

The Aurora Highway Traffic

Comments 5.4.22:

- 1) This study is titled TAH North A subarea, but it appears to study all three subareas at once, which deviates from the agreed upon approach (City noted that separate studies would be required for each of the subareas).
- 2) In study methodology, there are no mentions of the NEATS study (2018) being used as a basis for background traffic or comparison for assumed traffic. The TAH TIS cited in this study also provides significant difference in daily volumes assumed for the larger arterial roadways, so that inconsistency also needs to be investigated/ explained.
- 3) Several studies were cited as the basis for background traffic, but there are several filings that are adjacent to this subarea that have specific and relevant information on adjacent land uses (see comments for specific filing numbers). Please incorporate/compare/ contrast assumptions from those other filings into this study.
- 4) Provide figures for trip assignment to assist in the review of the assumptions/methodologies used to generate total site/background volumes.
- 5) Many of the orientations of stop signs (i.e. on 42nd, notably) differ from the orientations recommended in other adjacent filings. Please review these other filings and provide consistent recommendations.
- 6) Detailed review of intersection operations (beyond current comments) may be forthcoming as other comments regarding trip distribution/assignment assumptions are resolved.
- 7) Queue length discussion is central to aux lane recommendations, but there is no queue length analysis summary section (as required per TIS guidelines). Please provide not only to support these recommendations, but to evaluate for turn lane designs, as needed (queuing analysis summary tables include turn lane evaluation with methodologies from both HCM 95th %-ile queues as well as CDOT's State Highway Access Code, SHAC). Please provide this analysis.
- 8) Some of the LOS F left-outs, while yielding generally low queues, will result in driver frustration and likely alter gap acceptance onto more major roadways, creating safety issues. In these cases, it may be worthwhile to assume/provide a separate left turn lane for the outbound movements to mitigate these issues.
- 9) Sections missing: (a) Queuing analysis/summary tables (for storage lanes/auxiliary lanes); (b) Traffic Calming discussion (per guidelines and pre app notes); (c) Signal warrant analyses discussions (warrant calcs to be included in appendices).
- 10) Generally, COA only accepts Synchro results, due to reliability on HCM methodology. The PTV Vistro results don't mention which methodology was used (nor is it mentioned in the text of the report). If HCM methodology can be verified as the basis for the LOS and queuing outputs, it is acceptable. Otherwise, please provide Synchro model reports/results.
- 11) See other comments throughout.

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Introduction

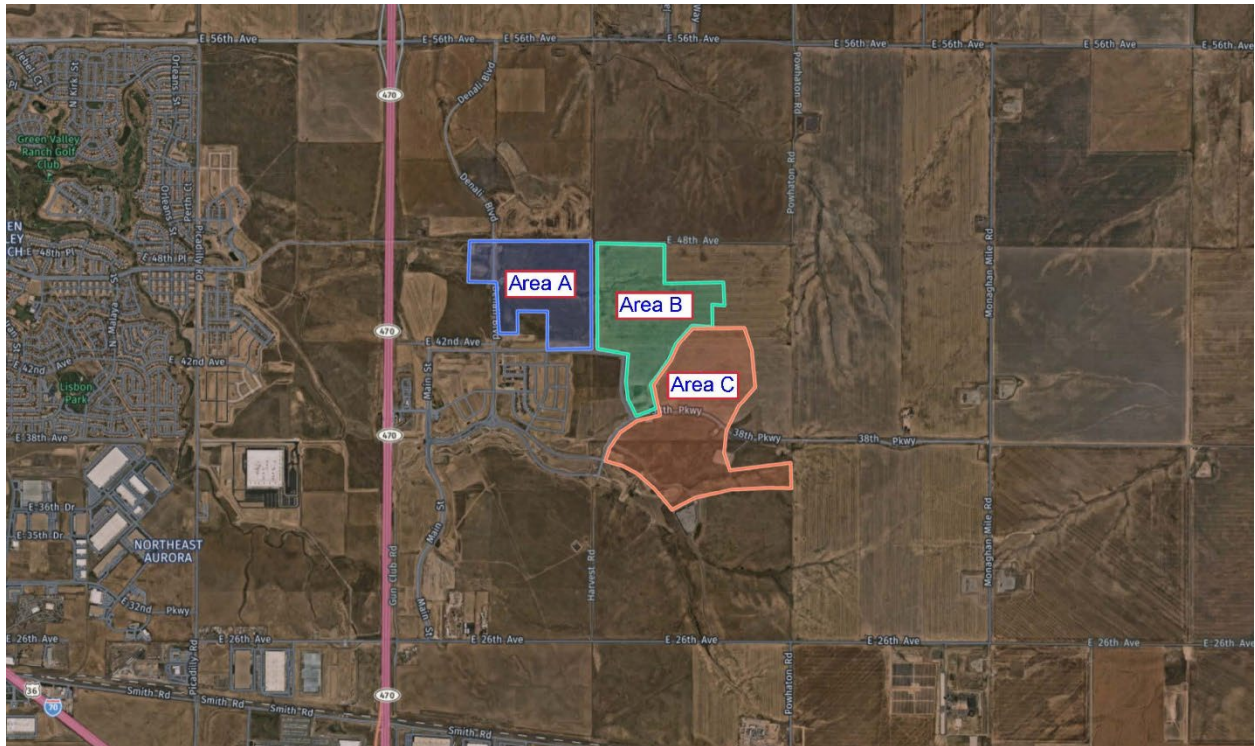
The Aurora Highlands is a 2,550-acre development located between Denver International Airport (DEN) and Interstate 70 (I-70). The Aurora Highland North (TAH North) phase includes the majority of the planning areas between 42nd Avenue and 28th Avenue. TAHNorth has been split into three sub-areas; Area A, Area B and Area C.

The purpose of this study is to assess the effects the development of the TAH North, Area A will have on the surrounding transportation system.

The report is organized as follows:

- **Introduction** – Describes the purpose and intent of this study.
- **Area Conditions** – Describes the study area land uses as well as the existing and future roadway network.
- **Proposed Development** – Describes the proposed development and the location.
- **Projected Traffic** – Identifies the expected number of daily and peak hour trips that will be generated by the Aurora Highlands, North Area, Area A development. The expected external trip distribution is also shown.
- **Traffic Analysis** – Will analyze the buildout (2026) and horizon year (2040) conditions with and without the project.
- **Findings and Conclusions** – Identifies any deficiencies in the study area roadway network with or without the project and mitigation measures that will alleviate any identified deficiencies.
- **Recommendations** – Provides a summary of the study findings.

Figure 1. Vicinity Map



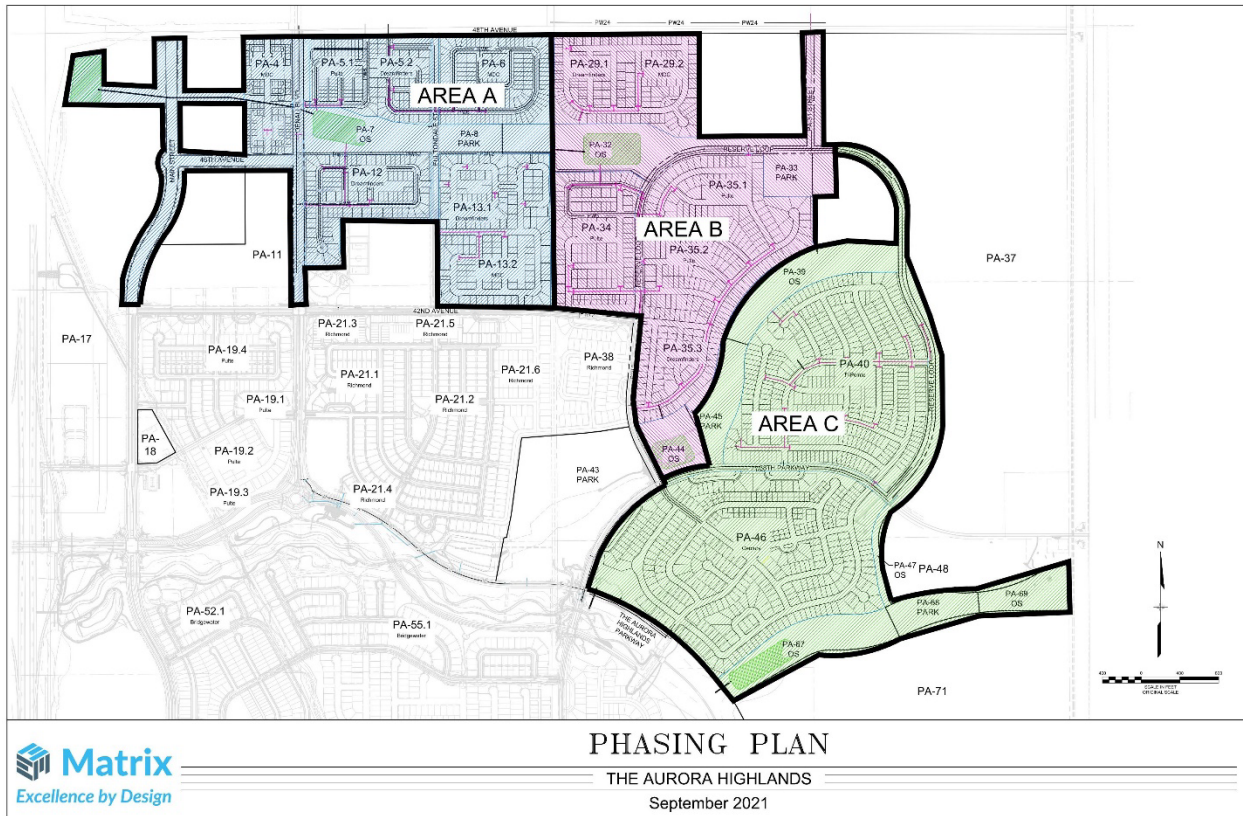
Proposed Development

The Aurora Highlands North Area will consist of 2,107 single family detached homes.

Figure 2 illustrates The Aurora Highlands North site plan.

Include a figure(s) clarifying the land uses proposed in the North A subarea, which is the focus of this study.

Figure 2. The Aurora Highlands North Area Site Plan



Area Conditions

This section describes the existing conditions and the planned level of improvements adjacent to the Aurora Highlands North Area development.

Study Area Land Use

The Aurora Highlands, North Area will be constructed on vacant land and is bound on the west by E-470, on the south by the future The Aurora Highlands Parkway, on the east by the future Powhatan Road and the north by 48th Avenue. This area of Aurora is mostly vacant land but is growing rapidly and includes other developments such as other areas of The Aurora Highlands, Windler, Sagebrush and ATEC.

Please review NEATS and the future classification of these roadways and update this page as necessary.

Site Accessibility

The existing roadway system is largely non-existent in this area of Aurora. However, the future roadway network consists of the following transportation facilities:

E-470 is a north-south four-lane tollway that runs along The Aurora Highlands' west side. A grade-separated interchange is provided at 56th Avenue. An interchange is planned at 48th Avenue and the bridge over E-470 at 48th Avenue is in place (the roadway connecting to it is not yet built, nor are the ramps).

Classification per NEATS is classified as a minor arterial through TAH with an anticipated 4 travel lane section.

26th Avenue is a minor two-lane roadway facility along the south side of The Aurora Highlands spanning E-470 (no interchange) and extending to Picadilly Road to the west and Watkins Road to the east.

AKA future Aerotropolis Pkwy, Major Arterial, 6 lane section.

Powhaton Road is a two-lane road that will ultimately define the east side of the residential development within The Aurora Highlands. Currently, this road extends south from 26th Avenue as a two-lane facility, crossing the Union Pacific (UP) Railroad at-grade, spanning I-70, and extending south to Jewell Avenue.

48th Avenue will be constructed on the north side of The Aurora Highlands prior to issuance of any Certificate of Occupancy for lots within TAH North. 48th Avenue will ultimately be a 6-lane major arterial and have a grade-separate interchange with E-470. The south half of this arterial will be built in conjunction with The Aurora Highlands by ARTA (Aerotropolis Regional Transportation Authority). The north half of 48th Avenue will be constructed by the Windler development to the north. The timing of individual developments is unclear, so it is difficult to determine when 48th Avenue will need to be constructed beyond each half-road section. It is assumed that if only the north or south half of 48th Avenue is constructed first, that it would serve temporarily as a 3-lane collector road with one lane in each direction and a center turn lane. In this scenario, the daily threshold for the half roadway section would be 12,000 vehicles-per-day. Daily traffic from Area A will be a three-lane collector road section on its own.

This is true and similar discussion should be made on other portions of the roadway network adjacent to TAH.

Denali Boulevard currently exists as a two-lane, north-south roadway extending from 56th Avenue south to The Aurora Highlands Parkway terminating in a roundabout intersection. Denali Boulevard will ultimately be a four-lane minor arterial road.

The Aurora Highlands Parkway currently exists as an east-west four-lane to six-lane facility between Main Street and 38th Parkway. It has a large median east of Denali Boulevard containing a creek and recreational trail. The Aurora Highlands Parkway will ultimately be a four-lane minor arterial.

38th Parkway currently exists as a three-lane (striped median/center turn lane) roadway between The Aurora Highlands Parkway and Reserve Loop (western connection). It will ultimately connect to Powhaton Road as a three-lane collector road.

No existing conditions analysis will be completed for this study as the land is mostly vacant at this time and has no traffic other than construction traffic. No new traffic counts were conducted for this study. This study builds on the traffic volumes presented *The Aurora Highlands Traffic Impact Study*, dated August 2019 which looked at the entirety of The Aurora Highlands development. The studies of surrounding developments are as follows:

- The Aurora Highlands Transportation Impact Study; August 2019

Ensure that reference and a foundation for this study is also NEATS Refresh (2018).



Filing 7 was done by Aldridge Transportation Consultants and has only undergone 2 referrals, with many significant comments pending and is not approved.

- ATEC Traffic Impact Analysis; November 2019
- The Aurora Highlands Filings 7 Phases 1-3 DR Horton Transportation Impact Study; May 2020
- The Aurora Highlands Filing 16 Traffic Impact Study; August 2021
- Windler Master Plan Master Traffic Study; October 2021

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While the two filings cited here are good inclusions, there are other filings which are closer to the impacted area in North A which should have been included as very specific land use has been identified and submitted to the City to date, namely: Filings 1, 2, 4, 5, 8 (especially this one because of the adjacent school impacts), and 14. All of these have direct impact to this North A subarea, and it's proposed roadway network.

Trip Generation

The vehicle trips associated with The Aurora Highlands, North Area, Area A were calculated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*. This methodology consists of choosing an independent variable for the land use for a particular time of day. The independent variable correlates to the variation in trip ends and is related to the land use. The value of the independent variable is either multiplied by a weighted average or used in a regression equation to calculate the trips generated by the land use. The *ITE Trip Generation Manual* provides guidance on when to use the weighted average versus the regression equation. In most cases, the regression equations are recommended when there are adequate study data points.

Table 1 shows the trips that are expected to be generated by The Aurora Highlands, North Area, Area A at build out.

Table 1. TAH North Area A Trip Generation

| The Aurora Highlands - Area A | | | | | | | | | | | | |
|-------------------------------|--------------------------------------|------------|-----------|-------------|-------------|-------------|--------------|------------|------------|--------------|------------|------------|
| Parcel | ITE Code and Land Use | Size | Units | Weekday | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Total | Entering | Exiting | Total | Entering | Exiting | Total | Entering | Exiting |
| PA-4 | 210 - Single-Family Detached Housing | 145 | DU | 1420 | 710 | 710 | 104 | 27 | 77 | 141 | 89 | 52 |
| PA-5.1 | 210 - Single-Family Detached Housing | 69 | DU | 718 | 359 | 359 | 53 | 14 | 39 | 70 | 44 | 26 |
| PA-5.2 | 210 - Single-Family Detached Housing | 156 | DU | 1520 | 760 | 760 | 112 | 29 | 83 | 151 | 95 | 56 |
| PA-12 | 210 - Single-Family Detached Housing | 111 | DU | 1110 | 555 | 555 | 82 | 21 | 61 | 110 | 69 | 41 |
| PA-6.1 | 210 - Single-Family Detached Housing | 90 | DU | 916 | 458 | 458 | 68 | 18 | 50 | 90 | 57 | 33 |
| PA-6.2 | 210 - Single-Family Detached Housing | 61 | DU | 640 | 320 | 320 | 47 | 12 | 35 | 62 | 39 | 23 |
| PA-13.1 | 210 - Single-Family Detached Housing | 46 | DU | 494 | 247 | 247 | 37 | 10 | 27 | 48 | 30 | 18 |
| PA-13.2 | 210 - Single-Family Detached Housing | 113 | DU | 1130 | 565 | 565 | 84 | 22 | 62 | 111 | 70 | 41 |
| Totals | | 791 | DU | 7948 | 3974 | 3974 | 587 | 153 | 434 | 783 | 493 | 290 |

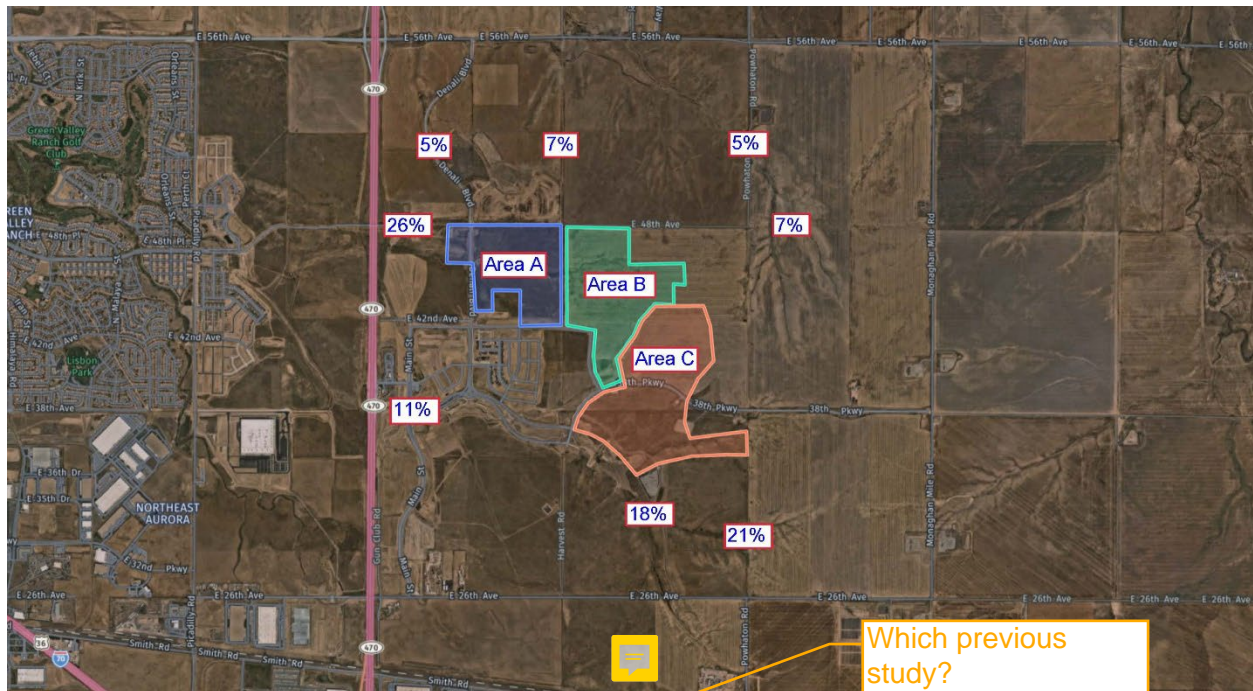
No trip reduction is accounted for

While it is not always requested, it would be helpful to have a figure here mapping out the planning areas and noting the anticipated DU count identified in this table.

Trip Distribution

Figure 3 illustrates the expected external distribution of travel for the site-generated trips. This distribution was determined by reviewing the general distribution of trips on the roadway network in *The Aurora Highlands Traffic Impact Study*, dated August 2019.

Figure 3. Trip Distribution



The overall distribution based on the previous study is 48% of the trips will travel to/from the south; 20% of the trips will travel to/from the west; 22% of the trips will travel to/from the north and 10% of the trips will travel to/from the east. When those overall distributions are distributed among the available lanes traveling in each direction, the distributions shown in Figure 3 is the result.

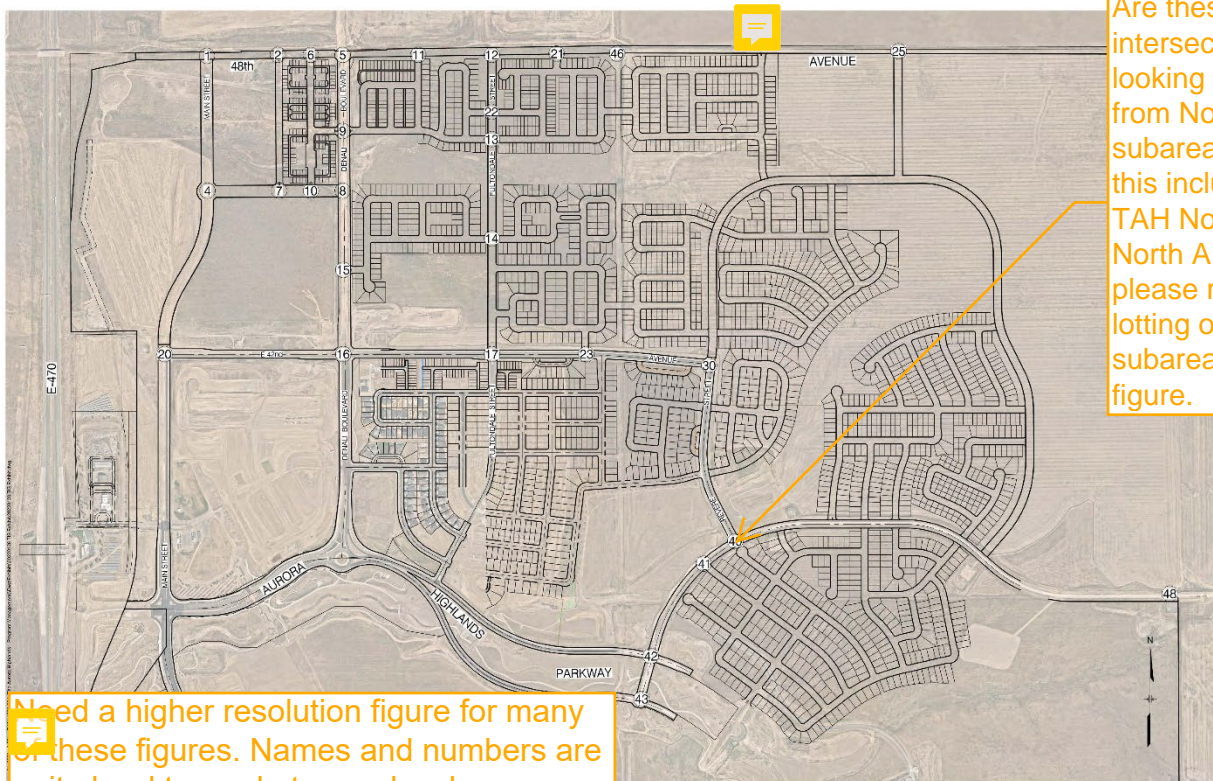
The project trips for both the AM and PM peak hours are shown in Figures 4 and 5 and daily project trips are shown in Figure 6.

I'm having a difficult time following the methodology used to determine the percentages assumed in Figure 3 and how they add up the percentages described in the paragraph above. Please provide more detail or clarifying information for review.

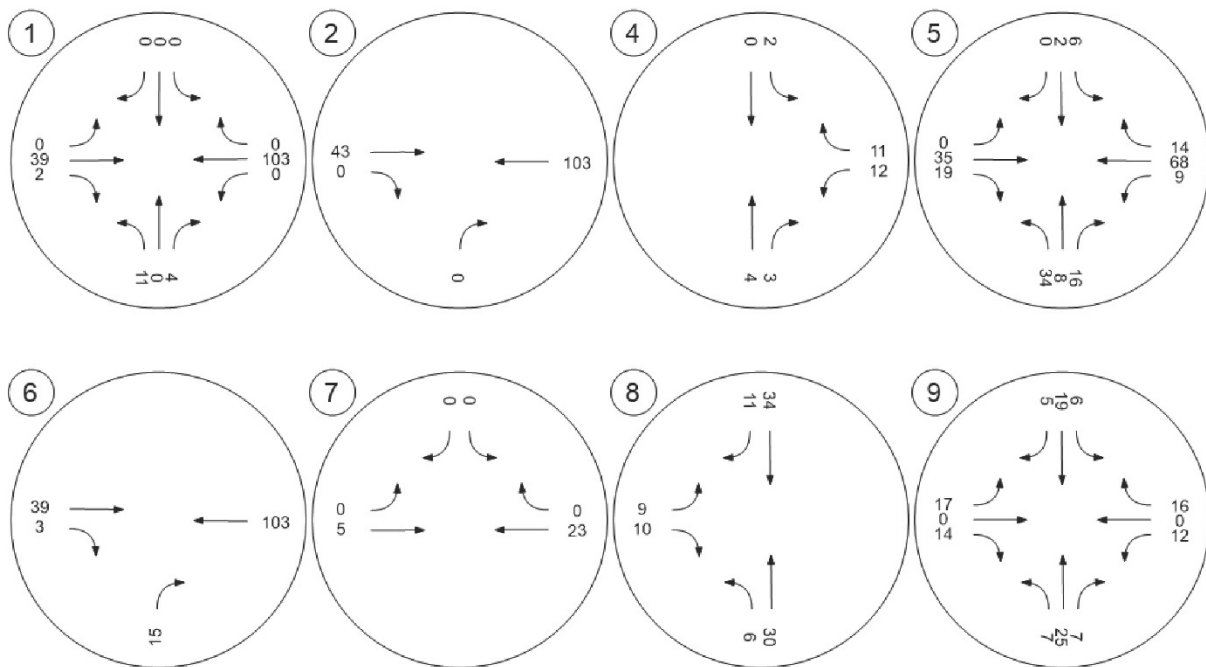
This macroscopic level of analysis is similar to the effort done to establish NEATS (i.e. travel demand models). What method was used to compare this result to the results from NEATS?

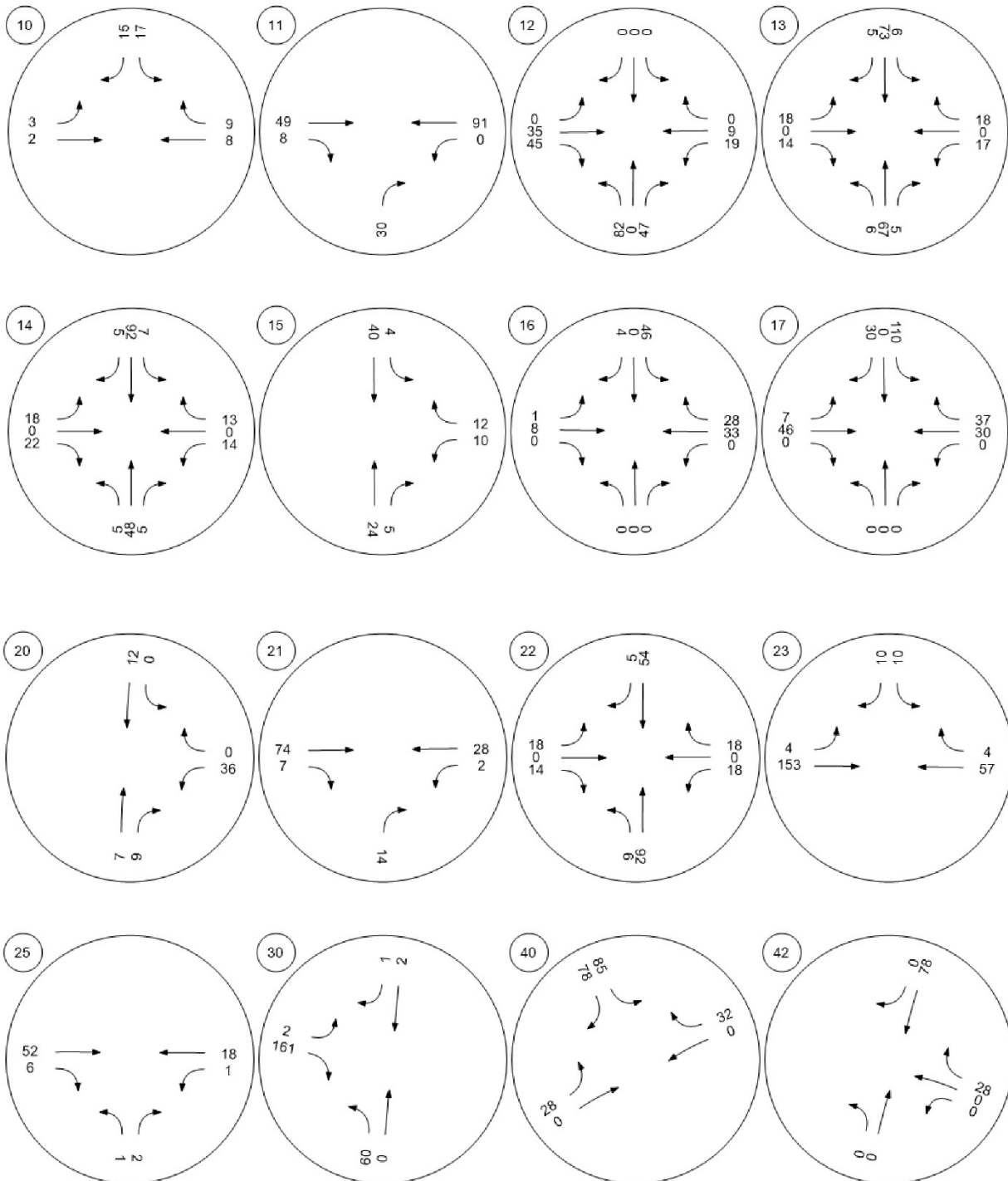
There are a lot of detailed calculations between the assumptions made between Figure 3 and these site trips shown in Figure 4. Please provide more detail on that methodology for review. A trip assignment figure (or several) may help.

Figure 4. The Aurora Highlands North, Area A Project Trips (AM Peak Hour)



Need a higher resolution figure for many of these figures. Names and numbers are quite hard to read at page-level zoom.





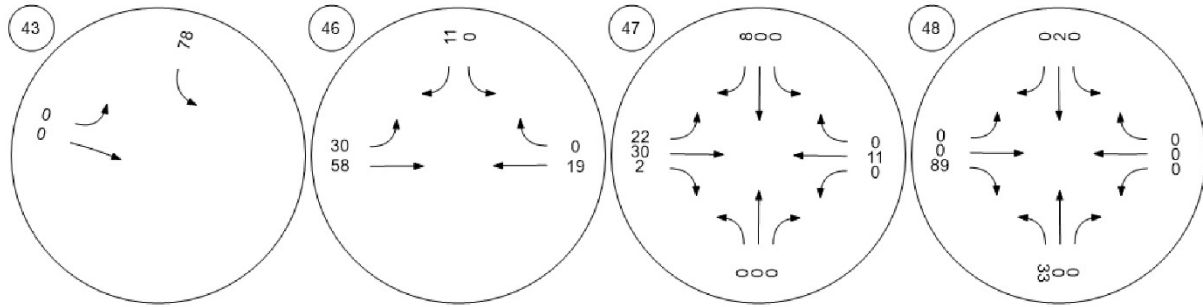
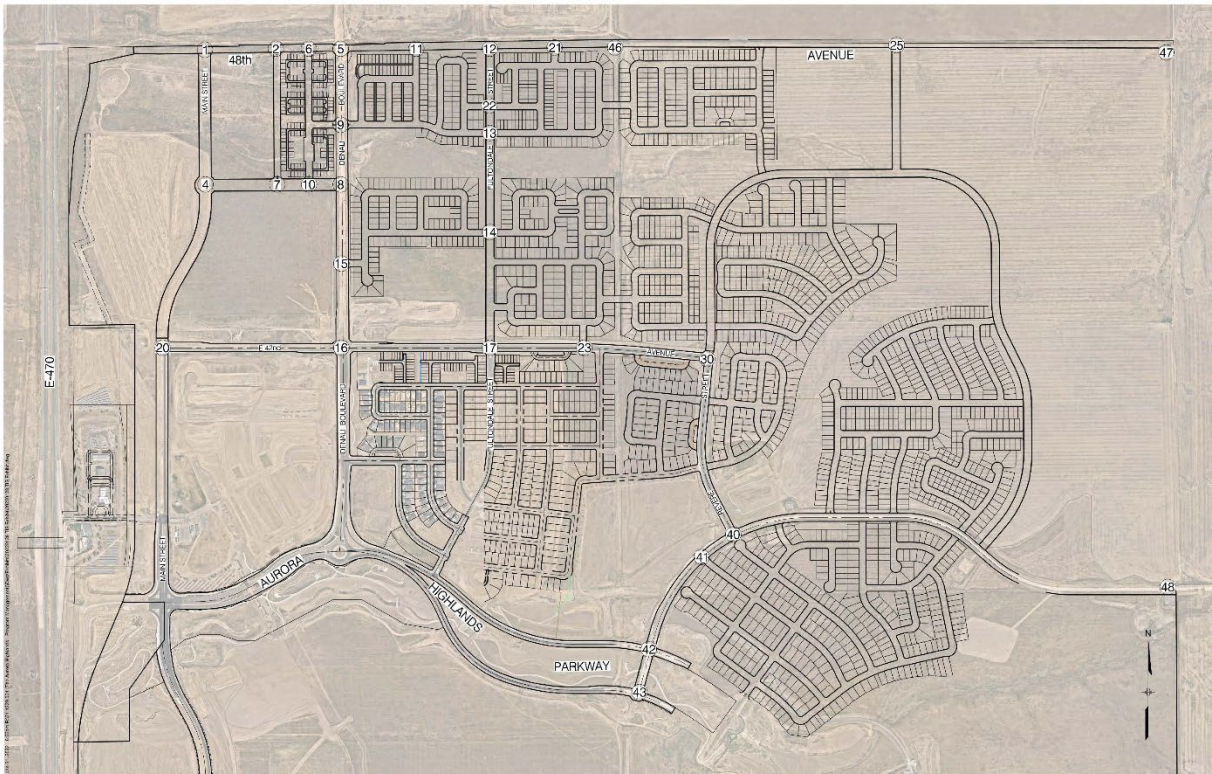
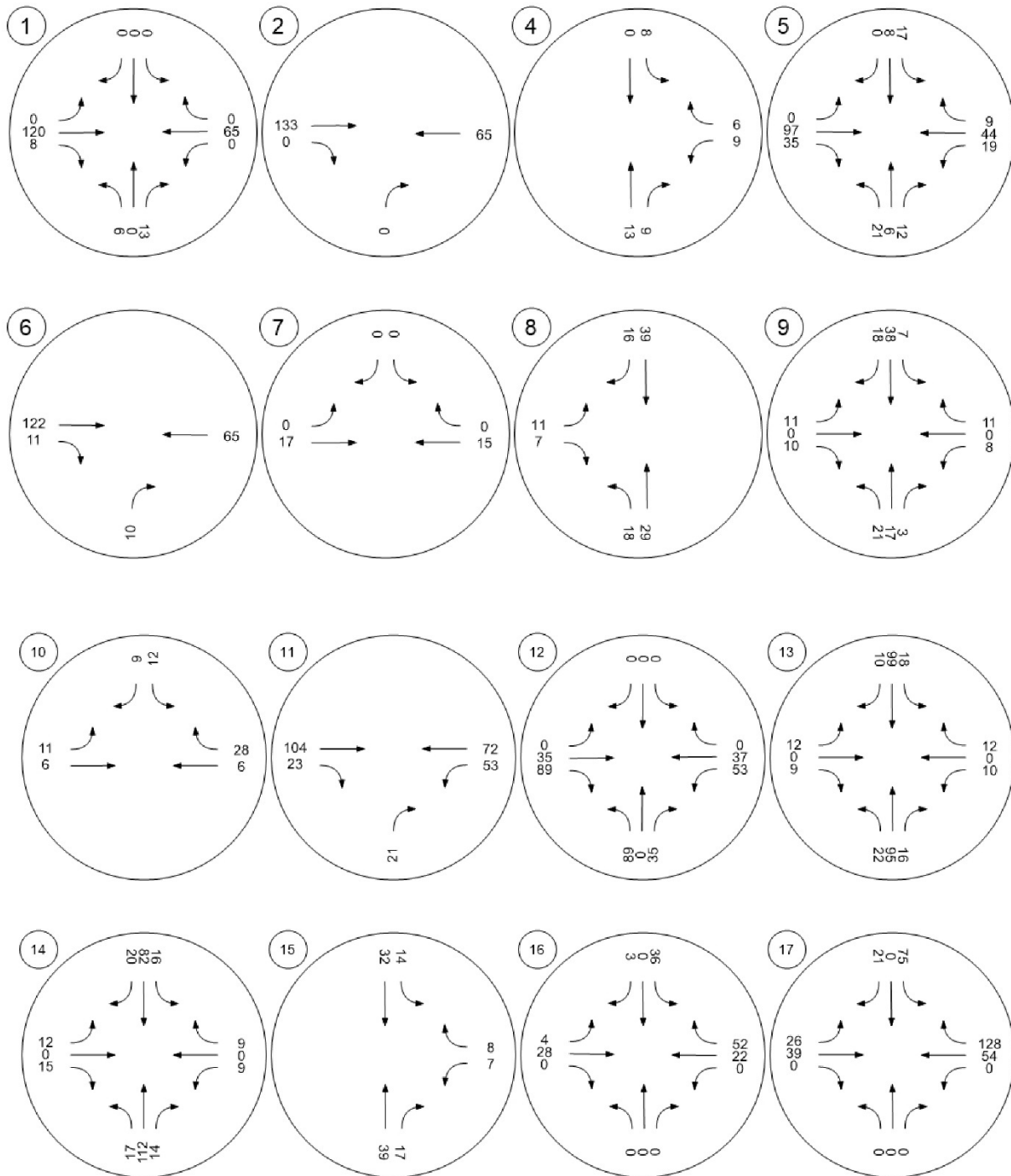


Figure 5. The Aurora Highlands North, Area A Project Trips (PM Peak)





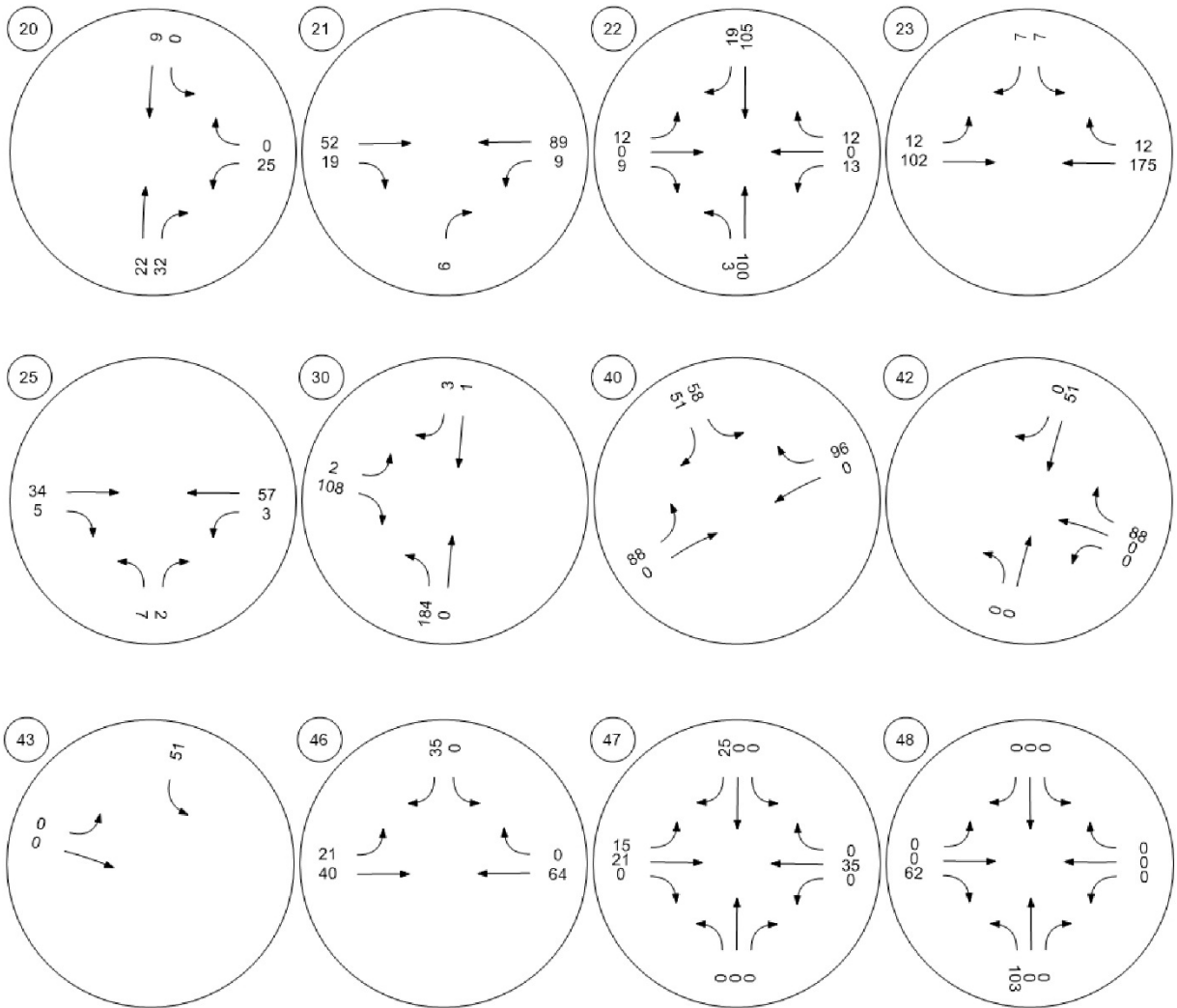
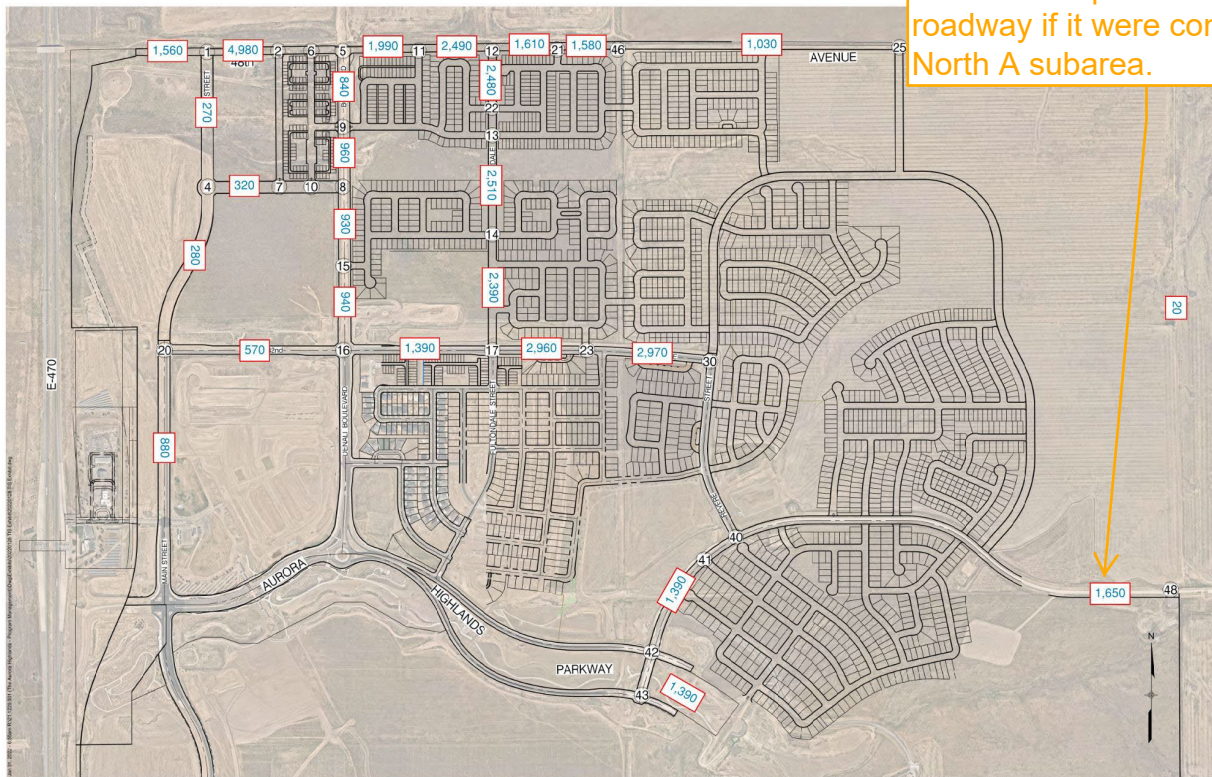


Figure 6. The Aurora Highlands North, Area A Daily Site Trips



Traffic Analysis

Traffic conditions both with and without the project have been analyzed for horizon year (2040) conditions.

