B	27	C	18	B		
Westbound Through	14	B	21	C	21	C	27	C	23	C	25	C	22	C	28	C	23	C	25	C	22	C	29	C	25	C	25	C	24	C	30	C	26	C		
Westbound Right	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A		
Northbound Left	15	B	18	B	16	B	16	B	17	B	19	B	16	B	16	B	17	B	19	B	16	B	16	B	16	B	19	B	16	B	16	B	16	B		
Northbound Through	18	B	21	C	21	C	21	C	20	C	23	C	21	C	21	C	20	C	23	C	20	C	21	C	19	B	23	C	20	C	21	C	19	B		
Northbound Right	19	B	28	C	22	C	29	C	22	C	28	C	22	C	29	C	21	C	28	C	23	C	29	C	21	C	28	C	23	C	49	D	20	C		
Southbound Left	12	B	22	C	15	B	43	D	15	B	31	C	15	B	43	D	15	B	31	C	15	B	41	D	15	B	30	C	15	B	42	D	15	B		
Southbound Through	14	B	14	B	17	B	17	B	17	B	18	B	17	B	17	B	17	B	18	B	17	B	17	B	17	B	19	B	18	B	17	B	16	B		
Southbound Right	12	B	13	B	18	B	16	B	26	C	20	C	20	B	16	B	26	C	21	C	18	B	16	B	27	C	22	C	19	B	17	B	27	C		

Table 2 - Peak Hour Intersection Level of Service Summary

Intersection and Lanes Groups	2022 Existing				2030 Background Scenario A - No Extension				2030 Background Scenario B - w/ Pine Dr. Ext.				2030 Bkgrd + Project Scenario A - No Extension				2030 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.				2040 Background Scenario A - No Extension				2040 Background Scenario B - w/ Pine Dr. Ext.				2040 Bkgrd + Project Scenario A - No Extension				2040 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak					
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS				
SIGNAL CONTROL																																				
2. Pine Dr at Inspiration Dr									8	A	19	B					14	B	19	B					15	B	12	B					16	B	13	B
Westbound Left	Analyzed with stop control				Analyzed with stop control				7	A	18	B	Analyzed with stop control				15	B	19	B	Analyzed with stop control				16	B	18	B	Analyzed with stop control				18	B	18	B
Westbound Right									0	A	0	A					0	A	0	A					0	A	0	A					0	A	0	A
Northbound Through									8	A	12	B					15	B	12	B					15	B	14	B					16	B	15	B
Northbound Right									9	A	27	C					18	B	29	C					19	B	8	A					20	B	8	A
Southbound Left									9	A	8	A					10	B	8	A					11	B	9	A					11	B	10	A
Southbound Through									8	A	5	A					9	A	6	A					9	A	6	A					9	A	6	A
3. Parker Rd at Aurora Pkwy					32	C	28	C					33	C	30	C					40	D	40	D					46	D	42	D				
Eastbound Left	Future Intersection				54	D	55	D	Minimal reduction to volumes and operations with Pine Drive Extension				54	D	55	D	Minimal reduction to volumes and operations with Pine Drive Extension				79	E	72	E	Minimal reduction to volumes and operations with Pine Drive Extension				79	E	72	E	Minimal reduction to volumes and operations with Pine Drive Extension			
Eastbound Through					53	D	53	D					53	D	53	D					62	E	66	E					62	E	66	E				
Eastbound Right					54	D	56	E					54	D	56	E					53	D	63	E					53	D	64	E				
Westbound Left					52	D	55	E					53	D	55	D					60	E	69	E					71	E	71	E				
Westbound Through					45	D	51	D					44	D	50	D					46	D	56	E					46	D	55	E				
Westbound Right					45	D	45	D					44	D	43	D					47	D	45	D					50	D	43	D				
Northbound Left					51	D	51	D					53	D	52	D					57	E	71	E					57	E	73	E				
Northbound Through					25	C	26	C					28	C	30	C					41	D	35	C					53	D	39	D				
Northbound Right					15	B	16	B					16	B	19	B					16	B	30	C					18	B	35	D				
Southbound Left					60	E	59	E					61	E	62	E					69	E	74	E					84	F	76	E				
Southbound Through					33	C	25	C					33	C	25	C					31	C	37	D					31	C	37	D				
Southbound Right					16	B	13	B					16	B	13	B					15	B	12	B					15	B	12	B				
101. Aurora Pkwy at Pine Dr	(These are the delays and LOS if it were Signalized)																10	B	14	B													11	B	15	B
Eastbound Through	Future Intersection				Not Analyzed in this Scenario				Analyzed with stop control				Analyzed with stop control				14	B	16	B	Not Analyzed in this Scenario				Analyzed with stop control				Analyzed with stop control				14	B	17	B
Eastbound Right																	13	B	15	B													13	B	15	B
Westbound Left																	9	A	11	B													9	A	12	B
Westbound Through																	6	A	8	A													6	A	8	A
Northbound Left																	13	B	12	B													13	B	13	B
Northbound Right																	15	B	18	B													16	B	20	B
ROUNDBOUT																																				
5. Aurora Pkwy at Kings Point Dr					4	A	4	A					5	A	5	A					6	A	6	A					7	A	6	A				
Eastbound Left+Through	Future Intersection				4	A	4	A	Minimal reduction to volumes and operations with Pine Drive Extension				4	A	5	A	Minimal reduction to volumes and operations with Pine Drive Extension				4	A	6	A	Minimal reduction to volumes and operations with Pine Drive Extension				4	A	6	A	Minimal reduction to volumes and operations with Pine Drive Extension			
Eastbound Through+Right					4	A	4	A					4	A	5	A					4	A	6	A					4	A	6	A				
Westbound Left+Through					5	A	4	A					5	A	4	A					5	A	6	A					6	A	6	A				
Westbound Through+Right					5	A	4	A					5	A	4	A					5	A	6	A					6	A	6	A				
Northbound Left+Through+Right					3	A	4	A					4	A	5	A					4	A	6	A					4	A	6	A				
Southbound Left+Through+Right					5	A	4	A					6	A	4	A					9	A	7	A					11	B	7	A				

Note: Delay represented in average seconds per vehicle.



Table 5 - Trip Generation Summary

Land Use	Size	Unit	Internal Capture	Non-Auto Factor	Average Daily Trips				AM Peak Hour Trips				PM Peak Hour Trips			
					Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
ITE#210: Single Family Detached Housing	166	du	1.00	0.95	9.43	1,487	744	743	0.70	110	29	81	0.94	148	93	55
ITE#221: Multifamily Housing (Mid-Rise)	192	du	1.00	0.95	4.54	828	414	414	0.37	67	15	52	0.39	71	43	28
Total Trips					2,315	1,158	1,157		177	44	133		219	136	83	

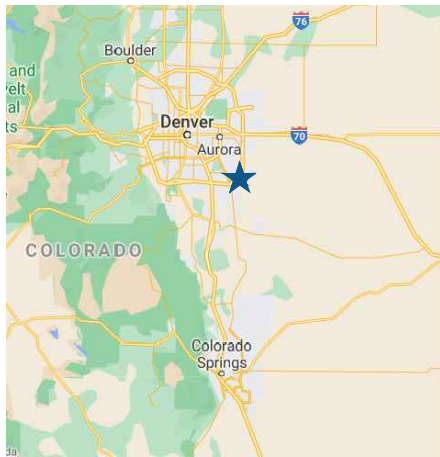
Source : ITE Trip Generation 11th Edition, 2021.

Table 9 - Peak Hour 95th Percentile Queue Summary and Proposed Auxiliary Lanes

Intersection and  Lanes Groups	Existing Storage Length (Feet)	2022 Existing		2030 Bkgrd Scenario A - No Extension		2030 Bkgrd Scenario B - w/ Pine Dr. Ext.		2030 Bkgrd + Project Scenario A - No Extension		2030 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.		2040 Bkgrd Scenario A - No Extension		2040 Bkgrd Scenario B - w/ Pine Dr. Ext.		2040 Bkgrd + Project Scenario A - No Extension		2040 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.		Max. Queue Scenario A	Max. Queue Scenario B	City Requirement (NR-B)				Proposed Future Storage Scenario A	Proposed Future Storage Scenario B
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM			Speed (mph)	Total (feet)	Storage (feet)	Taper (feet)		
1. Gartrell Rd at Aurora Pkwy		Signalized		Signalized		Signalized		Signalized		Signalized		Signalized		Signalized		Signalized		Signalized									
Eastbound Left	180'	27'	42'	125'	114'	168'	170'	140'	123'	179'	177'	140'	129'	226'	206'	165'	142'	277'	236'	165'	277'	35	310	190'	120	190'	280'
Eastbound Through	-	10'	26'	36'	68'	50'	84'	38'	71'	52'	85'	45'	93'	62'	108'	51'	96'	68'	112'	-	-	-	-	-	-	-	-
Eastbound Right	475'	0'	0'	2'	26'	0'	22'	3'	27'	0'	23'	15'	47'	17'	44'	21'	47'	22'	44'	47'	44'	35	310	190'	120	190'	190'
Westbound Left	260'	148'	142'	173'	160'	153'	139'	173'	160'	154'	140'	169'	168'	149'	151'	169'	168'	150'	153'	173'	154'	35	310	190'	120	190'	190'
Westbound Through	-	11'	26'	88'	64'	81'	59'	88'	67'	82'	62'	104'	78'	95'	73'	108'	81'	99'	76'	-	-	-	-	-	-	-	-
Westbound Right	230'	77'	58'	251'	62'	184'	59'	260'	62'	215'	60'	247'	62'	167'	59'	259'	62'	210'	59'	260'	215'	35	310	190'	120	260'	220'
Northbound Left	260'	9'	22'	44'	57'	45'	55'	45'	58'	45'	55'	49'	62'	53'	67'	52'	63'	55'	69'	63'	69'	40	370	226'	144	226'	226'
Northbound Through	-	117'	102'	136'	124'	102'	71'	136'	124'	104'	73'	134'	122'	96'	72'	134'	122'	101'	72'	-	-	-	-	-	-	-	-
Northbound Right	145'	46'	54'	49'	60'	44'	47'	49'	60'	44'	47'	50'	60'	45'	48'	50'	60'	45'	47'	60'	48'	40	370	226'	144	226'	226'
Southbound Left	435'	71'	194'	82'	365'	83'	268'	82'	367'	83'	268'	82'	287'	83'	282'	82'	288'	83'	285'	367'	285'	40	370	226'	144	370'	290'
Southbound Through	-	78'	96'	96'	131'	44'	97'	96'	132'	44'	99'	95'	133'	39'	99'	96'	133'	43'	102'	-	-	-	-	-	-	-	-
Southbound Right	880'	0'	0'	38'	30'	59'	50'	39'	39'	59'	52'	34'	33'	62'	54'	42'	40'	64'	57'	42'	64'	40	370	226'	144	226'	226'
2. Pine Dr at Inspiration Dr		Side-Street Stop		Side-Street Stop		Signalized		Side-Street Stop		Signalized		Side-Street Stop		Signalized		Side-Street Stop		Signalized									
Westbound Left+Right	-	0'	0'	0'	0'	101'	115'	0'	0'	181'	118'	0'	0'	218'	131'	0'	0'	247'	134'	-	-	-	-	-	-	-	-
Northbound Through+Right	-	0'	0'	0'	0'			0'	0'			0'	0'			0'	0'			-	-	-	-	-	-	-	-
Northbound Through	-					66'	192'			99'	204'			95'	220'			109'	255'	-	-	-	-	-	-	-	-
Northbound Right	-					35'	60'			46'	60'			47'	20'			47'	20'	0'	60'	40	370	226'	144	226'	226'
Southbound Left+Through	-	0'	0'	0'	0'			0'	0'			0'	3'		3'	0'	3'			-	-	-	-	-	-	-	-
Southbound Left	-					16'	13'			21'	16'			18'	17'			28'	22'	0'	28'	40	370	226'	144	226'	226'
Northbound Through	-					78'	48'			86'	53'			79'	55'			93'	60'	-	-	30	-	-	-	-	-
3. Parker Rd at Aurora Pkwy				Signalized		Signalized		Signalized		Signalized		Signalized		Signalized		Signalized		Signalized									
Eastbound Left	-	Future Intersection		51'	66'	Minimal reduction to volumes and operations with Pine Drive Extension		51'	66'	Minimal reduction to volumes and operations with Pine Drive Extension		84'	87'	Minimal reduction to volumes and operations with Pine Drive Extension		84'	87'	Minimal reduction to volumes and operations with Pine Drive Extension		87'	87'	35	310	190'	120	190'	190'
Eastbound Through	-			17'	17'			17'	17'			19'	20'			19'	20'			-	-	-	-	-	-	-	-
Eastbound Right	-			0'	0'			0'	0'			0'	0'			0'	0'			0'	0'	35	310	190'	120	190'	190'
Westbound Left	-			165'	100'			187'	113'			252'	209'			314'	239'			314'	314'	35	310	190'	120	310'	310'
Westbound Through	-			15'	16'			15'	16'			16'	18'			16'	18'			-	-	-	-	-	-	-	-
Westbound Right	-			156'	93'			180'	107'			238'	193'			284'	213'			284'	284'	35	310	190'	120	280'	280'
Northbound Left	-			65'	52'			65'	52'			67'	69'			67'	69'			69'	69'	45	435	273'	162	273'	273'
Northbound Through	-			727'	879'			727'	879'			983'	824'			983'	824'			-	-	-	-	-	-	-	-
Northbound Right	-			39'	51'			41'	53'			37'	63'			40'	111'			111'	111'	45	435	273'	162	273'	273'
Southbound Left	-			101'	129'			109'	155'			135'	265'			190'	301'			301'	301'	45	435	273'	162	300'	300'
Southbound Through	-			640'	582'			640'	584'			711'	1057'			711'	1057'			-	-	-	-	-	-	-	-
Southbound Right	-			0'	0'			0'	0'			0'	0'			0'	0'			0'	0'	45	435	273'	162	273'	273'
4. Ireland Way at Aurora Pkwy				Side-Street Stop		Side-Street Stop		Side-Street Stop		Side-Street Stop		Side-Street Stop		Side-Street Stop		Side-Street Stop		Side-Street Stop									
Eastbound Left	-	Future Intersection		0'	0'	3'	0'	3'	0'	3'	0'	0'	0'	0'	0'	3'	0'	3'	0'	3'	3'	35	310	190'	120	190'	190'
Eastbound Through+Right	-			0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	-	-	-	-	-	-	-	-
Westbound Left	-			0'	0'	0'	3'	0'	0'	0'	3'	0'	3'	0'	3'	0'	3'	0'	3'	3'	3'	35	310	190'	120	190'	190'
Westbound Through+Right	-			0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	-	-	-	-	-	-	-	-
Northbound Left+Through+Right	-			10'	10'	18'	18'	13'	13'	18'	18'	10'	15'	23'	30'	18'	23'	30'	35'	-	-	-	-	-	-	-	-
Southbound Left+Through+Right	-			13'	10'	20'	18'	13'	13'	23'	20'	13'	13'	25'	28'	20'	15'	35'	33'	-	-	-	-	-	-	-	-

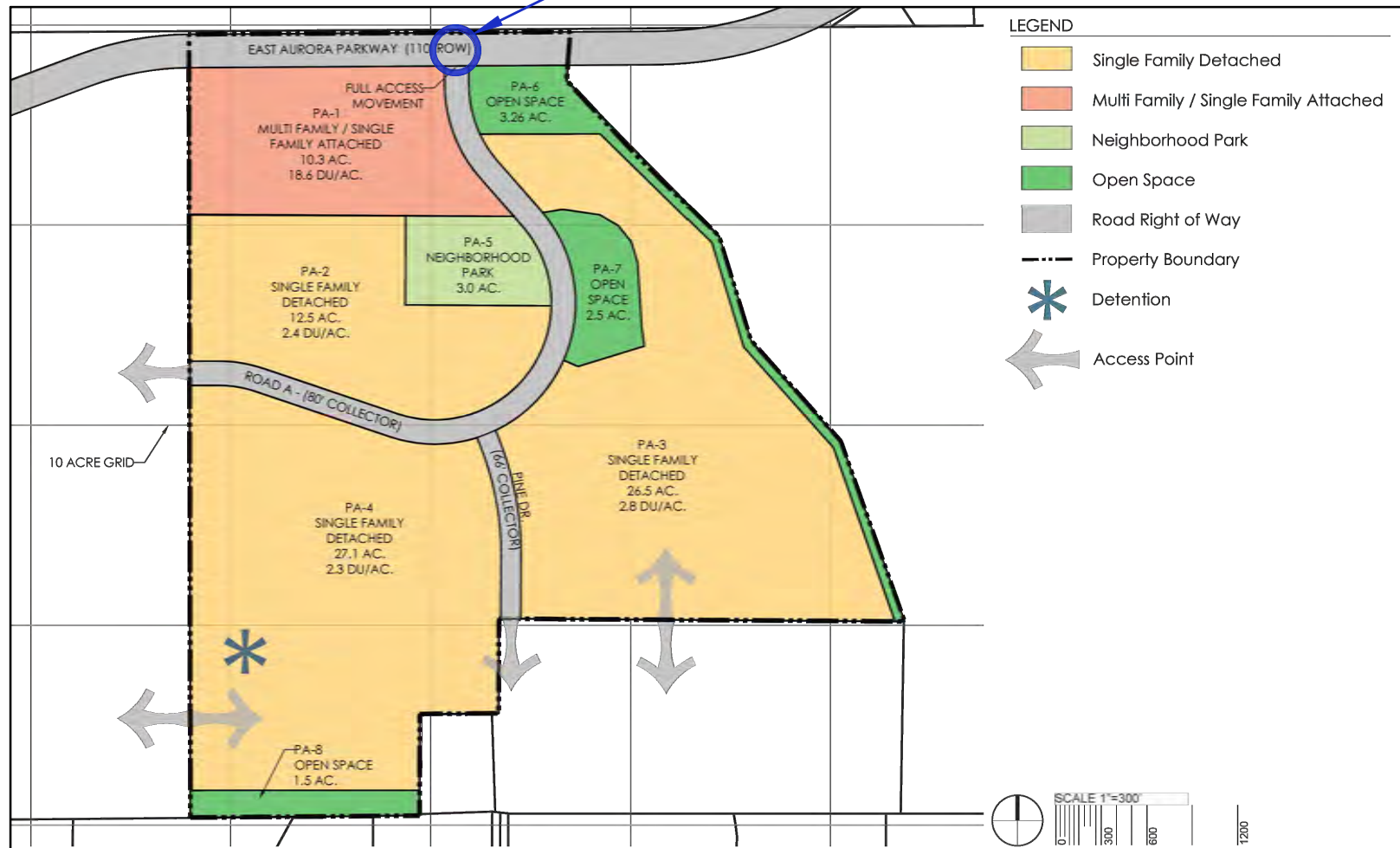
Table 9 - Peak Hour 95th Percentile Queue Summary and Proposed Auxiliary Lanes

Intersection and  Lanes Groups	Existing Storage Length (Feet)	2022 Existing		2030 Bkgrd Scenario A - No Extension		2030 Bkgrd Scenario B - w/ Pine Dr. Ext.		2030 Bkgrd + Project Scenario A - No Extension		2030 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.		2040 Bkgrd Scenario A - No Extension		2040 Bkgrd Scenario B - w/ Pine Dr. Ext.		2040 Bkgrd + Project Scenario A - No Extension		2040 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.		Max. Queue Scenario A	Max. Queue Scenario B	City Requirement (NR-B)				Proposed Future Storage Scenario A	Proposed Future Storage Scenario B		
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	Speed (mph)	Total (feet)			Storage (feet)	Taper (feet)						
5. Aurora Pkwy at Kings Point Dr				Roundabout		Roundabout		Roundabout		Roundabout		Roundabout		Roundabout		Roundabout		Roundabout											
Eastbound Left+Through	-	Future Intersection		0'	25'	Minimal reduction to volumes and operations with Pine Drive Extension		0'	25'	Minimal reduction to volumes and operations with Pine Drive Extension		25'	25'	Minimal reduction to volumes and operations with Pine Drive Extension		25'	50'	Minimal reduction to volumes and operations with Pine Drive Extension		-	-	-	-	-	-	-	-		
Eastbound Through+Right	-			0'	25'			0'	25'			25'	50'			25'	50'			-	-	-	-	-	-	-	-		
Westbound Left+Through	-			25'	0'			25'	0'			25'	25'			25'	25'			-	-	-	-	-	-	-	-		
Westbound Through+Right	-			25'	0'			25'	25'			25'	25'			25'	25'			-	-	-	-	-	-	-	-		
Northbound Left+Through+Right	-			0'	0'			0'	0'			0'	0'			0'	0'			-	-	-	-	-	-	-	-		
Southbound Left+Through+Right	-			0'	0'			0'	0'			50'	25'			50'	25'			-	-	-	-	-	-	-	-		
101. Aurora Pkwy at Pine Dr				Side-Street Stop		Side-Street Stop		Side-Street Stop				Side-Street Stop		Side-Street Stop		Side-Street Stop		Side-Street Stop											
Eastbound Through	-	Future Intersection	Not Analyzed in this Scenario	0'	0'	0'	0'	0'	0'	Not Analyzed in this Scenario		0'	0'	0'	0'	0'	0'	0'	0'	-	-	-	-	-	-	-	-		
Eastbound Right	-			0'	0'	0'	0'	0'	0'			0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	35	310	190'	120	190'	190'		
Westbound Left	-			13'	10'	0'	5'	15'	13'			15'	13'	0'	5'	15'	15'	15'	15'	15'	15'	35	310	190'	120	190'	190'		
Westbound Through	-			0'	0'	0'	0'	0'	0'			0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	-	-	-	-	-	-	-	
Northbound Left+Right	-					33'	23'					53'		28'				-	-	-	-	-	-	-	-	-	-	-	-
Northbound Left	-			3'	3'			45'	20'			10'	5'			75'	35'	45'	75'	25	180	90'	90	90'	90'				
Northbound Right	-			18'	53'			23'	58'			20'	63'			25'	70'	63'	70'	25	180	90'	90	90'	90'				
101. Aurora Pkwy at Pine Dr	(These are the queues if it were Signalized)									Signalized						Signalized													
Eastbound Through	-							62'	91'							76'	116'	-	-	-	-	-	-	-	-	-	-		
Eastbound Right	-							16'	27'							19'	29'	29'	29'	35	310	190'	120	190'	190'				
Westbound Left	-							52'	46'							54'	49'	54'	54'	35	310	190'	120	190'	190'				
Westbound Through	-							53'	32'							67'	42'	-	-	-	-	-	-	-	-				
Northbound Left	-							54'	40'							65'	49'	65'	65'	25	180	90'	90	90'	90'				
Northbound Right	-							42'	57'							44'	60'	60'	60'	25	180	90'	90	90'	90'				



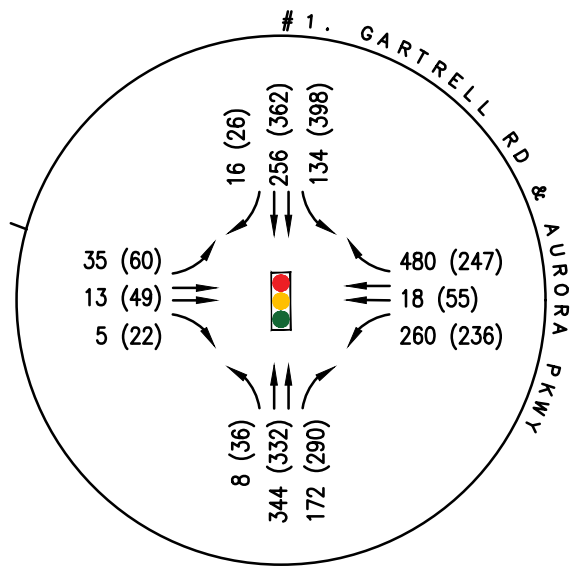
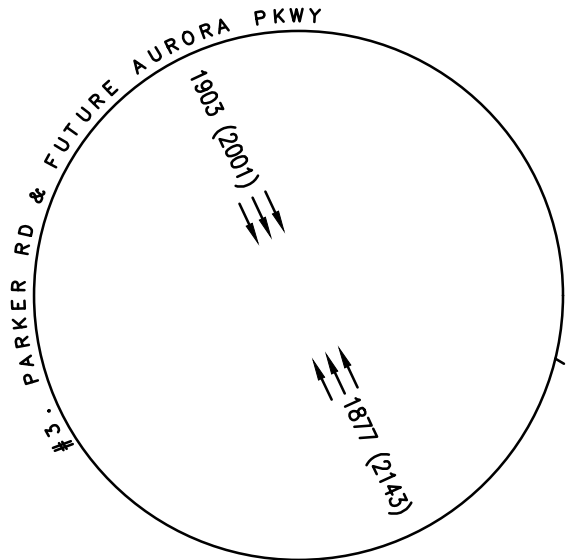
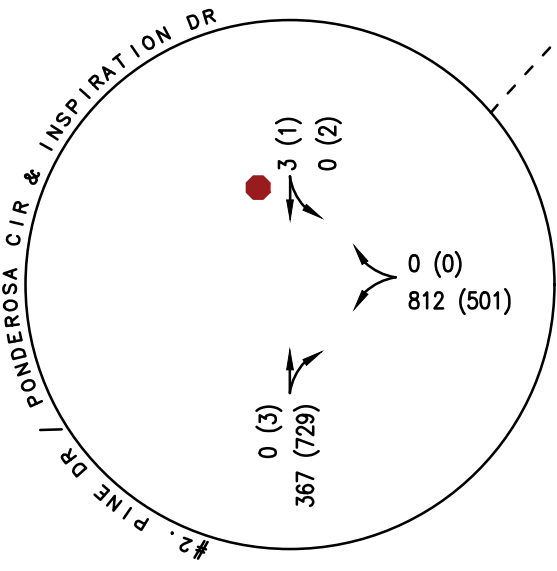
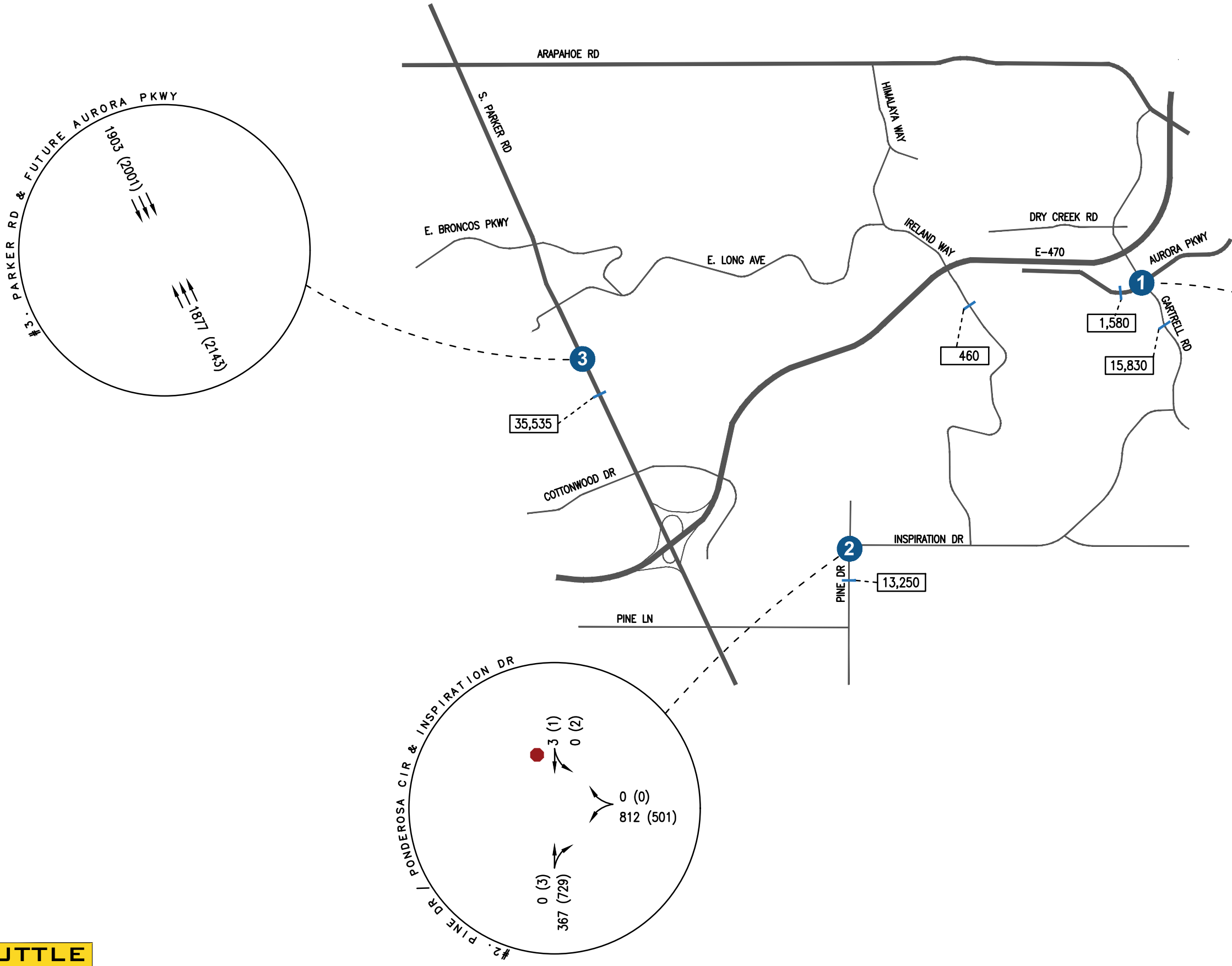


PROPOSED FULL-MOVEMENT  
WITHOUT PINE DRIVE EXTENSION: STOP CONTROLLED ACCESS  
WITH PINE DRIVE EXTENSION: SIGNAL



# KEY

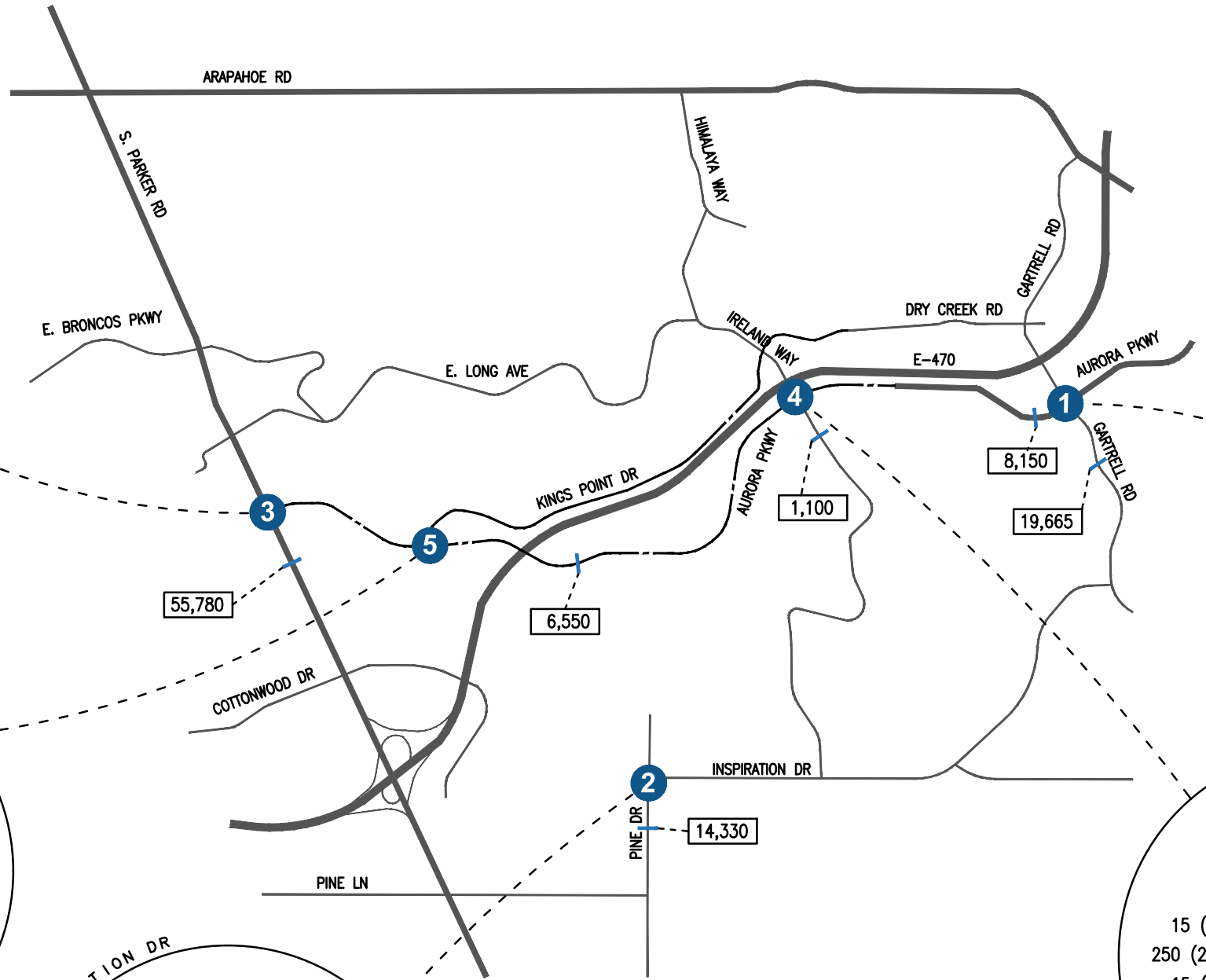
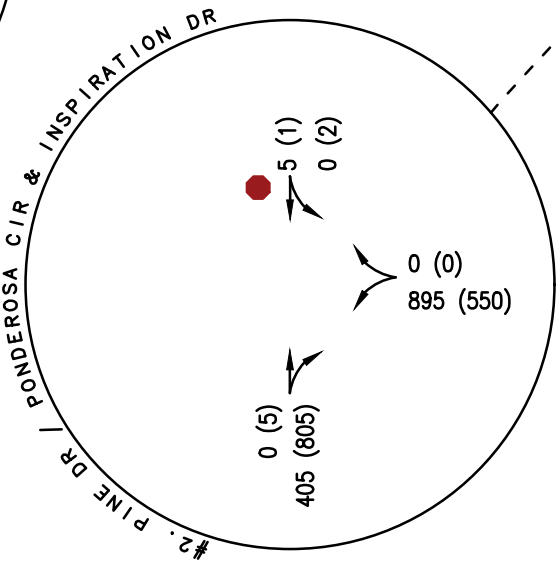
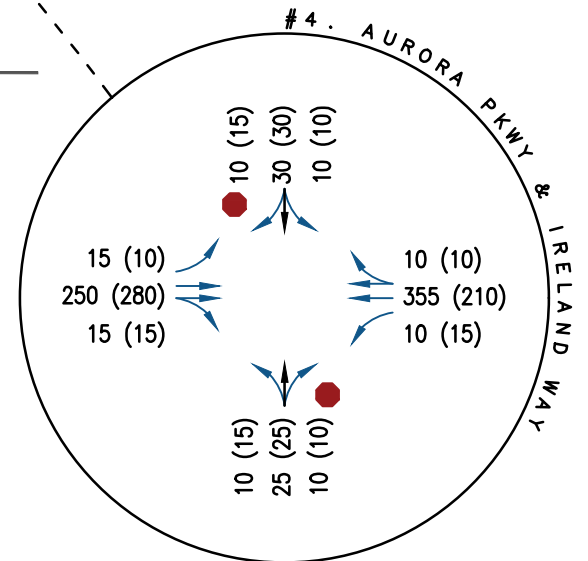
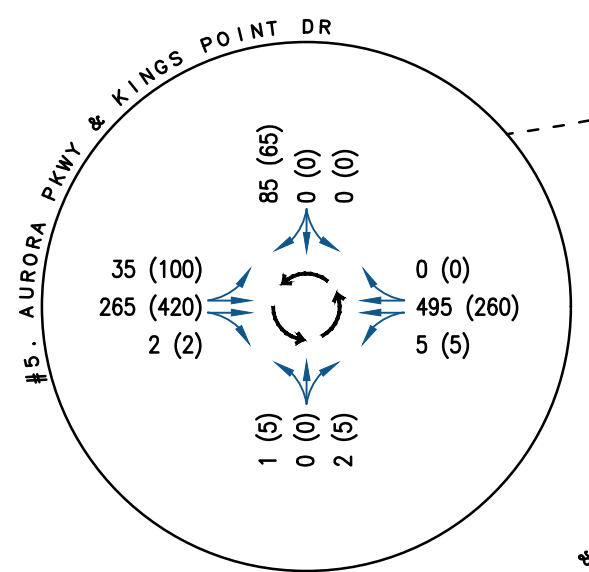
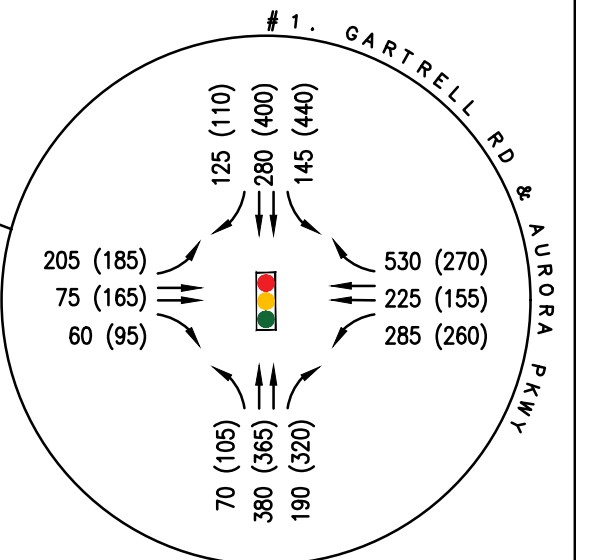
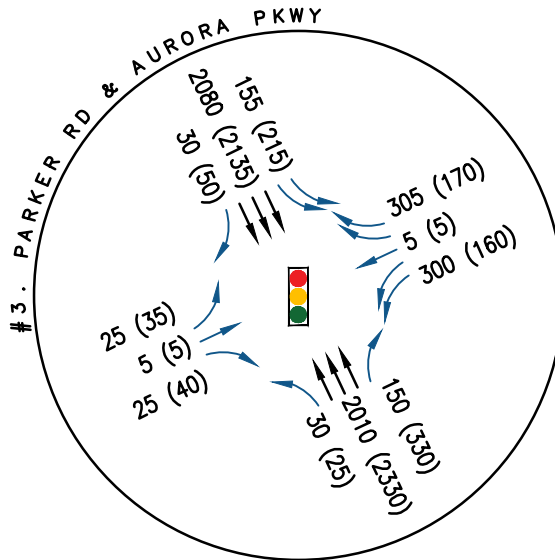
XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME  
 XX,XXX DAILY TRAFFIC VOLUME  
 → LANE CONFIGURATION



## VISTA AT KINGS POINT TRAFFIC IMPACT STUDY EXISTING TRAFFIC VOLUMES

# KEY

- XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME
- XX,XXX DAILY TRAFFIC VOLUME
- LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW BACKGROUND ROADWAY

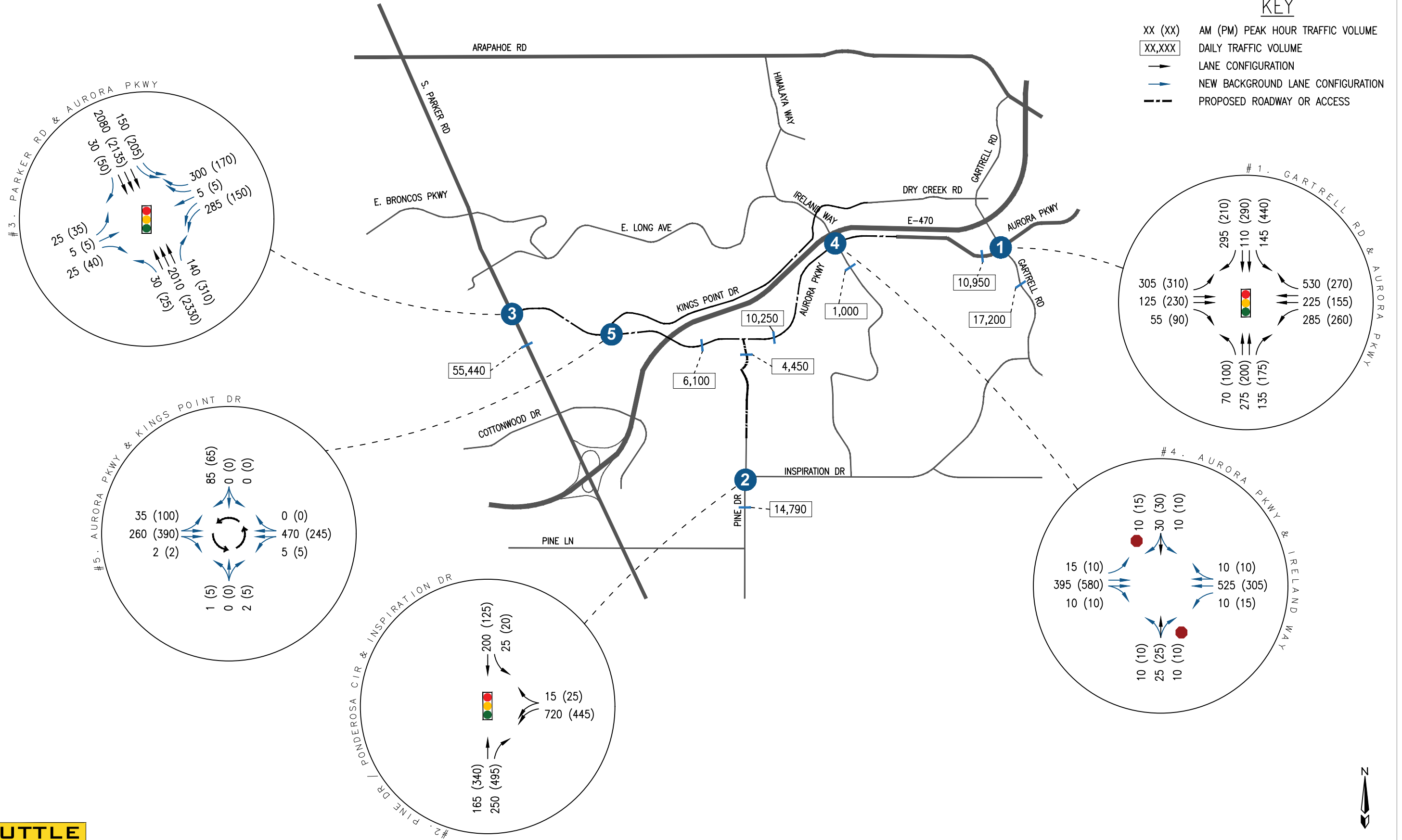


VISTA AT KINGS POINT TRAFFIC IMPACT STUDY  
YEAR 2030 BACKGROUND TRAFFIC VOLUMES [WITHOUT PINE DRIVE EXTENSION]



# KEY

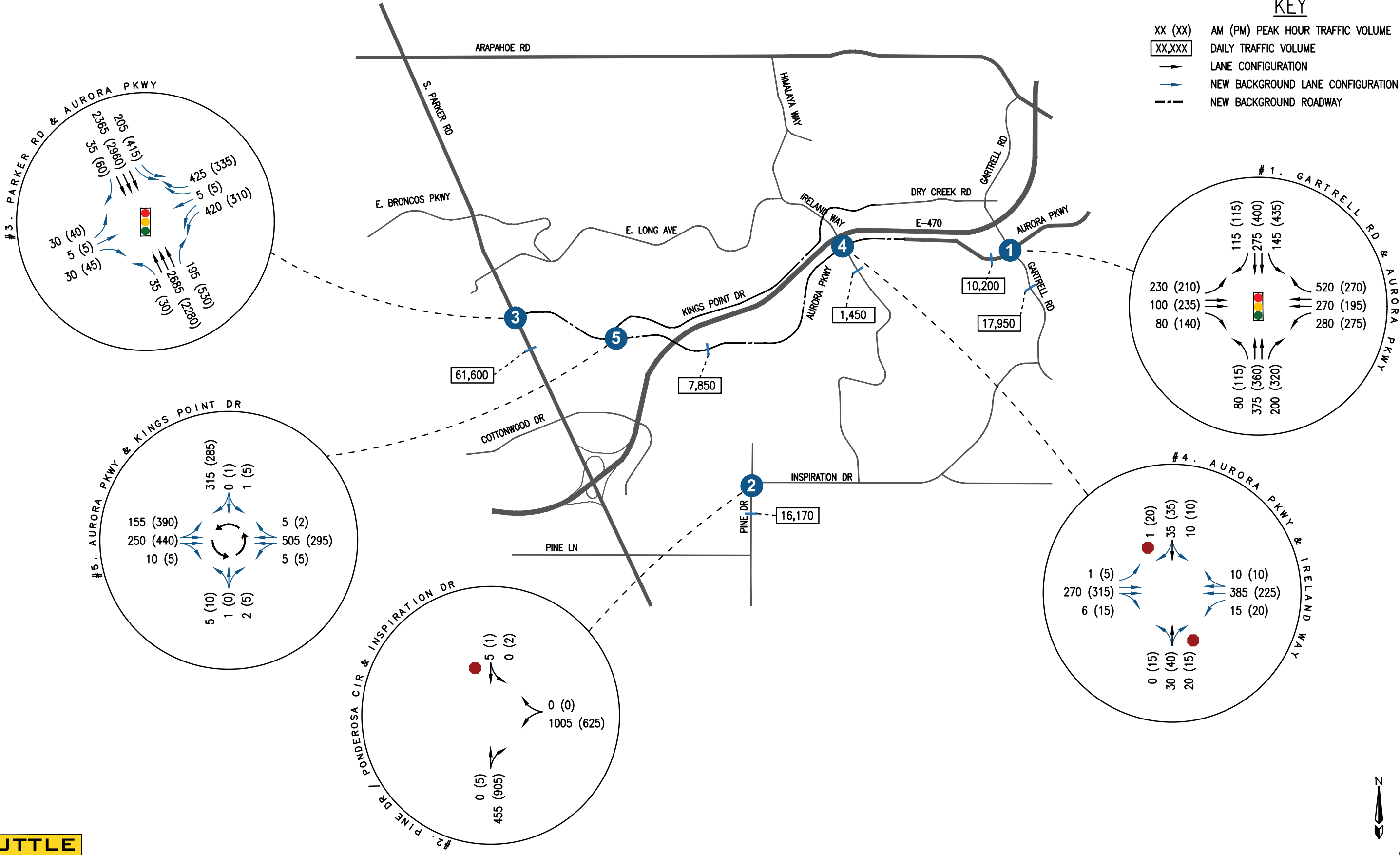
- XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME
- XX,XXX DAILY TRAFFIC VOLUME
- LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- PROPOSED ROADWAY OR ACCESS





KEY

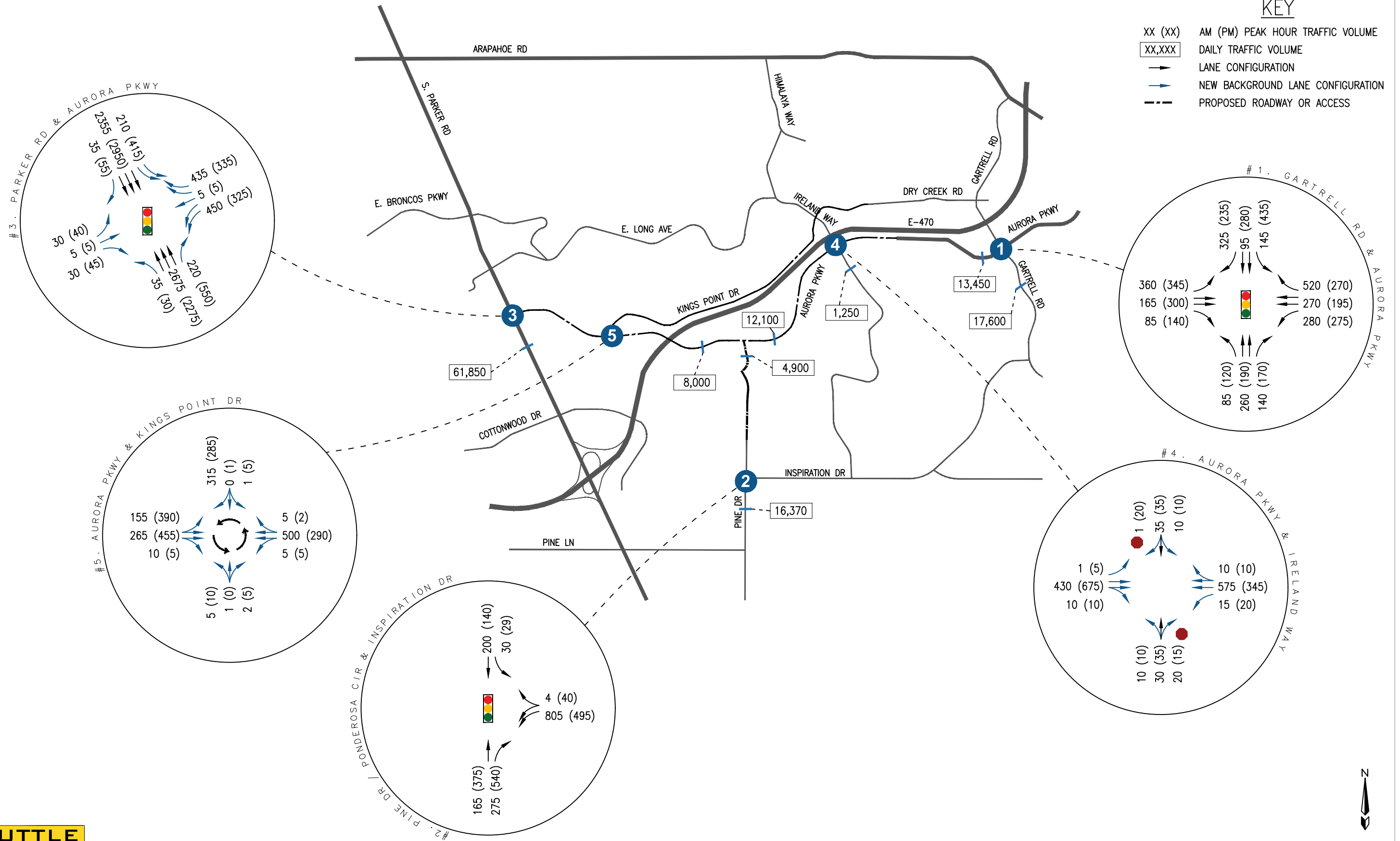
- XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME
- XX,XXX DAILY TRAFFIC VOLUME
- LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW BACKGROUND ROADWAY

