I-10/ SR-101L Traffic Interchange

Technical Memorandum #3
Lane Line Diagrams and Future Conditions Traffic Analysis

Prepared for

MARICOPA ASSOCIATION of GOVERNMENTS

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1.0 Introduction

The Interstate 10 (I-10) and State Route 101L (SR-101L) Traffic Interchange (TI) Traffic Analyses and Alternatives Study is being conducted by the Maricopa Association of Governments (MAG) to analyze traffic patterns and system performance in order to develop alternatives that will be used to further the Arizona Department of Transportation's (ADOT) predesign efforts through the development of a Design Concept Report. The study Planning Partners include the cities of Avondale, Glendale, Goodyear, Phoenix, and Tolleson, MAG, and ADOT.

1.1 Study Overview

MAG completed the I-10/SR-101L System Traffic Interchange Feasibility Analysis (Feasibility Study) in November 2018. The Feasibility Study recommended a freeway-to-freeway system interchange Direct High Occupancy Vehicle (DHOV) ramp connecting westbound I-10 to northbound SR-101L (DHOV Ramp W-N) and southbound SR-101L to eastbound I-10 (DHOV Ramp S-E). The Feasibility Study also recommended access to 91st Avenue from southbound SR-101L. The Feasibility Study concluded that the chosen alternatives enhance regional travel, eliminate existing weaving and safety issues, and improve connectivity to support economic development.

The purpose of the current study is to develop supporting material for proposed geometric alterations to the I-10/SR-101L TI. Technical Memorandum #2 covered the existing conditions and expected future performance under 2040 demand and No Build conditions. The findings identified needs to address traffic operations within the study, including the freeway TIs.

A workshop held March 11, 2021, identified improvement strategies for each I-10 and SR-101L mainline direction within the study area. The strategies were then aggregated into three network alternatives to be analyzed for operational performance. The workshop also addressed key issues among the freeway TIs and the intersections along McDowell Road at 99th Avenue and 91st Avenue. A detailed traffic analysis was performed to develop alternatives that will be used to further ADOT predesign efforts in creating a design concept report.

The initial layout of alternatives will provide study stakeholders information to identify the feasibility of the project, potential fatal flaws that may prohibit future exploration and determine the advancement of the project into preliminary design.

1.2 Memorandum Layout

Section 2.0 addresses the system improvements including the DHOV ramps and two alternatives for SR-101L southbound access to 91st Avenue and summarizes the results of the HCS7 segment Level of Service (LOS) analysis, speed heat maps, and travel time comparisons. Any freeway segment or signalized intersection performing at LOS D or better is considered acceptable. The section also provides a recommendation of which alternative results in the best traffic operations.

Section 3.0 details the southbound SR-101L freeway alternative configuration and summarizes the results of the HCS7 segment LOS analysis, speed heat maps, and travel time comparisons. The section also provides a recommendation of which alternative results in the best traffic operations.

Section 4.0 details the northbound SR-101L freeway alternative configurations and summarizes the results of the HCS7 segment LOS analysis, speed heat maps, and travel time comparisons. The section also provides a recommendation of which alternative results in the best traffic operations.

Section 5.0 details the eastbound I-10 freeway alternative configurations and summarizes the results of the HCS7 segment LOS analysis, speed heat maps, and travel time comparisons. The section also provides a recommendation of which alternative results in the best traffic operations.

Section 6.0 details the westbound I-10 freeway alternative configurations and summarizes the results of the HCS7 segment LOS analysis, speed heat maps, and travel time comparisons. The section also provides a recommendation of which alternative results in the best traffic operations.

Section 7.0 considers the utility of decision lanes separately from the mainline alternatives using the HCS7 analysis. The addition of decision lanes can be considered in tandem with alternatives or separately as some alternatives eliminate the need for certain decision lanes.

Section 8.0 details alternatives and performance measures of intersections within the study area. All intersections were evaluated using Highway Capacity Manual 6 (HCM 6) methodologies in Synchro 11 software.

Section 9.0 summarizes which alternatives result in the best traffic operations for each freeway mainline and intersection within the study area.

Appendix A illustrates the freeway alternative configurations in lane diagrams. Mainline alternatives can be mixed and matched differently than what is presented in ***Appendix A***. These lane diagrams were created as a visual aid to convey the alternative configurations. The groupings of different mainline alternatives within the lane line diagrams are not to suggest these alternatives are to be paired together. They do, however, represent how the alternatives were set up in the Vissim simulation models.

Appendix B summarizes HCS7 results graphically. HCS7 LOS analysis uses methodologies from the HCM 6 to determine level of service based on expected freeway volumes and capacity. The methodology considers the configuration of the freeway and whether vehicles are merging, diverging, or weaving.

Appendix C shows speed heat maps for each freeway alternative in the AM and PM peak hours. Vissim microsimulation software was used to predict average speeds and average travel times throughout each freeway mainline. Speed heat maps represent the average speed of vehicles per 500-foot segment of the freeway in five-minute intervals. These heat maps are useful for identifying where congestion occurs in a network, whether or how quickly queues form and dissipate, and how consistent travel speeds stay within an area over time.

Average travel times are based on the amount of time a vehicle takes to pass from one end of the project area to the other.

Appendix D provides summary tables of the intersection analysis.

Appendix E details the full signal timing plans and Synchro 11 analysis outputs.

Appendix F summarizes the HCS7 freeway segment LOS results graphically.

1.3 Study Area

The study area, shown in ***Figure 1***, includes the I-10/SR-101L TI. The study area is generally bounded by the I-10 and Avondale Boulevard TI to the west, the I-10 and 83rd Avenue TI to the east, Roosevelt Street to the south, and the SR-101L and Indian School Road TI to the north. The signalized intersections within the study area are shown in ***Figure 2***.

Figure 1 – Study Area

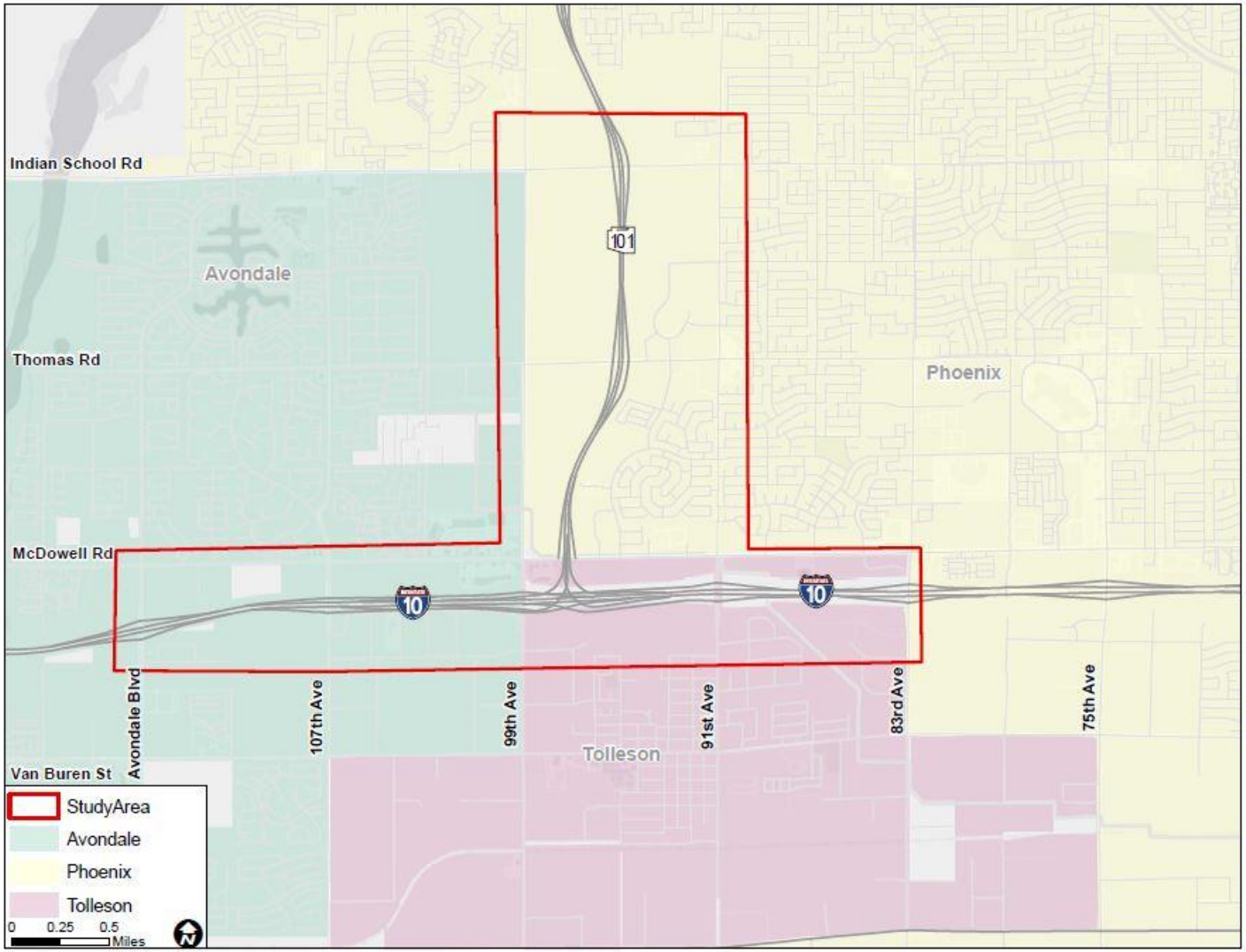
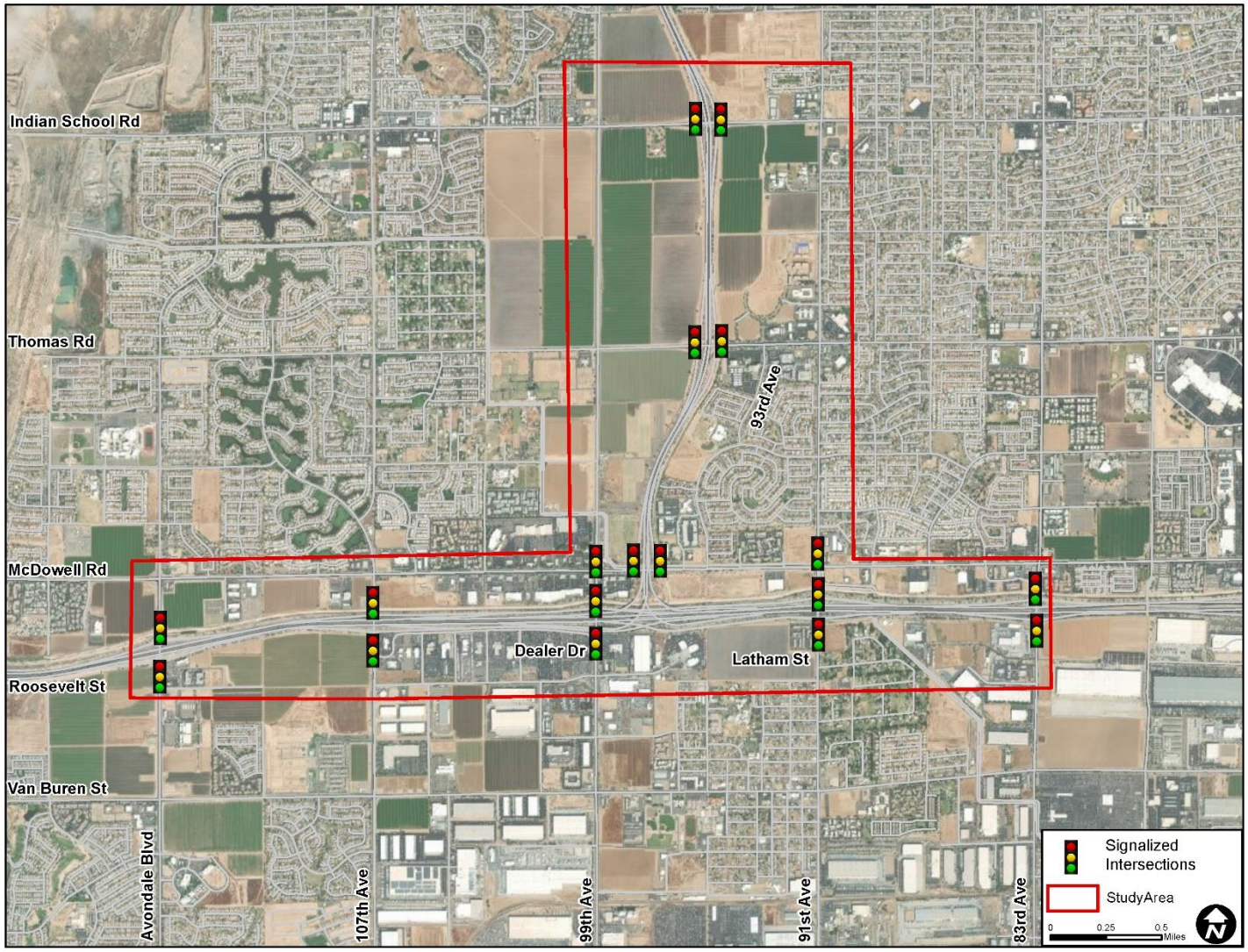


Figure 2 – Signalized Intersections within Study Area



2.0 System TI Alternatives

2.1 Overview of System TI Alternatives Development

The results of the operational analysis of the 2040 No Build conditions in comparison to the 2020 Existing conditions were used in system TI alternative development. The results included:

- A network wide performance evaluation determined that there is a notable increase in delay and travel time expected across the network, while speeds were expected to reduce drastically.
- Travel time analysis from southbound SR-101L to 91st Avenue indicated that travel time would increase during both the AM and PM peak hours, with travel time doubling for some drivers.
- Origin-Destination (O-D) analysis indicated High Occupancy Vehicle (HOV) travel demand in support of a DHOV ramp system between I-10 and SR-101L.
- O-D analysis also revealed that a 91st Avenue access ramp from SR-101L southbound would reduce volume on SR-101L southbound, McDowell Road, and Ramp S-E as some drivers had been going to 83rd Avenue to access 91st Avenue to avoid the congested McDowell Road.

The main considerations in the development of the system TI alternatives were:

1. Providing DHOV connections to reduce congestion by eliminating weaving maneuvers of HOV lane vehicles when transitioning between the two freeway systems;
2. Reduce weaving on freeway mainlines by braiding exit ramps; and
3. Providing an exit ramp from southbound SR-101L to 91st Avenue to improve travel times of 91st Avenue bound traffic and reduce demand on SR-101L southbound mainline, Ramp S-E, and McDowell Road.

2.2 System TI Alternatives and Analysis

Appendix A provides lane diagrams illustrating the alternatives. Alternatives include providing DHOV Ramp W-N and DHOV Ramp S-E connections between I-10 and SR-101L, and two exit ramp options to provide direct access from southbound SR-101L to 91st Avenue.

2.2.1 Alternative System TI One (ST1): DHOV Ramp Only

I-10 and SR-101L mainline freeway medians would be widened to accommodate DHOV Ramp W-N and DHOV Ramp S-E between I-10 and SR-101L. The DHOV ramps will allow

HOV traffic to transfer between freeways without crossing multiple lanes of traffic to access the existing system ramps.

The DHOV Ramp was included in all three model runs, so no results measure exclusively the impacts of a DHOV ramp, but all alternatives with the DHOV ramp were found to have reduced travel times and improved average speeds compared to the No Build Condition.

2.2.2 Alternative System TI Two (ST2): SR-101L Braid Ramp at Thomas Road to 91st Avenue

In addition to mainline freeway median widening and the DHOV ramp connections described in ST1, this alternative would have a single-lane exit ramp depart from southbound SR-101L just north of Thomas Road and would braid around the southbound SR-101L entrance ramp at Thomas Road. A lane splits from this ramp to provide an exit at McDowell Road. The system ramp would fly over mainline I-10 and touch down to converge with the eastbound I-10 exit ramp at 91st Avenue. A merge would not be required as the converged ramp becomes two lanes. A third lane is added to the ramp at the 91st Avenue intersection.

The existing southbound SR-101L exit ramp at McDowell Road would be replaced in this alternative.

The traffic demand at Ramp S-E, SR-101L and McDowell Road TI, and the intersection of 91st Avenue and McDowell Road would be reduced due to the redirection of traffic accessing 91st Avenue. The direct access ramp would increase demand at I-10 eastbound and 91st Avenue TI.