Horizon (2040) Year No Project Conditions

The horizon year traffic volumes without the Aurora Highlands project are shown in Figures 7 and 8 and daily traffic volumes are shown in Figure 9. The background volumes along 48th Avenue and Powhatan Avenue were taken from a combination of the Windler Master Plan TIS and the ATEC TIS. Roadway and intersection configurations are taken from the Aurora Highlands TIS, Windler Master Plan TIS and ATEC TIS.

Reference to NEATS study (and compare these assumptions/ results with those of NEATS).

Figure 7. Horizon Year No Project Traffic Volumes (AM Peak Hour)

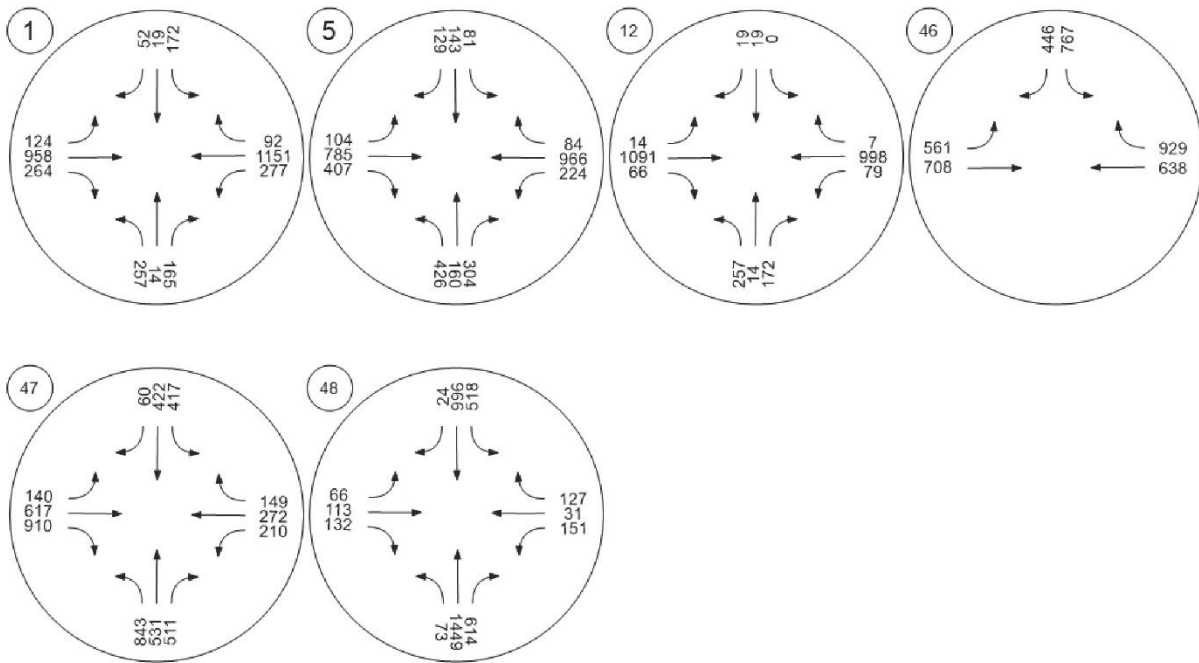
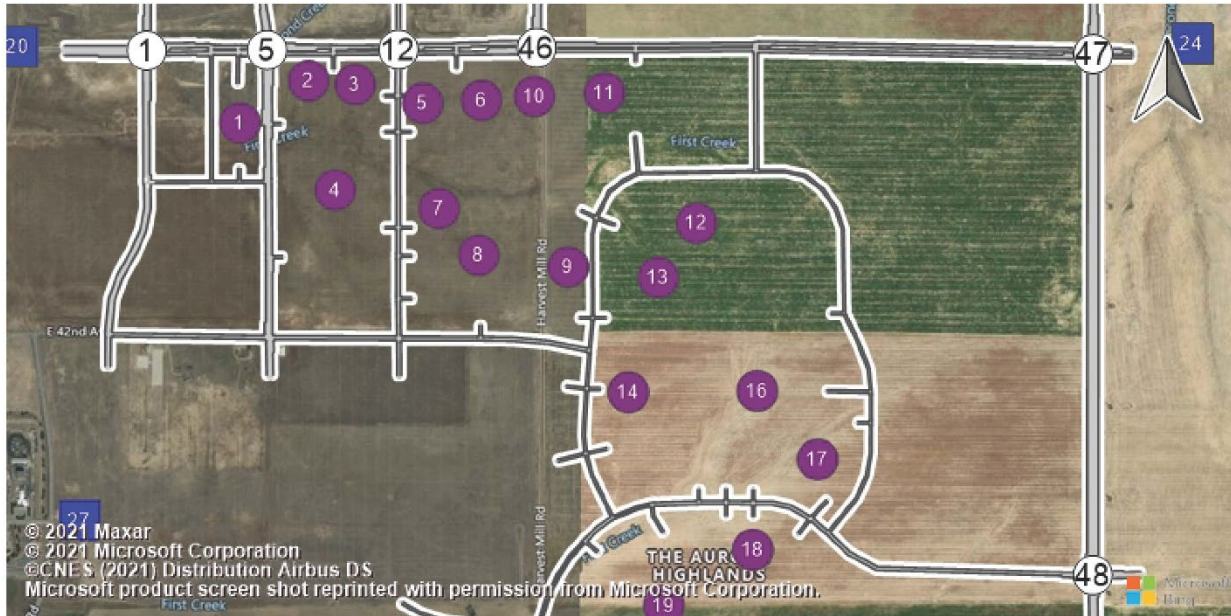
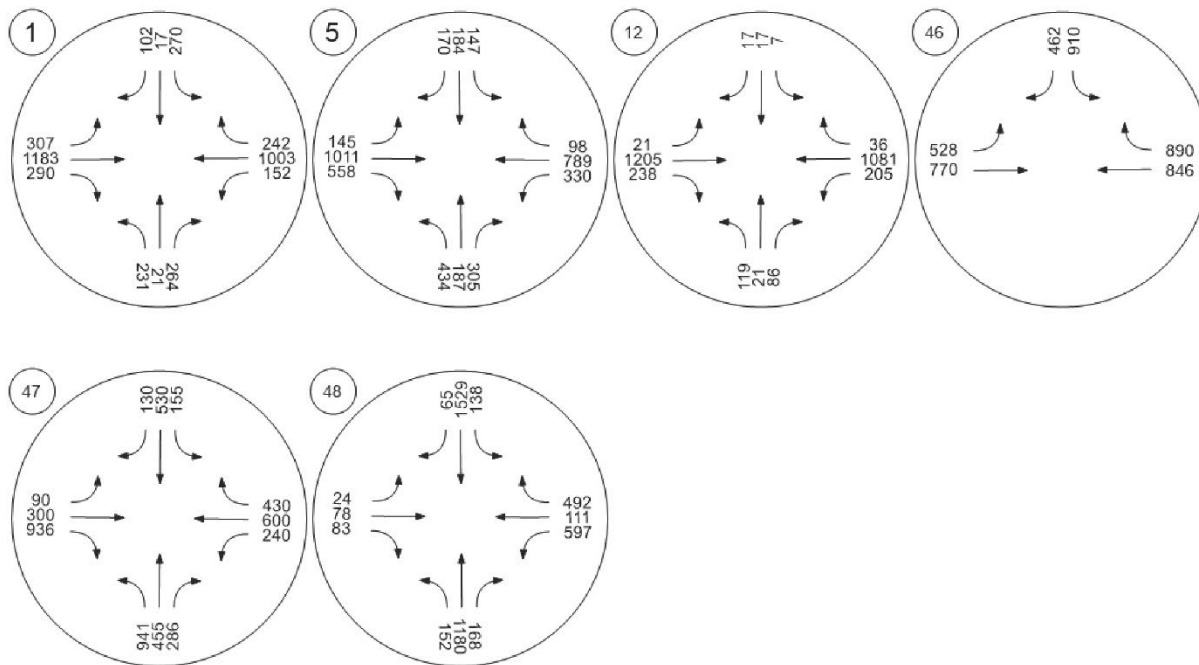
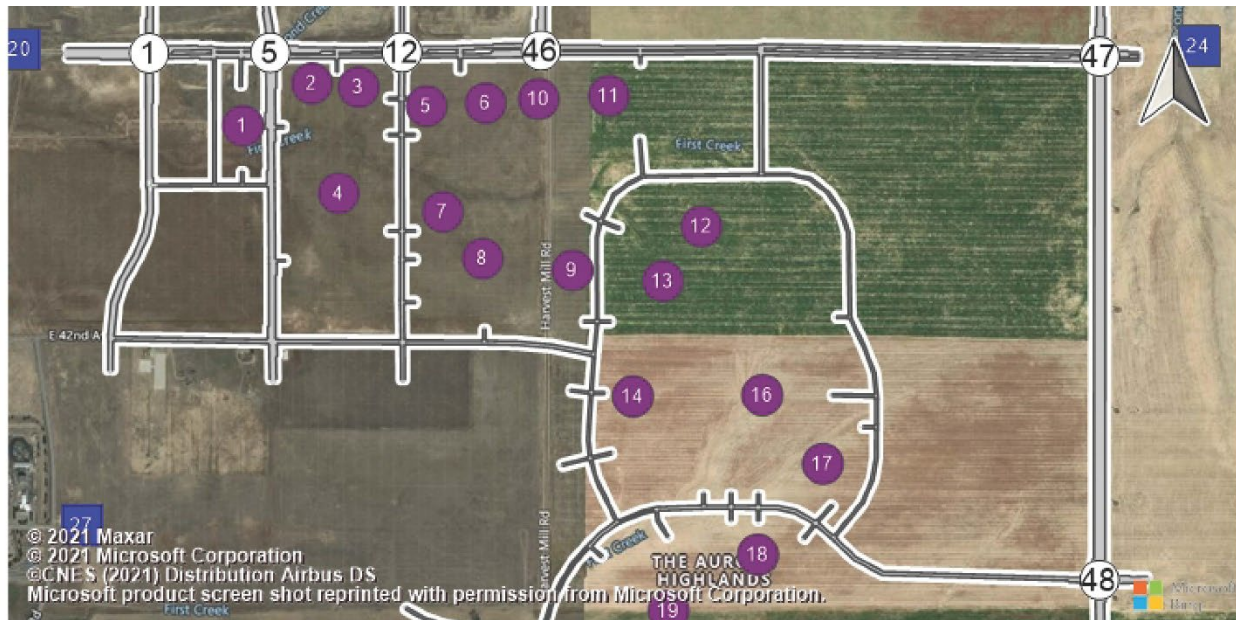
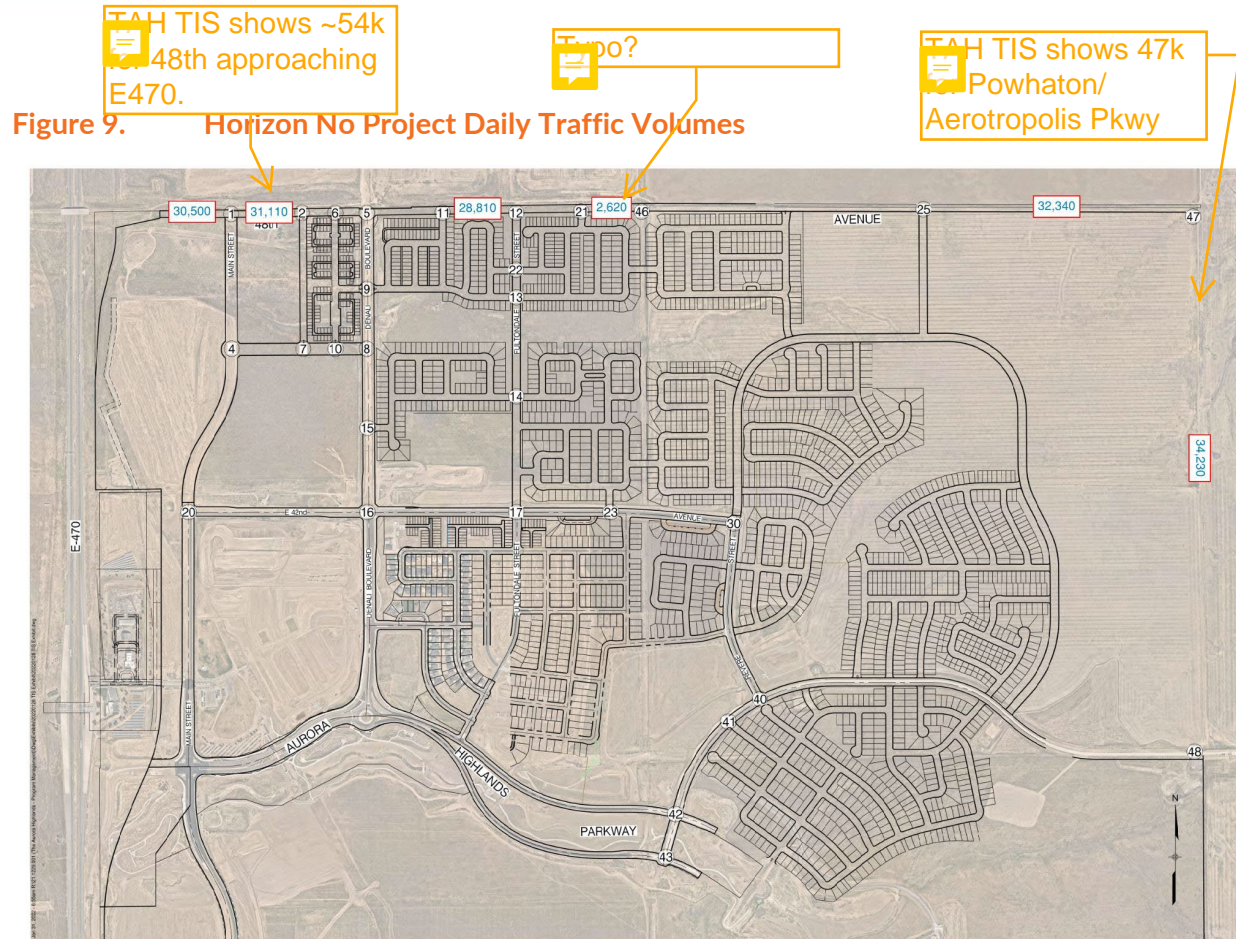


Figure 8. Horizon Year No Project Traffic Volumes (PM Peak Hour)

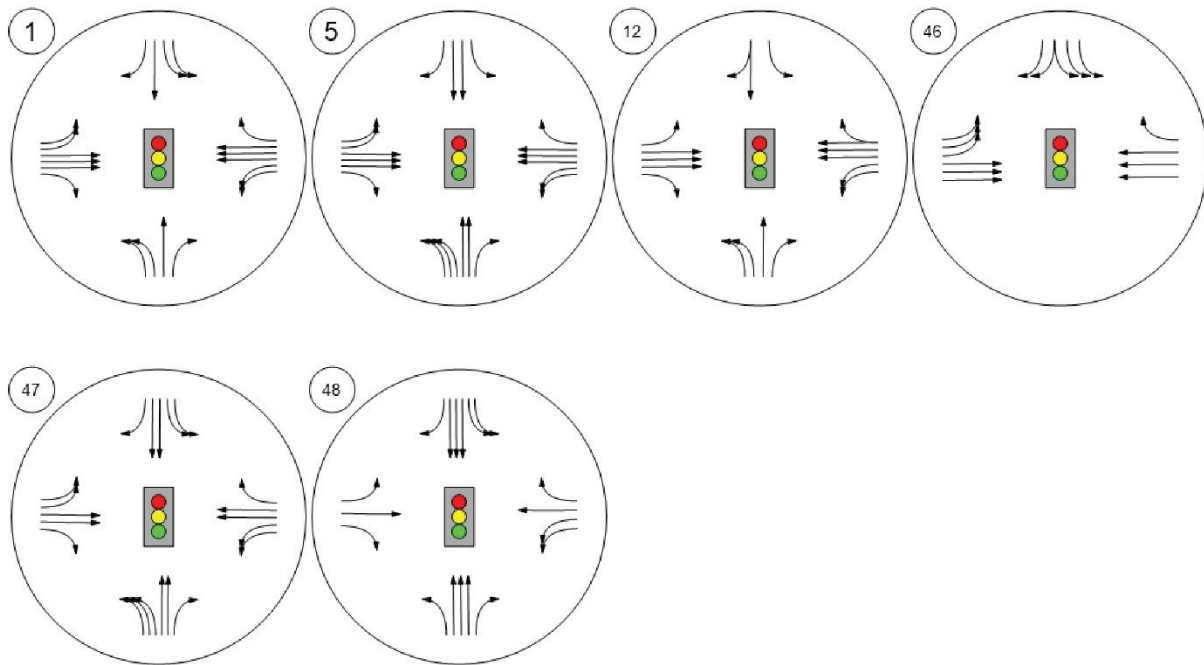
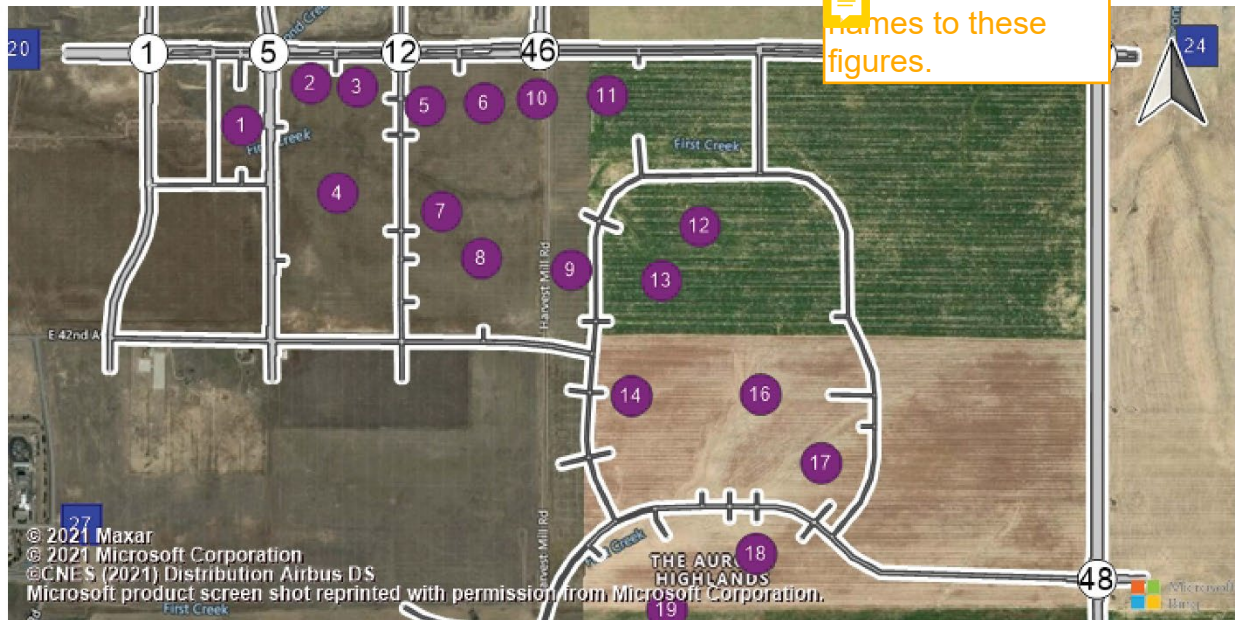




The assumed intersection configurations are shown in Figure 10. The operations of the study area intersections in the build out background (no project) scenario are shown in Tables 2 and 3. In Figures 7 and 8, the white circled numbers represent the intersections, the purple circled numbers represent the trip generation zones (for Areas A, B and C) and the blue squared numbers represent the external gates that trip enter and leave the study area to and from.

Figure 10. Horizon No Project Intersection Configurations

Please add street names to these figures.



Intersection configurations were taken from a combination of the Windler Master Plan TIS and the ATEC TIS.

Detailed review of intersection operations (beyond current comments) may be forthcoming as other comments regarding trip distribution/assignment assumptions are resolved.

Table 2. Horizon Background Intersection Operations (AM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|-------------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | 48th Avenue/Main Street | Signalized | HCM 7th Edition | EB Left | 0.446 | 42.7 | D |
| 5 | 48th Avenue/Denali Boulevard | Signalized | HCM 7th Edition | EB Left | 0.413 | 27 | C |
| 12 | 48th Avenue/Fultondale Street | Signalized | HCM 7th Edition | WB Left | 0.395 | 15.7 | B |
| 46 | 48th Avenue/Harvest Road | Signalized | HCM 7th Edition | EB Left | 0.46 | 26.7 | C |
| 47 | 48th Avenue/Powhatan Road | Signalized | HCM 7th Edition | EB Left | 0.622 | 46.8 | D |
| 48 | 38th Parkway/Powhatan Road | Signalized | HCM 7th Edition | EB Thru | 0.65 | 26.3 | C |

Table 3. Horizon Background Intersection Operations (PM Peak Hour)

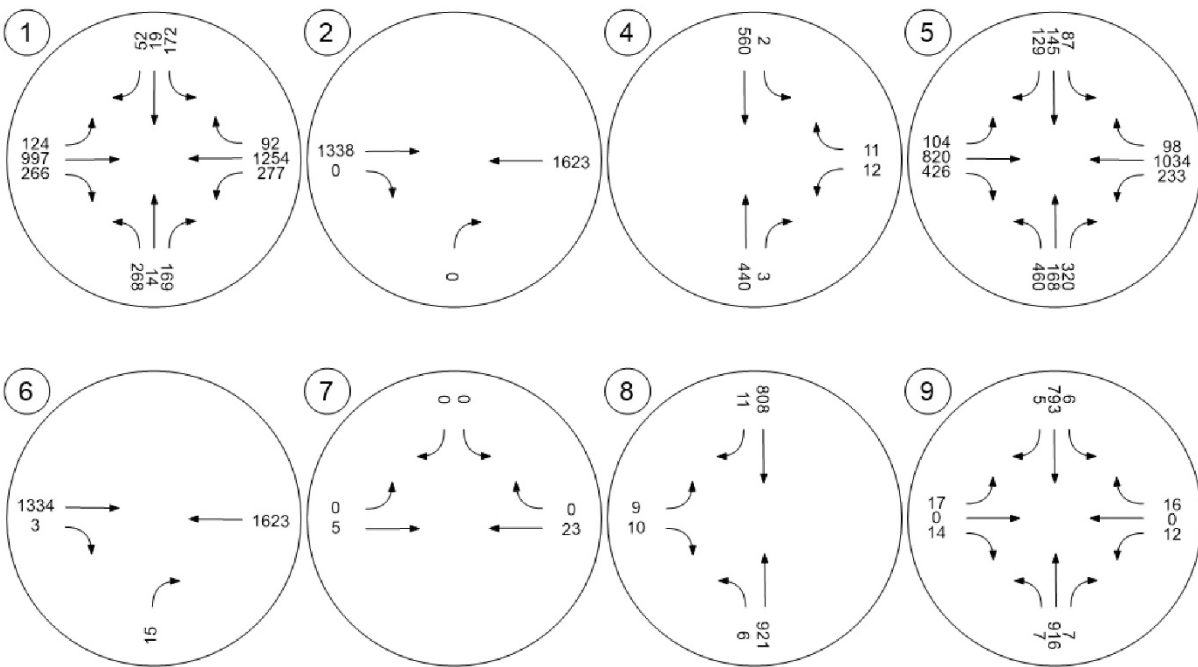
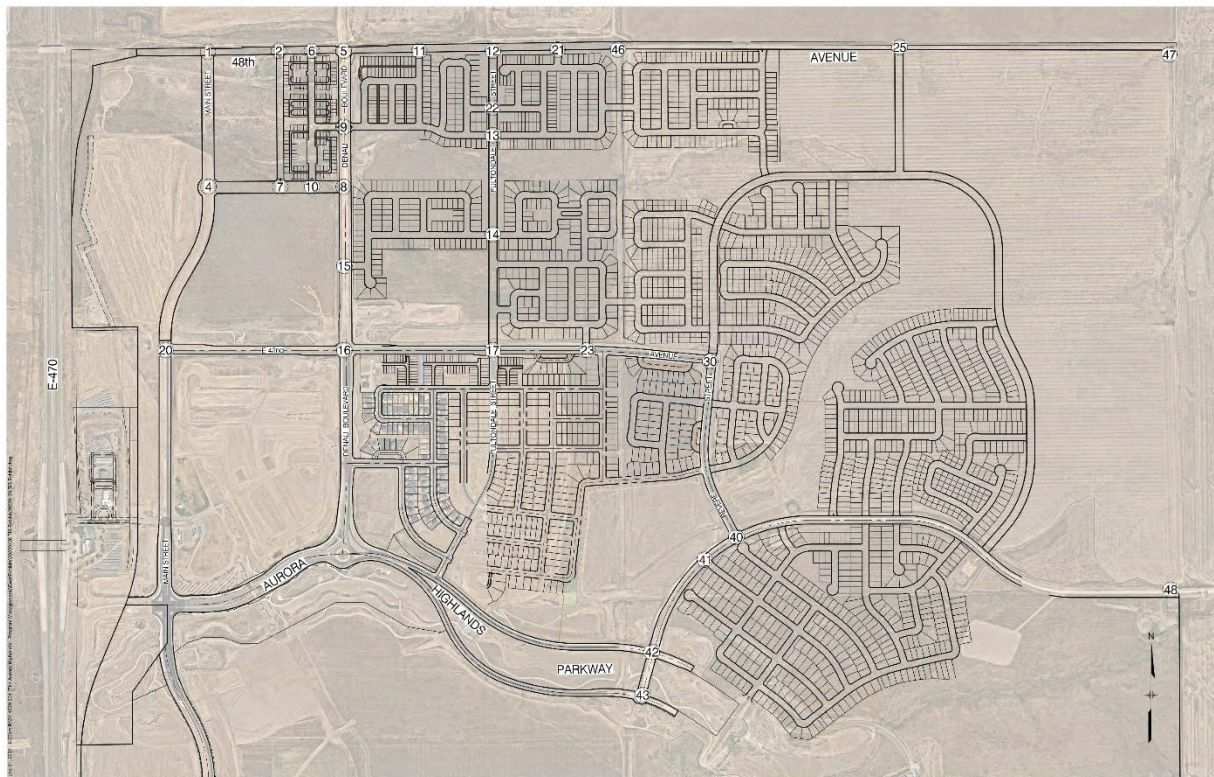
| Intersection Analysis Summary | | | | | | | |
|-------------------------------|-------------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | 48th Avenue/Main Street | Signalized | HCM 7th Edition | WB Left | 0.539 | 43 | D |
| 5 | 48th Avenue/Denali Boulevard | Signalized | HCM 7th Edition | SB Right | 0.52 | 32.5 | C |
| 12 | 48th Avenue/Fultondale Street | Signalized | HCM 7th Edition | NB Left | 0.416 | 13.5 | B |
| 46 | 48th Avenue/Harvest Road | Signalized | HCM 7th Edition | EB Left | 0.535 | 25.9 | C |
| 47 | 48th Avenue/Powhatan Road | Signalized | HCM 7th Edition | EB Left | 0.634 | 46.5 | D |
| 48 | 38th Parkway/Powhatan Road | Signalized | HCM 7th Edition | SB Left | 0.671 | 29.9 | C |

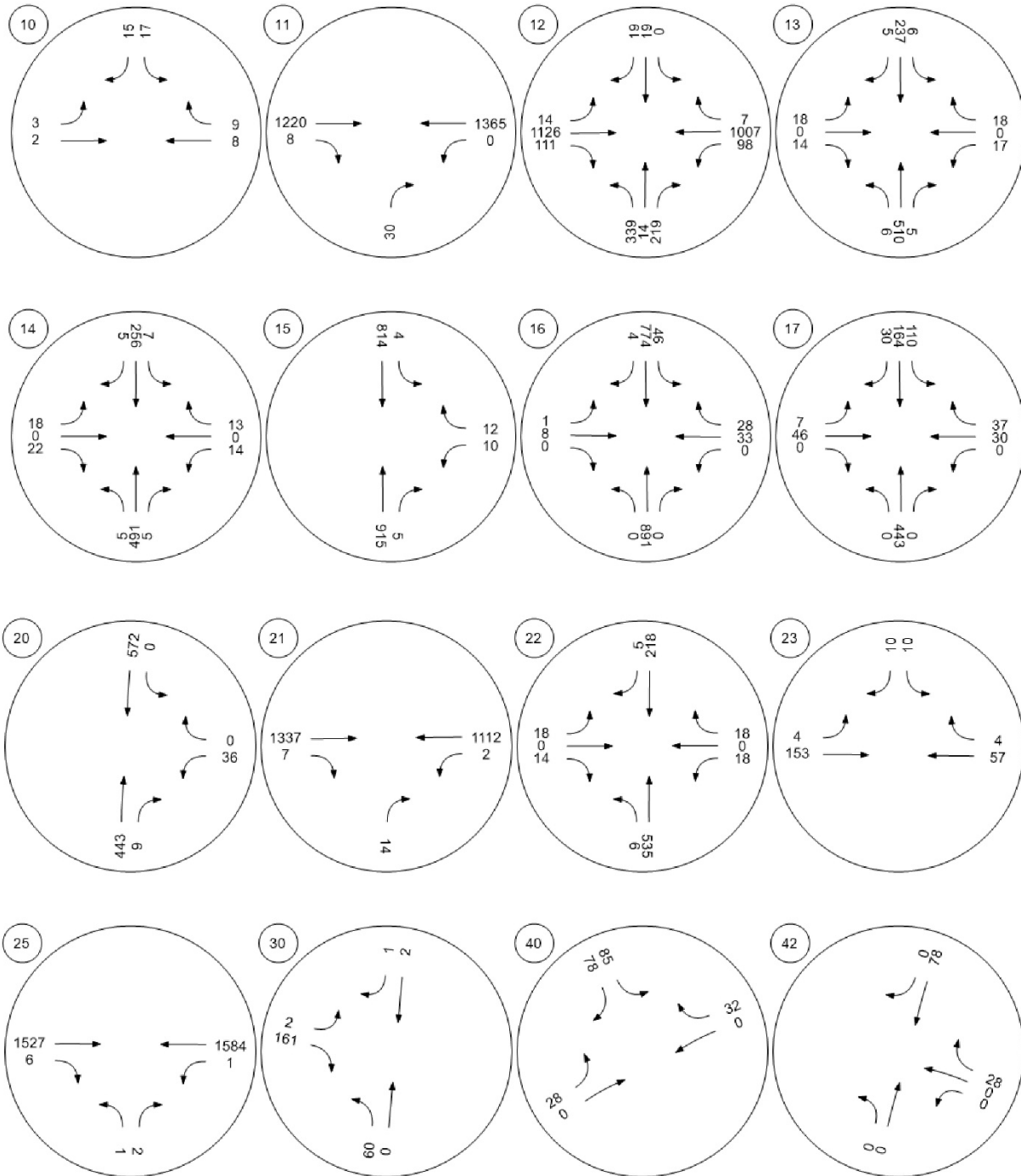
All study area intersections are projected to operate at an acceptable LOS in the horizon year without the project traffic as shown in Tables 2 and 2. Additionally, all the roadways will carry a daily volume of traffic that is consistent with the Aurora Highlands TIS from August 2019 and NEATS.

Horizon (2040) Year With Project Conditions

When the project traffic is added to the 2040 background traffic, the resulting AM Peak Hour, PM Peak Hour and Daily traffic volumes are as shown in Figures 11, 12 and 13.

Figure 11. Horizon Total Traffic Volumes (AM Peak Hour)





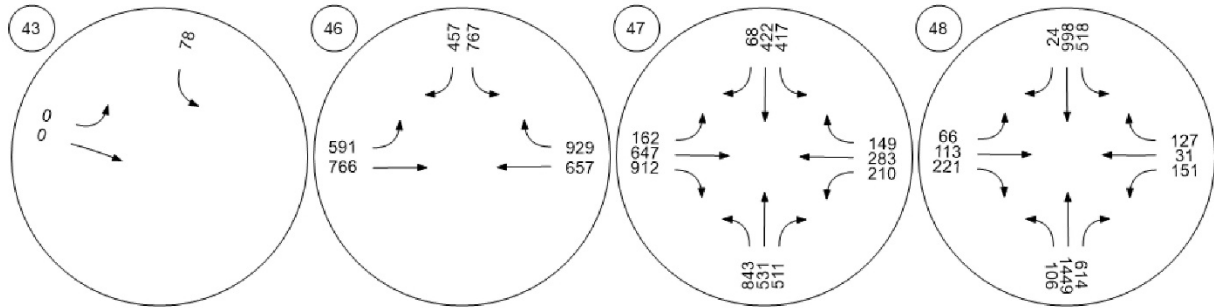
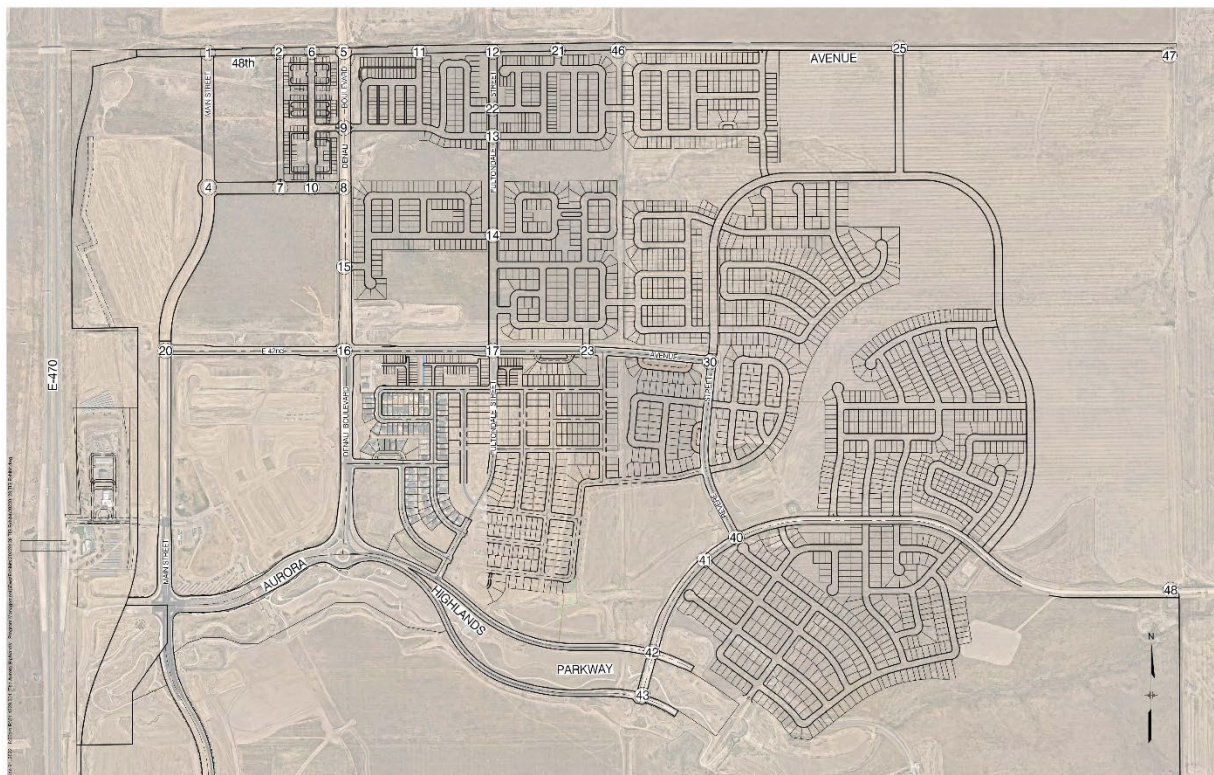
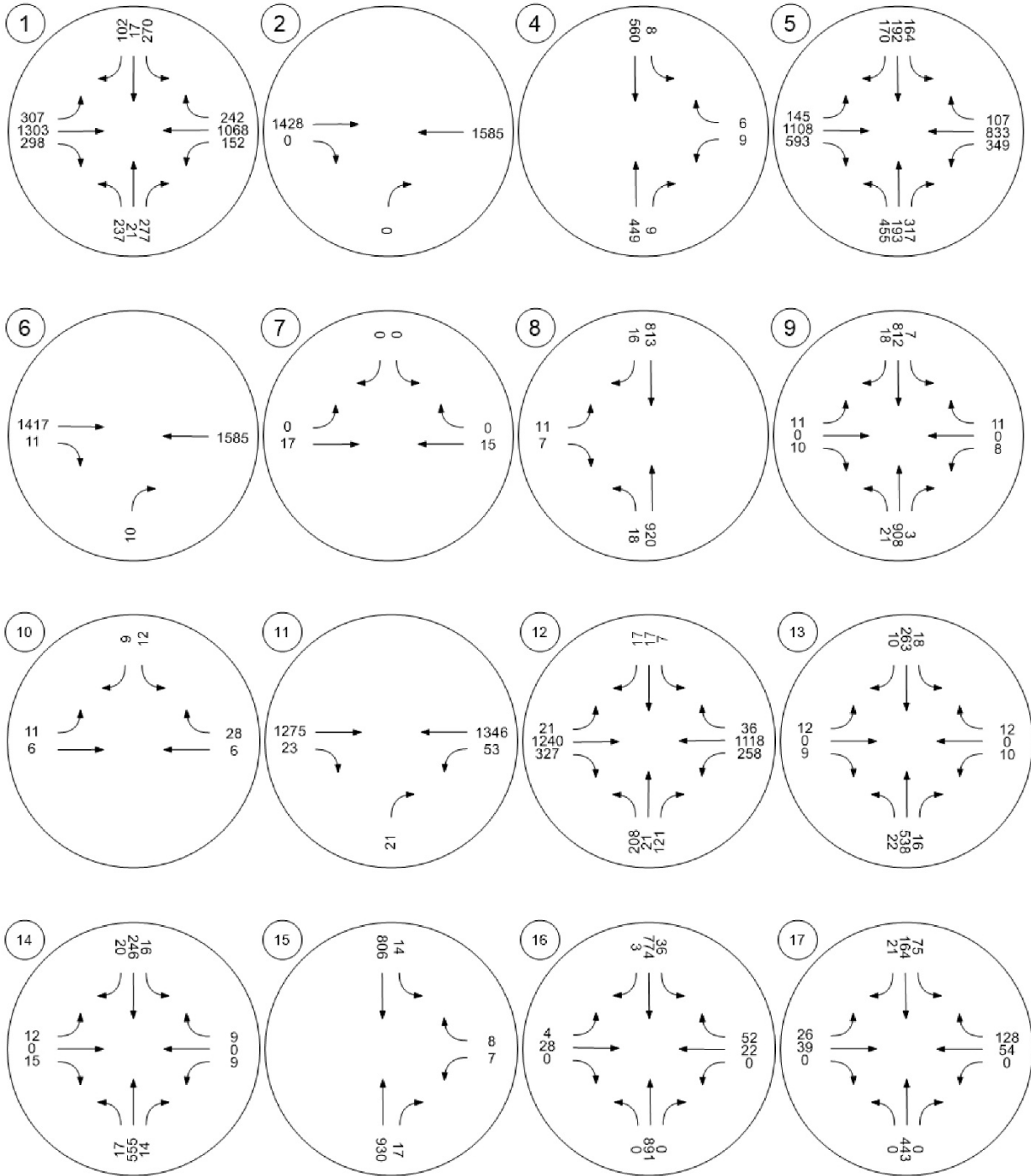


Figure 12. Horizon With Project Traffic Volumes (PM Peak Hour)