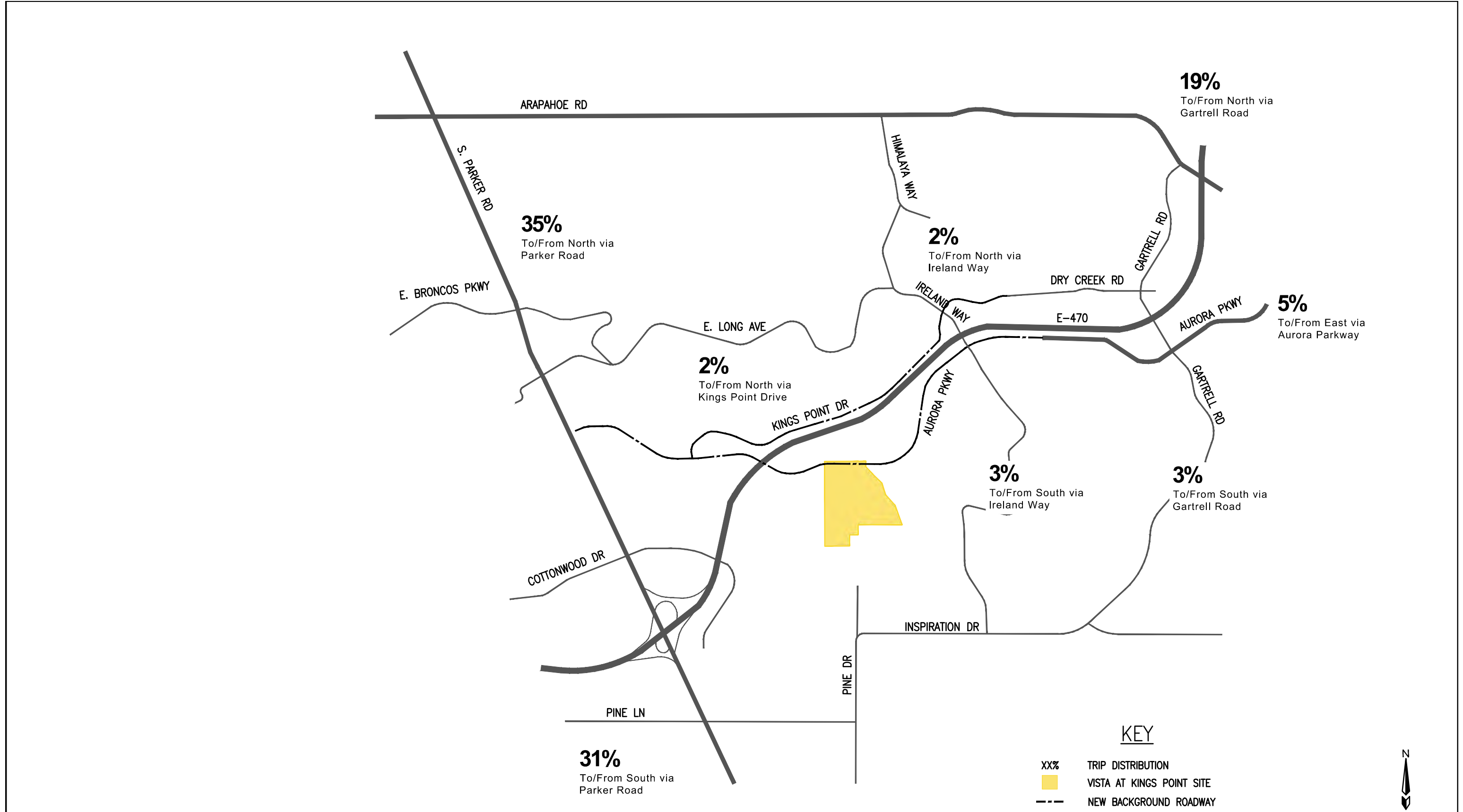


VISTA AT KINGS POINT TRAFFIC IMPACT STUDY  
YEAR 2040 BACKGROUND TRAFFIC VOLUMES [WITHOUT PINE DRIVE EXTENSION]

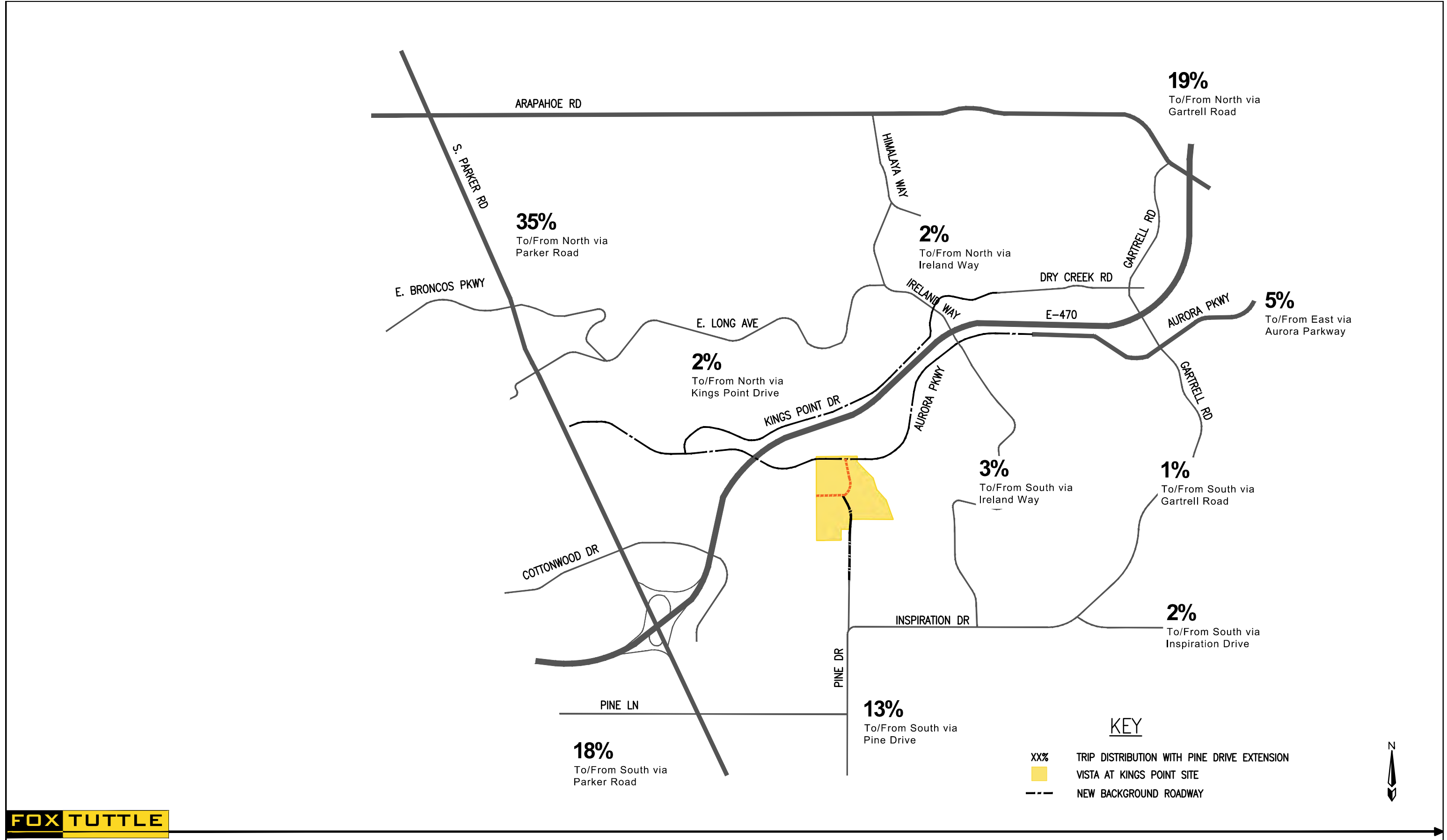
# KEY

- XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME
- XX,XXX DAILY TRAFFIC VOLUME
- LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- - - PROPOSED ROADWAY OR ACCESS





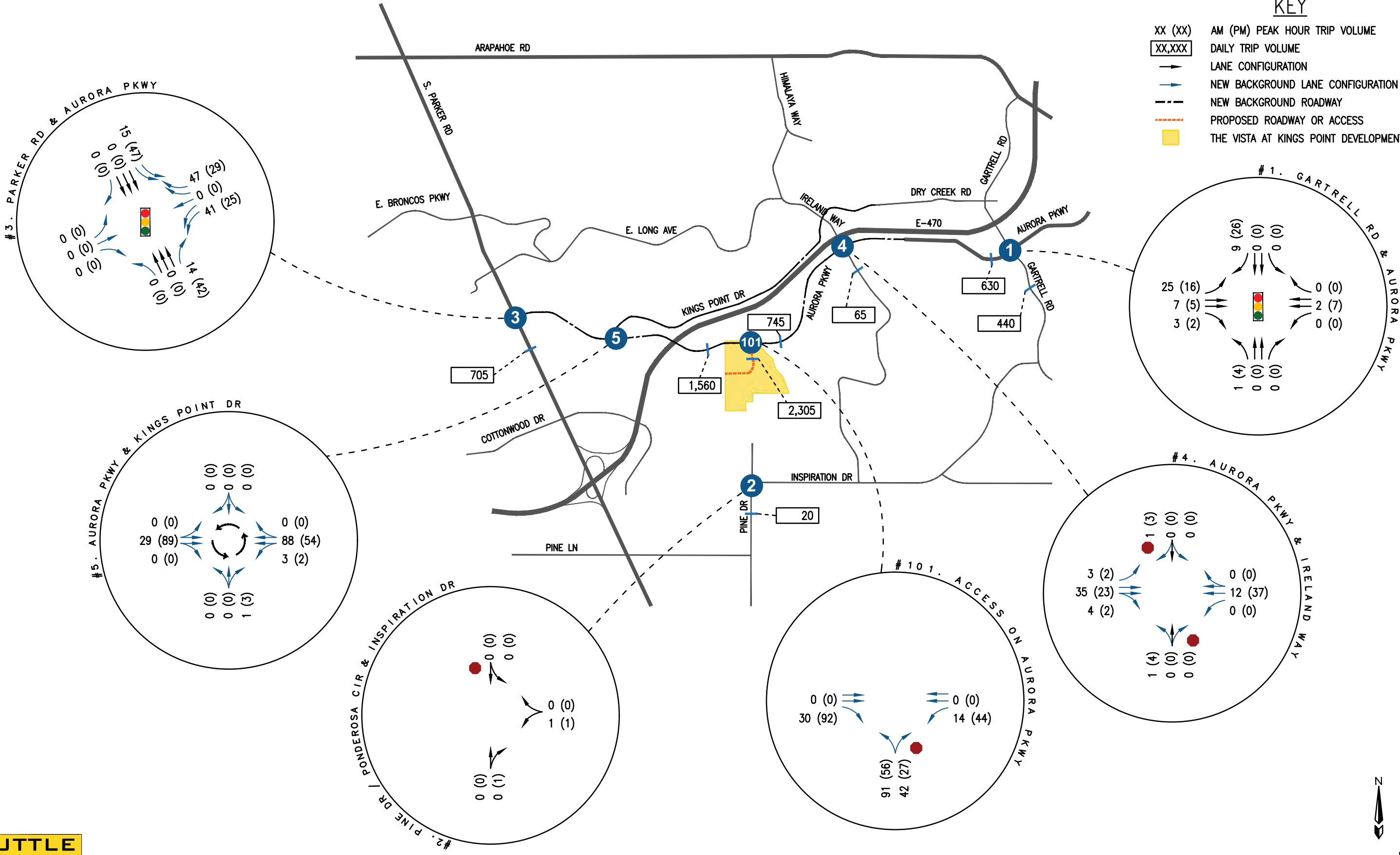
VISTA AT KINGS POINT TRAFFIC IMPACT STUDY  
SITE TRIP DISTRIBUTION [WITHOUT PINE DRIVE EXTENSION]



VISTA AT KINGS POINT TRAFFIC IMPACT STUDY  
SITE TRIP DISTRIBUTION [WITH PINE DRIVE EXTENSION]

# KEY

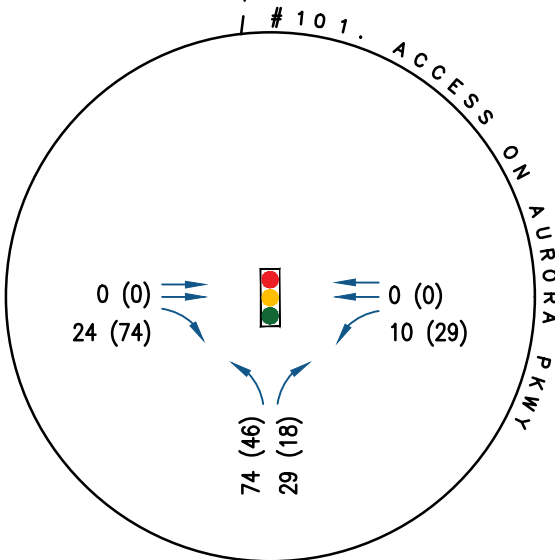
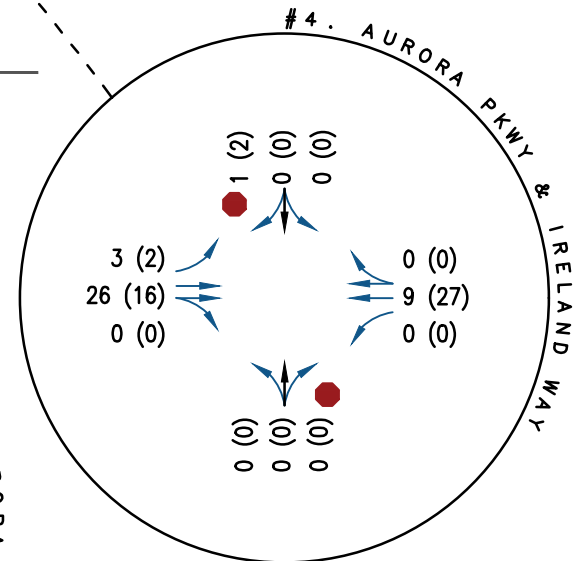
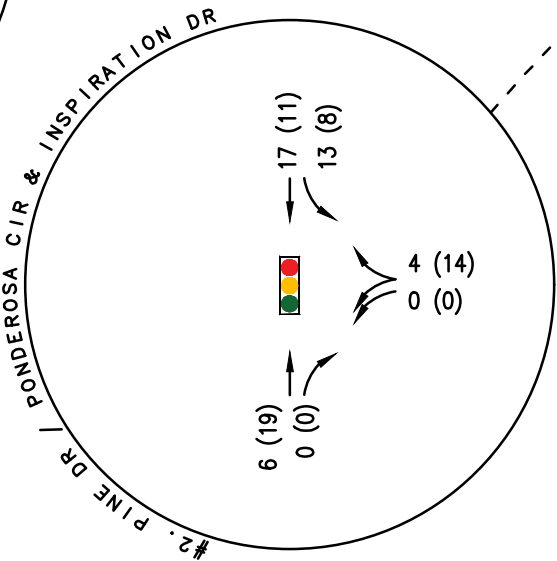
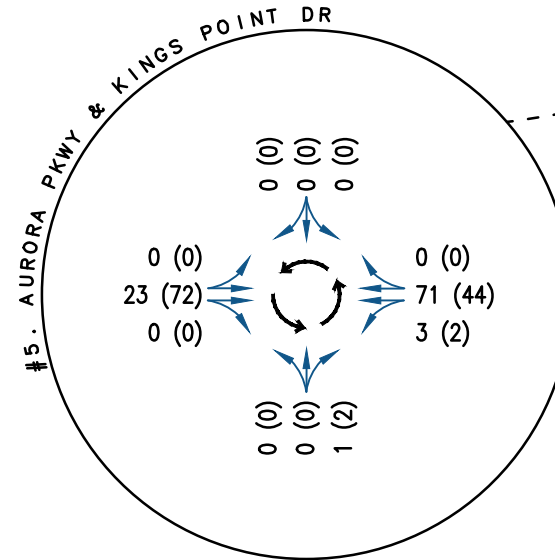
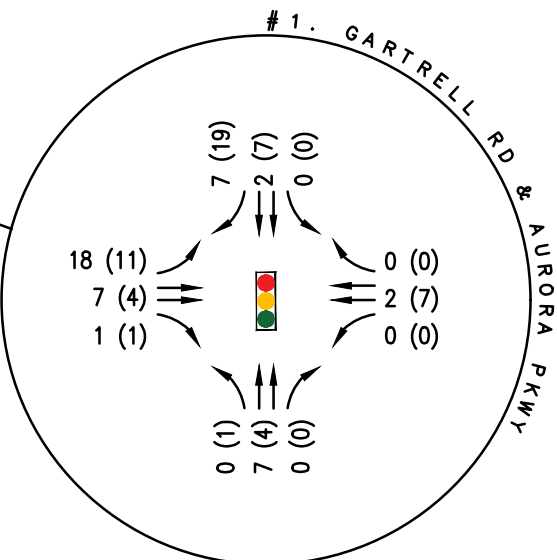
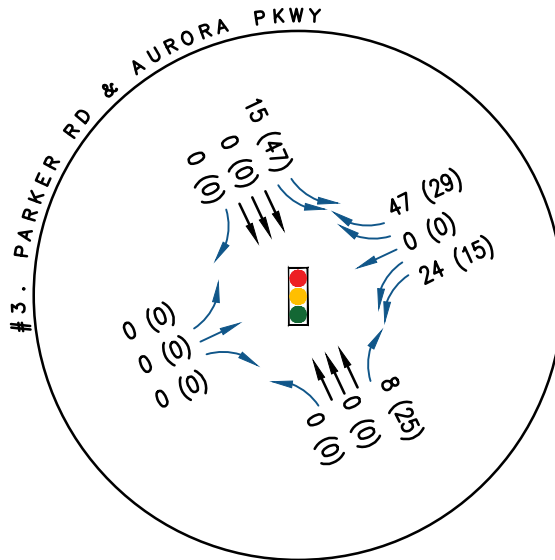
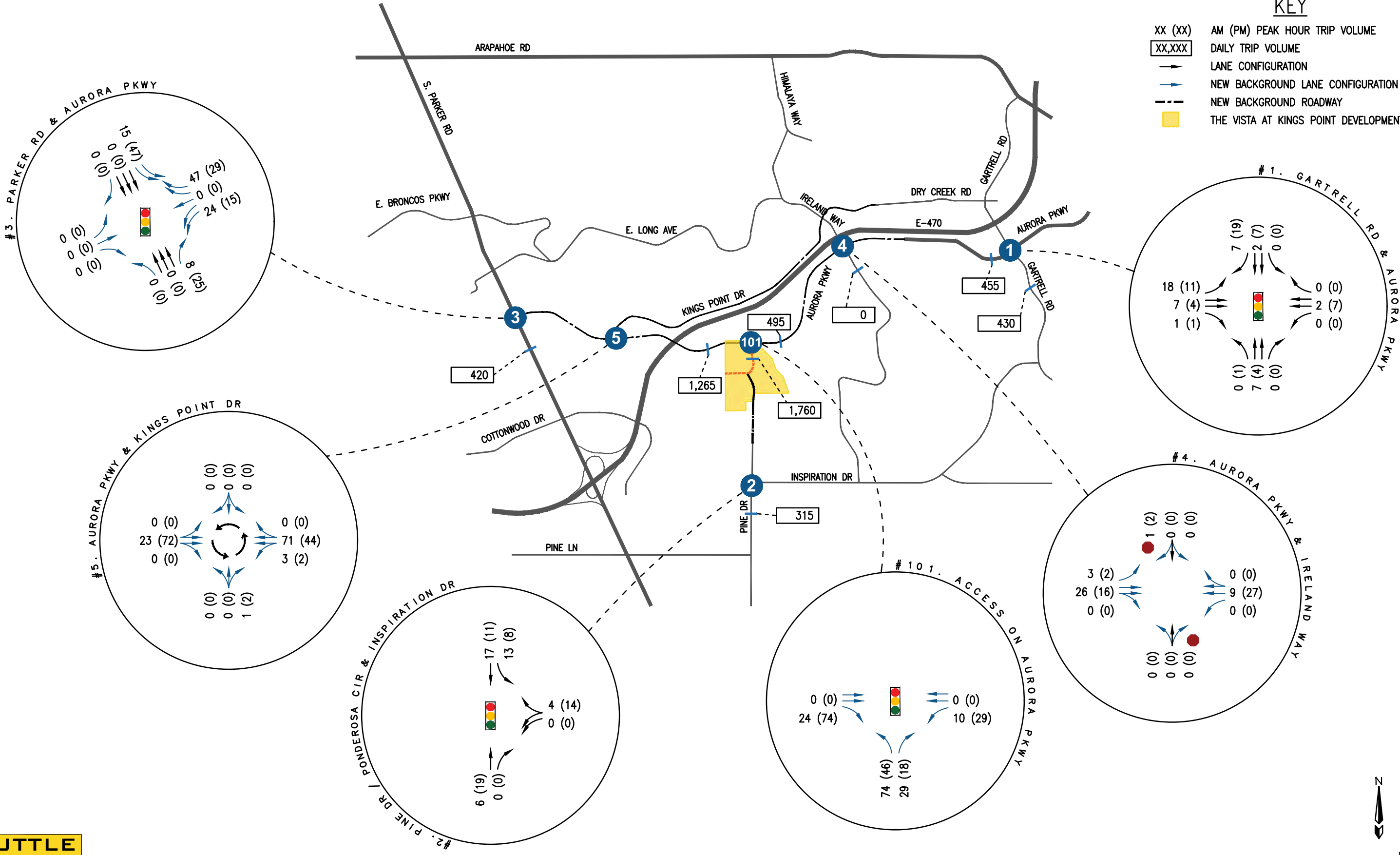
- XX (XX) AM (PM) PEAK HOUR TRIP VOLUME
- XX,XXX DAILY TRIP VOLUME
- LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW BACKGROUND ROADWAY
- PROPOSED ROADWAY OR ACCESS
- THE VISTA AT KINGS POINT DEVELOPMENT



VISTA AT KINGS POINT TRAFFIC IMPACT STUDY  
SITE-GENERATED TRIP VOLUMES [WITHOUT PINE DRIVE EXTENSION]

# KEY

- XX (XX) AM (PM) PEAK HOUR TRIP VOLUME
- XX,XXX DAILY TRIP VOLUME
- LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW BACKGROUND ROADWAY
- THE VISTA AT KINGS POINT DEVELOPMENT

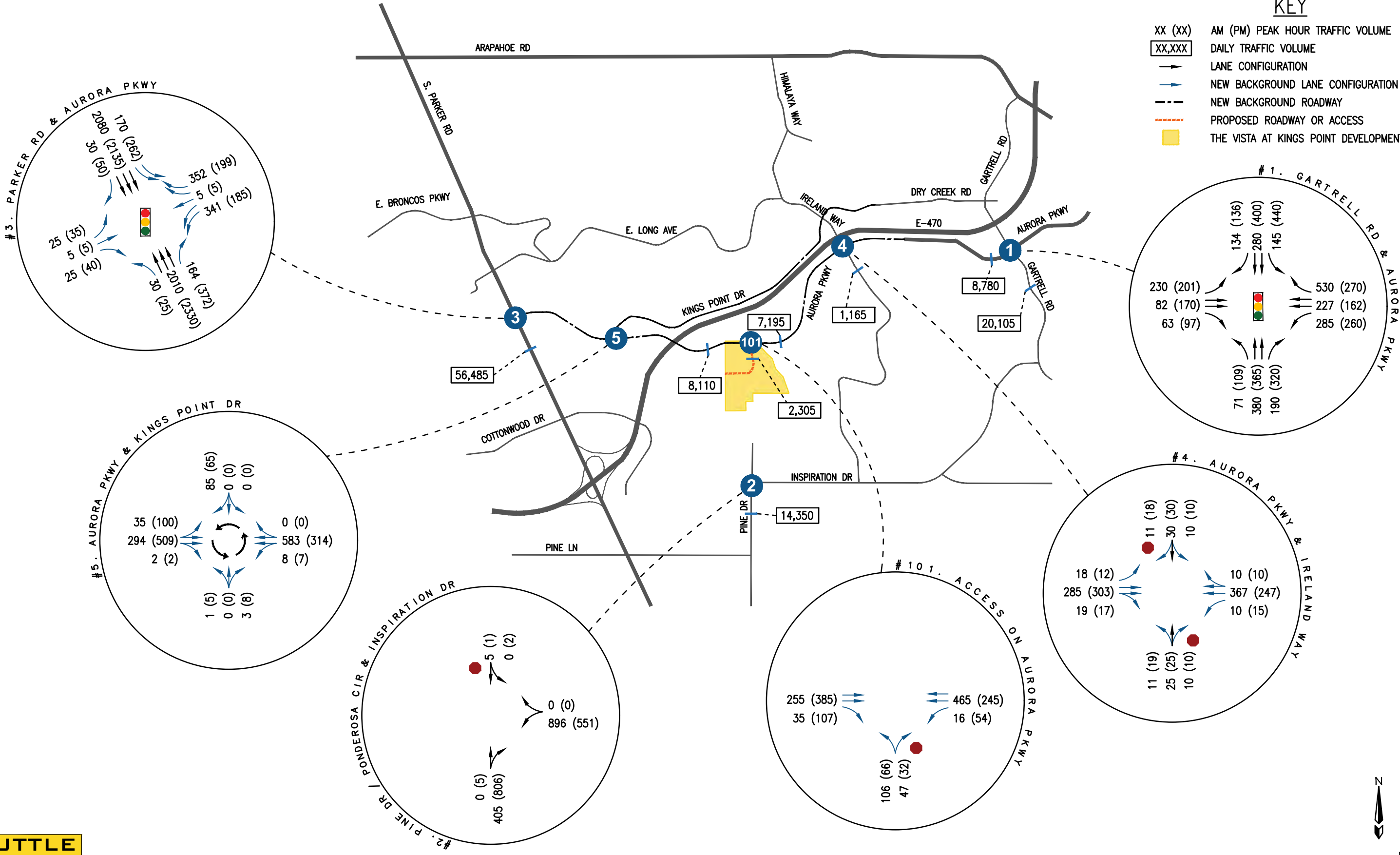


## VISTA AT KINGS POINT TRAFFIC IMPACT STUDY SITE-GENERATED TRIP VOLUMES [WITH PINE DRIVE EXTENSION]



# KEY

- XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME
- XX,XXX DAILY TRAFFIC VOLUME
- LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW BACKGROUND ROADWAY
- PROPOSED ROADWAY OR ACCESS
- THE VISTA AT KINGS POINT DEVELOPMENT

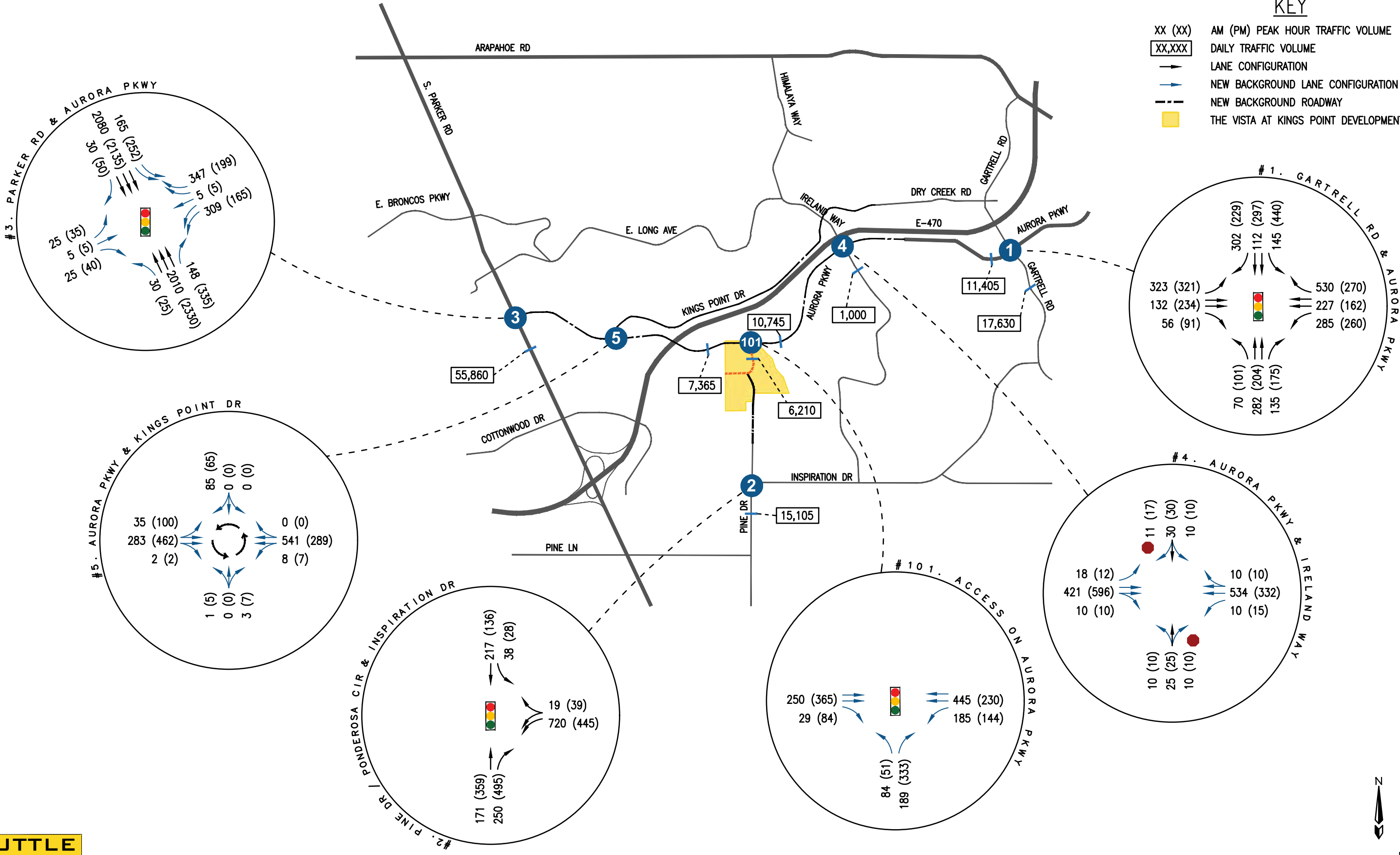


## VISTA AT KINGS POINT TRAFFIC IMPACT STUDY YEAR 2030 BACKGROUND + PROJECT TRAFFIC VOLUMES [WITHOUT PINE DRIVE EXTENSION]

FT Project #	22018	Original Scale	NTS	Date	1/16/2024	Drawn by	CRS	Figure #	8A
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# KEY

- XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME
- XX,XXX DAILY TRAFFIC VOLUME
- LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY
- THE VISTA AT KINGS POINT DEVELOPMENT

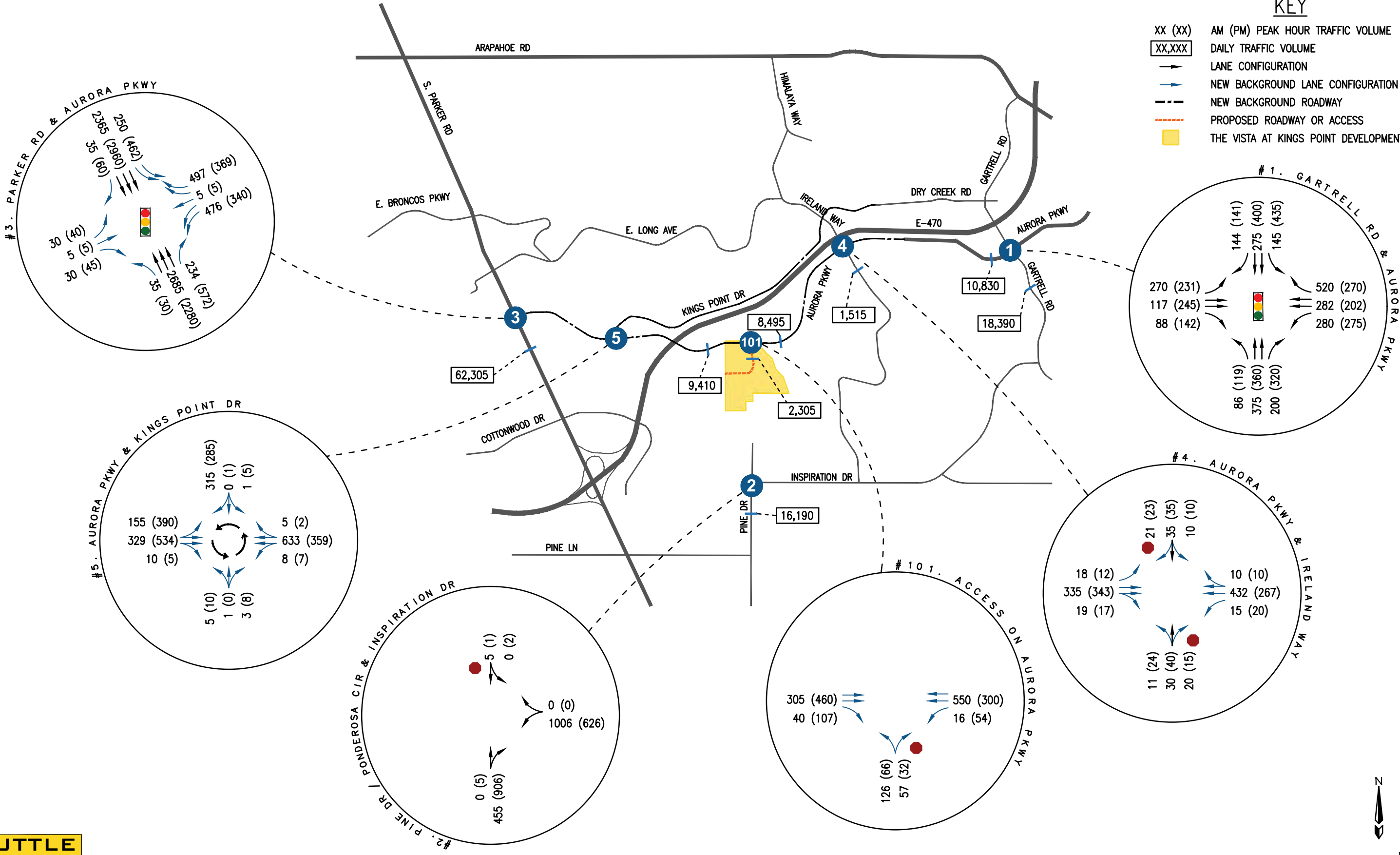


VISTA AT KINGS POINT TRAFFIC IMPACT STUDY  
YEAR 2030 BACKGROUND + PROJECT TRAFFIC VOLUMES [WITH PINE DRIVE EXTENSION]



# KEY

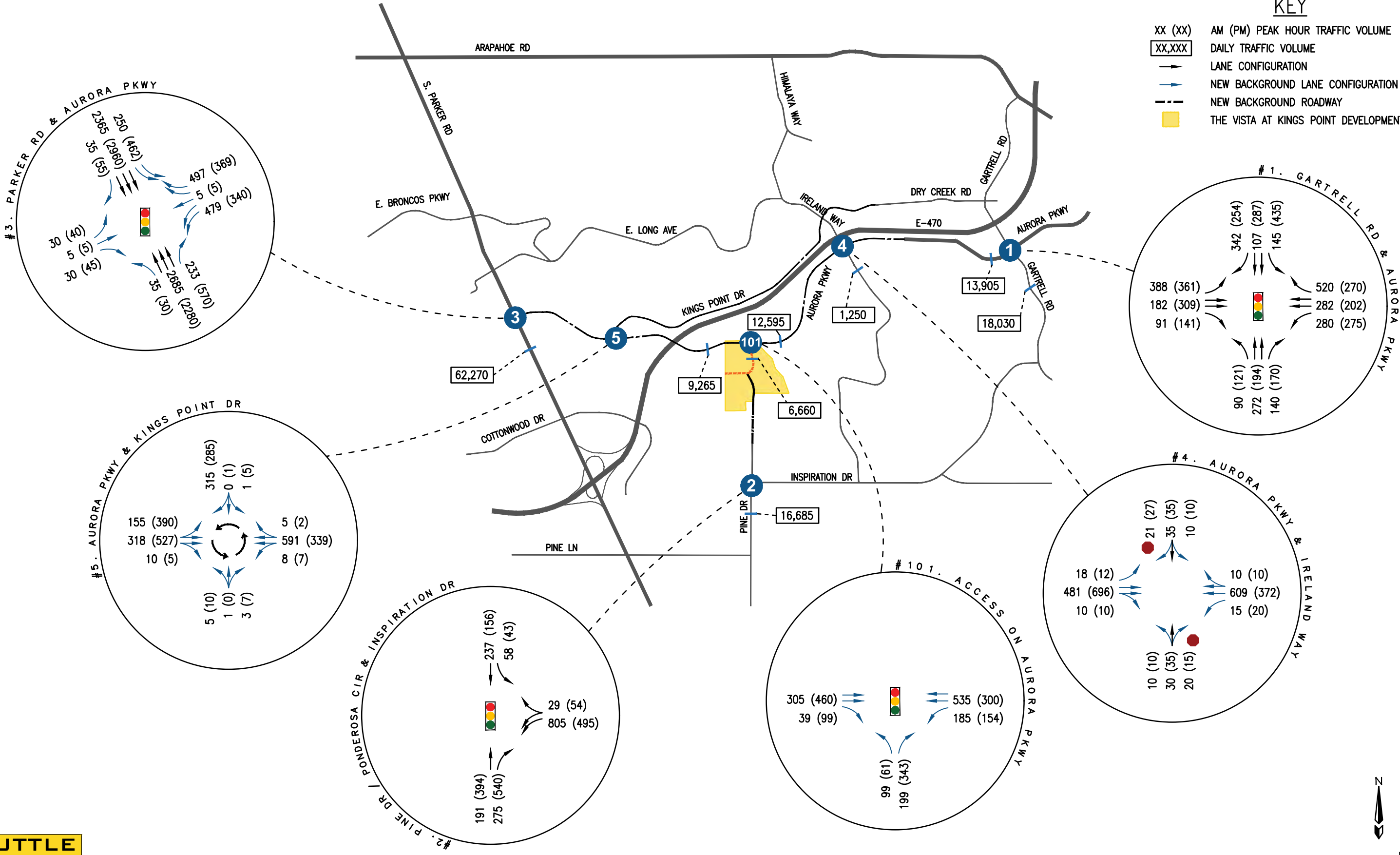
- XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME
- XX,XXX DAILY TRAFFIC VOLUME
- LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW BACKGROUND ROADWAY
- PROPOSED ROADWAY OR ACCESS
- THE VISTA AT KINGS POINT DEVELOPMENT



## VISTA AT KINGS POINT TRAFFIC IMPACT STUDY YEAR 2040 BACKGROUND + PROJECT TRAFFIC VOLUMES [WITHOUT PINE DRIVE EXTENSION]

# KEY

- XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME
- XX,XXX DAILY TRAFFIC VOLUME
- LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY
- THE VISTA AT KINGS POINT DEVELOPMENT



VISTA AT KINGS POINT TRAFFIC IMPACT STUDY  
YEAR 2040 BACKGROUND + PROJECT TRAFFIC VOLUMES [WITH PINE DRIVE EXTENSION]

# ***Appendix:***

*Level of Service Definitions*

*Existing Traffic Data*

*Intersection Capacity Worksheets*

*Signal Warrant Worksheets*

## ***Level of Service Definitions***

## LEVEL OF SERVICE DEFINITIONS

In rating roadway and intersection operating conditions with existing or future traffic volumes, “Levels of Service” (LOS) A through F are used, with LOS A indicating very good operation and LOS F indicating poor operation. Levels of service at signalized and unsignalized intersections are closely associated with vehicle delays experienced in seconds per vehicle. More complete level of service definitions and delay data for signal and stop sign controlled intersections are contained in the following table for reference.

Level of Service Rating	Delay in seconds per vehicle (a)		Definition
	Signalized	Unsignalized	
A	0.0 to 10.0	0.0 to 10.0	Low vehicular traffic volumes; primarily free flow operations. Density is low and vehicles can freely maneuver within the traffic stream. Drivers are able to maintain their desired speeds with little or no delay.
B	10.1 to 20.0	10.1 to 15.0	Stable vehicular traffic volume flow with potential for some restriction of operating speeds due to traffic conditions. Vehicle maneuvering is only slightly restricted. The stopped delays are not bothersome and drivers are not subject to appreciable tension.
C	20.1 to 35.0	15.1 to 25.0	Stable traffic operations, however the ability for vehicles to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signal coordination or longer vehicle queues cause delays along the corridor.
D	35.1 to 55.0	25.1 to 35.0	Approaching unstable vehicular traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in ability to maneuver and selection of travel speeds due to congestion. Driver comfort and convenience are low, but tolerable.
E	55.1 to 80.0	35.1 to 50.0	Traffic operations characterized by significant approach delays and average travel speeds of one-half to one-third the free flow speed. Vehicular flow is unstable and there is potential for stoppages of brief duration. High signal density, extensive vehicle queuing, or corridor signal progression/timing are the typical causes of vehicle delays at signalized corridors.
F	> 80.0	> 50.0	Forced vehicular traffic flow and operations with high approach delays at critical intersections. Vehicle speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion.

(a) Delay ranges based on Highway Capacity Manual (6<sup>th</sup> Edition, 2016) criteria.



## ***Existing Traffic Data***



## Daily Vehicle Volume Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Comments: Aurora, CO

	Northbound Volume	Southbound Volume	Total Volume
00:00 - 00:59	0	0	0
01:00 - 01:59	0	0	0
02:00 - 02:59	1	0	1
03:00 - 03:59	0	1	1
04:00 - 04:59	1	0	1
05:00 - 05:59	0	0	0
06:00 - 06:59	12	4	16
07:00 - 07:59	32	13	45
08:00 - 08:59	23	15	38
09:00 - 09:59	10	11	21
10:00 - 10:59	13	13	26
11:00 - 11:59	14	15	29
12:00 - 12:59	15	8	23
13:00 - 13:59	18	6	24
14:00 - 14:59	15	17	32
15:00 - 15:59	20	20	40
16:00 - 16:59	15	19	34
17:00 - 17:59	12	30	42
18:00 - 18:59	15	15	30
19:00 - 19:59	6	3	9
20:00 - 20:59	12	16	28
21:00 - 21:59	5	9	14
22:00 - 22:59	1	3	4
23:00 - 23:59	1	1	2
Totals	241	219	460
AM Peak Time	07:06 - 08:05	07:52 - 08:51	07:09 - 08:08
AM Peak Volume	35	17	50
PM Peak Time	15:24 - 16:23	17:00 - 17:59	15:24 - 16:23
PM Peak Volume	25	30	47

## Daily Northbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00 - 03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 - 04:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	8	2	0	2	0	0	0	0	0	0	0	0	12
07:00 - 07:59	0	23	6	1	2	0	0	0	0	0	0	0	0	32
08:00 - 08:59	0	15	5	1	2	0	0	0	0	0	0	0	0	23
09:00 - 09:59	0	7	1	0	2	0	0	0	0	0	0	0	0	10
10:00 - 10:59	0	10	0	0	3	0	0	0	0	0	0	0	0	13
11:00 - 11:59	0	9	3	0	1	0	0	1	0	0	0	0	0	14
12:00 - 12:59	1	8	4	1	1	0	0	0	0	0	0	0	0	15
13:00 - 13:59	0	16	0	0	1	1	0	0	0	0	0	0	0	18
14:00 - 14:59	0	14	0	0	1	0	0	0	0	0	0	0	0	15
15:00 - 15:59	1	9	5	1	4	0	0	0	0	0	0	0	0	20
16:00 - 16:59	0	11	2	0	2	0	0	0	0	0	0	0	0	15
17:00 - 17:59	0	11	0	0	1	0	0	0	0	0	0	0	0	12
18:00 - 18:59	0	12	1	0	2	0	0	0	0	0	0	0	0	15
19:00 - 19:59	0	3	2	0	1	0	0	0	0	0	0	0	0	6
20:00 - 20:59	0	11	1	0	0	0	0	0	0	0	0	0	0	12
21:00 - 21:59	0	5	0	0	0	0	0	0	0	0	0	0	0	5
22:00 - 22:59	0	0	0	0	1	0	0	0	0	0	0	0	0	1
23:00 - 23:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	2	175	32	4	26	1	0	1	0	0	0	0	0	241
Percent of Total	0.8	72.6	13.3	1.7	10.8	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	69.8	16.0	1.9	11.3	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	1.5	74.8	11.1	1.5	10.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100

### Truck Summary:

Total Trucks: 32

% Trucks: 13.3

AM % Trucks: 14.2

PM % Trucks: 12.6

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles  
#2 Passenger Cars - 2 Axles  
#3 Pickup Trucks, Vans - 2 Axles  
#4 Buses  
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles  
#7 Single Unit - 4 Axles  
#8 Single Unit - 4 Axles or Less  
#9 Double Unit - 5 Axles  
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less  
#12 Multi-Unit - 6 Axles  
#13 Multi-Unit - 7 Axles or More



## Daily Southbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 - 03:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	3	1	0	0	0	0	0	0	0	0	0	0	4
07:00 - 07:59	0	8	2	1	2	0	0	0	0	0	0	0	0	13
08:00 - 08:59	0	9	2	1	2	0	0	1	0	0	0	0	0	15
09:00 - 09:59	0	9	2	0	0	0	0	0	0	0	0	0	0	11
10:00 - 10:59	0	12	1	0	0	0	0	0	0	0	0	0	0	13
11:00 - 11:59	0	12	1	0	2	0	0	0	0	0	0	0	0	15
12:00 - 12:59	0	5	2	0	1	0	0	0	0	0	0	0	0	8
13:00 - 13:59	0	5	1	0	0	0	0	0	0	0	0	0	0	6
14:00 - 14:59	0	14	1	1	1	0	0	0	0	0	0	0	0	17
15:00 - 15:59	0	13	5	0	2	0	0	0	0	0	0	0	0	20
16:00 - 16:59	0	16	3	0	0	0	0	0	0	0	0	0	0	19
17:00 - 17:59	0	25	3	0	2	0	0	0	0	0	0	0	0	30
18:00 - 18:59	0	14	1	0	0	0	0	0	0	0	0	0	0	15
19:00 - 19:59	1	2	0	0	0	0	0	0	0	0	0	0	0	3
20:00 - 20:59	6	10	0	0	0	0	0	0	0	0	0	0	0	16
21:00 - 21:59	1	8	0	0	0	0	0	0	0	0	0	0	0	9
22:00 - 22:59	2	1	0	0	0	0	0	0	0	0	0	0	0	3
23:00 - 23:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
<b>Totals</b>	<b>10</b>	<b>168</b>	<b>25</b>	<b>3</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>219</b>
<b>Percent of Total</b>	<b>4.6</b>	<b>76.7</b>	<b>11.4</b>	<b>1.4</b>	<b>5.5</b>	<b>0.0</b>	<b>0.0</b>	<b>0.5</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>
<b>Percent of AM</b>	<b>0.0</b>	<b>75.0</b>	<b>12.5</b>	<b>2.8</b>	<b>8.3</b>	<b>0.0</b>	<b>0.0</b>	<b>1.4</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>
<b>Percent of PM</b>	<b>6.8</b>	<b>77.6</b>	<b>10.9</b>	<b>0.7</b>	<b>4.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>

### Truck Summary:

Total Trucks: 16

% Trucks: 7.3

AM % Trucks: 12.5

PM % Trucks: 4.8

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles  
#2 Passenger Cars - 2 Axles  
#3 Pickup Trucks, Vans - 2 Axles  
#4 Buses  
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles  
#7 Single Unit - 4 Axles  
#8 Single Unit - 4 Axles or Less  
#9 Double Unit - 5 Axles  
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less  
#12 Multi-Unit - 6 Axles  
#13 Multi-Unit - 7 Axles or More

## Daily Total Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00 - 03:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	11	3	0	2	0	0	0	0	0	0	0	0	16
07:00 - 07:59	0	31	8	2	4	0	0	0	0	0	0	0	0	45
08:00 - 08:59	0	24	7	2	4	0	0	1	0	0	0	0	0	38
09:00 - 09:59	0	16	3	0	2	0	0	0	0	0	0	0	0	21
10:00 - 10:59	0	22	1	0	3	0	0	0	0	0	0	0	0	26
11:00 - 11:59	0	21	4	0	3	0	0	1	0	0	0	0	0	29
12:00 - 12:59	1	13	6	1	2	0	0	0	0	0	0	0	0	23
13:00 - 13:59	0	21	1	0	1	1	0	0	0	0	0	0	0	24
14:00 - 14:59	0	28	1	1	2	0	0	0	0	0	0	0	0	32
15:00 - 15:59	1	22	10	1	6	0	0	0	0	0	0	0	0	40
16:00 - 16:59	0	27	5	0	2	0	0	0	0	0	0	0	0	34
17:00 - 17:59	0	36	3	0	3	0	0	0	0	0	0	0	0	42
18:00 - 18:59	0	26	2	0	2	0	0	0	0	0	0	0	0	30
19:00 - 19:59	1	5	2	0	1	0	0	0	0	0	0	0	0	9
20:00 - 20:59	6	21	1	0	0	0	0	0	0	0	0	0	0	28
21:00 - 21:59	1	13	0	0	0	0	0	0	0	0	0	0	0	14
22:00 - 22:59	2	1	0	0	1	0	0	0	0	0	0	0	0	4
23:00 - 23:59	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Totals	12	343	57	7	38	1	0	2	0	0	0	0	0	460
Percent of Total	2.6	74.6	12.4	1.5	8.3	0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	71.9	14.6	2.2	10.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	4.3	76.2	11.0	1.1	7.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100