Segment LOS Analysis

ST2 solves the weaving issues between Thomas Road and McDowell Road, improving the LOS of every segment south of the Thomas Road exit ramp to an acceptable level. This alternative, however, does not resolve the weave between the Indian School Road entry ramp and the Thomas Road exit ramp and all sections north of the Thomas Road exit ramp are expected to operate at a poor LOS.

The LOS analysis for ST2 for AM and PM peak hours can be seen in ***Appendix B***. The original HCS7 reports can be seen in ***Appendix F***.

Speed Heat Maps

Average speeds along the southbound SR-101L corridor are anticipated to be reduced to approximately half the posted speed limit during the PM peak hour in the congested

sections north of the Thomas Road exit ramp, though the freeway is expected to reach free flow speeds south of Thomas Road exit ramp.

Speed heat maps for ST2 can be seen in ***Appendix C***.

2.2.3 Alternative System TI Three (ST3): SR-101L Braid Ramp at Indian School Road to 91st Avenue

In addition to mainline freeway widening and the DHOV ramp connections described in ST1, this alternative would have a two-lane exit ramp depart from southbound SR-101L just north of Indian School Road and travel under the Indian School Road overpass bridge. The ramp would be braided with the southbound SR-101L entrance ramps at Indian School Road and Thomas Road. A lane splits from this ramp to provide an exit at Thomas Road. The two lanes downstream split; one lane provides an exit southbound at McDowell Road. The now single-lane system ramp flies over mainline I-10 and touches down to converge with the eastbound I-10 exit ramp at 91st Avenue. A merge would not be required as the converged ramp becomes two lanes. A third lane is added to the ramp at the 91st Avenue intersection.

The existing southbound SR-101L exit ramps at Thomas Road and McDowell Road would be replaced in this alternative.

Consistent with Alternative ST2, this alternative would also decrease traffic demand at the Ramp S-E, SR-101L and McDowell Road TI, and the intersection of 91st Avenue and McDowell Road due to the redirection of traffic accessing 91st Avenue. The direct access ramp would increase demand at I-10 eastbound and 91st Avenue TI.

ST3 eliminates the weaving section between Indian School Road and Thomas Road as well as the weaving section between Thomas Road and McDowell Road. However, a weaving section would remain between Camelback Road and Indian School Road.

Segment LOS Analysis

All sections south of the Indian School Road exit ramp are expected to perform at an acceptable level. The remaining weaving section between Camelback Road and Indian School Road is expected to perform poorly.

The LOS analysis results for ST3 for AM and PM peak hours can be seen in ***Appendix B***. The full reports for the HCS7 analysis can be seen in ***Appendix F***.

Speed Heat Maps

Average speeds in the weaving section between Camelback Road and Indian School Road are expected to be reduced by about 20 mph, though south of the Indian School Road exit ramp they are expected to incrementally increase to near free flow speeds.

Speed Heat Maps for AM and PM peak hours of ST3 can be seen in ***Appendix C***.

2.3 Travel Time Comparison

The travel time comparisons for the system TI alternatives were grouped with the southbound alternative SB1, as all these alternatives impact the SR-101L southbound traffic. The travel time comparisons can be seen in ***Section 3.3***. Note ST1 is included in all the model runs, therefore it is not listed specifically in any travel time figure.

2.4 Recommendation

ST3 is recommended to be advanced to the scoping process as it reduces travel times more than any other southbound alternative, eliminates the most weaving sections, and reduces volumes on McDowell Road and the Ramp S-E by providing direct access to 91st Avenue.

3.0 SR-101L Southbound Alternatives

3.1 Overview of Alternative Development

The LOS segment analysis of 2040 No Build Conditions informed the development of southbound alternatives. It was found that several southbound freeway segments were expected to operate at a poor LOS during the peak hours, including all system interchange ramp connections. Overall, the network performs worse in the PM peak hour, with all southbound SR-101L freeway segments operating at a poor LOS by 2040.

Furthermore, travel time analysis determined that southbound SR-101L travel times reduced dramatically during both the AM and PM peak hours in the 2040 No Build conditions.

The main consideration in alternative development was to improve operations in the southbound SR-101L segment from Indian School Road to McDowell Road.

3.2 SR-101L Southbound Alternative and Analysis

Appendix A provides lane diagrams illustrating the alternative. The alternative considered was a braid ramp providing southbound exit ramps to Thomas Road and McDowell Road.

3.2.1 Alternative SB1: Braid Ramp to McDowell Road

SB1 would include a two-lane exit ramp departing from southbound SR-101L just north of Indian School Road and would travel under the Indian School Road overpass bridge. The two lanes downstream split; one lane provides an exit at Thomas Road. The second lane provides an exit at McDowell Road. The ramp would be braided around the southbound SR-101L entrance ramps at Indian School Road and Thomas Road. This alternative is similar in nature to Alternative ST3; however, it does not provide direct access to 91st Avenue.

The existing southbound SR-101L exit ramps at Thomas Road and McDowell Road would be replaced in this alternative. This alternative eliminates multiple weaving sections including the one between Indian School Road and Thomas Road as well as the weaving section between Thomas Road and McDowell Road. However, a weaving section would remain between Camelback Road and Indian School Road.

Segment LOS Analysis

The weaving section between Indian School Road and Thomas Road as well as the weaving section between Thomas Road and McDowell Road are both anticipated to perform poorly in the No Build condition. All sections south of the Indian School Road exit ramp until the diverge section just before the system ramps are expected to perform at an acceptable level.

Without a direct connection to 91st Avenue, there would be a higher volume of traffic diverging to the Ramp S-E in the PM peak hour. The volume is anticipated to increase because some drivers will choose to travel farther to 91st Avenue via 83rd Avenue to avoid congestion on McDowell Road. ***Figure 3*** and ***Figure 4*** show how travel times increase when drivers access 91st Avenue via McDowell Road in the SB1 conditions compared with direct access in ST3 conditions. Travel time increases by as much as 10 minutes in the PM peak hour. The routing choices of vehicles in the microsimulation model are sensitive to high travel times and will reroute to longer paths if it becomes advantageous as it does especially in the PM peak hour for this O-D pair.

The LOS analysis for SB1 for AM and PM peak hours can be seen in ***Appendix B***. The HCS7 reports used in this analysis can be seen in ***Appendix F***.

Speed Heat Maps

The average speed of the freeway slows down to about 45 mph approaching the Indian School Road exit ramp but increases to near free flow speed until after the Thomas Road entrance ramp; speeds remain around 45 mph until Ramp S-E.

Speed heat maps for SB1 can be seen in ***Appendix C***.

3.3 Travel Time Comparison

ST2, ST3, and SB1 were all grouped in these travel time comparisons below as these alternatives all impact the southbound SR-101L travel times.

Figure 3 and ***Figure 4*** show the AM and PM peak hour average travel time from southbound SR-101L to 91st Avenue and compare the 2040 No Build conditions with the southbound and system TI alternatives. All these alternatives indicate a travel time that is greatly reduced from the 2040 No Build conditions. ST3 has the lowest travel time of all the alternatives and performs just as well in AM and PM peak hours.

Figure 5 and ***Figure 6*** show AM and PM peak hour southbound average travel time comparisons along SR-101L for vehicles passing from the Indian School Road exit ramp to the start of the system ramps. All alternatives indicate a travel time that is greatly reduced from the 2040 No Build conditions. A greater reduction in travel time is expected during the PM peak hour than the AM peak hour.

Figure 3 – AM Travel Time Comparison

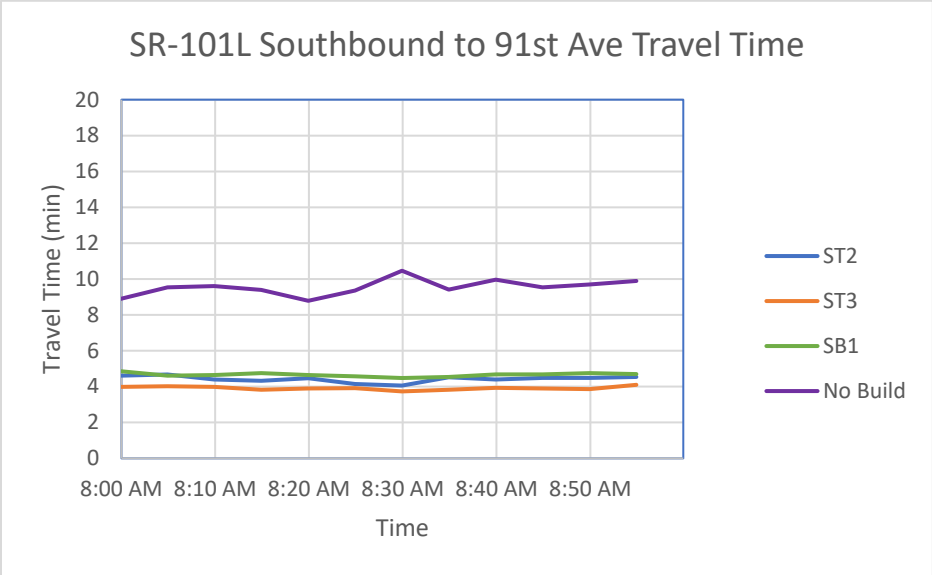


Figure 4 – PM Travel Time Comparison

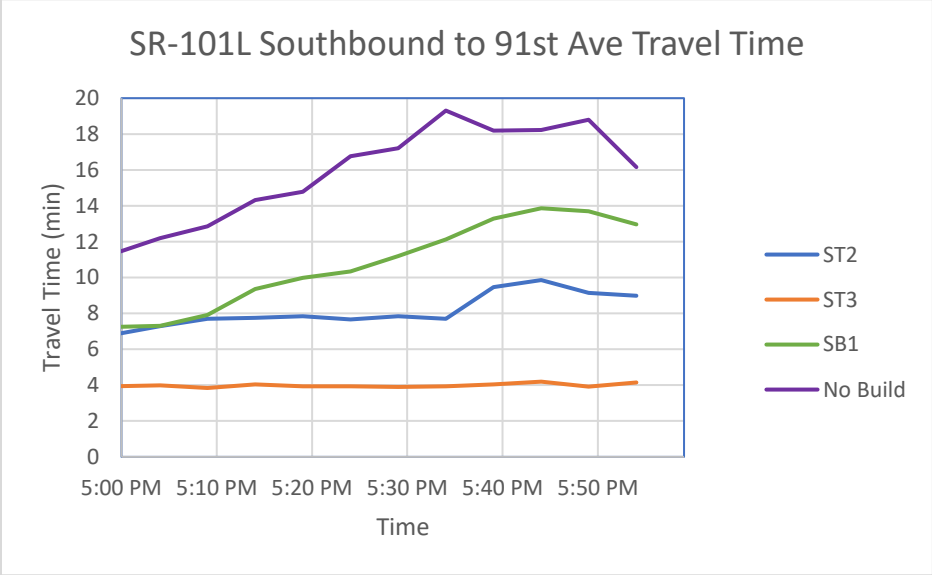


Figure 5 – AM Period Travel Time Comparison

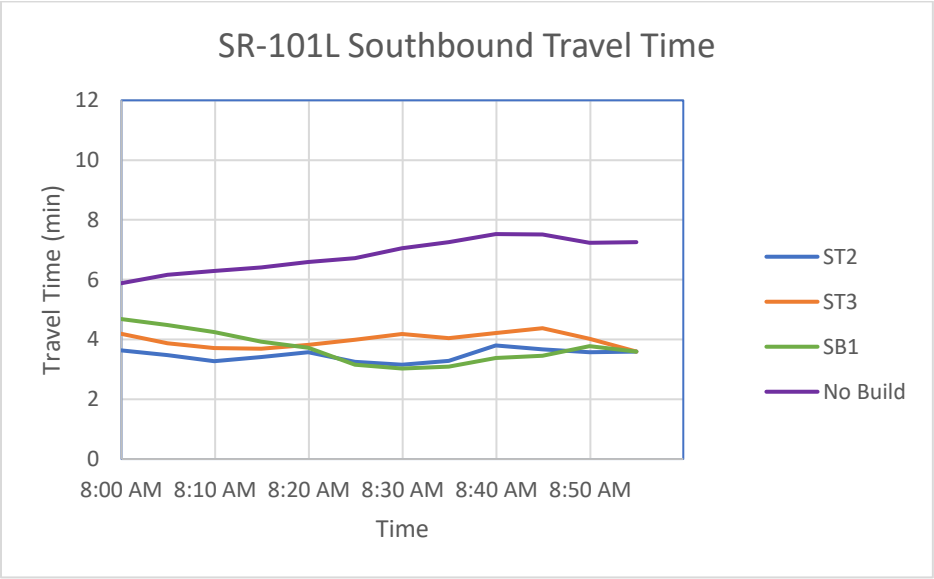
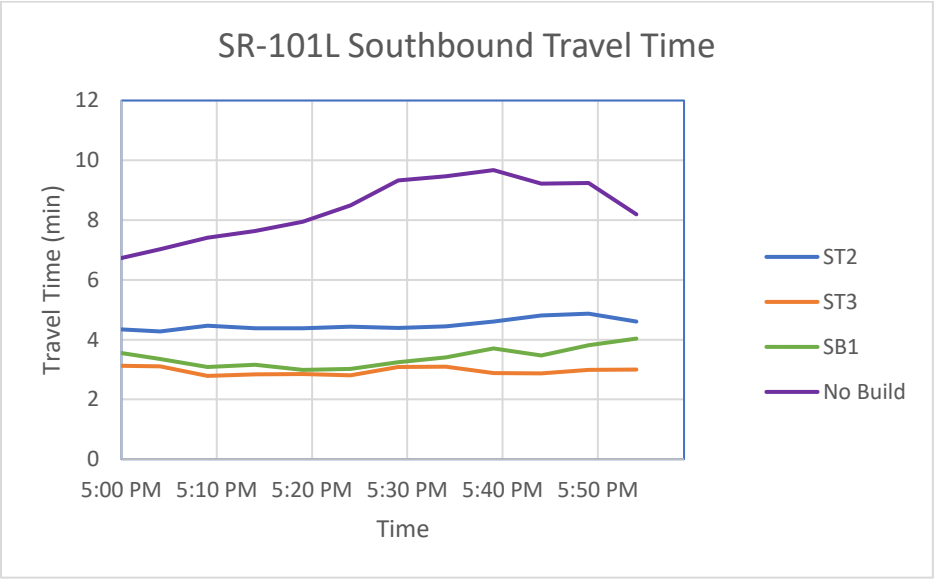


Figure 6 – PM Period Travel Time Comparison



3.4 Recommendation

ST3 is recommended to be advanced to the scoping process as it reduces travel times more than any other southbound alternative, eliminates the most weaving sections, and reduces volumes on McDowell Road and the Ramp S-E by providing direct access to 91st Avenue.

4.0 SR-101L Northbound Alternatives

4.1 Overview of Alternative Development

The LOS Segment analysis of 2040 No Build conditions informed the development of northbound alternatives. It was found that several northbound freeway segments were expected to operate at a poor LOS during the peak hours, including all system interchange ramp connections. Overall, the network performs worse in the PM peak hour, with approximately half of the northbound SR-101L freeway segments operating at a poor LOS by 2040.

The main considerations in alternative development were:

1. Reduction of weaving maneuvers from the eastbound I-10 to northbound SR-101L ramp (Ramp E-N) to the Thomas Road exit to improve travel time and segment LOS; and
2. Improve operations and reduce travel times in the northbound SR-101L segment from McDowell Road to Thomas Road by separating traffic from Ramp E-N and Ramp W-N.

4.2 SR-101L Northbound Alternatives and Analysis

Appendix A provides lane diagrams illustrating the alternatives. Alternatives include a collector-distributor (C-D) road from McDowell Road to Thomas Road, a two-lane exit (new decision lane) at Thomas Road, and a barrier along Ramp E-N separating traffic from Ramp W-N until after Thomas Road exit ramp.

4.2.1 Alternative NB1: C-D Road from McDowell Road to Thomas Road

This alternative would change the location of the northbound SR-101L entrance points. The existing northbound SR-101L entrance ramp at McDowell Road would be converted to a two-lane C-D roadway from McDowell Road to Thomas Road. The single-lane northbound SR-101L exit ramp at Thomas Road would be tied into the C-D roadway. A merge would not be required as the C-D roadway would become three lanes.