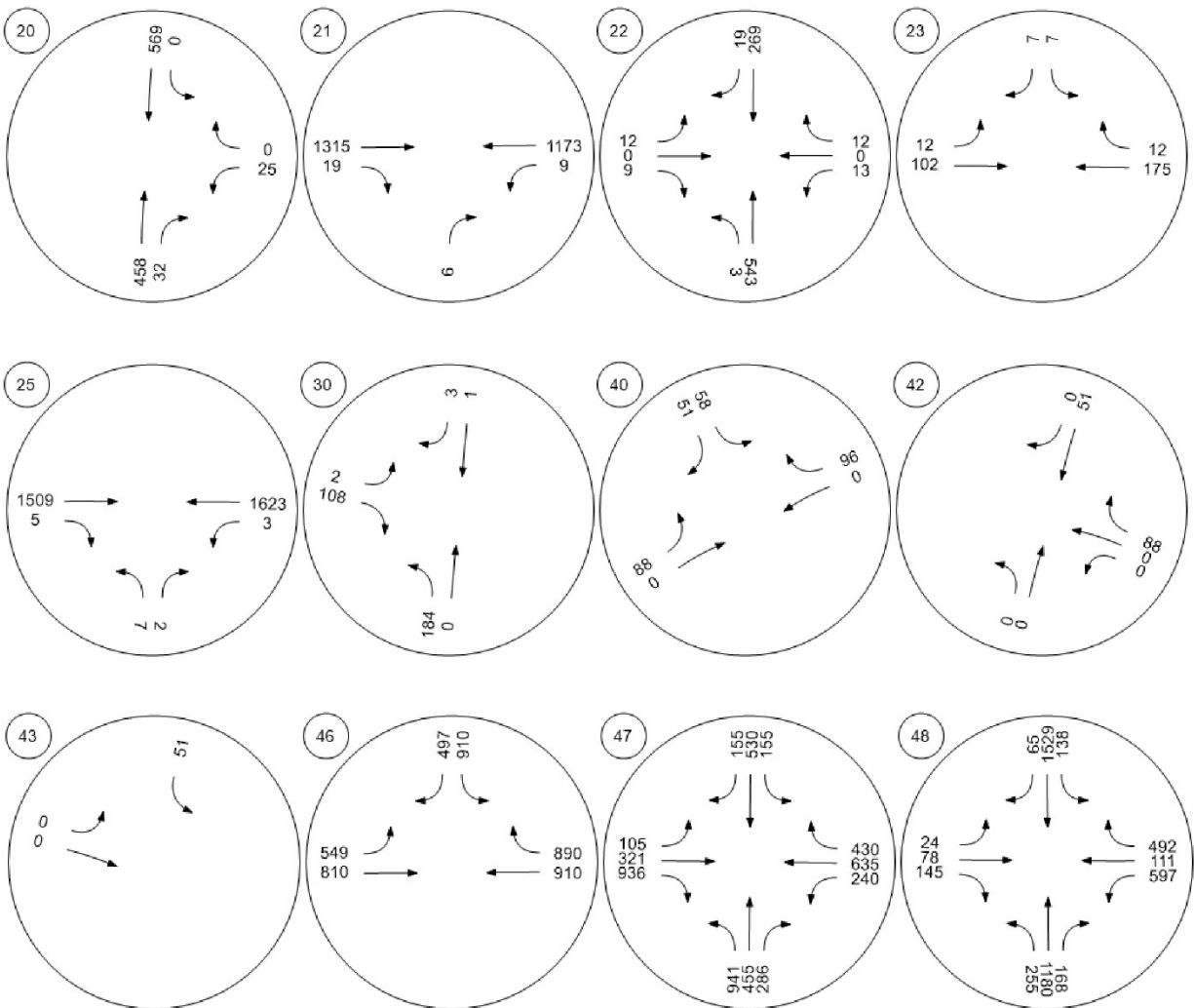
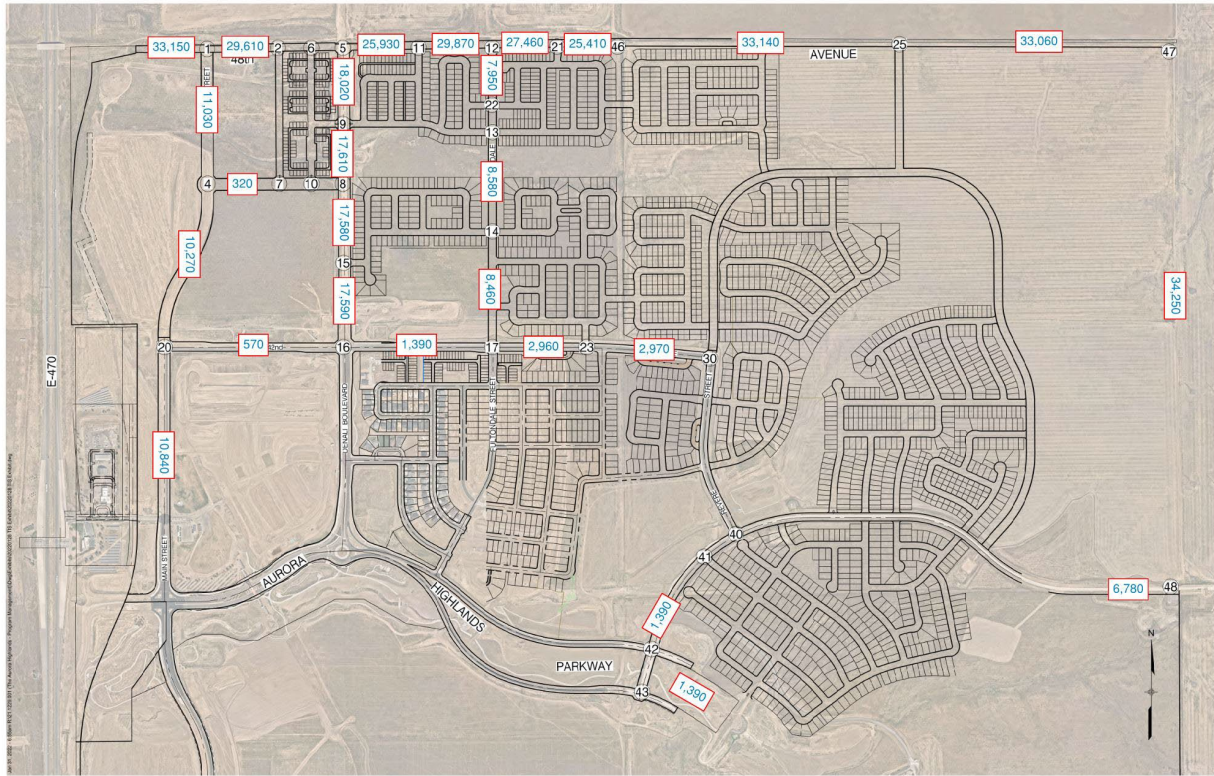


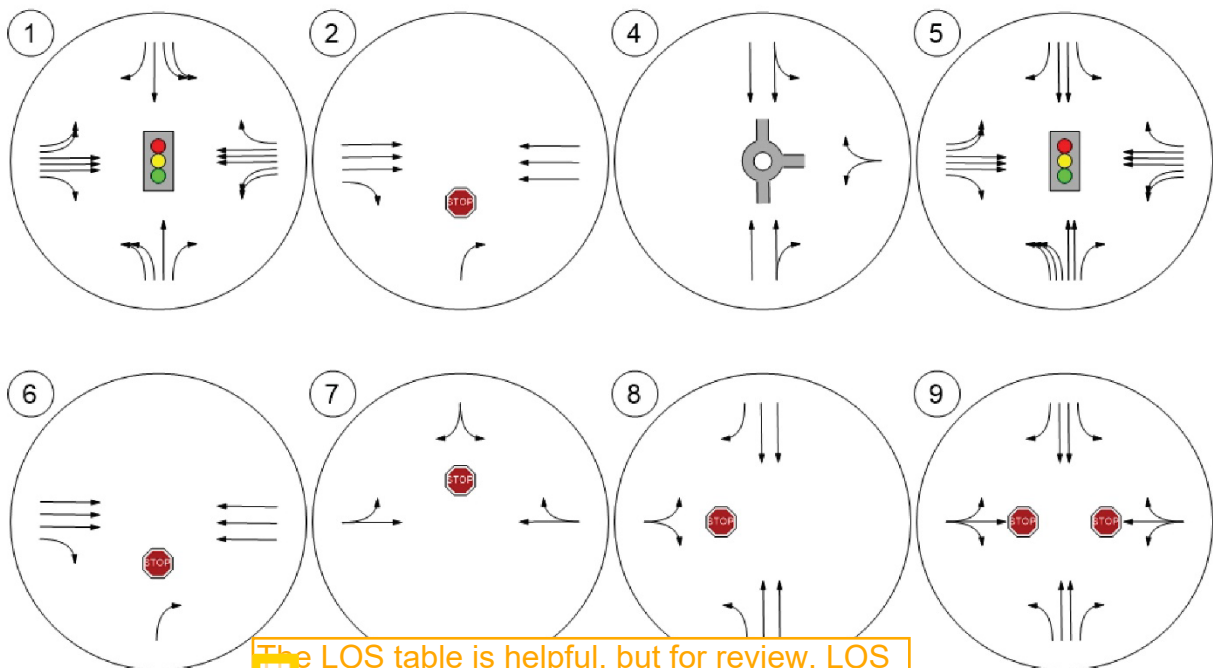
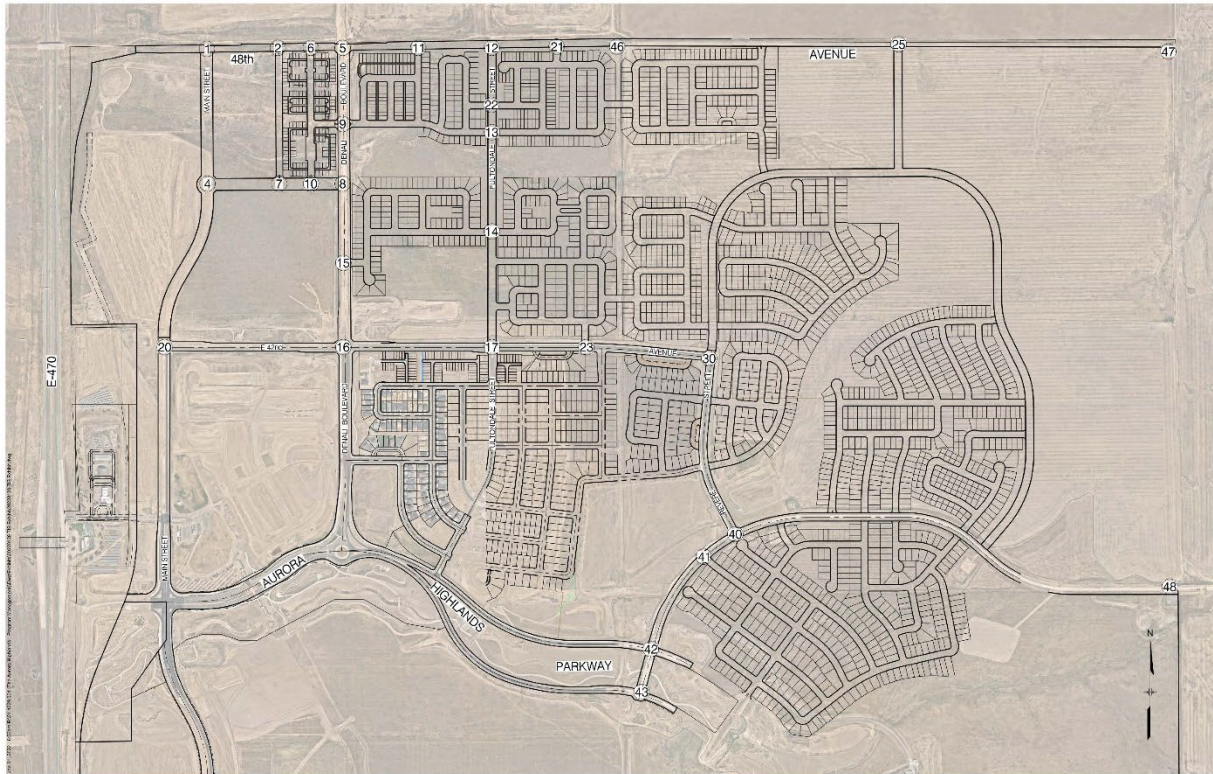
Figure 13. Horizon With Project Total Daily Traffic Volumes



Assumed intersection configurations for the study area intersections are shown in Figure 14.

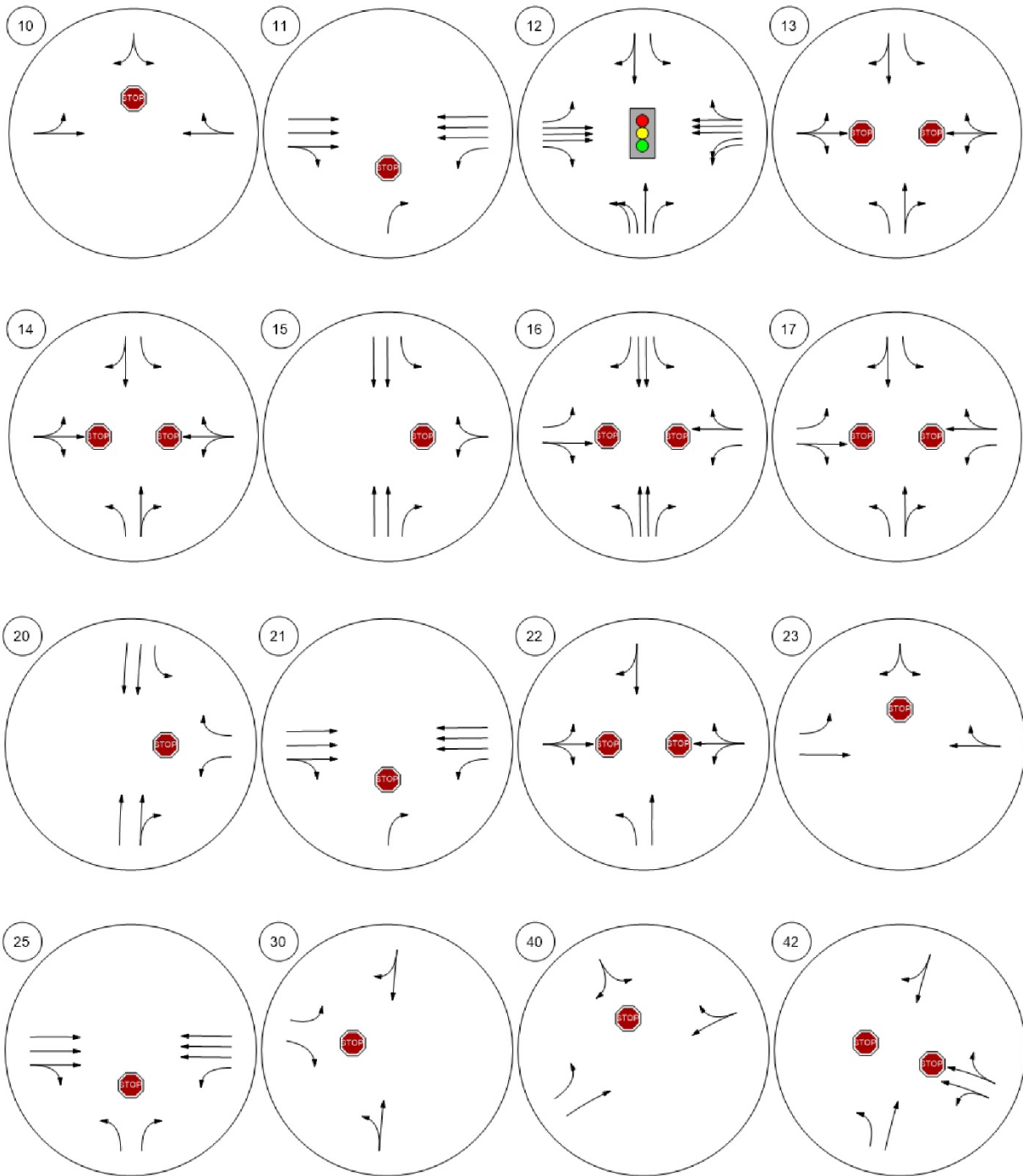
Analysis of the intersections and roadways for build out conditions with the volumes and configurations shown above results in the operations shown in Tables 4 and 5.

Figure 14. Horizon With Project Intersection Configurations



The LOS table is helpful, but for review, LOS needs to be also depicted on these figures. One LOS for each movement group is sufficient.

Many of the orientations of the stop signs are inconsistent with the orientations assumed in other filings. Please review these in the context of those adjacent filings to ensure consistency.



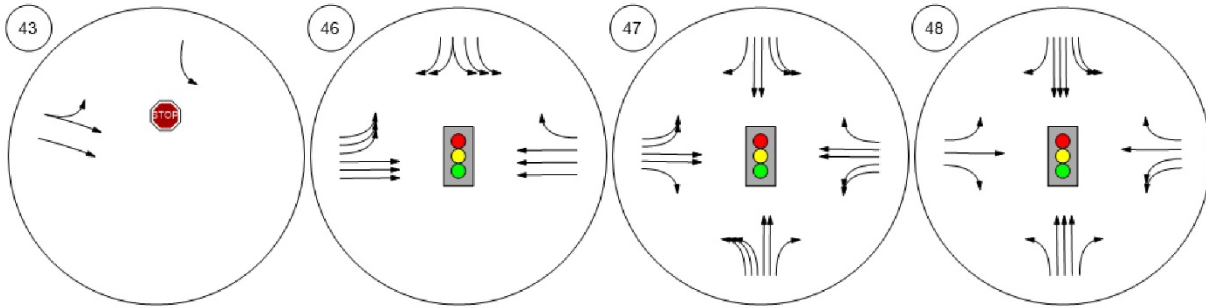


Table 4. Horizon Total Intersection Operations (AM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|---|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | 48th Avenue/Main Street | Signalized | HCM 7th Edition | EB Left | 0.464 | 42.8 | D |
| 2 | | Two-way stop | HCM 7th Edition | WB Thru | 0.018 | 0 | A |
| 4 | 46th Avenue/Main Street | Roundabout | HCM 7th Edition | WB Left | | 4.3 | A |
| 5 | 48th Avenue/Denali Boulevard | Signalized | HCM 7th Edition | NB Left | 0.438 | 28.2 | C |
| 6 | | Two-way stop | HCM 7th Edition | NB Right | 0.051 | 17 | C |
| 7 | | Two-way stop | HCM 7th Edition | WB Thru | 0 | 0 | A |
| 8 | 46th Avenue/Denali Boulevard | Two-way stop | HCM 7th Edition | EB Left | 0.076 | 34.1 | D |
| 9 | New Intersection | Two-way stop | HCM 7th Edition | WB Left | 0.15 | 51.5 | F |
| 10 | | Two-way stop | HCM 7th Edition | SB Left | 0.018 | 8.7 | A |
| 11 | | Two-way stop | HCM 7th Edition | NB Right | 0.096 | 16.6 | C |
| 12 | 48th Avenue/Fultondale Street | Signalized | HCM 7th Edition | NB Left | 0.439 | 19.2 | B |
| 13 | | Two-way stop | HCM 7th Edition | EB Left | 0.076 | 19.6 | C |
| 14 | | Two-way stop | HCM 7th Edition | WB Left | 0.056 | 19.4 | C |
| 15 | | Two-way stop | HCM 7th Edition | WB Left | 0.09 | 36.8 | E |
| 16 | 42nd Avenue/Denali Boulevard | Two-way stop | HCM 7th Edition | WB Thru | 0.577 | 109.3 | F |
| 17 | 42nd Avenue/Fultondale Street | Two-way stop | HCM 7th Edition | EB Left | 0.046 | 26.8 | D |
| 20 | 42nd Avenue/Main Street | Two-way stop | HCM 7th Edition | WB Left | 0.121 | 17.7 | C |
| 21 | | Two-way stop | HCM 7th Edition | WB Left | 0.009 | 20.6 | C |
| 22 | | Two-way stop | HCM 7th Edition | EB Left | 0.074 | 19.3 | C |
| 23 | | Two-way stop | HCM 7th Edition | SB Left | 0.015 | 9.9 | A |
| 25 | 48th Avenue/PA-31 Street | Two-way stop | HCM 7th Edition | NB Left | 0.017 | 66.2 | F |
| 30 | 42nd Avenue/Reserve Loop | Two-way stop | HCM 7th Edition | NB Left | 0.04 | 10,000.00 | F |
| 40 | 38th Parkway/Reserve Loop (W) | Two-way stop | HCM 7th Edition | SB Left | 0.101 | 9.8 | A |
| 42 | The Aurora Highlands Parkway/38th Parkway | Two-way stop | HCM 7th Edition | WB Right | 0.028 | 8.4 | A |
| 43 | The Aurora Highlands Parkway/38th Parkway | Two-way stop | HCM 7th Edition | SB Left | 0.083 | 8.8 | A |
| 46 | 48th Avenue/Harvest Road | Signalized | HCM 7th Edition | EB Left | 0.472 | 27.6 | C |
| 47 | 48th Avenue/Powhaton Road | Signalized | HCM 7th Edition | EB Left | 0.632 | 47.2 | D |
| 48 | 38th Parkway/Powhaton Road | Signalized | HCM 7th Edition | EB Right | 0.661 | 27.2 | C |

Detailed analysis of evaluation of intersection operations (beyond current comments) may be forthcoming as other comments regarding trip distribution/assignment assumptions are resolved.

Label these streets/access points

Table 5. Horizon Total Intersection Operations (PM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|---|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | 48th Avenue/Main Street | Signalized | HCM 7th Edition | WB Left | 0.561 | 44.8 | D |
| 2 | | Two-way stop | HCM 7th Edition | WB Thru | 0.017 | 0 | A |
| 4 | 46th Avenue/Main Street | Roundabout | HCM 7th Edition | WB Left | | 4.3 | A |
| 5 | 48th Avenue/Denali Boulevard | Signalized | HCM 7th Edition | WB Left | 0.556 | 34.1 | C |
| 6 | | Two-way stop | HCM 7th Edition | NB Right | 0.037 | 17.7 | C |
| 7 | | Two-way stop | HCM 7th Edition | EB Thru | 0 | 0 | A |
| 8 | 46th Avenue/Denali Boulevard | Two-way stop | HCM 7th Edition | EB Left | 0.097 | 36.7 | E |
| 9 | New Intersection | Two-way stop | HCM 7th Edition | WB Left | 0.112 | 53.3 | F |
| 10 | | Two-way stop | HCM 7th Edition | SB Left | 0.014 | 8.9 | A |
| 11 | | Two-way stop | HCM 7th Edition | WB Left | 0.235 | 24 | C |
| 12 | 48th Avenue/Fultondale Street | Signalized | HCM 7th Edition | NB Left | 0.474 | 25.5 | C |
| 13 | | Two-way stop | HCM 7th Edition | EB Left | 0.061 | 22.7 | C |
| 14 | | Two-way stop | HCM 7th Edition | WB Left | 0.045 | 22.1 | C |
| 15 | | Two-way stop | HCM 7th Edition | WB Left | 0.07 | 38.4 | E |
| 16 | 42nd Avenue/Denali Boulevard | Two-way stop | HCM 7th Edition | EB Thru | 0.455 | 99 | F |
| 17 | 42nd Avenue/Fultondale Street | Two-way stop | HCM 7th Edition | EB Left | 0.202 | 37.5 | E |
| 20 | 42nd Avenue/Main Street | Two-way stop | HCM 7th Edition | WB Left | 0.087 | 17.7 | C |
| 21 | | Two-way stop | HCM 7th Edition | WB Left | 0.042 | 20.9 | C |
| 22 | | Two-way stop | HCM 7th Edition | WB Left | 0.055 | 20.1 | C |
| 23 | | Two-way stop | HCM 7th Edition | SB Left | 0.012 | 10.6 | B |
| 25 | 48th Avenue/PA-31 Street | Two-way stop | HCM 7th Edition | NB Left | 0.135 | 75.1 | F |
| 30 | 42nd Avenue/Reserve Loop | Two-way stop | HCM 7th Edition | NB Left | 0.124 | 10,000.00 | F |
| 40 | 38th Parkway/Reserve Loop (W) | Two-way stop | HCM 7th Edition | SB Left | 0.09 | 10.9 | B |
| 42 | The Aurora Highlands Parkway/38th Parkway | Two-way stop | HCM 7th Edition | WB Right | 0.088 | 8.6 | A |
| 43 | The Aurora Highlands Parkway/38th Parkway | Two-way stop | HCM 7th Edition | SB Left | 0.054 | 8.7 | A |
| 46 | 48th Avenue/Harvest Road | Signalized | HCM 7th Edition | EB Left | 0.555 | 26 | C |
| 47 | 48th Avenue/Powhatan Road | Signalized | HCM 7th Edition | EB Left | 0.651 | 46.7 | D |
| 48 | 38th Parkway/Powhatan Road | Signalized | HCM 7th Edition | NB Left | 0.708 | 35.3 | D |

All of the deficient intersections (intersection that operate at LOS E or LOS F) are two-way stop-controlled intersections. At these intersections, the LOS of the worst stop-controlled movement becomes the LOS of the intersection. Often, these intersection will still operate fine if the queue for the deficient movement(s) are not very long. The following intersections will operate at LOS E or LOS F during the AM or PM peak hours with the project:

Intersection 8 – 46th Avenue/Denali Boulevard – this intersection operates at LOS E during the PM peak hour. This is due to the eastbound left-turn movement which operates at LOS E. The queue length for this movement is less than 1 vehicle. Therefore, we do not recommend any mitigation at this intersection.

Intersection 9 – Denali Boulevard/PA-4 Access/PA-5.1 Access – this intersection operates at LOS F during both the AM and PM peak hours because of the westbound left-turn out of PA-5.1. The queue length for this deficient movement is less than one vehicle in both the AM and PM peak hours. Therefore, we do not recommend any mitigation at this intersection.

Intersection 15 – Denali Boulevard/PA-12 Access – this intersection operates at LOS E during both the AM and PM peak hours because of the westbound left-turn. However, the queue lengths for this deficient movement is less than one vehicle in both the AM and PM peak hours. Therefore, we do not recommend any mitigation at this intersection.

Intersection 16 – 42nd Avenue/Denali Boulevard – this intersection operates at LOS F during the AM peak hour. Queue length discussion is central to these recommendations, but there is no queue length analysis summary section (as required per TIS guidelines). Please provide not only to support these recommendations, but to evaluate for turn lane designs, as needed (queuing analysis summary tables include turn lane evaluation with methodologies from both HCM 95th %-ile queues as well as CDOT's State Highway Access Code, SHAC). Please provide this analysis.

Some of the LOS F left-outs, while yielding generally low queues, will result in driver frustration and likely alter gap acceptance onto more major roadways, creating safety issues. In these cases, it may be worthwhile to assume/provide a separate left turn lane for the outbound movements to mitigate these issues.

movements are less than one vehicle during the AM peak hour and less than 2 vehicles during the PM peak hour. We do not recommend any mitigation for this intersection.

Intersection 17 – 42nd Avenue/Fultondale Street – this intersection operates at LOS E during the PM peak hour because of the eastbound left-turn movement. The queue length for the westbound left-turn during the PM peak hour is less than one vehicle. We do not recommend any mitigation for this intersection.

Intersection 25 – 48th Avenue/PA-31 Access – this intersection will operate at LOS F during both the AM and PM peak hours because of the northbound left-turn movement. However, the queue length for this deficient movement is less than one vehicle in both peak hours. Therefore, we do not recommend any mitigation for this intersection.

Intersection 30 – 42nd Avenue/Reserve Loop – this intersection will operate at LOS F during both the AM and PM peak hours because of the northbound left-turn movement. The queue for this deficient movement is over 10 vehicles in the AM peak hour and over 27 vehicles in the PM peak hour. Because this intersection provides a shared through/left-turn lane, the excess delay for the northbound left-turn movement adversely impacts the northbound through traffic as well. If a separate northbound left-turn lane is constructed, the LOS for the northbound left-turn movement and northbound approach becomes LOS A in both the AM and PM peak hours with a queue of less than 1 vehicle. Therefore, we recommend that this intersection be constructed with a separate northbound left-turn lane.

Conclusions and Recommendations



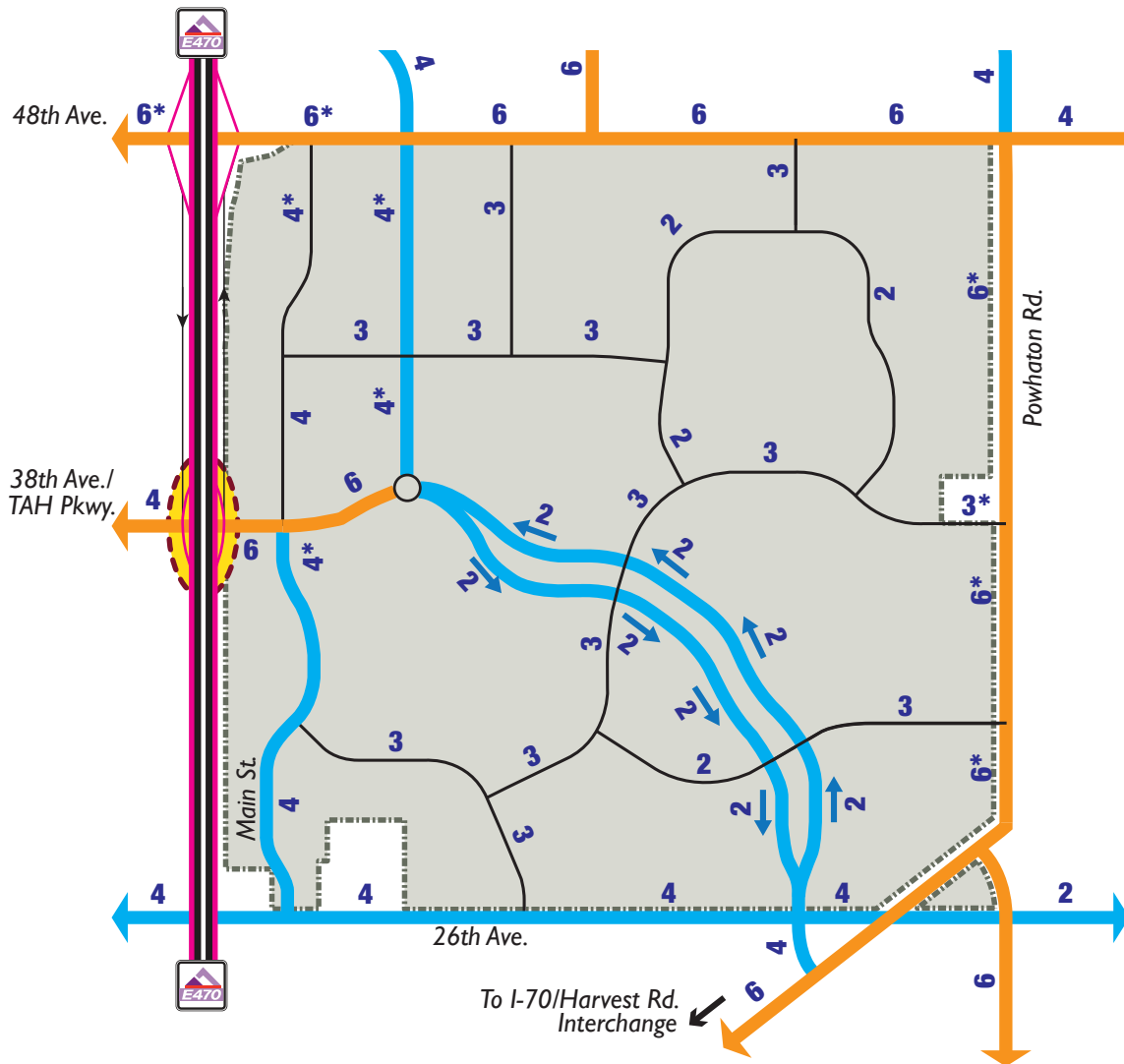
NEATS.

The development of the Aurora Highlands, North Area, Area A has been studied for traffic impacts to the assumed roadway network. The roadway network assumptions were developed from a combination of *The Aurora Highlands Traffic Impact Study, August 2019*, the *Winder Master Plan Master Traffic Study, October 2021*, and the *ATEC Traffic Impact Analysis, November 2019*. These studies were used to assume the 2040 roadway network, intersection configurations and 2040 background traffic volumes in the study area. The new project trips for The Aurora Highlands, North Area, Area A were generated using the *ITE Trip Generation Manual, 11th Edition*, distributed to the roadway network following the trip distribution assumptions from the other area studies and assigned to the roadway network. When the 2040 roadway network was analyzed with the addition of project traffic, only one intersection required any mitigation. The intersection of 42nd Avenue and Reserve Loop will require a separate northbound left-turn lane to operate at LOS A in the future with project traffic.

Sections missing:

- 1) Queuing analysis/summary tables (for storage lanes/auxiliary lanes)
- 2) Traffic Calming discussion (per guidelines and pre app notes)
- 3) Signal warrant analyses discussions (warrant calcs to be included in appendices)

Appendix A – Background Traffic Volumes



LEGEND

| | | | |
|--|---|--|---------------------------------|
| | = Tollway | | = Divided Minor Arterial |
| | = Major Arterial | | = Laneage |
| | = Minor Arterial | | = Accel/Decel Lanes also Needed |
| | = Collector Roads (Subject to traffic calming measures at time of contextual site plan) | | = Aurora Highlands |
| | = Potential Interchange | | |

NOTE:

Access Control and restrictions will along the arterial roadways in the proximity of E-470 interchanges be required.



FIGURE 5

Proposed 2040 Geometry - II

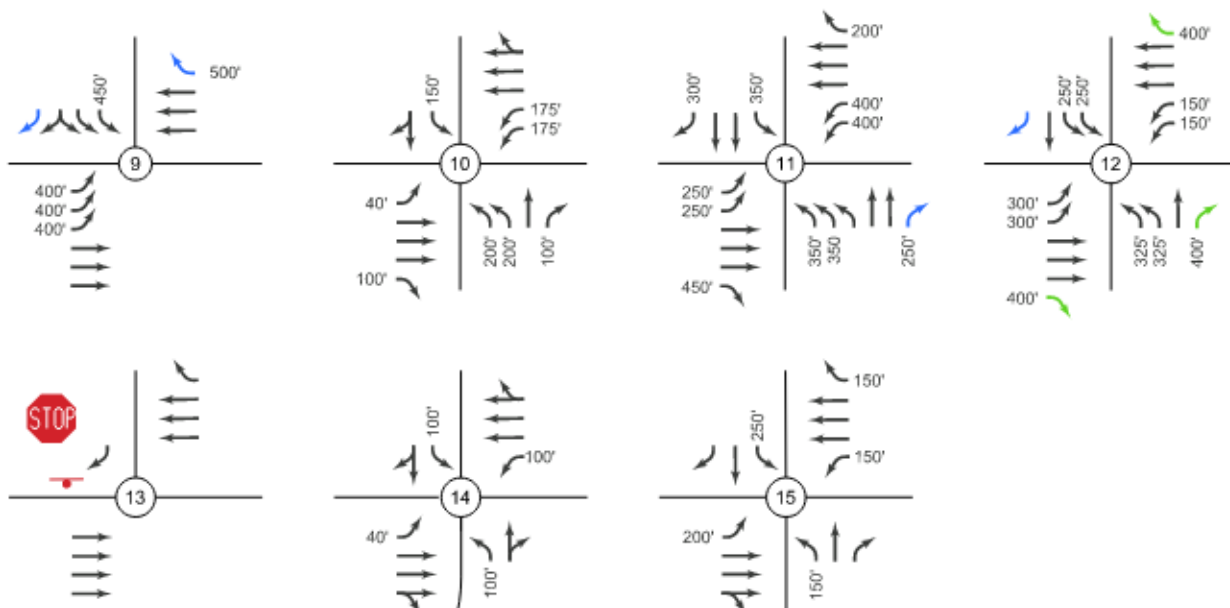
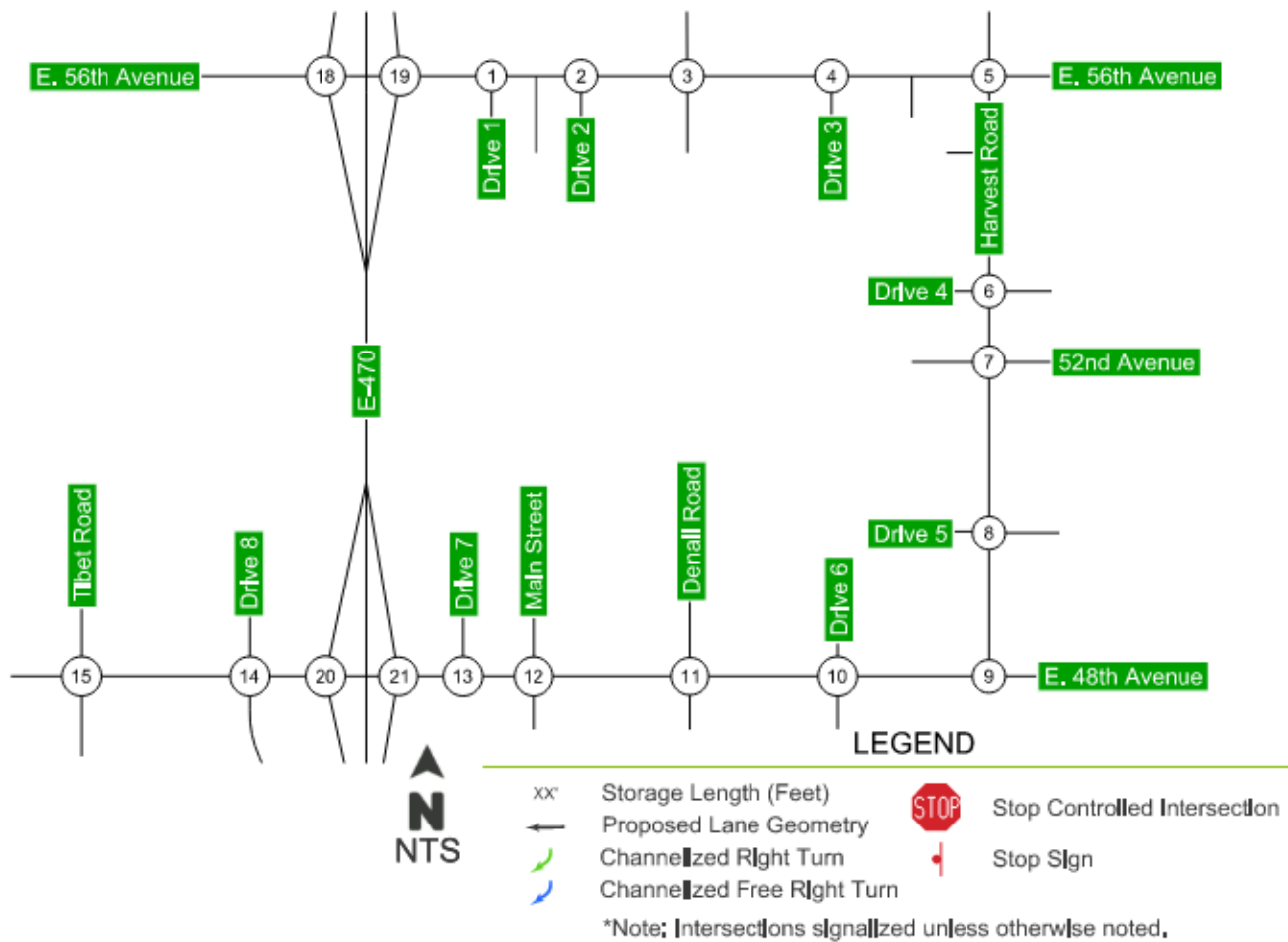
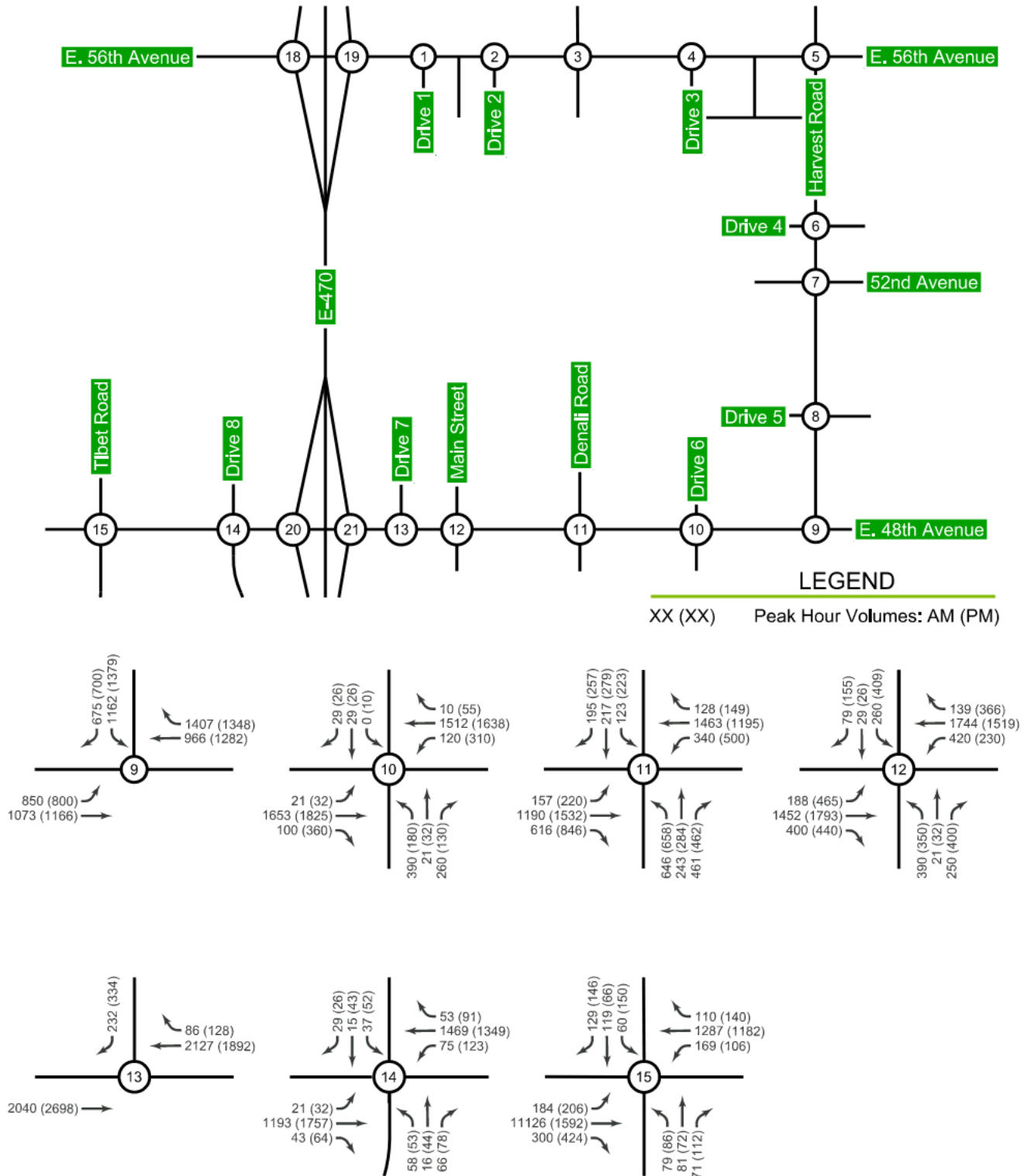
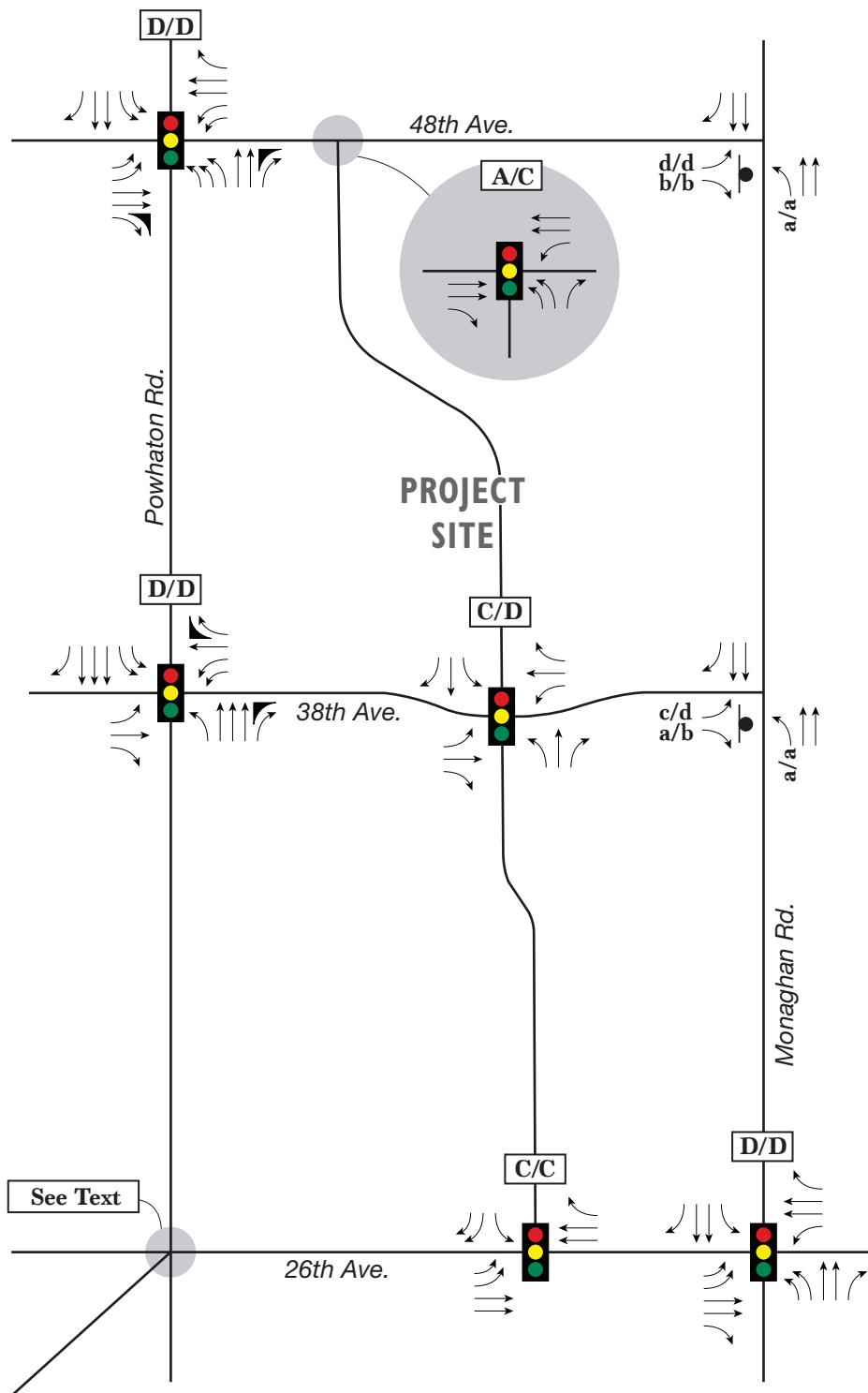