### Truck Summary:

Total Trucks: 48

% Trucks: 10.4

AM % Trucks: 13.5

PM % Trucks: 8.5

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles  
#2 Passenger Cars - 2 Axles  
#3 Pickup Trucks, Vans - 2 Axles  
#4 Buses  
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles  
#7 Single Unit - 4 Axles  
#8 Single Unit - 4 Axles or Less  
#9 Double Unit - 5 Axles  
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less  
#12 Multi-Unit - 6 Axles  
#13 Multi-Unit - 7 Axles or More

## Daily Northbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Posted Speed: 30

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
03:00 - 03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 - 04:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	0	0	0	2	3	4	3	0	0	0	0	0	0	0	12
07:00 - 07:59	0	0	0	1	1	18	5	5	2	0	0	0	0	0	0	32
08:00 - 08:59	0	0	0	1	3	8	6	3	2	0	0	0	0	0	0	23
09:00 - 09:59	0	0	0	0	2	3	3	1	1	0	0	0	0	0	0	10
10:00 - 10:59	1	0	0	1	5	4	2	0	0	0	0	0	0	0	0	13
11:00 - 11:59	0	0	0	0	5	5	1	2	1	0	0	0	0	0	0	14
12:00 - 12:59	0	0	2	3	3	2	3	1	1	0	0	0	0	0	0	15
13:00 - 13:59	0	0	0	0	9	4	4	0	0	1	0	0	0	0	0	18
14:00 - 14:59	0	0	0	0	2	7	3	3	0	0	0	0	0	0	0	15
15:00 - 15:59	1	0	0	0	4	8	4	2	1	0	0	0	0	0	0	20
16:00 - 16:59	0	0	0	0	3	7	5	0	0	0	0	0	0	0	0	15
17:00 - 17:59	0	0	0	0	3	3	2	3	1	0	0	0	0	0	0	12
18:00 - 18:59	0	1	1	1	1	6	2	3	0	0	0	0	0	0	0	15
19:00 - 19:59	0	0	1	0	3	2	0	0	0	0	0	0	0	0	0	6
20:00 - 20:59	0	0	1	2	4	4	0	0	1	0	0	0	0	0	0	12
21:00 - 21:59	0	0	0	0	2	1	2	0	0	0	0	0	0	0	0	5
22:00 - 22:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
23:00 - 23:59	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Totals	2	1	5	9	52	86	48	27	10	1	0	0	0	0	0	241
Percent of Total	0.8	0.4	2.1	3.7	21.6	35.7	19.9	11.2	4.1	0.4	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.9	0.0	0.0	2.8	17.0	39.6	20.8	13.2	5.7	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	0.7	0.7	3.7	4.4	25.2	32.6	19.3	9.6	3.0	0.7	0.0	0.0	0.0	0.0	0.0	100

Standard Deviation:	7.1 MPH	Ten Mile Pace:	30 to 39 MPH	85th Percentile:	45.3 MPH
Mean Speed:	38.2 MPH	Percent in Ten Mile Pace:	57.3%	15th Percentile:	31.8 MPH
Median Speed:	38.0 MPH			90th Percentile:	47.5 MPH
Modal Speed:	37.5 MPH			95th Percentile:	49.7 MPH

## Daily Southbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Posted Speed: 30

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 - 03:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	4
07:00 - 07:59	0	0	0	0	2	9	1	1	0	0	0	0	0	0	0	13
08:00 - 08:59	0	0	0	2	4	6	3	0	0	0	0	0	0	0	0	15
09:00 - 09:59	0	0	0	0	4	3	4	0	0	0	0	0	0	0	0	11
10:00 - 10:59	0	0	0	1	6	3	2	1	0	0	0	0	0	0	0	13
11:00 - 11:59	0	0	1	2	5	4	1	0	2	0	0	0	0	0	0	15
12:00 - 12:59	0	0	0	2	2	4	0	0	0	0	0	0	0	0	0	8
13:00 - 13:59	0	0	1	0	2	1	1	1	0	0	0	0	0	0	0	6
14:00 - 14:59	0	0	0	2	4	6	3	2	0	0	0	0	0	0	0	17
15:00 - 15:59	0	0	0	1	10	3	5	1	0	0	0	0	0	0	0	20
16:00 - 16:59	0	0	0	3	5	6	5	0	0	0	0	0	0	0	0	19
17:00 - 17:59	0	0	1	3	12	5	9	0	0	0	0	0	0	0	0	30
18:00 - 18:59	0	1	0	1	4	7	2	0	0	0	0	0	0	0	0	15
19:00 - 19:59	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	3
20:00 - 20:59	0	3	3	3	6	1	0	0	0	0	0	0	0	0	0	16
21:00 - 21:59	0	1	0	1	1	3	3	0	0	0	0	0	0	0	0	9
22:00 - 22:59	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	3
23:00 - 23:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
<b>Totals</b>	<b>0</b>	<b>6</b>	<b>8</b>	<b>21</b>	<b>71</b>	<b>64</b>	<b>41</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>219</b>
<b>Percent of Total</b>	<b>0.0</b>	<b>2.7</b>	<b>3.7</b>	<b>9.6</b>	<b>32.4</b>	<b>29.2</b>	<b>18.7</b>	<b>2.7</b>	<b>0.9</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>
<b>Percent of AM</b>	<b>0.0</b>	<b>0.0</b>	<b>1.4</b>	<b>6.9</b>	<b>33.3</b>	<b>37.5</b>	<b>15.3</b>	<b>2.8</b>	<b>2.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>
<b>Percent of PM</b>	<b>0.0</b>	<b>4.1</b>	<b>4.8</b>	<b>10.9</b>	<b>32.0</b>	<b>25.2</b>	<b>20.4</b>	<b>2.7</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>

Standard Deviation:	6.6 MPH	Ten Mile Pace:	30 to 39 MPH	85th Percentile:	41.9 MPH
Mean Speed:	35.2 MPH	Percent in Ten Mile Pace:	61.6%	15th Percentile:	29.4 MPH
Median Speed:	35.2 MPH			90th Percentile:	43.2 MPH
Modal Speed:	32.5 MPH			95th Percentile:	44.6 MPH

## Daily Total Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Posted Speed: 30

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
03:00 - 03:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	0	0	0	5	4	4	3	0	0	0	0	0	0	0	16
07:00 - 07:59	0	0	0	1	3	27	6	6	2	0	0	0	0	0	0	45
08:00 - 08:59	0	0	0	3	7	14	9	3	2	0	0	0	0	0	0	38
09:00 - 09:59	0	0	0	0	6	6	7	1	1	0	0	0	0	0	0	21
10:00 - 10:59	1	0	0	2	11	7	4	1	0	0	0	0	0	0	0	26
11:00 - 11:59	0	0	1	2	10	9	2	2	3	0	0	0	0	0	0	29
12:00 - 12:59	0	0	2	5	5	6	3	1	1	0	0	0	0	0	0	23
13:00 - 13:59	0	0	1	0	11	5	5	1	0	1	0	0	0	0	0	24
14:00 - 14:59	0	0	0	2	6	13	6	5	0	0	0	0	0	0	0	32
15:00 - 15:59	1	0	0	1	14	11	9	3	1	0	0	0	0	0	0	40
16:00 - 16:59	0	0	0	3	8	13	10	0	0	0	0	0	0	0	0	34
17:00 - 17:59	0	0	1	3	15	8	11	3	1	0	0	0	0	0	0	42
18:00 - 18:59	0	2	1	2	5	13	4	3	0	0	0	0	0	0	0	30
19:00 - 19:59	0	0	2	0	4	2	1	0	0	0	0	0	0	0	0	9
20:00 - 20:59	0	3	4	5	10	5	0	0	1	0	0	0	0	0	0	28
21:00 - 21:59	0	1	0	1	3	4	5	0	0	0	0	0	0	0	0	14
22:00 - 22:59	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	4
23:00 - 23:59	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
Totals	2	7	13	30	123	150	89	33	12	1	0	0	0	0	0	460
Percent of Total	0.4	1.5	2.8	6.5	26.7	32.6	19.3	7.2	2.6	0.2	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.6	0.0	0.6	4.5	23.6	38.8	18.5	9.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	0.4	2.5	4.3	7.8	28.7	28.7	19.9	6.0	1.4	0.4	0.0	0.0	0.0	0.0	0.0	100

Standard Deviation:	7.0 MPH	Ten Mile Pace:	30 to 39 MPH	85th Percentile:	43.7 MPH
Mean Speed:	36.8 MPH	Percent in Ten Mile Pace:	59.3%	15th Percentile:	30.7 MPH
Median Speed:	36.8 MPH			90th Percentile:	44.9 MPH
Modal Speed:	37.5 MPH			95th Percentile:	48.4 MPH

## Daily Vehicle Volume Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 41

Location: 2A. Aurora Pkwy west of Gartrell Rd Eastbound

Comments: Aurora, CO

	Eastbound Volume
00:00 - 00:59	1
01:00 - 01:59	1
02:00 - 02:59	1
03:00 - 03:59	1
04:00 - 04:59	2
05:00 - 05:59	3
06:00 - 06:59	16
07:00 - 07:59	39
08:00 - 08:59	57
09:00 - 09:59	58
10:00 - 10:59	87
11:00 - 11:59	85
12:00 - 12:59	63
13:00 - 13:59	71
14:00 - 14:59	47
15:00 - 15:59	47
16:00 - 16:59	64
17:00 - 17:59	73
18:00 - 18:59	71
19:00 - 19:59	28
20:00 - 20:59	20
21:00 - 21:59	7
22:00 - 22:59	6
23:00 - 23:59	1
Totals	849
AM Peak Time	09:47 - 10:46
AM Peak Volume	90
PM Peak Time	17:11 - 18:10
PM Peak Volume	84

## Daily Eastbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 41

Location: 2A. Aurora Pkwy west of Gartrell Rd Eastbound

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00 - 01:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00 - 02:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00 - 03:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	2	0	0	0	0	0	0	0	0	0	0	0	2
05:00 - 05:59	0	2	1	0	0	0	0	0	0	0	0	0	0	3
06:00 - 06:59	0	10	5	0	1	0	0	0	0	0	0	0	0	16
07:00 - 07:59	0	29	6	0	4	0	0	0	0	0	0	0	0	39
08:00 - 08:59	0	34	10	1	11	0	0	0	1	0	0	0	0	57
09:00 - 09:59	0	42	9	0	7	0	0	0	0	0	0	0	0	58
10:00 - 10:59	0	61	14	0	11	1	0	0	0	0	0	0	0	87
11:00 - 11:59	0	55	19	0	9	2	0	0	0	0	0	0	0	85
12:00 - 12:59	0	39	8	1	11	3	0	0	1	0	0	0	0	63
13:00 - 13:59	0	49	13	1	7	1	0	0	0	0	0	0	0	71
14:00 - 14:59	0	31	10	0	6	0	0	0	0	0	0	0	0	47
15:00 - 15:59	0	33	11	1	2	0	0	0	0	0	0	0	0	47
16:00 - 16:59	0	41	18	1	4	0	0	0	0	0	0	0	0	64
17:00 - 17:59	1	50	11	1	10	0	0	0	0	0	0	0	0	73
18:00 - 18:59	0	44	21	0	6	0	0	0	0	0	0	0	0	71
19:00 - 19:59	0	14	10	0	4	0	0	0	0	0	0	0	0	28
20:00 - 20:59	0	16	4	0	0	0	0	0	0	0	0	0	0	20
21:00 - 21:59	0	5	2	0	0	0	0	0	0	0	0	0	0	7
22:00 - 22:59	0	5	1	0	0	0	0	0	0	0	0	0	0	6
23:00 - 23:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	1	567	173	6	93	7	0	0	2	0	0	0	0	849
Percent of Total	0.1	66.8	20.4	0.7	11.0	0.8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	68.1	18.2	0.3	12.3	0.9	0.0	0.0	0.3	0.0	0.0	0.0	0.0	100
Percent of PM	0.2	65.9	21.9	1.0	10.0	0.8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	100

### Truck Summary:

Total Trucks: 108

% Trucks: 12.7

AM % Trucks: 13.7

PM % Trucks: 12.0

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles  
#2 Passenger Cars - 2 Axles  
#3 Pickup Trucks, Vans - 2 Axles  
#4 Buses  
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles  
#7 Single Unit - 4 Axles  
#8 Single Unit - 4 Axles or Less  
#9 Double Unit - 5 Axles  
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less  
#12 Multi-Unit - 6 Axles  
#13 Multi-Unit - 7 Axles or More

## Daily Eastbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 41

Location: 2A. Aurora Pkwy west of Gartrell Rd Eastbound

Posted Speed: 35

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
01:00 - 01:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
02:00 - 02:59	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
03:00 - 03:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2
05:00 - 05:59	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3
06:00 - 06:59	0	0	0	3	0	4	3	4	2	0	0	0	0	0	0	16
07:00 - 07:59	0	0	1	1	7	8	8	8	5	1	0	0	0	0	0	39
08:00 - 08:59	0	1	0	7	11	18	14	6	0	0	0	0	0	0	0	57
09:00 - 09:59	0	0	2	4	9	18	14	7	3	0	1	0	0	0	0	58
10:00 - 10:59	0	0	1	3	17	17	37	9	3	0	0	0	0	0	0	87
11:00 - 11:59	0	0	3	7	14	20	28	9	3	1	0	0	0	0	0	85
12:00 - 12:59	0	0	3	6	5	18	16	11	4	0	0	0	0	0	0	63
13:00 - 13:59	0	0	2	8	10	16	20	11	3	1	0	0	0	0	0	71
14:00 - 14:59	0	0	1	5	6	6	16	7	4	1	1	0	0	0	0	47
15:00 - 15:59	0	0	1	2	7	16	6	13	2	0	0	0	0	0	0	47
16:00 - 16:59	0	0	2	9	15	12	11	9	5	1	0	0	0	0	0	64
17:00 - 17:59	0	0	6	11	20	18	8	5	4	1	0	0	0	0	0	73
18:00 - 18:59	0	0	2	15	15	18	10	8	2	1	0	0	0	0	0	71
19:00 - 19:59	0	0	1	4	6	7	7	3	0	0	0	0	0	0	0	28
20:00 - 20:59	0	0	0	4	4	9	2	1	0	0	0	0	0	0	0	20
21:00 - 21:59	0	0	0	1	0	0	3	3	0	0	0	0	0	0	0	7
22:00 - 22:59	0	0	0	1	2	0	1	2	0	0	0	0	0	0	0	6
23:00 - 23:59	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Totals	0	1	25	91	149	208	207	117	40	8	3	0	0	0	0	849
Percent of Total	0.0	0.1	2.9	10.7	17.6	24.5	24.4	13.8	4.7	0.9	0.4	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	0.3	2.0	7.1	16.8	25.1	30.5	12.3	4.6	0.9	0.6	0.0	0.0	0.0	0.0	100
Percent of PM	0.0	0.0	3.6	13.3	18.1	24.1	20.1	14.9	4.8	1.0	0.2	0.0	0.0	0.0	0.0	100

Standard Deviation:	7.7 MPH	Ten Mile Pace:	35 to 44 MPH	85th Percentile:	46.7 MPH
Mean Speed:	38.7 MPH	Percent in Ten Mile Pace:	48.9%	15th Percentile:	30.3 MPH
Median Speed:	38.8 MPH			90th Percentile:	48.5 MPH
Modal Speed:	37.5 MPH			95th Percentile:	51.0 MPH



## Daily Vehicle Volume Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 42

Location: 2B. Aurora Pkwy west of Gartrell Rd Westbound

Comments: Aurora, CO

	Westbound Volume
00:00 - 00:59	2
01:00 - 01:59	1
02:00 - 02:59	0
03:00 - 03:59	0
04:00 - 04:59	1
05:00 - 05:59	5
06:00 - 06:59	3
07:00 - 07:59	26
08:00 - 08:59	41
09:00 - 09:59	42
10:00 - 10:59	55
11:00 - 11:59	62
12:00 - 12:59	50
13:00 - 13:59	66
14:00 - 14:59	66
15:00 - 15:59	64
16:00 - 16:59	62
17:00 - 17:59	64
18:00 - 18:59	50
19:00 - 19:59	32
20:00 - 20:59	22
21:00 - 21:59	12
22:00 - 22:59	4
23:00 - 23:59	4
Totals	734
AM Peak Time	11:00 - 11:59
AM Peak Volume	62
PM Peak Time	13:21 - 14:20
PM Peak Volume	76

## Daily Westbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 42

Location: 2B. Aurora Pkwy west of Gartrell Rd Westbound

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	1	0	0	1	0	0	0	0	0	0	0	0	2
01:00 - 01:59	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00 - 02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 - 03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 - 04:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	4	1	0	0	0	0	0	0	0	0	0	0	5
06:00 - 06:59	0	2	1	0	0	0	0	0	0	0	0	0	0	3
07:00 - 07:59	0	14	5	1	6	0	0	0	0	0	0	0	0	26
08:00 - 08:59	0	20	8	0	13	0	0	0	0	0	0	0	0	41
09:00 - 09:59	0	27	7	0	7	1	0	0	0	0	0	0	0	42
10:00 - 10:59	0	34	7	0	11	3	0	0	0	0	0	0	0	55
11:00 - 11:59	0	40	12	1	9	0	0	0	0	0	0	0	0	62
12:00 - 12:59	0	34	9	2	4	1	0	0	0	0	0	0	0	50
13:00 - 13:59	0	41	19	0	6	0	0	0	0	0	0	0	0	66
14:00 - 14:59	0	46	16	0	4	0	0	0	0	0	0	0	0	66
15:00 - 15:59	0	44	13	1	6	0	0	0	0	0	0	0	0	64
16:00 - 16:59	0	42	16	2	2	0	0	0	0	0	0	0	0	62
17:00 - 17:59	0	33	20	0	11	0	0	0	0	0	0	0	0	64
18:00 - 18:59	0	32	14	1	3	0	0	0	0	0	0	0	0	50
19:00 - 19:59	0	22	7	0	3	0	0	0	0	0	0	0	0	32
20:00 - 20:59	0	17	4	0	1	0	0	0	0	0	0	0	0	22
21:00 - 21:59	0	8	3	0	1	0	0	0	0	0	0	0	0	12
22:00 - 22:59	0	4	0	0	0	0	0	0	0	0	0	0	0	4
23:00 - 23:59	0	2	2	0	0	0	0	0	0	0	0	0	0	4
Totals	0	468	165	8	88	5	0	0	0	0	0	0	0	734
Percent of Total	0.0	63.8	22.5	1.1	12.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	60.1	17.6	0.8	19.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	0.0	65.5	24.8	1.2	8.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100

### Truck Summary:

Total Trucks: 101

% Trucks: 13.8

AM % Trucks: 22.3

PM % Trucks: 9.7

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles  
#2 Passenger Cars - 2 Axles  
#3 Pickup Trucks, Vans - 2 Axles  
#4 Buses  
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles  
#7 Single Unit - 4 Axles  
#8 Single Unit - 4 Axles or Less  
#9 Double Unit - 5 Axles  
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less  
#12 Multi-Unit - 6 Axles  
#13 Multi-Unit - 7 Axles or More

## Daily Westbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 42

Location: 2B. Aurora Pkwy west of Gartrell Rd Westbound

Posted Speed: 35

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
01:00 - 01:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
02:00 - 02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 - 03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 - 04:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	0	0	0	2	2	1	0	0	0	0	0	0	0	0	5
06:00 - 06:59	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	3
07:00 - 07:59	0	0	0	2	5	12	5	1	1	0	0	0	0	0	0	26
08:00 - 08:59	0	0	0	2	15	6	11	5	2	0	0	0	0	0	0	41
09:00 - 09:59	0	1	0	3	7	11	12	6	2	0	0	0	0	0	0	42
10:00 - 10:59	0	0	1	6	4	17	19	8	0	0	0	0	0	0	0	55
11:00 - 11:59	0	0	0	2	7	9	25	16	3	0	0	0	0	0	0	62
12:00 - 12:59	0	0	1	1	8	11	18	10	0	1	0	0	0	0	0	50
13:00 - 13:59	0	0	0	2	8	4	31	18	3	0	0	0	0	0	0	66
14:00 - 14:59	0	0	0	1	5	7	29	18	4	2	0	0	0	0	0	66
15:00 - 15:59	0	0	0	1	3	11	23	21	4	1	0	0	0	0	0	64
16:00 - 16:59	0	0	0	0	5	16	15	17	5	4	0	0	0	0	0	62
17:00 - 17:59	0	0	0	0	9	17	15	19	4	0	0	0	0	0	0	64
18:00 - 18:59	0	0	0	2	3	17	12	10	6	0	0	0	0	0	0	50
19:00 - 19:59	0	0	0	0	2	8	15	4	2	1	0	0	0	0	0	32
20:00 - 20:59	0	0	0	0	1	9	8	4	0	0	0	0	0	0	0	22
21:00 - 21:59	0	0	0	0	1	3	5	2	1	0	0	0	0	0	0	12
22:00 - 22:59	0	0	0	1	0	2	1	0	0	0	0	0	0	0	0	4
23:00 - 23:59	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	4
<b>Totals</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>23</b>	<b>87</b>	<b>165</b>	<b>249</b>	<b>160</b>	<b>38</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>734</b>
<b>Percent of Total</b>	<b>0.0</b>	<b>0.1</b>	<b>0.3</b>	<b>3.1</b>	<b>11.9</b>	<b>22.5</b>	<b>33.9</b>	<b>21.8</b>	<b>5.2</b>	<b>1.2</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>
<b>Percent of AM</b>	<b>0.0</b>	<b>0.4</b>	<b>0.4</b>	<b>6.3</b>	<b>17.6</b>	<b>24.8</b>	<b>31.5</b>	<b>15.1</b>	<b>3.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>
<b>Percent of PM</b>	<b>0.0</b>	<b>0.0</b>	<b>0.2</b>	<b>1.6</b>	<b>9.1</b>	<b>21.4</b>	<b>35.1</b>	<b>25.0</b>	<b>5.8</b>	<b>1.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>

Standard Deviation:	6.4 MPH	Ten Mile Pace:	35 to 44 MPH	85th Percentile:	48.0 MPH
Mean Speed:	41.4 MPH	Percent in Ten Mile Pace:	56.4%	15th Percentile:	34.8 MPH
Median Speed:	41.8 MPH			90th Percentile:	49.2 MPH
Modal Speed:	42.5 MPH			95th Percentile:	51.3 MPH

## Daily Vehicle Volume Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Comments: Aurora, CO

	Southbound Volume	Northbound Volume	Total Volume
00:00 - 00:59	12	21	33
01:00 - 01:59	8	11	19
02:00 - 02:59	5	4	9
03:00 - 03:59	13	8	21
04:00 - 04:59	29	9	38
05:00 - 05:59	124	26	150
06:00 - 06:59	325	110	435
07:00 - 07:59	762	274	1036
08:00 - 08:59	633	343	976
09:00 - 09:59	451	298	749
10:00 - 10:59	445	376	821
11:00 - 11:59	430	419	849
12:00 - 12:59	373	453	826
13:00 - 13:59	401	451	852
14:00 - 14:59	441	478	919
15:00 - 15:59	499	579	1078
16:00 - 16:59	444	693	1137
17:00 - 17:59	457	679	1136
18:00 - 18:59	314	514	828
19:00 - 19:59	171	377	548
20:00 - 20:59	127	266	393
21:00 - 21:59	65	161	226
22:00 - 22:59	36	81	117
23:00 - 23:59	20	36	56
Totals	6585	6667	13252
AM Peak Time	07:11 - 08:10	10:48 - 11:47	07:15 - 08:14
AM Peak Volume	784	425	1121
PM Peak Time	15:23 - 16:22	16:01 - 17:00	15:25 - 16:24
PM Peak Volume	519	695	1188

## Daily Southbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	8	2	0	2	0	0	0	0	0	0	0	0	12
01:00 - 01:59	0	6	1	0	1	0	0	0	0	0	0	0	0	8
02:00 - 02:59	0	4	1	0	0	0	0	0	0	0	0	0	0	5
03:00 - 03:59	0	8	2	0	3	0	0	0	0	0	0	0	0	13
04:00 - 04:59	0	23	5	0	1	0	0	0	0	0	0	0	0	29
05:00 - 05:59	0	100	11	0	13	0	0	0	0	0	0	0	0	124
06:00 - 06:59	0	260	30	1	34	0	0	0	0	0	0	0	0	325
07:00 - 07:59	1	614	73	3	67	1	0	1	2	0	0	0	0	762
08:00 - 08:59	2	499	52	5	73	1	0	1	0	0	0	0	0	633
09:00 - 09:59	0	360	47	0	39	2	0	3	0	0	0	0	0	451
10:00 - 10:59	2	341	60	3	31	3	0	4	1	0	0	0	0	445
11:00 - 11:59	3	337	40	0	46	3	0	1	0	0	0	0	0	430
12:00 - 12:59	2	290	44	0	29	4	0	1	3	0	0	0	0	373
13:00 - 13:59	1	305	52	4	32	5	0	0	2	0	0	0	0	401
14:00 - 14:59	1	355	45	1	38	1	0	0	0	0	0	0	0	441
15:00 - 15:59	2	375	62	3	51	4	0	1	1	0	0	0	0	499
16:00 - 16:59	0	342	51	2	47	2	0	0	0	0	0	0	0	444
17:00 - 17:59	1	309	63	1	78	3	0	2	0	0	0	0	0	457
18:00 - 18:59	1	234	40	1	36	0	0	2	0	0	0	0	0	314
19:00 - 19:59	1	133	20	0	17	0	0	0	0	0	0	0	0	171
20:00 - 20:59	0	89	22	0	16	0	0	0	0	0	0	0	0	127
21:00 - 21:59	0	50	9	0	6	0	0	0	0	0	0	0	0	65
22:00 - 22:59	0	32	2	0	2	0	0	0	0	0	0	0	0	36
23:00 - 23:59	0	18	0	0	2	0	0	0	0	0	0	0	0	20
<b>Totals</b>	<b>17</b>	<b>5092</b>	<b>734</b>	<b>24</b>	<b>664</b>	<b>29</b>	<b>0</b>	<b>16</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6585</b>
<b>Percent of Total</b>	<b>0.3</b>	<b>77.3</b>	<b>11.1</b>	<b>0.4</b>	<b>10.1</b>	<b>0.4</b>	<b>0.0</b>	<b>0.2</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>
<b>Percent of AM</b>	<b>0.2</b>	<b>79.1</b>	<b>10.0</b>	<b>0.4</b>	<b>9.6</b>	<b>0.3</b>	<b>0.0</b>	<b>0.3</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>
<b>Percent of PM</b>	<b>0.3</b>	<b>75.6</b>	<b>12.2</b>	<b>0.4</b>	<b>10.6</b>	<b>0.6</b>	<b>0.0</b>	<b>0.2</b>	<b>0.2</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>

### Truck Summary:

Total Trucks: 742

% Trucks: 11.3

AM % Trucks: 10.7

PM % Trucks: 11.9

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles  
#2 Passenger Cars - 2 Axles  
#3 Pickup Trucks, Vans - 2 Axles  
#4 Buses  
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles  
#7 Single Unit - 4 Axles  
#8 Single Unit - 4 Axles or Less  
#9 Double Unit - 5 Axles  
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less  
#12 Multi-Unit - 6 Axles  
#13 Multi-Unit - 7 Axles or More

## Daily Northbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	18	3	0	0	0	0	0	0	0	0	0	0	21
01:00 - 01:59	0	6	5	0	0	0	0	0	0	0	0	0	0	11
02:00 - 02:59	0	3	1	0	0	0	0	0	0	0	0	0	0	4
03:00 - 03:59	0	7	0	0	1	0	0	0	0	0	0	0	0	8
04:00 - 04:59	0	9	0	0	0	0	0	0	0	0	0	0	0	9
05:00 - 05:59	0	14	3	0	9	0	0	0	0	0	0	0	0	26
06:00 - 06:59	0	73	17	0	18	1	0	0	1	0	0	0	0	110
07:00 - 07:59	1	210	27	1	29	4	0	2	0	0	0	0	0	274
08:00 - 08:59	0	244	46	5	46	2	0	0	0	0	0	0	0	343
09:00 - 09:59	0	208	38	1	44	4	0	2	1	0	0	0	0	298
10:00 - 10:59	0	280	44	0	49	1	0	2	0	0	0	0	0	376
11:00 - 11:59	0	322	41	0	53	2	0	1	0	0	0	0	0	419
12:00 - 12:59	0	344	44	2	60	1	0	1	1	0	0	0	0	453
13:00 - 13:59	1	335	45	1	58	9	0	2	0	0	0	0	0	451
14:00 - 14:59	1	379	47	1	44	1	0	3	2	0	0	0	0	478
15:00 - 15:59	1	464	56	2	55	1	0	0	0	0	0	0	0	579
16:00 - 16:59	5	566	57	2	62	0	0	1	0	0	0	0	0	693
17:00 - 17:59	0	542	64	0	71	1	0	1	0	0	0	0	0	679
18:00 - 18:59	0	396	59	0	59	0	0	0	0	0	0	0	0	514
19:00 - 19:59	0	296	36	0	45	0	0	0	0	0	0	0	0	377
20:00 - 20:59	0	210	28	0	28	0	0	0	0	0	0	0	0	266
21:00 - 21:59	0	139	9	0	13	0	0	0	0	0	0	0	0	161
22:00 - 22:59	0	68	6	0	7	0	0	0	0	0	0	0	0	81
23:00 - 23:59	0	32	4	0	0	0	0	0	0	0	0	0	0	36
Totals	9	5165	680	15	751	27	0	15	5	0	0	0	0	6667
Percent of Total	0.1	77.5	10.2	0.2	11.3	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	100
Percent of AM	0.1	73.4	11.8	0.4	13.1	0.7	0.0	0.4	0.1	0.0	0.0	0.0	0.0	100
Percent of PM	0.2	79.1	9.5	0.2	10.5	0.3	0.0	0.2	0.1	0.0	0.0	0.0	0.0	100

### Truck Summary:

Total Trucks: 813

% Trucks: 12.2

AM % Trucks: 14.7

PM % Trucks: 11.2

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles  
#2 Passenger Cars - 2 Axles  
#3 Pickup Trucks, Vans - 2 Axles  
#4 Buses  
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles  
#7 Single Unit - 4 Axles  
#8 Single Unit - 4 Axles or Less  
#9 Double Unit - 5 Axles  
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less  
#12 Multi-Unit - 6 Axles  
#13 Multi-Unit - 7 Axles or More

## Daily Total Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	26	5	0	2	0	0	0	0	0	0	0	0	33
01:00 - 01:59	0	12	6	0	1	0	0	0	0	0	0	0	0	19
02:00 - 02:59	0	7	2	0	0	0	0	0	0	0	0	0	0	9
03:00 - 03:59	0	15	2	0	4	0	0	0	0	0	0	0	0	21
04:00 - 04:59	0	32	5	0	1	0	0	0	0	0	0	0	0	38
05:00 - 05:59	0	114	14	0	22	0	0	0	0	0	0	0	0	150
06:00 - 06:59	0	333	47	1	52	1	0	0	1	0	0	0	0	435
07:00 - 07:59	2	824	100	4	96	5	0	3	2	0	0	0	0	1036
08:00 - 08:59	2	743	98	10	119	3	0	1	0	0	0	0	0	976
09:00 - 09:59	0	568	85	1	83	6	0	5	1	0	0	0	0	749
10:00 - 10:59	2	621	104	3	80	4	0	6	1	0	0	0	0	821
11:00 - 11:59	3	659	81	0	99	5	0	2	0	0	0	0	0	849
12:00 - 12:59	2	634	88	2	89	5	0	2	4	0	0	0	0	826
13:00 - 13:59	2	640	97	5	90	14	0	2	2	0	0	0	0	852
14:00 - 14:59	2	734	92	2	82	2	0	3	2	0	0	0	0	919
15:00 - 15:59	3	839	118	5	106	5	0	1	1	0	0	0	0	1078
16:00 - 16:59	5	908	108	4	109	2	0	1	0	0	0	0	0	1137
17:00 - 17:59	1	851	127	1	149	4	0	3	0	0	0	0	0	1136
18:00 - 18:59	1	630	99	1	95	0	0	2	0	0	0	0	0	828
19:00 - 19:59	1	429	56	0	62	0	0	0	0	0	0	0	0	548
20:00 - 20:59	0	299	50	0	44	0	0	0	0	0	0	0	0	393
21:00 - 21:59	0	189	18	0	19	0	0	0	0	0	0	0	0	226
22:00 - 22:59	0	100	8	0	9	0	0	0	0	0	0	0	0	117
23:00 - 23:59	0	50	4	0	2	0	0	0	0	0	0	0	0	56
Totals	26	10257	1414	39	1415	56	0	31	14	0	0	0	0	13252
Percent of Total	0.2	77.4	10.7	0.3	10.7	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	100
Percent of AM	0.2	77.0	10.7	0.4	10.9	0.5	0.0	0.3	0.1	0.0	0.0	0.0	0.0	100
Percent of PM	0.2	77.7	10.7	0.2	10.5	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	100

### Truck Summary:

Total Trucks: 1555

% Trucks: 11.7

AM % Trucks: 12.1

PM % Trucks: 11.5

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles  
#2 Passenger Cars - 2 Axles  
#3 Pickup Trucks, Vans - 2 Axles  
#4 Buses  
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles  
#7 Single Unit - 4 Axles  
#8 Single Unit - 4 Axles or Less  
#9 Double Unit - 5 Axles  
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less  
#12 Multi-Unit - 6 Axles  
#13 Multi-Unit - 7 Axles or More

## Daily Southbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Posted Speed: 40

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	0	2	5	2	2	0	0	0	1	0	0	12
01:00 - 01:59	0	0	0	1	1	1	3	1	1	0	0	0	0	0	0	8
02:00 - 02:59	0	0	0	0	0	2	2	1	0	0	0	0	0	0	0	5
03:00 - 03:59	0	0	0	0	1	1	5	5	1	0	0	0	0	0	0	13
04:00 - 04:59	0	0	0	0	0	3	18	6	2	0	0	0	0	0	0	29
05:00 - 05:59	0	0	0	1	3	18	64	36	2	0	0	0	0	0	0	124
06:00 - 06:59	0	0	1	2	8	61	173	73	6	1	0	0	0	0	0	325
07:00 - 07:59	0	0	0	0	30	252	410	70	0	0	0	0	0	0	0	762
08:00 - 08:59	0	0	0	2	32	234	301	63	0	1	0	0	0	0	0	633
09:00 - 09:59	0	0	0	3	37	187	191	33	0	0	0	0	0	0	0	451
10:00 - 10:59	0	1	3	14	47	204	151	24	1	0	0	0	0	0	0	445
11:00 - 11:59	0	0	0	0	26	177	195	29	2	1	0	0	0	0	0	430
12:00 - 12:59	0	0	1	1	28	164	159	18	2	0	0	0	0	0	0	373
13:00 - 13:59	1	0	0	4	38	115	204	35	2	0	2	0	0	0	0	401
14:00 - 14:59	0	0	0	2	21	155	214	42	6	1	0	0	0	0	0	441
15:00 - 15:59	1	0	0	11	44	170	209	60	4	0	0	0	0	0	0	499
16:00 - 16:59	2	1	4	1	18	98	230	83	5	0	0	0	0	1	1	444
17:00 - 17:59	0	1	5	12	18	107	195	103	12	0	0	3	0	0	1	457
18:00 - 18:59	0	0	0	4	7	37	162	89	13	1	0	1	0	0	0	314
19:00 - 19:59	0	0	0	0	8	28	94	37	4	0	0	0	0	0	0	171
20:00 - 20:59	0	0	0	0	5	28	60	27	7	0	0	0	0	0	0	127
21:00 - 21:59	0	0	0	0	2	11	34	13	5	0	0	0	0	0	0	65
22:00 - 22:59	0	0	0	0	3	5	12	10	5	1	0	0	0	0	0	36
23:00 - 23:59	0	0	0	0	1	3	9	4	3	0	0	0	0	0	0	20
<b>Totals</b>	<b>4</b>	<b>3</b>	<b>14</b>	<b>58</b>	<b>378</b>	<b>2063</b>	<b>3100</b>	<b>864</b>	<b>85</b>	<b>6</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>6585</b>
<b>Percent of Total</b>	<b>0.1</b>	<b>0.0</b>	<b>0.2</b>	<b>0.9</b>	<b>5.7</b>	<b>31.3</b>	<b>47.1</b>	<b>13.1</b>	<b>1.3</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>
<b>Percent of AM</b>	<b>0.0</b>	<b>0.0</b>	<b>0.1</b>	<b>0.7</b>	<b>5.7</b>	<b>35.3</b>	<b>46.9</b>	<b>10.6</b>	<b>0.5</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100</b>
<b>Percent of PM</b>	<b>0.1</b>	<b>0.1</b>	<b>0.3</b>	<b>1.0</b>	<b>5.8</b>	<b>27.5</b>	<b>47.3</b>	<b>15.6</b>	<b>2.0</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.1</b>	<b>100</b>

Standard Deviation: 4.8 MPH

Ten Mile Pace: 35 to 44 MPH

85th Percentile: 45.0 MPH

Mean Speed: 41.0 MPH

Percent in Ten Mile Pace: 78.4%

Median Speed: 41.2 MPH

15th Percentile: 36.3 MPH

Modal Speed: 42.5 MPH

90th Percentile: 46.8 MPH

95th Percentile: 48.7 MPH



## Daily Northbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Posted Speed: 40

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	1	3	6	9	2	0	0	0	0	0	0	21
01:00 - 01:59	0	0	0	0	0	1	3	2	3	1	1	0	0	0	0	11
02:00 - 02:59	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	4
03:00 - 03:59	0	0	0	0	0	1	2	3	2	0	0	0	0	0	0	8
04:00 - 04:59	0	0	0	0	0	3	0	5	1	0	0	0	0	0	0	9
05:00 - 05:59	0	0	0	0	0	1	8	10	7	0	0	0	0	0	0	26
06:00 - 06:59	0	0	3	1	1	4	36	41	20	2	2	0	0	0	0	110
07:00 - 07:59	0	0	0	3	3	20	82	111	47	4	3	1	0	0	0	274
08:00 - 08:59	0	0	0	0	5	49	148	122	14	1	2	1	0	0	1	343
09:00 - 09:59	0	0	0	2	7	52	135	88	14	0	0	0	0	0	0	298
10:00 - 10:59	0	0	0	0	7	69	167	107	24	1	0	1	0	0	0	376
11:00 - 11:59	0	0	0	0	5	55	151	159	39	9	0	0	0	1	0	419
12:00 - 12:59	0	0	0	0	6	59	200	149	33	3	1	0	0	1	1	453
13:00 - 13:59	0	0	0	3	18	66	180	157	23	3	0	0	0	0	0	450
14:00 - 14:59	0	0	0	0	8	66	206	164	29	1	1	1	0	2	0	478
15:00 - 15:59	0	0	0	0	5	60	266	195	46	5	1	0	0	0	1	579
16:00 - 16:59	0	0	0	2	13	110	318	202	39	6	2	1	0	0	0	693
17:00 - 17:59	0	0	0	0	7	71	298	256	44	3	0	0	0	0	0	679
18:00 - 18:59	0	0	0	0	1	38	175	234	56	8	0	2	0	0	0	514
19:00 - 19:59	0	0	0	0	6	34	164	140	31	0	1	0	0	0	1	377
20:00 - 20:59	0	0	0	0	2	42	106	97	17	2	0	0	0	0	0	266
21:00 - 21:59	0	0	0	0	1	20	70	56	11	3	0	0	0	0	0	161
22:00 - 22:59	0	0	0	0	0	5	27	34	12	1	2	0	0	0	0	81
23:00 - 23:59	0	0	0	0	1	2	13	15	5	0	0	0	0	0	0	36
Totals	0	0	3	11	97	831	2763	2358	519	53	16	7	0	4	4	6666
Percent of Total	0.0	0.0	0.0	0.2	1.5	12.5	41.4	35.4	7.8	0.8	0.2	0.1	0.0	0.1	0.1	100
Percent of AM	0.0	0.0	0.2	0.3	1.5	13.6	39.0	34.7	9.1	0.9	0.4	0.2	0.0	0.1	0.1	100
Percent of PM	0.0	0.0	0.0	0.1	1.4	12.0	42.4	35.6	7.3	0.7	0.2	0.1	0.0	0.1	0.1	100

Standard Deviation:	5.0 MPH	Ten Mile Pace:	40 to 49 MPH	85th Percentile:	49.2 MPH
Mean Speed:	44.5 MPH	Percent in Ten Mile Pace:	76.8%	15th Percentile:	40.1 MPH
Median Speed:	44.3 MPH			90th Percentile:	49.9 MPH
Modal Speed:	42.5 MPH			95th Percentile:	52.6 MPH

## Daily Total Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Posted Speed: 40

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	1	5	11	11	4	0	0	0	1	0	0	33
01:00 - 01:59	0	0	0	1	1	2	6	3	4	1	1	0	0	0	0	19
02:00 - 02:59	0	0	0	0	0	2	4	3	0	0	0	0	0	0	0	9
03:00 - 03:59	0	0	0	0	1	2	7	8	3	0	0	0	0	0	0	21
04:00 - 04:59	0	0	0	0	0	6	18	11	3	0	0	0	0	0	0	38
05:00 - 05:59	0	0	0	1	3	19	72	46	9	0	0	0	0	0	0	150
06:00 - 06:59	0	0	4	3	9	65	209	114	26	3	2	0	0	0	0	435
07:00 - 07:59	0	0	0	3	33	272	492	181	47	4	3	1	0	0	0	1036
08:00 - 08:59	0	0	0	2	37	283	449	185	14	2	2	1	0	0	1	976
09:00 - 09:59	0	0	0	5	44	239	326	121	14	0	0	0	0	0	0	749
10:00 - 10:59	0	1	3	14	54	273	318	131	25	1	0	1	0	0	0	821
11:00 - 11:59	0	0	0	0	31	232	346	188	41	10	0	0	0	1	0	849
12:00 - 12:59	0	0	1	1	34	223	359	167	35	3	1	0	0	1	1	826
13:00 - 13:59	1	0	0	7	56	181	384	192	25	3	2	0	0	0	0	851
14:00 - 14:59	0	0	0	2	29	221	420	206	35	2	1	1	0	2	0	919
15:00 - 15:59	1	0	0	11	49	230	475	255	50	5	1	0	0	0	1	1078
16:00 - 16:59	2	1	4	3	31	208	548	285	44	6	2	1	0	1	1	1137
17:00 - 17:59	0	1	5	12	25	178	493	359	56	3	0	3	0	0	1	1136
18:00 - 18:59	0	0	0	4	8	75	337	323	69	9	0	3	0	0	0	828
19:00 - 19:59	0	0	0	0	14	62	258	177	35	0	1	0	0	0	1	548
20:00 - 20:59	0	0	0	0	7	70	166	124	24	2	0	0	0	0	0	393
21:00 - 21:59	0	0	0	0	3	31	104	69	16	3	0	0	0	0	0	226
22:00 - 22:59	0	0	0	0	3	10	39	44	17	2	2	0	0	0	0	117
23:00 - 23:59	0	0	0	0	2	5	22	19	8	0	0	0	0	0	0	56
Totals	4	3	17	69	475	2894	5863	3222	604	59	18	11	1	5	6	13251
Percent of Total	0.0	0.0	0.1	0.5	3.6	21.8	44.2	24.3	4.6	0.4	0.1	0.1	0.0	0.0	0.0	100
Percent of AM	0.0	0.0	0.1	0.6	4.2	27.3	44.0	19.5	3.7	0.4	0.2	0.1	0.0	0.0	0.0	100
Percent of PM	0.0	0.0	0.1	0.5	3.2	18.4	44.4	27.4	5.1	0.5	0.1	0.1	0.0	0.0	0.1	100

Standard Deviation:	5.2 MPH	Ten Mile Pace:	40 to 49 MPH	85th Percentile:	48.0 MPH
Mean Speed:	42.8 MPH	Percent in Ten Mile Pace:	68.6%	15th Percentile:	37.5 MPH
Median Speed:	42.7 MPH			90th Percentile:	49.0 MPH
Modal Speed:	42.5 MPH			95th Percentile:	50.3 MPH



Aurora, CO  
Vista at King's Point  
AM Peak  
Aurora Pkwy and Gartrell Rd

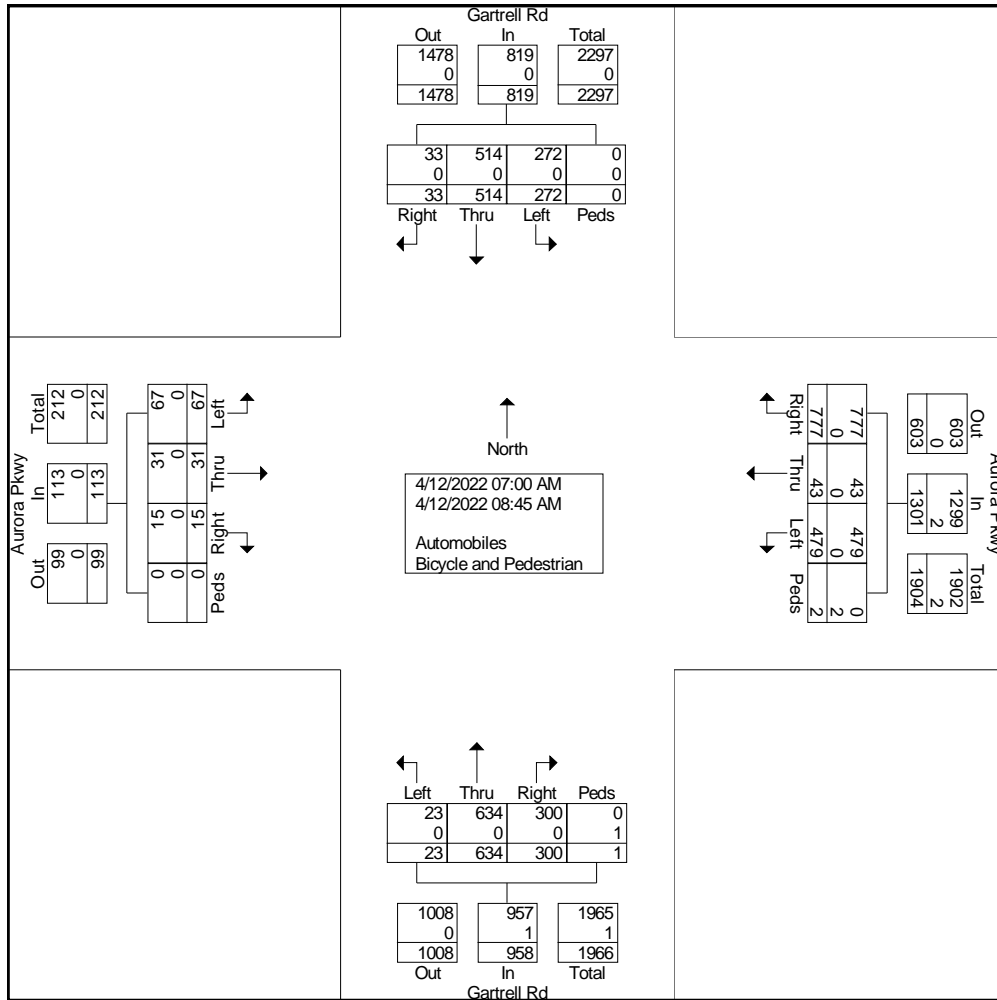
File Name : Aurora Pkwy and Gartrell AM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

	Aurora Pkwy Eastbound					Aurora Pkwy Westbound					Gartrell Rd Northbound					Gartrell Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	5	0	2	0	7	51	2	85	0	138	0	80	28	0	108	20	51	3	0	74	327
07:15 AM	5	2	1	0	8	42	5	116	0	163	0	106	40	0	146	32	66	2	0	100	417
07:30 AM	12	4	0	0	16	65	4	132	1	202	2	81	33	0	116	34	74	5	0	113	447
07:45 AM	9	2	2	0	13	77	5	122	1	205	3	82	55	1	141	27	62	6	0	95	454
Total	31	8	5	0	44	235	16	455	2	708	5	349	156	1	511	113	253	16	0	382	1645
08:00 AM	9	5	2	0	16	76	4	110	0	190	3	75	44	0	122	41	54	3	0	98	426
08:15 AM	12	4	1	0	17	53	9	64	0	126	9	72	30	0	111	34	74	3	0	111	365
08:30 AM	7	6	3	0	16	66	7	76	0	149	4	82	30	0	116	56	62	4	0	122	403
08:45 AM	8	8	4	0	20	49	7	72	0	128	2	56	40	0	98	28	71	7	0	106	352
Total	36	23	10	0	69	244	27	322	0	593	18	285	144	0	447	159	261	17	0	437	1546
Grand Total	67	31	15	0	113	479	43	777	2	1301	23	634	300	1	958	272	514	33	0	819	3191
Apprch %	59.3	27.4	13.3	0		36.8	3.3	59.7	0.2		2.4	66.2	31.3	0.1		33.2	62.8	4	0		
Total %	2.1	1	0.5	0	3.5	15	1.3	24.3	0.1	40.8	0.7	19.9	9.4	0	30	8.5	16.1	1	0	25.7	
Automobiles	67	31	15	0	113	479	43	777	0	1299	23	634	300	0	957	272	514	33	0	819	3188
% Automobiles	100	100	100	0	100	100	100	100	0	99.8	100	100	100	0	99.9	100	100	100	0	100	99.9
Bicycle and Pedestrian	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	0	0	3
% Bicycle and Pedestrian	0	0	0	0	0	0	0	0	100	0.2	0	0	0	100	0.1	0	0	0	0	0	0.1