This alternative was removed from consideration during analysis due to operational infeasibility. The alternative was modeled in Vissim and gridlock conditions originating at the Thomas Road TI were observed. Consequently, it was determined to remove the alternative from further evaluation.

4.2.2 Alternative NB2: Two-Lane Exit Ramp at Thomas Road

The existing northbound SR-101L single-lane exit ramp at Thomas Road would be retrofitted to accommodate a two-lane drop-decision. The northbound SR-101L travel

lane adjacent to the exit lane would have the option to continue northbound or exit at Thomas Road. The exit ramp would be widened to two lanes.

Segment LOS Analysis

This alternative leaves all existing weaving sections in place; however, it reduces the number of lane changes required of vehicles from Ramp W-N to exit at Thomas Road to two lane changes. All sections are expected operate at a poor LOS except for the basic freeway segment between the Thomas Road exit ramp and the Thomas Road entry ramp.

The LOS analysis for NB2 for AM and PM peak hours can be seen in ***Appendix B***. The original HCS7 reports can be viewed in ***Appendix F***.

Speed Heat Maps

Despite the poor level of service predicted by HCS7 methods, the expected average speeds along SR-101L northbound are nearly free flow until the weaving section between Thomas Road and Indian School Road, where speeds reduce to about 45 mph.

The speed maps for NB2 can be seen in ***Appendix C***.

4.2.3 Alternative NB3: Barrier Separated Ramp E-N

The Ramp E-N would be barrier separated from the general purpose lanes along northbound SR-101L to Thomas Road. Signage indicating access to Thomas Road via the I-10 eastbound exit ramp at 91st Avenue would be constructed.

This alternative was considered to reduce weaving of drivers traveling from the Ramp E-N to the northbound SR-101L exit ramp at Thomas Road.

Traffic demand would increase at the I-10 and 91st Avenue TIs and arterial intersections leading to Thomas Road due to the redirection of traffic.

Segment LOS Analysis

In this alternative, the barrier separation reduces the impacts of the weaving section between McDowell Road and Thomas Road which is expected to perform at an acceptable level. The LOS becomes poor after the Thomas Road exit ramp, when the two divided mainline segments merge. The weaving sections between Thomas Road and Indian School Road as well as the weaving section between Indian School Road and Camelback Road are both expected to perform poorly.

The LOS analysis for NB3 for AM and PM peak hours can be seen in ***Appendix B***. The original HCS7 reports for NB3 can be seen in ***Appendix F***.

Speed Heat Maps

The expected average speed along the SR-101L northbound mainline maintain near free flow speeds in the basic sections but are reduced to approximately 45 mph in the merging and weaving sections. The heat maps indicate that queues and slowdowns are quick to form but are just as quick to dissipate.

The speed heat maps of NB3 can be seen in ***Appendix C***.

4.3 Travel Time Comparison

Travel times between the northbound alternatives perform well and maintain consistent travel times throughout both the AM and PM peak hours. There is no distinction between the alternatives and the No Build condition regarding travel time despite the larger variations in LOS reported by the HCS7 analysis.

Figure 7 – AM Period Travel Time Comparison

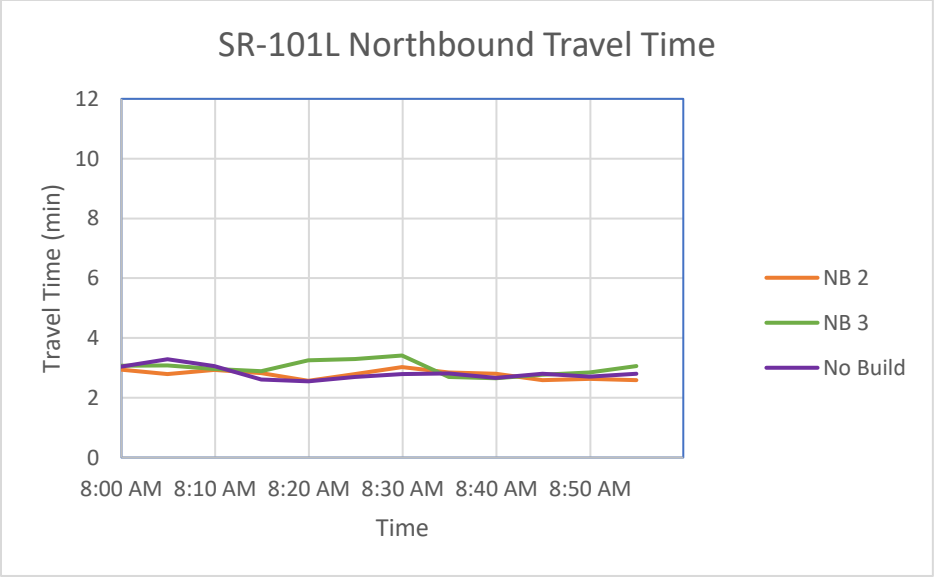
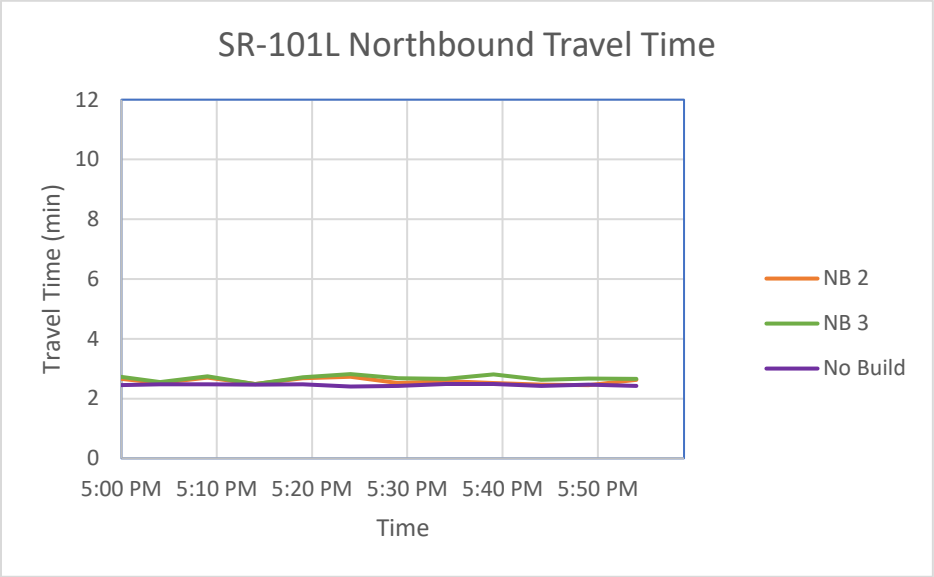


Figure 8 – PM Period Travel Time Comparison



4.4 Recommendation

NB2 is recommended to be advanced to the scoping process as this alternative performs as well as NB3 but does not redirect traffic into the intersections along 91st Avenue.

5.0 I-10 Eastbound Alternatives

5.1 Overview of Alternative Development

The LOS segment analysis of 2040 No Build conditions informed the development of eastbound alternatives. It was found that several eastbound freeway segments were expected to operate at a poor LOS during the peak hours, including all system interchange ramp connections. Overall, the network performs worse in the PM peak hour. However, eastbound I-10 freeway segments operate worse during the AM peak hour, with over half of the segments operating at a poor LOS by 2040.

Furthermore, travel time analysis determined that eastbound I-10 travel times were reduced during the PM peak hour in the 2040 No Build conditions.

The main considerations in alternative development were:

1. To improve operations in the eastbound I-10 segment from 91st Avenue to 83rd Avenue by reducing travel times and weaving maneuvers; and
2. To alleviate the merge pinch point on the Ramp S-E.

5.2 I-10 Eastbound Alternatives and Analysis

Appendix A provides lane diagrams illustrating the alternatives. Alternatives include a C-D roadway from 91st Avenue to 83rd Avenue, braid ramps at the 91st Avenue entrance and 83rd Avenue exits and accommodating two lanes from the Ramp S-E onto I-10, thus eliminating the existing merge.

5.2.1 Alternative EB1: C-D Road from 91st Avenue to 83rd Avenue

This alternative would change the location of the eastbound I-10 entrance points. The existing eastbound I-10 entrance ramp at 91st Avenue would be converted to a two-lane C-D roadway that connects from 91st Avenue to 83rd Avenue. The single-lane eastbound I-10 exit ramp at 83rd Avenue would tie into the C-D roadway. A merge would not be required as the C-D roadway would become three lanes.

Traffic entering eastbound I-10 at 91st Avenue would be redirected to travel along the C-D roadway from 91st Avenue to 83rd Avenue, through the I-10 and 83rd Avenue TI, and enter eastbound I-10 from the 83rd Avenue entrance ramp.

This would extend the distance from the merge that occurs on the Ramp S-E to the 91st Avenue entrance ramp merge, providing drivers with additional time between merge locations. This alternative also eliminates the weaving section between 91st Avenue and 83rd Avenue.

Traffic demand at the I-10 and 83rd Avenue TI would increase due to the redirection of traffic entering the eastbound I-10 from 91st Avenue.

Segment LOS Analysis

All segments east of the Ramp S-E merging section perform acceptably.

The LOS analysis for EB1 for AM and PM peak hours can be seen in ***Appendix B***. The original HCS7 reports for EB1 can be seen in ***Appendix F***.

Speed Heat Maps

Average speeds are expected to stay roughly 5 to 10 mph below free flow speed of 65 mph along I-10 as the Ramp S-E merges. Then average speeds reduce by another 10 mph as vehicles approach the 83rd Avenue exit ramp. Once past the 83rd Avenue exit ramp, the average speed gradually increases back up to about 55 mph. Slight slowdowns and backups form quickly and dissipate quickly within the impact area of this alternative.

The speed heat maps for EB1 can be seen in ***Appendix C***.

5.2.2 Alternative EB2: Braid Ramps at 91st Avenue and 83rd Avenue

This alternative shifts the location of the eastbound I-10 entrance ramp at 91st Avenue to connect to I-10 east of the 83rd Avenue exit ramp gore. This would eliminate the shared freeway entrance and exit lane, separate the entrance and exit movements, and reduce the number of weaving maneuvers.

This alternative would also extend the distance from the merge that occurs on the Ramp S-E to the 91st Avenue entrance ramp merge, providing drivers with additional time between merge locations.

Segment LOS Analysis

This alternative eliminates the weaving section between 91st Avenue and 83rd Avenue. The Ramp S-E merging segment performs poorly in the AM peak hour, but all other sections eastward perform acceptably.

The LOS analysis for EB2 for AM and PM peak hours can be seen in ***Appendix B***. The original HCS7 reports for EB2 can be seen in ***Appendix F***.

Speed Heat Maps

The average speed along I-10 is expected to be around 55 mph with sporadic slowdowns to around 45 mph approaching the exit ramp to 83rd Avenue. The speed heat maps for EB2 can be seen in ***Appendix C***.

5.2.3 Alternative EB3: Ramp S-E as Two Lanes

This alternative would maintain two lanes on the Ramp S-E as it connects with the eastbound I-10 mainline. The existing merge pinch point that occurs on the ramp would be eliminated.

Segment LOS Analysis

This alternative does not eliminate the weaving section between 91st Avenue and 83rd Avenue. The Ramp S-E merging segment and weaving section previously mentioned are both expected to perform poorly especially in the PM peak hour.

The LOS analysis for EB3 for AM and PM peak hours can be seen in ***Appendix B***. The original HCS7 reports for EB3 can be seen in ***Appendix F***.

Speed Heat Maps

The average speeds along the I-10 within proximity of the Ramp S-E merge and 83rd Avenue exit ramp are reduced to roughly between 20 and 30 mph. The slowdown is constant throughout the hour and speeds do not increase towards free flow speeds until after the 83rd Avenue exit ramp.

The speed heat maps for EB2 can be seen in ***Appendix C***.

5.3 Travel Time Comparison

Travel time comparisons indicate vehicles passing between the east and west limits of the study area experience similar travel times regardless of the alternative. These results seemingly suggest similar performance between the three alternatives, but a closer look at the speed heat maps indicate that these results tell another story.

The travel times shown in ***Figure 9*** and ***Figure 10*** represent how much time passes for vehicles crossing from the western limit of the project area to the eastern limit. Vehicles would have to pass through both time measurement gates within the model to be recorded and included in these averaged travel time measurements. Any vehicles entering or leaving the system between the two measurement gates won't be recorded.

Consequently, along a freeway section with as many as six lanes as are in these alternatives, most travelers in the right most lanes are going to be excluded from the above performance measures because most of these drivers are leaving or entering the system between the travel time gates. Vehicles traveling through the system are most likely to be in the left most lanes and will be able to bypass any congestion created by merging and weaving sections. As a result, the travel time comparisons are ultimately comparing mostly the travel times of vehicles in the three left most lanes.

The speed heat maps in ***Figure 11***, ***Figure 12***, and ***Figure 13*** below represent average travel times within 500 foot segments of the freeway. These maps show that the performance of the three alternatives vary more than the travel time figures alone would suggest.

The roughly six-and-a-half-minute travel times between all three alternatives indicate that the bulk of through traffic is able to maintain near free flow speed throughout the eastbound system for all three alternatives, but the speed heat maps indicate that there are major slowdowns in EB3 around the Ramp S-W and weaving section between 91st Avenue and 83rd Avenue.

These findings indicate that the right most lanes experience congestion while the left most are in near free flow which was also supported by visual observation of the Vissim model runs. The mixing of high speed and low speed traffic in EB3 can present potentially unsafe conditions.