FIGURE 18

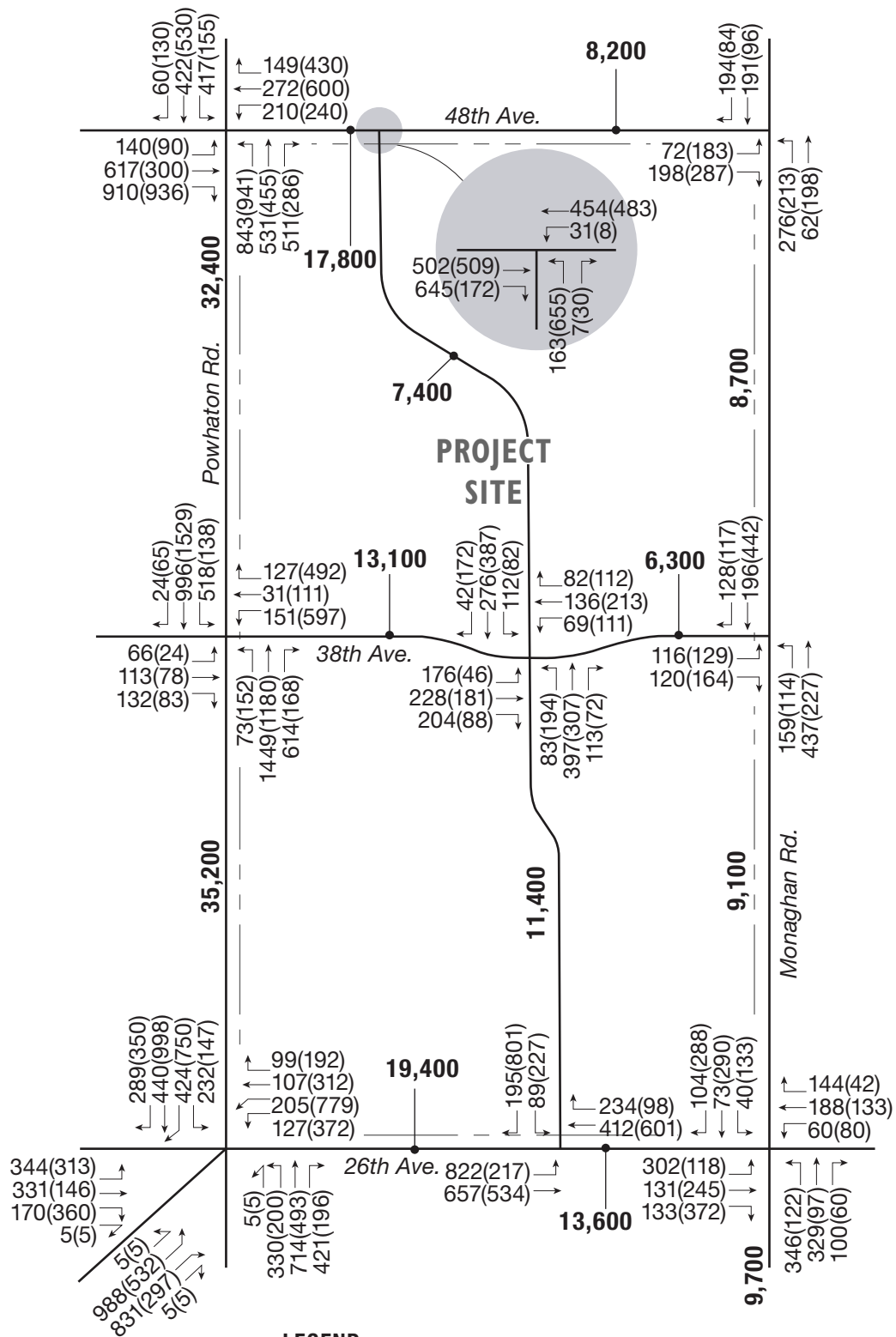
2040 Site Plus Background Traffic Volumes - II





LEGEND

- X/X** = AM/PM Peak Hour Signalized Intersection Level of Service
- x/x** = AM/PM Peak Hour Unsignalized Intersection Level of Service
-  = Stop Sign
-  = Traffic Signal



LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

Appendix B – ITE Trip Generation Calculations

| PROJECT DETAILS | | | | | | | | |
|------------------------------|--------------|------------------|-----------------------|---------------------------------|------------|-----------------------------|------|-------|
| Project Name: TAH Area A | | | Type of Project: | | | | | |
| Project No: | | | City: | | | | | |
| Country: | | | Built-up Area(Sq.ft): | | | | | |
| Analyst Name: Scott Barnhart | | | Clients Name: | | | | | |
| Date: 1/22/2022 | | | ZIP/Postal Code: | | | | | |
| State/Province: | | | No. of Scenarios: 3 | | | | | |
| Analysis Region: | | | | | | | | |
| SCENARIO SUMMARY | | | | | | | | |
| Scenarios | Name | No. of Land Uses | Phases of Development | No. of Years to Project Traffic | User Group | Estimated New Vehicle Trips | | |
| | | | | | | Entry | Exit | Total |
| Scenario - 1 | Weekday | 8 | 1 | 0 | | 3974 | 3974 | 7948 |
| Scenario - 2 | AM Peak Hour | 8 | 1 | 0 | | 153 | 434 | 587 |
| Scenario - 3 | PM Peak Hour | 8 | 1 | 0 | | 493 | 290 | 783 |

Scenario - 1

Scenario Name: Weekday

User Group:

Dev. phase: 1

No. of Years to Project 0

Analyst Note:

Traffic :

Warning:

VEHICLE TRIPS BEFORE REDUCTION

| Land Use & Data Source | Location | IV | Size | Time Period | Method | Entry | Exit | Total |
|--|----------------|----------------|------|-------------|-------------------------|--------|--------|-------|
| | | | | | Rate/Equation | Split% | Split% | |
| 210 - Single-Family Detached Housing | General | Dwelling Units | 145 | Weekday | Best Fit (LOG) | 710 | 710 | 1420 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | | Ln(T) =0.92Ln(X) + 2.68 | 50% | 50% | |
| 210(1) - Single-Family Detached Housing | General | Dwelling Units | 69 | Weekday | Best Fit (LOG) | 359 | 359 | 718 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | | Ln(T) =0.92Ln(X) + 2.68 | 50% | 50% | |
| 210(2) - Single-Family Detached Housing | General | Dwelling Units | 156 | Weekday | Best Fit (LOG) | 760 | 760 | 1520 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | | Ln(T) =0.92Ln(X) + 2.68 | 50% | 50% | |
| 210(3) - Single-Family Detached Housing | General | Dwelling Units | 111 | Weekday | Best Fit (LOG) | 555 | 555 | 1110 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | | Ln(T) =0.92Ln(X) + 2.68 | 50% | 50% | |
| 210(4) - Single-Family Detached Housing | General | Dwelling Units | 90 | Weekday | Best Fit (LOG) | 458 | 458 | 916 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | | Ln(T) =0.92Ln(X) + 2.68 | 50% | 50% | |
| 210(5) - Single-Family Detached Housing | General | Dwelling Units | 61 | Weekday | Best Fit (LOG) | 320 | 320 | 640 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | | Ln(T) =0.92Ln(X) + 2.68 | 50% | 50% | |
| 210(6) - Single-Family Detached Housing | General | Dwelling Units | 46 | Weekday | Best Fit (LOG) | 247 | 247 | 494 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | | Ln(T) =0.92Ln(X) + 2.68 | 50% | 50% | |
| 210(7) - Single-Family Detached Housing | General | Dwelling Units | 113 | Weekday | Best Fit (LOG) | 565 | 565 | 1130 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | | Ln(T) =0.92Ln(X) + 2.68 | 50% | 50% | |

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

| Land Use | Baseline Site Vehicle Mode Share | | Baseline Site Vehicle Occupancy | | Baseline Site Vehicle Directional Split | |
|---|----------------------------------|----------|---------------------------------|------|---|----------|
| | Entry (%) | Exit (%) | Entry | Exit | Entry (%) | Exit (%) |
| 210 - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 50 | 50 |
| 210(1) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 50 | 50 |
| 210(2) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 50 | 50 |
| 210(3) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 50 | 50 |
| 210(4) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 50 | 50 |
| 210(5) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 50 | 50 |
| 210(6) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 50 | 50 |
| 210(7) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 50 | 50 |

ESTIMATED BASELINE SITE PERSON TRIPS:

| Land Use | Person Trips by Vehicle | | Person Trips by Other Modes | | Total Baseline Site Person Trips | |
|---|-------------------------|------|-----------------------------|------|----------------------------------|------|
| | Entry | Exit | Entry | Exit | Entry | Exit |
| 210 - Single-Family Detached Housing | 710 | 710 | 0 | 0 | 710 | 710 |
| | 1420 | | 0 | | 1420 | |
| 210(1) - Single-Family Detached Housing | 359 | 359 | 0 | 0 | 359 | 359 |
| | 718 | | 0 | | 718 | |
| 210(2) - Single-Family Detached Housing | 760 | 760 | 0 | 0 | 760 | 760 |
| | 1520 | | 0 | | 1520 | |
| 210(3) - Single-Family Detached Housing | 555 | 555 | 0 | 0 | 555 | 555 |
| | 1110 | | 0 | | 1110 | |
| 210(4) - Single-Family Detached Housing | 458 | 458 | 0 | 0 | 458 | 458 |
| | 916 | | 0 | | 916 | |
| 210(5) - Single-Family Detached Housing | 320 | 320 | 0 | 0 | 320 | 320 |
| | 640 | | 0 | | 640 | |
| 210(6) - Single-Family Detached Housing | 247 | 247 | 0 | 0 | 247 | 247 |
| | 494 | | 0 | | 494 | |
| 210(7) - Single-Family Detached Housing | 565 | 565 | 0 | 0 | 565 | 565 |
| | 1130 | | 0 | | 1130 | |

NEW VEHICLE TRIPS

| Land Use | New Vehicle Trips | | |
|---|-------------------|------|-------|
| | Entry | Exit | Total |
| 210 - Single-Family Detached Housing | 710 | 710 | 1420 |
| 210(1) - Single-Family Detached Housing | 359 | 359 | 718 |
| 210(2) - Single-Family Detached Housing | 760 | 760 | 1520 |
| 210(3) - Single-Family Detached Housing | 555 | 555 | 1110 |
| 210(4) - Single-Family Detached Housing | 458 | 458 | 916 |
| 210(5) - Single-Family Detached Housing | 320 | 320 | 640 |
| 210(6) - Single-Family Detached Housing | 247 | 247 | 494 |
| 210(7) - Single-Family Detached Housing | 565 | 565 | 1130 |

RESULTS

| Site Totals | Entry | Exit | Total |
|--------------------------------|-------|------|-------|
| Vehicle Trips Before Reduction | 3974 | 3974 | 7948 |
| External Vehicle Trips | 3974 | 3974 | 7948 |
| New Vehicle Trips | 3974 | 3974 | 7948 |

Scenario - 2

Scenario Name: AM Peak Hour

User Group:

Dev. phase: 1

No. of Years to Project 0

Analyst Note:

Traffic :

Warning:

VEHICLE TRIPS BEFORE REDUCTION

| Land Use & Data Source | Location | IV | Size | Time Period | Method | Entry | Exit | Total |
|--|----------------|----------------|------|--------------------------|-------------------------|--------|--------|-------|
| | | | | | Rate/Equation | Split% | Split% | |
| 210 - Single-Family Detached Housing | General | Dwelling Units | 145 | Weekday, Peak Hour of | Best Fit (LOG) | 27 | 77 | 104 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | Ln(T) =0.91Ln(X) + 0.12 | 26% | 74% | |
| 210(1) - Single-Family Detached Housing | General | Dwelling Units | 69 | Weekday, Peak Hour of | Best Fit (LOG) | 14 | 39 | 53 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | Ln(T) =0.91Ln(X) + 0.12 | 26% | 74% | |
| 210(2) - Single-Family Detached Housing | General | Dwelling Units | 156 | Weekday, Peak Hour of | Best Fit (LOG) | 29 | 83 | 112 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | Ln(T) =0.91Ln(X) + 0.12 | 26% | 74% | |
| 210(3) - Single-Family Detached Housing | General | Dwelling Units | 111 | Weekday, Peak Hour of | Best Fit (LOG) | 21 | 61 | 82 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | Ln(T) =0.91Ln(X) + 0.12 | 26% | 74% | |
| 210(4) - Single-Family Detached Housing | General | Dwelling Units | 90 | Weekday, Peak Hour of | Best Fit (LOG) | 18 | 50 | 68 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street | Ln(T) =0.91Ln(X) + 0.12 | 26% | 74% | |
| 210(5) - Single-Family Detached Housing | General | Dwelling Units | 61 | Weekday, Peak Hour of | Best Fit (LOG) | 12 | 35 | 47 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | Ln(T) =0.91Ln(X) + 0.12 | 26% | 74% | |
| 210(6) - Single-Family Detached Housing | General | Dwelling Units | 46 | Weekday, Peak Hour of | Best Fit (LOG) | 10 | 27 | 37 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | Ln(T) =0.91Ln(X) + 0.12 | 26% | 74% | |
| 210(7) - Single-Family Detached Housing | General | Dwelling Units | 113 | Weekday, Peak Hour of | Best Fit (LOG) | 22 | 62 | 84 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | Ln(T) =0.91Ln(X) + 0.12 | 26% | 74% | |

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

| Land Use | Baseline Site Vehicle Mode Share | | Baseline Site Vehicle Occupancy | | Baseline Site Vehicle Directional Split | |
|---|----------------------------------|----------|---------------------------------|------|---|----------|
| | Entry (%) | Exit (%) | Entry | Exit | Entry (%) | Exit (%) |
| 210 - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 26 | 74 |
| 210(1) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 26 | 74 |
| 210(2) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 26 | 74 |
| 210(3) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 26 | 74 |
| 210(4) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 26 | 74 |
| 210(5) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 26 | 74 |
| 210(6) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 26 | 74 |
| 210(7) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 26 | 74 |

ESTIMATED BASELINE SITE PERSON TRIPS:

| Land Use | Person Trips by Vehicle | | Person Trips by Other Modes | | Total Baseline Site Person Trips | |
|---|-------------------------|------|-----------------------------|------|----------------------------------|------|
| | Entry | Exit | Entry | Exit | Entry | Exit |
| 210 - Single-Family Detached Housing | 27 | 77 | 0 | 0 | 27 | 77 |
| | 104 | | 0 | | 104 | |
| 210(1) - Single-Family Detached Housing | 14 | 39 | 0 | 0 | 14 | 39 |
| | 53 | | 0 | | 53 | |
| 210(2) - Single-Family Detached Housing | 29 | 83 | 0 | 0 | 29 | 83 |
| | 112 | | 0 | | 112 | |
| 210(3) - Single-Family Detached Housing | 21 | 61 | 0 | 0 | 21 | 61 |
| | 82 | | 0 | | 82 | |
| 210(4) - Single-Family Detached Housing | 18 | 50 | 0 | 0 | 18 | 50 |
| | 68 | | 0 | | 68 | |
| 210(5) - Single-Family Detached Housing | 12 | 35 | 0 | 0 | 12 | 35 |
| | 47 | | 0 | | 47 | |
| 210(6) - Single-Family Detached Housing | 10 | 27 | 0 | 0 | 10 | 27 |
| | 37 | | 0 | | 37 | |
| 210(7) - Single-Family Detached Housing | 22 | 62 | 0 | 0 | 22 | 62 |
| | 84 | | 0 | | 84 | |

NEW VEHICLE TRIPS

| Land Use | New Vehicle Trips | | |
|---|-------------------|------|-------|
| | Entry | Exit | Total |
| 210 - Single-Family Detached Housing | 27 | 77 | 104 |
| 210(1) - Single-Family Detached Housing | 14 | 39 | 53 |
| 210(2) - Single-Family Detached Housing | 29 | 83 | 112 |
| 210(3) - Single-Family Detached Housing | 21 | 61 | 82 |
| 210(4) - Single-Family Detached Housing | 18 | 50 | 68 |
| 210(5) - Single-Family Detached Housing | 12 | 35 | 47 |
| 210(6) - Single-Family Detached Housing | 10 | 27 | 37 |
| 210(7) - Single-Family Detached Housing | 22 | 62 | 84 |

RESULTS

| Site Totals | Entry | Exit | Total |
|--------------------------------|-------|------|-------|
| Vehicle Trips Before Reduction | 153 | 434 | 587 |
| External Vehicle Trips | 153 | 434 | 587 |
| New Vehicle Trips | 153 | 434 | 587 |

Scenario - 3

Scenario Name: PM Peak Hour

User Group:

Dev. phase: 1

No. of Years to Project 0

Analyst Note:

Traffic :

Warning:

VEHICLE TRIPS BEFORE REDUCTION

| Land Use & Data Source | Location | IV | Size | Time Period | Method | Entry | Exit | Total |
|--|----------------|----------------|------|--------------------------|------------------------------|--------|--------|-------|
| | | | | | Rate/Equation | Split% | Split% | |
| 210 - Single-Family Detached Housing | General | Dwelling Units | 145 | Weekday, Peak Hour of | Best Fit (LOG) | 89 | 52 | 141 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | $\ln(T) = 0.94\ln(X) + 0.27$ | 63% | 37% | |
| 210(1) - Single-Family Detached Housing | General | Dwelling Units | 69 | Weekday, Peak Hour of | Best Fit (LOG) | 44 | 26 | 70 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | $\ln(T) = 0.94\ln(X) + 0.27$ | 63% | 37% | |
| 210(2) - Single-Family Detached Housing | General | Dwelling Units | 156 | Weekday, Peak Hour of | Best Fit (LOG) | 95 | 56 | 151 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | $\ln(T) = 0.94\ln(X) + 0.27$ | 63% | 37% | |
| 210(3) - Single-Family Detached Housing | General | Dwelling Units | 111 | Weekday, Peak Hour of | Best Fit (LOG) | 69 | 41 | 110 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | $\ln(T) = 0.94\ln(X) + 0.27$ | 63% | 37% | |
| 210(4) - Single-Family Detached Housing | General | Dwelling Units | 90 | Weekday, Peak Hour | Best Fit (LOG) | 57 | 33 | 90 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | of Adjacent Street | $\ln(T) = 0.94\ln(X) + 0.27$ | 63% | 37% | |
| 210(5) - Single-Family Detached Housing | General | Dwelling Units | 61 | Weekday, Peak Hour of | Best Fit (LOG) | 39 | 23 | 62 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | $\ln(T) = 0.94\ln(X) + 0.27$ | 63% | 37% | |
| 210(6) - Single-Family Detached Housing | General | Dwelling Units | 46 | Weekday, Peak Hour of | Best Fit (LOG) | 30 | 18 | 48 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | $\ln(T) = 0.94\ln(X) + 0.27$ | 63% | 37% | |
| 210(7) - Single-Family Detached Housing | General | Dwelling Units | 113 | Weekday, Peak Hour of | Best Fit (LOG) | 70 | 41 | 111 |
| Data Source: Trip Generation Manual, 11th Ed | Urban/Suburban | | | Adjacent Street Traffic, | $\ln(T) = 0.94\ln(X) + 0.27$ | 63% | 37% | |

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

| Land Use | Baseline Site Vehicle Mode Share | | Baseline Site Vehicle Occupancy | | Baseline Site Vehicle Directional Split | |
|---|----------------------------------|----------|---------------------------------|------|---|----------|
| | Entry (%) | Exit (%) | Entry | Exit | Entry (%) | Exit (%) |
| 210 - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 63 | 37 |
| 210(1) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 63 | 37 |
| 210(2) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 63 | 37 |
| 210(3) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 63 | 37 |
| 210(4) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 63 | 37 |
| 210(5) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 63 | 37 |
| 210(6) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 63 | 37 |
| 210(7) - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 63 | 37 |

ESTIMATED BASELINE SITE PERSON TRIPS:

| Land Use | Person Trips by Vehicle | | Person Trips by Other Modes | | Total Baseline Site Person Trips | |
|---|-------------------------|------|-----------------------------|------|----------------------------------|------|
| | Entry | Exit | Entry | Exit | Entry | Exit |
| 210 - Single-Family Detached Housing | 89 | 52 | 0 | 0 | 89 | 52 |
| | 141 | | 0 | | 141 | |
| 210(1) - Single-Family Detached Housing | 44 | 26 | 0 | 0 | 44 | 26 |
| | 70 | | 0 | | 70 | |
| 210(2) - Single-Family Detached Housing | 95 | 56 | 0 | 0 | 95 | 56 |
| | 151 | | 0 | | 151 | |
| 210(3) - Single-Family Detached Housing | 69 | 41 | 0 | 0 | 69 | 41 |
| | 110 | | 0 | | 110 | |
| 210(4) - Single-Family Detached Housing | 57 | 33 | 0 | 0 | 57 | 33 |
| | 90 | | 0 | | 90 | |
| 210(5) - Single-Family Detached Housing | 39 | 23 | 0 | 0 | 39 | 23 |
| | 62 | | 0 | | 62 | |
| 210(6) - Single-Family Detached Housing | 30 | 18 | 0 | 0 | 30 | 18 |
| | 48 | | 0 | | 48 | |
| 210(7) - Single-Family Detached Housing | 70 | 41 | 0 | 0 | 70 | 41 |
| | 111 | | 0 | | 111 | |

NEW VEHICLE TRIPS

| Land Use | New Vehicle Trips | | |
|---|-------------------|------|-------|
| | Entry | Exit | Total |
| 210 - Single-Family Detached Housing | 89 | 52 | 141 |
| 210(1) - Single-Family Detached Housing | 44 | 26 | 70 |
| 210(2) - Single-Family Detached Housing | 95 | 56 | 151 |
| 210(3) - Single-Family Detached Housing | 69 | 41 | 110 |
| 210(4) - Single-Family Detached Housing | 57 | 33 | 90 |
| 210(5) - Single-Family Detached Housing | 39 | 23 | 62 |
| 210(6) - Single-Family Detached Housing | 30 | 18 | 48 |
| 210(7) - Single-Family Detached Housing | 70 | 41 | 111 |

RESULTS

| Site Totals | Entry | Exit | Total |
|--------------------------------|-------|------|-------|
| Vehicle Trips Before Reduction | 493 | 290 | 783 |
| External Vehicle Trips | 493 | 290 | 783 |
| New Vehicle Trips | 493 | 290 | 783 |

Appendix C – Horizon Without Project Analyses



Intersection Level Of Service Report

Intersection 1: 48th Avenue/Main Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 42.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.446 |

Intersection Setup

| Name | Main Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|-------------|--------|--------|------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | T T T | | | T T T | | | T T T T | | | T T T T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 325.00 | 100.00 | 400.00 | 250.00 | 100.00 | 250.00 | 300.00 | 100.00 | 400.00 | 150.00 | 100.00 | 400.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Main Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|--|-------------|--------|--------|--------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 390 | 21 | 250 | 260 | 29 | 79 | 188 | 1452 | 400 | 420 | 1744 | 139 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 83 | 0 | 0 | 52 | 0 | 0 | 132 | 0 | 0 | 46 |
| Total Hourly Volume [veh/h] | 257 | 14 | 82 | 172 | 19 | 0 | 124 | 958 | 132 | 277 | 1151 | 46 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 70 | 4 | 22 | 47 | 5 | 0 | 34 | 260 | 36 | 75 | 313 | 13 |
| Total Analysis Volume [veh/h] | 279 | 15 | 89 | 187 | 21 | 0 | 135 | 1041 | 143 | 301 | 1251 | 50 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 110 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 16 | 43 | 0 | 16 | 43 | 0 | 13 | 30 | 0 | 21 | 38 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 34 | 0 | 0 | 34 | 0 | 0 | 21 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 45 | 45 | 9 | 42 | 42 | 7 | 28 | 28 | 13 | 34 | 34 |
| g / C, Green / Cycle | 0.11 | 0.41 | 0.41 | 0.08 | 0.38 | 0.38 | 0.06 | 0.25 | 0.25 | 0.12 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.01 | 0.06 | 0.06 | 0.01 | 0.00 | 0.04 | 0.23 | 0.10 | 0.10 | 0.27 | 0.03 |
| s, saturation flow rate [veh/h] | 3113 | 1683 | 1431 | 3113 | 1683 | 1431 | 3113 | 4584 | 1431 | 3113 | 4584 | 1431 |
| c, Capacity [veh/h] | 333 | 684 | 582 | 246 | 637 | 541 | 191 | 1156 | 361 | 364 | 1411 | 440 |
| d1, Uniform Delay [s] | 48.21 | 19.56 | 20.67 | 49.68 | 21.53 | 0.00 | 50.72 | 39.83 | 34.20 | 47.53 | 36.27 | 27.33 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.57 | 0.06 | 0.56 | 4.81 | 0.10 | 0.00 | 4.79 | 2.86 | 0.71 | 4.83 | 2.07 | 0.11 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|-------|-------|--------|-------|------|-------|--------|--------|--------|--------|-------|
| X, volume / capacity | 0.84 | 0.02 | 0.15 | 0.76 | 0.03 | 0.00 | 0.71 | 0.90 | 0.40 | 0.83 | 0.89 | 0.11 |
| d, Delay for Lane Group [s/veh] | 53.78 | 19.62 | 21.23 | 54.49 | 21.63 | 0.00 | 55.51 | 42.68 | 34.91 | 52.36 | 38.34 | 27.44 |
| Lane Group LOS | D | B | C | D | C | A | E | D | C | D | D | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.00 | 0.24 | 1.54 | 2.68 | 0.36 | 0.00 | 1.95 | 9.26 | 3.24 | 4.26 | 10.74 | 0.96 |
| 50th-Percentile Queue Length [ft/ln] | 100.00 | 6.05 | 38.46 | 66.98 | 9.00 | 0.00 | 48.73 | 231.59 | 81.02 | 106.58 | 268.40 | 23.98 |
| 95th-Percentile Queue Length [veh/ln] | 7.20 | 0.44 | 2.77 | 4.82 | 0.65 | 0.00 | 3.51 | 14.26 | 5.83 | 7.65 | 16.11 | 1.73 |
| 95th-Percentile Queue Length [ft/ln] | 180.00 | 10.90 | 69.22 | 120.56 | 16.19 | 0.00 | 87.71 | 356.38 | 145.84 | 191.24 | 402.74 | 43.17 |

**Movement, Approach, & Intersection Results**

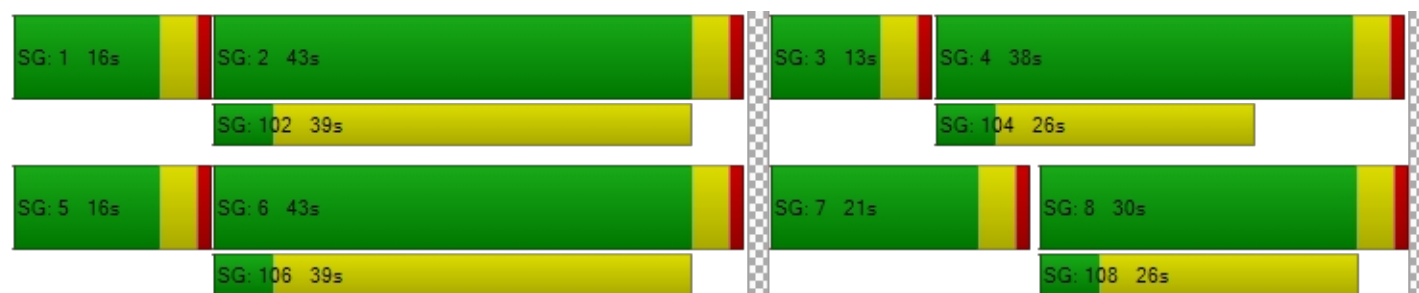
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 53.78 | 19.62 | 21.23 | 54.49 | 21.63 | 0.00 | 55.51 | 42.68 | 34.91 | 52.36 | 38.34 | 27.44 |
| Movement LOS | D | B | C | D | C | A | E | D | C | D | D | C |
| d_A, Approach Delay [s/veh] | 44.88 | | | 51.17 | | | 43.15 | | | 40.63 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 42.67 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.446 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 46.39 | | | 46.39 | | | 46.39 | | | 46.39 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 2.755 | | | 2.620 | | | 3.461 | | | 3.256 | | |
| Crosswalk LOS | C | | | B | | | C | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 709 | | | 709 | | | 473 | | | 618 | | |
| d_b, Bicycle Delay [s] | 22.94 | | | 22.94 | | | 32.10 | | | 26.28 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.329 | | | 1.989 | | | 2.358 | | | 2.466 | | |
| Bicycle LOS | B | | | A | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 5: 48th Avenue/Denali Boulevard

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 27.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.413 |

Intersection Setup

| Name | Denali Boulevard | | | Denali Boulevard | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 3 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 350.00 | 100.00 | 250.00 | 350.00 | 100.00 | 300.00 | 250.00 | 100.00 | 450.00 | 400.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 300.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Denali Boulevard | | | Denali Boulevard | | | 48th Avenue | | | 48th Avenue | | |
|--|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 646 | 243 | 461 | 123 | 217 | 195 | 157 | 1190 | 616 | 340 | 1463 | 128 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 304 | 0 | 0 | 65 | 0 | 0 | 204 | 0 | 0 | 42 |
| Total Hourly Volume [veh/h] | 426 | 160 | 0 | 81 | 143 | 64 | 104 | 785 | 203 | 224 | 966 | 42 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 116 | 43 | 0 | 22 | 39 | 17 | 28 | 213 | 55 | 61 | 263 | 11 |
| Total Analysis Volume [veh/h] | 463 | 174 | 0 | 88 | 155 | 70 | 113 | 853 | 221 | 243 | 1050 | 46 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 110 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 16 | 50 | 0 | 9 | 43 | 0 | 21 | 36 | 0 | 15 | 30 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 37 | 0 | 0 | 34 | 0 | 0 | 27 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 17 | 17 | 26 | 10 | 10 | 6 | 61 | 61 | 11 | 66 | 66 |
| g / C, Green / Cycle | 0.11 | 0.15 | 0.15 | 0.24 | 0.09 | 0.09 | 0.05 | 0.56 | 0.56 | 0.10 | 0.60 | 0.60 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.05 | 0.00 | 0.07 | 0.05 | 0.05 | 0.04 | 0.19 | 0.15 | 0.08 | 0.23 | 0.03 |
| s, saturation flow rate [veh/h] | 4669 | 3204 | 1431 | 1229 | 3204 | 1431 | 3113 | 4584 | 1431 | 3113 | 4584 | 1431 |
| c, Capacity [veh/h] | 512 | 496 | 221 | 335 | 293 | 131 | 170 | 2557 | 798 | 298 | 2746 | 857 |
| d1, Uniform Delay [s] | 48.45 | 41.59 | 0.00 | 34.01 | 47.75 | 47.78 | 51.06 | 13.23 | 12.73 | 48.81 | 11.48 | 9.14 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 6.28 | 0.42 | 0.00 | 0.41 | 1.48 | 3.37 | 4.43 | 0.35 | 0.86 | 5.38 | 0.41 | 0.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|-------|------|-------|-------|-------|-------|--------|--------|--------|--------|-------|
| X, volume / capacity | 0.90 | 0.35 | 0.00 | 0.26 | 0.53 | 0.54 | 0.67 | 0.33 | 0.28 | 0.81 | 0.38 | 0.05 |
| d, Delay for Lane Group [s/veh] | 54.73 | 42.01 | 0.00 | 34.42 | 49.23 | 51.15 | 55.49 | 13.58 | 13.60 | 54.19 | 11.88 | 9.26 |
| Lane Group LOS | D | D | A | C | D | D | E | B | B | D | B | A |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.47 | 2.14 | 0.00 | 1.94 | 2.09 | 1.96 | 1.63 | 3.79 | 2.96 | 3.49 | 4.34 | 0.47 |
| 50th-Percentile Queue Length [ft/ln] | 111.70 | 53.53 | 0.00 | 48.55 | 52.20 | 48.88 | 40.76 | 94.73 | 74.10 | 87.17 | 108.62 | 11.81 |
| 95th-Percentile Queue Length [veh/ln] | 7.93 | 3.85 | 0.00 | 3.50 | 3.76 | 3.52 | 2.93 | 6.82 | 5.33 | 6.28 | 7.76 | 0.85 |
| 95th-Percentile Queue Length [ft/ln] | 198.37 | 96.36 | 0.00 | 87.39 | 93.96 | 87.98 | 73.37 | 170.51 | 133.37 | 156.90 | 194.09 | 21.26 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| d_M, Delay for Movement [s/veh] | 54.73 | 42.01 | 0.00 | 34.42 | 49.23 | 51.15 | 55.49 | 13.58 | 13.60 | 54.19 | 11.88 | 9.26 |
| Movement LOS | D | D | A | C | D | D | E | B | B | D | B | A |
| d_A, Approach Delay [s/veh] | 51.25 | | | 45.50 | | | 17.57 | | | 19.47 | | |
| Approach LOS | D | | | D | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 26.99 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.413 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 46.39 | | | 46.39 | | | 46.39 | | | 46.39 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 3.384 | | | 2.679 | | | 3.480 | | | 3.315 | | |
| Crosswalk LOS | C | | | B | | | C | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 836 | | | 709 | | | 582 | | | 473 | | |
| d_b, Bicycle Delay [s] | 18.64 | | | 22.94 | | | 27.68 | | | 32.10 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.336 | | | 1.871 | | | 2.325 | | | 2.319 | | |
| Bicycle LOS | B | | | A | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 12: 48th Avenue/Fultondale Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 15.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.395 |

Intersection Setup

| Name | Fultondale Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|-------------------|--------|--------|------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 40.00 | 100.00 | 100.00 | 175.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fultondale Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|--|-------------------|--------|--------|--------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 390 | 21 | 260 | 0 | 29 | 29 | 21 | 1653 | 100 | 120 | 1512 | 10 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 86 | 0 | 0 | 10 | 0 | 0 | 33 | 0 | 0 | 4 |
| Total Hourly Volume [veh/h] | 257 | 14 | 86 | 0 | 19 | 9 | 14 | 1091 | 33 | 79 | 998 | 3 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 70 | 4 | 23 | 0 | 5 | 2 | 4 | 296 | 9 | 21 | 271 | 1 |
| Total Analysis Volume [veh/h] | 279 | 15 | 93 | 0 | 21 | 10 | 15 | 1186 | 36 | 86 | 1085 | 3 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | ProtPer | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 16 | 46 | 0 | 9 | 39 | 0 | 9 | 35 | 0 | 10 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 21 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|------|-------|------|------|------|-------|------|------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 17 | 17 | 21 | 6 | 71 | 63 | 63 | 5 | 66 | 66 |
| g / C, Green / Cycle | 0.11 | 0.17 | 0.17 | 0.21 | 0.06 | 0.71 | 0.63 | 0.63 | 0.05 | 0.66 | 0.66 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.01 | 0.07 | 0.00 | 0.02 | 0.03 | 0.26 | 0.03 | 0.03 | 0.22 | 0.22 |
| s, saturation flow rate [veh/h] | 3113 | 1683 | 1431 | 1201 | 1592 | 527 | 4584 | 1431 | 3113 | 3204 | 1681 |
| c, Capacity [veh/h] | 340 | 281 | 239 | 346 | 93 | 430 | 2872 | 896 | 143 | 2098 | 1101 |
| d1, Uniform Delay [s] | 43.61 | 35.03 | 37.13 | 0.00 | 45.25 | 4.76 | 9.41 | 7.16 | 46.84 | 7.67 | 7.67 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.92 | 0.08 | 1.03 | 0.00 | 2.08 | 0.15 | 0.44 | 0.08 | 4.01 | 0.44 | 0.84 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | |
|---------------------------------------|--------|-------|-------|------|-------|------|--------|-------|-------|--------|--------|
| X, volume / capacity | 0.82 | 0.05 | 0.39 | 0.00 | 0.33 | 0.03 | 0.41 | 0.04 | 0.60 | 0.34 | 0.34 |
| d, Delay for Lane Group [s/veh] | 48.53 | 35.11 | 38.16 | 0.00 | 47.33 | 4.91 | 9.85 | 7.24 | 50.85 | 8.11 | 8.51 |
| Lane Group LOS | D | D | D | A | D | A | A | A | D | A | A |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.58 | 0.31 | 2.08 | 0.00 | 0.79 | 0.10 | 4.10 | 0.30 | 1.12 | 3.20 | 3.48 |
| 50th-Percentile Queue Length [ft/ln] | 89.61 | 7.82 | 52.12 | 0.00 | 19.75 | 2.38 | 102.55 | 7.42 | 28.12 | 79.95 | 86.92 |
| 95th-Percentile Queue Length [veh/ln] | 6.45 | 0.56 | 3.75 | 0.00 | 1.42 | 0.17 | 7.38 | 0.53 | 2.02 | 5.76 | 6.26 |
| 95th-Percentile Queue Length [ft/ln] | 161.30 | 14.08 | 93.81 | 0.00 | 35.55 | 4.28 | 184.60 | 13.36 | 50.62 | 143.90 | 156.45 |

**Movement, Approach, & Intersection Results**

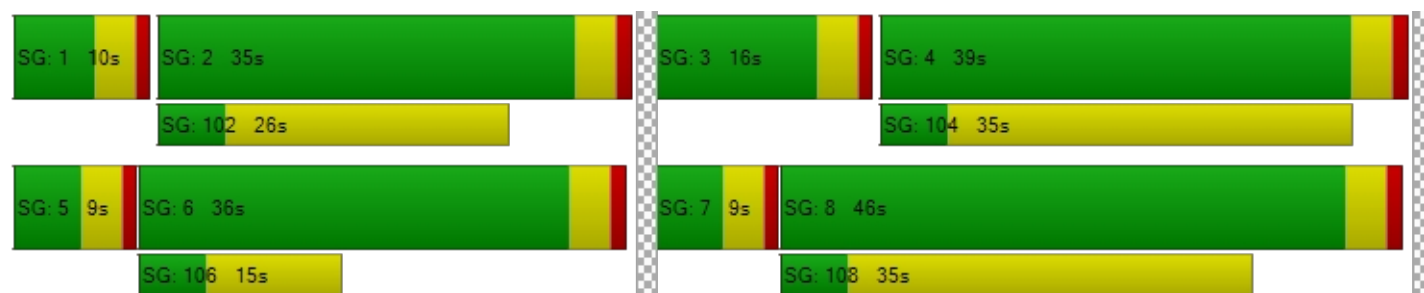
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|------|------|------|-------|------|------|
| d_M, Delay for Movement [s/veh] | 48.53 | 35.11 | 38.16 | 0.00 | 47.33 | 47.33 | 4.91 | 9.85 | 7.24 | 50.85 | 8.25 | 8.51 |
| Movement LOS | D | D | D | A | D | D | A | A | A | D | A | A |
| d_A, Approach Delay [s/veh] | 45.52 | | | 47.33 | | | 9.72 | | | 11.37 | | |
| Approach LOS | D | | | D | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 15.71 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.395 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 41.42 | | | 41.42 | | | 41.42 | | | 41.42 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 2.687 | | | 2.001 | | | 3.102 | | | 3.048 | | |
| Crosswalk LOS | B | | | B | | | C | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 840 | | | 700 | | | 620 | | | 640 | | |
| d_b, Bicycle Delay [s] | 16.83 | | | 21.14 | | | 23.82 | | | 23.14 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.340 | | | 1.627 | | | 2.258 | | | 2.208 | | |
| Bicycle LOS | B | | | A | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 46: 48th Avenue/Harvest Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 26.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.460 |

Intersection Setup

| Name | Harvest Road | | 48th Avenue | | 48th Avenue | |
|------------------------------|--------------|--------|-------------|--------|-------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 1 | 3 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 450.00 | 200.00 | 400.00 | 100.00 | 100.00 | 500.00 |
| No. of Lanes in Exit Pocket | 0 | 1 | 0 | 1 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 300.00 | 0.00 | 400.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Harvest Road | | 48th Avenue | | 48th Avenue | |
|--|--------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 1162 | 675 | 850 | 1073 | 966 | 1407 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 446 | 0 | 0 | 0 | 929 |
| Total Hourly Volume [veh/h] | 767 | 0 | 561 | 708 | 638 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 208 | 0 | 152 | 192 | 173 | 0 |
| Total Analysis Volume [veh/h] | 834 | 0 | 610 | 770 | 693 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|-----------|------------|------------|------------|
| Signal Group | 7 | 0 | 5 | 2 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | Lead | - | Lead | - | - | - |
| Minimum Green [s] | 5 | 0 | 5 | 10 | 10 | 0 |
| Maximum Green [s] | 30 | 0 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 46 | 0 | 18 | 54 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 5 | 0 | 0 | 5 | 5 | 0 |
| Pedestrian Clearance [s] | 37 | 0 | 0 | 10 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | No | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | R |
|---|-------|-------|------|-------|------|-------|------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 21 | 21 | 14 | 71 | 53 | 53 |
| g / C, Green / Cycle | 0.21 | 0.21 | 0.21 | 0.14 | 0.71 | 0.53 | 0.53 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.17 | 0.00 | 0.13 | 0.17 | 0.15 | 0.00 |
| s, saturation flow rate [veh/h] | 3113 | 1603 | 1431 | 4669 | 4584 | 4584 | 1431 |
| c, Capacity [veh/h] | 668 | 344 | 307 | 657 | 3234 | 2406 | 751 |
| d1, Uniform Delay [s] | 37.55 | 37.32 | 0.00 | 42.48 | 5.22 | 13.30 | 0.00 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.79 | 4.53 | 0.00 | 6.46 | 0.17 | 0.30 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | |
|---------------------------------------|--------|--------|------|--------|-------|--------|------|
| X, volume / capacity | 0.83 | 0.81 | 0.00 | 0.93 | 0.24 | 0.29 | 0.00 |
| d, Delay for Lane Group [s/veh] | 40.34 | 41.85 | 0.00 | 48.94 | 5.39 | 13.60 | 0.00 |
| Lane Group LOS | D | D | A | D | A | B | A |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 6.67 | 6.80 | 0.00 | 5.30 | 1.69 | 2.87 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 166.68 | 170.02 | 0.00 | 132.59 | 42.16 | 71.81 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 10.90 | 11.08 | 0.00 | 9.08 | 3.04 | 5.17 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 272.54 | 276.95 | 0.00 | 227.02 | 75.89 | 129.25 | 0.00 |