Aurora, CO  
Vista at King's Point  
AM Peak  
Aurora Pkwy and Gartrell Rd

File Name : Aurora Pkwy and Gartrell AM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 2

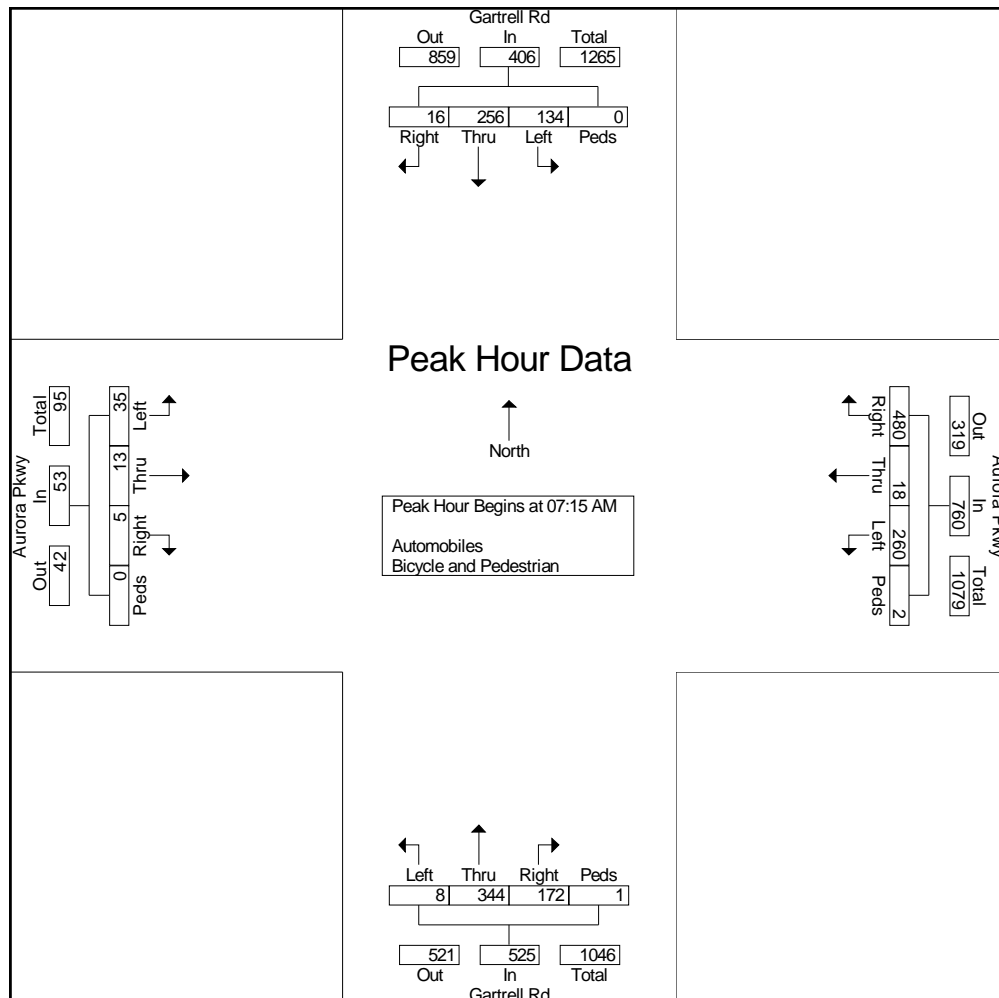




Aurora, CO  
Vista at King's Point  
AM Peak  
Aurora Pkwy and Gartrell Rd

File Name : Aurora Pkwy and Gartrell AM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 3

	Aurora Pkwy Eastbound					Aurora Pkwy Westbound					Gartrell Rd Northbound					Gartrell Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	2	1	0	8	42	5	116	0	163	0	106	40	0	146	32	66	2	0	100	417
07:30 AM	12	4	0	0	16	65	4	132	1	202	2	81	33	0	116	34	74	5	0	113	447
07:45 AM	9	2	2	0	13	77	5	122	1	205	3	82	55	1	141	27	62	6	0	95	454
08:00 AM	9	5	2	0	16	76	4	110	0	190	3	75	44	0	122	41	54	3	0	98	426
Total Volume	35	13	5	0	53	260	18	480	2	760	8	344	172	1	525	134	256	16	0	406	1744
% App. Total	66	24.5	9.4	0		34.2	2.4	63.2	0.3		1.5	65.5	32.8	0.2		33	63.1	3.9	0		
PHF	.729	.650	.625	.000	.828	.844	.900	.909	.500	.927	.667	.811	.782	.250	.899	.817	.865	.667	.000	.898	.960



Ridgeview Data  
Collection

Aurora, CO  
Vista at King's Point  
PM Peak  
Aurora Pkwy and Gartrell Rd

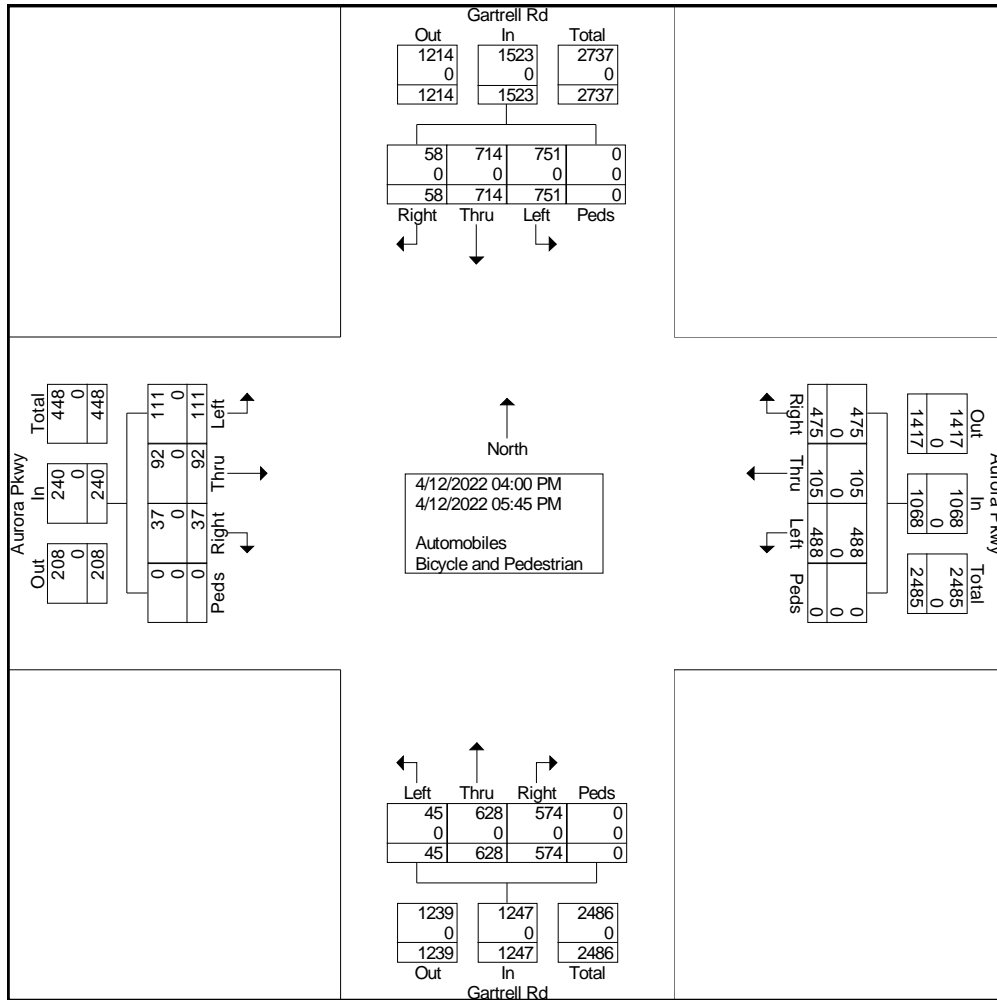
File Name : Aurora Pkwy and Gartrell PM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

	Aurora Pkwy Eastbound					Aurora Pkwy Westbound					Gartrell Rd Northbound					Gartrell Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	14	12	3	0	29	66	8	75	0	149	1	71	68	0	140	75	86	7	0	168	486
04:15 PM	8	10	4	0	22	52	10	56	0	118	4	70	59	0	133	91	96	12	0	199	472
04:30 PM	14	5	3	0	22	66	12	52	0	130	3	89	74	0	166	95	97	4	0	196	514
04:45 PM	13	13	6	0	32	61	12	71	0	144	6	74	73	0	153	86	81	8	0	175	504
Total	49	40	16	0	105	245	42	254	0	541	14	304	274	0	592	347	360	31	0	738	1976
05:00 PM	7	14	6	0	27	54	16	65	0	135	10	89	58	0	157	105	88	7	0	200	519
05:15 PM	20	13	3	0	36	48	14	53	0	115	14	94	67	0	175	112	89	7	0	208	534
05:30 PM	20	9	7	0	36	73	13	58	0	144	6	75	82	0	163	95	104	4	0	203	546
05:45 PM	15	16	5	0	36	68	20	45	0	133	1	66	93	0	160	92	73	9	0	174	503
Total	62	52	21	0	135	243	63	221	0	527	31	324	300	0	655	404	354	27	0	785	2102
Grand Total	111	92	37	0	240	488	105	475	0	1068	45	628	574	0	1247	751	714	58	0	1523	4078
Apprch %	46.2	38.3	15.4	0		45.7	9.8	44.5	0		3.6	50.4	46	0		49.3	46.9	3.8	0		
Total %	2.7	2.3	0.9	0	5.9	12	2.6	11.6	0	26.2	1.1	15.4	14.1	0	30.6	18.4	17.5	1.4	0	37.3	
Automobiles	111	92	37	0	240	488	105	475	0	1068	45	628	574	0	1247	751	714	58	0	1523	4078
% Automobiles	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100
Bicycle and Pedestrian	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycle and Pedestrian	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Aurora, CO  
Vista at King's Point  
PM Peak  
Aurora Pkwy and Gartrell Rd

File Name : Aurora Pkwy and Gartrell PM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 2

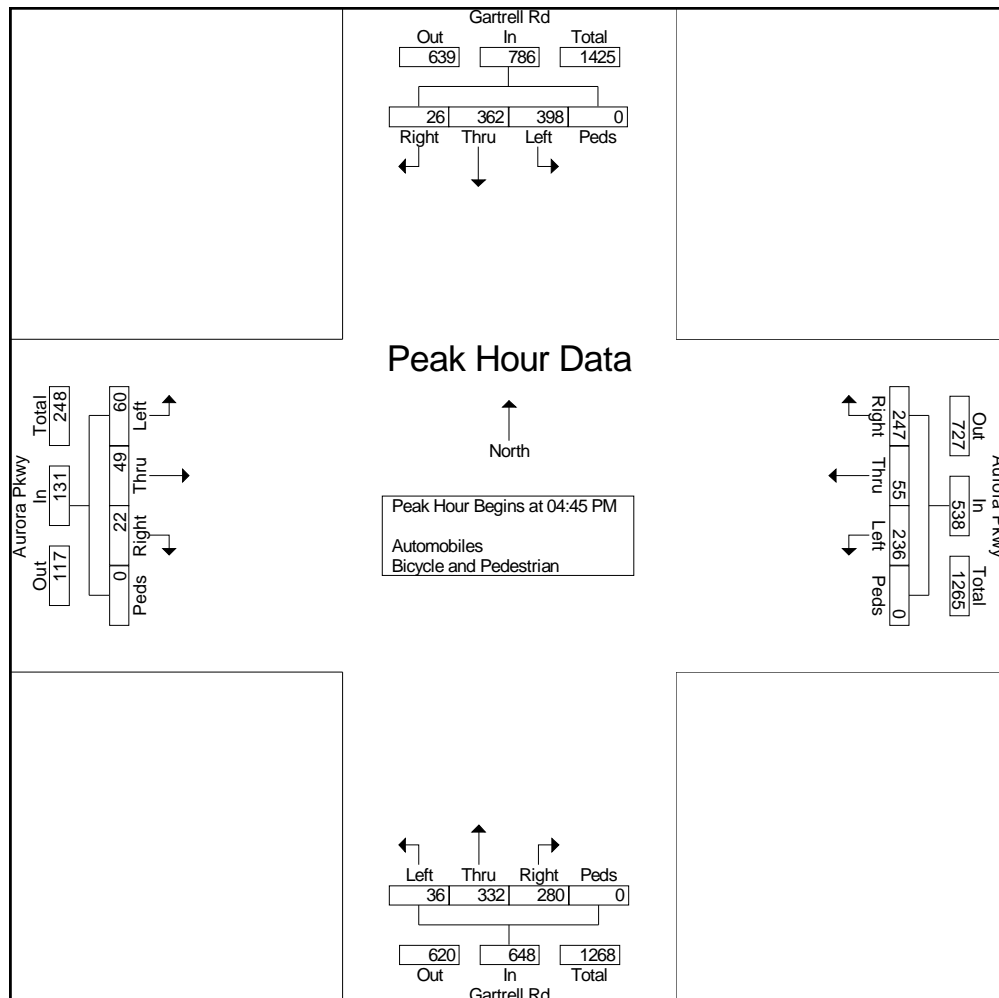




Aurora, CO  
Vista at King's Point  
PM Peak  
Aurora Pkwy and Gartrell Rd

File Name : Aurora Pkwy and Gartrell PM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 3

	Aurora Pkwy Eastbound					Aurora Pkwy Westbound					Gartrell Rd Northbound					Gartrell Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	13	6	0	32	61	12	71	0	144	6	74	73	0	153	86	81	8	0	175	504
05:00 PM	7	14	6	0	27	54	16	65	0	135	10	89	58	0	157	105	88	7	0	200	519
05:15 PM	20	13	3	0	36	48	14	53	0	115	14	94	67	0	175	112	89	7	0	208	534
05:30 PM	20	9	7	0	36	73	13	58	0	144	6	75	82	0	163	95	104	4	0	203	546
Total Volume	60	49	22	0	131	236	55	247	0	538	36	332	280	0	648	398	362	26	0	786	2103
% App. Total	45.8	37.4	16.8	0		43.9	10.2	45.9	0		5.6	51.2	43.2	0		50.6	46.1	3.3	0		
PHF	.750	.875	.786	.000	.910	.808	.859	.870	.000	.934	.643	.883	.854	.000	.926	.888	.870	.813	.000	.945	.963







Aurora, CO  
Vista at King's Point  
AM Peak  
Parker Rd and Long Ave

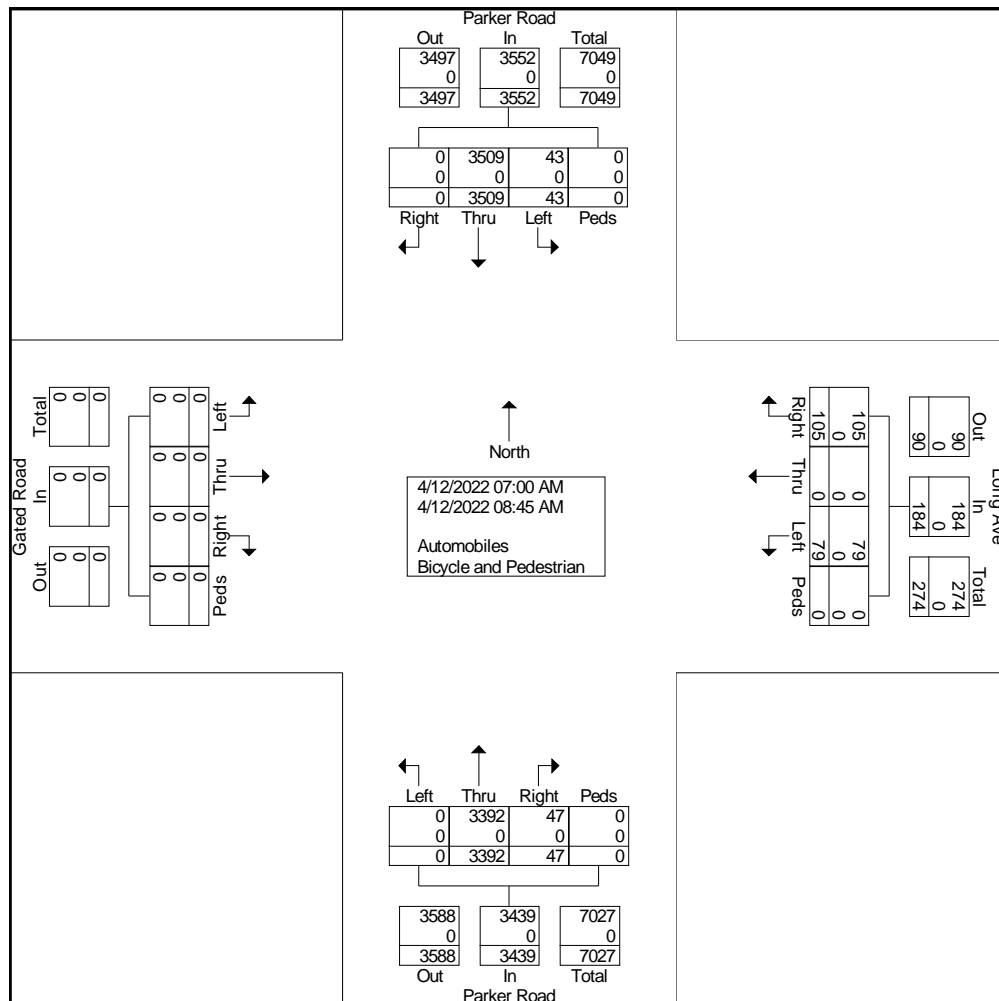
File Name : Parker and Long AM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

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Aurora, CO  
Vista at King's Point  
AM Peak  
Parker Rd and Long Ave

File Name : Parker and Long AM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 2

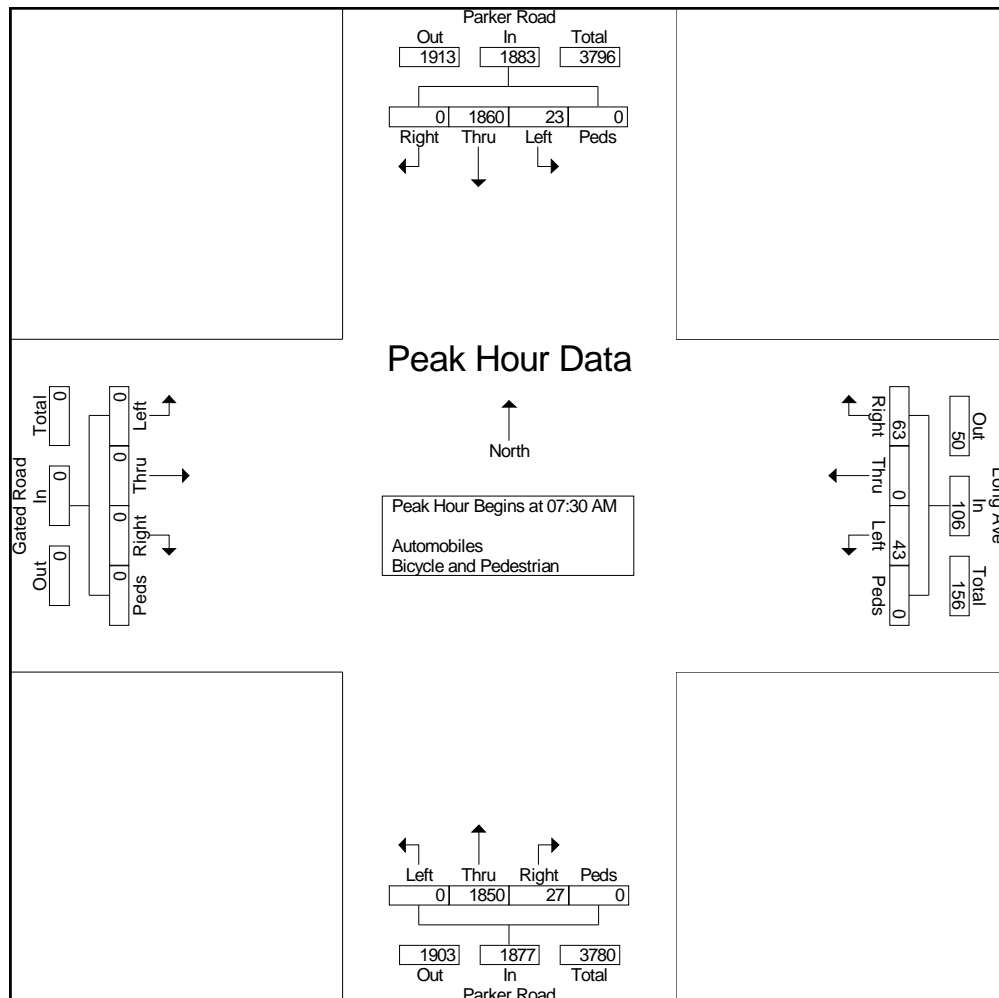




Aurora, CO  
Vista at King's Point  
AM Peak  
Parker Rd and Long Ave

File Name : Parker and Long AM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 3

	Gated Road Eastbound						Long Ave Westbound					Parker Road Northbound						Parker Road Southbound						
Start Time	Left	Thru	Right	Peds	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total		
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 07:30 AM																								
07:30 AM	0	0	0	0	0	0	7	0	13	0	20	0	437	9	0	446	6	487	0	0	493	959		
07:45 AM	0	0	0	0	0	0	15	0	16	0	31	0	473	6	0	479	1	480	0	0	481	991		
08:00 AM	0	0	0	0	0	0	9	0	21	0	30	0	534	7	0	541	5	422	0	0	427	998		
08:15 AM	0	0	0	0	0	0	12	0	13	0	25	0	406	5	0	411	11	471	0	0	482	918		
Total Volume	0	0	0	0	0	0	43	0	63	0	106	0	1850	27	0	1877	23	1860	0	0	1883	3866		
% App. Total	0	0	0	0	0		40.6	0	59.4	0		0	98.6	1.4	0		1.2	98.8	0	0				
PHF	.000	.000	.000	.000	.000	.000	.717	.000	.750	.000	.855	.000	.866	.750	.000	.867	.523	.955	.000	.000	.955	.968		





Aurora, CO  
Vista at King's Point  
PM Peak  
Parker Rd and Long Ave

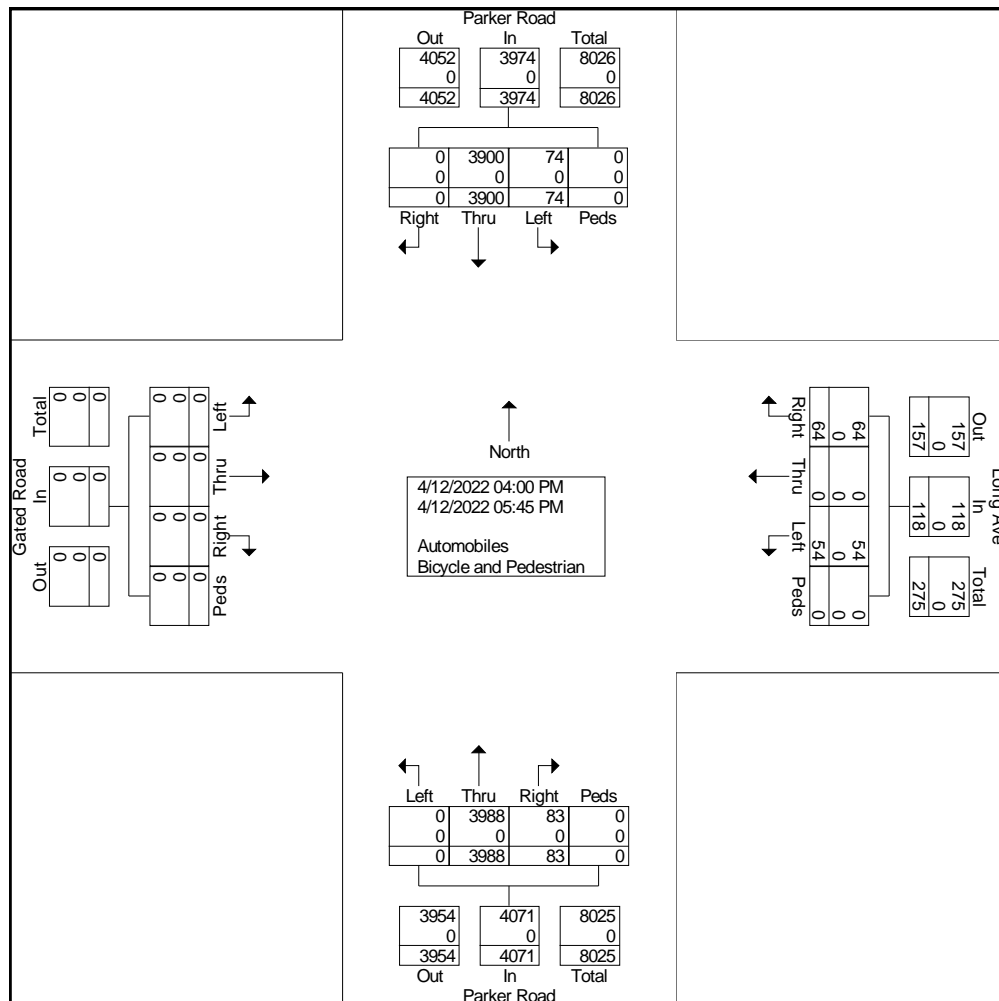
File Name : Parker and Long PM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

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Aurora, CO  
Vista at King's Point  
PM Peak  
Parker Rd and Long Ave

File Name : Parker and Long PM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 2

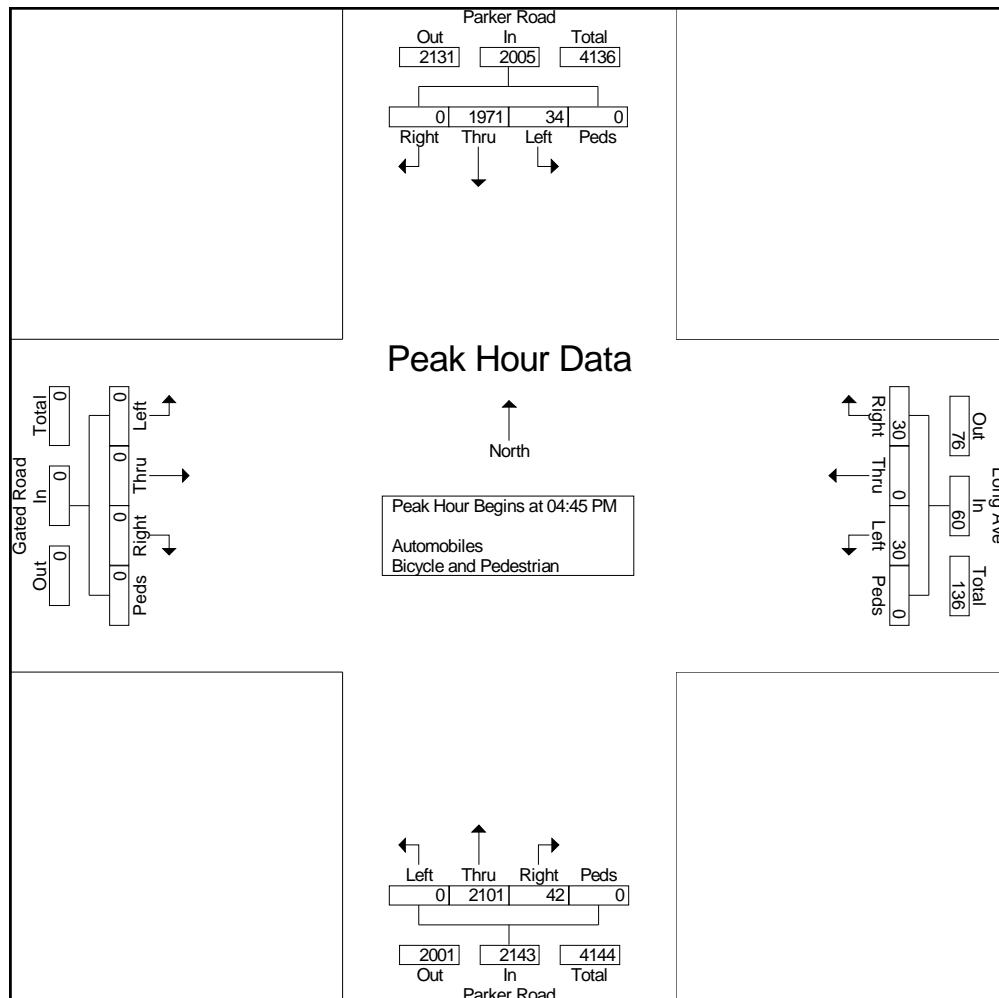




Aurora, CO  
Vista at King's Point  
PM Peak  
Parker Rd and Long Ave

File Name : Parker and Long PM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 3

	Gated Road Eastbound						Long Ave Westbound					Parker Road Northbound					Parker Road Southbound					
Start Time	Left	Thru	Right	Peds	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	0	0	0	0	0	0	6	0	7	0	13	0	480	8	0	488	10	511	0	0	521	1022
05:00 PM	0	0	0	0	0	0	11	0	6	0	17	0	533	10	0	543	6	483	0	0	489	1049
05:15 PM	0	0	0	0	0	0	6	0	12	0	18	0	547	10	0	557	7	487	0	0	494	1069
05:30 PM	0	0	0	0	0	0	7	0	5	0	12	0	541	14	0	555	11	490	0	0	501	1068
Total Volume	0	0	0	0	0	0	30	0	30	0	60	0	2101	42	0	2143	34	1971	0	0	2005	4208
% App. Total	0	0	0	0	0	0	50	0	50	0	0	0	98	2	0	0	1.7	98.3	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.682	.000	.625	.000	.833	.000	.960	.750	.000	.962	.773	.964	.000	.000	.962	.984





Aurora, CO  
Vista at King's Point  
AM Peak  
Pine Drive and Inspiration Drive

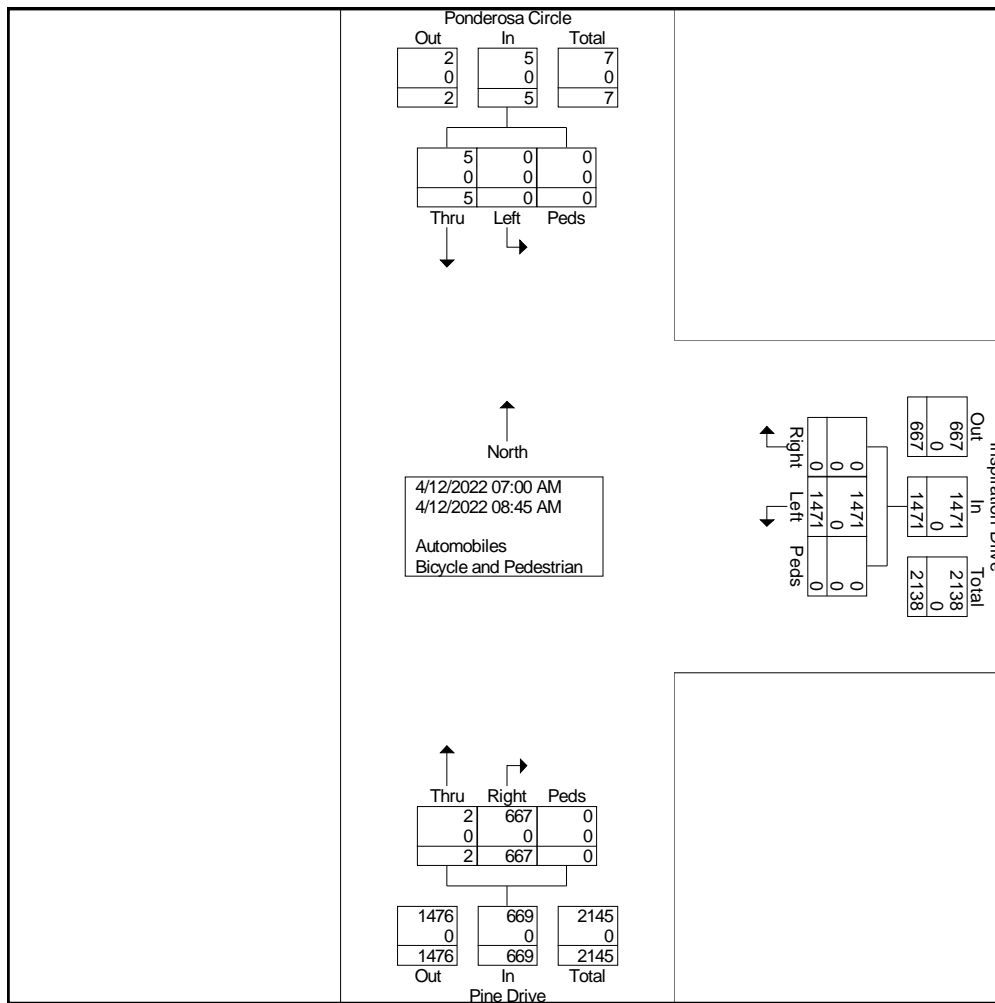
File Name : Pine and Inspiration AM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

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Aurora, CO  
Vista at King's Point  
AM Peak  
Pine Drive and Inspiration Drive

File Name : Pine and Inspiration AM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 2



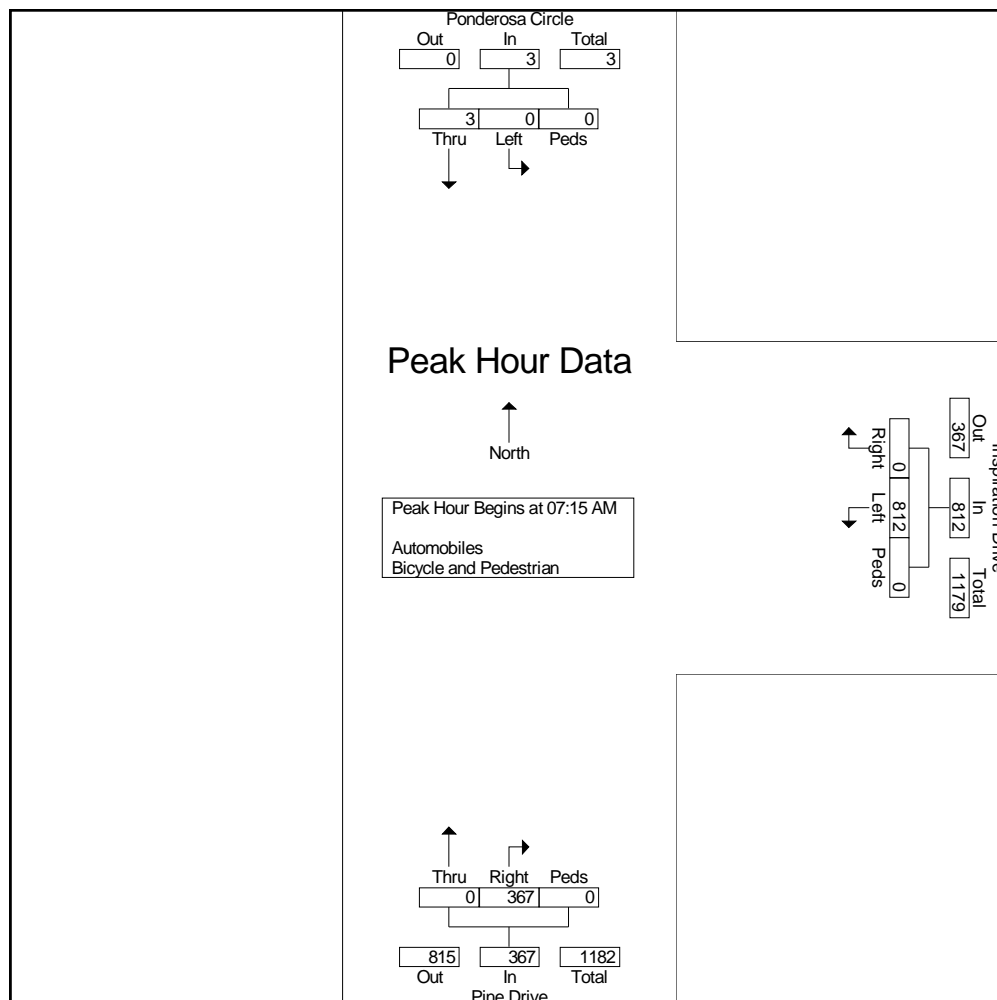




Aurora, CO  
Vista at King's Point  
AM Peak  
Pine Drive and Inspiration Drive

File Name : Pine and Inspiration AM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 3

	Inspiration Drive Westbound				Pine Drive Northbound				Ponderosa Circle Southbound				
Start Time	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	192	0	0	192	0	66	0	66	0	0	0	0	258
07:30 AM	<b>228</b>	0	0	<b>228</b>	0	79	0	79	0	0	0	0	307
07:45 AM	226	0	0	226	0	100	0	100	0	<b>2</b>	0	<b>2</b>	<b>328</b>
08:00 AM	166	0	0	166	0	<b>122</b>	0	<b>122</b>	0	1	0	1	289
Total Volume	812	0	0	812	0	367	0	367	0	3	0	3	1182
% App. Total	100	0	0		0	100	0		0	100	0		
PHF	.890	.000	.000	.890	.000	.752	.000	.752	.000	.375	.000	.375	.901





Aurora, CO  
Vista at King's Point  
PM Peak  
Pine Drive and Inspiration Drive

File Name : Pine and Inspiration PM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 1

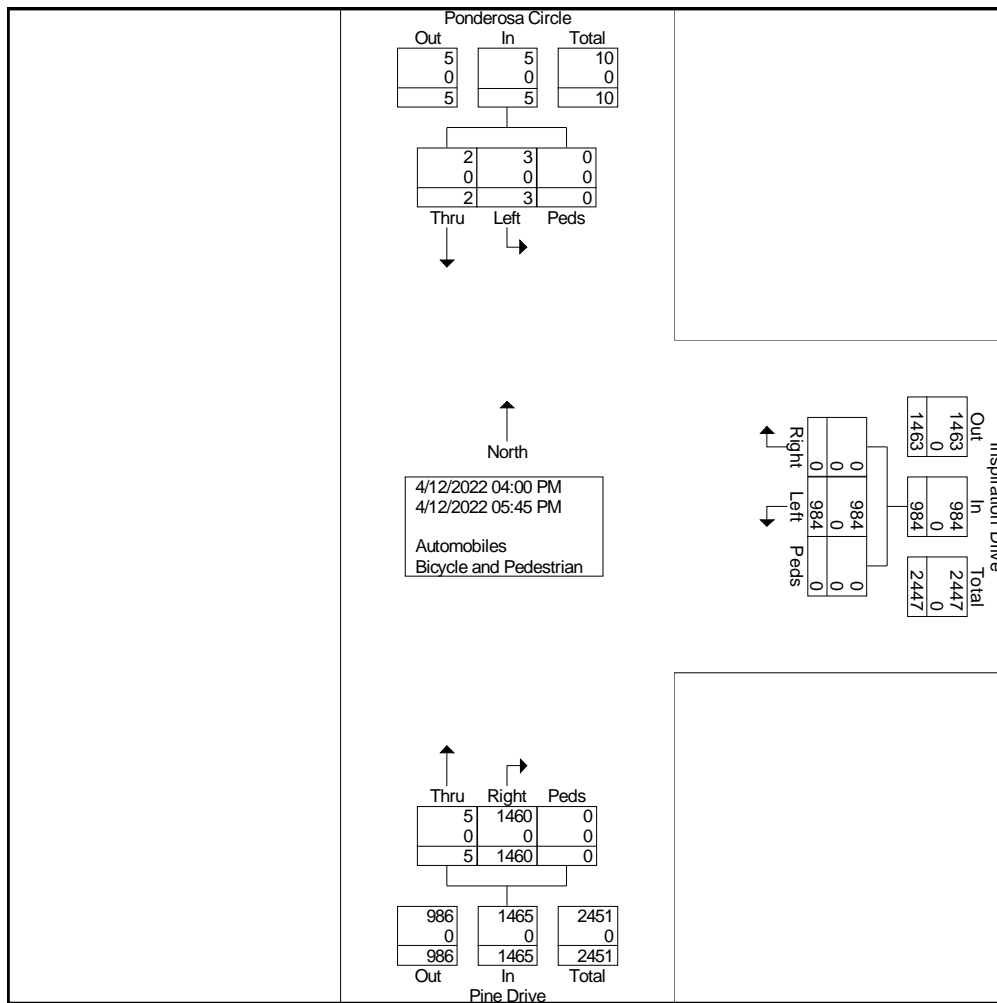
Groups Printed- Automobiles - Bicycle and Pedestrian

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Aurora, CO  
Vista at King's Point  
PM Peak  
Pine Drive and Inspiration Drive

File Name : Pine and Inspiration PM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 2

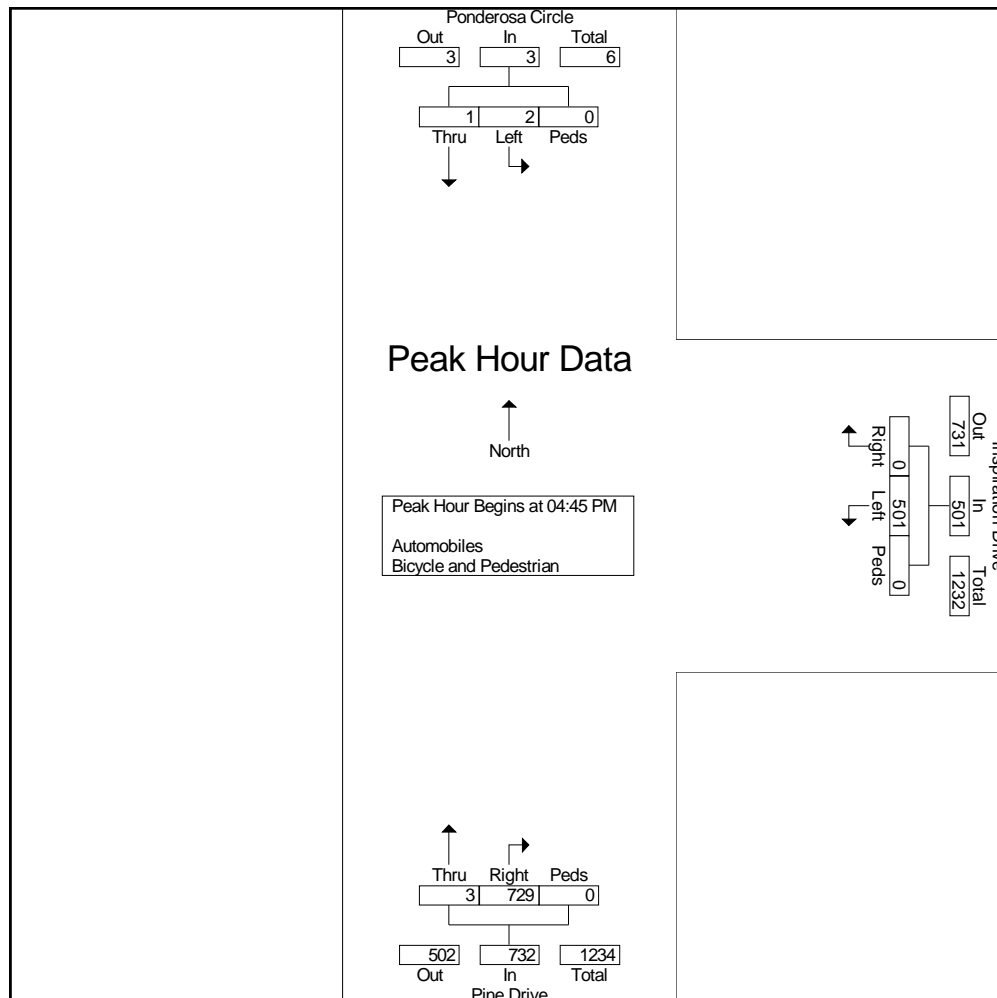




























Aurora, CO  
Vista at King's Point  
PM Peak  
Pine Drive and Inspiration Drive

File Name : Pine and Inspiration PM  
Site Code : 22018  
Start Date : 4/12/2022  
Page No : 3

	Inspiration Drive Westbound				Pine Drive Northbound				Ponderosa Circle Southbound				
Start Time	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	129	0	0	129	0	187	0	187	1	0	0	1	317
05:00 PM	118	0	0	118	1	177	0	178	0	0	0	0	296
05:15 PM	124	0	0	124	0	<b>202</b>	0	<b>202</b>	0	1	0	1	<b>327</b>
05:30 PM	<b>130</b>	0	0	<b>130</b>	2	163	0	165	1	0	0	1	296
Total Volume	501	0	0	501	3	729	0	732	2	1	0	3	1236
% App. Total	100	0	0		0.4	99.6	0		66.7	33.3	0		
PHF	.963	.000	.000	.963	.375	.902	.000	.906	.500	.250	.000	.750	.945



***Intersection Capacity Worksheets:***  
***2022 Existing***

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	13	5	260	18	480	8	344	172	134	256	16
Future Volume (vph)	35	13	5	260	18	480	8	344	172	134	256	16
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	9.7	11.7	11.7	18.3	13.1	13.1	19.9	14.5	14.5	25.3	21.9	21.9
Actuated g/C Ratio	0.19	0.22	0.22	0.35	0.25	0.25	0.38	0.28	0.28	0.48	0.42	0.42
v/c Ratio	0.13	0.02	0.01	0.52	0.02	0.66	0.02	0.39	0.33	0.29	0.19	0.02
Control Delay	15.4	22.9	0.0	18.2	19.8	7.3	10.0	19.2	5.8	10.6	12.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	22.9	0.0	18.2	19.8	7.3	10.0	19.2	5.8	10.6	12.0	0.1
LOS	B	C	A	B	B	A	A	B	A	B	B	A
Approach Delay		15.9			11.4			14.7			11.0	
Approach LOS		B			B			B			B	

#### Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 52.4

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 12.4









Intersection LOS: B













Intersection Capacity Utilization 56.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
15 s	35 s	15 s	25 s
			
15 s	35 s	15 s	25 s

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	42	16	6	280	19	516	9	382	191	149	284	18
v/c Ratio	0.13	0.02	0.01	0.52	0.02	0.66	0.02	0.39	0.33	0.29	0.19	0.02
Control Delay	15.4	22.9	0.0	18.2	19.8	7.3	10.0	19.2	5.8	10.6	12.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	22.9	0.0	18.2	19.8	7.3	10.0	19.2	5.8	10.6	12.0	0.1
Queue Length 50th (ft)	11	1	0	66	2	0	1	41	0	16	17	0
Queue Length 95th (ft)	27	10	0	148	11	77	9	117	46	71	78	0
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	558	1411	703	537	1411	933	666	2153	1038	607	2153	1015
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.01	0.01	0.52	0.01	0.55	0.01	0.18	0.18	0.25	0.13	0.02
Intersection Summary												

# HCM 6th Signalized Intersection Summary

09/02/2022

## 1: Gartrell Rd & Aurora Pkwy

Existing - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	13	5	260	18	480	8	344	172	134	256	16
Future Volume (veh/h)	35	13	5	260	18	480	8	344	172	134	256	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	16	6	280	19	0	9	382	191	149	284	18
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	370	482	215	603	957		412	874	390	417	1153	514
Arrive On Green	0.03	0.14	0.14	0.16	0.27	0.00	0.01	0.25	0.25	0.09	0.32	0.32
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	42	16	6	280	19	0	9	382	191	149	284	18
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.1	0.2	0.2	6.7	0.2	0.0	0.2	4.9	5.5	3.1	3.2	0.4
Cycle Q Clear(g_c), s	1.1	0.2	0.2	6.7	0.2	0.0	0.2	4.9	5.5	3.1	3.2	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	482	215	603	957		412	874	390	417	1153	514
V/C Ratio(X)	0.11	0.03	0.03	0.46	0.02		0.02	0.44	0.49	0.36	0.25	0.03
Avail Cap(c_a), veh/h	688	1257	560	682	1257		764	1919	856	629	1919	856
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	20.2	20.1	14.2	14.4	0.0	15.1	17.1	17.4	12.2	13.3	12.4
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.7	2.0	0.2	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	0.4	0.1	0.1	2.3	0.1	0.0	0.1	1.8	2.0	1.0	1.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	20.2	20.2	14.4	14.4	0.0	15.1	17.8	19.4	12.4	13.6	12.4
LnGrp LOS	B	C	C	B	B		B	B	B	B	B	B
Approach Vol, veh/h	64				299				582			
Approach Delay, s/veh	19.6				14.4				18.3			
Approach LOS	B				B				B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	19.2	12.6	13.3	4.4	23.4	5.4	20.5				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.1	7.5	8.7	2.2	2.2	5.2	3.1	2.2				
Green Ext Time (p_c), s	0.1	5.7	0.1	0.0	0.0	3.2	0.0	0.0				

### Intersection Summary

HCM 6th Ctrl Delay 15.9

HCM 6th LOS B

### Notes




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

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



Intersection

























Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	812	0	0	367	0	3
Future Vol, veh/h	812	0	0	367	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	912	0	0	489	0	8

Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 245 489
Stage 1	-	- 0 0
Stage 2	-	- 245 489
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 743 480
Stage 1	-	- - -
Stage 2	-	- 796 549
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 743 0
Mov Cap-2 Maneuver	-	- 743 0
Stage 1	-	- - 0
Stage 2	-	- 796 0