Figure 9 – AM Period Travel Time Comparison

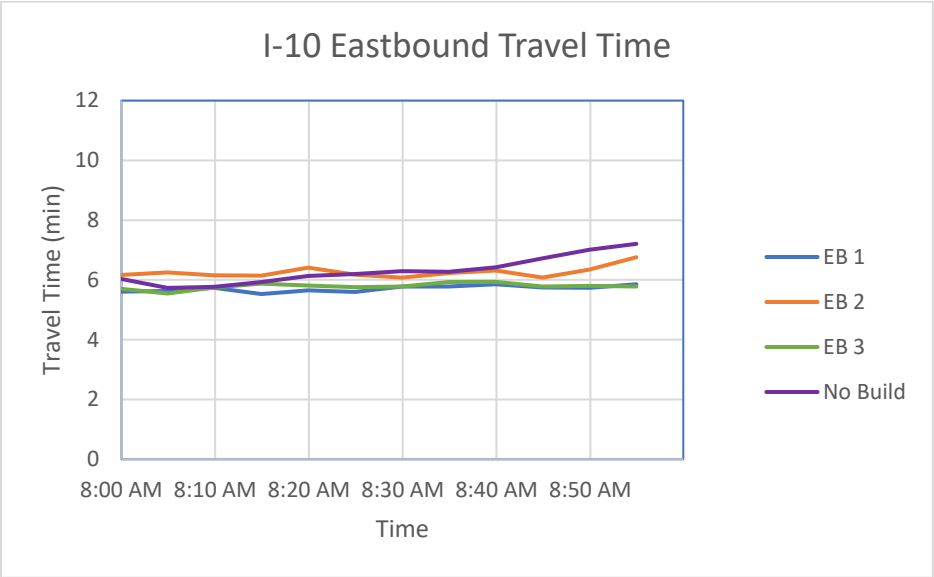


Figure 10 – PM Period Travel Time Comparison

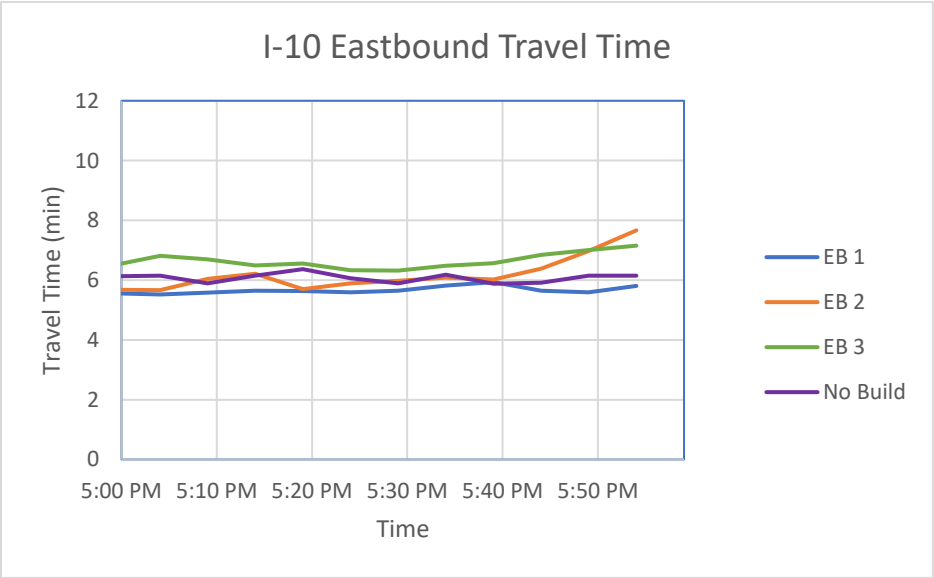


Figure 11 – PM EB1 Speed Heat Map

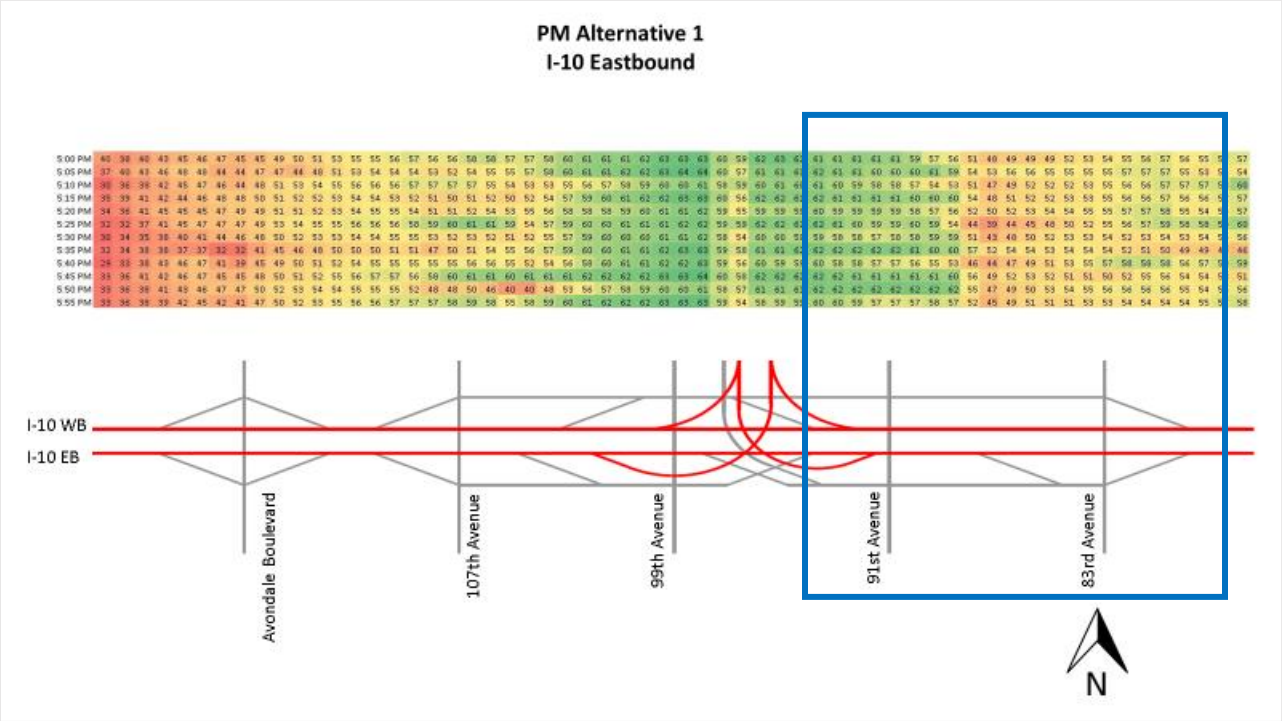


Figure 12 – PM EB2 Speed Heat Map

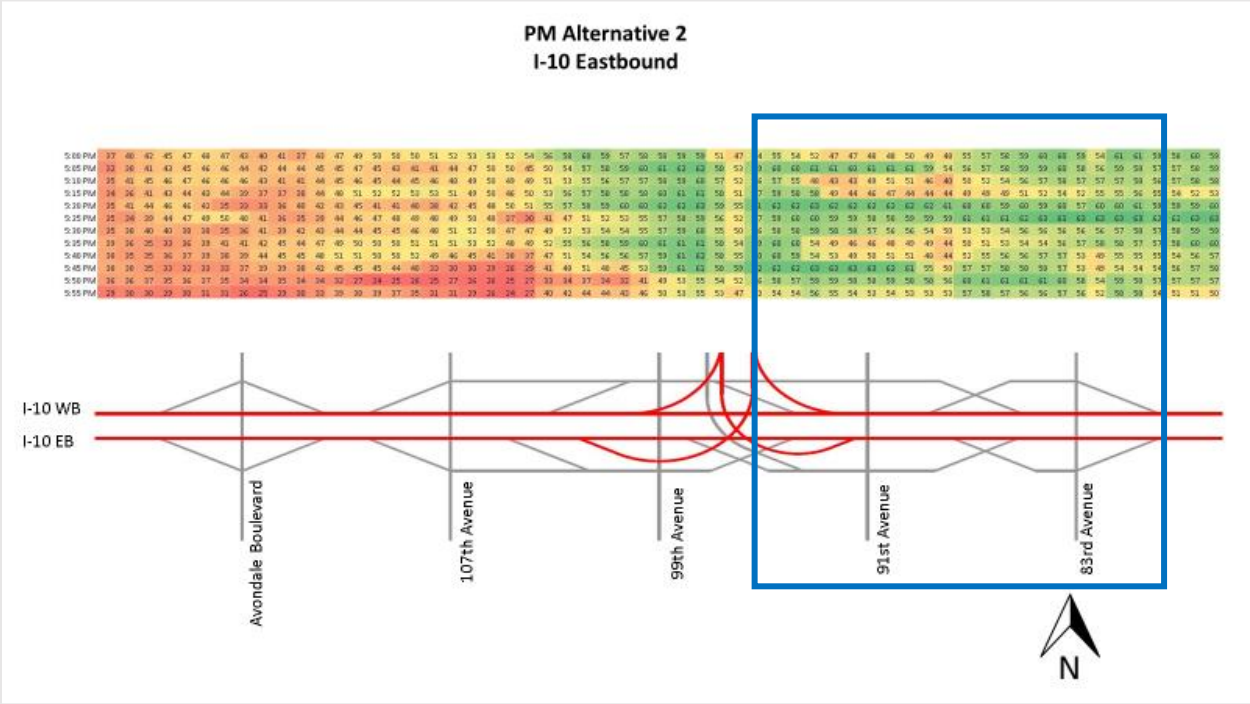
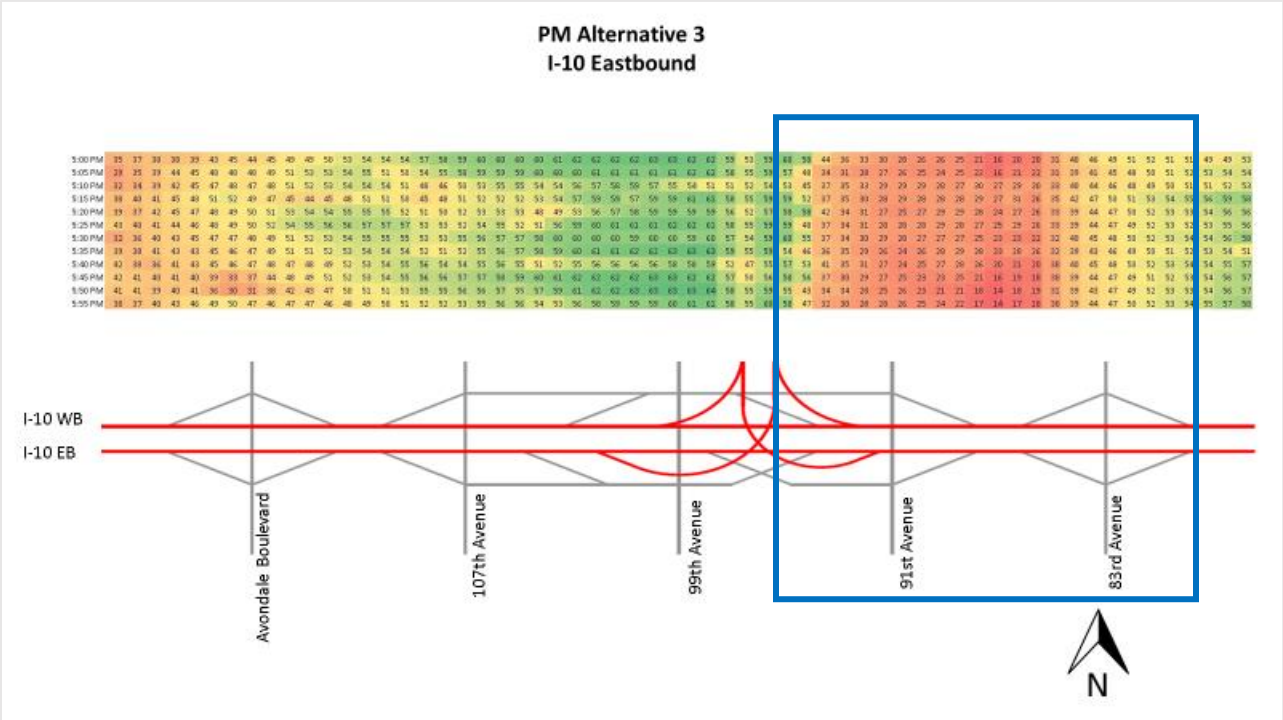


Figure 13 – PM EB3 Speed Heat Map



5.4 Recommendation

EB1 is recommended to be advanced to the scoping process as this alternative eliminates the tight weaving pattern between 91st Avenue and 83rd Avenue, performs as well as EB2 but is substantially cheaper, and traffic diverted to the 83rd Avenue eastbound TI from 91st Avenue along the C-D road is expected to be manageable.

6.0 I-10 Westbound Alternatives

6.1 Overview of Alternative Development

The LOS segment analysis of 2040 No Build conditions informed the development of westbound alternatives. It was found that several westbound freeway segments were expected to operate at a poor LOS during the peak hours, including all system interchange ramp connections. Overall, the network performs worse in the PM peak hour, with some westbound I-10 freeway segments operating at a poor LOS by 2040.

Furthermore, travel time analysis determined that westbound I-10 travel times were reduced during the PM peak hour in the 2040 No Build conditions.

The main considerations in alternative development were:

1. To improve operations in the westbound I-10 segment from 83rd Avenue to 91st Avenue by reducing travel times; and
2. To reduce weaving maneuvers near the Ramp W-N.

6.2 I-10 Westbound Alternatives and Analysis

Appendix A provides lane diagrams illustrating the alternatives. Alternatives include a C-D roadway from 83rd Avenue to 91st Avenue and braid ramps at the 83rd Avenue entrance and 91st Avenue exits.

6.2.1 Alternative WB1: C-D Road from 83rd Avenue to 91st Avenue

This alternative would change the location of the westbound I-10 entrance and exit points. The westbound I-10 entrance ramp at 83rd Avenue and exit ramp at 91st Avenue would be converted to a two-lane C-D roadway that connects from 83rd Avenue to 91st Avenue.

Traffic entering westbound I-10 from 83rd Avenue would be redirected to travel along the C-D roadway from 83rd Avenue, through the TIs at 91st Avenue and 99th Avenue, and enter westbound I-10 from the 99th Avenue entrance ramp.

Traffic exiting westbound I-10 at 91st Avenue would be redirected to the 83rd Avenue exit ramp, travel through the I-10 and 83rd Avenue TI, and along the C-D roadway from 83rd Avenue to 91st Avenue.

Traffic entering the Ramp W-N from the I-10 entrance ramp at 83rd Avenue would be redirected to utilize arterials and access northbound SR-101L from the McDowell Road TI.

Traffic demand at the 83rd Avenue, 91st Avenue, 99th Avenue, and McDowell Road TIs would be increased due to the redirection of traffic. It is expected, through O-D analysis, that about 330 new vehicles would be redirected to the 99th Avenue TI westbound through movement. This TI is expected to perform at LOS D given improvements described in ***Section 8.1.2*** without this additional demand and can be kept at LOS D overall with the arrival of these new vehicles, though the westbound through movement fails.

This alternative would reduce weaving that occurs near the Ramp W-N due to elimination of the proceeding freeway entrance and exit ramps.

Segment LOS Analysis

WB1 eliminates the weaving section between 91st Avenue and 83rd Avenue. All freeway segments are expected to perform acceptably in the AM peak hour. In the PM peak hour, I-10 segments perform acceptably until the merging section with Ramp S-W. The weaving section between 107th Avenue and Avondale Boulevard performs poorly, but this segment is beyond the influence of WB1.

The LOS analysis for WB1 for AM and PM peak hours can be seen in ***Appendix B***. The original HCS7 reports for WB1 can be seen in ***Appendix F***.

Speed Heat Maps

The PM peak hour performs worse than the AM peak hour. Average speeds are expected to drop down to about 45mph as vehicles approach the Ramp W-N, but this area of slower speeds stays consistent throughout the hour and contained to about 2000 feet west of the 83rd Avenue overpass.

The speed heat maps for WB1 can be viewed in ***Appendix C***.

6.2.2 Alternative WB2: Braid Ramps at 83rd Avenue and 91st Avenue

WB2 would involve the reconstruction of the westbound I-10 entrance ramp at 83rd Avenue and the exit ramp at 91st Avenue. The 83rd Avenue entrance ramp would be shifted to connect to the I-10 west of the 91st Avenue exit ramp gore. This would eliminate the shared freeway entrance and exit lane, separate the entrance and exit movements, and reduce the number of weaving maneuvers.

This alternative would extend the distance from the 91st Avenue exit ramp to the Ramp W-N. However, the distance from the 83rd Avenue entrance ramp to the Ramp W-N would be reduced.

Relocation of the freeway entrance and exit ramps would alter weaving patterns that occur near the Ramp W-N.

Segment LOS Analysis

The westbound I-10 is expected to perform acceptably within the influence area of this alternative, east of the Ramp W-N.

The LOS analysis for WB2 for AM and PM peak hours can be seen in ***Appendix B***. The original HCS7 reports for WB2 can be seen in ***Appendix F***.

Speed Heat Maps

Despite the good performance measures from the HCS methodologies, the speed heat maps show growing congestion within the impact area of this alternative during the PM peak hour. The average speed in this alternative is expected to reduce to 20 to 25 mph as vehicles enter the weaving section between the 83rd Avenue entry ramp and the Ramp W-N. The congested areas are expected to grow throughout the hour at a rate of roughly 1000 feet per 15 minutes. Once past the Ramp W-N, average speeds climb back to about 60 mph through the rest of the westbound mainline.

Speed heat maps for WB2 can be viewed in ***Appendix C***.

6.3 Travel Time Comparison

The AM peak hour has lower travel times for all alternatives. WB1 has the lowest travel times in the PM peak hour and is about two minutes less than the No Build.