**Movement, Approach, & Intersection Results**

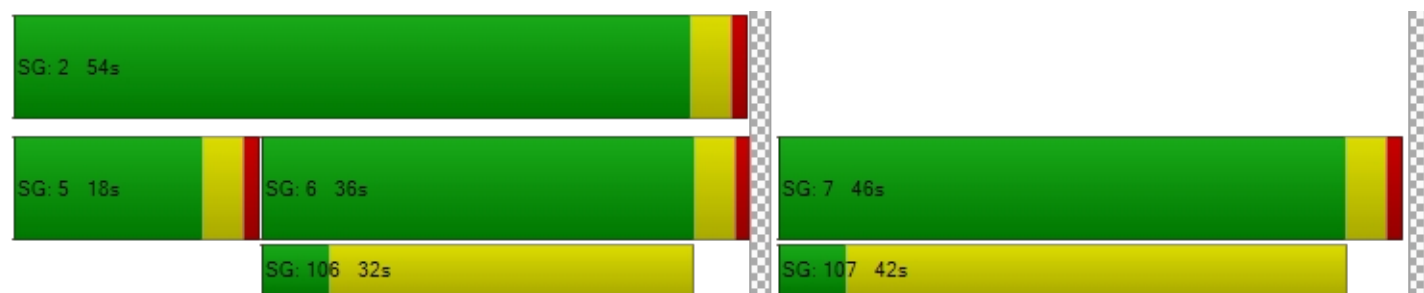
| | | | | | | |
|---------------------------------|-------|-------|-------|------|-------|------|
| d_M, Delay for Movement [s/veh] | 40.84 | 20.92 | 48.94 | 5.39 | 13.60 | 0.00 |
| Movement LOS | D | C | D | A | B | A |
| d_A, Approach Delay [s/veh] | 40.84 | | 24.64 | | 13.60 | |
| Approach LOS | D | | C | | B | |
| d_I, Intersection Delay [s/veh] | 26.66 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.460 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 41.41 | 41.41 | 41.41 |
| I_p,int, Pedestrian LOS Score for Intersection | 3.710 | 3.219 | 4.371 |
| Crosswalk LOS | D | C | E |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 840 | 1000 | 640 |
| d_b, Bicycle Delay [s] | 16.82 | 12.50 | 23.12 |
| I_b,int, Bicycle LOS Score for Intersection | 3.672 | 2.319 | 2.452 |
| Bicycle LOS | D | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 47: 48th Avenue/Powhatan Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 46.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.622 |

Intersection Setup

| Name | Powhatan Road | | | Powhatan Road | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|---------------|--------|--------|---------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 3 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 200.00 | 100.00 | 200.00 | 200.00 | 100.00 | 100.00 | 200.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Powhatan Road | | | Powhatan Road | | | 48th Avenue | | | 48th Avenue | | |
|--|---------------|--------|--------|---------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 843 | 531 | 511 | 417 | 422 | 60 | 140 | 617 | 910 | 210 | 272 | 149 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 256 | 0 | 0 | 30 | 0 | 0 | 910 | 0 | 0 | 75 |
| Total Hourly Volume [veh/h] | 843 | 531 | 255 | 417 | 422 | 30 | 140 | 617 | 0 | 210 | 272 | 74 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 229 | 144 | 69 | 113 | 115 | 8 | 38 | 168 | 0 | 57 | 74 | 20 |
| Total Analysis Volume [veh/h] | 916 | 577 | 277 | 453 | 459 | 33 | 152 | 671 | 0 | 228 | 296 | 80 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 34 | 36 | 0 | 37 | 39 | 0 | 21 | 40 | 0 | 17 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 27 | 0 | 0 | 30 | 0 | 0 | 31 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 28 | 51 | 51 | 22 | 45 | 45 | 9 | 30 | 30 | 12 | 33 | 33 |
| g / C, Green / Cycle | 0.22 | 0.39 | 0.39 | 0.17 | 0.34 | 0.34 | 0.07 | 0.23 | 0.23 | 0.09 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.18 | 0.19 | 0.15 | 0.14 | 0.02 | 0.05 | 0.21 | 0.00 | 0.07 | 0.09 | 0.06 |
| s, saturation flow rate [veh/h] | 4669 | 3204 | 1431 | 3113 | 3204 | 1431 | 3113 | 3204 | 1431 | 3113 | 3204 | 1431 |
| c, Capacity [veh/h] | 1007 | 1258 | 562 | 518 | 1101 | 491 | 205 | 733 | 327 | 277 | 807 | 360 |
| d1, Uniform Delay [s] | 49.77 | 29.25 | 29.74 | 52.88 | 32.71 | 28.69 | 59.65 | 48.91 | 0.00 | 58.22 | 40.08 | 38.54 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.59 | 1.21 | 3.08 | 4.83 | 1.16 | 0.26 | 5.19 | 5.04 | 0.00 | 6.05 | 0.28 | 0.31 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|--------|--------|--------|--------|-------|--------|--------|------|--------|--------|-------|
| X, volume / capacity | 0.91 | 0.46 | 0.49 | 0.87 | 0.42 | 0.07 | 0.74 | 0.91 | 0.00 | 0.82 | 0.37 | 0.22 |
| d, Delay for Lane Group [s/veh] | 53.36 | 30.45 | 32.82 | 57.72 | 33.88 | 28.95 | 64.83 | 53.95 | 0.00 | 64.28 | 40.36 | 38.84 |
| Lane Group LOS | D | C | C | E | C | C | E | D | A | E | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 10.00 | 6.91 | 7.02 | 7.57 | 5.76 | 0.74 | 2.61 | 11.10 | 0.00 | 3.93 | 3.96 | 2.07 |
| 50th-Percentile Queue Length [ft/ln] | 250.04 | 172.76 | 175.52 | 189.14 | 143.89 | 18.48 | 65.36 | 277.60 | 0.00 | 98.18 | 99.10 | 51.86 |
| 95th-Percentile Queue Length [veh/ln] | 15.19 | 11.22 | 11.37 | 12.08 | 9.69 | 1.33 | 4.71 | 16.57 | 0.00 | 7.07 | 7.14 | 3.73 |
| 95th-Percentile Queue Length [ft/ln] | 379.70 | 280.54 | 284.16 | 301.92 | 242.25 | 33.27 | 117.65 | 414.22 | 0.00 | 176.73 | 178.38 | 93.35 |

**Movement, Approach, & Intersection Results**

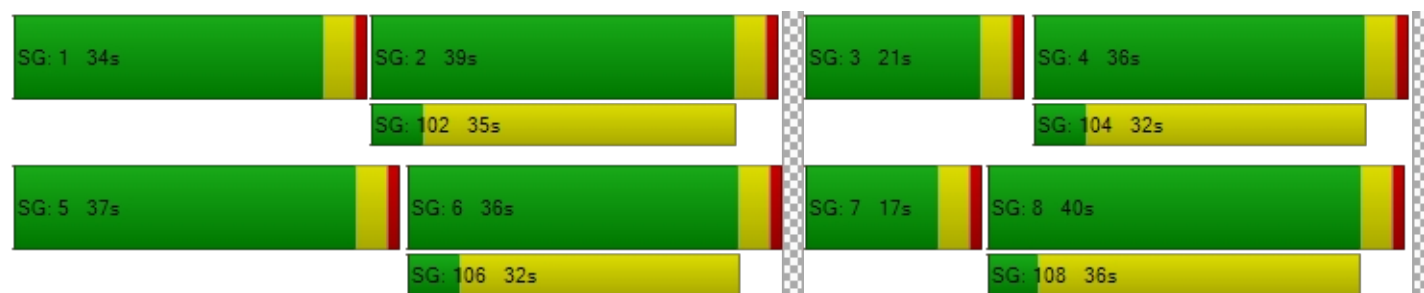
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 53.36 | 30.45 | 32.82 | 57.72 | 33.88 | 28.95 | 64.83 | 53.95 | 0.00 | 64.28 | 40.36 | 38.84 |
| Movement LOS | D | C | C | E | C | C | E | D | A | E | D | D |
| d_A, Approach Delay [s/veh] | 42.68 | | | 45.13 | | | 55.96 | | | 49.19 | | |
| Approach LOS | D | | | D | | | E | | | D | | |
| d_I, Intersection Delay [s/veh] | 46.83 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.622 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 56.32 | 56.32 | 56.32 | 56.32 |
| I_p,int, Pedestrian LOS Score for Intersection | 3.548 | 3.014 | 4.346 | 3.045 |
| Crosswalk LOS | D | C | E | C |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 492 | 538 | 554 | 492 |
| d_b, Bicycle Delay [s] | 36.95 | 34.72 | 34.00 | 36.95 |
| I_b,int, Bicycle LOS Score for Intersection | 3.231 | 2.364 | 2.989 | 2.120 |
| Bicycle LOS | C | B | C | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 48: 38th Parkway/Powhatan Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 26.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.650 |

Intersection Setup

| Name | Powhatan Road | | | Powhatan Road | | | 38th Parkway | | | | | |
|------------------------------|---------------|--------|--------|---------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 150.00 | 150.00 | 100.00 | 150.00 | 200.00 | 100.00 | 200.00 | 200.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Powhatan Road | | | Powhatan Road | | | 38th Parkway | | | | | |
|--|---------------|--------|--------|---------------|--------|--------|--------------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 73 | 1449 | 614 | 518 | 996 | 24 | 66 | 113 | 132 | 151 | 31 | 127 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 307 | 0 | 0 | 12 | 0 | 0 | 66 | 0 | 0 | 64 |
| Total Hourly Volume [veh/h] | 73 | 1449 | 307 | 518 | 996 | 12 | 66 | 113 | 66 | 151 | 31 | 63 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 394 | 83 | 141 | 271 | 3 | 18 | 31 | 18 | 41 | 8 | 17 |
| Total Analysis Volume [veh/h] | 79 | 1575 | 334 | 563 | 1083 | 13 | 72 | 123 | 72 | 164 | 34 | 68 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 110 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | ProtPer | Permis | Permis | Protect | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 10 | 30 | 0 | 25 | 45 | 0 | 10 | 43 | 0 | 12 | 45 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 21 | 0 | 0 | 14 | 0 | 0 | 27 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 80 | 55 | 55 | 21 | 71 | 71 | 22 | 10 | 10 | 8 | 13 | 13 |
| g / C, Green / Cycle | 0.73 | 0.50 | 0.50 | 0.19 | 0.65 | 0.65 | 0.20 | 0.10 | 0.10 | 0.07 | 0.12 | 0.12 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.34 | 0.23 | 0.18 | 0.24 | 0.01 | 0.05 | 0.07 | 0.05 | 0.05 | 0.02 | 0.05 |
| s, saturation flow rate [veh/h] | 558 | 4584 | 1431 | 3113 | 4584 | 1431 | 1312 | 1683 | 1431 | 3113 | 1683 | 1431 |
| c, Capacity [veh/h] | 444 | 2282 | 712 | 595 | 2964 | 925 | 341 | 161 | 137 | 219 | 194 | 165 |
| d1, Uniform Delay [s] | 5.33 | 21.15 | 18.11 | 43.98 | 9.01 | 6.94 | 36.71 | 48.59 | 47.43 | 50.22 | 43.95 | 45.21 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.19 | 1.74 | 2.21 | 8.56 | 0.35 | 0.03 | 0.30 | 7.39 | 3.13 | 5.07 | 0.42 | 1.63 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|--------|--------|--------|--------|------|-------|--------|-------|--------|-------|-------|
| X, volume / capacity | 0.18 | 0.69 | 0.47 | 0.95 | 0.37 | 0.01 | 0.21 | 0.77 | 0.53 | 0.75 | 0.17 | 0.41 |
| d, Delay for Lane Group [s/veh] | 5.52 | 22.89 | 20.33 | 52.54 | 9.35 | 6.97 | 37.01 | 55.98 | 50.56 | 55.29 | 44.38 | 46.85 |
| Lane Group LOS | A | C | C | D | A | A | D | E | D | E | D | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.48 | 10.32 | 5.86 | 8.22 | 3.82 | 0.11 | 1.65 | 3.62 | 2.00 | 2.37 | 0.86 | 1.80 |
| 50th-Percentile Queue Length [ft/ln] | 12.00 | 258.00 | 146.52 | 205.38 | 95.59 | 2.76 | 41.29 | 90.44 | 49.93 | 59.14 | 21.54 | 45.01 |
| 95th-Percentile Queue Length [veh/ln] | 0.86 | 15.59 | 9.83 | 12.92 | 6.88 | 0.20 | 2.97 | 6.51 | 3.60 | 4.26 | 1.55 | 3.24 |
| 95th-Percentile Queue Length [ft/ln] | 21.61 | 389.72 | 245.77 | 322.89 | 172.06 | 4.98 | 74.33 | 162.79 | 89.88 | 106.44 | 38.76 | 81.01 |

**Movement, Approach, & Intersection Results**

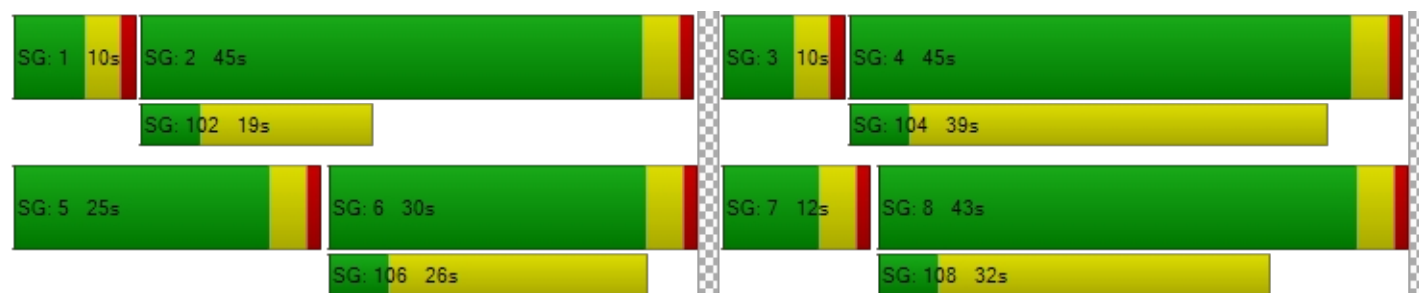
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 5.52 | 22.89 | 20.33 | 52.54 | 9.35 | 6.97 | 37.01 | 55.98 | 50.56 | 55.29 | 44.38 | 46.85 |
| Movement LOS | A | C | C | D | A | A | D | E | D | E | D | D |
| d_A, Approach Delay [s/veh] | 21.77 | | | 23.99 | | | 49.40 | | | 51.74 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 26.32 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.650 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 46.39 | | | 46.39 | | | 46.39 | | | 46.39 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 3.622 | | | 3.345 | | | 2.426 | | | 2.824 | | |
| Crosswalk LOS | D | | | C | | | B | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 473 | | | 745 | | | 709 | | | 745 | | |
| d_b, Bicycle Delay [s] | 32.10 | | | 21.66 | | | 22.94 | | | 21.66 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.822 | | | 2.479 | | | 2.109 | | | 2.104 | | |
| Bicycle LOS | C | | | B | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 1: 48th Avenue/Main Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 43.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.539 |

Intersection Setup

| Name | Main Street | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|-------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | |
| Lane Configuration | T L T | | | T L T | | | T L T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 325.00 | 100.00 | 400.00 | 250.00 | 100.00 | 250.00 | 300.00 | 100.00 | 400.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Main Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|--|-------------|--------|--------|--------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 350 | 32 | 400 | 409 | 26 | 155 | 465 | 1793 | 440 | 230 | 1519 | 366 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 132 | 0 | 0 | 102 | 0 | 0 | 145 | 0 | 0 | 121 |
| Total Hourly Volume [veh/h] | 231 | 21 | 132 | 270 | 17 | 0 | 307 | 1183 | 145 | 152 | 1003 | 121 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 63 | 6 | 36 | 73 | 5 | 0 | 83 | 321 | 39 | 41 | 273 | 33 |
| Total Analysis Volume [veh/h] | 251 | 23 | 143 | 293 | 18 | 0 | 334 | 1286 | 158 | 165 | 1090 | 132 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 110 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 16 | 43 | 0 | 16 | 43 | 0 | 19 | 39 | 0 | 12 | 32 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 34 | 0 | 0 | 34 | 0 | 0 | 21 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 40 | 40 | 12 | 41 | 41 | 14 | 34 | 34 | 8 | 28 | 28 |
| g / C, Green / Cycle | 0.10 | 0.36 | 0.36 | 0.11 | 0.37 | 0.37 | 0.13 | 0.31 | 0.31 | 0.07 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.01 | 0.10 | 0.09 | 0.01 | 0.00 | 0.11 | 0.28 | 0.11 | 0.05 | 0.24 | 0.09 |
| s, saturation flow rate [veh/h] | 3113 | 1683 | 1431 | 3113 | 1683 | 1431 | 3113 | 4584 | 1431 | 3113 | 4584 | 1431 |
| c, Capacity [veh/h] | 307 | 611 | 520 | 340 | 630 | 535 | 390 | 1429 | 446 | 219 | 1177 | 367 |
| d1, Uniform Delay [s] | 48.64 | 22.62 | 24.79 | 48.18 | 21.79 | 0.00 | 47.17 | 36.23 | 29.31 | 50.22 | 39.87 | 33.48 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.38 | 0.12 | 1.31 | 6.41 | 0.08 | 0.00 | 5.52 | 2.33 | 0.48 | 5.21 | 3.71 | 0.59 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|-------|--------|--------|-------|------|--------|--------|--------|--------|--------|--------|
| X, volume / capacity | 0.82 | 0.04 | 0.28 | 0.86 | 0.03 | 0.00 | 0.86 | 0.90 | 0.35 | 0.75 | 0.93 | 0.36 |
| d, Delay for Lane Group [s/veh] | 54.02 | 22.73 | 26.10 | 54.59 | 21.87 | 0.00 | 52.69 | 38.56 | 29.78 | 55.43 | 43.58 | 34.07 |
| Lane Group LOS | D | C | C | D | C | A | D | D | C | E | D | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.60 | 0.41 | 2.82 | 4.24 | 0.31 | 0.00 | 4.76 | 11.11 | 3.28 | 2.38 | 9.85 | 2.94 |
| 50th-Percentile Queue Length [ft/ln] | 89.93 | 10.16 | 70.62 | 105.98 | 7.76 | 0.00 | 119.05 | 277.76 | 81.99 | 59.57 | 246.17 | 73.53 |
| 95th-Percentile Queue Length [veh/ln] | 6.47 | 0.73 | 5.08 | 7.62 | 0.56 | 0.00 | 8.34 | 16.58 | 5.90 | 4.29 | 14.99 | 5.29 |
| 95th-Percentile Queue Length [ft/ln] | 161.87 | 18.29 | 127.11 | 190.40 | 13.97 | 0.00 | 208.52 | 414.42 | 147.58 | 107.23 | 374.83 | 132.35 |

**Movement, Approach, & Intersection Results**

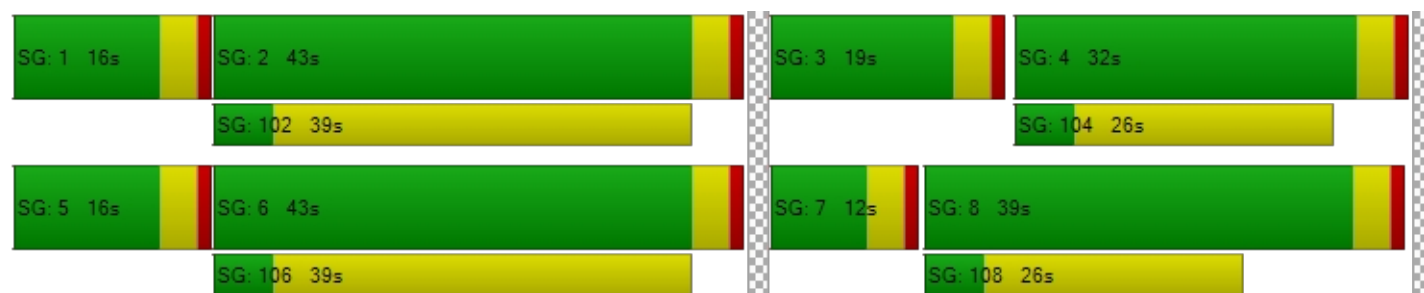
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 54.02 | 22.73 | 26.10 | 54.59 | 21.87 | 0.00 | 52.69 | 38.56 | 29.78 | 55.43 | 43.58 | 34.07 |
| Movement LOS | D | C | C | D | C | A | D | D | C | E | D | C |
| d_A, Approach Delay [s/veh] | 42.72 | | | 52.70 | | | 40.44 | | | 44.09 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 42.96 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.539 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 46.38 | | | 46.38 | | | 46.38 | | | 46.38 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 2.820 | | | 2.775 | | | 3.512 | | | 3.397 | | |
| Crosswalk LOS | C | | | C | | | D | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 709 | | | 709 | | | 636 | | | 509 | | |
| d_b, Bicycle Delay [s] | 22.92 | | | 22.92 | | | 25.58 | | | 30.58 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.465 | | | 2.241 | | | 2.617 | | | 2.389 | | |
| Bicycle LOS | B | | | B | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 5: 48th Avenue/Denali Boulevard

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 32.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.520 |

Intersection Setup

| Name | Denali Boulevard | | | Denali Boulevard | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 3 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 350.00 | 100.00 | 250.00 | 350.00 | 100.00 | 300.00 | 250.00 | 100.00 | 450.00 | 400.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 300.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Denali Boulevard | | | Denali Boulevard | | | 48th Avenue | | | 48th Avenue | | |
|--|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 658 | 284 | 462 | 223 | 279 | 257 | 220 | 1532 | 846 | 500 | 1195 | 149 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 305 | 0 | 0 | 85 | 0 | 0 | 279 | 0 | 0 | 49 |
| Total Hourly Volume [veh/h] | 434 | 187 | 0 | 147 | 184 | 85 | 145 | 1011 | 279 | 330 | 789 | 49 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 118 | 51 | 0 | 40 | 50 | 23 | 39 | 275 | 76 | 90 | 214 | 13 |
| Total Analysis Volume [veh/h] | 472 | 203 | 0 | 160 | 200 | 92 | 158 | 1099 | 303 | 359 | 858 | 53 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 17 | 52 | 0 | 13 | 48 | 0 | 20 | 36 | 0 | 19 | 35 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 37 | 0 | 0 | 34 | 0 | 0 | 27 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 15 | 15 | 28 | 11 | 11 | 8 | 65 | 65 | 15 | 72 | 72 |
| g / C, Green / Cycle | 0.11 | 0.12 | 0.12 | 0.23 | 0.09 | 0.09 | 0.07 | 0.54 | 0.54 | 0.13 | 0.60 | 0.60 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.06 | 0.00 | 0.13 | 0.06 | 0.06 | 0.05 | 0.24 | 0.21 | 0.12 | 0.19 | 0.04 |
| s, saturation flow rate [veh/h] | 4669 | 3204 | 1431 | 1278 | 3204 | 1431 | 3113 | 4584 | 1431 | 3113 | 4584 | 1431 |
| c, Capacity [veh/h] | 508 | 389 | 174 | 320 | 283 | 126 | 214 | 2495 | 778 | 390 | 2755 | 860 |
| d1, Uniform Delay [s] | 53.04 | 49.46 | 0.00 | 39.72 | 53.22 | 53.32 | 54.85 | 16.41 | 15.83 | 51.90 | 11.76 | 9.93 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.00 | 1.08 | 0.00 | 1.20 | 3.23 | 7.75 | 4.94 | 0.57 | 1.47 | 9.10 | 0.30 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|--------|------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| X, volume / capacity | 0.93 | 0.52 | 0.00 | 0.50 | 0.71 | 0.73 | 0.74 | 0.44 | 0.39 | 0.92 | 0.31 | 0.06 |
| d, Delay for Lane Group [s/veh] | 61.04 | 50.54 | 0.00 | 40.93 | 56.45 | 61.08 | 59.80 | 16.97 | 17.29 | 61.00 | 12.06 | 10.07 |
| Lane Group LOS | E | D | A | D | E | E | E | B | B | E | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.07 | 2.92 | 0.00 | 4.16 | 3.06 | 2.98 | 2.49 | 6.05 | 5.04 | 5.83 | 3.73 | 0.61 |
| 50th-Percentile Queue Length [ft/ln] | 126.84 | 73.02 | 0.00 | 103.95 | 76.56 | 74.45 | 62.30 | 151.34 | 126.05 | 145.66 | 93.33 | 15.13 |
| 95th-Percentile Queue Length [veh/ln] | 8.77 | 5.26 | 0.00 | 7.48 | 5.51 | 5.36 | 4.49 | 10.09 | 8.72 | 9.78 | 6.72 | 1.09 |
| 95th-Percentile Queue Length [ft/ln] | 219.19 | 131.43 | 0.00 | 187.11 | 137.81 | 134.01 | 112.13 | 252.21 | 218.12 | 244.62 | 168.00 | 27.23 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 61.04 | 50.54 | 0.00 | 40.93 | 56.45 | 61.08 | 59.80 | 16.97 | 17.29 | 61.00 | 12.06 | 10.07 |
| Movement LOS | E | D | A | D | E | E | E | B | B | E | B | B |
| d_A, Approach Delay [s/veh] | 57.88 | | | 51.89 | | | 21.37 | | | 25.81 | | |
| Approach LOS | E | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 32.51 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.520 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 51.35 | | | 51.35 | | | 51.35 | | | 51.35 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 3.433 | | | 2.752 | | | 3.624 | | | 3.364 | | |
| Crosswalk LOS | C | | | C | | | D | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 800 | | | 733 | | | 533 | | | 517 | | |
| d_b, Bicycle Delay [s] | 21.61 | | | 24.08 | | | 32.28 | | | 33.02 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.368 | | | 2.003 | | | 2.571 | | | 2.285 | | |
| Bicycle LOS | B | | | B | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 12: 48th Avenue/Fultondale Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 13.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.416 |

Intersection Setup

| Name | Fultondale Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|-------------------|--------|--------|------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 40.00 | 100.00 | 100.00 | 175.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fultondale Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|--|-------------------|--------|--------|--------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 180 | 32 | 130 | 10 | 26 | 26 | 32 | 1825 | 360 | 310 | 1638 | 55 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 43 | 0 | 0 | 9 | 0 | 0 | 119 | 0 | 0 | 18 |
| Total Hourly Volume [veh/h] | 119 | 21 | 43 | 7 | 17 | 8 | 21 | 1205 | 119 | 205 | 1081 | 18 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 32 | 6 | 12 | 2 | 5 | 2 | 6 | 327 | 32 | 56 | 294 | 5 |
| Total Analysis Volume [veh/h] | 129 | 23 | 47 | 8 | 18 | 9 | 23 | 1310 | 129 | 223 | 1175 | 20 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | ProtPer | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 9 | 39 | 0 | 9 | 39 | 0 | 9 | 30 | 0 | 12 | 33 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 21 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|-------|-------|------|------|------|-------|------|------|
| C, Cycle Length [s] | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 9 | 9 | 14 | 5 | 68 | 56 | 56 | 8 | 62 | 62 |
| g / C, Green / Cycle | 0.06 | 0.10 | 0.10 | 0.16 | 0.06 | 0.76 | 0.62 | 0.62 | 0.09 | 0.69 | 0.69 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.01 | 0.03 | 0.01 | 0.02 | 0.05 | 0.29 | 0.09 | 0.07 | 0.25 | 0.25 |
| s, saturation flow rate [veh/h] | 3113 | 1683 | 1431 | 1284 | 1589 | 496 | 4584 | 1431 | 3113 | 3204 | 1669 |
| c, Capacity [veh/h] | 176 | 170 | 145 | 306 | 89 | 441 | 2844 | 887 | 279 | 2193 | 1142 |
| d1, Uniform Delay [s] | 41.87 | 36.94 | 37.67 | 32.21 | 40.87 | 3.41 | 9.10 | 7.14 | 40.25 | 5.95 | 5.95 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.79 | 0.36 | 1.29 | 0.03 | 1.89 | 0.22 | 0.54 | 0.34 | 5.24 | 0.46 | 0.88 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|------|--------|-------|--------|--------|--------|
| X, volume / capacity | 0.73 | 0.14 | 0.32 | 0.03 | 0.30 | 0.05 | 0.46 | 0.15 | 0.80 | 0.36 | 0.36 |
| d, Delay for Lane Group [s/veh] | 47.66 | 37.29 | 38.96 | 32.25 | 42.76 | 3.64 | 9.64 | 7.49 | 45.49 | 6.41 | 6.83 |
| Lane Group LOS | D | D | D | C | D | A | A | A | D | A | A |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.54 | 0.47 | 1.01 | 0.15 | 0.62 | 0.10 | 4.17 | 1.02 | 2.59 | 2.73 | 2.97 |
| 50th-Percentile Queue Length [ft/ln] | 38.43 | 11.86 | 25.13 | 3.74 | 15.42 | 2.58 | 104.14 | 25.45 | 64.85 | 68.21 | 74.36 |
| 95th-Percentile Queue Length [veh/ln] | 2.77 | 0.85 | 1.81 | 0.27 | 1.11 | 0.19 | 7.50 | 1.83 | 4.67 | 4.91 | 5.35 |
| 95th-Percentile Queue Length [ft/ln] | 69.17 | 21.35 | 45.24 | 6.73 | 27.76 | 4.64 | 187.45 | 45.82 | 116.72 | 122.77 | 133.86 |

**Movement, Approach, & Intersection Results**

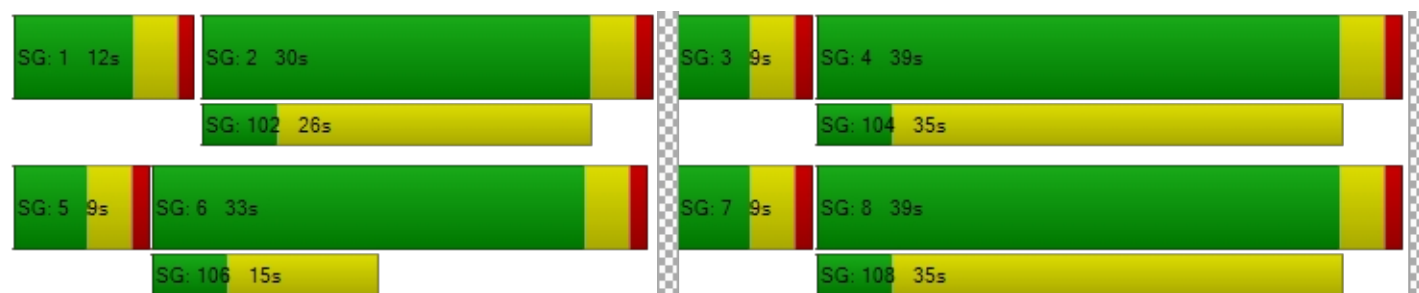
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|------|------|------|-------|------|------|
| d_M, Delay for Movement [s/veh] | 47.66 | 37.29 | 38.96 | 32.25 | 42.76 | 42.76 | 3.64 | 9.64 | 7.49 | 45.49 | 6.55 | 6.83 |
| Movement LOS | D | D | D | C | D | D | A | A | A | D | A | A |
| d_A, Approach Delay [s/veh] | 44.41 | | | 40.36 | | | 9.35 | | | 12.68 | | |
| Approach LOS | D | | | D | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 13.46 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.416 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 36.49 | | | 36.49 | | | 36.49 | | | 36.49 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 2.634 | | | 2.019 | | | 3.250 | | | 3.101 | | |
| Crosswalk LOS | B | | | B | | | C | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 777 | | | 777 | | | 577 | | | 644 | | |
| d_b, Bicycle Delay [s] | 16.84 | | | 16.84 | | | 22.80 | | | 20.71 | | |
| I_b,int, Bicycle LOS Score for Intersection | 1.959 | | | 1.632 | | | 2.429 | | | 2.349 | | |
| Bicycle LOS | A | | | A | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 46: 48th Avenue/Harvest Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 25.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.535 |

Intersection Setup

| Name | Harvest Road | | 48th Avenue | | 48th Avenue | |
|------------------------------|--------------|--------|-------------|--------|-------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 1 | 3 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 450.00 | 200.00 | 400.00 | 100.00 | 100.00 | 500.00 |
| No. of Lanes in Exit Pocket | 0 | 1 | 0 | 1 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 300.00 | 0.00 | 400.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Harvest Road | | 48th Avenue | | 48th Avenue | |
|--|--------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 1379 | 700 | 800 | 1166 | 1282 | 1348 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 462 | 0 | 0 | 0 | 890 |
| Total Hourly Volume [veh/h] | 910 | 0 | 528 | 770 | 846 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 247 | 0 | 143 | 209 | 230 | 0 |
| Total Analysis Volume [veh/h] | 989 | 0 | 574 | 837 | 920 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|-----------|------------|------------|------------|
| Signal Group | 7 | 0 | 5 | 2 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | Lead | - | Lead | - | - | - |
| Minimum Green [s] | 5 | 0 | 5 | 10 | 10 | 0 |
| Maximum Green [s] | 30 | 0 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 46 | 0 | 18 | 54 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 5 | 0 | 0 | 5 | 5 | 0 |
| Pedestrian Clearance [s] | 37 | 0 | 0 | 10 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | No | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | R |
|---|-------|-------|------|-------|------|-------|------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 25 | 25 | 14 | 67 | 49 | 49 |
| g / C, Green / Cycle | 0.25 | 0.25 | 0.25 | 0.14 | 0.67 | 0.49 | 0.49 |
| (v / s)_i Volume / Saturation Flow Rate | 0.21 | 0.21 | 0.00 | 0.12 | 0.18 | 0.20 | 0.00 |
| s, saturation flow rate [veh/h] | 3113 | 1603 | 1431 | 4669 | 4584 | 4584 | 1431 |
| c, Capacity [veh/h] | 778 | 401 | 358 | 656 | 3071 | 2244 | 700 |
| d1, Uniform Delay [s] | 35.68 | 35.41 | 0.00 | 42.12 | 6.66 | 16.30 | 0.00 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.67 | 4.27 | 0.00 | 3.89 | 0.22 | 0.56 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | |
|---------------------------------------|--------|--------|------|--------|-------|--------|------|
| X, volume / capacity | 0.85 | 0.82 | 0.00 | 0.88 | 0.27 | 0.41 | 0.00 |
| d, Delay for Lane Group [s/veh] | 38.35 | 39.68 | 0.00 | 46.01 | 6.88 | 16.86 | 0.00 |
| Lane Group LOS | D | D | A | D | A | B | A |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 7.80 | 7.92 | 0.00 | 4.82 | 2.21 | 4.45 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 194.89 | 198.12 | 0.00 | 120.43 | 55.17 | 111.18 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 12.37 | 12.54 | 0.00 | 8.42 | 3.97 | 7.91 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 309.37 | 313.54 | 0.00 | 210.42 | 99.31 | 197.64 | 0.00 |

**Movement, Approach, & Intersection Results**

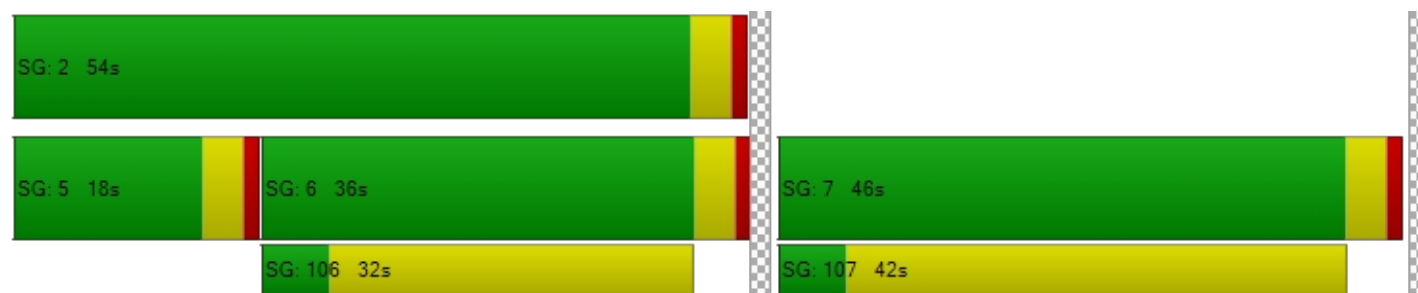
| | | | | | | |
|---------------------------------|-------|-------|-------|------|-------|------|
| d_M, Delay for Movement [s/veh] | 38.79 | 19.84 | 46.01 | 6.88 | 16.86 | 0.00 |
| Movement LOS | D | B | D | A | B | A |
| d_A, Approach Delay [s/veh] | 38.79 | | 22.80 | | 16.86 | |
| Approach LOS | D | | C | | B | |
| d_I, Intersection Delay [s/veh] | 25.92 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.535 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 41.41 | 41.41 | 41.41 |
| I_p,int, Pedestrian LOS Score for Intersection | 3.745 | 3.245 | 4.373 |
| Crosswalk LOS | D | C | E |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 840 | 1000 | 640 |
| d_b, Bicycle Delay [s] | 16.82 | 12.50 | 23.12 |
| I_b,int, Bicycle LOS Score for Intersection | 3.954 | 2.336 | 2.555 |
| Bicycle LOS | D | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 47: 48th Avenue/Powhatan Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 46.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.634 |

Intersection Setup

| Name | Powhatan Road | | | Powhatan Road | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|---------------|--------|--------|---------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 3 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 200.00 | 100.00 | 200.00 | 200.00 | 100.00 | 100.00 | 200.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Powhatan Road | | | Powhatan Road | | | 48th Avenue | | | 48th Avenue | | |
|--|---------------|--------|--------|---------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 941 | 455 | 286 | 155 | 530 | 130 | 90 | 300 | 936 | 240 | 600 | 430 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 143 | 0 | 0 | 65 | 0 | 0 | 936 | 0 | 0 | 215 |
| Total Hourly Volume [veh/h] | 941 | 455 | 143 | 155 | 530 | 65 | 90 | 300 | 0 | 240 | 600 | 215 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 256 | 124 | 39 | 42 | 144 | 18 | 24 | 82 | 0 | 65 | 163 | 58 |
| Total Analysis Volume [veh/h] | 1023 | 495 | 155 | 168 | 576 | 71 | 98 | 326 | 0 | 261 | 652 | 234 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 33 | 36 | 0 | 36 | 39 | 0 | 22 | 40 | 0 | 18 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 27 | 0 | 0 | 30 | 0 | 0 | 31 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 29 | 69 | 69 | 9 | 49 | 49 | 6 | 23 | 23 | 13 | 30 | 30 |
| g / C, Green / Cycle | 0.22 | 0.53 | 0.53 | 0.07 | 0.38 | 0.38 | 0.05 | 0.18 | 0.18 | 0.10 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.22 | 0.15 | 0.11 | 0.05 | 0.18 | 0.05 | 0.03 | 0.10 | 0.00 | 0.08 | 0.20 | 0.16 |
| s, saturation flow rate [veh/h] | 4669 | 3204 | 1431 | 3113 | 3204 | 1431 | 3113 | 3204 | 1431 | 3113 | 3204 | 1431 |
| c, Capacity [veh/h] | 1042 | 1696 | 757 | 224 | 1212 | 541 | 146 | 566 | 253 | 308 | 733 | 327 |
| d1, Uniform Delay [s] | 50.25 | 17.03 | 16.15 | 59.19 | 30.65 | 26.45 | 60.99 | 49.06 | 0.00 | 57.61 | 48.53 | 46.22 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 9.46 | 0.44 | 0.61 | 5.01 | 1.34 | 0.50 | 5.30 | 0.93 | 0.00 | 6.39 | 3.93 | 2.91 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|--------|--------|--------|--------|-------|-------|--------|------|--------|--------|--------|
| X, volume / capacity | 0.98 | 0.29 | 0.20 | 0.75 | 0.48 | 0.13 | 0.67 | 0.58 | 0.00 | 0.85 | 0.89 | 0.71 |
| d, Delay for Lane Group [s/veh] | 59.71 | 17.47 | 16.76 | 64.20 | 31.98 | 26.95 | 66.29 | 49.99 | 0.00 | 64.00 | 52.46 | 49.12 |
| Lane Group LOS | E | B | B | E | C | C | E | D | A | E | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 11.90 | 4.23 | 2.58 | 2.88 | 7.09 | 1.54 | 1.70 | 4.95 | 0.00 | 4.50 | 10.62 | 7.25 |
| 50th-Percentile Queue Length [ft/ln] | 297.62 | 105.72 | 64.47 | 71.91 | 177.35 | 38.42 | 42.59 | 123.64 | 0.00 | 112.46 | 265.43 | 181.20 |
| 95th-Percentile Queue Length [veh/ln] | 17.56 | 7.60 | 4.64 | 5.18 | 11.46 | 2.77 | 3.07 | 8.59 | 0.00 | 7.98 | 15.96 | 11.66 |
| 95th-Percentile Queue Length [ft/ln] | 439.08 | 190.03 | 116.04 | 129.44 | 286.55 | 69.16 | 76.66 | 214.82 | 0.00 | 199.43 | 399.03 | 291.58 |

**Movement, Approach, & Intersection Results**

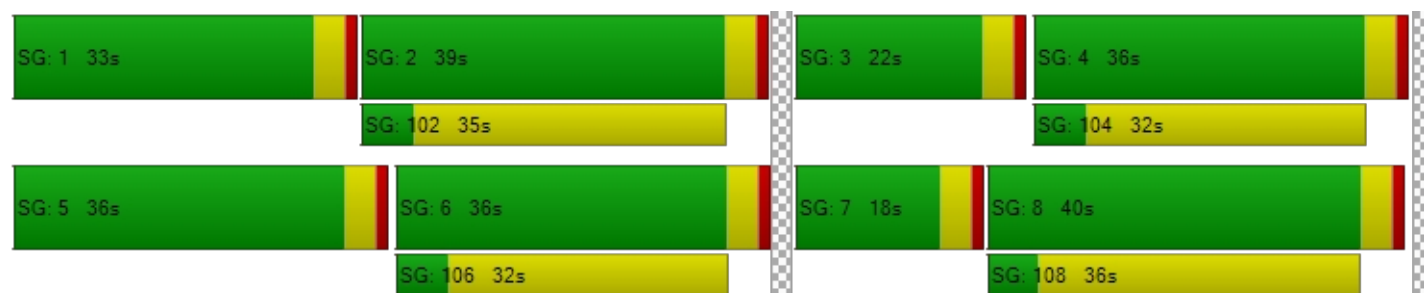
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 59.71 | 17.47 | 16.76 | 64.20 | 31.98 | 26.95 | 66.29 | 49.99 | 0.00 | 64.00 | 52.46 | 49.12 |
| Movement LOS | E | B | B | E | C | C | E | D | A | E | D | D |
| d_A, Approach Delay [s/veh] | 43.23 | | | 38.19 | | | 53.75 | | | 54.41 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 46.48 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.634 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 56.32 | | | 56.32 | | | 56.32 | | | 56.32 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 3.386 | | | 3.071 | | | 4.389 | | | 3.219 | | |
| Crosswalk LOS | C | | | C | | | E | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 492 | | | 538 | | | 554 | | | 492 | | |
| d_b, Bicycle Delay [s] | 36.94 | | | 34.72 | | | 33.99 | | | 36.94 | | |
| I_b,int, Bicycle LOS Score for Intersection | 3.058 | | | 2.286 | | | 2.682 | | | 2.683 | | |
| Bicycle LOS | C | | | B | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 48: 38th Parkway/Powhatan Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 29.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.671 |