Approach	NB	SB
HCM Control Delay, s	0	
HCM LOS		-

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	49	22	236	55	247	36	332	290	398	362	26
Future Volume (vph)	60	49	22	236	55	247	36	332	290	398	362	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	12.1	10.5	10.5	20.2	12.8	12.8	21.9	14.9	14.9	31.6	26.3	26.3
Actuated g/C Ratio	0.20	0.17	0.17	0.33	0.21	0.21	0.36	0.25	0.25	0.52	0.44	0.44
v/c Ratio	0.21	0.09	0.06	0.57	0.08	0.49	0.09	0.41	0.50	0.70	0.24	0.04
Control Delay	16.5	25.7	0.3	21.2	22.4	7.4	10.1	21.9	6.1	18.5	14.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	25.7	0.3	21.2	22.4	7.4	10.1	21.9	6.1	18.5	14.0	0.1
LOS	B	C	A	C	C	A	B	C	A	B	B	A
Approach Delay		17.3			15.1			14.3			15.8	
Approach LOS		B			B			B			B	

#### Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 60.3

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 15.2









Intersection LOS: B













Intersection Capacity Utilization 64.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	66	54	24	262	59	266	39	357	312	415	377	27
v/c Ratio	0.21	0.09	0.06	0.57	0.08	0.49	0.09	0.41	0.50	0.70	0.24	0.04
Control Delay	16.5	25.7	0.3	21.2	22.4	7.4	10.1	21.9	6.1	18.5	14.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	25.7	0.3	21.2	22.4	7.4	10.1	21.9	6.1	18.5	14.0	0.1
Queue Length 50th (ft)	16	10	0	72	10	0	8	66	0	109	47	0
Queue Length 95th (ft)	42	26	0	142	26	58	22	102	54	#194	96	0
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	483	1159	601	460	1159	691	612	1770	947	609	1776	861
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.05	0.04	0.57	0.05	0.38	0.06	0.20	0.33	0.68	0.21	0.03

























#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

09/02/2022

1: Gartrell Rd & Aurora Pkwy  
Existing - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	49	22	236	55	247	36	332	290	398	362	26
Future Volume (veh/h)	60	49	22	236	55	247	36	332	290	398	362	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	54	24	262	59	0	39	357	312	415	377	27
Peak Hour Factor	0.91	0.91	0.91	0.90	0.93	0.93	0.93	0.93	0.93	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	367	499	222	529	862		416	990	441	528	1455	649
Arrive On Green	0.04	0.14	0.14	0.15	0.24	0.00	0.02	0.28	0.28	0.15	0.41	0.41
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	66	54	24	262	59	0	39	357	312	415	377	27
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.2	0.9	0.9	8.4	0.9	0.0	1.1	5.7	12.6	11.0	5.0	0.7
Cycle Q Clear(g_c), s	2.2	0.9	0.9	8.4	0.9	0.0	1.1	5.7	12.6	11.0	5.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	367	499	222	529	862		416	990	441	528	1455	649
V/C Ratio(X)	0.18	0.11	0.11	0.50	0.07		0.09	0.36	0.71	0.79	0.26	0.04
Avail Cap(c_a), veh/h	565	948	422	544	948		649	1447	645	528	1455	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	26.7	26.7	19.7	20.8	0.0	17.7	20.6	23.1	14.9	13.9	12.6
Incr Delay (d2), s/veh	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.5	4.4	7.0	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	0.9	0.4	0.4	3.2	0.4	0.0	0.4	2.2	4.9	4.9	1.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	26.8	26.9	20.0	20.8	0.0	17.8	21.1	27.5	22.0	14.1	12.7
LnGrp LOS	C	C	C	B	C		B	C	C	C	B	B
Approach Vol, veh/h		144			321			708			819	
Approach Delay, s/veh		25.9			20.1			23.7			18.0	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	25.8	14.4	16.0	5.7	35.2	7.1	23.3				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	14.6	10.4	2.9	3.1	7.0	4.2	2.9				
Green Ext Time (p_c), s	0.0	5.2	0.0	0.2	0.0	4.2	0.0	0.2				




## Intersection Summary

HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

## Notes

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

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

























Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	501	0	3	729	2	1
Future Vol, veh/h	501	0	3	729	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	91	91	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	522	0	3	801	3	1

Major/Minor	Major1	Minor2
Conflicting Flow All	0	404
Stage 1	-	0
Stage 2	-	404
Critical Hdwy	-	6.42
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	5.42
Follow-up Hdwy	-	3.518
Pot Cap-1 Maneuver	-	603
Stage 1	-	-
Stage 2	-	674
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	603
Mov Cap-2 Maneuver	-	603
Stage 1	-	-
Stage 2	-	674

Approach	NB	SB
HCM Control Delay, s	0	11
HCM LOS		B

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	603
HCM Lane V/C Ratio	-	-	0.007
HCM Control Delay (s)	-	-	11
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

***Intersection Capacity Worksheets:***  
***2030 Background***  
***No Pine Drive***  
***Extension***

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	75	60	285	225	530	70	380	190	145	280	125
Future Volume (vph)	205	75	60	285	225	530	70	380	190	145	280	125
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	23.2	14.8	14.8	28.2	15.2	15.2	24.0	16.1	16.1	28.9	20.3	20.3
Actuated g/C Ratio	0.33	0.21	0.21	0.41	0.22	0.22	0.35	0.23	0.23	0.42	0.29	0.29
v/c Ratio	0.48	0.11	0.15	0.55	0.31	0.84	0.18	0.50	0.39	0.37	0.29	0.24
Control Delay	18.0	24.1	0.7	18.8	25.1	20.4	13.7	26.3	6.3	15.5	21.6	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	24.1	0.7	18.8	25.1	20.4	13.7	26.3	6.3	15.5	21.6	5.6
LOS	B	C	A	B	C	C	B	C	A	B	C	A
Approach Delay		16.3			21.0			19.0			16.4	
Approach LOS		B			C			B			B	

#### Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 69.3

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 18.9









Intersection LOS: B













Intersection Capacity Utilization 68.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Group Flow (vph)	223	82	65	306	242	570	76	413	207	158	304	136	
v/c Ratio	0.48	0.11	0.15	0.55	0.31	0.84	0.18	0.50	0.39	0.37	0.29	0.24	
Control Delay	18.0	24.1	0.7	18.8	25.1	20.4	13.7	26.3	6.3	15.5	21.6	5.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.0	24.1	0.7	18.8	25.1	20.4	13.7	26.3	6.3	15.5	21.6	5.6	
Queue Length 50th (ft)	58	15	0	83	46	52	20	86	0	44	58	0	
Queue Length 95th (ft)	125	36	2	173	88	#251	44	136	49	82	96	38	
Internal Link Dist (ft)	846				846				1151		535		
Turn Bay Length (ft)	180			475	260			230	260			145	435
Base Capacity (vph)	510	1000	537	570	1000	751	556	1527	800	488	1527	760	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.44	0.08	0.12	0.54	0.24	0.76	0.14	0.27	0.26	0.32	0.20	0.18	

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



# HCM 6th Signalized Intersection Summary

08/02/2023

1: Gartrell Rd & Aurora Pkwy  
2030 Background - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	75	60	285	225	530	70	380	190	145	280	125
Future Volume (veh/h)	205	75	60	285	225	530	70	380	190	145	280	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	82	65	306	242	0	76	413	207	158	304	136
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	519	593	264	602	727		413	870	388	397	1025	457
Arrive On Green	0.13	0.17	0.17	0.17	0.20	0.00	0.05	0.24	0.24	0.09	0.29	0.29
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	223	82	65	306	242	0	76	413	207	158	304	136
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.1	1.2	2.2	8.3	3.5	0.0	1.9	6.0	6.9	3.9	4.1	4.1
Cycle Q Clear(g_c), s	6.1	1.2	2.2	8.3	3.5	0.0	1.9	6.0	6.9	3.9	4.1	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	519	593	264	602	727		413	870	388	397	1025	457
V/C Ratio(X)	0.43	0.14	0.25	0.51	0.33		0.18	0.47	0.53	0.40	0.30	0.30
Avail Cap(c_a), veh/h	607	1110	494	623	1110		651	1694	755	557	1694	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	21.6	22.0	16.0	20.7	0.0	16.0	19.6	20.0	14.7	16.8	16.8
Incr Delay (d2), s/veh	0.2	0.1	0.5	0.2	0.3	0.0	0.1	0.9	2.4	0.2	0.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.5	0.8	3.0	1.4	0.0	0.7	2.3	2.6	1.3	1.5	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.4	21.7	22.5	16.2	20.9	0.0	16.0	20.5	22.4	15.0	17.2	17.6
LnGrp LOS	B	C	C	B	C		B	C	C	B	B	B
Approach Vol, veh/h		370			548			696			598	
Approach Delay, s/veh		19.2			18.3			20.6			16.7	
Approach LOS		B			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	20.9	14.3	16.2	6.9	23.6	12.0	18.5				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.9	8.9	10.3	4.2	3.9	6.1	8.1	5.5				
Green Ext Time (p_c), s	0.1	6.0	0.0	0.5	0.0	4.3	0.1	1.1				




## Intersection Summary

HCM 6th Ctrl Delay 18.7  
HCM 6th LOS B

## Notes

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

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

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	865	0	0	405	0	5
Future Vol, veh/h	865	0	0	405	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	940	0	0	440	0	5

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 220 440
Stage 1	-	- 0 0
Stage 2	-	- 220 440
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 768 511
Stage 1	-	- - -
Stage 2	-	- 817 578
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 768 0
Mov Cap-2 Maneuver	-	- 768 0
Stage 1	-	- - 0
Stage 2	-	- 817 0

Approach	NB	SB
HCM Control Delay, s	0	
HCM LOS		-

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Timings  
11/09/2023

3: SH-83/Parker Rd & Aurora Pkwy  
2030 Background - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	5	25	300	5	305	30	2010	150	155	2080	30
Future Volume (vph)	25	5	25	300	5	305	30	2010	150	155	2080	30
Turn Type	Split	NA	Perm	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	8 5	1	6		5	2	
Permitted Phases			4						6			2
Detector Phase	4	4	4	8	8	8 5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		5.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	16.0	16.0	16.0	20.0	20.0		10.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	18.0	18.0	18.0	26.0	26.0		10.0	59.0	59.0	17.0	66.0	66.0
Total Split (%)	15.0%	15.0%	15.0%	21.7%	21.7%		8.3%	49.2%	49.2%	14.2%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag							Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	None	None		None	C-Max	C-Max	None	C-Max	C-Max

#### Intersection Summary

Cycle Length: 120














Actuated Cycle Length: 120













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

Natural Cycle: 95

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

												
Ø2 (R)	Ø5	Ø6 (R)	Ø1	Ø4	Ø8							
66 s	17 s	59 s	10 s	18 s	26 s							

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	5	27	326	5	332	33	2185	163	168	2261	33
v/c Ratio	0.22	0.04	0.09	0.62	0.02	0.42	0.45	0.87	0.19	0.55	0.78	0.03
Control Delay	57.0	52.4	0.6	52.6	41.0	35.9	75.7	32.8	3.5	59.1	23.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.0	52.4	0.6	52.6	41.0	35.9	75.7	32.8	3.5	59.1	23.6	0.1
Queue Length 50th (ft)	20	4	0	122	3	117	26	542	0	64	512	0
Queue Length 95th (ft)	51	17	0	165	15	156	#65	#727	39	101	640	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	177	186	330	589	319	786	73	2505	862	345	2917	968
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.03	0.08	0.55	0.02	0.42	0.45	0.87	0.19	0.49	0.78	0.03

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

## 3: SH-83/Parker Rd & Aurora Pkwy

2030 Background - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	25	300	5	305	30	2010	150	155	2080	30
Future Volume (veh/h)	25	5	25	300	5	305	30	2010	150	155	2080	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	5	27	326	5	332	33	2185	163	168	2261	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	125	106	468	253	561	167	2739	850	227	2532	786
Arrive On Green	0.07	0.07	0.07	0.14	0.14	0.14	0.09	0.54	0.54	0.07	0.50	0.50
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	27	5	27	326	5	332	33	2185	163	168	2261	33
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	1.7	0.3	1.9	10.8	0.3	13.0	2.1	41.6	6.4	5.7	48.1	1.3
Cycle Q Clear(g_c), s	1.7	0.3	1.9	10.8	0.3	13.0	2.1	41.6	6.4	5.7	48.1	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	125	106	468	253	561	167	2739	850	227	2532	786
V/C Ratio(X)	0.23	0.04	0.26	0.70	0.02	0.59	0.20	0.80	0.19	0.74	0.89	0.04
Avail Cap(c_a), veh/h	178	187	159	576	312	648	167	2739	850	346	2532	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	52.4	53.2	49.5	45.0	43.5	50.2	22.5	14.4	55.1	27.4	15.6
Incr Delay (d2), s/veh	1.0	0.1	1.3	2.8	0.0	1.1	0.6	2.5	0.5	4.7	5.3	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	0.8	0.1	0.8	4.8	0.1	4.6	0.9	16.6	2.4	2.5	18.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.0	52.5	54.4	52.3	45.0	44.6	50.8	25.1	14.9	59.8	32.7	15.7
LnGrp LOS	D	D	D	D	D	D	D	C	B	E	C	B
Approach Vol, veh/h	59				663				2381			
Approach Delay, s/veh	54.1				48.4				24.7			
Approach LOS	D				D				C			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.8	66.0		14.0	12.9	70.9		22.2				
Change Period (Y+Rc), s	6.5	* 6.5		6.0	5.0	6.5		6.0				
Max Green Setting (Gmax), s	5.0	* 60		12.0	12.0	52.5		20.0				
Max Q Clear Time (g_c+I1), s	4.1	50.1		3.9	7.7	43.6		15.0				
Green Ext Time (p_c), s	0.0	8.0		0.1	0.2	7.9		1.3				

### Intersection Summary







HCM 6th Ctrl Delay 32.1

HCM 6th LOS C

### Notes

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

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

























Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	250	15	10	355	10	10	25	10	10	30	10
Future Vol, veh/h	15	250	15	10	355	10	10	25	10	10	30	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	272	16	11	386	11	11	27	11	11	33	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	397	0	0	288	0	0	544	731	144	596	734	199
Stage 1	-	-	-	-	-	-	312	312	-	414	414	-
Stage 2	-	-	-	-	-	-	232	419	-	182	320	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1158	-	-	1271	-	-	422	347	877	387	346	809
Stage 1	-	-	-	-	-	-	673	656	-	586	591	-
Stage 2	-	-	-	-	-	-	750	588	-	802	651	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1158	-	-	1271	-	-	379	339	877	353	338	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	379	339	-	353	338	-
Stage 1	-	-	-	-	-	-	664	647	-	578	586	-
Stage 2	-	-	-	-	-	-	693	583	-	748	642	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.2			15.2			15.8		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	403	1158	-	-	1271	-	-	386
HCM Lane V/C Ratio	0.121	0.014	-	-	0.009	-	-	0.141
HCM Control Delay (s)	15.2	8.2	-	-	7.9	-	-	15.8
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.5

Intersection						
Intersection Delay, s/veh	4.3					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	328		543		3	92
Demand Flow Rate, veh/h	335		554		3	94
Vehicles Circulating, veh/h	5		40		333	555
Vehicles Exiting, veh/h	644		296		7	39
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	3.6		4.5		3.4	5.2
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.469	0.531	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	157	178	260	294	3	94
Cap Entry Lane, veh/h	1344	1414	1301	1373	1070	886
Entry HV Adj Factor	0.983	0.977	0.982	0.979	1.000	0.979
Flow Entry, veh/h	154	174	255	288	3	92
Cap Entry, veh/h	1320	1382	1278	1344	1070	867
V/C Ratio	0.117	0.126	0.200	0.214	0.003	0.106
Control Delay, s/veh	3.7	3.6	4.5	4.5	3.4	5.2
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	1	1	0	0

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	165	95	260	155	270	105	365	320	440	400	110
Future Volume (vph)	185	165	95	260	155	270	105	365	320	440	400	110
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	22.1	11.2	11.2	24.1	12.2	12.2	24.7	16.2	16.2	32.9	22.7	22.7
Actuated g/C Ratio	0.32	0.16	0.16	0.35	0.18	0.18	0.36	0.24	0.24	0.48	0.33	0.33
v/c Ratio	0.44	0.31	0.28	0.58	0.27	0.56	0.27	0.48	0.54	0.92	0.37	0.20
Control Delay	18.3	28.0	5.4	21.4	27.0	8.6	12.4	24.7	6.4	40.7	20.2	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	28.0	5.4	21.4	27.0	8.6	12.4	24.7	6.4	40.7	20.2	4.4
LOS	B	C	A	C	C	A	B	C	A	D	C	A
Approach Delay		19.1			17.7			15.7			27.8	
Approach LOS		B			B			B			C	

#### Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 68.6

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 20.7









Intersection LOS: C

Intersection Capacity Utilization 74.5%













ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	201	179	103	280	167	290	114	397	348	478	435	120
v/c Ratio	0.44	0.31	0.28	0.58	0.27	0.56	0.27	0.48	0.54	0.92	0.37	0.20
Control Delay	18.3	28.0	5.4	21.4	27.0	8.6	12.4	24.7	6.4	40.7	20.2	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	28.0	5.4	21.4	27.0	8.6	12.4	24.7	6.4	40.7	20.2	4.4
Queue Length 50th (ft)	56	36	0	82	32	0	25	75	0	132	75	0
Queue Length 95th (ft)	114	68	26	160	64	62	57	124	60	#365	131	30
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	518	990	533	508	990	646	533	1512	875	522	1512	752
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.18	0.19	0.55	0.17	0.45	0.21	0.26	0.40	0.92	0.29	0.16

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

08/02/2023

# 1: Gartrell Rd & Aurora Pkwy

2030 Background - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	165	95	260	155	270	105	365	320	440	400	110
Future Volume (veh/h)	185	165	95	260	155	270	105	365	320	440	400	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	201	179	103	280	167	0	114	397	348	478	435	120
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	462	488	217	462	589		463	1053	470	510	1352	603
Arrive On Green	0.12	0.14	0.14	0.15	0.17	0.00	0.06	0.30	0.30	0.15	0.38	0.38
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	201	179	103	280	167	0	114	397	348	478	435	120
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.0	3.4	4.5	9.9	3.1	0.0	3.2	6.6	14.7	11.0	6.4	3.8
Cycle Q Clear(g_c), s	7.0	3.4	4.5	9.9	3.1	0.0	3.2	6.6	14.7	11.0	6.4	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	462	488	217	462	589		463	1053	470	510	1352	603
V/C Ratio(X)	0.43	0.37	0.47	0.61	0.28		0.25	0.38	0.74	0.94	0.32	0.20
Avail Cap(c_a), veh/h	513	910	405	462	910		612	1389	620	510	1389	620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	29.1	29.5	22.5	27.1	0.0	16.2	20.7	23.5	18.4	16.2	15.4
Incr Delay (d2), s/veh	0.2	0.5	1.6	1.6	0.3	0.0	0.1	0.5	5.5	24.8	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	1.4	1.7	4.0	1.3	0.0	1.2	2.6	5.8	8.3	2.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	29.5	31.1	24.1	27.4	0.0	16.3	21.1	29.1	43.2	16.5	15.7
LnGrp LOS	C	C	C	C	C		B	C	C	D	B	B
Approach Vol, veh/h		483			447			859			1033	
Approach Delay, s/veh		27.3			25.3			23.7			28.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	28.0	15.0	16.2	8.8	34.2	12.9	18.3				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	16.7	11.9	6.5	5.2	8.4	9.0	5.1				
Green Ext Time (p_c), s	0.0	5.3	0.0	1.1	0.0	5.5	0.0	0.7				

## Intersection Summary




HCM 6th Ctrl Delay 26.4

HCM 6th LOS C

## Notes

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

























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

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	550	0	5	805	2	1
Future Vol, veh/h	550	0	5	805	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	618	0	7	1073	5	3

Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 544 1080
Stage 1	-	- 0 0
Stage 2	-	- 544 1080
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 500 218
Stage 1	-	- - -
Stage 2	-	- 582 294
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 500 0
Mov Cap-2 Maneuver	-	- 500 0
Stage 1	-	- - 0
Stage 2	-	- 582 0

Approach	NB	SB
HCM Control Delay, s	0	12.3
HCM LOS		B

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	500
HCM Lane V/C Ratio	-	-	0.016
HCM Control Delay (s)	-	-	12.3
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	5	40	160	5	170	25	2330	330	215	2135	50
Future Volume (vph)	35	5	40	160	5	170	25	2330	330	215	2135	50
Turn Type	Split	NA	Perm	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	8 5	1	6		5	2	
Permitted Phases			4						6			2
Detector Phase	4	4	4	8	8	8 5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	14.0	14.0	14.0	20.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	14.0	14.0	14.0	22.0	22.0		11.0	63.0	63.0	21.0	73.0	73.0
Total Split (%)	11.7%	11.7%	11.7%	18.3%	18.3%		9.2%	52.5%	52.5%	17.5%	60.8%	60.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag							Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	None	None		None	C-Max	C-Max	None	C-Max	C-Max

#### Intersection Summary

Cycle Length: 120







Actuated Cycle Length: 120













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

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø2 (R)	 Ø1	 Ø4	 Ø8
73 s	11 s	14 s	22 s
 Ø5	 Ø6 (R)		
21 s	63 s		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	38	5	43	174	5	185	27	2533	359	234	2321	54
v/c Ratio	0.32	0.04	0.15	0.51	0.03	0.26	0.31	0.95	0.36	0.62	0.73	0.05
Control Delay	61.1	53.2	1.1	56.0	47.0	35.9	64.4	36.3	2.9	58.0	18.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	53.2	1.1	56.0	47.0	35.9	64.4	36.3	2.9	58.0	18.7	0.1
Queue Length 50th (ft)	29	4	0	67	4	65	21	652	0	90	471	0
Queue Length 95th (ft)	66	17	0	100	16	93	52	#879	51	129	582	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	118	124	283	457	248	714	88	2679	1004	458	3172	1040
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.04	0.15	0.38	0.02	0.26	0.31	0.95	0.36	0.51	0.73	0.05

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

## 3: SH-83/Parker Rd & Aurora Pkwy

2030 Background - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	40	160	5	170	25	2330	330	215	2135	50
Future Volume (veh/h)	35	5	40	160	5	170	25	2330	330	215	2135	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	5	43	174	5	185	27	2533	359	234	2321	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	125	106	285	154	470	158	2906	902	297	2830	878
Arrive On Green	0.07	0.07	0.07	0.08	0.08	0.08	0.09	0.57	0.57	0.09	0.55	0.55
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	38	5	43	174	5	185	27	2533	359	234	2321	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.4	0.3	3.1	5.8	0.3	7.1	1.7	50.9	15.1	8.0	44.6	1.9
Cycle Q Clear(g_c), s	2.4	0.3	3.1	5.8	0.3	7.1	1.7	50.9	15.1	8.0	44.6	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	125	106	285	154	470	158	2906	902	297	2830	878
V/C Ratio(X)	0.32	0.04	0.41	0.61	0.03	0.39	0.17	0.87	0.40	0.79	0.82	0.06
Avail Cap(c_a), veh/h	119	125	106	461	249	612	158	2906	902	461	2830	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	52.4	53.7	53.2	50.7	44.4	50.6	22.1	14.4	53.8	21.9	12.3
Incr Delay (d2), s/veh	1.5	0.1	2.5	2.1	0.1	0.5	0.5	3.9	1.3	4.9	2.8	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	0.1	1.3	2.6	0.1	2.5	0.8	20.3	5.7	3.5	16.1	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	52.5	56.2	55.3	50.7	45.0	51.1	26.0	15.7	58.6	24.7	12.5
LnGrp LOS	D	D	E	E	D	D	D	C	B	E	C	B
Approach Vol, veh/h	86			364			2919			2609		
Approach Delay, s/veh	55.4			50.0			25.0			27.5		
Approach LOS	E			D			C			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	17.1	73.0	14.0		15.3	74.8	15.9					
Change Period (Y+Rc), s	6.5	* 6.5	6.0		5.0	6.5	6.0					
Max Green Setting (Gmax), s	6.0	* 67	8.0		16.0	56.5	16.0					
Max Q Clear Time (g_c+I1), s	3.7	46.6	5.1		10.0	52.9	9.1					
Green Ext Time (p_c), s	0.0	15.3	0.0		0.4	3.5	0.8					







### Intersection Summary

HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

### Notes

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

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	280	15	15	210	10	15	25	10	10	30	15
Future Vol, veh/h	10	280	15	15	210	10	15	25	10	10	30	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	304	16	16	228	11	16	27	11	11	33	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	239	0	0	320	0	0	497	605	160	454	608	120
Stage 1	-	-	-	-	-	-	334	334	-	266	266	-
Stage 2	-	-	-	-	-	-	163	271	-	188	342	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1325	-	-	1237	-	-	456	410	857	489	409	909
Stage 1	-	-	-	-	-	-	653	642	-	716	687	-
Stage 2	-	-	-	-	-	-	823	684	-	796	637	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1325	-	-	1237	-	-	413	401	857	450	400	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	413	401	-	450	400	-
Stage 1	-	-	-	-	-	-	648	637	-	710	678	-
Stage 2	-	-	-	-	-	-	759	675	-	746	632	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.5	14	13.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	453	1325	-	-	1237	-	-	484
HCM Lane V/C Ratio	0.12	0.008	-	-	0.013	-	-	0.124
HCM Control Delay (s)	14	7.7	-	-	7.9	-	-	13.5
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.4

























Intersection						
Intersection Delay, s/veh	4.2					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	568		288		10	
Demand Flow Rate, veh/h	579		294		10	
Vehicles Circulating, veh/h	5		116		577	
Vehicles Exiting, veh/h	366		471		7	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	4.4		3.9		4.2	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	272	307	138	156	10	72
Cap Entry Lane, veh/h	1344	1414	1213	1287	870	1101
Entry HV Adj Factor	0.981	0.980	0.982	0.980	1.000	0.986
Flow Entry, veh/h	267	301	136	153	10	71
Cap Entry, veh/h	1318	1386	1191	1260	870	1086
V/C Ratio	0.202	0.217	0.114	0.121	0.012	0.065
Control Delay, s/veh	4.4	4.4	4.0	3.9	4.2	3.9
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	0	0	0	0



***Intersection Capacity Worksheets:***  
***2030 Background***  
***WITH Pine Drive***  
***Extension***

Timings  
08/01/2023

1: Gartrell Rd & Aurora Pkwy  
2030 Background with Pine Ext - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	305	125	55	285	225	530	70	275	135	145	110	295
Future Volume (vph)	305	125	55	285	225	530	70	275	135	145	110	295
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	24.3	14.5	14.5	27.7	14.2	14.2	21.0	13.2	13.2	25.9	17.2	17.2
Actuated g/C Ratio	0.37	0.22	0.22	0.42	0.21	0.21	0.32	0.20	0.20	0.39	0.26	0.26
v/c Ratio	0.64	0.18	0.13	0.53	0.32	0.81	0.17	0.42	0.34	0.35	0.13	0.50
Control Delay	20.5	22.6	0.6	16.6	23.9	16.1	14.2	26.3	7.4	15.8	21.8	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	22.6	0.6	16.6	23.9	16.1	14.2	26.3	7.4	15.8	21.8	6.1
LOS	C	C	A	B	C	B	B	C	A	B	C	A
Approach Delay		18.8			17.9			19.2			11.8	
Approach LOS		B			B			B			B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 66.4

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 17.0









Intersection LOS: B













Intersection Capacity Utilization 71.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	332	136	60	306	242	570	76	299	147	158	120	321
v/c Ratio	0.64	0.18	0.13	0.53	0.32	0.81	0.17	0.42	0.34	0.35	0.13	0.50
Control Delay	20.5	22.6	0.6	16.6	23.9	16.1	14.2	26.3	7.4	15.8	21.8	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	22.6	0.6	16.6	23.9	16.1	14.2	26.3	7.4	15.8	21.8	6.1
Queue Length 50th (ft)	82	23	0	74	43	34	18	56	0	40	20	0
Queue Length 95th (ft)	168	50	0	153	81	#184	45	102	44	83	44	59
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	528	1032	550	585	1032	788	576	1576	786	506	1576	883
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.13	0.11	0.52	0.23	0.72	0.13	0.19	0.19	0.31	0.08	0.36

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

08/01/2023

## 1: Gartrell Rd & Aurora Pkwy

2030 Background with Pine Ext - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	305	125	55	285	225	530	70	275	135	145	110	295
Future Volume (veh/h)	305	125	55	285	225	530	70	275	135	145	110	295
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	332	136	60	306	242	0	76	299	147	158	120	321
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	564	638	284	596	597		419	807	360	431	966	431
Arrive On Green	0.18	0.18	0.18	0.17	0.17	0.00	0.05	0.23	0.23	0.09	0.27	0.27
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	332	136	60	306	242	0	76	299	147	158	120	321
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.0	2.0	2.0	8.3	3.7	0.0	2.0	4.3	4.8	3.9	1.5	11.2
Cycle Q Clear(g_c), s	9.0	2.0	2.0	8.3	3.7	0.0	2.0	4.3	4.8	3.9	1.5	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	564	638	284	596	597		419	807	360	431	966	431
V/C Ratio(X)	0.59	0.21	0.21	0.51	0.41		0.18	0.37	0.41	0.37	0.12	0.74
Avail Cap(c_a), veh/h	566	1118	498	618	1118		659	1707	761	591	1707	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	21.1	21.1	16.0	22.4	0.0	16.6	19.7	19.9	15.1	16.6	20.1
Incr Delay (d2), s/veh	1.1	0.2	0.4	0.3	0.4	0.0	0.1	0.6	1.6	0.2	0.1	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.8	0.7	3.0	1.4	0.0	0.7	1.6	1.8	1.3	0.6	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	21.3	21.5	16.3	22.9	0.0	16.7	20.3	21.5	15.3	16.7	25.5
LnGrp LOS	B	C	C	B	C		B	C	C	B	B	C
Approach Vol, veh/h		528			548			522			599	
Approach Delay, s/veh		18.6			19.2			20.1			21.0	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	19.7	14.3	16.8	6.9	22.4	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.9	6.8	10.3	4.0	4.0	13.2	11.0	5.7				
Green Ext Time (p_c), s	0.1	4.4	0.0	0.8	0.0	3.3	0.0	1.1				

### Intersection Summary

HCM 6th Ctrl Delay 19.8

HCM 6th LOS B















### Notes

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

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

Timings  
08/01/2023

2: Pine Dr & Inspiration Dr  
2030 Background with Pine Ext - AM Peak Hour

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	720	165	250	25	200
Future Volume (vph)	720	165	250	25	200
Turn Type	Prot	NA	Perm	Perm	NA
Protected Phases	8	2			6
Permitted Phases			2	6	
Detector Phase	8	2	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	31.0	29.0	29.0	29.0	29.0
Total Split (%)	51.7%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	Min	Min	Min	Min
Act Effect Green (s)	13.2	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.41	0.30	0.30	0.30	0.30
v/c Ratio	0.57	0.32	0.41	0.08	0.39
Control Delay	9.3	11.3	4.0	9.7	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	11.3	4.0	9.7	12.0
LOS	A	B	A	A	B
Approach Delay	9.3	6.9			11.8
Approach LOS	A	A			B

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 32.2

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 8.9




Intersection LOS: A






Intersection Capacity Utilization 45.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Pine Dr & Inspiration Dr












 Ø2		
29 s		
 Ø6		 Ø8
29 s		31 s







					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	799	179	272	27	217
v/c Ratio	0.57	0.32	0.41	0.08	0.39
Control Delay	9.3	11.3	4.0	9.7	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	11.3	4.0	9.7	12.0
Queue Length 50th (ft)	45	22	0	3	28
Queue Length 95th (ft)	101	66	35	16	78
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)					
Base Capacity (vph)	2878	1471	1307	947	1471
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	0.28	0.12	0.21	0.03	0.15
Intersection Summary					

# HCM 6th Signalized Intersection Summary

08/01/2023

2: Pine Dr & Inspiration Dr  
2030 Background with Pine Ext - AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	720	15	165	250	25	200
Future Volume (veh/h)	720	15	165	250	25	200
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	798	0	179	272	27	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1320	587	545	462	474	545
Arrive On Green	0.37	0.00	0.29	0.29	0.29	0.29
Sat Flow, veh/h	3563	1585	1870	1585	940	1870
Grp Volume(v), veh/h	798	0	179	272	27	217
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	940	1870
Q Serve(g_s), s	4.8	0.0	2.0	3.9	0.6	2.5
Cycle Q Clear(g_c), s	4.8	0.0	2.0	3.9	2.6	2.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1320	587	545	462	474	545
V/C Ratio(X)	0.60	0.00	0.33	0.59	0.06	0.40
Avail Cap(c_a), veh/h	3544	1577	1720	1458	1064	1720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.8	0.0	7.4	8.1	8.4	7.6
Incr Delay (d2), s/veh	0.4	0.0	0.3	1.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.5	0.9	0.1	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.3	0.0	7.7	9.3	8.5	8.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	798		451			244
Approach Delay, s/veh	7.3		8.7			8.1
Approach LOS	A		A			A
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	12.3		12.3		14.4	
Change Period (Y+Rc), s	4.5		4.5		4.5	
Max Green Setting (Gmax), s	24.5		24.5		26.5	
Max Q Clear Time (g_c+I1), s	5.9		4.6		6.8	
Green Ext Time (p_c), s	1.9		1.3		3.1	
Intersection Summary						
HCM 6th Ctrl Delay			7.8			
HCM 6th LOS			A			
Notes						

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	395	10	10	525	10	10	25	10	10	30	10
Future Vol, veh/h	15	395	10	10	525	10	10	25	10	10	30	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	429	11	11	571	11	11	27	11	11	33	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	582	0	0	440	0	0	791	1071	220	859	1071	291
Stage 1	-	-	-	-	-	-	467	467	-	599	599	-
Stage 2	-	-	-	-	-	-	324	604	-	260	472	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	988	-	-	1116	-	-	280	219	784	250	219	706
Stage 1	-	-	-	-	-	-	545	560	-	455	489	-
Stage 2	-	-	-	-	-	-	662	486	-	722	557	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	988	-	-	1116	-	-	239	213	784	218	213	706
Mov Cap-2 Maneuver	-	-	-	-	-	-	239	213	-	218	213	-
Stage 1	-	-	-	-	-	-	536	551	-	448	484	-
Stage 2	-	-	-	-	-	-	602	481	-	666	548	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	21.9	23.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	262	988	-	-	1116	-	-	249
HCM Lane V/C Ratio	0.187	0.017	-	-	0.01	-	-	0.218
HCM Control Delay (s)	21.9	8.7	-	-	8.3	-	-	23.4
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	0.8



Intersection

Int Delay, s/veh 3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↘
Traffic Vol, veh/h	250	5	175	445	10	160
Future Vol, veh/h	250	5	175	445	10	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	272	5	190	484	11	174

























Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	277
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1283
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1283
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	238	884	-	-	1283	-
HCM Lane V/C Ratio	0.046	0.197	-	-	0.148	-
HCM Control Delay (s)	20.8	10.1	-	-	8.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.7	-	-	0.5	-

Timings  
08/01/2023

1: Gartrell Rd & Aurora Pkwy  
2030 Background with Pine Ext - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	230	90	260	155	270	100	200	175	440	290	210
Future Volume (vph)	310	230	90	260	155	270	100	200	175	440	290	210
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	24.2	11.8	11.8	22.8	11.1	11.1	20.4	11.9	11.9	28.5	18.3	18.3
Actuated g/C Ratio	0.37	0.18	0.18	0.35	0.17	0.17	0.32	0.18	0.18	0.44	0.28	0.28
v/c Ratio	0.64	0.39	0.25	0.57	0.28	0.57	0.27	0.33	0.43	0.89	0.31	0.37
Control Delay	20.4	25.9	4.4	18.5	25.1	8.5	13.3	24.7	7.5	37.2	21.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	25.9	4.4	18.5	25.1	8.5	13.3	24.7	7.5	37.2	21.0	5.5
LOS	C	C	A	B	C	A	B	C	A	D	C	A
Approach Delay		20.1			16.1			15.9			25.1	
Approach LOS		C			B			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 64.6

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 20.1









Intersection LOS: C













Intersection Capacity Utilization 75.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	337	250	98	280	167	290	109	217	190	478	315	228
v/c Ratio	0.64	0.39	0.25	0.57	0.28	0.57	0.27	0.33	0.43	0.89	0.31	0.37
Control Delay	20.4	25.9	4.4	18.5	25.1	8.5	13.3	24.7	7.5	37.2	21.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	25.9	4.4	18.5	25.1	8.5	13.3	24.7	7.5	37.2	21.0	5.5
Queue Length 50th (ft)	87	45	0	70	30	0	23	38	0	132	52	0
Queue Length 95th (ft)	170	84	22	139	59	59	55	71	47	#268	97	50
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	545	1047	555	528	1047	666	528	1598	819	538	1598	839
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.24	0.18	0.53	0.16	0.44	0.21	0.14	0.23	0.89	0.20	0.27

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

08/01/2023

## 1: Gartrell Rd & Aurora Pkwy

2030 Background with Pine Ext - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	230	90	260	155	270	100	200	175	440	290	210
Future Volume (veh/h)	310	230	90	260	155	270	100	200	175	440	290	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	250	98	280	167	0	109	217	190	478	315	228
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	553	598	266	501	557		401	696	310	553	1056	471
Arrive On Green	0.17	0.17	0.17	0.16	0.16	0.00	0.07	0.20	0.20	0.17	0.30	0.30
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	337	250	98	280	167	0	109	217	190	478	315	228
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	10.2	4.1	3.6	8.3	2.7	0.0	3.1	3.4	7.1	11.0	4.4	7.7
Cycle Q Clear(g_c), s	10.2	4.1	3.6	8.3	2.7	0.0	3.1	3.4	7.1	11.0	4.4	7.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	553	598	266	501	557		401	696	310	553	1056	471
V/C Ratio(X)	0.61	0.42	0.37	0.56	0.30		0.27	0.31	0.61	0.86	0.30	0.48
Avail Cap(c_a), veh/h	553	1041	463	522	1041		582	1589	709	553	1589	709
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	24.1	23.9	18.2	24.2	0.0	18.7	22.3	23.8	18.3	17.6	18.7
Incr Delay (d2), s/veh	1.4	0.5	0.8	0.7	0.3	0.0	0.1	0.5	4.1	12.8	0.3	1.6
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	4.0	1.6	1.3	3.1	1.1	0.0	1.2	1.3	2.8	6.7	1.6	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	24.6	24.8	18.9	24.5	0.0	18.8	22.9	28.0	31.1	17.9	20.4
LnGrp LOS	B	C	C	B	C		B	C	C	C	B	C
Approach Vol, veh/h		685			447			516			1021	
Approach Delay, s/veh		22.2			21.0			23.9			24.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	18.7	14.2	16.9	8.4	25.3	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	9.1	10.3	6.1	5.1	9.7	12.2	4.7				
Green Ext Time (p_c), s	0.0	3.6	0.0	1.5	0.0	4.9	0.0	0.7				

### Intersection Summary















HCM 6th Ctrl Delay 23.2

HCM 6th LOS C

### Notes

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

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

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	445	340	495	20	125
Future Volume (vph)	445	340	495	20	125
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	2		1	6
Permitted Phases			2	6	
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	24.0	25.0	25.0	11.0	36.0
Total Split (%)	40.0%	41.7%	41.7%	18.3%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min
Act Effect Green (s)	11.7	15.4	15.4	16.9	16.9
Actuated g/C Ratio	0.28	0.37	0.37	0.41	0.41
v/c Ratio	0.53	0.53	0.58	0.05	0.18
Control Delay	15.4	15.0	4.5	7.7	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	15.0	4.5	7.7	8.4
LOS	B	B	A	A	A
Approach Delay	15.4	8.8			8.3
Approach LOS	B	A			A

#### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 41.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 10.9





Intersection LOS: B






Intersection Capacity Utilization 44.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Pine Dr & Inspiration Dr












 Ø1	 Ø2	
11 s	25 s	
 Ø6		 Ø8
36 s		24 s

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	511	370	538	22	136
v/c Ratio	0.53	0.53	0.58	0.05	0.18
Control Delay	15.4	15.0	4.5	7.7	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	15.0	4.5	7.7	8.4
Queue Length 50th (ft)	46	55	0	3	18
Queue Length 95th (ft)	115	192	60	13	50
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)					
Base Capacity (vph)	1585	907	1047	406	1429
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	0.32	0.41	0.51	0.05	0.10
Intersection Summary					

# HCM 6th Signalized Intersection Summary

08/01/2023

2: Pine Dr & Inspiration Dr  
2030 Background with Pine Ext - PM Peak Hour







						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	445	25	340	495	20	125
Future Volume (veh/h)	445	25	340	495	20	125
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	509	0	370	538	22	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	731	325	715	606	343	1006
Arrive On Green	0.21	0.00	0.38	0.38	0.03	0.54
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	509	0	370	538	22	136
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	6.2	0.0	7.1	14.8	0.3	1.7
Cycle Q Clear(g_c), s	6.2	0.0	7.1	14.8	0.3	1.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	731	325	715	606	343	1006
V/C Ratio(X)	0.70	0.00	0.52	0.89	0.06	0.14
Avail Cap(c_a), veh/h	1375	612	762	646	487	1203
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	0.0	11.1	13.5	8.0	5.4
Incr Delay (d2), s/veh	1.2	0.0	0.6	13.6	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	2.5	6.5	0.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.4	0.0	11.7	27.1	8.1	5.4
LnGrp LOS	B	A	B	C	A	A
Approach Vol, veh/h	509		908			158
Approach Delay, s/veh	18.4		20.8			5.8
Approach LOS	B		C			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.2	23.8			31.1	15.6
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	19.0			30.0	18.0
Max Q Clear Time (g_c+I1), s	2.3	16.8			3.7	8.2
Green Ext Time (p_c), s	0.0	1.0			0.7	1.4

## Intersection Summary

HCM 6th Ctrl Delay 18.5  
HCM 6th LOS B

## Notes

User approved volume balancing among the lanes for turning movement.

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	580	10	15	305	10	10	25	10	10	30	15
Future Vol, veh/h	10	580	10	15	305	10	10	25	10	10	30	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	630	11	16	332	11	11	27	11	11	33	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	343	0	0	641	0	0	873	1033	321	721	1033	172
Stage 1	-	-	-	-	-	-	658	658	-	370	370	-
Stage 2	-	-	-	-	-	-	215	375	-	351	663	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1213	-	-	939	-	-	244	231	675	315	231	842
Stage 1	-	-	-	-	-	-	420	459	-	622	619	-
Stage 2	-	-	-	-	-	-	767	615	-	639	457	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1213	-	-	939	-	-	209	225	675	276	225	842
Mov Cap-2 Maneuver	-	-	-	-	-	-	209	225	-	276	225	-
Stage 1	-	-	-	-	-	-	416	455	-	616	608	-
Stage 2	-	-	-	-	-	-	700	605	-	586	453	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	22.1	20.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	259	1213	-	-	939	-	-	294
HCM Lane V/C Ratio	0.189	0.009	-	-	0.017	-	-	0.203
HCM Control Delay (s)	22.1	8	-	-	8.9	-	-	20.3
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.7



Intersection

Int Delay, s/veh 4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	↖
Traffic Vol, veh/h	365	10	115	230	5	315
Future Vol, veh/h	365	10	115	230	5	315
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	397	11	125	250	5	342

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	408
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1147
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1147
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

























Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	12.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	297	803	-	-	1147	-
HCM Lane V/C Ratio	0.018	0.426	-	-	0.109	-
HCM Control Delay (s)	17.3	12.8	-	-	8.5	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	2.1	-	-	0.4	-

***Intersection Capacity Worksheets:***  
***2040 Background***  
***No Pine Drive***  
***Extension***

Timings  
08/02/2023

1: Gartrell Rd & Aurora Pkwy  
2040 Background - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	100	80	280	270	520	80	375	200	145	275	115
Future Volume (vph)	230	100	80	280	270	520	80	375	200	145	275	115
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	24.2	15.3	15.3	28.6	15.5	15.5	24.3	16.1	16.1	28.7	20.0	20.0
Actuated g/C Ratio	0.35	0.22	0.22	0.41	0.22	0.22	0.35	0.23	0.23	0.41	0.29	0.29
v/c Ratio	0.53	0.14	0.20	0.54	0.37	0.83	0.20	0.50	0.41	0.37	0.30	0.23
Control Delay	19.2	24.2	2.9	18.5	25.7	19.8	14.1	26.6	6.4	15.7	22.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	24.2	2.9	18.5	25.7	19.8	14.1	26.6	6.4	15.7	22.2	5.2
LOS	B	C	A	B	C	B	B	C	A	B	C	A
Approach Delay		17.2			21.0			18.9			16.8	
Approach LOS		B			C			B			B	

#### Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 70

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 19.0









Intersection LOS: B













Intersection Capacity Utilization 68.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	250	109	87	301	290	559	87	408	217	158	299	125
v/c Ratio	0.53	0.14	0.20	0.54	0.37	0.83	0.20	0.50	0.41	0.37	0.30	0.23
Control Delay	19.2	24.2	2.9	18.5	25.7	19.8	14.1	26.6	6.4	15.7	22.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	24.2	2.9	18.5	25.7	19.8	14.1	26.6	6.4	15.7	22.2	5.2
Queue Length 50th (ft)	66	20	0	82	57	52	24	86	0	45	59	0
Queue Length 95th (ft)	140	45	15	169	104	#247	49	134	50	82	95	34
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	503	988	532	569	988	740	551	1508	799	486	1508	751
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.11	0.16	0.53	0.29	0.76	0.16	0.27	0.27	0.33	0.20	0.17

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

08/02/2023

## 1: Gartrell Rd & Aurora Pkwy

2040 Background - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	100	80	280	270	520	80	375	200	145	275	115
Future Volume (veh/h)	230	100	80	280	270	520	80	375	200	145	275	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	250	109	87	301	290	0	87	408	217	158	299	125
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	502	589	262	581	673		425	886	395	401	1019	454
Arrive On Green	0.14	0.17	0.17	0.17	0.19	0.00	0.05	0.25	0.25	0.09	0.29	0.29
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	250	109	87	301	290	0	87	408	217	158	299	125
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.9	1.6	3.0	8.3	4.4	0.0	2.2	6.0	7.3	3.9	4.0	3.7
Cycle Q Clear(g_c), s	6.9	1.6	3.0	8.3	4.4	0.0	2.2	6.0	7.3	3.9	4.0	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	502	589	262	581	673		425	886	395	401	1019	454
V/C Ratio(X)	0.50	0.18	0.33	0.52	0.43		0.20	0.46	0.55	0.39	0.29	0.28
Avail Cap(c_a), veh/h	565	1103	491	603	1103		651	1683	751	559	1683	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	22.0	22.5	16.4	21.9	0.0	15.7	19.5	20.0	14.8	17.0	16.9
Incr Delay (d2), s/veh	0.3	0.1	0.7	0.3	0.4	0.0	0.1	0.8	2.5	0.2	0.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.6	1.1	3.0	1.7	0.0	0.8	2.3	2.7	1.3	1.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	22.1	23.3	16.7	22.3	0.0	15.8	20.3	22.5	15.1	17.3	17.6
LnGrp LOS	B	C	C	B	C		B	C	C	B	B	B
Approach Vol, veh/h		446			591			712			582	
Approach Delay, s/veh		19.7			19.4			20.4			16.8	
Approach LOS		B			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	21.3	14.3	16.2	7.3	23.5	12.8	17.6				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.9	9.3	10.3	5.0	4.2	6.0	8.9	6.4				
Green Ext Time (p_c), s	0.1	6.0	0.0	0.7	0.0	4.1	0.1	1.4				

### Intersection Summary




HCM 6th Ctrl Delay 19.1

HCM 6th LOS B

### Notes

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

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

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1005	0	0	455	0	5
Future Vol, veh/h	1005	0	0	455	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1129	0	0	607	0	13

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 304 607
Stage 1	-	- 0 0
Stage 2	-	- 304 607
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 688 411
Stage 1	-	- - -
Stage 2	-	- 748 486
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 688 0
Mov Cap-2 Maneuver	-	- 688 0
Stage 1	-	- - 0
Stage 2	-	- 748 0

Approach	NB	SB
HCM Control Delay, s	0	
HCM LOS		-

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Timings  
11/09/2023

3: SH-83/Parker Rd & Aurora Pkwy  
2040 Background - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	5	30	420	5	425	35	2685	195	205	2365	35
Future Volume (vph)	30	5	30	420	5	425	35	2685	195	205	2365	35
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	1	8	8	8.5	1	6		5	2	
Permitted Phases			4						6			2
Detector Phase	4	4	1	8	8	8.5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	6.0	8.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	10.0	10.0	11.0	20.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	10.0	10.0	17.0	27.0	27.0		17.0	75.0	75.0	18.0	76.0	76.0
Total Split (%)	7.7%	7.7%	13.1%	20.8%	20.8%		13.1%	57.7%	57.7%	13.8%	58.5%	58.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag			Lag				Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

#### Intersection Summary

Cycle Length: 130







Actuated Cycle Length: 130













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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø2 (R)	 Ø1	 Ø4	 Ø8
76 s	17 s	10 s	27 s
 Ø5	 Ø6 (R)		
18 s	75 s		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	5	33	442	5	447	38	2740	205	216	2413	38
v/c Ratio	0.61	0.09	0.10	0.82	0.02	0.55	0.26	1.00	0.22	0.68	0.84	0.04
Control Delay	104.5	64.6	0.6	66.1	46.2	41.9	59.6	48.1	2.6	67.9	28.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.5	64.6	0.6	66.1	46.2	41.9	59.6	48.1	2.6	67.9	28.1	0.1
Queue Length 50th (ft)	28	4	0	187	4	178	30	~898	0	91	637	0
Queue Length 95th (ft)	#84	19	0	#252	16	238	67	#983	37	135	711	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	54	57	369	554	300	810	163	2733	945	343	2871	950
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.09	0.09	0.80	0.02	0.55	0.23	1.00	0.22	0.63	0.84	0.04

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.



