Figure 14 – AM Period Travel Time Comparison

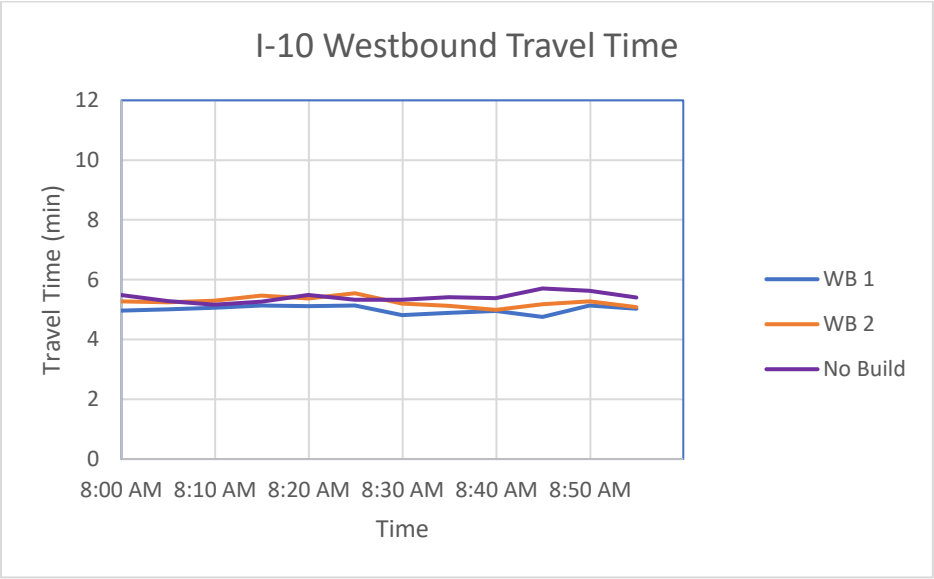
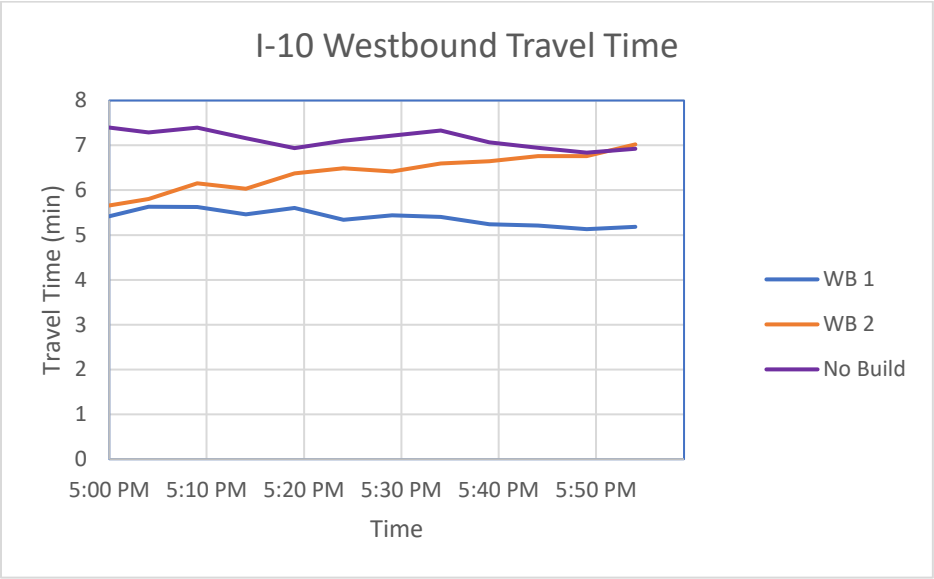


Figure 15 – PM Period Travel Time Comparison



6.4 Recommendation

WB1 is recommended to be advanced to the scoping process because it reduces travel times more than the other studied alternatives while eliminating the weaving section between 83rd Avenue and 91st Avenue. WB1 is also expected to cost less than WB2. Though more traffic will be directed to 91st Avenue and I-10 westbound TI, the increased demand is expected to be manageable.

7.0 Exit Ramp Decision Lanes

The use of a decision lane at key exit ramps will help alleviate congestion by reducing the number of lanes vehicles need to cross to exit the freeway. The HCS7 segment LOS analysis was used to identify exit ramp terminals where the No Build mainline segment LOS is worse than D.

The following exit ramp terminals had mainline segment LOS worse than D:

- Avondale and I-10 WB Exit Ramp
- Avondale and I-10 EB Exit Ramp
- 83rd Avenue and I-10 EB Exit Ramp
- 83rd Avenue and I-10 WB Exit Ramp
- 91st Avenue and I-10 WB Exit Ramp
- Thomas Rd and SR-101L NB Exit Ramp
- Thomas Rd and SR-101L SB Exit Ramp
- Indian School Rd and SR-101L NB Exit Ramp
- Indian School Rd and SR-101L SB Exit Ramp

Reconfiguring the exit ramp terminals to drop-decision configurations should improve mainline segment LOS. The reconfiguration improvements can be mixed and matched with alternatives detailed in the prior sections as appropriate.

8.0 Service TI Alternatives

8.1 Overview of Alternative Development

All intersections within the study area were evaluated using expected 2040 volumes with new timing plans under the alternative group Traffic Signal Retiming One (TSR1), which evaluates the performance of intersections under new timing plans without changing the intersections' configuration.

Based on findings from Technical Memorandum #2 as well as considerations discussed during the March 11th Workshop, some intersections were evaluated with improvements such as additional turn lanes or through lanes paired with a new signal timing plan. These alternatives are grouped under Traffic Signal Retiming Two (TSR2).

Four intersections were selected for a third alternative which would convert the existing TI into a Diverging Diamond Interchange (DDI). These alternatives refer to the specific intersection in question: McDowell Road and SR-101L is M1, Indian School Road and SR-

101L is IS1, Avondale Boulevard and I-10 is A1, and 83rd Avenue and I-10 has two DDI configurations referred to as 83-1 and 83-2.

These intersection alternatives were analyzed using HCM 6 methodologies in Synchro 11 software. ***Appendix D*** provides a summary of the analysis results by intersection. The summary lists LOS, average delay time, and queue length for each movement, approach, and the overall intersection. ***Appendix E*** features the Synchro reports which detail the analysis results, intersection configurations, and the timing plans for AM and PM peak hours.

Alternatives were considered at several service TIs as a result of the LOS analysis of the 2040 No Build conditions. It was determined that several ramp termini intersections in the study area are expected to operate at a poor overall intersection LOS by 2040. Those intersections are listed below:

- SR-101L and McDowell Road
  - PM Northbound Ramp TI – LOS F
- I-10 and Avondale Boulevard
  - PM Westbound Ramp TI – LOS E
- I-10 and 107th Avenue
  - AM Eastbound Ramp TI – LOS E
- I-10 and 99th Avenue
  - AM Westbound Ramp TI – LOS F
  - PM Eastbound Ramp TI – LOS F
  - PM Westbound Ramp TI – LOS F
- I-10 and 91st Avenue
  - AM Eastbound Ramp TI – LOS F
  - PM Eastbound Ramp TI – LOS F
  - PM Westbound Ramp TI – LOS F

Alternatives were also considered at selected TIs with failing approaches as determined through the 2040 No Build conditions LOS analysis. These intersection approaches include:

- SR-101L and Indian School Road
  - PM Northbound Ramp TI, Northbound Approach – LOS E
- I-10 and 83rd Avenue
  - AM Eastbound Ramp TI, Southbound Approach – LOS E

8.1.1 Alternative TSR1: Traffic Signal Retiming Only

The 2040 No-Build Synchro models were used as the base models for developing optimized traffic signal timing plans for the TIs within the study area. The timing plans were optimized for the AM and PM peak hours. The operational parameters for developing the timing plans include:

- The geometric configuration of the intersections remained unchanged.
- Traffic signal cycle lengths were optimized between 90 and 150 seconds.
- Phase split distributions were optimized.
- Yellow and red clearance intervals remained unchanged.

Intersection LOS Analysis

With the signal retiming from Alternative TSR1, several ramp termini intersections in the study area are expected to improve from the 2040 No Build conditions. Intersection LOS for the AM and PM peak hours are illustrated in ***Figure 16*** and ***Figure 17***, respectively. Details regarding turning movement delay, LOS, and queue lengths can be found in ***Appendix D*** and Synchro outputs are included in ***Appendix E***.

Intersections that are still expected to operate at a poor LOS in Alternative TSR1 include:

- SR-101L and McDowell Road
    - PM Northbound Ramp TI – LOS E
- I-10 and 99th Avenue
    - PM Eastbound Ramp TI – LOS E
- I-10 and 91st Avenue
    - AM Eastbound Ramp TI – LOS E
- McDowell Road and 91st Avenue
    - AM – LOS F

Figure 16 – AM Peak Alternative TSR1 Traffic Interchange Level of Service

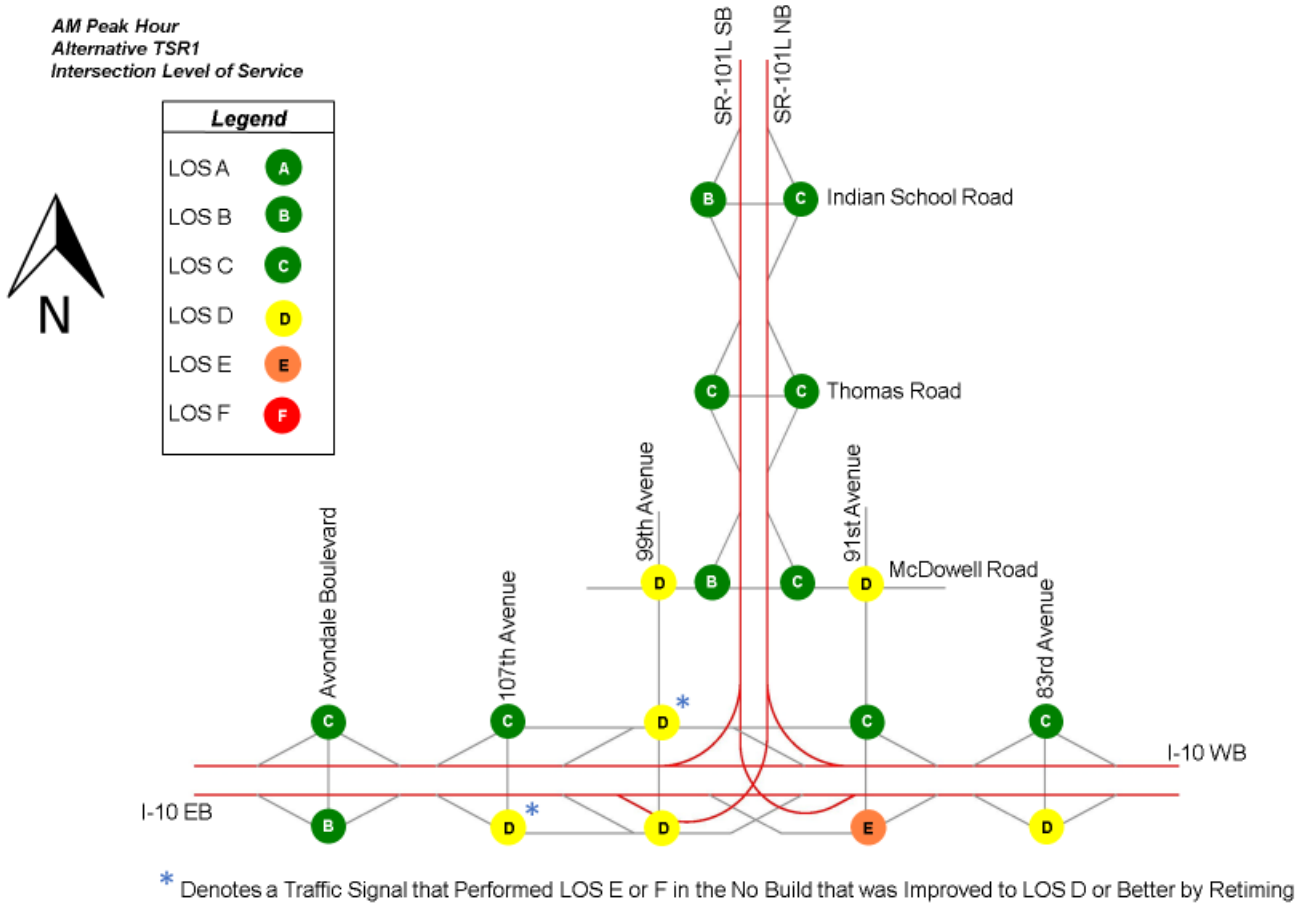
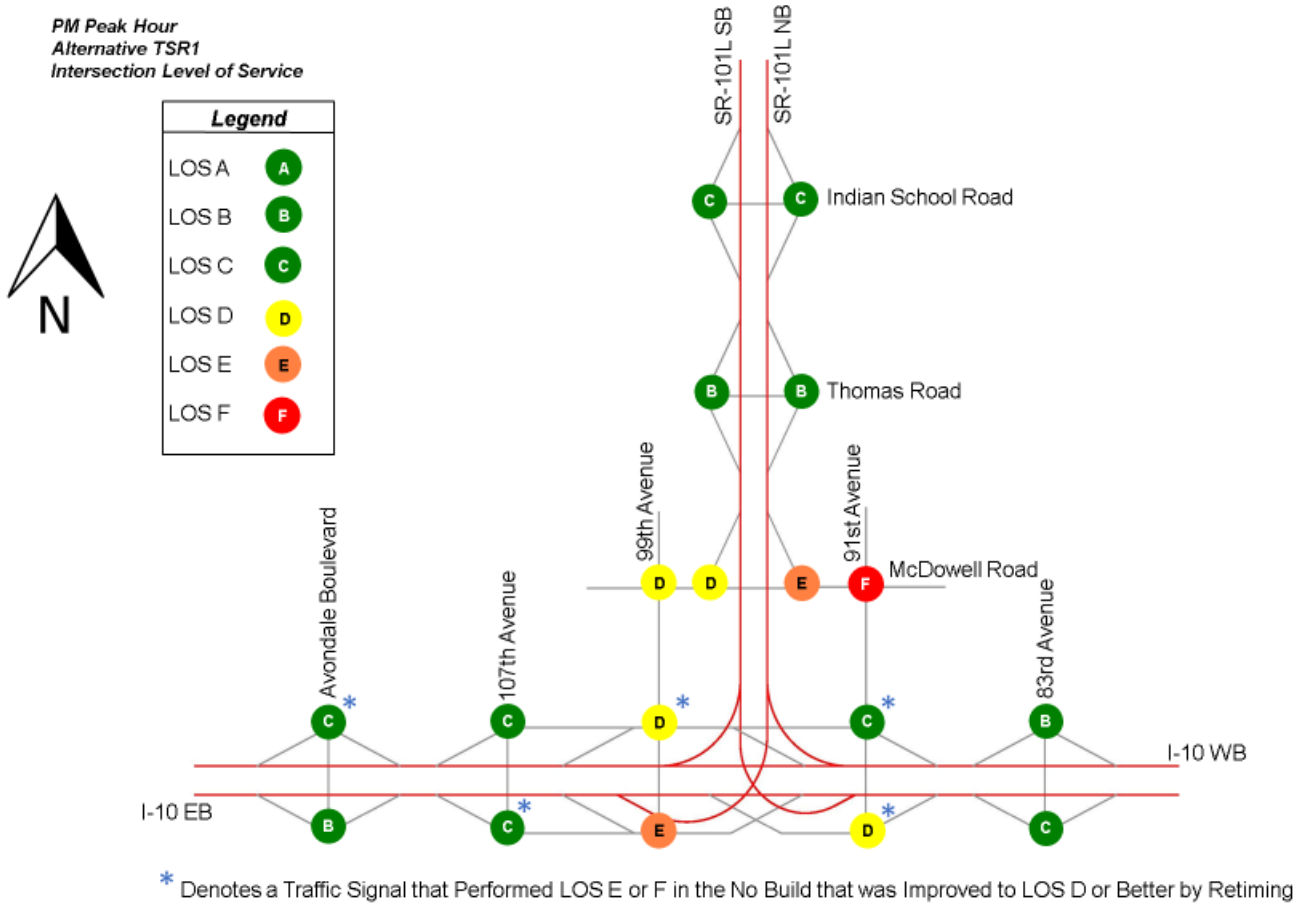


Figure 17 – PM Peak Alternative TSR1 Traffic Interchange Level of Service



8.1.2 Alternative TSR2: Traffic Signal Retiming and Intersection Improvements

Intersection improvements consist of left-turn, through, and/or right-turn additions at specified TIs while they remain in their existing diamond configurations.

There is also potential for roadway widening on McDowell Road from 99th Avenue to 91st Avenue, which is within the city of Phoenix. McDowell Road is currently a six-lane section east of 83rd Avenue and west of 99th Avenue. The segment between is reduced to a three-lane roadway section, with a single lane traveling eastbound, and two lanes traveling westbound. The reduction of available travel lanes creates a traffic bottleneck, especially in the eastbound direction. Widening McDowell Road between 99th Avenue and 91st Avenue will eliminate this bottleneck and relieve congestion.

According to the city of Phoenix Street Classification Map, a roadway with a Cross-Section C has four lanes and a Cross-Section B roadway has six lanes and a median. The city of Phoenix Street Classification map also indicates that McDowell Road between 91st Avenue and 83rd Avenue is already marked to be upgraded to a Cross-Section B in the future. To continue a six-lane section through the segment along McDowell Road, widening the existing Cross-Section C to Cross-Section B from 99th Avenue to 83rd Avenue could be considered. This would provide consistency to drivers and alleviate the existing bottleneck.