Intersection Setup

| Name | Powhatan Road | | | Powhatan Road | | | 38th Parkway | | | | | |
|------------------------------|---------------|--------|--------|---------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 150.00 | 150.00 | 100.00 | 150.00 | 200.00 | 100.00 | 200.00 | 200.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Powhatan Road | | | Powhatan Road | | | 38th Parkway | | | | | |
|--|---------------|--------|--------|---------------|--------|--------|--------------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 152 | 1180 | 168 | 138 | 1529 | 65 | 24 | 78 | 83 | 597 | 111 | 492 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 84 | 0 | 0 | 33 | 0 | 0 | 42 | 0 | 0 | 246 |
| Total Hourly Volume [veh/h] | 152 | 1180 | 84 | 138 | 1529 | 32 | 24 | 78 | 41 | 597 | 111 | 246 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 321 | 23 | 38 | 415 | 9 | 7 | 21 | 11 | 162 | 30 | 67 |
| Total Analysis Volume [veh/h] | 165 | 1283 | 91 | 150 | 1662 | 35 | 26 | 85 | 45 | 649 | 121 | 267 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 110 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | ProtPer | Permis | Permis | Protect | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 9 | 30 | 0 | 16 | 37 | 0 | 9 | 36 | 0 | 28 | 55 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 21 | 0 | 0 | 14 | 0 | 0 | 27 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 64 | 53 | 53 | 7 | 55 | 55 | 38 | 10 | 10 | 24 | 31 | 31 |
| g / C, Green / Cycle | 0.58 | 0.48 | 0.48 | 0.07 | 0.50 | 0.50 | 0.34 | 0.09 | 0.09 | 0.22 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.40 | 0.28 | 0.06 | 0.05 | 0.36 | 0.02 | 0.03 | 0.05 | 0.03 | 0.21 | 0.07 | 0.19 |
| s, saturation flow rate [veh/h] | 409 | 4584 | 1431 | 3113 | 4584 | 1431 | 986 | 1683 | 1431 | 3113 | 1683 | 1431 |
| c, Capacity [veh/h] | 256 | 2199 | 686 | 208 | 2294 | 716 | 384 | 151 | 129 | 679 | 475 | 404 |
| d1, Uniform Delay [s] | 21.09 | 20.69 | 15.91 | 50.36 | 21.56 | 14.09 | 24.23 | 48.03 | 47.08 | 42.51 | 30.57 | 34.88 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 11.82 | 1.14 | 0.40 | 4.64 | 2.03 | 0.13 | 0.07 | 3.25 | 1.62 | 8.61 | 0.28 | 1.86 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|--------|-------|-------|--------|-------|-------|--------|-------|--------|--------|--------|
| X, volume / capacity | 0.64 | 0.58 | 0.13 | 0.72 | 0.72 | 0.05 | 0.07 | 0.56 | 0.35 | 0.96 | 0.25 | 0.66 |
| d, Delay for Lane Group [s/veh] | 32.91 | 21.83 | 16.31 | 55.00 | 23.59 | 14.22 | 24.30 | 51.27 | 48.70 | 51.12 | 30.85 | 36.74 |
| Lane Group LOS | C | C | B | D | C | B | C | D | D | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.65 | 7.95 | 1.34 | 2.16 | 11.18 | 0.47 | 0.46 | 2.37 | 1.22 | 9.43 | 2.52 | 6.46 |
| 50th-Percentile Queue Length [ft/ln] | 66.36 | 198.81 | 33.49 | 53.89 | 279.54 | 11.74 | 11.54 | 59.24 | 30.42 | 235.70 | 63.03 | 161.61 |
| 95th-Percentile Queue Length [veh/ln] | 4.78 | 12.58 | 2.41 | 3.88 | 16.67 | 0.85 | 0.83 | 4.27 | 2.19 | 14.46 | 4.54 | 10.63 |
| 95th-Percentile Queue Length [ft/ln] | 119.45 | 314.43 | 60.29 | 97.00 | 416.64 | 21.13 | 20.77 | 106.64 | 54.76 | 361.59 | 113.46 | 265.85 |

**Movement, Approach, & Intersection Results**

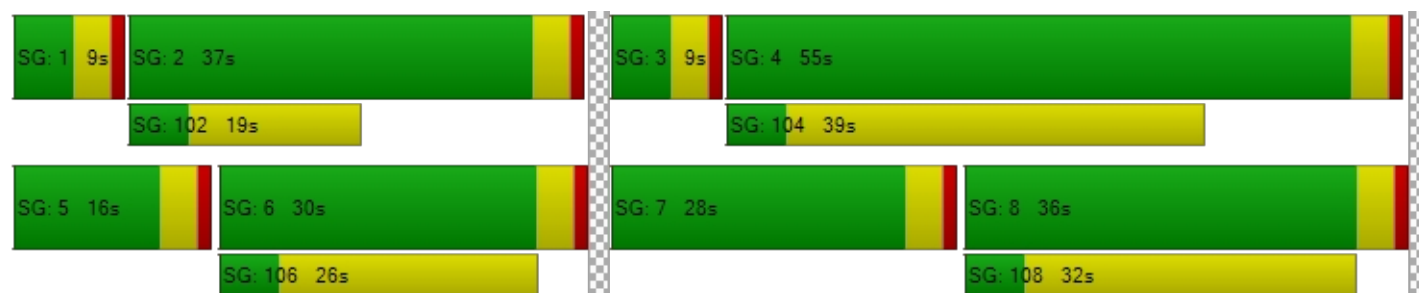
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 32.91 | 21.83 | 16.31 | 55.00 | 23.59 | 14.22 | 24.30 | 51.27 | 48.70 | 51.12 | 30.85 | 36.74 |
| Movement LOS | C | C | B | D | C | B | C | D | D | D | C | D |
| d_A, Approach Delay [s/veh] | 22.69 | | | 25.97 | | | 46.04 | | | 45.05 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 29.87 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.671 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 46.39 | 46.39 | 46.39 | 46.39 |
| I_p,int, Pedestrian LOS Score for Intersection | 3.346 | 3.397 | 2.458 | 3.089 |
| Crosswalk LOS | C | C | B | C |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 473 | 600 | 582 | 927 |
| d_b, Bicycle Delay [s] | 32.10 | 26.97 | 27.68 | 15.84 |
| I_b,int, Bicycle LOS Score for Intersection | 2.452 | 2.594 | 1.886 | 3.677 |
| Bicycle LOS | B | B | A | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Appendix D – Horizon With Project Analyses



Intersection Level Of Service Report

Intersection 1: 48th Avenue/Main Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 42.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.464 |

Intersection Setup

| Name | Main Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|-------------|--------|--------|------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | T T T | | | T T T | | | T T T T | | | T T T T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 325.00 | 100.00 | 400.00 | 250.00 | 100.00 | 250.00 | 300.00 | 100.00 | 400.00 | 150.00 | 100.00 | 400.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Main Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|--|-------------|--------|--------|--------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 390 | 21 | 250 | 260 | 29 | 79 | 188 | 1452 | 400 | 420 | 1744 | 139 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 11 | 0 | 4 | 0 | 0 | 0 | 0 | 39 | 2 | 0 | 103 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 85 | 0 | 0 | 52 | 0 | 0 | 133 | 0 | 0 | 46 |
| Total Hourly Volume [veh/h] | 268 | 14 | 84 | 172 | 19 | 0 | 124 | 997 | 133 | 277 | 1254 | 46 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 73 | 4 | 23 | 47 | 5 | 0 | 34 | 271 | 36 | 75 | 341 | 13 |
| Total Analysis Volume [veh/h] | 291 | 15 | 91 | 187 | 21 | 0 | 135 | 1084 | 145 | 301 | 1363 | 50 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 110 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 16 | 43 | 0 | 16 | 43 | 0 | 13 | 30 | 0 | 21 | 38 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 34 | 0 | 0 | 34 | 0 | 0 | 21 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 44 | 44 | 9 | 40 | 40 | 7 | 29 | 29 | 13 | 35 | 35 |
| g / C, Green / Cycle | 0.11 | 0.40 | 0.40 | 0.08 | 0.36 | 0.36 | 0.06 | 0.26 | 0.26 | 0.12 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.01 | 0.06 | 0.06 | 0.01 | 0.00 | 0.04 | 0.24 | 0.10 | 0.10 | 0.30 | 0.03 |
| s, saturation flow rate [veh/h] | 3113 | 1683 | 1431 | 3113 | 1683 | 1431 | 3113 | 4584 | 1431 | 3113 | 4584 | 1431 |
| c, Capacity [veh/h] | 340 | 666 | 566 | 245 | 615 | 522 | 189 | 1208 | 377 | 363 | 1464 | 457 |
| d1, Uniform Delay [s] | 48.15 | 20.26 | 21.44 | 49.70 | 22.45 | 0.00 | 50.74 | 39.09 | 33.21 | 47.55 | 36.29 | 26.42 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 6.15 | 0.06 | 0.61 | 4.92 | 0.10 | 0.00 | 4.92 | 2.66 | 0.64 | 4.91 | 3.26 | 0.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|-------|-------|--------|-------|------|-------|--------|--------|--------|--------|-------|
| X, volume / capacity | 0.85 | 0.02 | 0.16 | 0.76 | 0.03 | 0.00 | 0.71 | 0.90 | 0.38 | 0.83 | 0.93 | 0.11 |
| d, Delay for Lane Group [s/veh] | 54.30 | 20.32 | 22.05 | 54.61 | 22.56 | 0.00 | 55.66 | 41.74 | 33.85 | 52.46 | 39.54 | 26.53 |
| Lane Group LOS | D | C | C | D | C | A | E | D | C | D | D | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.20 | 0.25 | 1.61 | 2.68 | 0.37 | 0.00 | 1.95 | 9.57 | 3.23 | 4.27 | 12.01 | 0.94 |
| 50th-Percentile Queue Length [ft/ln] | 104.94 | 6.19 | 40.27 | 67.05 | 9.23 | 0.00 | 48.79 | 239.34 | 80.76 | 106.66 | 300.34 | 23.51 |
| 95th-Percentile Queue Length [veh/ln] | 7.56 | 0.45 | 2.90 | 4.83 | 0.66 | 0.00 | 3.51 | 14.65 | 5.81 | 7.65 | 17.70 | 1.69 |
| 95th-Percentile Queue Length [ft/ln] | 188.89 | 11.14 | 72.48 | 120.69 | 16.61 | 0.00 | 87.83 | 366.20 | 145.36 | 191.35 | 442.45 | 42.33 |

**Movement, Approach, & Intersection Results**

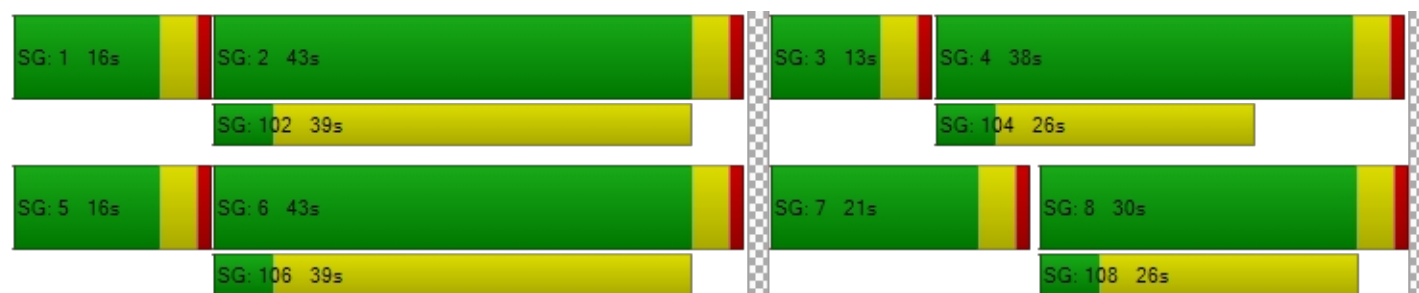
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 54.30 | 20.32 | 22.05 | 54.61 | 22.56 | 0.00 | 55.66 | 41.74 | 33.85 | 52.46 | 39.54 | 26.53 |
| Movement LOS | D | C | C | D | C | A | E | D | C | D | D | C |
| d_A, Approach Delay [s/veh] | 45.62 | | | 51.38 | | | 42.28 | | | 41.43 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 42.76 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.464 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 46.38 | | | 46.38 | | | 46.38 | | | 46.38 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 2.761 | | | 2.620 | | | 3.479 | | | 3.273 | | |
| Crosswalk LOS | C | | | B | | | C | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 709 | | | 709 | | | 473 | | | 618 | | |
| d_b, Bicycle Delay [s] | 22.92 | | | 22.92 | | | 32.08 | | | 26.27 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.355 | | | 1.989 | | | 2.383 | | | 2.528 | | |
| Bicycle LOS | B | | | A | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report****Intersection 2:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 0.0
 Level Of Service: A
 Volume to Capacity (v/c): 0.018

Intersection Setup

| Name | | | 48th Avenue | | 48th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 48th Avenue | | 48th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1962 | 0 | 0 | 2303 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 43 | 0 | 0 | 103 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 1338 | 0 | 0 | 1623 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 364 | 0 | 0 | 441 |
| Total Analysis Volume [veh/h] | 0 | 0 | 1454 | 0 | 0 | 1764 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.02 |
| d_M, Delay for Movement [s/veh] | 0.00 | 16.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | A | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 16.45 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.00 | | | | | |
| Intersection LOS | A | | | | | |



Intersection Level Of Service Report

Intersection 4: 46th Avenue/Main Street

Control Type: Roundabout
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 4.3
 Level Of Service: A

Intersection Setup

| Name | Main Street | | Main Street | | 46th Avenue | |
|------------------------------|-------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 1 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Main Street | | Main Street | | 46th Avenue | |
|---|-------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 661 | 0 | 0 | 849 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 4 | 3 | 2 | 0 | 12 | 11 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 440 | 3 | 2 | 560 | 12 | 11 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 120 | 1 | 1 | 152 | 3 | 3 |
| Total Analysis Volume [veh/h] | 478 | 3 | 2 | 609 | 13 | 12 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|-----|---|-----|-----|-----|----|
| Number of Conflicting Circulating Lanes | 1 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 2 | | 13 | | 488 | |
| Exiting Flow Rate [veh/h] | 634 | | 500 | | 5 | |
| Demand Flow Rate [veh/h] | 440 | 3 | 2 | 560 | 12 | 11 |
| Adjusted Demand Flow Rate [veh/h] | 478 | 3 | 2 | 609 | 13 | 12 |

Lanes

| | | | | | |
|--|---------|---------|---------|---------|---------|
| Override Calculated Critical Headway | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Override Calculated Follow-Up Time | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1380.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00091 | 0.00091 | 0.00102 |
| HV Adjustment Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Entry Flow Rate [veh/h] | 231 | 261 | 293 | 331 | 26 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1418 | 1418 | 1403 | 1403 | 840 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1390 | 1390 | 1376 | 1376 | 823 |
| X, volume / capacity | 0.16 | 0.18 | 0.21 | 0.24 | 0.03 |

Movement, Approach, & Intersection Results

| | | | | | |
|------------------------------------|-------|-------|-------|-------|------|
| Lane LOS | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.58 | 0.67 | 0.79 | 0.92 | 0.09 |
| 95th-Percentile Queue Length [ft] | 14.51 | 16.77 | 19.68 | 22.93 | 2.35 |
| Approach Delay [s/veh] | 4.00 | | 4.48 | | 4.66 |
| Approach LOS | A | | A | | A |
| Intersection Delay [s/veh] | 4.28 | | | | |
| Intersection LOS | A | | | | |



Intersection Level Of Service Report
Intersection 5: 48th Avenue/Denali Boulevard

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 28.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.438 |

Intersection Setup

| Name | Denali Boulevard | | | Denali Boulevard | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 3 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 350.00 | 100.00 | 250.00 | 350.00 | 100.00 | 300.00 | 250.00 | 100.00 | 450.00 | 400.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 300.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Denali Boulevard | | | Denali Boulevard | | | 48th Avenue | | | 48th Avenue | | |
|--|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 646 | 243 | 461 | 123 | 217 | 195 | 157 | 1190 | 616 | 340 | 1463 | 128 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 34 | 8 | 16 | 6 | 2 | 0 | 0 | 35 | 19 | 9 | 68 | 14 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 320 | 0 | 0 | 65 | 0 | 0 | 213 | 0 | 0 | 49 |
| Total Hourly Volume [veh/h] | 460 | 168 | 0 | 87 | 145 | 64 | 104 | 820 | 213 | 233 | 1034 | 49 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 125 | 46 | 0 | 24 | 39 | 17 | 28 | 223 | 58 | 63 | 281 | 13 |
| Total Analysis Volume [veh/h] | 500 | 183 | 0 | 95 | 158 | 70 | 113 | 891 | 232 | 253 | 1124 | 53 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 110 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 16 | 50 | 0 | 9 | 43 | 0 | 21 | 36 | 0 | 15 | 30 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 37 | 0 | 0 | 34 | 0 | 0 | 27 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 17 | 17 | 26 | 10 | 10 | 6 | 61 | 61 | 11 | 66 | 66 |
| g / C, Green / Cycle | 0.11 | 0.15 | 0.15 | 0.24 | 0.09 | 0.09 | 0.05 | 0.56 | 0.56 | 0.10 | 0.60 | 0.60 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.06 | 0.00 | 0.08 | 0.05 | 0.05 | 0.04 | 0.19 | 0.16 | 0.08 | 0.25 | 0.04 |
| s, saturation flow rate [veh/h] | 4669 | 3204 | 1431 | 1222 | 3204 | 1431 | 3113 | 4584 | 1431 | 3113 | 4584 | 1431 |
| c, Capacity [veh/h] | 512 | 496 | 221 | 331 | 293 | 131 | 170 | 2543 | 794 | 308 | 2746 | 857 |
| d1, Uniform Delay [s] | 48.88 | 41.71 | 0.00 | 34.18 | 47.80 | 47.78 | 51.06 | 13.54 | 13.02 | 48.67 | 11.72 | 9.19 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 13.79 | 0.46 | 0.00 | 0.47 | 1.54 | 3.37 | 4.43 | 0.38 | 0.93 | 5.49 | 0.45 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|--------|------|-------|-------|-------|-------|--------|--------|--------|--------|-------|
| X, volume / capacity | 0.98 | 0.37 | 0.00 | 0.29 | 0.54 | 0.54 | 0.67 | 0.35 | 0.29 | 0.82 | 0.41 | 0.06 |
| d, Delay for Lane Group [s/veh] | 62.67 | 42.17 | 0.00 | 34.65 | 49.34 | 51.15 | 55.49 | 13.92 | 13.96 | 54.16 | 12.18 | 9.33 |
| Lane Group LOS | E | D | A | C | D | D | E | B | B | D | B | A |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 5.20 | 2.26 | 0.00 | 2.11 | 2.13 | 1.95 | 1.63 | 4.03 | 3.17 | 3.63 | 4.75 | 0.55 |
| 50th-Percentile Queue Length [ft/ln] | 129.93 | 56.49 | 0.00 | 52.70 | 53.29 | 48.87 | 40.76 | 100.85 | 79.21 | 90.81 | 118.83 | 13.68 |
| 95th-Percentile Queue Length [veh/ln] | 8.94 | 4.07 | 0.00 | 3.79 | 3.84 | 3.52 | 2.93 | 7.26 | 5.70 | 6.54 | 8.33 | 0.99 |
| 95th-Percentile Queue Length [ft/ln] | 223.40 | 101.68 | 0.00 | 94.86 | 95.93 | 87.97 | 73.37 | 181.53 | 142.59 | 163.45 | 208.22 | 24.63 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| d_M, Delay for Movement [s/veh] | 62.67 | 42.17 | 0.00 | 34.65 | 49.34 | 51.15 | 55.49 | 13.92 | 13.96 | 54.16 | 12.18 | 9.33 |
| Movement LOS | E | D | A | C | D | D | E | B | B | D | B | A |
| d_A, Approach Delay [s/veh] | 57.17 | | | 45.41 | | | 17.73 | | | 19.50 | | |
| Approach LOS | E | | | D | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 28.19 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.438 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 46.39 | | | 46.39 | | | 46.39 | | | 46.39 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 3.418 | | | 2.684 | | | 3.511 | | | 3.342 | | |
| Crosswalk LOS | C | | | B | | | D | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 836 | | | 709 | | | 582 | | | 473 | | |
| d_b, Bicycle Delay [s] | 18.64 | | | 22.94 | | | 27.68 | | | 32.10 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.387 | | | 1.880 | | | 2.357 | | | 2.373 | | |
| Bicycle LOS | B | | | A | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report****Intersection 6:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 17.0
 Level Of Service: C
 Volume to Capacity (v/c): 0.051

Intersection Setup

| Name | | | 48th Avenue | | 48th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 48th Avenue | | 48th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1962 | 0 | 0 | 2303 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 15 | 39 | 3 | 0 | 103 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 15 | 1334 | 3 | 0 | 1623 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 4 | 363 | 1 | 0 | 441 |
| Total Analysis Volume [veh/h] | 0 | 16 | 1450 | 3 | 0 | 1764 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.05 | 0.01 | 0.00 | 0.00 | 0.02 |
| d_M, Delay for Movement [s/veh] | 0.00 | 17.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | A | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 3.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 17.03 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.08 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report****Intersection 7:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 0.0
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

| Name | | | 46th Avenue | | 46th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 46th Avenue | | 46th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 5 | 23 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 5 | 23 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 1 | 6 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 5 | 25 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.66 | 8.42 | 7.26 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.54 | | 0.00 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.00 | | | | | |
| Intersection LOS | A | | | | | |



Intersection Level Of Service Report

Intersection 8: 46th Avenue/Denali Boulevard

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 34.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.076 |

Intersection Setup

| Name | Denali Boulevard | | Denali Boulevard | | 46th Avenue | |
|------------------------------|------------------|--------|------------------|--------|-------------|--------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Denali Boulevard | | Denali Boulevard | | 46th Avenue | |
|---|------------------|--------|------------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 1350 | 1173 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 30 | 34 | 11 | 9 | 10 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 921 | 808 | 11 | 9 | 10 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 250 | 220 | 3 | 2 | 3 |
| Total Analysis Volume [veh/h] | 7 | 1001 | 878 | 12 | 10 | 11 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.01 | 0.00 | 0.08 | 0.02 |
| d_M, Delay for Movement [s/veh] | 9.80 | 0.00 | 0.00 | 0.00 | 34.07 | 13.08 |
| Movement LOS | A | A | A | A | D | B |
| 95th-Percentile Queue Length [veh/ln] | 0.03 | 0.00 | 0.00 | 0.00 | 0.31 | 0.31 |
| 95th-Percentile Queue Length [ft/ln] | 0.70 | 0.00 | 0.00 | 0.00 | 7.81 | 7.81 |
| d_A, Approach Delay [s/veh] | 0.07 | | 0.00 | | 23.08 | |
| Approach LOS | A | | A | | C | |
| d_I, Intersection Delay [s/veh] | 0.29 | | | | | |
| Intersection LOS | D | | | | | |



Intersection Level Of Service Report Intersection 9: New Intersection

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 51.5
Level Of Service: F
Volume to Capacity (v/c): 0.150

Intersection Setup

| Name | Denali Boulevard | | | Denali Boulevard | | | | | | | | |
|------------------------------|------------------|--------|--------|------------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Denali Boulevard | | | Denali Boulevard | | | | | | | | |
|---|------------------|--------|--------|------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 1350 | 0 | 0 | 1173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 7 | 25 | 7 | 6 | 19 | 5 | 17 | 0 | 14 | 12 | 0 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 916 | 7 | 6 | 793 | 5 | 17 | 0 | 14 | 12 | 0 | 16 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 249 | 2 | 2 | 215 | 1 | 5 | 0 | 4 | 3 | 0 | 4 |
| Total Analysis Volume [veh/h] | 8 | 996 | 8 | 7 | 862 | 5 | 18 | 0 | 15 | 13 | 0 | 17 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.19 | 0.00 | 0.03 | 0.15 | 0.00 | 0.03 |
| d_M, Delay for Movement [s/veh] | 9.71 | 0.00 | 0.00 | 10.31 | 0.00 | 0.00 | 48.51 | 64.59 | 17.46 | 51.46 | 63.04 | 16.81 |
| Movement LOS | A | A | A | B | A | A | E | F | C | F | F | C |
| 95th-Percentile Queue Length [veh/ln] | 0.03 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.77 | 0.77 | 0.77 | 0.65 | 0.65 | 0.65 |
| 95th-Percentile Queue Length [ft/ln] | 0.78 | 0.00 | 0.00 | 0.77 | 0.00 | 0.00 | 19.31 | 19.31 | 19.31 | 16.18 | 16.18 | 16.18 |
| d_A, Approach Delay [s/veh] | 0.08 | | | 0.08 | | | 34.40 | | | 31.83 | | |
| Approach LOS | A | | | A | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 1.15 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report****Intersection 10:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.7
 Level Of Service: A
 Volume to Capacity (v/c): 0.018

Intersection Setup

| Name | | | 46th Avenue | | 46th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 46th Avenue | | 46th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 17 | 15 | 3 | 2 | 8 | 9 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 15 | 3 | 2 | 8 | 9 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 4 | 1 | 1 | 2 | 2 |
| Total Analysis Volume [veh/h] | 18 | 16 | 3 | 2 | 9 | 10 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.75 | 8.50 | 7.26 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.10 | 0.10 | 0.01 | 0.01 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 2.57 | 2.57 | 0.13 | 0.13 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.63 | | 4.35 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.43 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report****Intersection 11:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 16.6
 Level Of Service: C
 Volume to Capacity (v/c): 0.096

Intersection Setup

| Name | | | 48th Avenue | | 48th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 48th Avenue | | 48th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1774 | 0 | 0 | 1931 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 30 | 49 | 8 | 0 | 91 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 30 | 1220 | 8 | 0 | 1365 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 8 | 332 | 2 | 0 | 371 |
| Total Analysis Volume [veh/h] | 0 | 33 | 1326 | 9 | 0 | 1484 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.10 | 0.01 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 16.58 | 0.00 | 0.00 | 18.39 | 0.00 |
| Movement LOS | | C | A | A | C | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 7.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 16.58 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.19 | | | | | |
| Intersection LOS | C | | | | | |



Intersection Level Of Service Report

Intersection 12: 48th Avenue/Fultondale Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 19.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.439 |

Intersection Setup

| Name | Fultondale Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|-------------------|--------|--------|------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 40.00 | 100.00 | 100.00 | 175.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fultondale Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|--|-------------------|--------|--------|--------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 390 | 21 | 260 | 0 | 29 | 29 | 21 | 1653 | 100 | 120 | 1512 | 10 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 82 | 0 | 47 | 0 | 0 | 0 | 0 | 35 | 45 | 19 | 9 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 110 | 0 | 0 | 10 | 0 | 0 | 56 | 0 | 0 | 4 |
| Total Hourly Volume [veh/h] | 339 | 14 | 109 | 0 | 19 | 9 | 14 | 1126 | 55 | 98 | 1007 | 3 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 92 | 4 | 30 | 0 | 5 | 2 | 4 | 306 | 15 | 27 | 274 | 1 |
| Total Analysis Volume [veh/h] | 368 | 15 | 118 | 0 | 21 | 10 | 15 | 1224 | 60 | 107 | 1095 | 3 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | ProtPer | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 16 | 46 | 0 | 9 | 39 | 0 | 9 | 35 | 0 | 10 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 21 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|------|-------|------|-------|------|-------|------|------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 18 | 18 | 22 | 6 | 70 | 61 | 61 | 5 | 64 | 64 |
| g / C, Green / Cycle | 0.12 | 0.18 | 0.18 | 0.22 | 0.06 | 0.70 | 0.61 | 0.61 | 0.05 | 0.64 | 0.64 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.01 | 0.08 | 0.00 | 0.02 | 0.03 | 0.27 | 0.04 | 0.03 | 0.22 | 0.22 |
| s, saturation flow rate [veh/h] | 3113 | 1683 | 1431 | 1176 | 1592 | 524 | 4584 | 1431 | 3113 | 3204 | 1681 |
| c, Capacity [veh/h] | 375 | 300 | 255 | 356 | 94 | 418 | 2790 | 871 | 163 | 2059 | 1080 |
| d1, Uniform Delay [s] | 43.92 | 34.11 | 36.85 | 0.00 | 45.22 | 5.22 | 10.47 | 8.01 | 46.58 | 8.25 | 8.26 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 17.51 | 0.07 | 1.31 | 0.00 | 2.03 | 0.16 | 0.50 | 0.15 | 4.48 | 0.47 | 0.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | |
|---------------------------------------|--------|-------|--------|------|-------|------|--------|-------|-------|--------|--------|
| X, volume / capacity | 0.98 | 0.05 | 0.46 | 0.00 | 0.33 | 0.04 | 0.44 | 0.07 | 0.66 | 0.35 | 0.35 |
| d, Delay for Lane Group [s/veh] | 61.43 | 34.18 | 38.15 | 0.00 | 47.25 | 5.38 | 10.97 | 8.16 | 51.06 | 8.72 | 9.15 |
| Lane Group LOS | E | C | D | A | D | A | B | A | D | A | A |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.41 | 0.31 | 2.66 | 0.00 | 0.79 | 0.10 | 4.56 | 0.54 | 1.40 | 3.39 | 3.69 |
| 50th-Percentile Queue Length [ft/ln] | 135.34 | 7.70 | 66.50 | 0.00 | 19.73 | 2.51 | 114.05 | 13.39 | 35.05 | 84.84 | 92.18 |
| 95th-Percentile Queue Length [veh/ln] | 9.23 | 0.55 | 4.79 | 0.00 | 1.42 | 0.18 | 8.06 | 0.96 | 2.52 | 6.11 | 6.64 |
| 95th-Percentile Queue Length [ft/ln] | 230.73 | 13.85 | 119.70 | 0.00 | 35.52 | 4.53 | 201.62 | 24.11 | 63.08 | 152.71 | 165.93 |

**Movement, Approach, & Intersection Results**

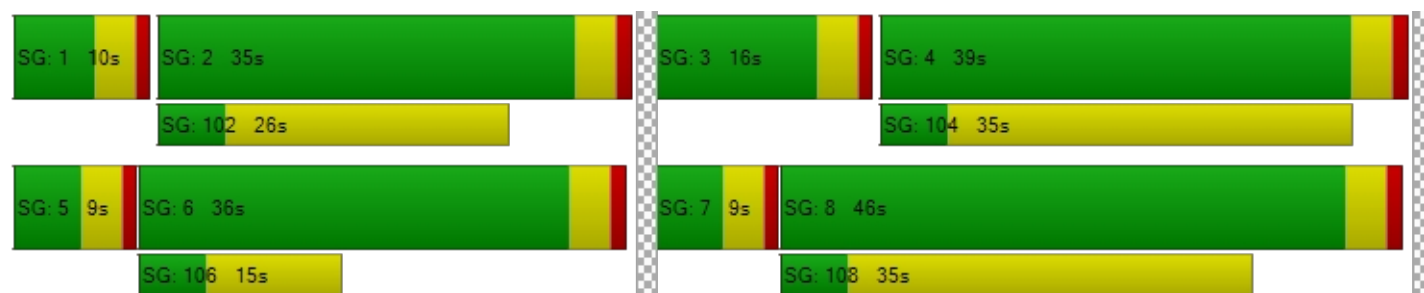
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|------|
| d_M, Delay for Movement [s/veh] | 61.43 | 34.18 | 38.15 | 0.00 | 47.25 | 47.25 | 5.38 | 10.97 | 8.16 | 51.06 | 8.87 | 9.15 |
| Movement LOS | E | C | D | A | D | D | A | B | A | D | A | A |
| d_A, Approach Delay [s/veh] | 55.13 | | | 47.25 | | | 10.78 | | | 12.62 | | |
| Approach LOS | E | | | D | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 19.20 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.439 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 41.44 | 41.44 | 41.44 | 41.44 |
| I_p,int, Pedestrian LOS Score for Intersection | 2.755 | 2.001 | 3.158 | 3.062 |
| Crosswalk LOS | C | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 839 | 700 | 620 | 640 |
| d_b, Bicycle Delay [s] | 16.85 | 21.16 | 23.84 | 23.15 |
| I_b,int, Bicycle LOS Score for Intersection | 2.568 | 1.627 | 2.305 | 2.225 |
| Bicycle LOS | B | A | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report****Intersection 13:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 19.6
 Level Of Service: C
 Volume to Capacity (v/c): 0.076

Intersection Setup

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|------------------------------|-------------------|--------|--------|-------------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|---|-------------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 671 | 0 | 0 | 249 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 67 | 5 | 6 | 73 | 5 | 18 | 0 | 14 | 17 | 0 | 18 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 510 | 5 | 6 | 237 | 5 | 18 | 0 | 14 | 17 | 0 | 18 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 139 | 1 | 2 | 64 | 1 | 5 | 0 | 4 | 5 | 0 | 5 |
| Total Analysis Volume [veh/h] | 7 | 554 | 5 | 7 | 258 | 5 | 20 | 0 | 15 | 18 | 0 | 20 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.08 | 0.00 | 0.02 | 0.07 | 0.00 | 0.04 |
| d_M, Delay for Movement [s/veh] | 7.78 | 0.00 | 0.00 | 8.58 | 0.00 | 0.00 | 19.63 | 18.23 | 10.65 | 19.45 | 18.35 | 12.94 |
| Movement LOS | A | A | A | A | A | A | C | C | B | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.31 | 0.31 | 0.31 | 0.35 | 0.35 | 0.35 |
| 95th-Percentile Queue Length [ft/ln] | 0.41 | 0.00 | 0.00 | 0.52 | 0.00 | 0.00 | 7.80 | 7.80 | 7.80 | 8.65 | 8.65 | 8.65 |
| d_A, Approach Delay [s/veh] | 0.10 | | | 0.22 | | | 15.78 | | | 16.02 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 1.40 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report****Intersection 14:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 19.4
 Level Of Service: C
 Volume to Capacity (v/c): 0.056

Intersection Setup

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|------------------------------|-------------------|--------|--------|-------------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|---|-------------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 671 | 0 | 0 | 249 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 5 | 48 | 5 | 7 | 92 | 5 | 18 | 0 | 22 | 14 | 0 | 13 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 491 | 5 | 7 | 256 | 5 | 18 | 0 | 22 | 14 | 0 | 13 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 133 | 1 | 2 | 70 | 1 | 5 | 0 | 6 | 4 | 0 | 4 |
| Total Analysis Volume [veh/h] | 5 | 534 | 5 | 8 | 278 | 5 | 20 | 0 | 24 | 15 | 0 | 14 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.07 | 0.00 | 0.03 | 0.06 | 0.00 | 0.03 |
| d_M, Delay for Movement [s/veh] | 7.82 | 0.00 | 0.00 | 8.52 | 0.00 | 0.00 | 19.35 | 18.19 | 10.77 | 19.42 | 18.08 | 12.52 |
| Movement LOS | A | A | A | A | A | A | C | C | B | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.01 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.35 | 0.35 | 0.35 | 0.27 | 0.27 | 0.27 |
| 95th-Percentile Queue Length [ft/ln] | 0.29 | 0.00 | 0.00 | 0.59 | 0.00 | 0.00 | 8.80 | 8.80 | 8.80 | 6.66 | 6.66 | 6.66 |
| d_A, Approach Delay [s/veh] | 0.07 | | | 0.23 | | | 14.67 | | | 16.09 | | |
| Approach LOS | A | | | A | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 1.34 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report****Intersection 15:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 36.8
 Level Of Service: E
 Volume to Capacity (v/c): 0.090

Intersection Setup

| Name | Denali Boulevard | | Denali Boulevard | | | |
|------------------------------|------------------|--------|------------------|--------|-----------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Denali Boulevard | | Denali Boulevard | | | |
|---|------------------|--------|------------------|--------|--------|--------|
| Base Volume Input [veh/h] | 1350 | 0 | 0 | 1173 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 24 | 5 | 4 | 40 | 10 | 12 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 915 | 5 | 4 | 814 | 10 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 249 | 1 | 1 | 221 | 3 | 3 |
| Total Analysis Volume [veh/h] | 995 | 5 | 4 | 885 | 11 | 13 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|-------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.01 | 0.01 | 0.09 | 0.03 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 10.26 | 0.00 | 36.79 | 14.19 |
| Movement LOS | A | A | B | A | E | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.02 | 0.00 | 0.38 | 0.38 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.44 | 0.00 | 9.62 | 9.62 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.05 | | 24.55 | |
| Approach LOS | A | | A | | C | |
| d_I, Intersection Delay [s/veh] | 0.33 | | | | | |
| Intersection LOS | E | | | | | |



Intersection Level Of Service Report

Intersection 16: 42nd Avenue/Denali Boulevard

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 109.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.577 |

Intersection Setup

| Name | Denali Boulevard | | | Denali Boulevard | | | 42nd Avenue | | | 42nd Avenue | | |
|------------------------------|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Denali Boulevard | | | Denali Boulevard | | | 42nd Avenue | | | 42nd Avenue | | |
|---|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 1350 | 0 | 0 | 1173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 46 | 0 | 4 | 1 | 8 | 0 | 0 | 33 | 28 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 891 | 0 | 46 | 774 | 4 | 1 | 8 | 0 | 0 | 33 | 28 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 242 | 0 | 13 | 210 | 1 | 0 | 2 | 0 | 0 | 9 | 8 |
| Total Analysis Volume [veh/h] | 0 | 968 | 0 | 50 | 841 | 4 | 1 | 9 | 0 | 0 | 36 | 30 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|-------|------|------|--------|-------|-------|-------|--------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.00 | 0.07 | 0.01 | 0.00 | 0.03 | 0.14 | 0.00 | 0.00 | 0.58 | 0.06 |
| d_M, Delay for Movement [s/veh] | 9.57 | 0.00 | 0.00 | 10.48 | 0.00 | 0.00 | 108.06 | 71.74 | 20.57 | 57.50 | 109.31 | 58.42 |
| Movement LOS | A | A | A | B | A | A | F | F | C | F | F | F |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.23 | 0.00 | 0.00 | 0.08 | 0.47 | 0.47 | 0.00 | 3.13 | 3.13 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 5.69 | 0.00 | 0.00 | 2.11 | 11.74 | 11.74 | 0.00 | 78.31 | 78.31 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.59 | | | 75.37 | | | 86.18 | | |
| Approach LOS | A | | | A | | | F | | | F | | |
| d_I, Intersection Delay [s/veh] | 3.59 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |



Intersection Level Of Service Report

Intersection 17: 42nd Avenue/Fultondale Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 26.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.046 |

Intersection Setup

| Name | Fultondale Street | | | Fultondale Street | | | 42nd Avenue | | | 42nd Avenue | | |
|------------------------------|-------------------|--------|--------|-------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | ↵↵ | | | ↵↵ | | | ↵↵ | | | ↵↵ | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Fultondale Street | | | Fultondale Street | | | 42nd Avenue | | | 42nd Avenue | | |
|---|-------------------|--------|--------|-------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 671 | 0 | 0 | 249 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 110 | 0 | 30 | 7 | 46 | 0 | 0 | 30 | 37 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 443 | 0 | 110 | 164 | 30 | 7 | 46 | 0 | 0 | 30 | 37 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 120 | 0 | 30 | 45 | 8 | 2 | 13 | 0 | 0 | 8 | 10 |
| Total Analysis Volume [veh/h] | 0 | 482 | 0 | 120 | 178 | 33 | 8 | 50 | 0 | 0 | 33 | 40 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.05 | 0.21 | 0.00 | 0.00 | 0.14 | 0.07 |
| d_M, Delay for Movement [s/veh] | 7.65 | 0.00 | 0.00 | 8.75 | 0.00 | 0.00 | 26.83 | 23.72 | 13.09 | 25.51 | 22.89 | 13.83 |
| Movement LOS | A | A | A | A | A | A | D | C | B | D | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.37 | 0.00 | 0.00 | 0.14 | 0.76 | 0.76 | 0.00 | 0.77 | 0.77 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 9.34 | 0.00 | 0.00 | 3.61 | 18.94 | 18.94 | 0.00 | 19.26 | 19.26 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 3.17 | | | 24.15 | | | 17.93 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 3.98 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |



Intersection Level Of Service Report

Intersection 20: 42nd Avenue/Main Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.121 |

Intersection Setup

| Name | Main Street | | Main Street | | 42nd Avenue | |
|------------------------------|-------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Main Street | | Main Street | | 42nd Avenue | |
|---|-------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 661 | 0 | 0 | 849 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 7 | 9 | 0 | 12 | 36 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 443 | 9 | 0 | 572 | 36 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 120 | 2 | 0 | 155 | 10 | 0 |
| Total Analysis Volume [veh/h] | 482 | 10 | 0 | 622 | 39 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.01 | 0.12 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.37 | 0.00 | 17.65 | 9.77 |
| Movement LOS | A | A | A | A | C | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.41 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 10.17 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.00 | | 17.65 | |
| Approach LOS | A | | A | | C | |
| d_I, Intersection Delay [s/veh] | 0.60 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report****Intersection 21:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 20.6
 Level Of Service: C
 Volume to Capacity (v/c): 0.009

Intersection Setup

| Name | | | 48th Avenue | | 48th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ↩ | | | | ↩ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 48th Avenue | | 48th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1913 | 0 | 0 | 1642 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 14 | 74 | 7 | 2 | 28 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 14 | 1337 | 7 | 2 | 1112 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 4 | 363 | 2 | 1 | 302 |
| Total Analysis Volume [veh/h] | 0 | 15 | 1453 | 8 | 2 | 1209 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.05 | 0.01 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 17.09 | 0.00 | 0.00 | 20.59 | 0.00 |
| Movement LOS | | C | A | A | C | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.15 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 3.76 | 0.00 | 0.00 | 0.65 | 0.00 |
| d_A, Approach Delay [s/veh] | 17.09 | | 0.00 | | 0.03 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.11 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report****Intersection 22:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 19.3
 Level Of Service: C
 Volume to Capacity (v/c): 0.074

Intersection Setup

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|------------------------------|-------------------|--------|--------|-------------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|---|-------------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 671 | 0 | 0 | 249 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 92 | 5 | 5 | 54 | 5 | 18 | 0 | 14 | 18 | 0 | 18 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 535 | 5 | 5 | 218 | 5 | 18 | 0 | 14 | 18 | 0 | 18 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 145 | 1 | 1 | 59 | 1 | 5 | 0 | 4 | 5 | 0 | 5 |
| Total Analysis Volume [veh/h] | 7 | 582 | 5 | 5 | 237 | 5 | 20 | 0 | 15 | 20 | 0 | 20 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.02 | 0.07 | 0.00 | 0.04 |
| d_M, Delay for Movement [s/veh] | 7.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 19.31 | 17.90 | 10.48 | 19.26 | 18.22 | 13.27 |
| Movement LOS | A | A | | | A | A | C | C | B | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.30 | 0.30 | 0.37 | 0.37 | 0.37 |
| 95th-Percentile Queue Length [ft/ln] | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.62 | 7.62 | 7.62 | 9.30 | 9.30 | 9.30 |
| d_A, Approach Delay [s/veh] | 0.09 | | | 0.00 | | | 15.52 | | | 16.26 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 1.38 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report****Intersection 23:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.9
 Level Of Service: A
 Volume to Capacity (v/c): 0.015

Intersection Setup

| Name | | | 42nd Avenue | | 42nd Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 42nd Avenue | | 42nd Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 10 | 10 | 4 | 153 | 57 | 4 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 10 | 10 | 4 | 153 | 57 | 4 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 3 | 1 | 42 | 15 | 1 |
| Total Analysis Volume [veh/h] | 11 | 11 | 4 | 166 | 62 | 4 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.92 | 8.71 | 7.35 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.08 | 0.08 | 0.01 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.98 | 1.98 | 0.20 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.32 | | 0.17 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.91 | | | | | |
| Intersection LOS | A | | | | | |



Intersection Level Of Service Report

Intersection 25: 48th Avenue/PA-31 Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 66.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.017 |

Intersection Setup

| Name | PA-31 Street | | 48th Avenue | | 48th Avenue | |
|------------------------------|--------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | PA-31 Street | | 48th Avenue | | 48th Avenue | |
|---|--------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 2235 | 0 | 0 | 2373 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 1 | 2 | 52 | 6 | 1 | 18 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 2 | 1527 | 6 | 1 | 1584 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 1 | 415 | 2 | 0 | 430 |
| Total Analysis Volume [veh/h] | 1 | 2 | 1660 | 7 | 1 | 1722 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.01 | 0.02 | 0.00 | 0.01 | 0.02 |
| d_M, Delay for Movement [s/veh] | 66.25 | 18.56 | 0.00 | 0.00 | 24.67 | 0.00 |
| Movement LOS | F | C | A | A | C | A |
| 95th-Percentile Queue Length [veh/ln] | 0.05 | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.27 | 0.56 | 0.00 | 0.00 | 0.41 | 0.00 |
| d_A, Approach Delay [s/veh] | 34.46 | | 0.00 | | 0.01 | |
| Approach LOS | D | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.04 | | | | | |
| Intersection LOS | F | | | | | |