# HCM 6th Signalized Intersection Summary

11/09/2023

## 3: SH-83/Parker Rd & Aurora Pkwy

2040 Background - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	30	420	5	425	35	2685	195	205	2365	35
Future Volume (veh/h)	30	5	30	420	5	425	35	2685	195	205	2365	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	5	33	442	5	447	38	2740	205	216	2413	38
Peak Hour Factor	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.98	0.95	0.95	0.98	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	58	178	556	301	667	145	2804	871	270	2730	847
Arrive On Green	0.03	0.03	0.03	0.16	0.16	0.16	0.08	0.55	0.55	0.08	0.53	0.53
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	33	5	33	442	5	447	38	2740	205	216	2413	38
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.4	0.3	0.0	16.0	0.3	18.9	2.6	67.9	8.7	8.0	54.2	1.5
Cycle Q Clear(g_c), s	2.4	0.3	0.0	16.0	0.3	18.9	2.6	67.9	8.7	8.0	54.2	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	55	58	178	556	301	667	145	2804	871	270	2730	847
V/C Ratio(X)	0.60	0.09	0.19	0.79	0.02	0.67	0.26	0.98	0.24	0.80	0.88	0.04
Avail Cap(c_a), veh/h	55	58	178	558	302	669	164	2804	871	346	2730	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.2	61.2	52.3	52.5	45.9	44.8	56.1	28.5	15.2	58.9	26.7	14.4
Incr Delay (d2), s/veh	17.1	0.6	0.5	7.8	0.0	2.6	1.0	12.4	0.6	9.8	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	1.3	0.2	1.0	7.5	0.1	6.8	1.2	29.7	3.3	3.7	20.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.3	61.9	52.8	60.2	45.9	47.4	57.0	40.9	15.8	68.7	31.3	14.5
LnGrp LOS	E	E	D	E	D	D	E	D	B	E	C	B
Approach Vol, veh/h	71			894			2983			2667		
Approach Delay, s/veh	65.8			53.7			39.4			34.1		
Approach LOS	E			D			D			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.1	76.0		10.0	15.2	77.9		26.9				
Change Period (Y+Rc), s	6.5	* 6.5		6.0	5.0	6.5		6.0				
Max Green Setting (Gmax), s	12.0	* 70		4.0	13.0	68.5		21.0				
Max Q Clear Time (g_c+I1), s	4.6	56.2		4.4	10.0	69.9		20.9				
Green Ext Time (p_c), s	0.0	11.2		0.0	0.2	0.0		0.1				







### Intersection Summary

HCM 6th Ctrl Delay	39.5
HCM 6th LOS	D

### Notes

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

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	270	6	15	385	10	0	30	20	10	35	1
Future Vol, veh/h	1	270	6	15	385	10	0	30	20	10	35	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	293	7	16	418	11	0	33	22	11	38	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	429	0	0	300	0	0	559	760	150	621	758	215
Stage 1	-	-	-	-	-	-	299	299	-	456	456	-
Stage 2	-	-	-	-	-	-	260	461	-	165	302	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1127	-	-	1258	-	-	412	334	870	372	335	790
Stage 1	-	-	-	-	-	-	685	665	-	554	567	-
Stage 2	-	-	-	-	-	-	722	564	-	821	663	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1127	-	-	1258	-	-	371	329	870	332	330	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	371	329	-	332	330	-
Stage 1	-	-	-	-	-	-	684	664	-	553	560	-
Stage 2	-	-	-	-	-	-	663	557	-	760	662	-

























  

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			14.4			17.6		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	438	1127	-	-	1258	-	-	335
HCM Lane V/C Ratio	0.124	0.001	-	-	0.013	-	-	0.149
HCM Control Delay (s)	14.4	8.2	-	-	7.9	-	-	17.6
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.5

Intersection						
Intersection Delay, s/veh	5.8					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	451		559		8	343
Demand Flow Rate, veh/h	459		570		8	350
Vehicles Circulating, veh/h	6		177		449	570
Vehicles Exiting, veh/h	914		280		16	177
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	4.0		5.3		3.8	9.0
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.471	0.529	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	216	243	268	302	8	350
Cap Entry Lane, veh/h	1342	1413	1147	1222	970	875
Entry HV Adj Factor	0.980	0.983	0.980	0.981	0.998	0.980
Flow Entry, veh/h	212	239	263	296	8	343
Cap Entry, veh/h	1316	1388	1125	1199	967	857
V/C Ratio	0.161	0.172	0.234	0.247	0.008	0.400
Control Delay, s/veh	4.1	4.0	5.3	5.2	3.8	9.0
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0	2

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	235	140	275	195	270	115	360	320	435	400	115
Future Volume (vph)	210	235	140	275	195	270	115	360	320	435	400	115
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	22.8	11.4	11.4	24.3	12.2	12.2	25.0	16.2	16.2	32.7	22.4	22.4
Actuated g/C Ratio	0.33	0.17	0.17	0.35	0.18	0.18	0.36	0.23	0.23	0.47	0.32	0.32
v/c Ratio	0.49	0.44	0.39	0.63	0.34	0.56	0.30	0.47	0.55	0.91	0.38	0.21
Control Delay	19.2	29.3	8.7	22.9	27.8	8.6	12.8	24.9	6.4	40.2	20.7	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	29.3	8.7	22.9	27.8	8.6	12.8	24.9	6.4	40.2	20.7	4.9
LOS	B	C	A	C	C	A	B	C	A	D	C	A
Approach Delay		20.7			19.0			15.7			27.7	
Approach LOS		C			B			B			C	

#### Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 69

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 21.2









Intersection LOS: C













Intersection Capacity Utilization 74.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
15 s	35 s	15 s	25 s
			
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	255	152	296	210	290	125	391	348	473	435	125
v/c Ratio	0.49	0.44	0.39	0.63	0.34	0.56	0.30	0.47	0.55	0.91	0.38	0.21
Control Delay	19.2	29.3	8.7	22.9	27.8	8.6	12.8	24.9	6.4	40.2	20.7	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	29.3	8.7	22.9	27.8	8.6	12.8	24.9	6.4	40.2	20.7	4.9
Queue Length 50th (ft)	64	52	0	88	42	0	27	74	0	131	76	0
Queue Length 95th (ft)	129	93	47	168	78	62	62	122	60	#287	133	33
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	509	985	544	495	985	644	530	1503	872	520	1503	748
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.26	0.28	0.60	0.21	0.45	0.24	0.26	0.40	0.91	0.29	0.17

























#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

08/02/2023

1: Gartrell Rd & Aurora Pkwy  
2040 Background - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	235	140	275	195	270	115	360	320	435	400	115
Future Volume (veh/h)	210	235	140	275	195	270	115	360	320	435	400	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	228	255	152	296	210	0	125	391	348	473	435	125
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	453	499	222	432	553		464	1050	468	510	1327	592
Arrive On Green	0.13	0.14	0.14	0.15	0.16	0.00	0.07	0.30	0.30	0.15	0.37	0.37
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	228	255	152	296	210	0	125	391	348	473	435	125
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.9	4.9	6.8	10.6	3.9	0.0	3.6	6.5	14.8	11.0	6.5	4.0
Cycle Q Clear(g_c), s	7.9	4.9	6.8	10.6	3.9	0.0	3.6	6.5	14.8	11.0	6.5	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	453	499	222	432	553		464	1050	468	510	1327	592
V/C Ratio(X)	0.50	0.51	0.68	0.68	0.38		0.27	0.37	0.74	0.93	0.33	0.21
Avail Cap(c_a), veh/h	480	907	404	432	907		603	1384	617	510	1384	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	29.6	30.4	22.9	28.2	0.0	16.1	20.8	23.7	18.4	16.7	15.9
Incr Delay (d2), s/veh	0.3	0.8	3.7	3.7	0.4	0.0	0.1	0.5	5.6	23.1	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	2.1	0.2	4.6	1.6	0.0	1.3	2.5	5.8	8.0	2.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	30.4	34.1	26.6	28.6	0.0	16.3	21.2	29.3	41.4	17.0	16.2
LnGrp LOS	C	C	C	C	C		B	C	C	D	B	B
Approach Vol, veh/h		635			506			864			1033	
Approach Delay, s/veh		28.6			27.4			23.8			28.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	28.0	15.0	16.5	9.2	33.8	13.9	17.6				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	16.8	12.6	8.8	5.6	8.5	9.9	5.9				
Green Ext Time (p_c), s	0.0	5.2	0.0	1.5	0.0	5.5	0.0	0.9				




## Intersection Summary

HCM 6th Ctrl Delay 26.9  
HCM 6th LOS C

## Notes

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

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

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	625	0	5	905	2	1
Future Vol, veh/h	625	0	5	905	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	702	0	7	1207	5	3

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 611 1214
Stage 1	-	- 0 0
Stage 2	-	- 611 1214
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 457 182
Stage 1	-	- - -
Stage 2	-	- 542 254
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 457 0
Mov Cap-2 Maneuver	-	- 457 0
Stage 1	-	- - 0
Stage 2	-	- 542 0

Approach	NB	SB
HCM Control Delay, s	0	13
HCM LOS		B

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	457
HCM Lane V/C Ratio	-	-	0.017
HCM Control Delay (s)	-	-	13
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

Timings  
11/09/2023

3: SH-83/Parker Rd & Aurora Pkwy  
2040 Background - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	5	45	310	5	335	30	2280	530	415	2960	55
Future Volume (vph)	40	5	45	310	5	335	30	2280	530	415	2960	55
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	1	8	8	8.5	1	6		5	2	
Permitted Phases			4						6			2
Detector Phase	4	4	1	8	8	8.5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	6.0	8.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	13.0	13.0	11.0	25.0	25.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	13.0	13.0	12.0	25.0	25.0		12.0	77.0	77.0	30.0	95.0	95.0
Total Split (%)	9.0%	9.0%	8.3%	17.2%	17.2%		8.3%	53.1%	53.1%	20.7%	65.5%	65.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag			Lag				Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

#### Intersection Summary

Cycle Length: 145







Actuated Cycle Length: 145

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













Natural Cycle: 130

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

	Ø2 (R)			Ø1		Ø4		Ø8
95 s			12 s		13 s		25 s	
	Ø5		Ø6 (R)					
30 s		77 s						



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	5	49	326	5	353	33	2327	558	437	3020	60
v/c Ratio	0.51	0.06	0.16	0.76	0.02	0.40	0.40	0.90	0.52	0.81	0.94	0.06
Control Delay	88.0	67.4	1.2	73.1	55.4	39.7	81.4	39.0	3.5	71.5	32.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	67.4	1.2	73.1	55.4	39.7	81.4	39.0	3.5	71.5	32.2	0.1
Queue Length 50th (ft)	40	5	0	154	4	144	31	741	1	205	956	0
Queue Length 95th (ft)	#87	20	0	209	18	193	69	824	63	265	#1057	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	85	89	312	449	244	895	85	2578	1076	591	3215	1043
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.06	0.16	0.73	0.02	0.39	0.39	0.90	0.52	0.74	0.94	0.06

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

## 3: SH-83/Parker Rd & Aurora Pkwy

2040 Background - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	45	310	5	335	30	2280	530	415	2960	55
Future Volume (veh/h)	40	5	45	310	5	335	30	2280	530	415	2960	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	49	326	5	353	33	2327	558	437	3020	60
Peak Hour Factor	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.98	0.95	0.95	0.98	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	90	148	427	231	743	81	2671	829	494	3116	967
Arrive On Green	0.05	0.05	0.05	0.12	0.12	0.12	0.05	0.52	0.52	0.14	0.61	0.61
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	43	5	49	326	5	353	33	2327	558	437	3020	60
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	3.4	0.4	0.0	13.2	0.3	15.4	2.6	57.9	37.6	18.0	81.8	2.2
Cycle Q Clear(g_c), s	3.4	0.4	0.0	13.2	0.3	15.4	2.6	57.9	37.6	18.0	81.8	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	86	90	148	427	231	743	81	2671	829	494	3116	967
V/C Ratio(X)	0.50	0.06	0.33	0.76	0.02	0.47	0.41	0.87	0.67	0.89	0.97	0.06
Avail Cap(c_a), veh/h	86	90	148	453	245	764	86	2671	829	596	3116	967
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.3	65.8	61.5	61.5	55.8	44.7	67.3	30.3	25.4	61.0	26.9	11.4
Incr Delay (d2), s/veh	4.4	0.3	1.3	7.1	0.0	0.5	3.3	4.2	4.3	13.1	10.4	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	1.7	0.2	1.8	6.3	0.2	5.4	1.3	24.3	15.1	8.5	31.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.7	66.1	62.7	68.6	55.9	45.1	70.6	34.5	29.8	74.1	37.3	11.6
LnGrp LOS	E	E	E	E	E	D	E	C	C	E	D	B
Approach Vol, veh/h	97				684				2918			
Approach Delay, s/veh	66.9				56.4				34.0			
Approach LOS	E				E				C			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.1	95.0		13.0	25.7	82.4		23.9				
Change Period (Y+Rc), s	6.5	* 6.5		6.0	5.0	6.5		6.0				
Max Green Setting (Gmax), s	7.0	* 89		7.0	25.0	70.5		19.0				
Max Q Clear Time (g_c+I1), s	4.6	83.8		5.4	20.0	59.9		17.4				
Green Ext Time (p_c), s	0.0	4.6		0.0	0.7	9.8		0.5				







### Intersection Summary

HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

### Notes

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

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	315	15	20	225	10	15	40	15	10	35	20
Future Vol, veh/h	5	315	15	20	225	10	15	40	15	10	35	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	342	16	22	245	11	16	43	16	11	38	22

























Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	256	0	0	358	0	0	546	660	179	498	663	128
Stage 1	-	-	-	-	-	-	360	360	-	295	295	-
Stage 2	-	-	-	-	-	-	186	300	-	203	368	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1306	-	-	1197	-	-	421	382	833	455	380	898
Stage 1	-	-	-	-	-	-	631	625	-	689	668	-
Stage 2	-	-	-	-	-	-	798	664	-	780	620	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1306	-	-	1197	-	-	372	374	833	399	372	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	372	374	-	399	372	-
Stage 1	-	-	-	-	-	-	628	623	-	686	656	-
Stage 2	-	-	-	-	-	-	720	652	-	709	618	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.6	15.3	14.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	424	1306	-	-	1197	-	-	460
HCM Lane V/C Ratio	0.179	0.004	-	-	0.018	-	-	0.154
HCM Control Delay (s)	15.3	7.8	-	-	8.1	-	-	14.2
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.5

Intersection						
Intersection Delay, s/veh	5.9					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	907		328		16	316
Demand Flow Rate, veh/h	925		334		16	322
Vehicles Circulating, veh/h	11		443		925	343
Vehicles Exiting, veh/h	654		498		11	434
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	5.7		5.7		5.8	6.5
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	435	490	157	177	16	322
Cap Entry Lane, veh/h	1336	1407	898	974	647	1061
Entry HV Adj Factor	0.980	0.982	0.981	0.981	1.000	0.981
Flow Entry, veh/h	426	481	154	174	16	316
Cap Entry, veh/h	1310	1381	881	956	647	1041
V/C Ratio	0.326	0.348	0.175	0.182	0.025	0.304
Control Delay, s/veh	5.7	5.7	5.8	5.5	5.8	6.5
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	2	1	1	0	1

***Intersection Capacity Worksheets:***  
***2040 Background***  
***WITH Pine Drive***  
***Extension***

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	165	85	280	270	520	85	260	140	145	95	325
Future Volume (vph)	360	165	85	280	270	520	85	260	140	145	95	325
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	29.0	15.9	15.9	26.3	14.5	14.5	21.3	13.0	13.0	25.4	16.7	16.7
Actuated g/C Ratio	0.43	0.24	0.24	0.39	0.22	0.22	0.32	0.19	0.19	0.38	0.25	0.25
v/c Ratio	0.70	0.21	0.19	0.55	0.38	0.80	0.20	0.41	0.35	0.36	0.12	0.54
Control Delay	22.4	22.5	3.1	16.6	24.3	15.1	14.6	26.5	7.5	16.0	22.4	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	22.5	3.1	16.6	24.3	15.1	14.6	26.5	7.5	16.0	22.4	6.4
LOS	C	C	A	B	C	B	B	C	A	B	C	A
Approach Delay		19.7			17.8			18.9			11.6	
Approach LOS		B			B			B			B	

#### Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 66.9

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 17.2









Intersection LOS: B













Intersection Capacity Utilization 73.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
15 s	35 s	15 s	25 s
			
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	391	179	92	301	290	559	92	283	152	158	103	353
v/c Ratio	0.70	0.21	0.19	0.55	0.38	0.80	0.20	0.41	0.35	0.36	0.12	0.54
Control Delay	22.4	22.5	3.1	16.6	24.3	15.1	14.6	26.5	7.5	16.0	22.4	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	22.5	3.1	16.6	24.3	15.1	14.6	26.5	7.5	16.0	22.4	6.4
Queue Length 50th (ft)	99	31	0	72	52	32	23	53	0	41	17	0
Queue Length 95th (ft)	#226	62	17	149	95	#167	53	96	45	83	39	62
Internal Link Dist (ft)	846		846		1151		535					
Turn Bay Length (ft)	180	475		260	230		260	145		435		
Base Capacity (vph)	556	1021	545	590	1021	781	573	1559	782	505	1559	895
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.18	0.17	0.51	0.28	0.72	0.16	0.18	0.19	0.31	0.07	0.39

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

08/01/2023

## 1: Gartrell Rd & Aurora Pkwy

2040 Background with Pine Ext - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	360	165	85	280	270	520	85	260	140	145	95	325
Future Volume (veh/h)	360	165	85	280	270	520	85	260	140	145	95	325
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	391	179	92	301	290	0	92	283	152	158	103	353
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	523	605	269	553	576		451	897	400	455	1019	455
Arrive On Green	0.18	0.17	0.17	0.17	0.16	0.00	0.06	0.25	0.25	0.09	0.29	0.29
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	391	179	92	301	290	0	92	283	152	158	103	353
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.0	2.8	3.2	8.5	4.7	0.0	2.4	4.1	5.0	4.0	1.3	12.8
Cycle Q Clear(g_c), s	11.0	2.8	3.2	8.5	4.7	0.0	2.4	4.1	5.0	4.0	1.3	12.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	523	605	269	553	576		451	897	400	455	1019	455
V/C Ratio(X)	0.75	0.30	0.34	0.54	0.50		0.20	0.32	0.38	0.35	0.10	0.78
Avail Cap(c_a), veh/h	523	1078	480	568	1078		664	1646	734	607	1646	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	22.7	22.9	17.0	23.9	0.0	15.8	19.0	19.4	14.9	16.4	20.5
Incr Delay (d2), s/veh	5.2	0.3	0.7	0.5	0.7	0.0	0.1	0.4	1.3	0.2	0.1	6.0
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	1.1	1.2	3.2	1.9	0.0	0.8	1.5	1.8	1.4	0.5	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	23.0	23.6	17.5	24.6	0.0	15.9	19.4	20.6	15.1	16.5	26.5
LnGrp LOS	C	C	C	B	C		B	B	C	B	B	C
Approach Vol, veh/h		662			591			527			614	
Approach Delay, s/veh		23.3			21.0			19.2			21.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	21.8	14.5	16.7	7.5	24.0	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	6.0	7.0	10.5	5.2	4.4	14.8	13.0	6.7				
Green Ext Time (p_c), s	0.1	4.2	0.0	1.1	0.0	3.2	0.0	1.3				

### Intersection Summary

HCM 6th Ctrl Delay 21.4


















HCM 6th LOS C

### Notes

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

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



					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		  	  	 
Traffic Volume (vph)	805	165	275	30	200
Future Volume (vph)	805	165	275	30	200
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	3	2		1	6
Permitted Phases			2	6	
Detector Phase	3	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	11.0	24.0	24.0	11.0	24.0
Total Split (s)	25.0	24.0	24.0	11.0	35.0
Total Split (%)	41.7%	40.0%	40.0%	18.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min
Act Effect Green (s)	15.9	12.1	12.1	15.5	15.5
Actuated g/C Ratio	0.36	0.27	0.27	0.35	0.35
v/c Ratio	0.71	0.35	0.46	0.08	0.33
Control Delay	17.7	17.3	5.2	9.4	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	17.3	5.2	9.4	11.7
LOS	B	B	A	A	B
Approach Delay	17.7	9.7			11.4
Approach LOS	B	A			B

#### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 44.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 14.4





Intersection LOS: B






Intersection Capacity Utilization 50.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Pine Dr & Inspiration Dr

 Ø1	 Ø2	 Ø3
11 s	24 s	25 s
 Ø6		
35 s		

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	879	179	299	33	217
v/c Ratio	0.71	0.35	0.46	0.08	0.33
Control Delay	17.7	17.3	5.2	9.4	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	17.3	5.2	9.4	11.7
Queue Length 50th (ft)	67	30	0	5	37
Queue Length 95th (ft)	#218	95	47	18	79
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)					
Base Capacity (vph)	1568	804	853	398	1296
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	0.56	0.22	0.35	0.08	0.17












#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

08/01/2023

2: Pine Dr & Inspiration Dr  
2040 Background with Pine Ext - AM Peak Hour







						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	805	4	165	275	30	200
Future Volume (veh/h)	805	4	165	275	30	200
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	879	0	179	299	33	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1125	501	465	394	381	784
Arrive On Green	0.32	0.00	0.25	0.25	0.04	0.42
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	879	0	179	299	33	217
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	10.1	0.0	3.6	7.9	0.6	3.5
Cycle Q Clear(g_c), s	10.1	0.0	3.6	7.9	0.6	3.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1125	501	465	394	381	784
V/C Ratio(X)	0.78	0.00	0.38	0.76	0.09	0.28
Avail Cap(c_a), veh/h	1496	666	744	631	511	1199
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	14.1	15.7	10.7	8.6
Incr Delay (d2), s/veh	2.0	0.0	0.5	3.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	1.4	2.7	0.2	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.0	0.0	14.6	18.7	10.8	8.8
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	879		478			250
Approach Delay, s/veh	16.0		17.2			9.1
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.7	17.3			25.0	20.3
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	18.0			29.0	19.0
Max Q Clear Time (g_c+I1), s	2.6	9.9			5.5	12.1
Green Ext Time (p_c), s	0.0	1.4			1.2	2.2

## Intersection Summary

HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

## Notes

User approved volume balancing among the lanes for turning movement.

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	430	10	15	575	10	10	30	20	10	35	1
Future Vol, veh/h	1	430	10	15	575	10	10	30	20	10	35	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	467	11	16	625	11	11	33	22	11	38	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	636	0	0	478	0	0	839	1143	239	915	1143	318
Stage 1	-	-	-	-	-	-	475	475	-	663	663	-
Stage 2	-	-	-	-	-	-	364	668	-	252	480	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	943	-	-	1081	-	-	259	199	762	228	199	678
Stage 1	-	-	-	-	-	-	539	556	-	417	457	-
Stage 2	-	-	-	-	-	-	627	455	-	730	553	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	943	-	-	1081	-	-	217	196	762	191	196	678
Mov Cap-2 Maneuver	-	-	-	-	-	-	217	196	-	191	196	-
Stage 1	-	-	-	-	-	-	538	555	-	417	450	-
Stage 2	-	-	-	-	-	-	565	448	-	667	552	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	22.9	29.2
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	266	943	-	-	1081	-	-	198
HCM Lane V/C Ratio	0.245	0.001	-	-	0.015	-	-	0.253
HCM Control Delay (s)	22.9	8.8	-	-	8.4	-	-	29.2
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	1

Intersection

Int Delay, s/veh 3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	↖
Traffic Vol, veh/h	295	15	175	520	25	170
Future Vol, veh/h	295	15	175	520	25	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	321	16	190	565	27	185

























Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	337
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1219
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1219
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	205	845	-	-	1219	-
HCM Lane V/C Ratio	0.133	0.219	-	-	0.156	-
HCM Control Delay (s)	25.2	10.4	-	-	8.5	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.8	-	-	0.6	-

Timings  
08/01/2023

1: Gartrell Rd & Aurora Pkwy  
2040 Background with Pine Ext - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	300	140	275	195	270	120	195	170	435	280	235
Future Volume (vph)	345	300	140	275	195	270	120	195	170	435	280	235
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	25.9	13.1	13.1	24.2	12.2	12.2	21.4	12.2	12.2	28.4	18.0	18.0
Actuated g/C Ratio	0.39	0.20	0.20	0.36	0.18	0.18	0.32	0.18	0.18	0.43	0.27	0.27
v/c Ratio	0.70	0.47	0.35	0.61	0.32	0.55	0.31	0.33	0.42	0.90	0.32	0.42
Control Delay	23.1	26.7	7.4	19.5	25.3	8.0	14.3	25.3	7.5	40.5	22.5	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	26.7	7.4	19.5	25.3	8.0	14.3	25.3	7.5	40.5	22.5	5.9
LOS	C	C	A	B	C	A	B	C	A	D	C	A
Approach Delay		21.7			16.8			16.4			26.6	
Approach LOS		C			B			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 66.4

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 21.2









Intersection LOS: C













Intersection Capacity Utilization 77.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	375	326	152	296	210	290	130	212	185	473	304	255
v/c Ratio	0.70	0.47	0.35	0.61	0.32	0.55	0.31	0.33	0.42	0.90	0.32	0.42
Control Delay	23.1	26.7	7.4	19.5	25.3	8.0	14.3	25.3	7.5	40.5	22.5	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	26.7	7.4	19.5	25.3	8.0	14.3	25.3	7.5	40.5	22.5	5.9
Queue Length 50th (ft)	100	61	0	74	38	0	29	38	0	135	52	0
Queue Length 95th (ft)	#206	108	44	151	73	59	67	72	48	#282	99	54
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	541	1019	558	516	1019	656	520	1556	799	525	1556	839
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.32	0.27	0.57	0.21	0.44	0.25	0.14	0.23	0.90	0.20	0.30

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

08/01/2023

## 1: Gartrell Rd & Aurora Pkwy

2040 Background with Pine Ext - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	345	300	140	275	195	270	120	195	170	435	280	235
Future Volume (veh/h)	345	300	140	275	195	270	120	195	170	435	280	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	375	326	152	296	210	0	130	212	185	473	304	255
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	537	577	257	477	559		418	683	305	554	1003	447
Arrive On Green	0.17	0.16	0.16	0.17	0.16	0.00	0.08	0.19	0.19	0.17	0.28	0.28
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	375	326	152	296	210	0	130	212	185	473	304	255
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.0	5.5	5.7	8.7	3.4	0.0	3.7	3.3	6.9	11.0	4.3	8.9
Cycle Q Clear(g_c), s	11.0	5.5	5.7	8.7	3.4	0.0	3.7	3.3	6.9	11.0	4.3	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	537	577	257	477	559		418	683	305	554	1003	447
V/C Ratio(X)	0.70	0.56	0.59	0.62	0.38		0.31	0.31	0.61	0.85	0.30	0.57
Avail Cap(c_a), veh/h	537	1046	466	486	1046		578	1596	712	554	1596	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.8	24.9	25.1	18.1	24.4	0.0	18.4	22.4	23.9	18.2	18.2	19.8
Incr Delay (d2), s/veh	3.4	0.9	2.2	1.7	0.4	0.0	0.2	0.5	4.1	11.7	0.4	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	2.2	2.2	3.4	1.4	0.0	1.4	1.3	2.7	6.5	1.6	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	25.8	27.2	19.8	24.8	0.0	18.6	23.0	28.0	29.9	18.5	22.3
LnGrp LOS	C	C	C	B	C		B	C	C	C	B	C
Approach Vol, veh/h		853			506			527			1032	
Approach Delay, s/veh		24.4			21.8			23.6			24.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	18.4	14.7	16.5	9.2	24.2	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	8.9	10.7	7.7	5.7	10.9	13.0	5.4				
Green Ext Time (p_c), s	0.0	3.5	0.0	1.9	0.0	4.8	0.0	1.0				

### Intersection Summary















HCM 6th Ctrl Delay	23.9
HCM 6th LOS	C

### Notes

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

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



					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	495	375	540	29	140
Future Volume (vph)	495	375	540	29	140
Turn Type	Prot	NA	pm+ov	pm+pt	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2	6	
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	24.0	25.0	24.0	11.0	36.0
Total Split (%)	40.0%	41.7%	40.0%	18.3%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Min	None	None	Min
Act Effect Green (s)	13.8	14.9	39.9	18.2	18.2
Actuated g/C Ratio	0.31	0.33	0.89	0.40	0.40
v/c Ratio	0.55	0.66	0.40	0.09	0.20
Control Delay	16.2	21.2	1.2	8.4	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	21.2	1.2	8.4	9.2
LOS	B	C	A	A	A
Approach Delay	16.2	9.4			9.1
Approach LOS	B	A			A

#### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 45

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 11.6





Intersection LOS: B






Intersection Capacity Utilization 49.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Pine Dr & Inspiration Dr

 Ø1	 Ø2	
11 s	25 s	
 Ø6		 Ø8
36 s		24 s

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	581	408	587	32	152
v/c Ratio	0.55	0.66	0.40	0.09	0.20
Control Delay	16.2	21.2	1.2	8.4	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	21.2	1.2	8.4	9.2
Queue Length 50th (ft)	49	72	0	5	23
Queue Length 95th (ft)	131	#220	20	17	55
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)					
Base Capacity (vph)	1485	850	1460	360	1342
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.39	0.48	0.40	0.09	0.11












#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

08/01/2023

2: Pine Dr & Inspiration Dr  
2040 Background with Pine Ext - PM Peak Hour







						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	495	40	375	540	29	140
Future Volume (veh/h)	495	40	375	540	29	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	578	0	408	587	32	152
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	808	360	648	909	314	959
Arrive On Green	0.23	0.00	0.35	0.35	0.04	0.51
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	578	0	408	587	32	152
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	6.9	0.0	8.4	11.6	0.5	2.0
Cycle Q Clear(g_c), s	6.9	0.0	8.4	11.6	0.5	2.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	808	360	648	909	314	959
V/C Ratio(X)	0.72	0.00	0.63	0.65	0.10	0.16
Avail Cap(c_a), veh/h	1390	618	770	1012	442	1216
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	0.0	12.6	6.7	9.0	6.0
Incr Delay (d2), s/veh	1.2	0.0	1.2	1.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	3.1	5.4	0.2	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.7	0.0	13.8	7.9	9.1	6.0
LnGrp LOS	B	A	B	A	A	A
Approach Vol, veh/h	578		995			184
Approach Delay, s/veh	17.7		10.3			6.6
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.7	22.0			29.7	16.5
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	19.0			30.0	18.0
Max Q Clear Time (g_c+I1), s	2.5	13.6			4.0	8.9
Green Ext Time (p_c), s	0.0	2.4			0.8	1.6

## Intersection Summary

HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

## Notes

User approved volume balancing among the lanes for turning movement.

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	675	10	20	345	10	10	35	15	10	35	20
Future Vol, veh/h	5	675	10	20	345	10	10	35	15	10	35	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	734	11	22	375	11	11	38	16	11	38	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	386	0	0	745	0	0	1001	1180	373	821	1180	193
Stage 1	-	-	-	-	-	-	750	750	-	425	425	-
Stage 2	-	-	-	-	-	-	251	430	-	396	755	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1169	-	-	859	-	-	197	189	624	266	189	816
Stage 1	-	-	-	-	-	-	369	417	-	578	585	-
Stage 2	-	-	-	-	-	-	731	582	-	601	415	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1169	-	-	859	-	-	158	183	624	213	183	816
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	183	-	213	183	-
Stage 1	-	-	-	-	-	-	368	415	-	576	570	-
Stage 2	-	-	-	-	-	-	647	567	-	529	413	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.5			28.9			25.3		
HCM LOS							D			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	215	1169	-	-	859	-	-	247
HCM Lane V/C Ratio	0.303	0.005	-	-	0.025	-	-	0.286
HCM Control Delay (s)	28.9	8.1	-	-	9.3	-	-	25.3
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.2	0	-	-	0.1	-	-	1.1

Intersection						
Intersection Delay, s/veh	5.9					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	924		322		16	316
Demand Flow Rate, veh/h	942		328		16	322
Vehicles Circulating, veh/h	11		443		942	337
Vehicles Exiting, veh/h	648		515		11	434
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	5.8		5.6		5.9	6.4
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	443	499	154	174	16	322
Cap Entry Lane, veh/h	1336	1407	898	974	638	1066
Entry HV Adj Factor	0.980	0.982	0.982	0.980	1.000	0.981
Flow Entry, veh/h	434	490	151	171	16	316
Cap Entry, veh/h	1310	1381	882	955	638	1046
V/C Ratio	0.332	0.355	0.171	0.179	0.025	0.302
Control Delay, s/veh	5.8	5.8	5.8	5.5	5.9	6.4
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	2	1	1	0	1

Intersection

Int Delay, s/veh 4.9

























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↘
Traffic Vol, veh/h	460	25	125	300	15	325
Future Vol, veh/h	460	25	125	300	15	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	500	27	136	326	16	353

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	527
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1036
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1036
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	225	734	-	-	1036	-
HCM Lane V/C Ratio	0.072	0.481	-	-	0.131	-
HCM Control Delay (s)	22.2	14.4	-	-	9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	2.6	-	-	0.5	-

***Intersection Capacity Worksheets:***  
***2030 Background + Project***  
***No Pine Drive***  
***Extension***

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	82	63	285	227	530	71	380	190	145	280	134
Future Volume (vph)	230	82	63	285	227	530	71	380	190	145	280	134
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

#### Intersection Summary









Cycle Length: 90

Actuated Cycle Length: 70.2













Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	250	89	68	306	244	570	77	413	207	158	304	146
v/c Ratio	0.52	0.11	0.15	0.54	0.31	0.84	0.18	0.51	0.40	0.38	0.30	0.26
Control Delay	18.9	24.0	1.0	18.7	25.2	21.3	13.9	26.7	6.4	15.8	22.0	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	24.0	1.0	18.7	25.2	21.3	13.9	26.7	6.4	15.8	22.0	5.6
Queue Length 50th (ft)	66	16	0	84	47	56	21	88	0	46	60	0
Queue Length 95th (ft)	140	38	3	173	88	#260	45	136	49	82	96	39
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	513	986	531	573	986	739	549	1504	792	481	1504	757
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.09	0.13	0.53	0.25	0.77	0.14	0.27	0.26	0.33	0.20	0.19

























#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

1: Gartrell Rd & Aurora Pkwy  
2030 Back+Project - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	82	63	285	227	530	71	380	190	145	280	134
Future Volume (veh/h)	230	82	63	285	227	530	71	380	190	145	280	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	250	89	68	306	244	0	77	413	207	158	304	146
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	526	592	264	599	684		411	869	388	396	1023	456
Arrive On Green	0.14	0.17	0.17	0.17	0.19	0.00	0.05	0.24	0.24	0.09	0.29	0.29
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	250	89	68	306	244	0	77	413	207	158	304	146
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.9	1.3	2.3	8.4	3.6	0.0	1.9	6.1	6.9	3.9	4.1	4.4
Cycle Q Clear(g_c), s	6.9	1.3	2.3	8.4	3.6	0.0	1.9	6.1	6.9	3.9	4.1	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	526	592	264	599	684		411	869	388	396	1023	456
V/C Ratio(X)	0.48	0.15	0.26	0.51	0.36		0.19	0.48	0.53	0.40	0.30	0.32
Avail Cap(c_a), veh/h	590	1108	493	618	1108		648	1691	754	556	1691	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	21.7	22.1	16.2	21.3	0.0	16.0	19.7	20.0	14.8	16.9	17.0
Incr Delay (d2), s/veh	0.2	0.1	0.5	0.3	0.3	0.0	0.1	0.9	2.4	0.2	0.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.5	0.8	3.0	1.4	0.0	0.7	2.3	2.6	1.3	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.1	21.8	22.6	16.5	21.7	0.0	16.1	20.5	22.4	15.0	17.2	17.9
LnGrp LOS	B	C	C	B	C		B	C	C	B	B	B
Approach Vol, veh/h		407			550			697			608	
Approach Delay, s/veh		19.1			18.8			20.6			16.8	
Approach LOS		B			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	20.9	14.4	16.2	6.9	23.5	12.8	17.7				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.9	8.9	10.4	4.3	3.9	6.4	8.9	5.6				
Green Ext Time (p_c), s	0.1	6.0	0.0	0.5	0.0	4.4	0.1	1.1				

## Intersection Summary

HCM 6th Ctrl Delay 18.9  
HCM 6th LOS B




## Notes

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

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

Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	896	0	0	405	0	5
Future Vol, veh/h	896	0	0	405	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1007	0	0	540	0	13

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 270 540
Stage 1	-	- 0 0
Stage 2	-	- 270 540
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 719 449
Stage 1	-	- - -
Stage 2	-	- 775 521
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 719 0
Mov Cap-2 Maneuver	-	- 719 0
Stage 1	-	- - 0
Stage 2	-	- 775 0

Approach	NB	SB
HCM Control Delay, s	0	
HCM LOS		-

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Timings  
11/09/2023

3: SH-83/Parker Rd & Aurora Pkwy  
2030 Back+Project - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	5	25	341	5	352	30	2010	164	170	2080	30
Future Volume (vph)	25	5	25	341	5	352	30	2010	164	170	2080	30
Turn Type	Split	NA	Perm	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	8 5	1	6		5	2	
Permitted Phases			4						6			2
Detector Phase	4	4	4	8	8	8 5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		5.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	16.0	16.0	16.0	20.0	20.0		10.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	18.0	18.0	18.0	26.0	26.0		10.0	59.0	59.0	17.0	66.0	66.0
Total Split (%)	15.0%	15.0%	15.0%	21.7%	21.7%		8.3%	49.2%	49.2%	14.2%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag							Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	None	None		None	C-Max	C-Max	None	C-Max	C-Max

#### Intersection Summary

Cycle Length: 120







Actuated Cycle Length: 120













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

Natural Cycle: 95

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø2 (R)	 Ø1	 Ø4	 Ø8
66 s	10 s	18 s	26 s
 Ø5	 Ø6 (R)		
17 s	59 s		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	5	27	371	5	383	33	2185	178	185	2261	33
v/c Ratio	0.22	0.04	0.09	0.64	0.02	0.46	0.45	0.91	0.21	0.59	0.80	0.03
Control Delay	57.0	52.4	0.6	51.8	40.0	35.3	75.7	36.4	3.5	60.0	25.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.0	52.4	0.6	51.8	40.0	35.3	75.7	36.4	3.5	60.0	25.3	0.1
Queue Length 50th (ft)	20	4	0	139	3	134	26	565	0	71	530	0
Queue Length 95th (ft)	51	17	0	187	15	180	#65	#727	41	109	640	0
Internal Link Dist (ft)	328			3664			3398			668		
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	177	186	330	608	330	835	73	2412	844	346	2838	945
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.03	0.08	0.61	0.02	0.46	0.45	0.91	0.21	0.53	0.80	0.03

























#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

3: SH-83/Parker Rd & Aurora Pkwy  
2030 Back+Project - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	25	341	5	352	30	2010	164	170	2080	30
Future Volume (veh/h)	25	5	25	341	5	352	30	2010	164	170	2080	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	5	27	371	5	383	33	2185	178	185	2261	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	125	106	516	279	614	142	2643	820	244	2532	786
Arrive On Green	0.07	0.07	0.07	0.15	0.15	0.15	0.08	0.52	0.52	0.07	0.50	0.50
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	27	5	27	371	5	383	33	2185	178	185	2261	33
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	1.7	0.3	1.9	12.3	0.3	14.9	2.1	43.3	7.3	6.3	48.1	1.3
Cycle Q Clear(g_c), s	1.7	0.3	1.9	12.3	0.3	14.9	2.1	43.3	7.3	6.3	48.1	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	125	106	516	279	614	142	2643	820	244	2532	786
V/C Ratio(X)	0.23	0.04	0.26	0.72	0.02	0.62	0.23	0.83	0.22	0.76	0.89	0.04
Avail Cap(c_a), veh/h	178	187	159	576	312	662	142	2643	820	346	2532	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	52.4	53.2	48.6	43.5	42.3	51.8	24.4	15.7	54.8	27.4	15.6
Incr Delay (d2), s/veh	1.0	0.1	1.3	3.8	0.0	1.6	0.8	3.1	0.6	6.0	5.3	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	0.8	0.1	0.8	5.6	0.1	5.3	1.0	17.6	2.8	2.8	18.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.0	52.5	54.4	52.5	43.6	44.0	52.6	27.5	16.3	60.7	32.7	15.7
LnGrp LOS	D	D	D	D	D	D	D	C	B	E	C	B
Approach Vol, veh/h	59			759			2396			2479		
Approach Delay, s/veh	54.1			48.1			27.1			34.6		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.1	66.0		14.0	13.5	68.6		23.9				
Change Period (Y+Rc), s	6.5	* 6.5		6.0	5.0	6.5		6.0				
Max Green Setting (Gmax), s	5.0	* 60		12.0	12.0	52.5		20.0				
Max Q Clear Time (g_c+I1), s	4.1	50.1		3.9	8.3	45.3		16.9				
Green Ext Time (p_c), s	0.0	8.0		0.1	0.2	6.5		1.0				

## Intersection Summary

HCM 6th Ctrl Delay 33.4  
HCM 6th LOS C







## Notes

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

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	285	19	10	367	10	11	25	10	10	30	11
Future Vol, veh/h	18	285	19	10	367	10	11	25	10	10	30	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	310	21	11	399	11	12	27	11	11	33	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	410	0	0	331	0	0	599	793	166	636	798	205
Stage 1	-	-	-	-	-	-	361	361	-	427	427	-
Stage 2	-	-	-	-	-	-	238	432	-	209	371	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1145	-	-	1225	-	-	385	320	849	363	317	802
Stage 1	-	-	-	-	-	-	630	624	-	576	584	-
Stage 2	-	-	-	-	-	-	744	581	-	774	618	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1145	-	-	1225	-	-	342	312	849	328	309	802
Mov Cap-2 Maneuver	-	-	-	-	-	-	342	312	-	328	309	-
Stage 1	-	-	-	-	-	-	619	613	-	566	579	-
Stage 2	-	-	-	-	-	-	685	576	-	717	607	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	16.2	16.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	371	1145	-	-	1225	-	-	361
HCM Lane V/C Ratio	0.135	0.017	-	-	0.009	-	-	0.154
HCM Control Delay (s)	16.2	8.2	-	-	8	-	-	16.8
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.5

Intersection						
Intersection Delay, s/veh	4.6					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	360		643		4	
Demand Flow Rate, veh/h	367		656		4	
Vehicles Circulating, veh/h	9		40		365	
Vehicles Exiting, veh/h	742		329		11	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	3.8		4.9		3.5	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.469	0.531	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	172	195	308	348	4	94
Cap Entry Lane, veh/h	1339	1409	1301	1373	1041	812
Entry HV Adj Factor	0.983	0.977	0.982	0.980	1.000	0.979
Flow Entry, veh/h	169	191	302	341	4	92
Cap Entry, veh/h	1315	1377	1277	1345	1041	795
V/C Ratio	0.128	0.138	0.237	0.254	0.004	0.116
Control Delay, s/veh	3.8	3.7	4.9	4.9	3.5	5.7
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	1	1	0	0



Intersection

























Int Delay, s/veh 2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	255	35	16	465	106	47
Future Vol, veh/h	255	35	16	465	106	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	277	38	17	505	115	51

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	315
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1242
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1242
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	515	-	-	1242	-
HCM Lane V/C Ratio	0.323	-	-	0.014	-
HCM Control Delay (s)	15.3	-	-	7.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.4	-	-	0	-

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	170	97	260	162	270	109	365	320	440	400	136
Future Volume (vph)	201	170	97	260	162	270	109	365	320	440	400	136
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

#### Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 68.6

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	218	185	105	280	174	290	118	397	348	478	435	148
v/c Ratio	0.47	0.32	0.29	0.58	0.28	0.57	0.28	0.48	0.54	0.92	0.37	0.24
Control Delay	18.8	28.1	5.7	21.4	27.3	8.8	12.5	24.7	6.4	41.0	20.3	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	28.1	5.7	21.4	27.3	8.8	12.5	24.7	6.4	41.0	20.3	5.1
Queue Length 50th (ft)	61	37	0	82	34	0	26	75	0	132	75	0
Queue Length 95th (ft)	123	71	27	160	67	62	58	124	60	#367	132	40
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	517	990	533	509	990	646	533	1511	875	521	1511	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.19	0.20	0.55	0.18	0.45	0.22	0.26	0.40	0.92	0.29	0.19

























#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

1: Gartrell Rd & Aurora Pkwy  
2030 Back+Project - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	170	97	260	162	270	109	365	320	440	400	136
Future Volume (veh/h)	201	170	97	260	162	270	109	365	320	440	400	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	218	185	105	280	174	0	118	397	348	478	435	148
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	463	488	217	459	559		458	1053	470	510	1345	600
Arrive On Green	0.13	0.14	0.14	0.15	0.16	0.00	0.07	0.30	0.30	0.15	0.38	0.38
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	218	185	105	280	174	0	118	397	348	478	435	148
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.6	3.5	4.5	9.9	3.2	0.0	3.4	6.6	14.7	11.0	6.4	4.7
Cycle Q Clear(g_c), s	7.6	3.5	4.5	9.9	3.2	0.0	3.4	6.6	14.7	11.0	6.4	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	463	488	217	459	559		458	1053	470	510	1345	600
V/C Ratio(X)	0.47	0.38	0.48	0.61	0.31		0.26	0.38	0.74	0.94	0.32	0.25
Avail Cap(c_a), veh/h	499	910	405	459	910		604	1389	620	510	1389	620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	29.1	29.6	22.6	27.7	0.0	16.1	20.7	23.5	18.4	16.3	15.8
Incr Delay (d2), s/veh	0.3	0.5	1.7	1.7	0.3	0.0	0.1	0.5	5.5	24.8	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	1.5	1.7	4.1	1.3	0.0	1.2	2.6	5.8	8.3	2.3	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	29.6	31.2	24.3	28.0	0.0	16.2	21.1	29.1	43.2	16.6	16.3
LnGrp LOS	C	C	C	C	C		B	C	C	D	B	B
Approach Vol, veh/h		508			454			863			1061	
Approach Delay, s/veh		27.1			25.7			23.7			28.5	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	28.0	15.0	16.2	8.9	34.1	13.5	17.7				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	16.7	11.9	6.5	5.4	8.4	9.6	5.2				
Green Ext Time (p_c), s	0.0	5.3	0.0	1.1	0.0	5.7	0.0	0.8				

## Intersection Summary

HCM 6th Ctrl Delay 26.4  
HCM 6th LOS C




## Notes

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

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

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	551	0	5	806	2	1
Future Vol, veh/h	551	0	5	806	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	619	0	7	1075	5	3

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 545 1082
Stage 1	-	- 0 0
Stage 2	-	- 545 1082
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 499 217
Stage 1	-	- - -
Stage 2	-	- 581 294
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 499 0
Mov Cap-2 Maneuver	-	- 499 0
Stage 1	-	- - 0
Stage 2	-	- 581 0

Approach	NB	SB
HCM Control Delay, s	0	12.3
HCM LOS		B

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	499
HCM Lane V/C Ratio	-	-	0.016
HCM Control Delay (s)	-	-	12.3
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Timings  
11/09/2023

3: SH-83/Parker Rd & Aurora Pkwy  
2030 Back+Project - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	5	40	185	5	199	25	2330	372	262	2135	50
Future Volume (vph)	35	5	40	185	5	199	25	2330	372	262	2135	50
Turn Type	Split	NA	Perm	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	8 5	1	6		5	2	
Permitted Phases			4						6			2
Detector Phase	4	4	4	8	8	8 5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	14.0	14.0	14.0	20.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	14.0	14.0	14.0	22.0	22.0		11.0	63.0	63.0	21.0	73.0	73.0
Total Split (%)	11.7%	11.7%	11.7%	18.3%	18.3%		9.2%	52.5%	52.5%	17.5%	60.8%	60.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag							Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	None	None		None	C-Max	C-Max	None	C-Max	C-Max

#### Intersection Summary

Cycle Length: 120







Actuated Cycle Length: 120













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

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø2 (R)	 Ø1	 Ø4	 Ø8
73 s	11 s	14 s	22 s
 Ø5	 Ø6 (R)		
21 s	63 s		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	38	5	43	201	5	216	27	2533	404	285	2321	54
v/c Ratio	0.32	0.04	0.15	0.54	0.03	0.29	0.31	0.98	0.40	0.69	0.74	0.05
Control Delay	61.1	53.2	1.1	56.0	46.4	34.8	64.4	43.1	3.0	59.4	19.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	53.2	1.1	56.0	46.4	34.8	64.4	43.1	3.0	59.4	19.4	0.1
Queue Length 50th (ft)	29	4	0	77	4	75	21	687	0	109	481	0
Queue Length 95th (ft)	66	17	0	113	16	107	52	#879	53	155	584	0
Internal Link Dist (ft)		328			3664			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	118	124	283	457	248	749	88	2586	1003	462	3133	1029
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.04	0.15	0.44	0.02	0.29	0.31	0.98	0.40	0.62	0.74	0.05

