The following improvements were selected for the intersection improvement analysis:

- **SR-101L and Indian School TI:** Additional left-turn and right-turn lanes at both exit and entrance ramps
- **SR-101L and McDowell Road TI:** An additional westbound and eastbound through lane
- **I-10 and Avondale Boulevard TI:** Additional left-turn and right-turn lanes at both exit and entrance ramps
- **I-10 and 99th Avenue TI:** Additional left-turn and right-turn lanes at both exit and entrance ramps
- **I-10 and 91st Avenue TI:** An additional northbound and southbound through lane
- **I-10 and 83rd Avenue TI:** Additional left-turn and right-turn lanes at both exit and entrance ramps
- **McDowell Road and 99th Avenue:** An additional westbound and eastbound through lane
- **McDowell Road and 91st Avenue:** An additional westbound and eastbound through lane

Intersection LOS Analysis

Several ramp termini intersections in the study area are expected to improve from the 2040 No Build conditions. Intersection LOS for the AM and PM peak hours are illustrated in ***Figure 18*** and ***Figure 19***, respectively. Details regarding turning movement delay, LOS, and queue lengths can be found in ***Appendix D*** and Synchro outputs are included in ***Appendix E***.

Intersections that are expected to operate at a poor LOS in Alternative TSR2 include:

- I-10 and 99th Avenue
    - PM Eastbound Ramp TI – LOS E

Figure 18 – AM Peak Alternative TSR2 Traffic Interchange Level of Service

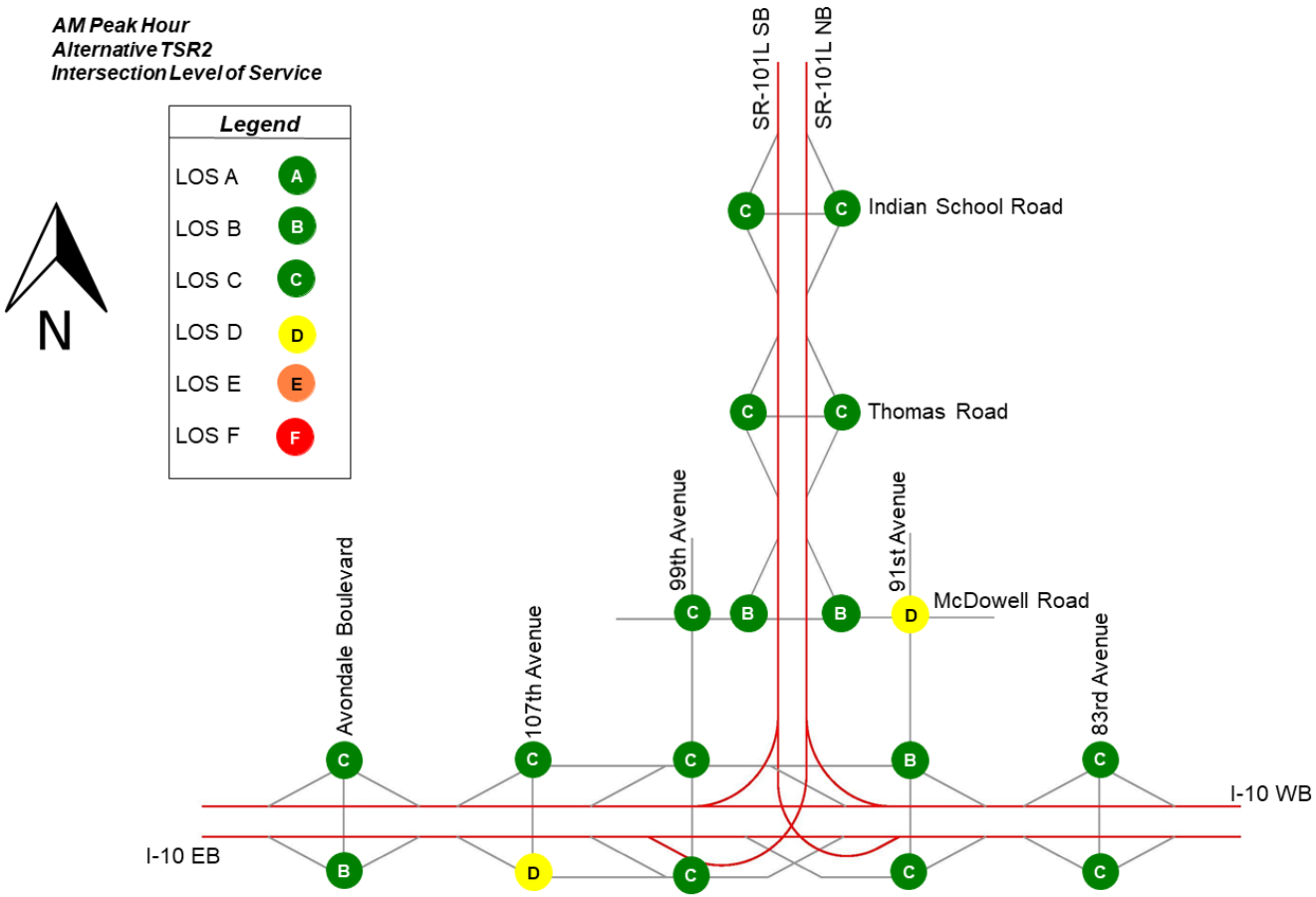
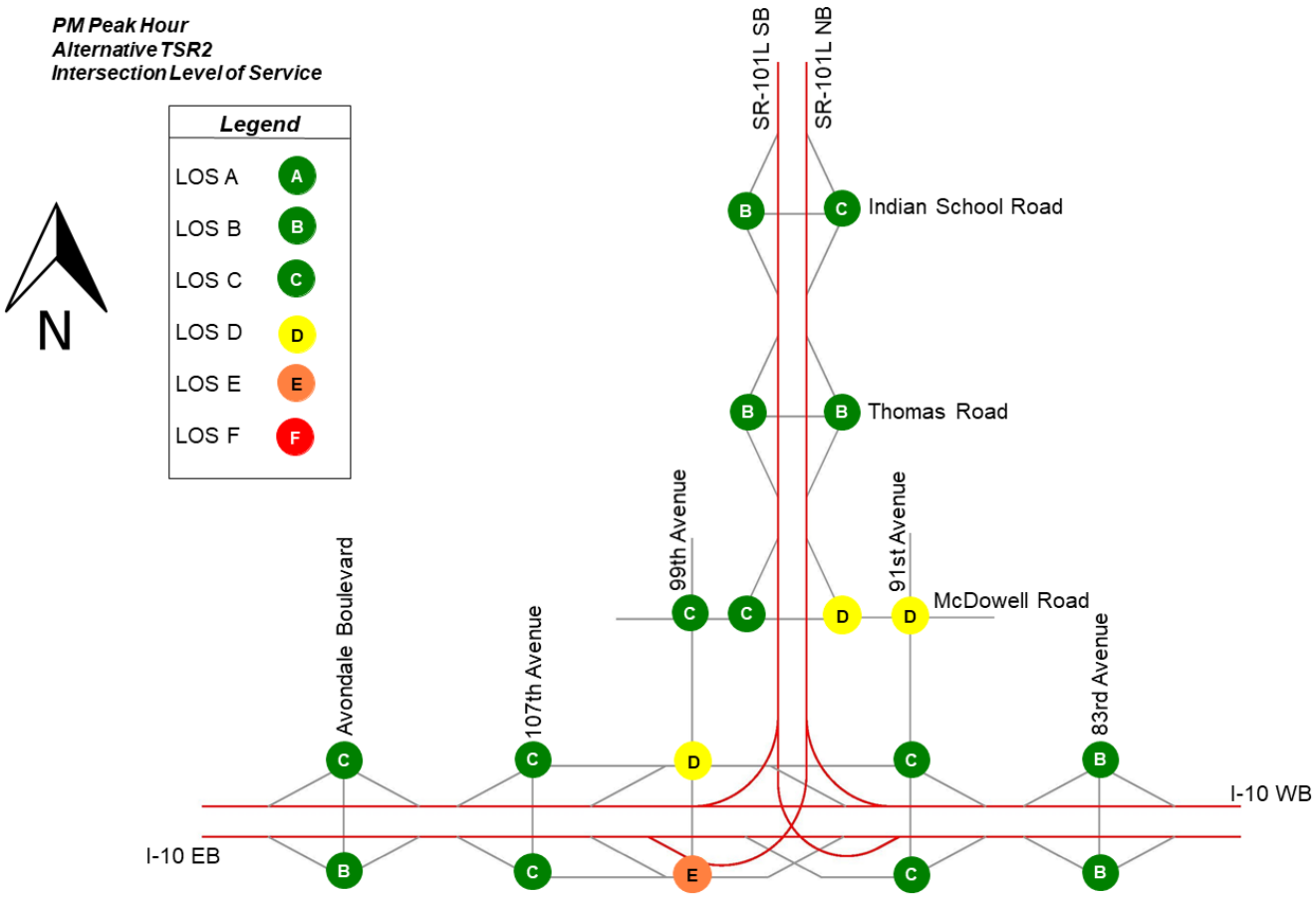


Figure 19 – PM Peak Alternative TSR2 Traffic Interchange Level of Service



8.2 Indian School Road Service TI

In addition to traffic signal retiming and turn lane additions at the entrance and exit ramps, other alternatives evaluated at the SR-101L and Indian School Road TI include reconfiguring the TI to a DDI.

8.2.1 Alternative Indian School One (IS1): DDI

The existing Indian School Road overpass bridge would be salvaged and repurposed for a DDI.

8.3 Indian School Road TI LOS Comparison

An average vehicle delay, overall intersection LOS, and maximum v/c ratio comparison between the evaluated alternatives for the SR-101L and Indian School Road TI is included in ***Table 1***.

Table 1 – Indian School Road Traffic Interchange Level of Service Comparison

Alternative	AM Peak Hour			PM Peak Hour		
	Delay (s)	LOS	Max v/c Ratio	Delay (s)	LOS	Max v/c Ratio
SR-101L and Indian School Road Northbound Ramps						
No Build 2040	26.2	C	0.95	27.0	C	1.02
TSR1	21.7	C	0.83	22.4	C	0.66
TSR2	27.1	C	0.88	21.0	C	0.77
IS1	12.0	B	0.77	12.0	C	0.77
SR-101L and Indian School Road Southbound Ramps						
No Build 2040	24.3	C	0.82	21.5	C	0.76
TSR1	15.9	B	0.72	22.8	C	0.98
TSR2	27.1	C	0.86	18.8	B	0.67
IS1	11.8	B	0.66	11.8	B	0.66

8.4 McDowell Road Service TI

In addition to traffic signal retiming and through travel lane additions, another alternative evaluated at the SR-101L and McDowell Road TI includes reconfiguring the TI to a DDI.

8.4.1 Alternative McDowell One (M1): DDI

The existing McDowell Road structures would be salvaged and repurposed for a DDI. Abutments may be cut back to create room for improvements.

8.5 McDowell Road TI LOS Comparison

An average vehicle delay, overall intersection LOS, and maximum v/c ratio comparison between the evaluated alternatives for the SR-101L and McDowell Road TI is included in ***Table 2***.

Table 2 – McDowell Road Traffic Interchange Level of Service Comparison

Alternative	AM Peak Hour			PM Peak Hour		
	Delay (s)	LOS	Max v/c Ratio	Delay (s)	LOS	Max v/c Ratio
SR-101L and McDowell Road Northbound Ramps						
No Build 2040	43.1	D	1.13	87.8	F	1.30
TSR1	21.2	C	0.91	60.0	E	1.10
TSR2	16.1	B	0.96	39.0	D	1.15
M1	10.7	B	0.72	10.0	A	0.69
SR-101L and McDowell Road Southbound Ramps						
No Build 2040	15.8	B	0.66	43.8	D	1.15
TSR1	12.4	B	0.76	48.6	D	1.16
TSR2	11.8	B	0.66	32.5	C	1.00
M1	13.6	B	0.67	20.6	C	0.96

8.6 Avondale Boulevard Service TI

In addition to traffic signal retiming and turn lane additions at the entrance and exit ramps, another alternative evaluated at the I-10 and Avondale Boulevard TI includes reconfiguring the TI to a DDI.

8.6.1 Alternative Avondale One (A1): DDI

The existing Avondale Boulevard structures would be salvaged and repurposed for a DDI.

8.7 Avondale Boulevard TI LOS Comparison

An average vehicle delay, overall intersection LOS, and maximum v/c ratio comparison between the evaluated alternatives for the I-10 and Avondale Boulevard TI is included in ***Table 3***.

Table 3 – Avondale Boulevard Traffic Interchange Level of Service Comparison

Alternative	AM Peak Hour			PM Peak Hour		
	Delay (s)	LOS	Max v/c Ratio	Delay (s)	LOS	Max v/c Ratio
I-10 and Avondale Boulevard Eastbound Ramps						
No Build 2040	25.0	C	0.89	20.7	C	0.80
TSR1	17.9	B	0.82	16.4	B	0.74
TSR2	14.9	B	0.61	15.8	B	0.61
A1	18.9	B	0.74	21.0	C	0.81
I-10 and Avondale Boulevard Westbound Ramps						
No Build 2040	38.4	D	0.86	56.2	E	1.11
TSR1	29.8	C	0.75	30.9	C	0.82
TSR2	28.4	C	0.77	29.1	C	0.81
A1	4.5	A	0.38	6.1	A	0.49

8.8 83rd Avenue Service TI

In addition to traffic signal retiming and turn lane additions at the entrance and exit ramps, another alternative evaluated at the I-10 and 83rd Avenue Boulevard TI includes reconfiguring the TI to a DDI, with and without C-D roadways and direct access ramps.

8.8.1 Alternative 83-1: DDI

The existing 83rd Avenue overpass bridge would be salvaged and repurposed for a DDI.

8.8.2 Alternative 83-2: DDI and Grade-Separated C-D Roads

This alternative combines Alternative EB1 and Alternative WB1 with a DDI, with a few modifications. The existing 83rd Avenue overpass bridge would be salvaged and repurposed for a DDI. C-D roadways would be constructed both eastbound and westbound directions between 91st Avenue and 83rd Avenue. The eastbound and westbound C-D roadways could be considered separately.

As in Alternative EB1, this alternative would change the location of the eastbound and westbound I-10 entrance points. The existing eastbound I-10 entrance ramp at 91st Avenue would be converted to a two-lane C-D roadway that connects from 91st Avenue to 83rd Avenue. Unlike Alternative EB1, the single-lane eastbound I-10 exit ramp at 83rd Avenue would be relocated to the west. A fourth travel lane would be added downstream. A single, grade-separated lane would split off the converged roadway, travel underneath

the DDI structure and provide direct access to the eastbound I-10 entrance ramp at 83rd Avenue.

Traffic entering eastbound I-10 at 91st Avenue would be redirected to travel along the C-D roadway from 91st Avenue and exit the C-D roadway via the direct access lane to the eastbound I-10 entrance ramp at 83rd Avenue.

This would extend the distance from the merge that occurs on the Ramp S-E to the 91st Avenue entrance ramp merge, providing drivers with additional time between merge locations.

Traffic demand would not be affected at the I-10 and 83rd Avenue TI with the construction of the eastbound C-D roadway due to the direct access lane to the eastbound I-10 entrance ramp at 83rd Avenue.

As in Alternative WB1, the westbound I-10 entrance ramp at 83rd Avenue and exit ramp at 91st Avenue would be converted to a two-lane C-D roadway that connects from 83rd Avenue to 91st Avenue. Unlike Alternative WB1, a single, grade-separated lane would split off the existing westbound I-10 exit ramp at 83rd Avenue, travel underneath the DDI structure and provide direct access to the C-D roadway. Vehicles would merge with traffic on the C-D roadway.

Traffic entering westbound I-10 from 83rd Avenue would be redirected to travel along the C-D roadway from 83rd Avenue, through the TIs at 91st Avenue and 99th Avenue, and enter westbound I-10 from the 99th Avenue entrance ramp.

Traffic exiting westbound I-10 at 91st Avenue would be redirected to the 83rd Avenue exit ramp, utilize the direct access lane to the C-D roadway, and travel along the C-D roadway from 83rd Avenue to 91st Avenue.

Traffic entering the Ramp W-N from the westbound I-10 entrance at 83rd Avenue would be redirected to utilize arterials and access northbound SR-101L from the McDowell Road TI.

With the construction of the westbound C-D roadway, traffic demand at the 83rd Avenue, 91st Avenue, 99th Avenue, and McDowell Road TIs would be affected due to the redirection of traffic.