Intersection Level Of Service Report

Intersection 30: 42nd Avenue/Reserve Loop

| | | | |
|------------------|-----------------|---------------------------|----------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10,000.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.040 |

Intersection Setup

| Name | Reserve Loop | | Reserve Loop | | 42nd Avenue | |
|------------------------------|--------------|--------|--------------|--------|-------------|--------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Reserve Loop | | Reserve Loop | | 42nd Avenue | |
|---|--------------|--------|--------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 60 | 0 | 2 | 1 | 2 | 161 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 60 | 0 | 2 | 1 | 2 | 161 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 16 | 0 | 1 | 0 | 1 | 44 |
| Total Analysis Volume [veh/h] | 65 | 0 | 2 | 1 | 2 | 175 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results




| | | | | | | |
|---------------------------------------|----------|--------|------|------|------|-------|
| V/C, Movement V/C Ratio | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 |
| d_M, Delay for Movement [s/veh] | 10000.00 | 0.00 | 0.00 | 0.00 | 9.36 | 8.97 |
| Movement LOS | F | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 10.46 | 10.46 | 0.00 | 0.00 | 0.01 | 0.58 |
| 95th-Percentile Queue Length [ft/ln] | 261.40 | 261.40 | 0.00 | 0.00 | 0.18 | 14.40 |
| d_A, Approach Delay [s/veh] | 10000.00 | | 0.00 | | 8.97 | |
| Approach LOS | F | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2659.54 | | | | | |
| Intersection LOS | F | | | | | |



Intersection Level Of Service Report
Intersection 40: 38th Parkway/Reserve Loop (W)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.101 |

Intersection Setup

| Name | Reserve Loop | | 38th Parkway | | 38th Parkway | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Reserve Loop | | 38th Parkway | | 38th Parkway | |
|---|--------------|--------|--------------|--------|--------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 85 | 78 | 28 | 0 | 0 | 32 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 85 | 78 | 28 | 0 | 0 | 32 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 23 | 21 | 8 | 0 | 0 | 9 |
| Total Analysis Volume [veh/h] | 92 | 85 | 30 | 0 | 0 | 35 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.10 | 0.08 | 0.02 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.78 | 9.21 | 7.33 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.66 | 0.66 | 0.06 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 16.52 | 16.52 | 1.45 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.51 | | 7.33 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 7.86 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report****Intersection 42: The Aurora Highlands Parkway/38th Parkway**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.028 |

Intersection Setup

| Name | 38th Parkway | | | 38th Parkway | | | Th Au | | | Th Au | | |
|------------------------------|--------------|--------|--------|--------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | 38th Parkway | | | 38th Parkway | | | Th Au | | | Th Au | | |
|---|--------------|--------|--------|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 78 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 78 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |



Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| d_M, Delay for Movement [s/veh] | 7.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.99 | 9.52 | 8.41 |
| Movement LOS | A | A | | | A | A | | | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.09 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.07 | 2.13 |
| d_A, Approach Delay [s/veh] | 3.69 | | | 0.00 | | | 0.00 | | | 8.41 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 2.19 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |

**Intersection Level Of Service Report****Intersection 43: The Aurora Highlands Parkway/38th Parkway**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.083 |

Intersection Setup

| Name | 38th Parkway | | The Aurora Highlands Parkway | | | |
|------------------------------|---|--------|---|--------|-----------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | 38th Parkway | | The Aurora Highlands Parkway | | | |
|---|--------------|--------|------------------------------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 78 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 78 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 21 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 85 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | | A | A | | |
| 95th-Percentile Queue Length [veh/ln] | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 6.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.84 | | 0.00 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | | | 8.84 | | | |
| Intersection LOS | | | A | | | |



Intersection Level Of Service Report

Intersection 46: 48th Avenue/Harvest Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 27.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.472 |

Intersection Setup

| Name | Harvest Road | | 48th Avenue | | 48th Avenue | |
|------------------------------|--------------|--------|-------------|--------|-------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 1 | 3 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 450.00 | 200.00 | 400.00 | 100.00 | 100.00 | 500.00 |
| No. of Lanes in Exit Pocket | 0 | 1 | 0 | 1 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 300.00 | 0.00 | 400.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Harvest Road | | 48th Avenue | | 48th Avenue | |
|--|--------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 1162 | 675 | 850 | 1073 | 966 | 1407 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 11 | 30 | 58 | 19 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 457 | 0 | 0 | 0 | 929 |
| Total Hourly Volume [veh/h] | 767 | 0 | 591 | 766 | 657 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 208 | 0 | 161 | 208 | 179 | 0 |
| Total Analysis Volume [veh/h] | 834 | 0 | 642 | 833 | 714 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|-----------|------------|------------|------------|
| Signal Group | 7 | 0 | 5 | 2 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | Lead | - | Lead | - | - | - |
| Minimum Green [s] | 5 | 0 | 5 | 10 | 10 | 0 |
| Maximum Green [s] | 30 | 0 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 46 | 0 | 18 | 54 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 5 | 0 | 0 | 5 | 5 | 0 |
| Pedestrian Clearance [s] | 37 | 0 | 0 | 10 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | No | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | R |
|---|-------|-------|------|-------|------|-------|------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 21 | 21 | 14 | 71 | 53 | 53 |
| g / C, Green / Cycle | 0.21 | 0.21 | 0.21 | 0.14 | 0.71 | 0.53 | 0.53 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.17 | 0.00 | 0.14 | 0.18 | 0.16 | 0.00 |
| s, saturation flow rate [veh/h] | 3113 | 1603 | 1431 | 4669 | 4584 | 4584 | 1431 |
| c, Capacity [veh/h] | 668 | 344 | 307 | 657 | 3234 | 2406 | 751 |
| d1, Uniform Delay [s] | 37.55 | 37.32 | 0.00 | 42.82 | 5.30 | 13.37 | 0.00 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.79 | 4.53 | 0.00 | 11.91 | 0.19 | 0.32 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | |
|---------------------------------------|--------|--------|------|--------|-------|--------|------|
| X, volume / capacity | 0.83 | 0.81 | 0.00 | 0.98 | 0.26 | 0.30 | 0.00 |
| d, Delay for Lane Group [s/veh] | 40.34 | 41.85 | 0.00 | 54.73 | 5.50 | 13.69 | 0.00 |
| Lane Group LOS | D | D | A | D | A | B | A |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 6.67 | 6.80 | 0.00 | 5.93 | 1.86 | 2.98 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 166.68 | 170.02 | 0.00 | 148.35 | 46.39 | 74.40 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 10.90 | 11.08 | 0.00 | 9.93 | 3.34 | 5.36 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 272.54 | 276.95 | 0.00 | 248.22 | 83.50 | 133.91 | 0.00 |

**Movement, Approach, & Intersection Results**

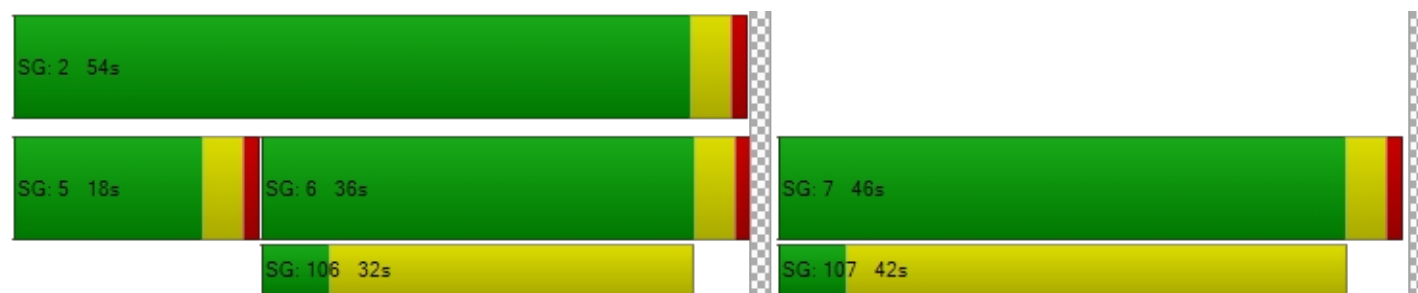
| | | | | | | |
|---------------------------------|-------|-------|-------|------|-------|------|
| d_M, Delay for Movement [s/veh] | 40.84 | 20.92 | 54.73 | 5.50 | 13.69 | 0.00 |
| Movement LOS | D | C | D | A | B | A |
| d_A, Approach Delay [s/veh] | 40.84 | | 26.93 | | 13.69 | |
| Approach LOS | D | | C | | B | |
| d_I, Intersection Delay [s/veh] | 27.64 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.472 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 41.41 | 41.41 | 41.41 |
| I_p,int, Pedestrian LOS Score for Intersection | 3.731 | 3.231 | 4.383 |
| Crosswalk LOS | D | C | E |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 840 | 1000 | 640 |
| d_b, Bicycle Delay [s] | 16.82 | 12.50 | 23.12 |
| I_b,int, Bicycle LOS Score for Intersection | 3.690 | 2.371 | 2.463 |
| Bicycle LOS | D | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 47: 48th Avenue/Powhatan Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 47.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.632 |

Intersection Setup

| Name | Powhatan Road | | | Powhatan Road | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|---------------|--------|--------|---------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 3 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 200.00 | 100.00 | 200.00 | 200.00 | 100.00 | 100.00 | 200.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Powhaton Road | | | Powhaton Road | | | 48th Avenue | | | 48th Avenue | | |
|--|---------------|--------|--------|---------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 843 | 531 | 511 | 417 | 422 | 60 | 140 | 617 | 910 | 210 | 272 | 149 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 8 | 22 | 30 | 2 | 0 | 11 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 256 | 0 | 0 | 34 | 0 | 0 | 912 | 0 | 0 | 75 |
| Total Hourly Volume [veh/h] | 843 | 531 | 255 | 417 | 422 | 34 | 162 | 647 | 0 | 210 | 283 | 74 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 229 | 144 | 69 | 113 | 115 | 9 | 44 | 176 | 0 | 57 | 77 | 20 |
| Total Analysis Volume [veh/h] | 916 | 577 | 277 | 453 | 459 | 37 | 176 | 703 | 0 | 228 | 308 | 80 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 34 | 36 | 0 | 37 | 39 | 0 | 21 | 40 | 0 | 17 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 27 | 0 | 0 | 30 | 0 | 0 | 31 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 28 | 50 | 50 | 22 | 43 | 43 | 10 | 31 | 31 | 12 | 33 | 33 |
| g / C, Green / Cycle | 0.22 | 0.38 | 0.38 | 0.17 | 0.33 | 0.33 | 0.07 | 0.24 | 0.24 | 0.09 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.18 | 0.19 | 0.15 | 0.14 | 0.03 | 0.06 | 0.22 | 0.00 | 0.07 | 0.10 | 0.06 |
| s, saturation flow rate [veh/h] | 4669 | 3204 | 1431 | 3113 | 3204 | 1431 | 3113 | 3204 | 1431 | 3113 | 3204 | 1431 |
| c, Capacity [veh/h] | 1007 | 1229 | 549 | 518 | 1071 | 478 | 230 | 763 | 341 | 277 | 812 | 362 |
| d1, Uniform Delay [s] | 49.77 | 30.14 | 30.65 | 52.88 | 33.64 | 29.58 | 59.13 | 48.36 | 0.00 | 58.22 | 40.11 | 38.40 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.59 | 1.29 | 3.30 | 4.83 | 1.25 | 0.32 | 5.29 | 5.22 | 0.00 | 6.05 | 0.29 | 0.30 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|--------|--------|--------|--------|-------|--------|--------|------|--------|--------|-------|
| X, volume / capacity | 0.91 | 0.47 | 0.50 | 0.87 | 0.43 | 0.08 | 0.77 | 0.92 | 0.00 | 0.82 | 0.38 | 0.22 |
| d, Delay for Lane Group [s/veh] | 53.36 | 31.43 | 33.95 | 57.72 | 34.89 | 29.90 | 64.42 | 53.58 | 0.00 | 64.28 | 40.40 | 38.70 |
| Lane Group LOS | D | C | C | E | C | C | E | D | A | E | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 10.00 | 7.04 | 7.16 | 7.57 | 5.86 | 0.85 | 3.02 | 11.64 | 0.00 | 3.93 | 4.13 | 2.07 |
| 50th-Percentile Queue Length [ft/ln] | 250.04 | 176.01 | 179.03 | 189.14 | 146.40 | 21.14 | 75.54 | 290.90 | 0.00 | 98.18 | 103.31 | 51.73 |
| 95th-Percentile Queue Length [veh/ln] | 15.19 | 11.39 | 11.55 | 12.08 | 9.82 | 1.52 | 5.44 | 17.23 | 0.00 | 7.07 | 7.44 | 3.72 |
| 95th-Percentile Queue Length [ft/ln] | 379.70 | 284.80 | 288.75 | 301.92 | 245.61 | 38.06 | 135.98 | 430.76 | 0.00 | 176.73 | 185.95 | 93.12 |

**Movement, Approach, & Intersection Results**

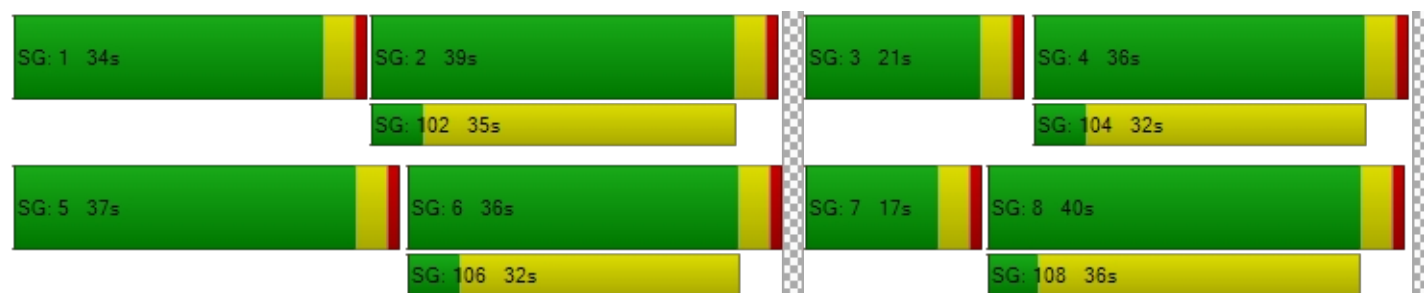
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 53.36 | 31.43 | 33.95 | 57.72 | 34.89 | 29.90 | 64.42 | 53.58 | 0.00 | 64.28 | 40.40 | 38.70 |
| Movement LOS | D | C | C | E | C | C | E | D | A | E | D | D |
| d_A, Approach Delay [s/veh] | 43.17 | | | 45.59 | | | 55.75 | | | 49.02 | | |
| Approach LOS | D | | | D | | | E | | | D | | |
| d_I, Intersection Delay [s/veh] | 47.19 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.632 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 56.32 | | | 56.32 | | | 56.32 | | | 56.32 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 3.548 | | | 3.023 | | | 4.352 | | | 3.051 | | |
| Crosswalk LOS | D | | | C | | | E | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 492 | | | 538 | | | 554 | | | 492 | | |
| d_b, Bicycle Delay [s] | 36.95 | | | 34.72 | | | 34.00 | | | 36.95 | | |
| I_b,int, Bicycle LOS Score for Intersection | 3.231 | | | 2.371 | | | 3.037 | | | 2.130 | | |
| Bicycle LOS | C | | | B | | | C | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 48: 38th Parkway/Powhatan Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 27.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.661 |

Intersection Setup

| Name | Powhatan Road | | | Powhatan Road | | | 38th Parkway | | | | | |
|------------------------------|---------------|--------|--------|---------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 150.00 | 150.00 | 100.00 | 150.00 | 200.00 | 100.00 | 200.00 | 200.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Powhatan Road | | | Powhatan Road | | | 38th Parkway | | | | | |
|--|---------------|--------|--------|---------------|--------|--------|--------------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 73 | 1449 | 614 | 518 | 996 | 24 | 66 | 113 | 132 | 151 | 31 | 127 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 33 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 89 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 307 | 0 | 0 | 12 | 0 | 0 | 111 | 0 | 0 | 64 |
| Total Hourly Volume [veh/h] | 106 | 1449 | 307 | 518 | 998 | 12 | 66 | 113 | 110 | 151 | 31 | 63 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 29 | 394 | 83 | 141 | 271 | 3 | 18 | 31 | 30 | 41 | 8 | 17 |
| Total Analysis Volume [veh/h] | 115 | 1575 | 334 | 563 | 1085 | 13 | 72 | 123 | 120 | 164 | 34 | 68 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 110 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | ProtPer | Permis | Permis | Protect | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 10 | 30 | 0 | 25 | 45 | 0 | 10 | 43 | 0 | 12 | 45 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 21 | 0 | 0 | 14 | 0 | 0 | 27 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 79 | 54 | 54 | 21 | 70 | 70 | 23 | 12 | 12 | 8 | 14 | 14 |
| g / C, Green / Cycle | 0.71 | 0.49 | 0.49 | 0.19 | 0.63 | 0.63 | 0.21 | 0.11 | 0.11 | 0.07 | 0.13 | 0.13 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.34 | 0.23 | 0.18 | 0.24 | 0.01 | 0.06 | 0.07 | 0.08 | 0.05 | 0.02 | 0.05 |
| s, saturation flow rate [veh/h] | 563 | 4584 | 1431 | 3113 | 4584 | 1431 | 1303 | 1683 | 1431 | 3113 | 1683 | 1431 |
| c, Capacity [veh/h] | 439 | 2228 | 695 | 595 | 2897 | 904 | 355 | 180 | 153 | 219 | 215 | 183 |
| d1, Uniform Delay [s] | 6.02 | 22.15 | 18.97 | 43.98 | 9.77 | 7.52 | 35.63 | 47.34 | 47.90 | 50.22 | 42.75 | 43.97 |
| k, delay calibration | 0.27 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.78 | 1.92 | 2.37 | 8.56 | 0.37 | 0.03 | 0.28 | 4.47 | 8.39 | 5.07 | 0.34 | 1.25 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|--------|--------|--------|--------|------|-------|--------|--------|--------|-------|-------|
| X, volume / capacity | 0.26 | 0.71 | 0.48 | 0.95 | 0.37 | 0.01 | 0.20 | 0.68 | 0.78 | 0.75 | 0.16 | 0.37 |
| d, Delay for Lane Group [s/veh] | 6.79 | 24.07 | 21.34 | 52.54 | 10.14 | 7.55 | 35.91 | 51.81 | 56.29 | 55.29 | 43.08 | 45.23 |
| Lane Group LOS | A | C | C | D | B | A | D | D | E | E | D | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.82 | 10.64 | 6.04 | 8.22 | 4.05 | 0.12 | 1.62 | 3.46 | 3.56 | 2.37 | 0.85 | 1.76 |
| 50th-Percentile Queue Length [ft/ln] | 20.50 | 265.94 | 150.94 | 205.38 | 101.18 | 2.91 | 40.58 | 86.61 | 88.90 | 59.14 | 21.15 | 44.05 |
| 95th-Percentile Queue Length [veh/ln] | 1.48 | 15.99 | 10.07 | 12.92 | 7.28 | 0.21 | 2.92 | 6.24 | 6.40 | 4.26 | 1.52 | 3.17 |
| 95th-Percentile Queue Length [ft/ln] | 36.91 | 399.66 | 251.68 | 322.89 | 182.12 | 5.25 | 73.04 | 155.90 | 160.02 | 106.44 | 38.06 | 79.30 |

**Movement, Approach, & Intersection Results**

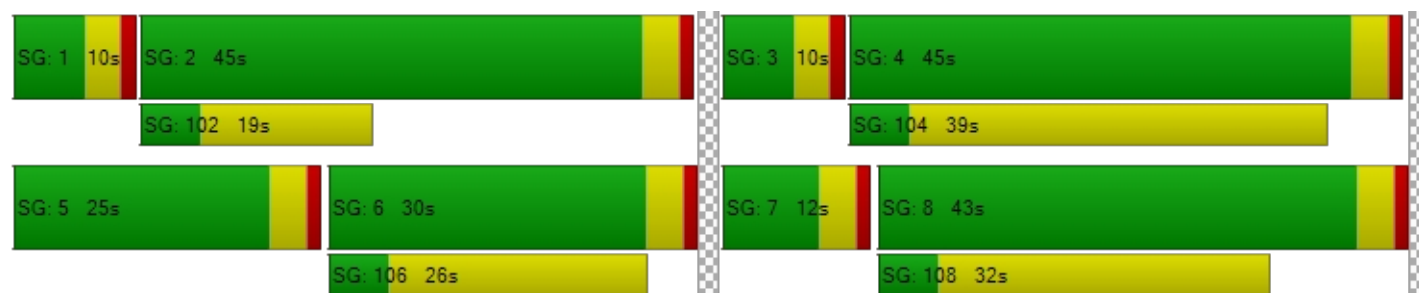
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 6.79 | 24.07 | 21.34 | 52.54 | 10.14 | 7.55 | 35.91 | 51.81 | 56.29 | 55.29 | 43.08 | 45.23 |
| Movement LOS | A | C | C | D | B | A | D | D | E | E | D | D |
| d_A, Approach Delay [s/veh] | 22.64 | | | 24.49 | | | 49.88 | | | 51.16 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 27.15 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.661 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 46.39 | | | 46.39 | | | 46.39 | | | 46.39 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 3.638 | | | 3.346 | | | 2.553 | | | 2.824 | | |
| Crosswalk LOS | D | | | C | | | B | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 473 | | | 745 | | | 709 | | | 745 | | |
| d_b, Bicycle Delay [s] | 32.10 | | | 21.66 | | | 22.94 | | | 21.66 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.842 | | | 2.480 | | | 2.263 | | | 2.104 | | |
| Bicycle LOS | C | | | B | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Option 1: Add NB LT Lane

| | | | | | | |
|-------------------------------|--------------------------|------|--------------|-------|-------------|-------|
| Number | 30 | | | | | |
| Intersection | 42nd Avenue/Reserve Loop | | | | | |
| Control Type | Two-way stop | | | | | |
| Analysis Method | HCM 7th Edition | | | | | |
| Name | Reserve Loop | | Reserve Loop | | 42nd Avenue | |
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 65 | 0 | 2 | 1 | 2 | 175 |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Capacity Analysis

| | | | | | | |
|-----------------------------------|------|--------|--------|--------|------|------|
| Calculated Rank | 2 | 1 | 1 | 1 | 3 | 2 |
| v_c, Conflicting Flow Rate | 3 | 0 | 0 | 0 | 133 | 3 |
| v_c, Stage 1 | 3 | 0 | 0 | 0 | 3 | 3 |
| v_c, Stage 2 | 0 | 0 | 0 | 0 | 130 | 0 |
| c_p,x, Potential Capacity [veh/h] | 1619 | 0 | 0 | 0 | 861 | 1082 |
| c_p,x, Stage 1 [veh/h] | 1625 | 0 | 0 | 0 | 1021 | 1086 |
| c_p,x, Stage 2 [veh/h] | 1623 | 0 | 0 | 0 | 896 | 1085 |
| c_m,x, Movement Capacity [veh/h] | 1619 | 100000 | 100000 | 100000 | 827 | 1082 |
| c_m,x, Stage 1 [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| c_m,x, Stage 2 [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| c_T, Total Capacity [veh/h] | 1619 | 100000 | 100000 | 100000 | 827 | 1082 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---|------|------|------|------|------|-------|
| V/C, Movement V/C Ratio | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 |
| d_M, Delay for Movement [s/veh] | 7.32 | 0.00 | 0.00 | 0.00 | 9.36 | 8.97 |
| Movement LOS | A | A | A | A | A | A |
| Critical Movement | No | | No | No | Yes | No |
| 95th-Percentile Queue Length [veh/ln] | 0.13 | 0.00 | 0.00 | 0.00 | 0.01 | 0.58 |
| 95th-Percentile Queue Length [ft/ln] | 3.14 | 0.00 | 0.00 | 0.00 | 0.18 | 14.40 |
| d_A, Approach Delay [s/veh] | 7.32 | | 0.00 | | 8.97 | |
| Approach LOS | A | | A | | A | |
| V/C_I, Worst Movement V/C Ratio | | | 0.00 | | | |
| d_I, Worst Movement Control Delay [s/veh] | | | 9.36 | | | |
| d_I, Intersection Delay [s/veh] | | | 8.42 | | | |
| Intersection LOS | | | A | | | |



Intersection Level Of Service Report

Intersection 1: 48th Avenue/Main Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 44.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.561 |

Intersection Setup

| Name | Main Street | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|-------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | |
| Lane Configuration | T L T | | | T L T | | | T L T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 325.00 | 100.00 | 400.00 | 250.00 | 100.00 | 250.00 | 300.00 | 100.00 | 400.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Main Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|--|-------------|--------|--------|--------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 350 | 32 | 400 | 409 | 26 | 155 | 465 | 1793 | 440 | 230 | 1519 | 366 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 0 | 13 | 0 | 0 | 0 | 0 | 120 | 8 | 0 | 65 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 139 | 0 | 0 | 102 | 0 | 0 | 149 | 0 | 0 | 121 |
| Total Hourly Volume [veh/h] | 237 | 21 | 138 | 270 | 17 | 0 | 307 | 1303 | 149 | 152 | 1068 | 121 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 64 | 6 | 38 | 73 | 5 | 0 | 83 | 354 | 40 | 41 | 290 | 33 |
| Total Analysis Volume [veh/h] | 258 | 23 | 150 | 293 | 18 | 0 | 334 | 1416 | 162 | 165 | 1161 | 132 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 110 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 16 | 43 | 0 | 16 | 43 | 0 | 19 | 39 | 0 | 12 | 32 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 34 | 0 | 0 | 34 | 0 | 0 | 21 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 39 | 39 | 12 | 40 | 40 | 14 | 35 | 35 | 8 | 29 | 29 |
| g / C, Green / Cycle | 0.10 | 0.36 | 0.36 | 0.11 | 0.36 | 0.36 | 0.12 | 0.32 | 0.32 | 0.07 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.01 | 0.10 | 0.09 | 0.01 | 0.00 | 0.11 | 0.31 | 0.11 | 0.05 | 0.25 | 0.09 |
| s, saturation flow rate [veh/h] | 3113 | 1683 | 1431 | 3113 | 1683 | 1431 | 3113 | 4584 | 1431 | 3113 | 4584 | 1431 |
| c, Capacity [veh/h] | 313 | 600 | 510 | 340 | 615 | 522 | 389 | 1462 | 456 | 218 | 1210 | 378 |
| d1, Uniform Delay [s] | 48.54 | 23.11 | 25.46 | 48.19 | 22.41 | 0.00 | 47.18 | 36.92 | 28.78 | 50.23 | 39.90 | 32.83 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.50 | 0.12 | 1.47 | 6.46 | 0.09 | 0.00 | 5.57 | 5.80 | 0.47 | 5.28 | 5.75 | 0.55 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|-------|--------|--------|-------|------|--------|--------|--------|--------|--------|--------|
| X, volume / capacity | 0.83 | 0.04 | 0.29 | 0.86 | 0.03 | 0.00 | 0.86 | 0.97 | 0.36 | 0.76 | 0.96 | 0.35 |
| d, Delay for Lane Group [s/veh] | 54.04 | 23.23 | 26.93 | 54.65 | 22.50 | 0.00 | 52.75 | 42.72 | 29.25 | 55.51 | 45.66 | 33.38 |
| Lane Group LOS | D | C | C | D | C | A | D | D | C | E | D | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.70 | 0.41 | 3.02 | 4.24 | 0.32 | 0.00 | 4.76 | 13.01 | 3.33 | 2.38 | 10.79 | 2.90 |
| 50th-Percentile Queue Length [ft/ln] | 92.51 | 10.30 | 75.61 | 106.03 | 7.90 | 0.00 | 119.10 | 325.24 | 83.24 | 59.61 | 269.78 | 72.62 |
| 95th-Percentile Queue Length [veh/ln] | 6.66 | 0.74 | 5.44 | 7.62 | 0.57 | 0.00 | 8.34 | 18.92 | 5.99 | 4.29 | 16.18 | 5.23 |
| 95th-Percentile Queue Length [ft/ln] | 166.51 | 18.54 | 136.10 | 190.47 | 14.22 | 0.00 | 208.59 | 473.12 | 149.83 | 107.30 | 404.46 | 130.72 |

**Movement, Approach, & Intersection Results**

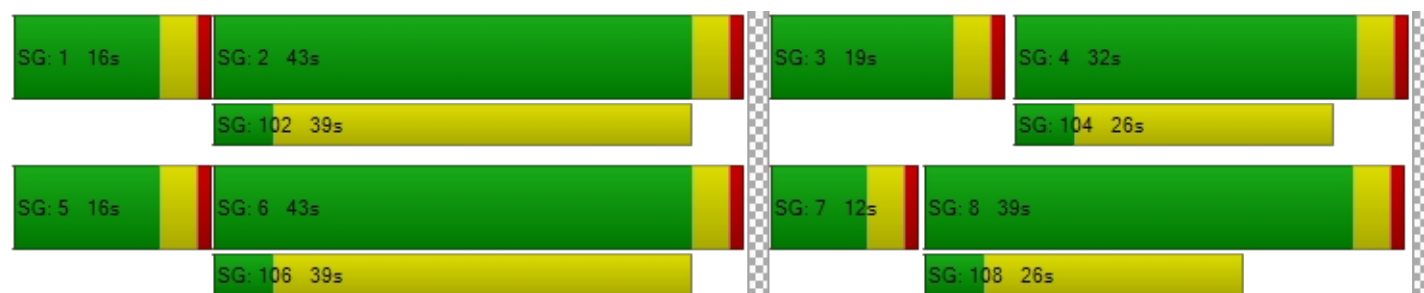
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 54.04 | 23.23 | 26.93 | 54.65 | 22.50 | 0.00 | 52.75 | 42.72 | 29.25 | 55.51 | 45.66 | 33.38 |
| Movement LOS | D | C | C | D | C | A | D | D | C | E | D | C |
| d_A, Approach Delay [s/veh] | 42.96 | | | 52.79 | | | 43.33 | | | 45.66 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 44.83 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.561 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 46.37 | | | 46.37 | | | 46.37 | | | 46.37 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 2.835 | | | 2.775 | | | 3.539 | | | 3.420 | | |
| Crosswalk LOS | C | | | C | | | D | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 709 | | | 709 | | | 636 | | | 509 | | |
| d_b, Bicycle Delay [s] | 22.92 | | | 22.92 | | | 25.57 | | | 30.57 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.500 | | | 2.241 | | | 2.693 | | | 2.428 | | |
| Bicycle LOS | B | | | B | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report****Intersection 2:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 0.0
 Level Of Service: A
 Volume to Capacity (v/c): 0.017

Intersection Setup

| Name | | | 48th Avenue | | 48th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 48th Avenue | | 48th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1962 | 0 | 0 | 2303 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 133 | 0 | 0 | 65 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 1428 | 0 | 0 | 1585 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 388 | 0 | 0 | 431 |
| Total Analysis Volume [veh/h] | 0 | 0 | 1552 | 0 | 0 | 1723 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 |
| d_M, Delay for Movement [s/veh] | 0.00 | 17.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | A | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 17.33 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.00 | | | | | |
| Intersection LOS | A | | | | | |



Intersection Level Of Service Report

Intersection 4: 46th Avenue/Main Street

Control Type: Roundabout
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 4.3
 Level Of Service: A

Intersection Setup

| Name | Main Street | | Main Street | | 46th Avenue | |
|------------------------------|-------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 1 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Main Street | | Main Street | | 46th Avenue | |
|---|-------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 661 | 0 | 0 | 849 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 13 | 9 | 8 | 0 | 9 | 6 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 449 | 9 | 8 | 560 | 9 | 6 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 2 | 2 | 152 | 2 | 2 |
| Total Analysis Volume [veh/h] | 488 | 10 | 9 | 609 | 10 | 7 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|-----|----|-----|-----|-----|---|
| Number of Conflicting Circulating Lanes | 1 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 9 | | 10 | | 498 | |
| Exiting Flow Rate [veh/h] | 631 | | 505 | | 19 | |
| Demand Flow Rate [veh/h] | 449 | 9 | 8 | 560 | 9 | 6 |
| Adjusted Demand Flow Rate [veh/h] | 488 | 10 | 9 | 609 | 10 | 7 |

Lanes

| | | | | | |
|--|---------|---------|---------|---------|---------|
| Override Calculated Critical Headway | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Override Calculated Follow-Up Time | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1380.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00091 | 0.00091 | 0.00102 |
| HV Adjustment Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Entry Flow Rate [veh/h] | 239 | 270 | 297 | 335 | 18 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1409 | 1409 | 1407 | 1407 | 831 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1381 | 1381 | 1380 | 1380 | 815 |
| X, volume / capacity | 0.17 | 0.19 | 0.21 | 0.24 | 0.02 |

Movement, Approach, & Intersection Results

| | | | | | |
|------------------------------------|-------|-------|-------|-------|------|
| Lane LOS | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.61 | 0.71 | 0.80 | 0.93 | 0.06 |
| 95th-Percentile Queue Length [ft] | 15.25 | 17.64 | 19.89 | 23.19 | 1.60 |
| Approach Delay [s/veh] | 4.09 | | 4.49 | | 4.62 |
| Approach LOS | A | | A | | A |
| Intersection Delay [s/veh] | 4.32 | | | | |
| Intersection LOS | A | | | | |



Intersection Level Of Service Report

Intersection 5: 48th Avenue/Denali Boulevard

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 34.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.556 |

Intersection Setup

| Name | Denali Boulevard | | | Denali Boulevard | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 3 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 350.00 | 100.00 | 250.00 | 350.00 | 100.00 | 300.00 | 250.00 | 100.00 | 450.00 | 400.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 300.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Denali Boulevard | | | Denali Boulevard | | | 48th Avenue | | | 48th Avenue | | |
|--|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 658 | 284 | 462 | 223 | 279 | 257 | 220 | 1532 | 846 | 500 | 1195 | 149 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 21 | 6 | 12 | 17 | 8 | 0 | 0 | 97 | 35 | 19 | 44 | 9 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 317 | 0 | 0 | 85 | 0 | 0 | 297 | 0 | 0 | 54 |
| Total Hourly Volume [veh/h] | 455 | 193 | 0 | 164 | 192 | 85 | 145 | 1108 | 296 | 349 | 833 | 53 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 124 | 52 | 0 | 45 | 52 | 23 | 39 | 301 | 80 | 95 | 226 | 14 |
| Total Analysis Volume [veh/h] | 495 | 210 | 0 | 178 | 209 | 92 | 158 | 1204 | 322 | 379 | 905 | 58 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 17 | 52 | 0 | 13 | 48 | 0 | 20 | 36 | 0 | 19 | 35 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 37 | 0 | 0 | 34 | 0 | 0 | 27 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 17 | 17 | 30 | 13 | 13 | 8 | 63 | 63 | 15 | 70 | 70 |
| g / C, Green / Cycle | 0.11 | 0.14 | 0.14 | 0.25 | 0.10 | 0.10 | 0.07 | 0.53 | 0.53 | 0.13 | 0.59 | 0.59 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.07 | 0.00 | 0.14 | 0.07 | 0.06 | 0.05 | 0.26 | 0.23 | 0.12 | 0.20 | 0.04 |
| s, saturation flow rate [veh/h] | 4669 | 3204 | 1431 | 1258 | 3204 | 1431 | 3113 | 4584 | 1431 | 3113 | 4584 | 1431 |
| c, Capacity [veh/h] | 506 | 443 | 198 | 331 | 336 | 150 | 212 | 2422 | 756 | 389 | 2683 | 837 |
| d1, Uniform Delay [s] | 53.36 | 47.68 | 0.00 | 38.76 | 51.42 | 51.37 | 54.89 | 18.11 | 17.23 | 52.30 | 12.87 | 10.76 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 14.10 | 0.79 | 0.00 | 1.36 | 1.88 | 4.00 | 5.12 | 0.73 | 1.76 | 15.82 | 0.34 | 0.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|--------|------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| X, volume / capacity | 0.98 | 0.47 | 0.00 | 0.54 | 0.62 | 0.61 | 0.74 | 0.50 | 0.43 | 0.97 | 0.34 | 0.07 |
| d, Delay for Lane Group [s/veh] | 67.46 | 48.47 | 0.00 | 40.12 | 53.30 | 55.38 | 60.01 | 18.84 | 18.99 | 68.12 | 13.21 | 10.92 |
| Lane Group LOS | E | D | A | D | D | E | E | B | B | E | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.61 | 2.95 | 0.00 | 4.58 | 3.10 | 2.82 | 2.50 | 7.15 | 5.70 | 6.53 | 4.20 | 0.70 |
| 50th-Percentile Queue Length [ft/ln] | 140.36 | 73.80 | 0.00 | 114.40 | 77.52 | 70.43 | 62.40 | 178.80 | 142.59 | 163.16 | 104.93 | 17.47 |
| 95th-Percentile Queue Length [veh/ln] | 9.50 | 5.31 | 0.00 | 8.08 | 5.58 | 5.07 | 4.49 | 11.54 | 9.62 | 10.72 | 7.55 | 1.26 |
| 95th-Percentile Queue Length [ft/ln] | 237.51 | 132.85 | 0.00 | 202.10 | 139.53 | 126.77 | 112.33 | 288.44 | 240.50 | 267.90 | 188.87 | 31.44 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 67.46 | 48.47 | 0.00 | 40.12 | 53.30 | 55.38 | 60.01 | 18.84 | 18.99 | 68.12 | 13.21 | 10.92 |
| Movement LOS | E | D | A | D | D | E | E | B | B | E | B | B |
| d_A, Approach Delay [s/veh] | 61.80 | | | 48.80 | | | 22.73 | | | 28.62 | | |
| Approach LOS | E | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.12 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.556 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 51.34 | | | 51.34 | | | 51.34 | | | 51.34 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 3.463 | | | 2.759 | | | 3.672 | | | 3.400 | | |
| Crosswalk LOS | C | | | C | | | D | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 800 | | | 733 | | | 533 | | | 517 | | |
| d_b, Bicycle Delay [s] | 21.60 | | | 24.07 | | | 32.27 | | | 33.01 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.403 | | | 2.025 | | | 2.649 | | | 2.327 | | |
| Bicycle LOS | B | | | B | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report****Intersection 6:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 17.7
 Level Of Service: C
 Volume to Capacity (v/c): 0.037

Intersection Setup

| Name | | | 48th Avenue | | 48th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 48th Avenue | | 48th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1962 | 0 | 0 | 2303 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 10 | 122 | 11 | 0 | 65 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 10 | 1417 | 11 | 0 | 1585 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 3 | 385 | 3 | 0 | 431 |
| Total Analysis Volume [veh/h] | 0 | 11 | 1540 | 12 | 0 | 1723 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.04 | 0.02 | 0.00 | 0.00 | 0.02 |
| d_M, Delay for Movement [s/veh] | 0.00 | 17.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | A | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 2.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 17.69 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.06 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report****Intersection 7:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 0.0
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

| Name | | | 46th Avenue | | 46th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 46th Avenue | | 46th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 17 | 15 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 17 | 15 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 5 | 4 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 18 | 16 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.68 | 8.39 | 7.25 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.53 | | 0.00 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.00 | | | | | |
| Intersection LOS | A | | | | | |



Intersection Level Of Service Report

Intersection 8: 46th Avenue/Denali Boulevard

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 36.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.097 |

Intersection Setup

| Name | Denali Boulevard | | Denali Boulevard | | 46th Avenue | |
|------------------------------|------------------|--------|------------------|--------|-------------|--------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Denali Boulevard | | Denali Boulevard | | 46th Avenue | |
|---|------------------|--------|------------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 1350 | 1173 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 18 | 29 | 39 | 16 | 11 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 18 | 920 | 813 | 16 | 11 | 7 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 250 | 221 | 4 | 3 | 2 |
| Total Analysis Volume [veh/h] | 20 | 1000 | 884 | 17 | 12 | 8 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.03 | 0.01 | 0.01 | 0.00 | 0.10 | 0.01 |
| d_M, Delay for Movement [s/veh] | 9.93 | 0.00 | 0.00 | 0.00 | 36.71 | 13.90 |
| Movement LOS | A | A | A | A | E | B |
| 95th-Percentile Queue Length [veh/ln] | 0.08 | 0.00 | 0.00 | 0.00 | 0.37 | 0.37 |
| 95th-Percentile Queue Length [ft/ln] | 2.05 | 0.00 | 0.00 | 0.00 | 9.25 | 9.25 |
| d_A, Approach Delay [s/veh] | 0.19 | | 0.00 | | 27.59 | |
| Approach LOS | A | | A | | D | |
| d_I, Intersection Delay [s/veh] | 0.39 | | | | | |
| Intersection LOS | E | | | | | |



Intersection Level Of Service Report Intersection 9: New Intersection

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 53.3
Level Of Service: F
Volume to Capacity (v/c): 0.112

Intersection Setup

| Name | Denali Boulevard | | | Denali Boulevard | | | | | | | | |
|------------------------------|------------------|--------|--------|------------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Denali Boulevard | | | Denali Boulevard | | | | | | | | |
|---|------------------|--------|--------|------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 1350 | 0 | 0 | 1173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 21 | 17 | 3 | 7 | 38 | 18 | 11 | 0 | 10 | 8 | 0 | 11 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 21 | 908 | 3 | 7 | 812 | 18 | 11 | 0 | 10 | 8 | 0 | 11 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 247 | 1 | 2 | 221 | 5 | 3 | 0 | 3 | 2 | 0 | 3 |
| Total Analysis Volume [veh/h] | 23 | 987 | 3 | 8 | 883 | 20 | 12 | 0 | 11 | 9 | 0 | 12 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.03 | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.14 | 0.00 | 0.02 | 0.11 | 0.00 | 0.02 |
| d_M, Delay for Movement [s/veh] | 9.96 | 0.00 | 0.00 | 10.25 | 0.00 | 0.00 | 50.56 | 67.25 | 15.87 | 53.32 | 67.78 | 15.48 |
| Movement LOS | A | A | A | B | A | A | F | F | C | F | F | C |
| 95th-Percentile Queue Length [veh/ln] | 0.09 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.54 | 0.54 | 0.54 | 0.46 | 0.46 | 0.46 |
| 95th-Percentile Queue Length [ft/ln] | 2.37 | 0.00 | 0.00 | 0.87 | 0.00 | 0.00 | 13.44 | 13.44 | 13.44 | 11.39 | 11.39 | 11.39 |
| d_A, Approach Delay [s/veh] | 0.23 | | | 0.09 | | | 33.97 | | | 31.70 | | |
| Approach LOS | A | | | A | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 0.89 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report****Intersection 10:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.9
 Level Of Service: A
 Volume to Capacity (v/c): 0.014

Intersection Setup

| Name | | | 46th Avenue | | 46th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 46th Avenue | | 46th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 12 | 9 | 11 | 6 | 6 | 28 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 12 | 9 | 11 | 6 | 6 | 28 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 2 | 3 | 2 | 2 | 8 |
| Total Analysis Volume [veh/h] | 13 | 10 | 12 | 7 | 7 | 30 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.88 | 8.50 | 7.30 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.07 | 0.07 | 0.02 | 0.02 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.78 | 1.78 | 0.50 | 0.50 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.72 | | 4.61 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.65 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report****Intersection 11:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 24.0
 Level Of Service: C
 Volume to Capacity (v/c): 0.235