#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

3: SH-83/Parker Rd & Aurora Pkwy  
2030 Back+Project - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	40	185	5	199	25	2330	372	262	2135	50
Future Volume (veh/h)	35	5	40	185	5	199	25	2330	372	262	2135	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	5	43	201	5	216	27	2533	404	285	2321	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	125	106	316	171	536	141	2785	864	348	2830	878
Arrive On Green	0.07	0.07	0.07	0.09	0.09	0.09	0.08	0.55	0.55	0.10	0.55	0.55
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	38	5	43	201	5	216	27	2533	404	285	2321	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.4	0.3	3.1	6.7	0.3	8.1	1.7	53.7	18.7	9.7	44.6	1.9
Cycle Q Clear(g_c), s	2.4	0.3	3.1	6.7	0.3	8.1	1.7	53.7	18.7	9.7	44.6	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	125	106	316	171	536	141	2785	864	348	2830	878
V/C Ratio(X)	0.32	0.04	0.41	0.64	0.03	0.40	0.19	0.91	0.47	0.82	0.82	0.06
Avail Cap(c_a), veh/h	119	125	106	461	249	653	141	2785	864	461	2830	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	52.4	53.7	52.6	49.6	42.4	51.6	24.6	16.6	52.9	21.9	12.3
Incr Delay (d2), s/veh	1.5	0.1	2.5	2.1	0.1	0.5	0.7	5.7	1.8	8.6	2.8	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	0.1	1.3	3.0	0.1	2.8	0.8	22.0	7.1	4.4	16.1	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	52.5	56.2	54.7	49.7	42.9	52.3	30.3	18.5	61.5	24.7	12.5
LnGrp LOS	D	D	E	D	D	D	D	C	B	E	C	B
Approach Vol, veh/h	86			422			2964			2660		
Approach Delay, s/veh	55.4			48.6			28.9			28.4		
Approach LOS	E			D			C			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	16.0	73.0	14.0		17.1	71.9	17.0					
Change Period (Y+Rc), s	6.5	* 6.5	6.0		5.0	6.5	6.0					
Max Green Setting (Gmax), s	6.0	* 67	8.0		16.0	56.5	16.0					
Max Q Clear Time (g_c+I1), s	3.7	46.6	5.1		11.7	55.7	10.1					
Green Ext Time (p_c), s	0.0	15.3	0.0		0.4	0.8	0.9					

## Intersection Summary







HCM 6th Ctrl Delay 30.4  
HCM 6th LOS C

## Notes

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

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	303	17	15	247	10	19	25	10	10	30	18
Future Vol, veh/h	12	303	17	15	247	10	19	25	10	10	30	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	329	18	16	268	11	21	27	11	11	33	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	279	0	0	347	0	0	547	675	174	510	679	140
Stage 1	-	-	-	-	-	-	364	364	-	306	306	-
Stage 2	-	-	-	-	-	-	183	311	-	204	373	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1281	-	-	1209	-	-	420	374	839	446	372	882
Stage 1	-	-	-	-	-	-	627	622	-	679	660	-
Stage 2	-	-	-	-	-	-	801	657	-	779	617	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1281	-	-	1209	-	-	376	365	839	408	363	882
Mov Cap-2 Maneuver	-	-	-	-	-	-	376	365	-	408	363	-
Stage 1	-	-	-	-	-	-	621	616	-	672	651	-
Stage 2	-	-	-	-	-	-	734	648	-	728	611	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.4			15.2			14.2		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	412	1281	-	-	1209	-	-	455
HCM Lane V/C Ratio	0.142	0.01	-	-	0.013	-	-	0.139
HCM Control Delay (s)	15.2	7.8	-	-	8	-	-	14.2
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.5

Intersection						
Intersection Delay, s/veh	4.5					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	664		349		14	71
Demand Flow Rate, veh/h	677		356		14	72
Vehicles Circulating, veh/h	8		116		675	361
Vehicles Exiting, veh/h	425		573		10	111
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	4.8		4.1		4.7	4.1
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	318	359	167	189	14	72
Cap Entry Lane, veh/h	1340	1410	1213	1287	800	1045
Entry HV Adj Factor	0.981	0.980	0.983	0.979	1.000	0.986
Flow Entry, veh/h	312	352	164	185	14	71
Cap Entry, veh/h	1315	1383	1192	1260	800	1030
V/C Ratio	0.237	0.255	0.138	0.147	0.017	0.069
Control Delay, s/veh	4.8	4.8	4.2	4.1	4.7	4.1
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	0	1	0	0

Intersection

Int Delay, s/veh 2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	385	107	54	245	66	32
Future Vol, veh/h	385	107	54	245	66	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	418	116	59	266	72	35

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	534
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1030
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1030
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

























Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	16.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	411	-	-	1030	-
HCM Lane V/C Ratio	0.259	-	-	0.057	-
HCM Control Delay (s)	16.8	-	-	8.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1	-	-	0.2	-

***Intersection Capacity Worksheets:  
2030 Background + Project  
WITH Pine Drive  
Extension***

Timings  
11/08/2023

1: Gartrell Rd & Aurora Pkwy  
2030 Back+Project w/Pine Ext\_Signal - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	323	132	56	285	227	530	70	282	135	145	112	302
Future Volume (vph)	323	132	56	285	227	530	70	282	135	145	112	302
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

#### Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 67.1

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	351	143	61	306	244	570	76	307	147	158	122	328
v/c Ratio	0.67	0.18	0.14	0.53	0.32	0.82	0.17	0.43	0.34	0.36	0.13	0.50
Control Delay	21.5	22.7	0.6	16.6	24.0	17.3	14.2	26.5	7.4	15.9	21.8	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	22.7	0.6	16.6	24.0	17.3	14.2	26.5	7.4	15.9	21.8	6.1
Queue Length 50th (ft)	89	25	0	75	44	39	19	59	0	41	21	0
Queue Length 95th (ft)	179	52	0	154	82	#215	45	104	44	83	44	59
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	527	1020	545	589	1020	776	573	1557	778	503	1557	880
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.14	0.11	0.52	0.24	0.73	0.13	0.20	0.19	0.31	0.08	0.37

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/08/2023

## 1: Gartrell Rd & Aurora Pkwy

2030 Back+Project w/Pine Ext\_Signal - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	323	132	56	285	227	530	70	282	135	145	112	302
Future Volume (veh/h)	323	132	56	285	227	530	70	282	135	145	112	302
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	351	143	61	306	244	0	76	307	147	158	122	328
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	560	632	282	590	593		420	823	367	431	981	437
Arrive On Green	0.18	0.18	0.18	0.17	0.17	0.00	0.05	0.23	0.23	0.09	0.28	0.28
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	351	143	61	306	244	0	76	307	147	158	122	328
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.7	2.1	2.0	8.4	3.7	0.0	2.0	4.4	4.8	3.9	1.6	11.5
Cycle Q Clear(g_c), s	9.7	2.1	2.0	8.4	3.7	0.0	2.0	4.4	4.8	3.9	1.6	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	560	632	282	590	593		420	823	367	431	981	437
V/C Ratio(X)	0.63	0.23	0.22	0.52	0.41		0.18	0.37	0.40	0.37	0.12	0.75
Avail Cap(c_a), veh/h	560	1110	494	609	1110		658	1695	756	590	1695	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	21.4	21.4	16.2	22.7	0.0	16.5	19.7	19.8	15.0	16.5	20.1
Incr Delay (d2), s/veh	1.7	0.2	0.4	0.3	0.5	0.0	0.1	0.6	1.5	0.2	0.1	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.8	0.7	3.0	1.5	0.0	0.7	1.7	1.8	1.3	0.6	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	21.6	21.7	16.4	23.1	0.0	16.6	20.3	21.3	15.2	16.6	25.5
LnGrp LOS	B	C	C	B	C		B	C	C	B	B	C
Approach Vol, veh/h		555			550			530			608	
Approach Delay, s/veh		19.3			19.4			20.0			21.1	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	20.1	14.3	16.8	6.9	22.8	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.9	6.8	10.4	4.1	4.0	13.5	11.7	5.7				
Green Ext Time (p_c), s	0.1	4.5	0.0	0.8	0.0	3.3	0.0	1.1				

### Intersection Summary















HCM 6th Ctrl Delay 20.0

HCM 6th LOS B

### Notes

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

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

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	720	171	250	38	217
Future Volume (vph)	720	171	250	38	217
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	2		1	6
Permitted Phases			2	6	
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	25.0	24.0	24.0	11.0	35.0
Total Split (%)	41.7%	40.0%	40.0%	18.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min

#### Intersection Summary





Cycle Length: 60

Actuated Cycle Length: 43.1






Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr

 Ø1	 Ø2	
11 s	24 s	
 Ø6		 Ø8
35 s		25 s














					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	804	186	272	41	236
v/c Ratio	0.68	0.35	0.42	0.10	0.35
Control Delay	16.7	17.0	5.1	9.4	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	17.0	5.1	9.4	11.6
Queue Length 50th (ft)	60	29	0	6	38
Queue Length 95th (ft)	181	99	46	21	86
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)				300	
Base Capacity (vph)	1619	831	857	408	1339
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	0.50	0.22	0.32	0.10	0.18
Intersection Summary					

# HCM 6th Signalized Intersection Summary

11/08/2023

## 2: Pine Dr & Inspiration Dr

2030 Back+Project w/Pine Ext\_Signal - AM Peak Hour







						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	720	19	171	250	38	217
Future Volume (veh/h)	720	19	171	250	38	217
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	803	0	186	272	41	236
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1070	476	443	376	390	788
Arrive On Green	0.30	0.00	0.24	0.24	0.04	0.42
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	803	0	186	272	41	236
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	8.8	0.0	3.6	6.8	0.7	3.6
Cycle Q Clear(g_c), s	8.8	0.0	3.6	6.8	0.7	3.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1070	476	443	376	390	788
V/C Ratio(X)	0.75	0.00	0.42	0.72	0.11	0.30
Avail Cap(c_a), veh/h	1570	699	781	662	516	1258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	13.9	15.1	10.3	8.3
Incr Delay (d2), s/veh	1.2	0.0	0.6	2.7	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	1.4	2.3	0.2	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.8	0.0	14.6	17.8	10.4	8.5
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	803		458			277
Approach Delay, s/veh	14.8		16.5			8.8
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.9	16.2			24.2	18.9
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	18.0			29.0	19.0
Max Q Clear Time (g_c+I1), s	2.7	8.8			5.6	10.8
Green Ext Time (p_c), s	0.0	1.4			1.3	2.2

### Intersection Summary

HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

### Notes

User approved volume balancing among the lanes for turning movement.

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	421	10	10	534	10	10	25	10	10	30	11
Future Vol, veh/h	18	421	10	10	534	10	10	25	10	10	30	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	458	11	11	580	11	11	27	11	11	33	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	591	0	0	469	0	0	833	1117	235	891	1117	296
Stage 1	-	-	-	-	-	-	504	504	-	608	608	-
Stage 2	-	-	-	-	-	-	329	613	-	283	509	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	981	-	-	1089	-	-	261	206	767	237	206	700
Stage 1	-	-	-	-	-	-	518	539	-	450	484	-
Stage 2	-	-	-	-	-	-	658	481	-	700	536	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	981	-	-	1089	-	-	220	200	767	205	200	700
Mov Cap-2 Maneuver	-	-	-	-	-	-	220	200	-	205	200	-
Stage 1	-	-	-	-	-	-	508	528	-	441	479	-
Stage 2	-	-	-	-	-	-	597	476	-	641	525	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.2	23.3	24.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	245	981	-	-	1089	-	-	238
HCM Lane V/C Ratio	0.2	0.02	-	-	0.01	-	-	0.233
HCM Control Delay (s)	23.3	8.7	-	-	8.3	-	-	24.7
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	0.9

Intersection						
Int Delay, s/veh	5.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	↖
Traffic Vol, veh/h	250	29	185	445	84	189
Future Vol, veh/h	250	29	185	445	84	189
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	272	32	201	484	91	205

























Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	304
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1254
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1254
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	17
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	223	867	-	-	1254	-
HCM Lane V/C Ratio	0.409	0.237	-	-	0.16	-
HCM Control Delay (s)	31.9	10.4	-	-	8.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	0.9	-	-	0.6	-

Timings  
11/08/2023

1: Gartrell Rd & Aurora Pkwy  
2030 Back+Project w/Pine Ext\_Signal - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	321	234	91	260	162	270	101	204	175	440	297	229
Future Volume (vph)	321	234	91	260	162	270	101	204	175	440	297	229
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

#### Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 64.8

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	349	254	99	280	174	290	110	222	190	478	323	249
v/c Ratio	0.66	0.39	0.25	0.57	0.29	0.57	0.27	0.34	0.43	0.89	0.32	0.40
Control Delay	21.2	26.0	4.5	18.6	25.3	8.5	13.3	24.7	7.4	37.7	21.2	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	26.0	4.5	18.6	25.3	8.5	13.3	24.7	7.4	37.7	21.2	5.5
Queue Length 50th (ft)	91	46	0	70	31	0	24	40	0	132	53	0
Queue Length 95th (ft)	177	85	23	140	62	60	55	73	47	#268	99	52
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	543	1043	554	526	1043	665	526	1592	816	537	1592	849
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.24	0.18	0.53	0.17	0.44	0.21	0.14	0.23	0.89	0.20	0.29

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/08/2023

## 1: Gartrell Rd & Aurora Pkwy

2030 Back+Project w/Pine Ext\_Signal - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	321	234	91	260	162	270	101	204	175	440	297	229
Future Volume (veh/h)	321	234	91	260	162	270	101	204	175	440	297	229
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	349	254	99	280	174	0	110	222	190	478	323	249
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	550	597	266	499	556		398	698	311	552	1056	471
Arrive On Green	0.17	0.17	0.17	0.16	0.16	0.00	0.07	0.20	0.20	0.17	0.30	0.30
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	349	254	99	280	174	0	110	222	190	478	323	249
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	10.7	4.2	3.6	8.3	2.8	0.0	3.1	3.5	7.1	11.0	4.6	8.5
Cycle Q Clear(g_c), s	10.7	4.2	3.6	8.3	2.8	0.0	3.1	3.5	7.1	11.0	4.6	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	550	597	266	499	556		398	698	311	552	1056	471
V/C Ratio(X)	0.64	0.43	0.37	0.56	0.31		0.28	0.32	0.61	0.87	0.31	0.53
Avail Cap(c_a), veh/h	550	1040	463	519	1040		578	1587	708	552	1587	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.4	24.2	24.0	18.2	24.3	0.0	18.7	22.4	23.8	18.3	17.6	19.0
Incr Delay (d2), s/veh	1.9	0.5	0.9	0.7	0.3	0.0	0.1	0.6	4.1	13.1	0.3	2.0
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	4.2	1.7	1.3	3.2	1.1	0.0	1.2	1.4	2.8	6.8	1.7	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.3	24.7	24.8	18.9	24.6	0.0	18.8	22.9	27.9	31.4	18.0	21.0
LnGrp LOS	C	C	C	B	C		B	C	C	C	B	C
Approach Vol, veh/h		702			454			522			1050	
Approach Delay, s/veh		22.5			21.1			23.9			24.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	18.8	14.3	16.9	8.5	25.3	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	9.1	10.3	6.2	5.1	10.5	12.7	4.8				
Green Ext Time (p_c), s	0.0	3.7	0.0	1.5	0.0	5.0	0.0	0.8				

### Intersection Summary














HCM 6th Ctrl Delay 23.4

HCM 6th LOS C

### Notes

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

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

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	 		 	 	
Traffic Volume (vph)	445	359	495	28	136
Future Volume (vph)	445	359	495	28	136
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	2		1	6
Permitted Phases			2	6	
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	24.0	25.0	25.0	11.0	36.0
Total Split (%)	40.0%	41.7%	41.7%	18.3%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min

#### Intersection Summary





Cycle Length: 60

Actuated Cycle Length: 44.3






Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr

 Ø1	 Ø2	
11 s	25 s	
 Ø6		 Ø8
36 s		24 s














					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	526	390	538	30	148
v/c Ratio	0.55	0.59	0.59	0.08	0.18
Control Delay	16.8	18.0	4.9	7.6	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	18.0	4.9	7.6	8.3
Queue Length 50th (ft)	48	60	0	4	20
Queue Length 95th (ft)	118	204	60	16	53
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)				300	
Base Capacity (vph)	1504	861	1021	396	1357
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	0.35	0.45	0.53	0.08	0.11
Intersection Summary					

# HCM 6th Signalized Intersection Summary

11/08/2023

## 2: Pine Dr & Inspiration Dr

2030 Back+Project w/Pine Ext\_Signal - PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	445	39	359	495	28	136
Future Volume (veh/h)	445	39	359	495	28	136
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	523	0	390	538	30	148
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	741	330	710	602	343	1010
Arrive On Green	0.21	0.00	0.38	0.38	0.03	0.54
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	523	0	390	538	30	148
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	6.5	0.0	7.8	15.2	0.4	1.9
Cycle Q Clear(g_c), s	6.5	0.0	7.8	15.2	0.4	1.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	741	330	710	602	343	1010
V/C Ratio(X)	0.71	0.00	0.55	0.89	0.09	0.15
Avail Cap(c_a), veh/h	1347	599	746	632	469	1178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	11.6	13.9	8.2	5.5
Incr Delay (d2), s/veh	1.2	0.0	0.8	14.8	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	2.8	6.8	0.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.8	0.0	12.4	28.6	8.3	5.5
LnGrp LOS	B	A	B	C	A	A
Approach Vol, veh/h	523		928			178
Approach Delay, s/veh	18.8		21.8			6.0
Approach LOS	B		C			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.6	24.1			31.7	15.9
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	19.0			30.0	18.0
Max Q Clear Time (g_c+I1), s	2.4	17.2			3.9	8.5
Green Ext Time (p_c), s	0.0	0.9			0.8	1.4

### Intersection Summary







HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

### Notes

User approved volume balancing among the lanes for turning movement.

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	596	10	15	332	10	10	25	10	10	30	17
Future Vol, veh/h	12	596	10	15	332	10	10	25	10	10	30	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	648	11	16	361	11	11	27	11	11	33	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	372	0	0	659	0	0	909	1084	330	763	1084	186
Stage 1	-	-	-	-	-	-	680	680	-	399	399	-
Stage 2	-	-	-	-	-	-	229	404	-	364	685	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1183	-	-	925	-	-	230	216	666	294	216	824
Stage 1	-	-	-	-	-	-	407	449	-	598	601	-
Stage 2	-	-	-	-	-	-	753	598	-	627	447	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1183	-	-	925	-	-	194	210	666	255	210	824
Mov Cap-2 Maneuver	-	-	-	-	-	-	194	210	-	255	210	-
Stage 1	-	-	-	-	-	-	403	444	-	591	591	-
Stage 2	-	-	-	-	-	-	683	588	-	573	442	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.4	23.6	21.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	242	1183	-	-	925	-	-	281
HCM Lane V/C Ratio	0.202	0.011	-	-	0.018	-	-	0.22
HCM Control Delay (s)	23.6	8.1	-	-	9	-	-	21.4
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.8

























Intersection						
Int Delay, s/veh	5.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↔	↑↑	↔	↔
Traffic Vol, veh/h	365	84	144	230	51	333
Future Vol, veh/h	365	84	144	230	51	333
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	397	91	157	250	55	362

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	488
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1071
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1071
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	244	757	-	-	1071	-
HCM Lane V/C Ratio	0.227	0.478	-	-	0.146	-
HCM Control Delay (s)	24	14	-	-	8.9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.9	2.6	-	-	0.5	-

***Intersection Capacity Worksheets:***  
***2040 Background + Project***  
***No Pine Drive***  
***Extension***

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	117	88	280	282	520	86	375	200	145	275	144
Future Volume (vph)	270	117	88	280	282	520	86	375	200	145	275	144
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

#### Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 71

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	293	127	96	301	303	559	93	408	217	158	299	157
v/c Ratio	0.61	0.16	0.21	0.54	0.38	0.84	0.22	0.51	0.41	0.38	0.30	0.28
Control Delay	21.1	24.1	3.6	18.5	25.9	21.3	14.4	27.0	6.4	16.1	22.7	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	24.1	3.6	18.5	25.9	21.3	14.4	27.0	6.4	16.1	22.7	5.6
Queue Length 50th (ft)	80	23	0	82	60	58	26	87	0	46	60	0
Queue Length 95th (ft)	165	51	21	169	108	#259	52	134	50	82	96	42
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	504	970	525	571	970	724	544	1481	788	476	1481	753
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.13	0.18	0.53	0.31	0.77	0.17	0.28	0.28	0.33	0.20	0.21

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

## 1: Gartrell Rd & Aurora Pkwy

2040 Back+Project - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	117	88	280	282	520	86	375	200	145	275	144
Future Volume (veh/h)	270	117	88	280	282	520	86	375	200	145	275	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	293	127	96	301	303	0	93	408	217	158	299	157
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	509	589	262	572	602		422	885	395	401	1007	449
Arrive On Green	0.16	0.17	0.17	0.17	0.17	0.00	0.06	0.25	0.25	0.09	0.28	0.28
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	293	127	96	301	303	0	93	408	217	158	299	157
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	8.1	1.9	3.3	8.3	4.7	0.0	2.3	6.0	7.3	3.9	4.0	4.8
Cycle Q Clear(g_c), s	8.1	1.9	3.3	8.3	4.7	0.0	2.3	6.0	7.3	3.9	4.0	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	509	589	262	572	602		422	885	395	401	1007	449
V/C Ratio(X)	0.58	0.22	0.37	0.53	0.50		0.22	0.46	0.55	0.39	0.30	0.35
Avail Cap(c_a), veh/h	536	1102	491	593	1102		641	1682	750	559	1682	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	22.1	22.7	16.4	23.1	0.0	15.6	19.5	20.0	14.9	17.2	17.5
Incr Delay (d2), s/veh	0.8	0.2	0.9	0.3	0.7	0.0	0.1	0.8	2.5	0.2	0.3	1.0
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	3.0	0.7	1.2	3.0	1.9	0.0	0.8	2.3	2.7	1.3	1.5	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	22.3	23.5	16.7	23.8	0.0	15.7	20.3	22.5	15.2	17.5	18.5
LnGrp LOS	B	C	C	B	C		B	C	C	B	B	B
Approach Vol, veh/h		516			604			718			614	
Approach Delay, s/veh		19.8			20.3			20.4			17.2	
Approach LOS		B			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	21.3	14.3	16.2	7.5	23.4	14.0	16.4				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.9	9.3	10.3	5.3	4.3	6.8	10.1	6.7				
Green Ext Time (p_c), s	0.1	6.0	0.0	0.8	0.0	4.4	0.0	1.4				

### Intersection Summary

HCM 6th Ctrl Delay 19.4

HCM 6th LOS B

### Notes




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

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



Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1006	0	0	455	0	5
Future Vol, veh/h	1006	0	0	455	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1130	0	0	607	0	13

Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 304 607
Stage 1	-	- 0 0
Stage 2	-	- 304 607
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 688 411
Stage 1	-	- - -
Stage 2	-	- 748 486
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 688 0
Mov Cap-2 Maneuver	-	- 688 0
Stage 1	-	- - 0
Stage 2	-	- 748 0

























Approach	NB	SB
HCM Control Delay, s	0	
HCM LOS		-

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Timings  
11/09/2023

### 3: SH-83/Parker Rd & Aurora Pkwy

2040 Back+Project - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	5	30	476	5	497	35	2685	234	250	2365	35
Future Volume (vph)	30	5	30	476	5	497	35	2685	234	250	2365	35
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	1	8	8	8 5	1	6		5	2	
Permitted Phases			4						6			2
Detector Phase	4	4	1	8	8	8 5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	6.0	8.0	8.0		6.0	18.0	18.0	11.5	18.0	18.0
Minimum Split (s)	10.0	10.0	11.0	20.0	20.0		11.0	36.5	36.5	18.0	36.5	36.5
Total Split (s)	10.0	10.0	17.0	27.0	27.0		17.0	75.0	75.0	18.0	76.0	76.0
Total Split (%)	7.7%	7.7%	13.1%	20.8%	20.8%		13.1%	57.7%	57.7%	13.8%	58.5%	58.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0		3.0	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0		5.0	6.5	6.5	6.5	6.5	6.5
Lead/Lag			Lag				Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	None	None		None	C-Max	C-Max	Max	C-Max	C-Max

#### Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130













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

Natural Cycle: 125

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

					
Ø2 (R)			Ø1		Ø4 Ø8
76 s			17 s		10 s 27 s
					
Ø5	Ø6 (R)				
18 s	75 s				

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	5	33	501	5	523	38	2740	246	263	2413	38
v/c Ratio	0.61	0.09	0.09	0.90	0.02	0.63	0.26	1.02	0.26	0.87	0.85	0.04
Control Delay	104.5	64.6	0.5	74.4	46.2	43.2	59.6	54.1	2.5	85.4	28.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.5	64.6	0.5	74.4	46.2	43.2	59.6	54.1	2.5	85.4	28.5	0.1
Queue Length 50th (ft)	28	4	0	216	4	215	30	~898	0	114	637	0
Queue Length 95th (ft)	#84	19	0	#314	16	284	67	#983	40	#190	711	0
Internal Link Dist (ft)		328			3664			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	54	57	379	554	300	836	163	2679	950	303	2851	944
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.09	0.09	0.90	0.02	0.63	0.23	1.02	0.26	0.87	0.85	0.04

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

























Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

## 3: SH-83/Parker Rd & Aurora Pkwy

2040 Back+Project - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	30	476	5	497	35	2685	234	250	2365	35
Future Volume (veh/h)	30	5	30	476	5	497	35	2685	234	250	2365	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	5	33	501	5	523	38	2740	246	263	2413	38
Peak Hour Factor	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.98	0.95	0.95	0.98	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	58	177	558	302	697	144	2691	835	306	2730	847
Arrive On Green	0.03	0.03	0.03	0.16	0.16	0.16	0.08	0.53	0.53	0.09	0.53	0.53
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	33	5	33	501	5	523	38	2740	246	263	2413	38
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.4	0.3	0.0	18.5	0.3	21.0	2.6	68.5	11.3	9.8	54.2	1.5
Cycle Q Clear(g_c), s	2.4	0.3	0.0	18.5	0.3	21.0	2.6	68.5	11.3	9.8	54.2	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	55	58	177	558	302	697	144	2691	835	306	2730	847
V/C Ratio(X)	0.60	0.09	0.19	0.90	0.02	0.75	0.26	1.02	0.29	0.86	0.88	0.04
Avail Cap(c_a), veh/h	55	58	177	558	302	697	164	2691	835	306	2730	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.2	61.2	52.4	53.4	45.8	45.0	56.1	30.7	17.2	58.5	26.7	14.4
Incr Delay (d2), s/veh	17.1	0.6	0.5	17.2	0.0	4.5	1.0	22.1	0.9	25.7	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	1.3	0.2	1.0	9.4	0.1	8.2	1.2	32.4	4.3	5.2	20.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.3	61.9	52.9	70.7	45.8	49.5	57.1	52.9	18.1	84.2	31.3	14.5
LnGrp LOS	E	E	D	E	D	D	E	F	B	F	C	B
Approach Vol, veh/h	71				1029				3024			
Approach Delay, s/veh	65.8				59.8				50.1			
Approach LOS	E				E				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.0	76.0		10.0	18.0	75.0		27.0				
Change Period (Y+Rc), s	6.5	* 6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s	12.0	* 70		4.0	11.5	68.5		21.0				
Max Q Clear Time (g_c+I1), s	4.6	56.2		4.4	11.8	70.5		23.0				
Green Ext Time (p_c), s	0.0	11.2		0.0	0.0	0.0		0.0				

### Intersection Summary







HCM 6th Ctrl Delay 46.2

HCM 6th LOS D

### Notes

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

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	335	19	15	432	10	11	30	20	10	35	21
Future Vol, veh/h	18	335	19	15	432	10	11	30	20	10	35	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	364	21	16	470	11	12	33	22	11	38	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	481	0	0	385	0	0	701	928	193	747	933	241
Stage 1	-	-	-	-	-	-	415	415	-	508	508	-
Stage 2	-	-	-	-	-	-	286	513	-	239	425	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1078	-	-	1170	-	-	325	266	816	301	265	760
Stage 1	-	-	-	-	-	-	585	591	-	516	537	-
Stage 2	-	-	-	-	-	-	697	534	-	743	585	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1078	-	-	1170	-	-	273	257	816	258	256	760
Mov Cap-2 Maneuver	-	-	-	-	-	-	273	257	-	258	256	-
Stage 1	-	-	-	-	-	-	574	580	-	506	529	-
Stage 2	-	-	-	-	-	-	619	527	-	670	574	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.3	18.3	19.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	336	1078	-	-	1170	-	-	325
HCM Lane V/C Ratio	0.197	0.018	-	-	0.014	-	-	0.221
HCM Control Delay (s)	18.3	8.4	-	-	8.1	-	-	19.2
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	0.8

Intersection						
Intersection Delay, s/veh	6.5					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	537		701		9	
Demand Flow Rate, veh/h	547		715		9	
Vehicles Circulating, veh/h	9		177		537	
Vehicles Exiting, veh/h	1056		369		19	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	4.3		5.9		4.1	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	257	290	336	379	9	350
Cap Entry Lane, veh/h	1339	1409	1147	1222	900	773
Entry HV Adj Factor	0.982	0.981	0.981	0.981	0.998	0.980
Flow Entry, veh/h	252	285	330	372	9	343
Cap Entry, veh/h	1314	1383	1125	1198	898	758
V/C Ratio	0.192	0.206	0.293	0.310	0.010	0.453
Control Delay, s/veh	4.3	4.3	6.0	5.9	4.1	10.9
LOS	A	A	A	A	A	B
95th %tile Queue, veh	1	1	1	1	0	2

Intersection

























Int Delay, s/veh 3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	305	40	16	550	126	57
Future Vol, veh/h	305	40	16	550	126	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	332	43	17	598	137	62

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	375
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1180
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1180
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	19.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	452	-	-	1180	-
HCM Lane V/C Ratio	0.44	-	-	0.015	-
HCM Control Delay (s)	19.1	-	-	8.1	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	2.2	-	-	0	-

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	245	142	275	202	270	119	360	320	435	400	141
Future Volume (vph)	231	245	142	275	202	270	119	360	320	435	400	141
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

#### Intersection Summary









Cycle Length: 90

Actuated Cycle Length: 69.3













Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	251	266	154	296	217	290	129	391	348	473	435	153
v/c Ratio	0.53	0.44	0.39	0.63	0.35	0.57	0.31	0.47	0.55	0.92	0.38	0.25
Control Delay	20.0	29.3	8.5	22.7	28.0	8.7	13.0	25.1	6.5	41.7	21.0	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	29.3	8.5	22.7	28.0	8.7	13.0	25.1	6.5	41.7	21.0	5.2
Queue Length 50th (ft)	72	55	0	88	44	0	29	74	0	133	76	0
Queue Length 95th (ft)	142	96	47	168	81	62	63	122	60	#288	133	40
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	511	980	544	498	980	642	527	1495	869	516	1495	757
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.27	0.28	0.59	0.22	0.45	0.24	0.26	0.40	0.92	0.29	0.20

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

## 1: Gartrell Rd & Aurora Pkwy

2040 Back+Project - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	231	245	142	275	202	270	119	360	320	435	400	141
Future Volume (veh/h)	231	245	142	275	202	270	119	360	320	435	400	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	251	266	154	296	217	0	129	391	348	473	435	153
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	457	505	225	429	520		458	1049	468	509	1318	588
Arrive On Green	0.14	0.14	0.14	0.15	0.15	0.00	0.07	0.30	0.30	0.15	0.37	0.37
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	251	266	154	296	217	0	129	391	348	473	435	153
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	8.7	5.2	6.9	10.6	4.1	0.0	3.7	6.5	14.8	11.0	6.5	5.0
Cycle Q Clear(g_c), s	8.7	5.2	6.9	10.6	4.1	0.0	3.7	6.5	14.8	11.0	6.5	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	457	505	225	429	520		458	1049	468	509	1318	588
V/C Ratio(X)	0.55	0.53	0.68	0.69	0.42		0.28	0.37	0.74	0.93	0.33	0.26
Avail Cap(c_a), veh/h	465	905	403	429	905		593	1381	616	509	1381	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	29.7	30.4	22.8	29.0	0.0	16.1	20.8	23.8	18.5	16.8	16.3
Incr Delay (d2), s/veh	0.7	0.9	3.7	3.9	0.5	0.0	0.1	0.5	5.7	23.5	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	2.2	0.2	4.6	1.7	0.0	1.4	2.5	5.9	8.1	2.4	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	30.5	34.1	26.7	29.5	0.0	16.3	21.3	29.4	42.0	17.1	16.8
LnGrp LOS	C	C	C	C	C		B	C	C	D	B	B
Approach Vol, veh/h		671			513			868			1061	
Approach Delay, s/veh		28.5			27.9			23.8			28.2	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	28.0	15.0	16.6	9.3	33.7	14.7	16.9				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	16.8	12.6	8.9	5.7	8.5	10.7	6.1				
Green Ext Time (p_c), s	0.0	5.2	0.0	1.5	0.0	5.7	0.0	1.0				

### Intersection Summary

HCM 6th Ctrl Delay 27.0

HCM 6th LOS C




### Notes

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

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

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	626	0	5	906	2	1
Future Vol, veh/h	626	0	5	906	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	703	0	7	1208	5	3

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 611 1215
Stage 1	-	- 0 0
Stage 2	-	- 611 1215
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 457 181
Stage 1	-	- - -
Stage 2	-	- 542 254
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 457 0
Mov Cap-2 Maneuver	-	- 457 0
Stage 1	-	- - 0
Stage 2	-	- 542 0

Approach	NB	SB
HCM Control Delay, s	0	13
HCM LOS		B

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	457
HCM Lane V/C Ratio	-	-	0.017
HCM Control Delay (s)	-	-	13
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

Timings  
11/09/2023

3: SH-83/Parker Rd & Aurora Pkwy  
2040 Back+Project - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	5	45	340	5	369	30	2280	572	462	2960	60
Future Volume (vph)	40	5	45	340	5	369	30	2280	572	462	2960	60
Turn Type	Split	NA	pm+ov	Split	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	1	8	8	8.5	1	6		5	2	
Permitted Phases			4						6			2
Detector Phase	4	4	1	8	8	8.5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	6.0	8.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	13.0	13.0	11.0	20.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	13.0	13.0	12.0	25.0	25.0		12.0	77.0	77.0	30.0	95.0	95.0
Total Split (%)	9.0%	9.0%	8.3%	17.2%	17.2%		8.3%	53.1%	53.1%	20.7%	65.5%	65.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag			Lag				Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

#### Intersection Summary

Cycle Length: 145







Actuated Cycle Length: 145













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

Natural Cycle: 125

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

	Ø2 (R)			Ø1		Ø4		Ø8
95 s			12 s		13 s		25 s	
	Ø5		Ø6 (R)					
30 s		77 s						

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	5	49	358	5	388	33	2327	602	486	3020	65
v/c Ratio	0.51	0.06	0.16	0.81	0.02	0.42	0.40	0.92	0.57	0.86	0.94	0.06
Control Delay	88.0	67.4	1.2	76.5	55.4	39.4	81.4	41.5	5.1	74.4	32.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	67.4	1.2	76.5	55.4	39.4	81.4	41.5	5.1	74.4	32.8	0.1
Queue Length 50th (ft)	40	5	0	171	4	160	31	747	26	230	956	0
Queue Length 95th (ft)	#87	20	0	#239	18	213	69	824	111	#301	#1057	0
Internal Link Dist (ft)		328			3664			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	85	89	312	449	244	918	85	2522	1061	591	3200	1039
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.06	0.16	0.80	0.02	0.42	0.39	0.92	0.57	0.82	0.94	0.06

























#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

3: SH-83/Parker Rd & Aurora Pkwy  
2040 Back+Project - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	45	340	5	369	30	2280	572	462	2960	60
Future Volume (veh/h)	40	5	45	340	5	369	30	2280	572	462	2960	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	49	358	5	388	33	2327	602	486	3020	65
Peak Hour Factor	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.98	0.95	0.95	0.98	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	90	138	449	243	797	70	2573	799	538	3116	967
Arrive On Green	0.05	0.05	0.05	0.13	0.13	0.13	0.04	0.50	0.50	0.16	0.61	0.61
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	43	5	49	358	5	388	33	2327	602	486	3020	65
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	3.4	0.4	0.0	14.6	0.3	16.7	2.6	60.2	44.0	20.0	81.8	2.4
Cycle Q Clear(g_c), s	3.4	0.4	0.0	14.6	0.3	16.7	2.6	60.2	44.0	20.0	81.8	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	86	90	138	449	243	797	70	2573	799	538	3116	967
V/C Ratio(X)	0.50	0.06	0.35	0.80	0.02	0.49	0.47	0.90	0.75	0.90	0.97	0.07
Avail Cap(c_a), veh/h	86	90	138	453	245	800	86	2573	799	596	3116	967
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.3	65.8	62.3	61.2	55.0	43.0	68.2	32.8	28.8	60.1	26.9	11.5
Incr Delay (d2), s/veh	4.4	0.3	1.5	9.6	0.0	0.5	4.9	5.8	6.5	16.2	10.4	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	1.7	0.2	1.8	7.0	0.2	5.9	1.3	25.8	18.0	9.7	31.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.7	66.1	63.8	70.8	55.1	43.4	73.2	38.6	35.3	76.3	37.3	11.6
LnGrp LOS	E	E	E	E	E	D	E	D	D	E	D	B
Approach Vol, veh/h	97			751			2962			3571		
Approach Delay, s/veh	67.5			56.6			38.3			42.1		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.2	95.0		13.0	27.6	79.6		24.8				
Change Period (Y+Rc), s	6.5	* 6.5		6.0	5.0	6.5		6.0				
Max Green Setting (Gmax), s	7.0	* 89		7.0	25.0	70.5		19.0				
Max Q Clear Time (g_c+I1), s	4.6	83.8		5.4	22.0	62.2		18.7				
Green Ext Time (p_c), s	0.0	4.6		0.0	0.5	7.8		0.1				







## Intersection Summary

HCM 6th Ctrl Delay 42.4  
HCM 6th LOS D

## Notes

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

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	343	17	20	267	10	24	40	15	10	35	23
Future Vol, veh/h	12	343	17	20	267	10	24	40	15	10	35	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	373	18	22	290	11	26	43	16	11	38	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	301	0	0	391	0	0	616	753	196	574	757	151
Stage 1	-	-	-	-	-	-	408	408	-	340	340	-
Stage 2	-	-	-	-	-	-	208	345	-	234	417	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1257	-	-	1164	-	-	375	337	812	402	335	868
Stage 1	-	-	-	-	-	-	591	595	-	648	638	-
Stage 2	-	-	-	-	-	-	775	635	-	748	590	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1257	-	-	1164	-	-	324	327	812	346	325	868
Mov Cap-2 Maneuver	-	-	-	-	-	-	324	327	-	346	325	-
Stage 1	-	-	-	-	-	-	585	589	-	642	626	-
Stage 2	-	-	-	-	-	-	694	623	-	672	584	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.5	17.7	15.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	368	1257	-	-	1164	-	-	417
HCM Lane V/C Ratio	0.233	0.01	-	-	0.019	-	-	0.177
HCM Control Delay (s)	17.7	7.9	-	-	8.2	-	-	15.5
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	0.6

Intersection						
Intersection Delay, s/veh	6.3					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	1009		400		19	
Demand Flow Rate, veh/h	1029		408		19	
Vehicles Circulating, veh/h	14		443		1029	
Vehicles Exiting, veh/h	725		605		14	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	6.2		6.1		6.4	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.471	0.529	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	484	545	192	216	19	322
Cap Entry Lane, veh/h	1333	1403	898	974	592	996
Entry HV Adj Factor	0.980	0.982	0.980	0.982	1.000	0.981
Flow Entry, veh/h	474	535	188	212	19	316
Cap Entry, veh/h	1306	1378	880	957	592	978
V/C Ratio	0.363	0.388	0.214	0.222	0.032	0.323
Control Delay, s/veh	6.1	6.2	6.3	5.9	6.4	7.0
LOS	A	A	A	A	A	A
95th %tile Queue, veh	2	2	1	1	0	1



Intersection

Int Delay, s/veh 2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	460	107	54	300	66	32
Future Vol, veh/h	460	107	54	300	66	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	500	116	59	326	72	35

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	616
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	960
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	960
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

























Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	19.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	352	-	-	960	-
HCM Lane V/C Ratio	0.303	-	-	0.061	-
HCM Control Delay (s)	19.6	-	-	9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0.2	-

***Intersection Capacity Worksheets:***  
***2040 Background + Project***  
***WITH Pine Drive***  
***Extension***

Timings  
11/08/2023

1: Gartrell Rd & Aurora Pkwy  
2040 Back+Project w/Pine Ext\_Signal - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	388	182	91	280	282	520	90	272	140	145	107	342
Future Volume (vph)	388	182	91	280	282	520	90	272	140	145	107	342
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

#### Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 67.5

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	422	198	99	301	303	559	98	296	152	158	116	372
v/c Ratio	0.76	0.23	0.21	0.55	0.39	0.81	0.22	0.43	0.35	0.36	0.13	0.55
Control Delay	26.0	22.7	3.6	16.8	24.6	16.5	14.7	26.8	7.5	16.1	22.7	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	22.7	3.6	16.8	24.6	16.5	14.7	26.8	7.5	16.1	22.7	6.5
Queue Length 50th (ft)	112	35	0	73	55	38	25	57	0	42	21	0
Queue Length 95th (ft)	#277	68	22	150	99	#210	55	101	45	83	43	64
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	552	1011	541	584	1011	767	568	1544	776	502	1544	900
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.20	0.18	0.52	0.30	0.73	0.17	0.19	0.20	0.31	0.08	0.41

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/08/2023

## 1: Gartrell Rd & Aurora Pkwy

2040 Back+Project w/Pine Ext\_Signal - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	388	182	91	280	282	520	90	272	140	145	107	342
Future Volume (veh/h)	388	182	91	280	282	520	90	272	140	145	107	342
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	422	198	99	301	303	0	98	296	152	158	116	372
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	505	580	258	534	564		460	951	424	461	1059	472
Arrive On Green	0.17	0.16	0.16	0.17	0.16	0.00	0.06	0.27	0.27	0.09	0.30	0.30
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	422	198	99	301	303	0	98	296	152	158	116	372
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.0	3.2	3.6	8.8	5.0	0.0	2.5	4.3	5.0	4.0	1.5	13.8
Cycle Q Clear(g_c), s	11.0	3.2	3.6	8.8	5.0	0.0	2.5	4.3	5.0	4.0	1.5	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	505	580	258	534	564		460	951	424	461	1059	472
V/C Ratio(X)	0.84	0.34	0.38	0.56	0.54		0.21	0.31	0.36	0.34	0.11	0.79
Avail Cap(c_a), veh/h	505	1055	470	542	1055		662	1611	718	608	1611	718
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.1	23.7	23.9	17.6	24.7	0.0	15.4	18.7	19.0	14.7	16.3	20.6
Incr Delay (d2), s/veh	11.0	0.3	0.9	0.8	0.8	0.0	0.1	0.4	1.1	0.2	0.1	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	1.3	1.3	3.3	2.0	0.0	0.9	1.6	1.8	1.4	0.5	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	24.1	24.8	18.3	25.5	0.0	15.5	19.1	20.1	14.9	16.4	27.0
LnGrp LOS	C	C	C	B	C		B	B	C	B	B	C
Approach Vol, veh/h		719			604			546			646	
Approach Delay, s/veh		28.3			22.0			18.7			22.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	23.1	14.7	16.4	7.7	25.1	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	6.0	7.0	10.8	5.6	4.5	15.8	13.0	7.0				
Green Ext Time (p_c), s	0.1	4.4	0.0	1.2	0.0	3.3	0.0	1.4				












### Intersection Summary

HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

### Notes

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

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

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	 				
Traffic Volume (vph)	805	191	275	58	237
Future Volume (vph)	805	191	275	58	237
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	2		1	6
Permitted Phases			2	6	
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	25.0	24.0	24.0	11.0	35.0
Total Split (%)	41.7%	40.0%	40.0%	18.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min

#### Intersection Summary





Cycle Length: 60






Actuated Cycle Length: 48.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr

 Ø1	 Ø2	
11 s	24 s	
 Ø6		 Ø8
35 s		25 s

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	907	208	299	63	258
v/c Ratio	0.76	0.41	0.46	0.15	0.36
Control Delay	20.9	19.2	5.2	9.7	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	19.2	5.2	9.7	11.6
Queue Length 50th (ft)	126	59	0	11	52
Queue Length 95th (ft)	#247	109	47	28	93
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)				300	
Base Capacity (vph)	1441	740	809	417	1192
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	0.63	0.28	0.37	0.15	0.22

#### Intersection Summary












# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/08/2023

## 2: Pine Dr & Inspiration Dr

2040 Back+Project w/Pine Ext\_Signal - AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	805	29	191	275	58	237
Future Volume (veh/h)	805	29	191	275	58	237
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	905	0	208	299	63	258
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1128	502	462	391	393	808
Arrive On Green	0.32	0.00	0.25	0.25	0.06	0.43
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	905	0	208	299	63	258
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	11.1	0.0	4.5	8.4	1.1	4.3
Cycle Q Clear(g_c), s	11.1	0.0	4.5	8.4	1.1	4.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1128	502	462	391	393	808
V/C Ratio(X)	0.80	0.00	0.45	0.76	0.16	0.32
Avail Cap(c_a), veh/h	1418	631	705	598	474	1136
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	15.2	16.7	11.0	8.9
Incr Delay (d2), s/veh	2.7	0.0	0.7	3.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	1.8	3.0	0.4	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.7	0.0	15.9	19.8	11.2	9.2
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	905		507			321
Approach Delay, s/veh	17.7		18.2			9.6
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.8	17.8			26.6	21.1
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	18.0			29.0	19.0
Max Q Clear Time (g_c+I1), s	3.1	10.4			6.3	13.1
Green Ext Time (p_c), s	0.0	1.4			1.5	2.0

### Intersection Summary

HCM 6th Ctrl Delay	16.3
HCM 6th LOS	B

### Notes

User approved volume balancing among the lanes for turning movement.



Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↕			↕	
Traffic Vol, veh/h	18	481	10	15	609	10	10	30	20	10	35	21
Future Vol, veh/h	18	481	10	15	609	10	10	30	20	10	35	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	523	11	16	662	11	11	33	22	11	38	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	673	0	0	534	0	0	951	1274	267	1018	1274	337
Stage 1	-	-	-	-	-	-	569	569	-	700	700	-
Stage 2	-	-	-	-	-	-	382	705	-	318	574	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	914	-	-	1030	-	-	214	166	731	191	166	659
Stage 1	-	-	-	-	-	-	474	504	-	396	440	-
Stage 2	-	-	-	-	-	-	612	437	-	668	501	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	914	-	-	1030	-	-	164	160	731	152	160	659
Mov Cap-2 Maneuver	-	-	-	-	-	-	164	160	-	152	160	-
Stage 1	-	-	-	-	-	-	464	493	-	387	433	-
Stage 2	-	-	-	-	-	-	531	430	-	592	490	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			28.4			31		
HCM LOS							D			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	218	914	-	-	1030	-	-	209
HCM Lane V/C Ratio	0.299	0.021	-	-	0.016	-	-	0.343
HCM Control Delay (s)	28.4	9	-	-	8.6	-	-	31
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0	-	-	1.4

Intersection

Int Delay, s/veh 6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↔	↑↑	↔	↔
Traffic Vol, veh/h	305	39	185	535	99	199
Future Vol, veh/h	305	39	185	535	99	199
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	332	42	201	582	108	216

























Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	374
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1181
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1181
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	23.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	186	823	-	-	1181	-
HCM Lane V/C Ratio	0.579	0.263	-	-	0.17	-
HCM Control Delay (s)	48	10.9	-	-	8.7	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	3.1	1.1	-	-	0.6	-

Timings  
11/09/2023

1: Gartrell Rd & Aurora Pkwy  
2040 Back+Project w/Pine Ext\_Signal - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	361	309	141	275	202	270	122	194	170	435	287	254
Future Volume (vph)	361	309	141	275	202	270	122	194	170	435	287	254
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

#### Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 66.9

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	392	336	153	296	217	290	133	211	185	473	312	276
v/c Ratio	0.73	0.48	0.35	0.61	0.33	0.55	0.32	0.32	0.42	0.91	0.33	0.44
Control Delay	25.0	26.8	7.3	19.7	25.5	8.0	14.4	25.3	7.5	41.4	22.7	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	26.8	7.3	19.7	25.5	8.0	14.4	25.3	7.5	41.4	22.7	5.9
Queue Length 50th (ft)	105	63	0	74	40	0	30	38	0	136	54	0
Queue Length 95th (ft)	#236	112	44	153	76	59	69	72	47	#285	102	57
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	537	1012	556	512	1012	654	517	1545	795	522	1545	846
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.33	0.28	0.58	0.21	0.44	0.26	0.14	0.23	0.91	0.20	0.33

#### Intersection Summary

























# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

## 1: Gartrell Rd & Aurora Pkwy

2040 Back+Project w/Pine Ext\_Signal - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	361	309	141	275	202	270	122	194	170	435	287	254
Future Volume (veh/h)	361	309	141	275	202	270	122	194	170	435	287	254
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	392	336	153	296	217	0	133	211	185	473	312	276
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	534	577	257	474	559		416	682	304	554	997	445
Arrive On Green	0.17	0.16	0.16	0.17	0.16	0.00	0.08	0.19	0.19	0.17	0.28	0.28
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	392	336	153	296	217	0	133	211	185	473	312	276
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.0	5.6	5.8	8.7	3.5	0.0	3.8	3.3	6.9	11.0	4.5	9.8
Cycle Q Clear(g_c), s	11.0	5.6	5.8	8.7	3.5	0.0	3.8	3.3	6.9	11.0	4.5	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	534	577	257	474	559		416	682	304	554	997	445
V/C Ratio(X)	0.73	0.58	0.60	0.62	0.39		0.32	0.31	0.61	0.85	0.31	0.62
Avail Cap(c_a), veh/h	534	1046	466	483	1046		574	1596	712	554	1596	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	25.0	25.1	18.1	24.4	0.0	18.4	22.4	23.9	18.2	18.3	20.2
Incr Delay (d2), s/veh	4.6	0.9	2.2	1.8	0.4	0.0	0.2	0.5	4.1	11.7	0.4	3.0
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	2.3	2.2	3.4	1.4	0.0	1.4	1.3	2.7	6.5	1.6	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	25.9	27.3	19.9	24.8	0.0	18.6	22.9	28.0	29.9	18.7	23.2
LnGrp LOS	C	C	C	B	C		B	C	C	C	B	C
Approach Vol, veh/h		881			513			529			1061	
Approach Delay, s/veh		25.2			22.0			23.6			24.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	18.4	14.7	16.5	9.3	24.1	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	8.9	10.7	7.8	5.8	11.8	13.0	5.5				
Green Ext Time (p_c), s	0.0	3.5	0.0	2.0	0.0	5.0	0.0	1.0				















### Intersection Summary

HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

### Notes

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

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

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	495	394	540	43	156
Future Volume (vph)	495	394	540	43	156
Turn Type	Prot	NA	pm+ov	pm+pt	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2	6	
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	24.0	25.0	24.0	11.0	36.0
Total Split (%)	40.0%	41.7%	40.0%	18.3%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Min	None	None	Min

#### Intersection Summary





Cycle Length: 60






Actuated Cycle Length: 49.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr

 Ø1	 Ø2	
11 s	25 s	
 Ø6		 Ø8
36 s		24 s

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	597	428	587	47	170
v/c Ratio	0.58	0.71	0.42	0.13	0.21
Control Delay	17.9	24.6	1.3	8.6	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	24.6	1.3	8.6	9.1
Queue Length 50th (ft)	88	130	0	8	29
Queue Length 95th (ft)	134	#255	20	22	60
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)				300	
Base Capacity (vph)	1368	783	1414	350	1236
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	0.55	0.42	0.13	0.14

#### Intersection Summary












# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

11/09/2023

## 2: Pine Dr & Inspiration Dr







2040 Back+Project w/Pine Ext\_Signal - PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	495	54	394	540	43	156
Future Volume (veh/h)	495	54	394	540	43	156
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	593	0	428	587	47	170
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	816	363	641	907	321	969
Arrive On Green	0.23	0.00	0.34	0.34	0.05	0.52
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	593	0	428	587	47	170
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	7.3	0.0	9.3	11.9	0.7	2.3
Cycle Q Clear(g_c), s	7.3	0.0	9.3	11.9	0.7	2.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	816	363	641	907	321	969
V/C Ratio(X)	0.73	0.00	0.67	0.65	0.15	0.18
Avail Cap(c_a), veh/h	1351	601	749	998	422	1182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	13.3	6.9	9.3	6.1
Incr Delay (d2), s/veh	1.3	0.0	1.8	1.3	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	3.5	5.7	0.2	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.2	0.0	15.1	8.2	9.5	6.1
LnGrp LOS	B	A	B	A	A	A
Approach Vol, veh/h	593		1015			217
Approach Delay, s/veh	18.2		11.1			6.9
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.3	22.3			30.6	16.9
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	19.0			30.0	18.0
Max Q Clear Time (g_c+I1), s	2.7	13.9			4.3	9.3
Green Ext Time (p_c), s	0.0	2.3			0.9	1.6
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			12.9			
HCM 6th LOS			B			

### Notes

User approved volume balancing among the lanes for turning movement.



Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	696	10	20	372	10	10	35	15	10	35	27
Future Vol, veh/h	12	696	10	20	372	10	10	35	15	10	35	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	757	11	22	404	11	11	38	16	11	38	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	415	0	0	768	0	0	1054	1248	384	878	1248	208
Stage 1	-	-	-	-	-	-	789	789	-	454	454	-
Stage 2	-	-	-	-	-	-	265	459	-	424	794	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1140	-	-	842	-	-	180	172	614	242	172	798
Stage 1	-	-	-	-	-	-	350	400	-	555	568	-
Stage 2	-	-	-	-	-	-	717	565	-	578	398	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1140	-	-	842	-	-	139	166	614	189	166	798
Mov Cap-2 Maneuver	-	-	-	-	-	-	139	166	-	189	166	-
Stage 1	-	-	-	-	-	-	346	396	-	549	553	-
Stage 2	-	-	-	-	-	-	626	550	-	503	394	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	32.5	26.8
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	195	1140	-	-	842	-	-	242
HCM Lane V/C Ratio	0.334	0.011	-	-	0.026	-	-	0.323
HCM Control Delay (s)	32.5	8.2	-	-	9.4	-	-	26.8
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.4	0	-	-	0.1	-	-	1.3

Intersection

Int Delay, s/veh 6.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↘
Traffic Vol, veh/h	460	99	154	300	61	343
Future Vol, veh/h	460	99	154	300	61	343
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	500	108	167	326	66	373

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	608
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	966
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	966
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	19
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	184	692	-	-	966	-
HCM Lane V/C Ratio	0.36	0.539	-	-	0.173	-
HCM Control Delay (s)	35.2	16.1	-	-	9.5	-
HCM Lane LOS	E	C	-	-	A	-
HCM 95th %tile Q(veh)	1.5	3.2	-	-	0.6	-

## ***Signal Warrant Worksheets***

**MUTCD Signal Warrant Evaluation Summary**  
Vista at Kings Point

Intersection	Existing			2040 Bkgrd - No Extension			2030 Bkgrd - With Extension			2030 Project - No Extension			2030 Project - With Extension		
	Peak Hour	4-Hour		Peak Hour	4-Hour		Peak Hour	4-Hour		Peak Hour	4-Hour		Peak Hour	4-Hour	
	AM	PM		AM	PM		AM	PM		AM	PM		AM	PM	
Aurora Parkway at Pine Drive	-	-	-	-	-	-	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
Inspiration Drive at Pine Drive	No	No	No	No	No	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes

Intersection	2040 Bkgrd - No Extension			2040 Bkgrd - With Extension			2040 Project - No Extension			2040 Project - With Extension		
	Peak Hour	4-Hour		Peak Hour	4-Hour		Peak Hour	4-Hour		Peak Hour	4-Hour	
	AM	PM		AM	PM		AM	PM		AM	PM	
Aurora Parkway at Pine Drive	-	-	-	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
Inspiration Drive at Pine Drive	No	No	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes

Intersection: **Pine Drive at Inspiration Drive****Warrant 2: 4 Hour Analysis - 2030 Background with Pine Drive Extension**

	Major	Minor*		Warrant 2 (Figure 4C-1)
	Inspiration Drive	Pine Drive		
Time of Day	Number of Lanes			
	1	1		
0:00				no
1:00				no
2:00				no
3:00				no
4:00	46	10		no
5:00	161	34		no
6:00	483	103		no
7:00	<b>1,150</b>	<b>245</b>		Yes
8:00	1,081	230		Yes
9:00	828	176		Yes
10:00			Warrant is Met (yes/no)	no
11:00				no
12:00				no
13:00				no
14:00	1,057	117		Yes
15:00	1,240	138		Yes
16:00	<b>1,305</b>	<b>145</b>		Yes
17:00	1,305	145		Yes
18:00	953	106		no
19:00	626	70		no
20:00				no
21:00				no
22:00				no
23:00				no
<b>Total</b>	<b>10,235</b>	<b>1,519</b>	<b>7</b>	<b>Met</b>

\*The minor volume for each hour represents the higher of either minor approach.

Intersection: **Pine Drive at Inspiration Drive****Warrant 2: 4 Hour Analysis - 2040 Project with Pine Drive Extension**

	Major	Minor*		Warrant 2 (Figure 4C-1)
	Inspiration Drive	Pine Drive		
Time of Day	Number of Lanes			
	1	1		
0:00				no
1:00				no
2:00				no
3:00				no
4:00	52	11		no
5:00	181	37		no
6:00	542	111		no
7:00	<b>1,290</b>	<b>265</b>		Yes
8:00	1,213	249		Yes
9:00	929	191		Yes
10:00			Warrant is Met (yes/no)	no
11:00				no
12:00				no
13:00				no
14:00	1,175	146		Yes
15:00	1,378	171		Yes
16:00	<b>1,450</b>	<b>180</b>		Yes
17:00	1,450	180		Yes
18:00	1,059	131		Yes
19:00	696	86		no
20:00				no
21:00				no
22:00				no
23:00				no
<b>Total</b>	<b>11,415</b>	<b>1,758</b>	<b>8</b>	<b>Met</b>

\*The minor volume for each hour represents the higher of either minor approach.

Intersection: **Pine Drive at Inspiration Drive****Warrant 2: 4 Hour Analysis - 2030 Project with Pine Drive Extension**

	Major	Minor*		Warrant 2 (Figure 4C-1)
	Inspiration Drive	Pine Drive		
Time of Day	Number of Lanes			
	1	1		
0:00				no
1:00				no
2:00				no
3:00				no
4:00	46	10		no
5:00	162	36		no
6:00	487	107		no
7:00	<b>1,160</b>	<b>255</b>		Yes
8:00	1,090	240		Yes
9:00	835	184		Yes
10:00			Warrant is Met (yes/no)	no
11:00				no
12:00				no
13:00				no
14:00	1,084	133		Yes
15:00	1,271	156		Yes
16:00	<b>1,338</b>	<b>164</b>		Yes
17:00	1,338	164		Yes
18:00	977	120		Yes
19:00	642	79		no
20:00				no
21:00				no
22:00				no
23:00				no
<b>Total</b>	<b>10,430</b>	<b>1,648</b>	<b>8</b>	<b>Met</b>

\*The minor volume for each hour represents the higher of either minor approach.

Intersection: **Pine Drive at Inspiration Drive****Warrant 2: 4 Hour Analysis - 2040 Project with Pine Drive Extension**

	Major	Minor*		Warrant 2 (Figure 4C-1)
	Inspiration Drive	Pine Drive		
Time of Day	Number of Lanes			
	1	1		
0:00				no
1:00				no
2:00				no
3:00				no
4:00	52	12		no
5:00	182	41		no
6:00	546	124		no
7:00	<b>1,300</b>	<b>295</b>		Yes
8:00	1,222	277		Yes
9:00	936	212		Yes
10:00			Warrant is Met (yes/no)	no
11:00				no
12:00				no
13:00				no
14:00	1,201	161		Yes
15:00	1,409	189		Yes
16:00	<b>1,483</b>	<b>199</b>		Yes
17:00	1,483	199		Yes
18:00	1,083	145		Yes
19:00	712	96		no
20:00				no
21:00				no
22:00				no
23:00				no
<b>Total</b>	<b>11,609</b>	<b>1,950</b>	<b>8</b>	<b>Met</b>

\*The minor volume for each hour represents the higher of either minor approach.



Intersection: **Aurora Parkway at Pine Drive****Warrant 2: 4 Hour Analysis - 2030 Background with Pine Drive Extension**

	Major	Minor*		Warrant 2 (Figure 4C-1)
	Aurora Parkway	Pine Drive		
Time of Day	Number of Lanes			
	2	1		
0:00				no
1:00				no
2:00				no
3:00				no
4:00	35	7		no
5:00	123	24		no
6:00	368	71		no
7:00	<b>875</b>	<b>170</b>		Yes
8:00	823	160		no
9:00	630	122		no
10:00				no
11:00				no
12:00				no
13:00				no
14:00	583	259		Yes
15:00	684	304		Yes
16:00	<b>720</b>	<b>320</b>		Yes
17:00	720	320		Yes
18:00	526	234		no
19:00	346	154		no
20:00				no
21:00				no
22:00				no
23:00				no
<b>Total</b>	<b>6,433</b>	<b>2,145</b>	<b>5</b>	<b>Met</b>

\*The minor volume for each hour represents the higher of either minor approach.

Intersection: **Aurora Parkway at Pine Drive****Warrant 2: 4 Hour Analysis - 2040 Background with Pine Drive Extension**

	Major	Minor*		Warrant 2 (Figure 4C-1)
	Aurora Parkway	Pine Drive		
Time of Day	Number of Lanes			
	1	2		
0:00				no
1:00				no
2:00				no
3:00				no
4:00	41	8		no
5:00	144	27		no
6:00	433	82		no
7:00	<b>1,030</b>	<b>195</b>		Yes
8:00	968	183		Yes
9:00	742	140		no
10:00				no
11:00				no
12:00				no
13:00				no
14:00	737	275		Yes
15:00	865	323		Yes
16:00	<b>910</b>	<b>340</b>		Yes
17:00	910	340		Yes
18:00	664	248		Yes
19:00	437	163		no
20:00				no
21:00				no
22:00				no
23:00				no
<b>Total</b>	<b>7,881</b>	<b>2,324</b>	<b>7</b>	<b>Met</b>

\*The minor volume for each hour represents the higher of either minor approach.

Intersection: **Aurora Parkway at Pine Drive****Warrant 2: 4 Hour Analysis - 2030 Project without Pine Drive Extension**

	Major	Minor*		Warrant 2 (Figure 4C-1)
	Aurora Parkway	Pine Drive		
Time of Day	Number of Lanes			
	2	1		
0:00				no
1:00				no
2:00				no
3:00				no
4:00	31	6		no
5:00	108	21		no
6:00	324	64		no
7:00	<b>771</b>	<b>153</b>		no
8:00	725	144		no
9:00	555	110		no
10:00				no
11:00				no
12:00				no
13:00				no
14:00	641	79		no
15:00	751	93		no
16:00	<b>791</b>	<b>98</b>		no
17:00	791	98		no
18:00	577	72		no
19:00	380	47		no
20:00				no
21:00				no
22:00				no
23:00				no
<b>Total</b>	<b>6,445</b>	<b>985</b>	<b>0</b>	<b>Not Met</b>

\*The minor volume for each hour represents the higher of either minor approach.

Intersection: **Aurora Parkway at Pine Drive****Warrant 2: 4 Hour Analysis - 2040 Project without Pine Drive Extension**

	Major	Minor*		Warrant 2 (Figure 4C-1)
	Aurora Parkway	Pine Drive		
Time of Day	Number of Lanes			
	1	2		
0:00				no
1:00				no
2:00				no
3:00				no
4:00	36	7		no
5:00	128	26		no
6:00	383	77		no
7:00	<b>911</b>	<b>183</b>		Yes
8:00	856	172		no
9:00	656	132		no
10:00			Warrant is Met (yes/no)	no
11:00				no
12:00				no
13:00				no
14:00	746	79		no
15:00	875	93		no
16:00	<b>921</b>	<b>98</b>		no
17:00	921	98		no
18:00	672	72		no
19:00	442	47		no
20:00				no
21:00				no
22:00				no
23:00				no
<b>Total</b>	<b>7,547</b>	<b>1,084</b>	<b>1</b>	<b>Not Met</b>

\*The minor volume for each hour represents the higher of either minor approach.

Intersection: **Aurora Parkway at Pine Drive****Warrant 2: 4 Hour Analysis - 2030 Project with Pine Drive Extension**

	Major	Minor*		Warrant 2 (Figure 4C-1)
	Aurora Parkway	Pine Drive		
Time of Day	Number of Lanes			
	2	1		
0:00				no
1:00				no
2:00				no
3:00				no
4:00	36	11		no
5:00	127	38		no
6:00	382	115		no
7:00	<b>909</b>	<b>273</b>		Yes
8:00	854	257		Yes
9:00	654	197		no
10:00				no
11:00				no
12:00				no
13:00				no
14:00	667	311		Yes
15:00	782	365		Yes
16:00	<b>823</b>	<b>384</b>		Yes
17:00	823	384		Yes
18:00	601	280		no
19:00	395	184		no
20:00				no
21:00				no
22:00				no
23:00				no
<b>Total</b>	<b>7,053</b>	<b>2,799</b>	<b>6</b>	<b>Met</b>

\*The minor volume for each hour represents the higher of either minor approach.

Intersection: **Aurora Parkway at Pine Drive**  
**Warrant 2: 4 Hour Analysis - 2040 Project with Pine Drive Extension**

	Major	Minor*		Warrant 2 (Figure 4C-1)
	Aurora Parkway	Pine Drive		
Time of Day	Number of Lanes			
	1	2		
0:00				no
1:00				no
2:00				no
3:00				no
4:00	43	12		no
5:00	149	42		no
6:00	447	125		no
7:00	<b>1,064</b>	<b>298</b>		Yes
8:00	1,000	280		Yes
9:00	766	215		no
10:00				no
11:00				no
12:00				no
13:00				no
14:00	821	327		Yes
15:00	962	384		Yes
16:00	<b>1,013</b>	<b>404</b>		Yes
17:00	1,013	404		Yes
18:00	739	295		Yes
19:00	486	194		no
20:00				no
21:00				no
22:00				no
23:00				no
<b>Total</b>	<b>8,503</b>	<b>2,980</b>	<b>7</b>	<b>Met</b>

\*The minor volume for each hour represents the higher of either minor approach.

Sheet No **1** of **8**

Major Street **Aurora Parkway**  
 Minor Street **Pine Drive**

Project **Vistas at Kings Point**  
 Scenario **2030 Project (No Pine Extension)**  
 Peak Hour **AM**

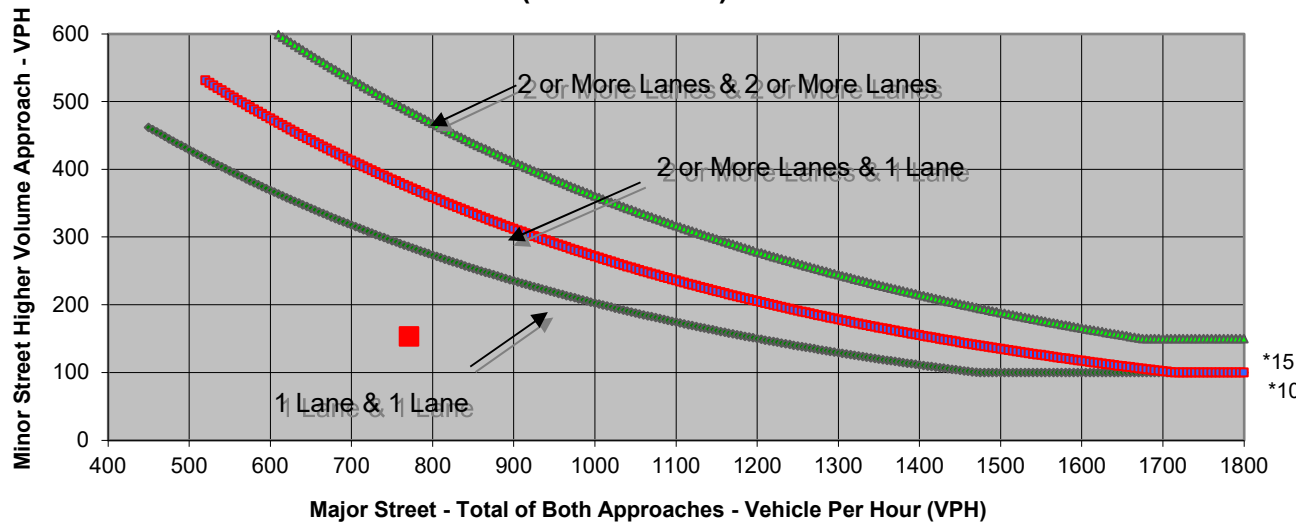
Turn Movement Volumes

	NB	SB	EB	WB
Left	106	0	0	16
Through	0	0	255	465
Right	47	0	35	0
Total	153	0	290	481

Major Street Direction

	North/South
<b>x</b>	East/West

**Figure 4C-3  
 Warrant 3, Peak Hour  
 (Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Aurora Parkway	Minor Street Pine Drive	<u>Warrant Met</u>
Number of Approach Lanes	<b>2</b>	<b>1</b>	<b><u>NO</u></b>
Traffic Volume (VPH) *	<b>771</b>	<b>153</b>	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
 Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No 2 of 8

Major Street Aurora Parkway  
Minor Street Pine Drive

Project Vistas at Kings Point  
Scenario 2030 Project (No Pine Extension)  
Peak Hour PM

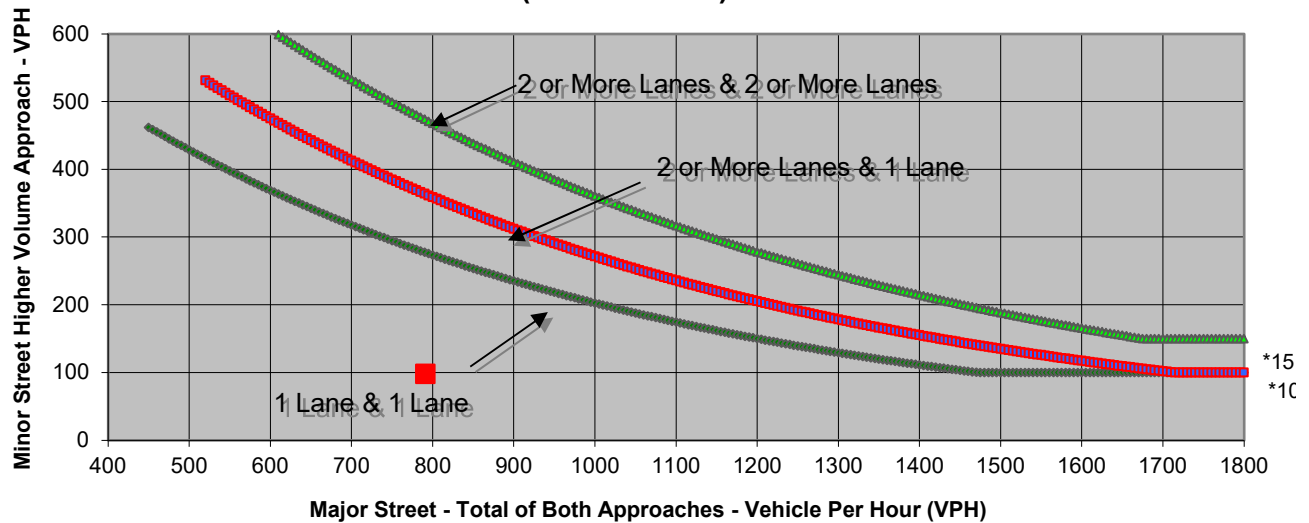
Turn Movement Volumes

	NB	SB	EB	WB
Left	66	0	0	54
Through	0	0	385	245
Right	32	0	107	0
Total	98	0	492	299

Major Street Direction

	North/South
x	East/West

**Figure 4C-3  
Warrant 3, Peak Hour  
(Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Aurora Parkway	Minor Street Pine Drive	<u>Warrant Met</u>
Number of Approach Lanes	2	1	<u>NO</u>
Traffic Volume (VPH) *	791	98	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
Traffic Volume for Minor Street is the Volume of High Volume Approach.



Sheet No **3** of **8**

Major Street **Aurora Parkway**  
 Minor Street **Pine Drive**

Project **Vistas at Kings Point**  
 Scenario **2030 Project (With Pine Extension)**  
 Peak Hour **AM**

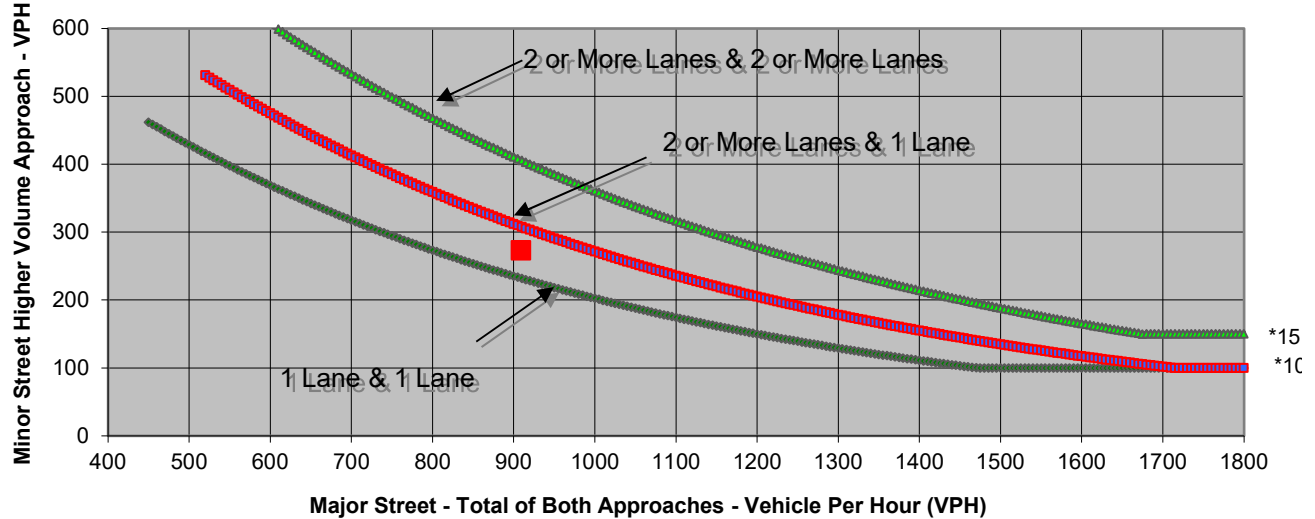
Turn Movement Volumes

	NB	SB	EB	WB
Left	84	0	0	185
Through	0	0	250	445
Right	189	0	29	0
Total	273	0	279	630

Major Street Direction

	North/South
x	East/West

**Figure 4C-3  
 Warrant 3, Peak Hour  
 (Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Aurora Parkway	Minor Street Pine Drive	<u>Warrant Met</u>
Number of Approach Lanes	<b>2</b>	<b>1</b>	<b><u>NO</u></b>
Traffic Volume (VPH) *	<b>909</b>	<b>273</b>	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
 Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No **4** of **8**

Major Street **Aurora Parkway**  
 Minor Street **Pine Drive**

Project **Vistas at Kings Point**  
 Scenario **2030 Project (With Pine Extension)**  
 Peak Hour **PM**

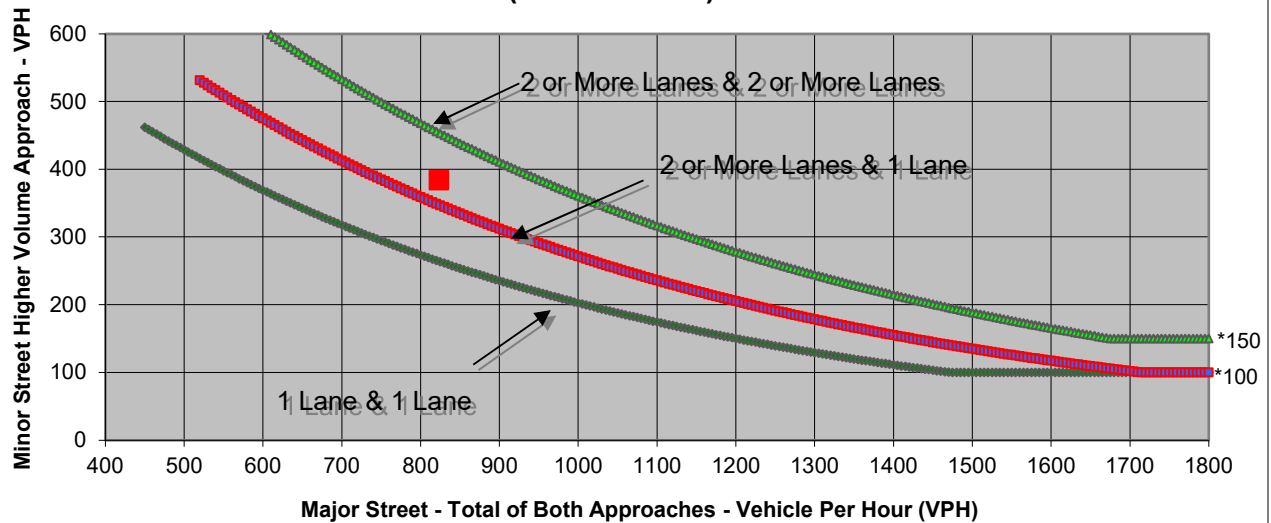
Turn Movement Volumes

	NB	SB	EB	WB
Left	51	0	0	144
Through	0	0	365	230
Right	333	0	84	0
Total	384	0	449	374

Major Street Direction

	North/South
x	East/West

**Figure 4C-3  
 Warrant 3, Peak Hour  
 (Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Aurora Parkway	Minor Street Pine Drive	<u>Warrant Met</u>
Number of Approach Lanes	<b>2</b>	<b>1</b>	<b><u>YES</u></b>
Traffic Volume (VPH) *	<b>823</b>	<b>384</b>	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
 Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No **5** of **8**

Major Street **Aurora Parkway**  
 Minor Street **Pine Drive**

Project **Vistas at Kings Point**  
 Scenario **2040 Project (No Pine Extension)**  
 Peak Hour **AM**

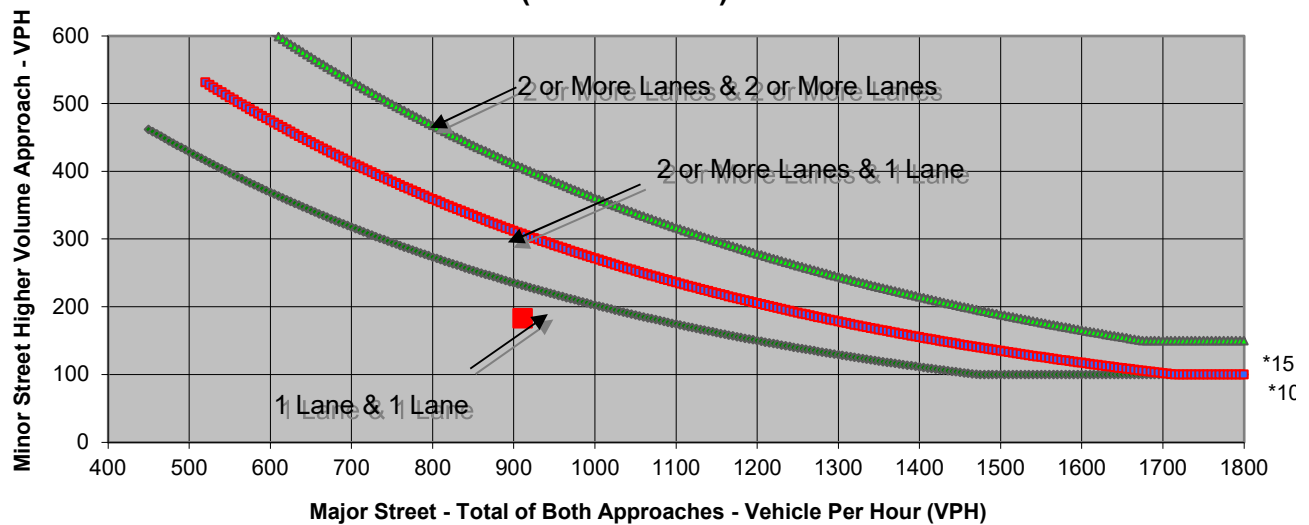
Turn Movement Volumes

	NB	SB	EB	WB
Left	126	0	0	16
Through	0	0	305	550
Right	57	0	40	0
Total	183	0	345	566

Major Street Direction

	North/South
<b>x</b>	East/West

**Figure 4C-3  
 Warrant 3, Peak Hour  
 (Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Aurora Parkway	Minor Street Pine Drive	<u>Warrant Met</u>
Number of Approach Lanes	<b>2</b>	<b>1</b>	<b><u>NO</u></b>
Traffic Volume (VPH) *	<b>911</b>	<b>183</b>	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
 Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No **6** of **8**

Major Street **Aurora Parkway**  
 Minor Street **Pine Drive**

Project **Vistas at Kings Point**  
 Scenario **2040 Project (No Pine Extension)**  
 Peak Hour **PM**

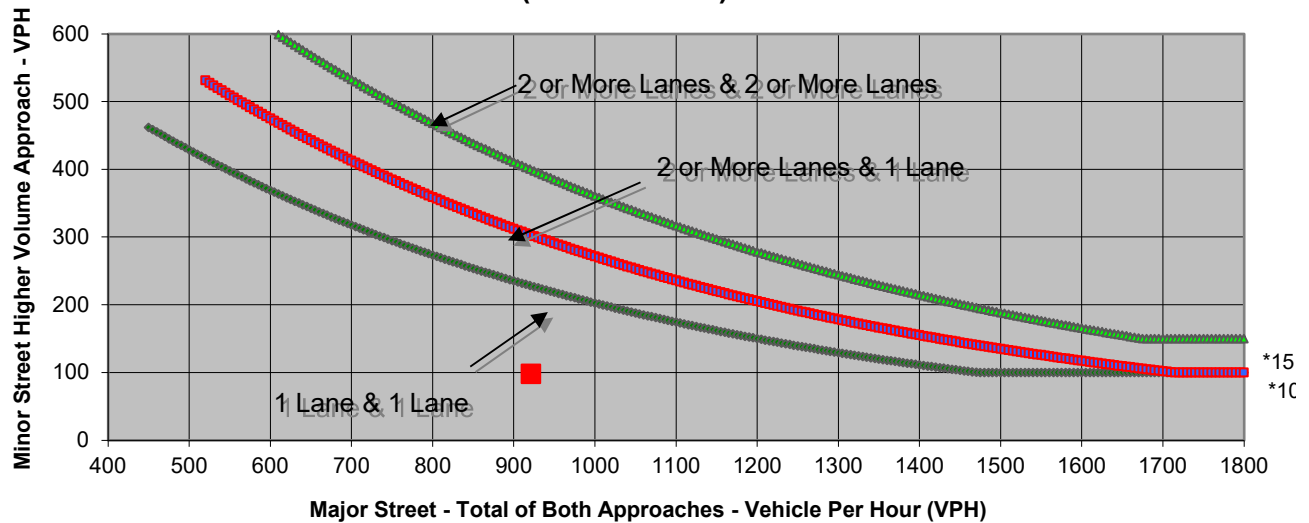
Turn Movement Volumes

	NB	SB	EB	WB
Left	66	0	0	54
Through	0	0	460	300
Right	32	0	107	0
Total	98	0	567	354

Major Street Direction

	North/South
<b>x</b>	East/West

**Figure 4C-3  
 Warrant 3, Peak Hour  
 (Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Aurora Parkway	Minor Street Pine Drive	<u>Warrant Met</u>
Number of Approach Lanes	<b>2</b>	<b>1</b>	<b><u>NO</u></b>
Traffic Volume (VPH) *	<b>921</b>	<b>98</b>	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
 Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No 7 of 8

Major Street Aurora Parkway  
Minor Street Pine Drive

Project Vistas at Kings Point  
Scenario 2040 Project (With Pine Extension)  
Peak Hour AM

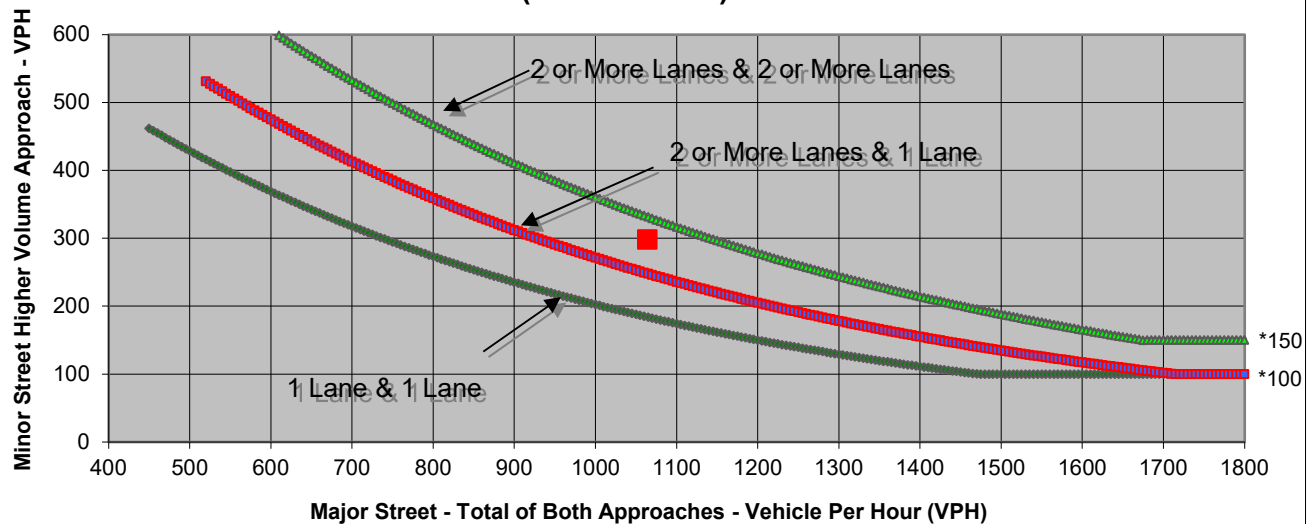
Turn Movement Volumes

	NB	SB	EB	WB
Left	99	0	0	185
Through	0	0	305	535
Right	199	0	39	0
Total	298	0	344	720

Major Street Direction

	North/South
x	East/West

**Figure 4C-3  
Warrant 3, Peak Hour  
(Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Aurora Parkway	Minor Street Pine Drive	<u>Warrant Met</u>
Number of Approach Lanes	2	1	<u>YES</u>
Traffic Volume (VPH) *	1,064	298	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No **8** of **8**

Major Street **Aurora Parkway**  
 Minor Street **Pine Drive**

Project **Vistas at Kings Point**  
 Scenario **2040 Project (With Pine Extension)**  
 Peak Hour **PM**

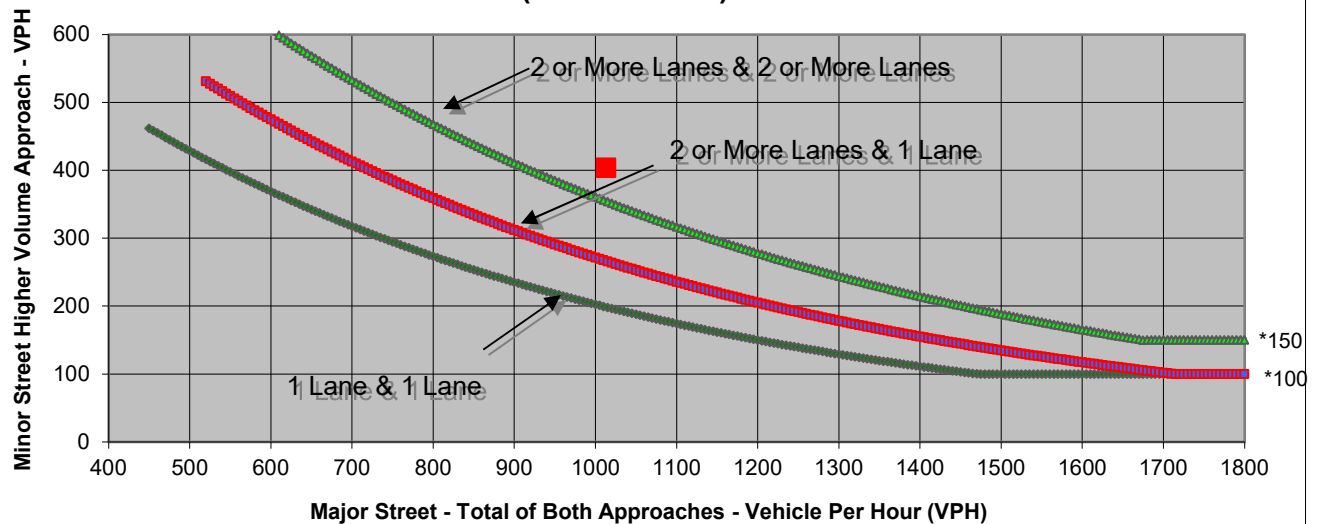
Turn Movement Volumes

	NB	SB	EB	WB
Left	61	0	0	154
Through	0	0	460	300
Right	343	0	99	0
Total	404	0	559	454

Major Street Direction

	North/South
<b>x</b>	East/West

**Figure 4C-3  
 Warrant 3, Peak Hour  
 (Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Aurora Parkway	Minor Street Pine Drive	<u>Warrant Met</u>
Number of Approach Lanes	<b>2</b>	<b>1</b>	<b><u>YES</u></b>
Traffic Volume (VPH) *	<b>1,013</b>	<b>404</b>	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
 Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No **1** of **4**

Major Street **Pine Drive**  
 Minor Street **Inspiration Drive**

Project **Vistas at Kings Point**  
 Scenario **2030 Project (With Pine Extension)**  
 Peak Hour **AM**

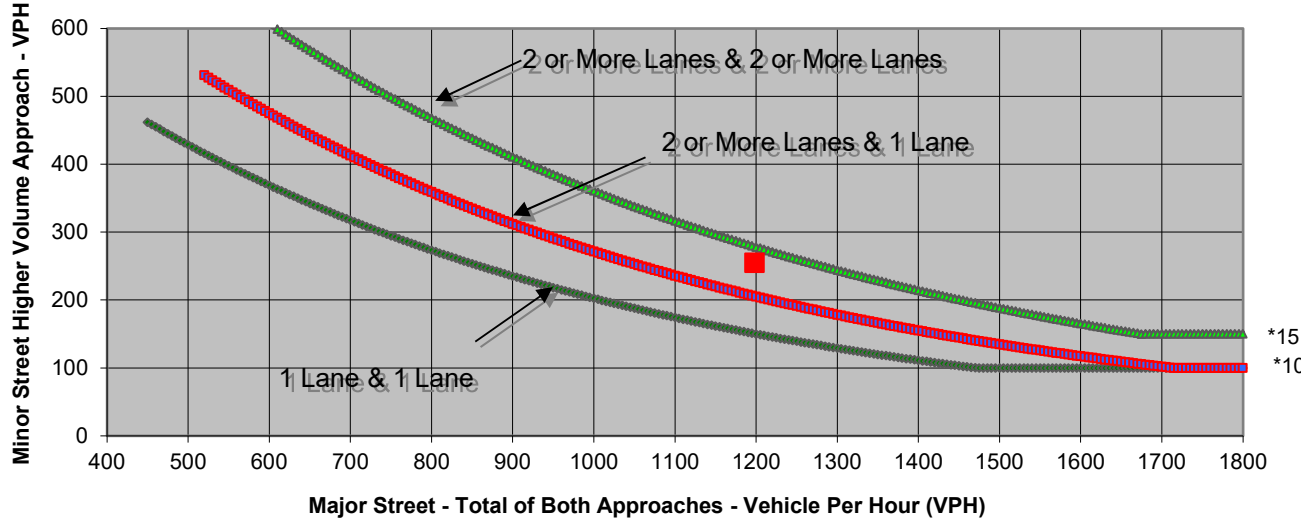
Turn Movement Volumes

	NB	SWB	SEB	WB
Left	0	38	38	0
Through	171	720	0	0
Right	250	19	217	0
Total	421	777	255	0

Major Street Direction

<b>x</b>	North/South
	East/West

**Figure 4C-3  
 Warrant 3, Peak Hour  
 (Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Pine Drive	Minor Street Inspiration Drive	<u>Warrant Met</u>
Number of Approach Lanes	<b>2</b>	<b>1</b>	<b><u>YES</u></b>
Traffic Volume (VPH) *	<b>1,198</b>	<b>255</b>	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
 Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No 2 of 4

Major Street Pine Drive  
Minor Street Inspiration Drive

Project Vistas at Kings Point  
Scenario 2030 Project (With Pine Extension)  
Peak Hour PM

Turn Movement Volumes

	NB	SWB	SEB	WB
Left	0	0	28	0
Through	359	445	0	0
Right	495	39	136	0
Total	854	484	164	0

Major Street Direction

x	North/South
	East/West

**Figure 4C-3  
Warrant 3, Peak Hour  
(Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Pine Drive	Minor Street Inspiration Drive	<u>Warrant Met</u>
Number of Approach Lanes	2	1	<u>NO</u>
Traffic Volume (VPH) *	1,338	164	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
Traffic Volume for Minor Street is the Volume of High Volume Approach.



Sheet No **3** of **4**

Major Street **Pine Drive**  
Minor Street **Inspiration Drive**

Project **Vistas at Kings Point**  
Scenario **2040 Project (With Pine Extension)**  
Peak Hour **AM**

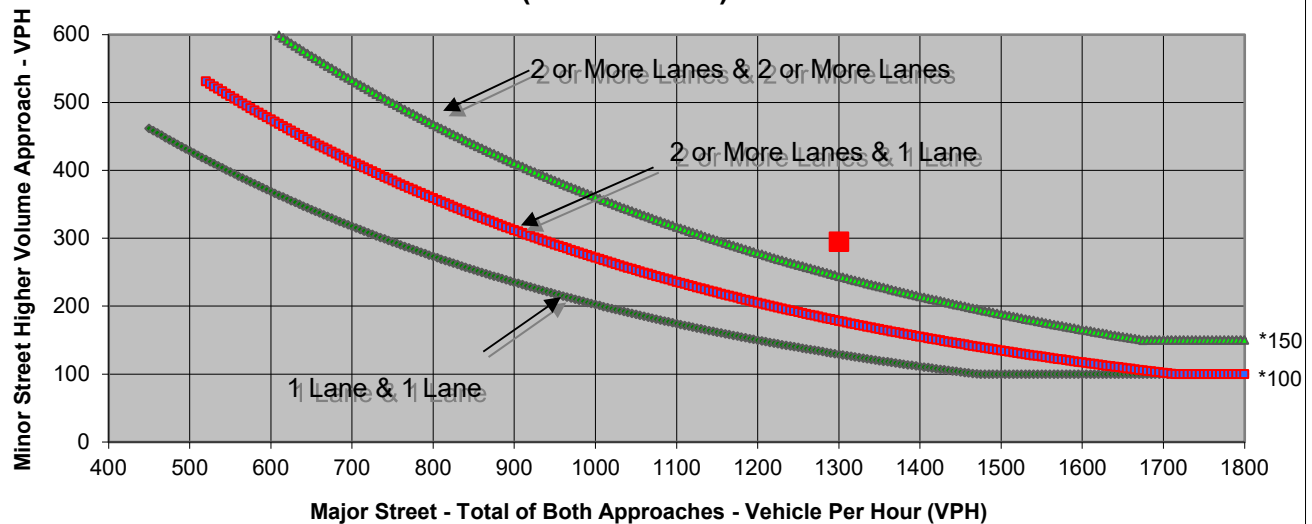
Turn Movement Volumes

	NB	SWB	SEB	WB
Left	0	0	58	0
Through	191	805	0	0
Right	275	29	237	0
Total	466	834	295	0

Major Street Direction

<b>x</b>	North/South
	East/West

**Figure 4C-3  
Warrant 3, Peak Hour  
(Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Pine Drive	Minor Street Inspiration Drive	<u>Warrant Met</u>
Number of Approach Lanes	<b>2</b>	<b>1</b>	<b><u>YES</u></b>
Traffic Volume (VPH) *	<b>1,300</b>	<b>295</b>	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No **4** of **4**

Major Street **Pine Drive**  
 Minor Street **Inspiration Drive**

Project **Vistas at Kings Point**  
 Scenario **2040 Project (With Pine Extension)**  
 Peak Hour **PM**

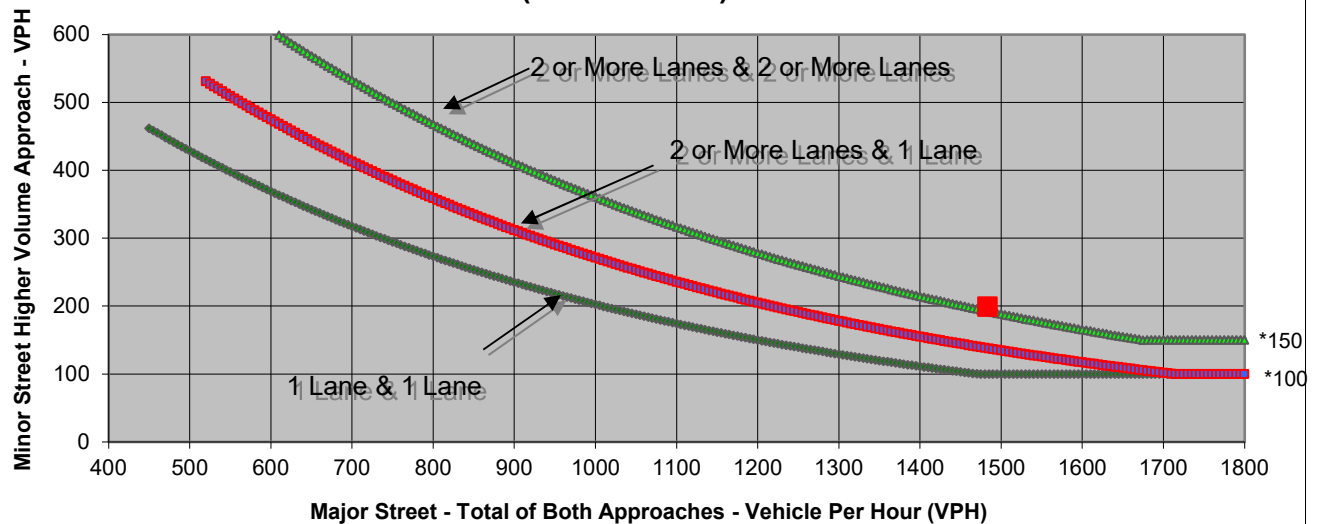
Turn Movement Volumes

	NB	SWB	SEB	WB
Left	0	0	43	0
Through	394	495	0	0
Right	540	54	156	0
Total	934	549	199	0

Major Street Direction

<b>x</b>	North/South
	East/West

**Figure 4C-3  
 Warrant 3, Peak Hour  
 (Urban Areas)**



\* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *Manual on Uniform Traffic Control Devices*, FHWA, 2009

	Major Street Pine Drive	Minor Street Inspiration Drive	<u>Warrant Met</u>
Number of Approach Lanes	<b>2</b>	<b>1</b>	<b><u>YES</u></b>
Traffic Volume (VPH) *	<b>1,483</b>	<b>199</b>	

\* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.  
 Traffic Volume for Minor Street is the Volume of High Volume Approach.