This alternative would reduce weaving that occurs near the Ramp W-N due to elimination of the proceeding freeway entrance and exit ramps.

8.9 83rd Avenue TI LOS Comparison

An average vehicle delay, overall intersection LOS, and maximum v/c ratio comparison between the evaluated alternatives for the I-10 and 83rd Avenue TI is included in ***Table 4***. Note that both DDI alternatives, Alternatives 83-1 and 83-2, yield the same results.

Table 4 – 83rd Avenue Traffic Interchange Level of Service Comparison

Alternative	AM Peak Hour			PM Peak Hour		
	Delay (s)	LOS	Max v/c Ratio	Delay (s)	LOS	Max v/c Ratio
I-10 and 83rd Avenue Eastbound Ramps						
No Build 2040	45.3	D	0.92	31.2	C	0.76
TSR1	40.1	D	0.81	28.5	C	0.84
TSR2	30.3	C	0.79	25.4	C	0.81
83-1 & 83-2	12.7	B	0.43	13.0	B	0.59
I-10 and 83rd Avenue Westbound Ramps						
No Build 2040	28.2	C	0.76	33.2	C	0.80
TSR1	23.1	C	0.65	18.1	B	0.64
TSR2	20.9	C	0.65	15.6	B	0.58
83-1 & 83-2	10.3	B	0.41	12.1	B	0.58

9.0 Conclusion

This study analyzed the traffic operations for the I-10/SR-101L TI and its vicinity. The recommendations of the 2018 Feasibility Study and results of the future (2040) No Build conditions operational analysis were used in the development of design alternatives. The 2018 Feasibility Study alternatives included SR-101L and I-10 DHOV ramp connections and 91st Avenue access from SR-101L.

The following sections detail the design alternatives recommended to be advanced to the scoping process based on their operational benefits.

9.1 Recommended System Alternatives

ST1 and ST3 are compatible and are recommended in tandem.

9.1.1 ST1 DHOV Ramps

The DHOV ramps successfully reduce lane changes in both SR-101L southbound and I-10 westbound as HOV traffic will no longer need to traverse out of the HOV lane to the system ramps. The benefits are captured by the improved level of service in the HCS7 analysis and the lower expected travel times from the Vissim model. The DHOV ramps will also reduce the number of vehicles on Ramp S-E and Ramp W-N to a degree that the HCS7 analysis has shown to improve the LOS from poor to acceptable among these two general purpose ramps.

9.1.2 ST3 Braided Ramp from Indian School Road with 91st Avenue Access

This alternative eliminates two weaving sections and has had the best HCS7 results among the studied alternatives. Vehicles heading to 91st Avenue experience the lowest travel times of any other alternative and are about 15 minutes shorter than the No build scenario; 91st Avenue bound travelers would no longer need to pass through busy arterials and traffic signals. ST3 also removes vehicles from McDowell Road and the Ramp S-E, the volume reduction estimated in the O-D analysis due to vehicles rerouting to the 91st Avenue access ramp was larger in the PM peak hour but the AM reduction was enough to improve the LOS of the Ramp S-E in the AM peak hour from F to E.

9.2 Recommended Northbound Alternative: NB2

NB2 is recommended because a decision lane at Thomas Road was shown to reduce some of the weaving problems between McDowell Road and Thomas Road. Though NB3 performed better south of Thomas Road exit ramp in the HCS7 analysis, the burden of I-10 eastbound traffic heading to Thomas Road would fall upon three of the most strained

intersections in the study area: the 91st Avenue and I-10 TIs and the 99th Avenue and McDowell Road intersection.

Vissim simulation estimates that both NB2 and NB3 would perform similarly with travel times around two and a half minutes to travel from the system ramps to Indian School Road entry ramp. Given the similar travel times, NB2 is recommended as it would not place additional traffic loading on the 91st Avenue intersections.

9.3 Recommended Eastbound Alternative: EB1

EB1 is recommended because a C-D road between 91st Avenue and 83rd Avenue would eliminate the weaving section that currently exists between these intersections. The exit ramp to 83rd Avenue is to stay in place thus not burdening the heavily strained 91st Avenue TI with a large through demand. Eliminating the 91st Avenue entrance ramp would increase eastbound through volume at 83rd Avenue but given the estimated low volume capacity ratio of that movement the increased demand is not expected to be a problem.

As discussed in ***Section 5.3***, EB3 alone encourages mixing of high and low speed traffic as the additional lane from the Ramp S-E allows traffic in the three left most lanes to bypass the congested right lanes associated with the weaving section between 91st Avenue and 83rd Avenue. Combining an additional lane from the Ramp S-E with the C-D road, as is done in EB1, eliminates the congestion caused by the weaving pattern allowing greater speed in the right three lanes and thus more speed uniformity.

EB2 is not expected to perform any better than EB1 but requires costly grade separated ramps.

9.4 Recommended Westbound Alternative: WB1

WB1 is recommended because a C-D road would eliminate the weave section between 83rd Avenue and 91st Avenue. This alternative was the only one that did not experience growing congestion issues as shown in the speed heat maps. The C-D road will reroute traffic from 83rd Avenue bound for the I-10 westbound to 91st Avenue and 99th Avenue. Though both intersections are expected to need new improvements to manage 2040 demands, the increase to their westbound through movements are expected to be manageable.

9.5 Intersection Alternative Recommendations

9.5.1 Indian School Road and SR-101L TI: TSR1

TSR1 is recommended because this timing plan improves the overall LOS for the intersections without costly TI improvements, the timing plan has an overall LOS of C for both southbound and northbound TIs.

9.5.2 Thomas Road and SR-101L TI: TSR1

TSR1 is recommended as this intersection is expected to perform at a LOS of C during peak AM hour and LOS of B during peak PM hour. The retiming plan will be enough to maintain these operation levels with 2040 demands without costly TI improvements.

9.5.3 McDowell Road: Widen to 6 Lane Cross-Section

Widening McDowell Road will affect three intersections, this alternative should be applied to all three intersections as widening is recommended from 99th Avenue through 83rd Avenue.

McDowell Road Widening

This alternative will benefit three intersections and eliminate an existing bottleneck effect reducing congestion. This alternative widens a segment of McDowell Road from about 500 feet west of 99th Avenue to about 500 feet east of 83rd Avenue to a six-lane cross-section.

This stretch of McDowell Road is within the city of Phoenix. According to the city of Phoenix Street Classification Map, a Cross-Section C roadway has four lanes and a Cross-Section B has six lanes. The classification map identifies plans to upgrade McDowell Road to Cross-Section B between 91st Avenue and 83rd Avenue. This alternative recommends upgrading all the segments between 99th Avenue and 83rd Avenue to Cross-Section B.

Upgrading the existing Cross-Section C to a Cross-Section B from 99th Avenue to 83rd Avenue would have benefits to the performance of the McDowell Road intersections and reduce congestion by eliminating the bottleneck effect.

McDowell and SR-101L TI: M1

This alternative is recommended assuming McDowell road would be widened to a Cross-Section B. The analysis of alternatives identified M1 to improve the southbound TI to an overall LOS of C in the PM peak hour and the northbound TI to an overall LOS of A. M1 is the only alternative to keep the expected volume to capacity ratios of all intersection movements below one.

Although the TSR2 performs at an acceptable LOS, the expected 95th percentile queue lengths at each approach are consistently longer than the M1 queues. Given McDowell Road is widened, a DDI would be comparable in costs to building the TSR2 improvements.

McDowell and 99th Avenue: TSR2

This alternative is recommended because it improves the LOS of the intersection to an acceptable LOS C. This alternative has additional east and west through lanes that allow longer split times to the north and southbound left turn movements. Without these improvements the southbound left, northbound left, westbound through, and eastbound through movements are all expected to operate at poor a LOS.

McDowell and 91st Avenue: TSR2

This alternative is recommended as it is the only studied alternative that is expected to keep the overall LOS operating at an acceptable level. This alternative has additional east and west through lanes that allow longer split times to overly strained movements such as the westbound left and southbound through movements.

9.5.4 Avondale Boulevard and I-10 TI: TSR1

This alternative is recommended as it is expected to maintain operations at an acceptable LOS without costly improvements.

9.5.5 107th Avenue and I-10 TI: TSR1

This alternative is recommended as it is expected to maintain operations at an acceptable LOS without costly improvements.

9.5.6 99th Avenue and I-10 TI: TSR2

This alternative is recommended as it will improve operations to an acceptable LOS for movements that are expected to fail. This alternative is unable to bring many of the eastbound TI's movements to an acceptable LOS, but it does reduce overall delay for the intersection and is able to operate at a LOS of E overall in the PM peak hour. This alternative keeps all movements at an acceptable LOS in the AM peak hour.

9.5.7 91st Avenue and I-10 TI: TSR2

This alternative is recommended because it maintains operations of every approach at an acceptable LOS. This alternative improves upon the TI by adding turn lanes on east and west ramp approaches.

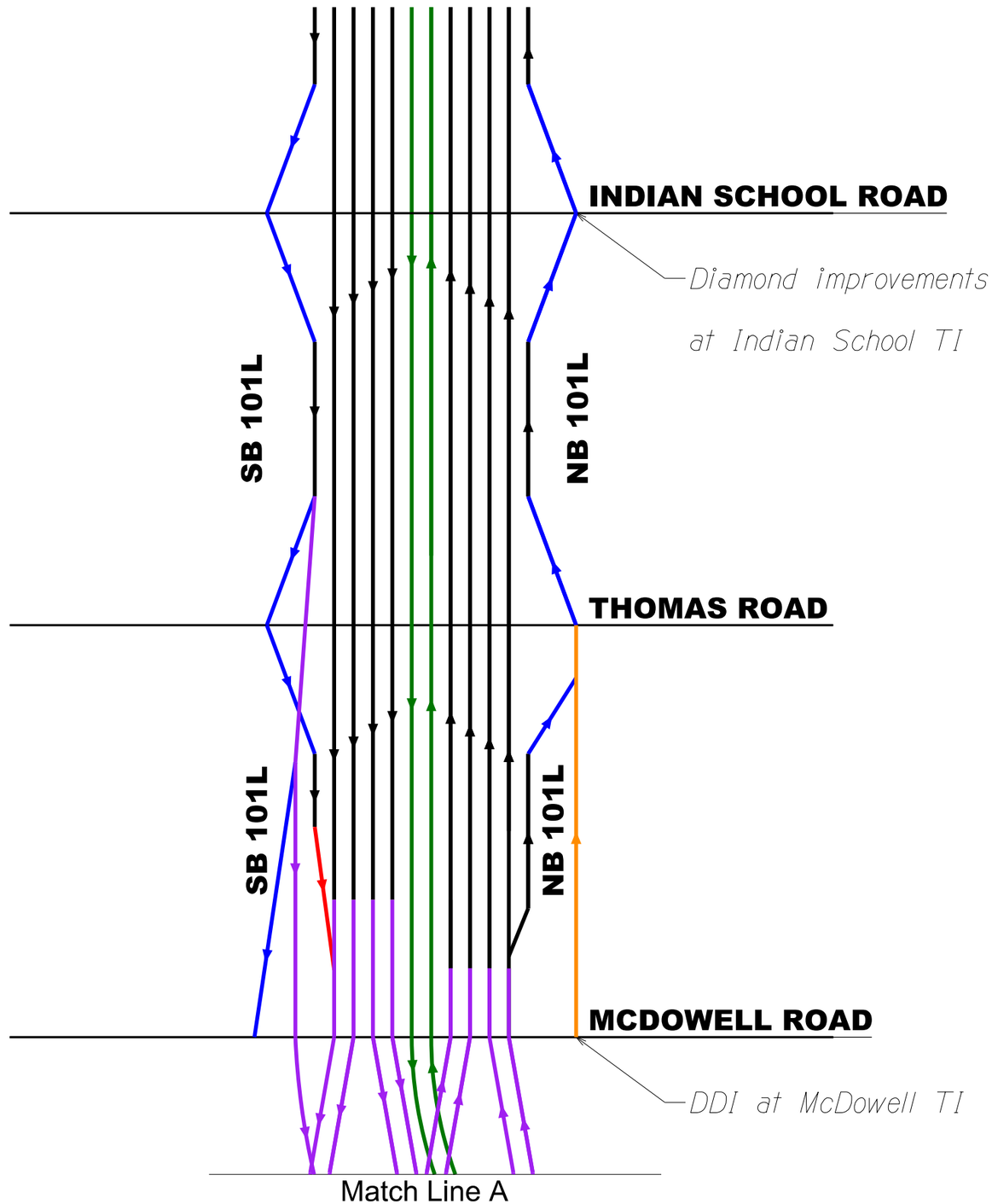
9.5.8 83rd Avenue and I-10 TI: TSR1

This alternative is recommended because the retiming plan maintains an acceptable LOS without costly improvements.

Appendix A:
Alternatives Lane Configurations

2040 Conformity Model

Alternative Group 1: ST1, ST2, NB1, EB1, & WB1



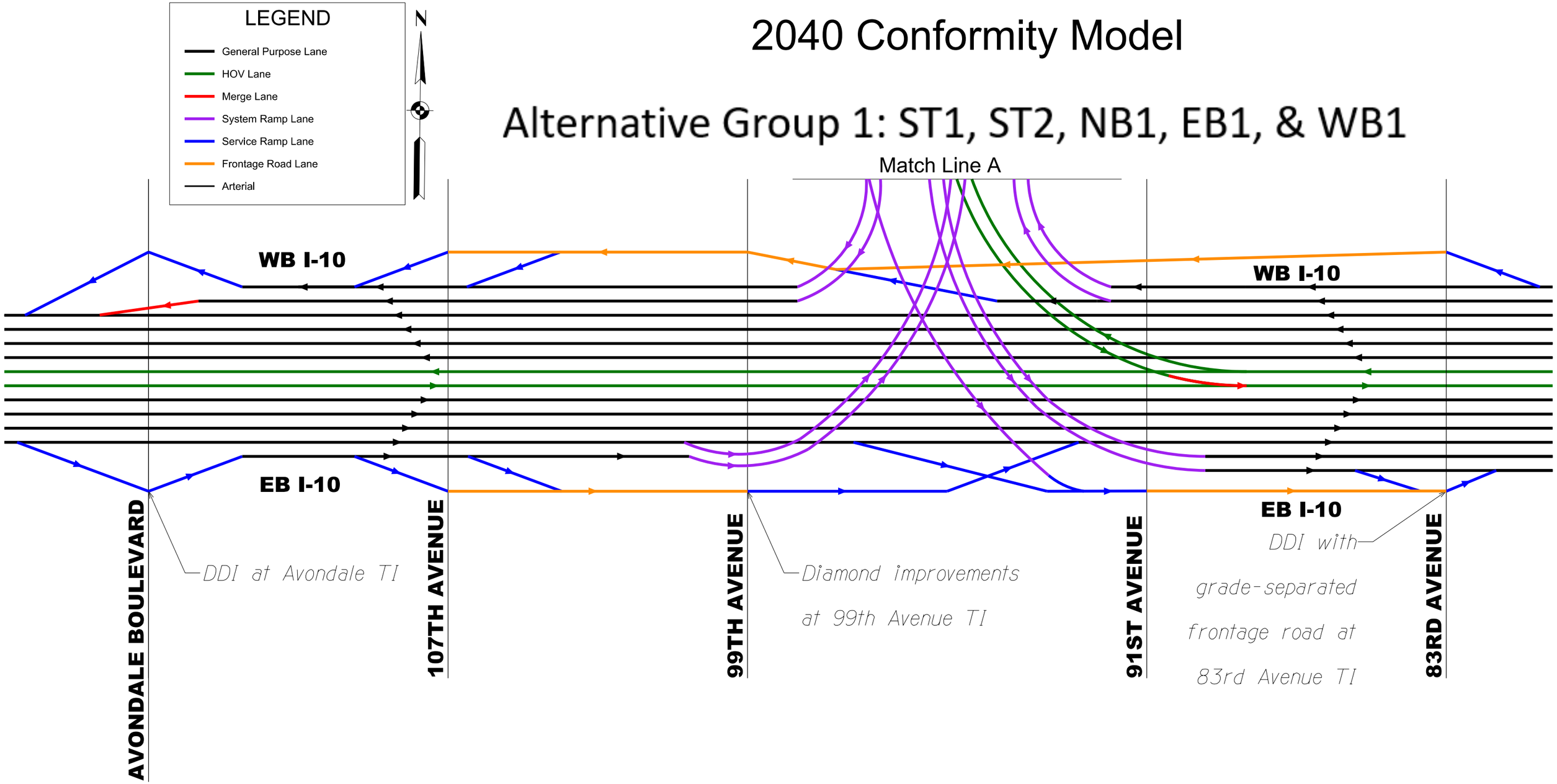
LEGEND

- General Purpose Lane
- HOV Lane
- Merge Lane
- System Ramp Lane
- Service Ramp Lane
- Frontage Road Lane
- Arterial