Intersection Setup

| Name | | | 48th Avenue | | 48th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 48th Avenue | | 48th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1774 | 0 | 0 | 1931 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 21 | 104 | 23 | 53 | 72 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 21 | 1275 | 23 | 53 | 1346 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 6 | 346 | 6 | 14 | 366 |
| Total Analysis Volume [veh/h] | 0 | 23 | 1386 | 25 | 58 | 1463 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.07 | 0.01 | 0.00 | 0.24 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 16.93 | 0.00 | 0.00 | 24.03 | 0.00 |
| Movement LOS | | C | A | A | C | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.23 | 0.00 | 0.00 | 0.89 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 5.68 | 0.00 | 0.00 | 22.23 | 0.00 |
| d_A, Approach Delay [s/veh] | 16.93 | | 0.00 | | 0.92 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.60 | | | | | |
| Intersection LOS | C | | | | | |



Intersection Level Of Service Report

Intersection 12: 48th Avenue/Fultondale Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 25.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.474 |

Intersection Setup

| Name | Fultondale Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|-------------------|--------|--------|------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 40.00 | 100.00 | 100.00 | 175.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fultondale Street | | | | | | 48th Avenue | | | 48th Avenue | | |
|--|-------------------|--------|--------|--------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 180 | 32 | 130 | 10 | 26 | 26 | 32 | 1825 | 360 | 310 | 1638 | 55 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 89 | 0 | 35 | 0 | 0 | 0 | 0 | 35 | 89 | 53 | 37 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 61 | 0 | 0 | 9 | 0 | 0 | 164 | 0 | 0 | 18 |
| Total Hourly Volume [veh/h] | 208 | 21 | 60 | 7 | 17 | 8 | 21 | 1240 | 163 | 258 | 1118 | 18 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 57 | 6 | 16 | 2 | 5 | 2 | 6 | 337 | 44 | 70 | 304 | 5 |
| Total Analysis Volume [veh/h] | 226 | 23 | 65 | 8 | 18 | 9 | 23 | 1348 | 177 | 280 | 1215 | 20 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | ProtPer | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 9 | 39 | 0 | 9 | 39 | 0 | 9 | 30 | 0 | 12 | 33 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 21 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | C |
|---|--------|-------|-------|-------|-------|------|------|------|-------|------|------|
| C, Cycle Length [s] | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 9 | 9 | 14 | 5 | 68 | 56 | 56 | 8 | 62 | 62 |
| g / C, Green / Cycle | 0.06 | 0.10 | 0.10 | 0.16 | 0.06 | 0.76 | 0.62 | 0.62 | 0.09 | 0.69 | 0.69 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.01 | 0.05 | 0.01 | 0.02 | 0.05 | 0.29 | 0.12 | 0.09 | 0.25 | 0.25 |
| s, saturation flow rate [veh/h] | 3113 | 1683 | 1431 | 1269 | 1589 | 482 | 4584 | 1431 | 3113 | 3204 | 1669 |
| c, Capacity [veh/h] | 176 | 170 | 145 | 303 | 89 | 429 | 2844 | 887 | 279 | 2193 | 1142 |
| d1, Uniform Delay [s] | 42.54 | 36.94 | 38.17 | 32.21 | 40.87 | 3.47 | 9.21 | 7.42 | 41.05 | 6.02 | 6.02 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 137.29 | 0.36 | 2.17 | 0.03 | 1.89 | 0.24 | 0.57 | 0.50 | 25.82 | 0.48 | 0.92 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | |
|---------------------------------------|--------|-------|-------|-------|-------|------|--------|-------|--------|--------|--------|
| X, volume / capacity | 1.28 | 0.14 | 0.45 | 0.03 | 0.30 | 0.05 | 0.47 | 0.20 | 1.00 | 0.37 | 0.37 |
| d, Delay for Lane Group [s/veh] | 179.84 | 37.29 | 40.34 | 32.25 | 42.76 | 3.71 | 9.77 | 7.92 | 66.86 | 6.50 | 6.94 |
| Lane Group LOS | F | D | D | C | D | A | A | A | F | A | A |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.29 | 0.47 | 1.42 | 0.15 | 0.62 | 0.10 | 4.34 | 1.45 | 4.05 | 2.85 | 3.11 |
| 50th-Percentile Queue Length [ft/ln] | 132.23 | 11.86 | 35.59 | 3.74 | 15.42 | 2.59 | 108.47 | 36.34 | 101.31 | 71.28 | 77.76 |
| 95th-Percentile Queue Length [veh/ln] | 9.52 | 0.85 | 2.56 | 0.27 | 1.11 | 0.19 | 7.75 | 2.62 | 7.29 | 5.13 | 5.60 |
| 95th-Percentile Queue Length [ft/ln] | 238.01 | 21.35 | 64.06 | 6.73 | 27.76 | 4.67 | 193.87 | 65.42 | 182.36 | 128.31 | 139.98 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---------------------------------|--------|-------|-------|-------|-------|-------|------|------|------|-------|------|------|
| d_M, Delay for Movement [s/veh] | 179.84 | 37.29 | 40.34 | 32.25 | 42.76 | 42.76 | 3.71 | 9.77 | 7.92 | 66.86 | 6.65 | 6.94 |
| Movement LOS | F | D | D | C | D | D | A | A | A | F | A | A |
| d_A, Approach Delay [s/veh] | 140.52 | | | 40.36 | | | 9.47 | | | 17.78 | | |
| Approach LOS | F | | | D | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 25.54 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.474 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 36.49 | | | 36.49 | | | 36.49 | | | 36.49 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 2.706 | | | 2.019 | | | 3.347 | | | 3.121 | | |
| Crosswalk LOS | B | | | B | | | C | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 777 | | | 777 | | | 577 | | | 644 | | |
| d_b, Bicycle Delay [s] | 16.84 | | | 16.84 | | | 22.80 | | | 20.71 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.178 | | | 1.632 | | | 2.501 | | | 2.403 | | |
| Bicycle LOS | B | | | A | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report****Intersection 13:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 22.7
 Level Of Service: C
 Volume to Capacity (v/c): 0.061

Intersection Setup

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|------------------------------|-------------------|--------|--------|-------------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|---|-------------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 671 | 0 | 0 | 249 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 22 | 95 | 16 | 18 | 99 | 10 | 12 | 0 | 9 | 10 | 0 | 12 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 22 | 538 | 16 | 18 | 263 | 10 | 12 | 0 | 9 | 10 | 0 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 146 | 4 | 5 | 71 | 3 | 3 | 0 | 2 | 3 | 0 | 3 |
| Total Analysis Volume [veh/h] | 24 | 585 | 17 | 20 | 286 | 11 | 13 | 0 | 10 | 11 | 0 | 13 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.02 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 0.06 | 0.00 | 0.01 | 0.05 | 0.00 | 0.03 |
| d_M, Delay for Movement [s/veh] | 7.90 | 0.00 | 0.00 | 8.77 | 0.00 | 0.00 | 22.71 | 20.95 | 10.74 | 22.48 | 20.91 | 13.07 |
| Movement LOS | A | A | A | A | A | A | C | C | B | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.24 | 0.24 | 0.24 | 0.25 | 0.25 | 0.25 |
| 95th-Percentile Queue Length [ft/ln] | 1.45 | 0.00 | 0.00 | 1.57 | 0.00 | 0.00 | 5.95 | 5.95 | 5.95 | 6.15 | 6.15 | 6.15 |
| d_A, Approach Delay [s/veh] | 0.30 | | | 0.55 | | | 17.50 | | | 17.38 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 1.20 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report****Intersection 14:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 22.1
 Level Of Service: C
 Volume to Capacity (v/c): 0.045

Intersection Setup

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|------------------------------|-------------------|--------|--------|-------------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|---|-------------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 671 | 0 | 0 | 249 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 17 | 112 | 14 | 16 | 82 | 20 | 12 | 0 | 15 | 9 | 0 | 9 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 555 | 14 | 16 | 246 | 20 | 12 | 0 | 15 | 9 | 0 | 9 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 151 | 4 | 4 | 67 | 5 | 3 | 0 | 4 | 2 | 0 | 2 |
| Total Analysis Volume [veh/h] | 18 | 603 | 15 | 17 | 267 | 22 | 13 | 0 | 16 | 10 | 0 | 10 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 0.06 | 0.00 | 0.02 | 0.05 | 0.00 | 0.02 |
| d_M, Delay for Movement [s/veh] | 7.87 | 0.00 | 0.00 | 8.81 | 0.00 | 0.00 | 22.00 | 20.45 | 10.58 | 22.06 | 20.49 | 13.11 |
| Movement LOS | A | A | A | A | A | A | C | C | B | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.04 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.26 | 0.26 | 0.26 | 0.21 | 0.21 | 0.21 |
| 95th-Percentile Queue Length [ft/ln] | 1.08 | 0.00 | 0.00 | 1.35 | 0.00 | 0.00 | 6.42 | 6.42 | 6.42 | 5.21 | 5.21 | 5.21 |
| d_A, Approach Delay [s/veh] | 0.22 | | | 0.49 | | | 15.70 | | | 17.58 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 1.11 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report****Intersection 15:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 38.4
 Level Of Service: E
 Volume to Capacity (v/c): 0.070

Intersection Setup

| Name | Denali Boulevard | | Denali Boulevard | | | |
|------------------------------|------------------|--------|------------------|--------|-----------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Denali Boulevard | | Denali Boulevard | | | |
|---|------------------|--------|------------------|--------|--------|--------|
| Base Volume Input [veh/h] | 1350 | 0 | 0 | 1173 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 39 | 17 | 14 | 32 | 7 | 8 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 930 | 17 | 14 | 806 | 7 | 8 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 253 | 5 | 4 | 219 | 2 | 2 |
| Total Analysis Volume [veh/h] | 1011 | 18 | 15 | 876 | 8 | 9 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|-------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.02 | 0.01 | 0.07 | 0.02 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 10.49 | 0.00 | 38.40 | 13.82 |
| Movement LOS | A | A | B | A | E | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.07 | 0.00 | 0.29 | 0.29 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 1.71 | 0.00 | 7.13 | 7.13 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.18 | | 25.39 | |
| Approach LOS | A | | A | | D | |
| d_I, Intersection Delay [s/veh] | 0.30 | | | | | |
| Intersection LOS | E | | | | | |



Intersection Level Of Service Report

Intersection 16: 42nd Avenue/Denali Boulevard

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 99.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.455 |

Intersection Setup

| Name | Denali Boulevard | | | Denali Boulevard | | | 42nd Avenue | | | 42nd Avenue | | |
|------------------------------|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Denali Boulevard | | | Denali Boulevard | | | 42nd Avenue | | | 42nd Avenue | | |
|---|------------------|--------|--------|------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 1350 | 0 | 0 | 1173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 36 | 0 | 3 | 4 | 28 | 0 | 0 | 22 | 52 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 891 | 0 | 36 | 774 | 3 | 4 | 28 | 0 | 0 | 22 | 52 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 242 | 0 | 10 | 210 | 1 | 1 | 8 | 0 | 0 | 6 | 14 |
| Total Analysis Volume [veh/h] | 0 | 968 | 0 | 39 | 841 | 3 | 4 | 30 | 0 | 0 | 24 | 57 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.00 | 0.06 | 0.01 | 0.00 | 0.08 | 0.46 | 0.00 | 0.00 | 0.37 | 0.11 |
| d_M, Delay for Movement [s/veh] | 9.57 | 0.00 | 0.00 | 10.39 | 0.00 | 0.00 | 78.12 | 99.04 | 50.58 | 83.43 | 77.53 | 29.45 |
| Movement LOS | A | A | A | B | A | A | F | F | F | F | F | D |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 | 0.00 | 0.23 | 1.79 | 1.79 | 0.00 | 2.25 | 2.25 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 4.37 | 0.00 | 0.00 | 5.87 | 44.81 | 44.81 | 0.00 | 56.26 | 56.26 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.46 | | | 96.58 | | | 43.70 | | |
| Approach LOS | A | | | A | | | F | | | E | | |
| d_I, Intersection Delay [s/veh] | 3.68 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |



Intersection Level Of Service Report

Intersection 17: 42nd Avenue/Fultondale Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 37.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.202 |

Intersection Setup

| Name | Fultondale Street | | | Fultondale Street | | | 42nd Avenue | | | 42nd Avenue | | |
|------------------------------|-------------------|--------|--------|-------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Fultondale Street | | | Fultondale Street | | | 42nd Avenue | | | 42nd Avenue | | |
|---|-------------------|--------|--------|-------------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 671 | 0 | 0 | 249 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 75 | 0 | 21 | 26 | 39 | 0 | 0 | 54 | 128 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 443 | 0 | 75 | 164 | 21 | 26 | 39 | 0 | 0 | 54 | 128 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 120 | 0 | 20 | 45 | 6 | 7 | 11 | 0 | 0 | 15 | 35 |
| Total Analysis Volume [veh/h] | 0 | 482 | 0 | 82 | 178 | 23 | 28 | 42 | 0 | 0 | 59 | 139 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 | 0.20 | 0.15 | 0.00 | 0.00 | 0.21 | 0.24 |
| d_M, Delay for Movement [s/veh] | 7.63 | 0.00 | 0.00 | 8.60 | 0.00 | 0.00 | 37.50 | 20.09 | 11.47 | 21.32 | 24.63 | 17.75 |
| Movement LOS | A | A | A | A | A | A | E | C | B | C | C | C |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.25 | 0.00 | 0.00 | 0.72 | 0.52 | 0.52 | 0.00 | 2.30 | 2.30 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 6.15 | 0.00 | 0.00 | 18.08 | 12.99 | 12.99 | 0.00 | 57.38 | 57.38 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 2.49 | | | 27.05 | | | 19.80 | | |
| Approach LOS | A | | | A | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 6.31 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |



Intersection Level Of Service Report

Intersection 20: 42nd Avenue/Main Street

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.087 |

Intersection Setup

| Name | Main Street | | Main Street | | 42nd Avenue | |
|------------------------------|-------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Main Street | | Main Street | | 42nd Avenue | |
|---|-------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 661 | 0 | 0 | 849 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 22 | 32 | 0 | 9 | 25 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 458 | 32 | 0 | 569 | 25 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 124 | 9 | 0 | 155 | 7 | 0 |
| Total Analysis Volume [veh/h] | 498 | 35 | 0 | 618 | 27 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.01 | 0.09 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.49 | 0.00 | 17.67 | 9.92 |
| Movement LOS | A | A | A | A | C | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.28 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 7.07 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.00 | | 17.67 | |
| Approach LOS | A | | A | | C | |
| d_I, Intersection Delay [s/veh] | 0.41 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report****Intersection 21:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 20.9
 Level Of Service: C
 Volume to Capacity (v/c): 0.042

Intersection Setup

| Name | | | 48th Avenue | | 48th Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ↩ | | | | ↩ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 48th Avenue | | 48th Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1913 | 0 | 0 | 1642 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 9 | 52 | 19 | 9 | 89 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 9 | 1315 | 19 | 9 | 1173 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 2 | 357 | 5 | 2 | 319 |
| Total Analysis Volume [veh/h] | 0 | 10 | 1429 | 21 | 10 | 1275 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.03 | 0.01 | 0.00 | 0.04 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 16.79 | 0.00 | 0.00 | 20.94 | 0.00 |
| Movement LOS | | C | A | A | C | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.10 | 0.00 | 0.00 | 0.13 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 2.45 | 0.00 | 0.00 | 3.30 | 0.00 |
| d_A, Approach Delay [s/veh] | 16.79 | | 0.00 | | 0.16 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.14 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report****Intersection 22:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 20.1
 Level Of Service: C
 Volume to Capacity (v/c): 0.055

Intersection Setup

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|------------------------------|-------------------|--------|--------|-------------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Fultondale Street | | | Fultondale Street | | | | | | | | |
|---|-------------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 671 | 0 | 0 | 249 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 3 | 100 | 16 | 18 | 105 | 19 | 12 | 0 | 9 | 13 | 0 | 12 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 543 | 16 | 18 | 269 | 19 | 12 | 0 | 9 | 13 | 0 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 148 | 4 | 5 | 73 | 5 | 3 | 0 | 2 | 4 | 0 | 3 |
| Total Analysis Volume [veh/h] | 3 | 590 | 17 | 20 | 292 | 21 | 13 | 0 | 10 | 14 | 0 | 13 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.01 | 0.06 | 0.00 | 0.03 |
| d_M, Delay for Movement [s/veh] | 7.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20.10 | 18.66 | 10.60 | 20.12 | 19.07 | 13.04 |
| Movement LOS | A | A | | | A | A | C | C | B | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.21 | 0.21 | 0.26 | 0.26 | 0.26 |
| 95th-Percentile Queue Length [ft/ln] | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.23 | 5.23 | 5.23 | 6.54 | 6.54 | 6.54 |
| d_A, Approach Delay [s/veh] | 0.04 | | | 0.00 | | | 15.97 | | | 16.71 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 0.88 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report****Intersection 23:**

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 10.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.012

Intersection Setup

| Name | | | 42nd Avenue | | 42nd Avenue | |
|------------------------------|------------|--------|-------------|--------|-------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | | | 42nd Avenue | | 42nd Avenue | |
|---|--------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 7 | 7 | 12 | 102 | 175 | 12 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 7 | 12 | 102 | 175 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 2 | 3 | 28 | 48 | 3 |
| Total Analysis Volume [veh/h] | 8 | 8 | 13 | 111 | 190 | 13 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.60 | 9.37 | 7.66 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.07 | 0.07 | 0.03 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.66 | 1.66 | 0.72 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.99 | | 0.80 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.76 | | | | | |
| Intersection LOS | B | | | | | |



Intersection Level Of Service Report

Intersection 25: 48th Avenue/PA-31 Street

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 75.1
 Level Of Service: F
 Volume to Capacity (v/c): 0.135

Intersection Setup

| Name | PA-31 Street | | 48th Avenue | | 48th Avenue | |
|------------------------------|--------------|--------|-------------|--------|-------------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | PA-31 Street | | 48th Avenue | | 48th Avenue | |
|---|--------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 2235 | 0 | 0 | 2373 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 7 | 2 | 34 | 5 | 3 | 57 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 2 | 1509 | 5 | 3 | 1623 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 410 | 1 | 1 | 441 |
| Total Analysis Volume [veh/h] | 8 | 2 | 1640 | 5 | 3 | 1764 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.14 | 0.01 | 0.02 | 0.00 | 0.02 | 0.02 |
| d_M, Delay for Movement [s/veh] | 75.15 | 18.33 | 0.00 | 0.00 | 24.38 | 0.00 |
| Movement LOS | F | C | A | A | C | A |
| 95th-Percentile Queue Length [veh/ln] | 0.44 | 0.02 | 0.00 | 0.00 | 0.05 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 10.97 | 0.56 | 0.00 | 0.00 | 1.21 | 0.00 |
| d_A, Approach Delay [s/veh] | 63.78 | | 0.00 | | 0.04 | |
| Approach LOS | F | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.21 | | | | | |
| Intersection LOS | F | | | | | |



Intersection Level Of Service Report

Intersection 30: 42nd Avenue/Reserve Loop

| | | | |
|------------------|-----------------|---------------------------|----------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10,000.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.124 |

Intersection Setup

| Name | Reserve Loop | | Reserve Loop | | 42nd Avenue | |
|------------------------------|--------------|--------|--------------|--------|-------------|--------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Reserve Loop | | Reserve Loop | | 42nd Avenue | |
|---|--------------|--------|--------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 184 | 0 | 1 | 3 | 2 | 108 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 184 | 0 | 1 | 3 | 2 | 108 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 50 | 0 | 0 | 1 | 1 | 29 |
| Total Analysis Volume [veh/h] | 200 | 0 | 1 | 3 | 2 | 117 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|----------|--------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 |
| d_M, Delay for Movement [s/veh] | 10000.00 | 0.00 | 0.00 | 0.00 | 11.83 | 8.73 |
| Movement LOS | F | A | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 27.71 | 27.71 | 0.00 | 0.00 | 0.01 | 0.36 |
| 95th-Percentile Queue Length [ft/ln] | 692.67 | 692.67 | 0.00 | 0.00 | 0.28 | 9.07 |
| d_A, Approach Delay [s/veh] | 10000.00 | | 0.00 | | 8.78 | |
| Approach LOS | F | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6195.19 | | | | | |
| Intersection LOS | F | | | | | |



Intersection Level Of Service Report

Intersection 40: 38th Parkway/Reserve Loop (W)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.090 |

Intersection Setup

| Name | Reserve Loop | | 38th Parkway | | 38th Parkway | |
|------------------------------|--------------|--------|--------------|--------|--------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Reserve Loop | | 38th Parkway | | 38th Parkway | |
|---|--------------|--------|--------------|--------|--------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 58 | 51 | 88 | 0 | 0 | 96 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 58 | 51 | 88 | 0 | 0 | 96 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 16 | 14 | 24 | 0 | 0 | 26 |
| Total Analysis Volume [veh/h] | 63 | 55 | 96 | 0 | 0 | 104 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.09 | 0.05 | 0.06 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.91 | 9.29 | 7.59 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.50 | 0.50 | 0.21 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 12.61 | 12.61 | 5.17 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.16 | | 7.59 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.06 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report****Intersection 42: The Aurora Highlands Parkway/38th Parkway**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.088 |

Intersection Setup

| Name | 38th Parkway | | | 38th Parkway | | | Th Au | | | Th Au | | |
|------------------------------|--------------|--------|--------|--------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | 38th Parkway | | | 38th Parkway | | | Th Au | | | Th Au | | |
|---|--------------|--------|--------|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 88 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 88 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 96 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |



Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 |
| d_M, Delay for Movement [s/veh] | 7.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.82 | 9.47 | 8.64 |
| Movement LOS | A | A | | | A | A | | | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.29 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.63 | 7.26 |
| d_A, Approach Delay [s/veh] | 3.66 | | | 0.00 | | | 0.00 | | | 8.64 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 5.49 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |

**Intersection Level Of Service Report****Intersection 43: The Aurora Highlands Parkway/38th Parkway**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.054 |

Intersection Setup

| Name | 38th Parkway | | The Aurora Highlands Parkway | | | |
|------------------------------|---|--------|---|--------|-----------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | 38th Parkway | | The Aurora Highlands Parkway | | | |
|---|--------------|--------|------------------------------|--------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 51 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 51 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 14 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 55 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | | A | A | | |
| 95th-Percentile Queue Length [veh/ln] | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 4.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.72 | | 0.00 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | | | 8.72 | | | |
| Intersection LOS | | | A | | | |



Intersection Level Of Service Report

Intersection 46: 48th Avenue/Harvest Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 26.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.555 |

Intersection Setup

| Name | Harvest Road | | 48th Avenue | | 48th Avenue | |
|------------------------------|--------------|--------|-------------|--------|-------------|--------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 1 | 3 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 450.00 | 200.00 | 400.00 | 100.00 | 100.00 | 500.00 |
| No. of Lanes in Exit Pocket | 0 | 1 | 0 | 1 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 300.00 | 0.00 | 400.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Harvest Road | | 48th Avenue | | 48th Avenue | |
|--|--------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 1379 | 700 | 800 | 1166 | 1282 | 1348 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 | 0.6600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 35 | 21 | 40 | 64 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 497 | 0 | 0 | 0 | 890 |
| Total Hourly Volume [veh/h] | 910 | 0 | 549 | 810 | 910 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 247 | 0 | 149 | 220 | 247 | 0 |
| Total Analysis Volume [veh/h] | 989 | 0 | 597 | 880 | 989 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|-----------|------------|------------|------------|
| Signal Group | 7 | 0 | 5 | 2 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | Lead | - | Lead | - | - | - |
| Minimum Green [s] | 5 | 0 | 5 | 10 | 10 | 0 |
| Maximum Green [s] | 30 | 0 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 46 | 0 | 18 | 54 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 5 | 0 | 0 | 5 | 5 | 0 |
| Pedestrian Clearance [s] | 37 | 0 | 0 | 10 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | No | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | R |
|---|-------|-------|------|-------|------|-------|------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 25 | 25 | 14 | 67 | 49 | 49 |
| g / C, Green / Cycle | 0.25 | 0.25 | 0.25 | 0.14 | 0.67 | 0.49 | 0.49 |
| (v / s)_i Volume / Saturation Flow Rate | 0.21 | 0.21 | 0.00 | 0.13 | 0.19 | 0.22 | 0.00 |
| s, saturation flow rate [veh/h] | 3113 | 1603 | 1431 | 4669 | 4584 | 4584 | 1431 |
| c, Capacity [veh/h] | 778 | 401 | 358 | 656 | 3071 | 2243 | 700 |
| d1, Uniform Delay [s] | 35.68 | 35.41 | 0.00 | 42.35 | 6.74 | 16.62 | 0.00 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.67 | 4.27 | 0.00 | 5.27 | 0.24 | 0.63 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | |
|---------------------------------------|--------|--------|------|--------|--------|--------|------|
| X, volume / capacity | 0.85 | 0.82 | 0.00 | 0.91 | 0.29 | 0.44 | 0.00 |
| d, Delay for Lane Group [s/veh] | 38.35 | 39.68 | 0.00 | 47.62 | 6.98 | 17.26 | 0.00 |
| Lane Group LOS | D | D | A | D | A | B | A |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 7.80 | 7.92 | 0.00 | 5.11 | 2.35 | 4.88 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 194.89 | 198.12 | 0.00 | 127.79 | 58.70 | 121.94 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 12.37 | 12.54 | 0.00 | 8.82 | 4.23 | 8.50 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 309.37 | 313.54 | 0.00 | 220.48 | 105.65 | 212.49 | 0.00 |

**Movement, Approach, & Intersection Results**

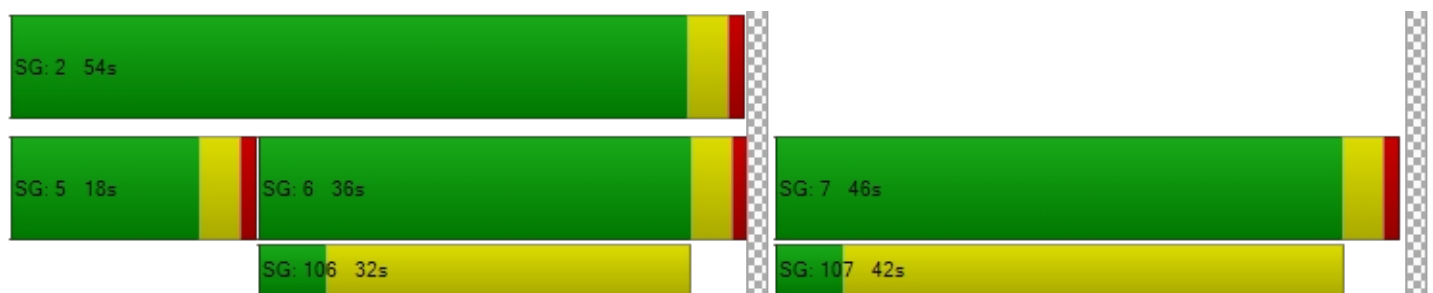
| | | | | | | |
|---------------------------------|-------|-------|-------|------|-------|------|
| d_M, Delay for Movement [s/veh] | 38.79 | 19.84 | 47.62 | 6.98 | 17.26 | 0.00 |
| Movement LOS | D | B | D | A | B | A |
| d_A, Approach Delay [s/veh] | 38.79 | | 23.40 | | 17.26 | |
| Approach LOS | D | | C | | B | |
| d_I, Intersection Delay [s/veh] | 26.05 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.555 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 41.41 | 41.41 | 41.41 |
| I_p,int, Pedestrian LOS Score for Intersection | 3.801 | 3.262 | 4.389 |
| Crosswalk LOS | D | C | E |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 840 | 1000 | 640 |
| d_b, Bicycle Delay [s] | 16.82 | 12.50 | 23.12 |
| I_b,int, Bicycle LOS Score for Intersection | 4.012 | 2.372 | 2.593 |
| Bicycle LOS | D | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 47: 48th Avenue/Powhatan Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 46.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.651 |

Intersection Setup

| Name | Powhatan Road | | | Powhatan Road | | | 48th Avenue | | | 48th Avenue | | |
|------------------------------|---------------|--------|--------|---------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 3 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 200.00 | 100.00 | 200.00 | 200.00 | 100.00 | 100.00 | 200.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Powhatan Road | | | Powhatan Road | | | 48th Avenue | | | 48th Avenue | | |
|--|---------------|--------|--------|---------------|--------|--------|-------------|--------|--------|-------------|--------|--------|
| Base Volume Input [veh/h] | 941 | 455 | 286 | 155 | 530 | 130 | 90 | 300 | 936 | 240 | 600 | 430 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 25 | 15 | 21 | 0 | 0 | 35 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 143 | 0 | 0 | 78 | 0 | 0 | 936 | 0 | 0 | 215 |
| Total Hourly Volume [veh/h] | 941 | 455 | 143 | 155 | 530 | 77 | 105 | 321 | 0 | 240 | 635 | 215 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 256 | 124 | 39 | 42 | 144 | 21 | 29 | 87 | 0 | 65 | 173 | 58 |
| Total Analysis Volume [veh/h] | 1023 | 495 | 155 | 168 | 576 | 84 | 114 | 349 | 0 | 261 | 690 | 234 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 33 | 36 | 0 | 36 | 39 | 0 | 22 | 40 | 0 | 18 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 27 | 0 | 0 | 30 | 0 | 0 | 31 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 29 | 67 | 67 | 9 | 47 | 47 | 7 | 25 | 25 | 13 | 31 | 31 |
| g / C, Green / Cycle | 0.22 | 0.51 | 0.51 | 0.07 | 0.36 | 0.36 | 0.05 | 0.19 | 0.19 | 0.10 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.22 | 0.15 | 0.11 | 0.05 | 0.18 | 0.06 | 0.04 | 0.11 | 0.00 | 0.08 | 0.22 | 0.16 |
| s, saturation flow rate [veh/h] | 4669 | 3204 | 1431 | 3113 | 3204 | 1431 | 3113 | 3204 | 1431 | 3113 | 3204 | 1431 |
| c, Capacity [veh/h] | 1041 | 1638 | 731 | 225 | 1155 | 516 | 165 | 622 | 278 | 309 | 770 | 344 |
| d1, Uniform Delay [s] | 50.26 | 18.38 | 17.43 | 59.15 | 32.43 | 28.26 | 60.51 | 47.39 | 0.00 | 57.57 | 47.82 | 44.86 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 9.46 | 0.48 | 0.66 | 4.86 | 1.54 | 0.68 | 5.03 | 0.80 | 0.00 | 6.24 | 4.00 | 2.37 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|--------|--------|--------|--------|-------|-------|--------|------|--------|--------|--------|
| X, volume / capacity | 0.98 | 0.30 | 0.21 | 0.75 | 0.50 | 0.16 | 0.69 | 0.56 | 0.00 | 0.84 | 0.90 | 0.68 |
| d, Delay for Lane Group [s/veh] | 59.73 | 18.86 | 18.09 | 64.01 | 33.97 | 28.94 | 65.55 | 48.19 | 0.00 | 63.81 | 51.82 | 47.23 |
| Lane Group LOS | E | B | B | E | C | C | E | D | A | E | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 11.91 | 4.42 | 2.70 | 2.87 | 7.34 | 1.90 | 1.97 | 5.20 | 0.00 | 4.49 | 11.22 | 7.09 |
| 50th-Percentile Queue Length [ft/ln] | 297.67 | 110.60 | 67.43 | 71.81 | 183.53 | 47.50 | 49.24 | 130.09 | 0.00 | 112.31 | 280.48 | 177.32 |
| 95th-Percentile Queue Length [veh/ln] | 17.57 | 7.87 | 4.86 | 5.17 | 11.78 | 3.42 | 3.55 | 8.94 | 0.00 | 7.97 | 16.71 | 11.46 |
| 95th-Percentile Queue Length [ft/ln] | 439.14 | 196.84 | 121.38 | 129.26 | 294.62 | 85.51 | 88.64 | 223.62 | 0.00 | 199.21 | 417.81 | 286.51 |

**Movement, Approach, & Intersection Results**

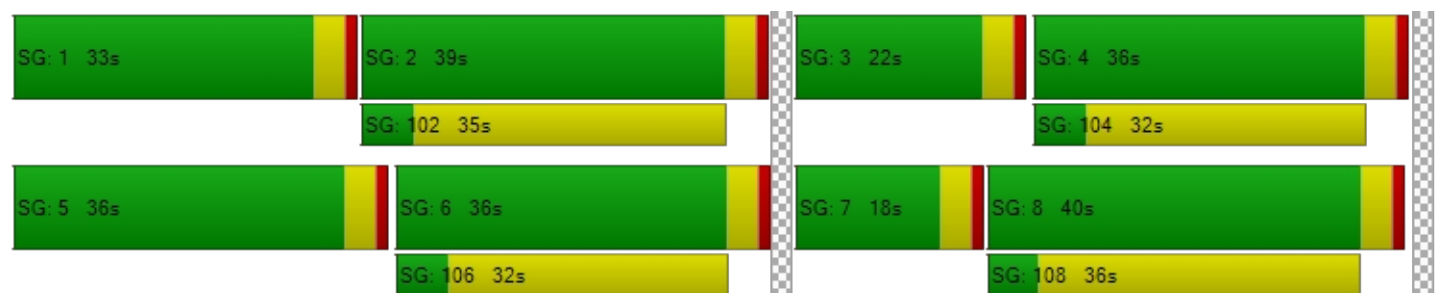
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 59.73 | 18.86 | 18.09 | 64.01 | 33.97 | 28.94 | 65.55 | 48.19 | 0.00 | 63.81 | 51.82 | 47.23 |
| Movement LOS | E | B | B | E | C | C | E | D | A | E | D | D |
| d_A, Approach Delay [s/veh] | 43.78 | | | 39.55 | | | 52.46 | | | 53.55 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 46.70 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.651 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 56.32 | | | 56.32 | | | 56.32 | | | 56.32 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 3.386 | | | 3.095 | | | 4.393 | | | 3.227 | | |
| Crosswalk LOS | C | | | C | | | E | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 492 | | | 538 | | | 554 | | | 492 | | |
| d_b, Bicycle Delay [s] | 36.95 | | | 34.72 | | | 34.00 | | | 36.95 | | |
| I_b,int, Bicycle LOS Score for Intersection | 3.058 | | | 2.307 | | | 2.714 | | | 2.715 | | |
| Bicycle LOS | C | | | B | | | B | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Intersection Level Of Service Report

Intersection 48: 38th Parkway/Powhatan Road

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 35.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.708 |

Intersection Setup

| Name | Powhatan Road | | | Powhatan Road | | | 38th Parkway | | | | | |
|------------------------------|---------------|--------|--------|---------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 150.00 | 150.00 | 100.00 | 150.00 | 200.00 | 100.00 | 200.00 | 200.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Powhatan Road | | | Powhatan Road | | | 38th Parkway | | | | | |
|--|---------------|--------|--------|---------------|--------|--------|--------------|--------|--------|--------|--------|--------|
| Base Volume Input [veh/h] | 152 | 1180 | 168 | 138 | 1529 | 65 | 24 | 78 | 83 | 597 | 111 | 492 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 84 | 0 | 0 | 33 | 0 | 0 | 73 | 0 | 0 | 246 |
| Total Hourly Volume [veh/h] | 255 | 1180 | 84 | 138 | 1529 | 32 | 24 | 78 | 72 | 597 | 111 | 246 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 321 | 23 | 38 | 415 | 9 | 7 | 21 | 20 | 162 | 30 | 67 |
| Total Analysis Volume [veh/h] | 277 | 1283 | 91 | 150 | 1662 | 35 | 26 | 85 | 78 | 649 | 121 | 267 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 110 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | ProtPer | Permis | Permis | Protect | Permis | Permis | ProtPer | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 9 | 30 | 0 | 16 | 37 | 0 | 9 | 36 | 0 | 28 | 55 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 21 | 0 | 0 | 14 | 0 | 0 | 27 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [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 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 64 | 53 | 53 | 7 | 55 | 55 | 38 | 10 | 10 | 24 | 31 | 31 |
| g / C, Green / Cycle | 0.58 | 0.48 | 0.48 | 0.07 | 0.50 | 0.50 | 0.35 | 0.09 | 0.09 | 0.22 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.68 | 0.28 | 0.06 | 0.05 | 0.36 | 0.02 | 0.03 | 0.05 | 0.05 | 0.21 | 0.07 | 0.19 |
| s, saturation flow rate [veh/h] | 409 | 4584 | 1431 | 3113 | 4584 | 1431 | 986 | 1683 | 1431 | 3113 | 1683 | 1431 |
| c, Capacity [veh/h] | 256 | 2194 | 685 | 208 | 2289 | 714 | 385 | 153 | 130 | 679 | 477 | 405 |
| d1, Uniform Delay [s] | 40.36 | 20.78 | 15.98 | 50.36 | 21.65 | 14.15 | 24.15 | 47.91 | 48.12 | 42.51 | 30.48 | 34.78 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 79.97 | 1.15 | 0.40 | 4.64 | 2.05 | 0.13 | 0.07 | 3.13 | 4.37 | 8.61 | 0.28 | 1.83 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, 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 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|--------|-------|-------|--------|-------|-------|--------|-------|--------|--------|--------|
| X, volume / capacity | 1.08 | 0.58 | 0.13 | 0.72 | 0.73 | 0.05 | 0.07 | 0.56 | 0.60 | 0.96 | 0.25 | 0.66 |
| d, Delay for Lane Group [s/veh] | 120.33 | 21.93 | 16.38 | 55.00 | 23.71 | 14.28 | 24.22 | 51.04 | 52.49 | 51.12 | 30.76 | 36.61 |
| Lane Group LOS | F | C | B | D | C | B | C | D | D | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 8.70 | 7.97 | 1.34 | 2.16 | 11.21 | 0.47 | 0.46 | 2.36 | 2.21 | 9.43 | 2.52 | 6.45 |
| 50th-Percentile Queue Length [ft/ln] | 217.39 | 199.33 | 33.58 | 53.89 | 280.33 | 11.77 | 11.52 | 59.08 | 55.34 | 235.70 | 62.92 | 161.28 |
| 95th-Percentile Queue Length [veh/ln] | 14.28 | 12.60 | 2.42 | 3.88 | 16.70 | 0.85 | 0.83 | 4.25 | 3.98 | 14.46 | 4.53 | 10.62 |
| 95th-Percentile Queue Length [ft/ln] | 356.99 | 315.10 | 60.44 | 97.00 | 417.62 | 21.18 | 20.73 | 106.35 | 99.61 | 361.59 | 113.26 | 265.42 |

**Movement, Approach, & Intersection Results**

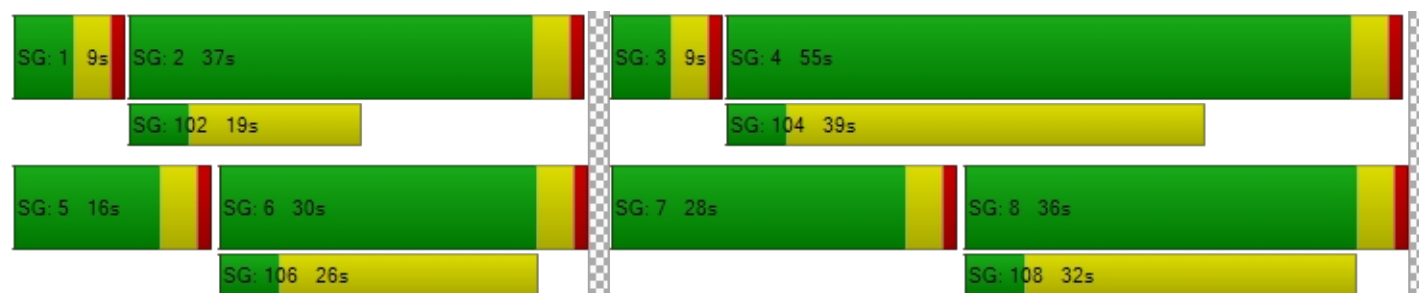
| | | | | | | | | | | | | |
|---------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 120.33 | 21.93 | 16.38 | 55.00 | 23.71 | 14.28 | 24.22 | 51.04 | 52.49 | 51.12 | 30.76 | 36.61 |
| Movement LOS | F | C | B | D | C | B | C | D | D | D | C | D |
| d_A, Approach Delay [s/veh] | 38.13 | | | 26.07 | | | 47.95 | | | 45.01 | | |
| Approach LOS | D | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 35.32 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.708 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 46.39 | | | 46.39 | | | 46.39 | | | 46.39 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 3.368 | | | 3.397 | | | 2.629 | | | 3.089 | | |
| Crosswalk LOS | C | | | C | | | B | | | C | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 473 | | | 600 | | | 582 | | | 927 | | |
| d_b, Bicycle Delay [s] | 32.10 | | | 26.97 | | | 27.68 | | | 15.84 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.514 | | | 2.594 | | | 1.992 | | | 3.677 | | |
| Bicycle LOS | B | | | B | | | A | | | D | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





Option 1: Add NB LT Lane

| | | | | | | |
|-------------------------------|--------------------------|------|--------------|-------|-------------|-------|
| Number | 30 | | | | | |
| Intersection | 42nd Avenue/Reserve Loop | | | | | |
| Control Type | Two-way stop | | | | | |
| Analysis Method | HCM 7th Edition | | | | | |
| Name | Reserve Loop | | Reserve Loop | | 42nd Avenue | |
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 200 | 0 | 1 | 3 | 2 | 117 |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Capacity Analysis

| | | | | | | |
|-----------------------------------|------|--------|--------|--------|------|------|
| Calculated Rank | 2 | 1 | 1 | 1 | 3 | 2 |
| v_c, Conflicting Flow Rate | 4 | 0 | 0 | 0 | 403 | 3 |
| v_c, Stage 1 | 4 | 0 | 0 | 0 | 3 | 3 |
| v_c, Stage 2 | 0 | 0 | 0 | 0 | 400 | 0 |
| c_p,x, Potential Capacity [veh/h] | 1618 | 0 | 0 | 0 | 604 | 1082 |
| c_p,x, Stage 1 [veh/h] | 1625 | 0 | 0 | 0 | 1021 | 1086 |
| c_p,x, Stage 2 [veh/h] | 1623 | 0 | 0 | 0 | 677 | 1085 |
| c_m,x, Movement Capacity [veh/h] | 1618 | 100000 | 100000 | 100000 | 529 | 1082 |
| c_m,x, Stage 1 [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| c_m,x, Stage 2 [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| c_T, Total Capacity [veh/h] | 1618 | 100000 | 100000 | 100000 | 529 | 1082 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---|-------|------|-------|------|-------|------|
| V/C, Movement V/C Ratio | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 |
| d_M, Delay for Movement [s/veh] | 7.54 | 0.00 | 0.00 | 0.00 | 11.83 | 8.73 |
| Movement LOS | A | A | A | A | B | A |
| Critical Movement | No | | No | No | Yes | No |
| 95th-Percentile Queue Length [veh/ln] | 0.42 | 0.00 | 0.00 | 0.00 | 0.01 | 0.36 |
| 95th-Percentile Queue Length [ft/ln] | 10.56 | 0.00 | 0.00 | 0.00 | 0.28 | 9.07 |
| d_A, Approach Delay [s/veh] | 7.54 | | 0.00 | | 8.78 | |
| Approach LOS | A | | A | | A | |
| V/C_I, Worst Movement V/C Ratio | | | 0.00 | | | |
| d_I, Worst Movement Control Delay [s/veh] | | | 11.83 | | | |
| d_I, Intersection Delay [s/veh] | | | 7.90 | | | |
| Intersection LOS | | | B | | | |