N

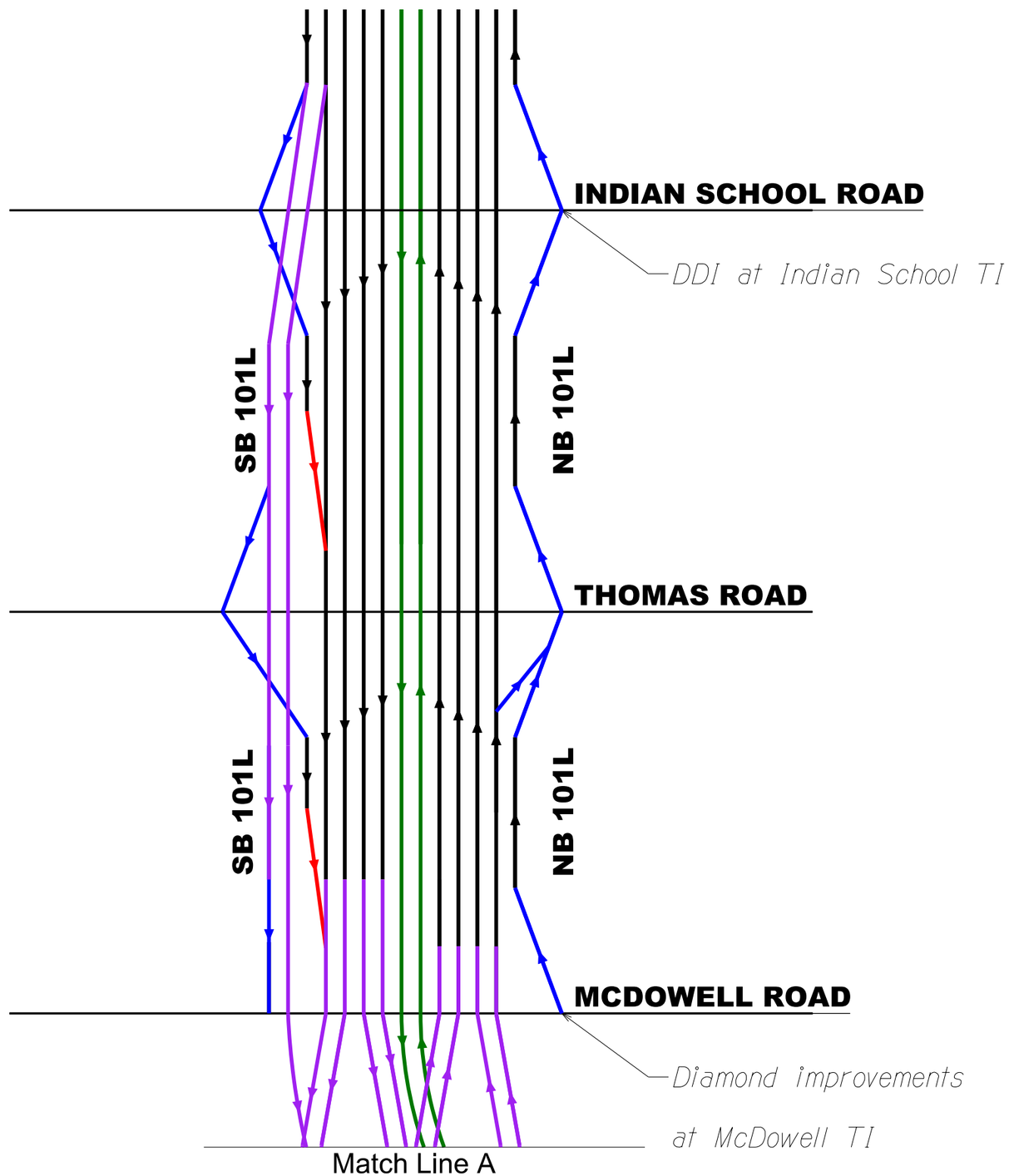
2040 Conformity Model

Alternative Group 1: ST1, ST2, NB1, EB1, & WB1



2040 Conformity Model

Alternative Group 2: ST1, ST3, NB2, EB2, & WB2



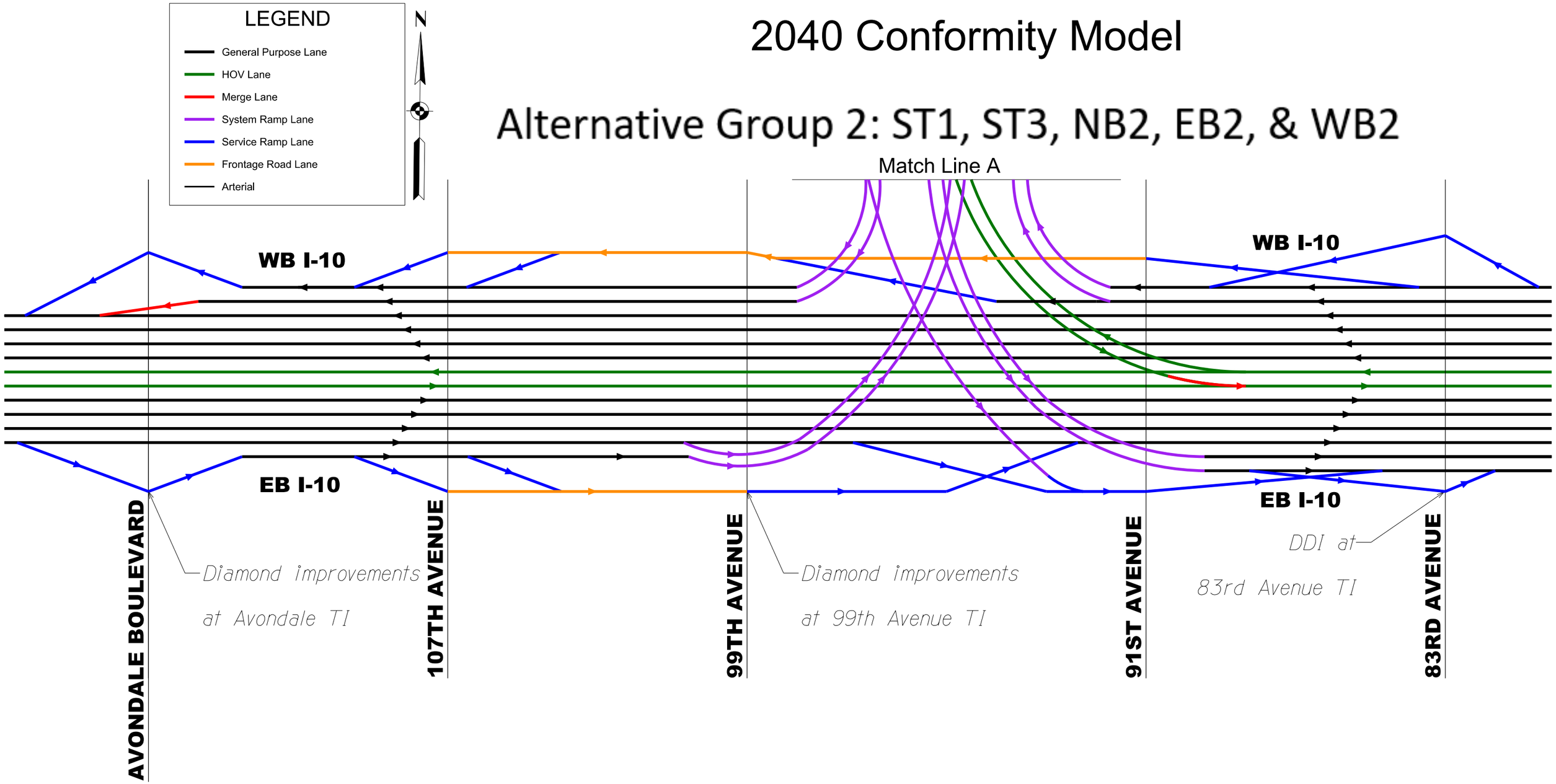
LEGEND

- General Purpose Lane
- HOV Lane
- Merge Lane
- System Ramp Lane
- Service Ramp Lane
- Frontage Road Lane
- Arterial

N

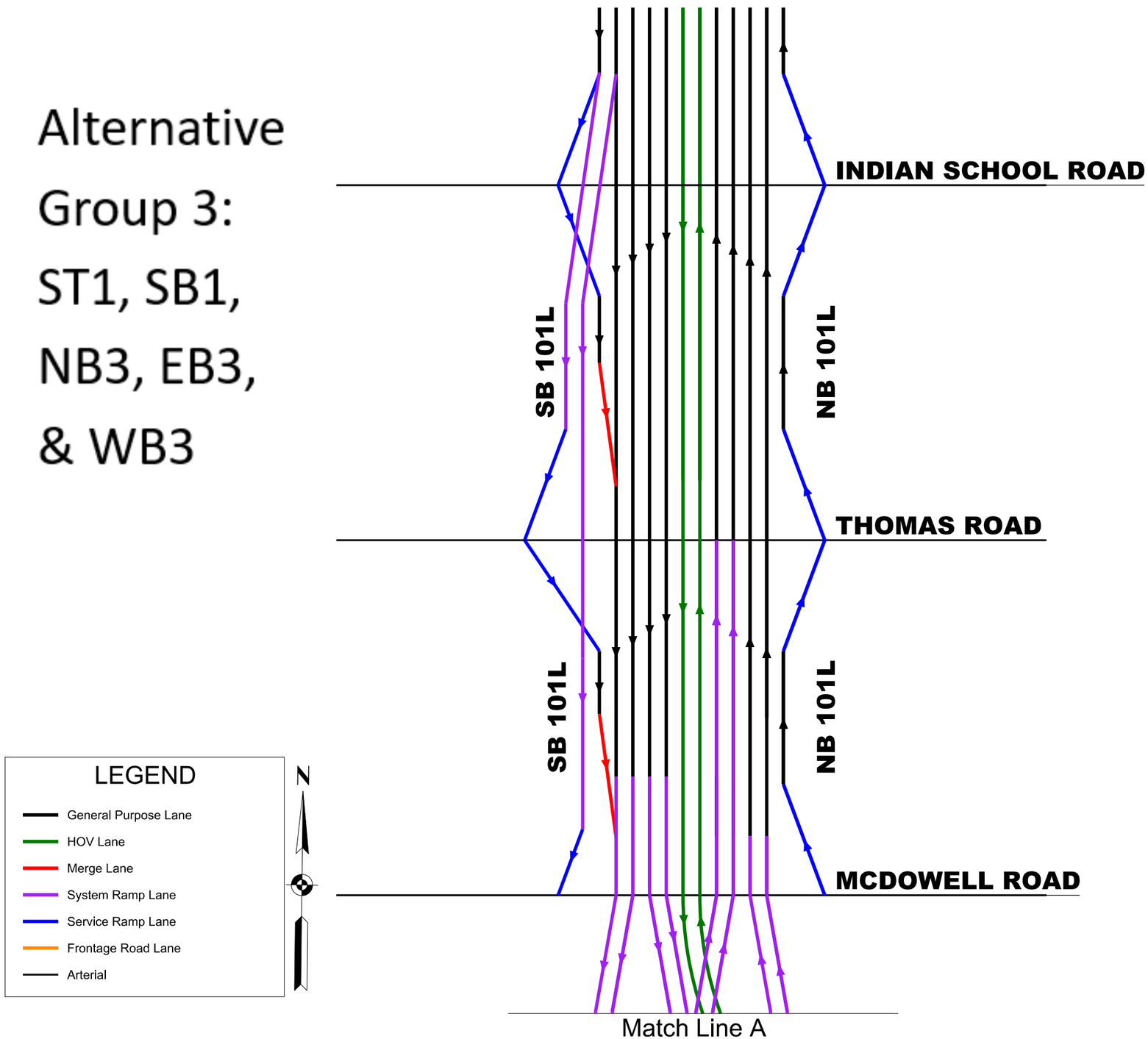
2040 Conformity Model

Alternative Group 2: ST1, ST3, NB2, EB2, & WB2



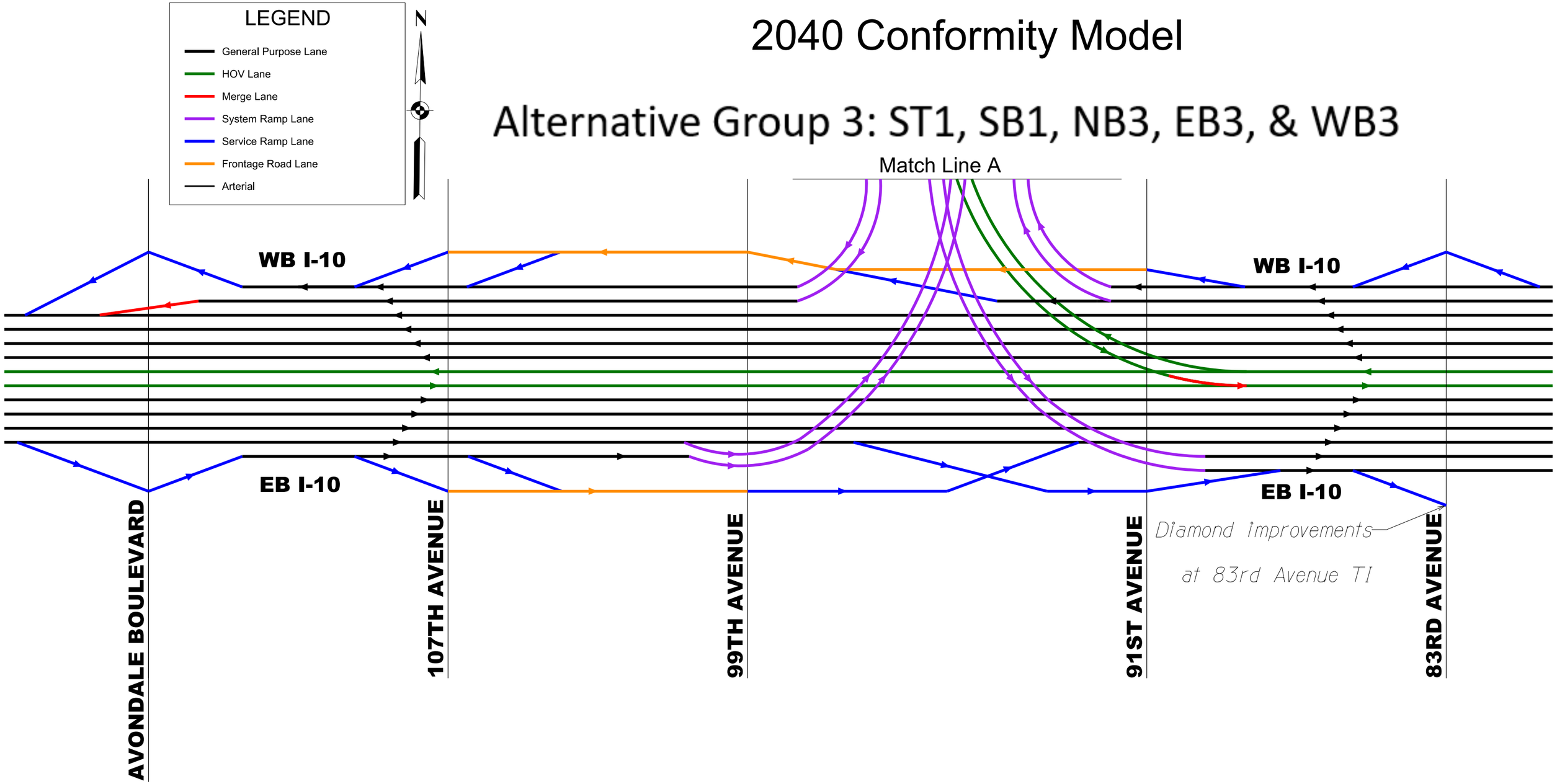
2040 Conformity Model

Alternative Group 3: ST1, SB1, NB3, EB3, & WB3



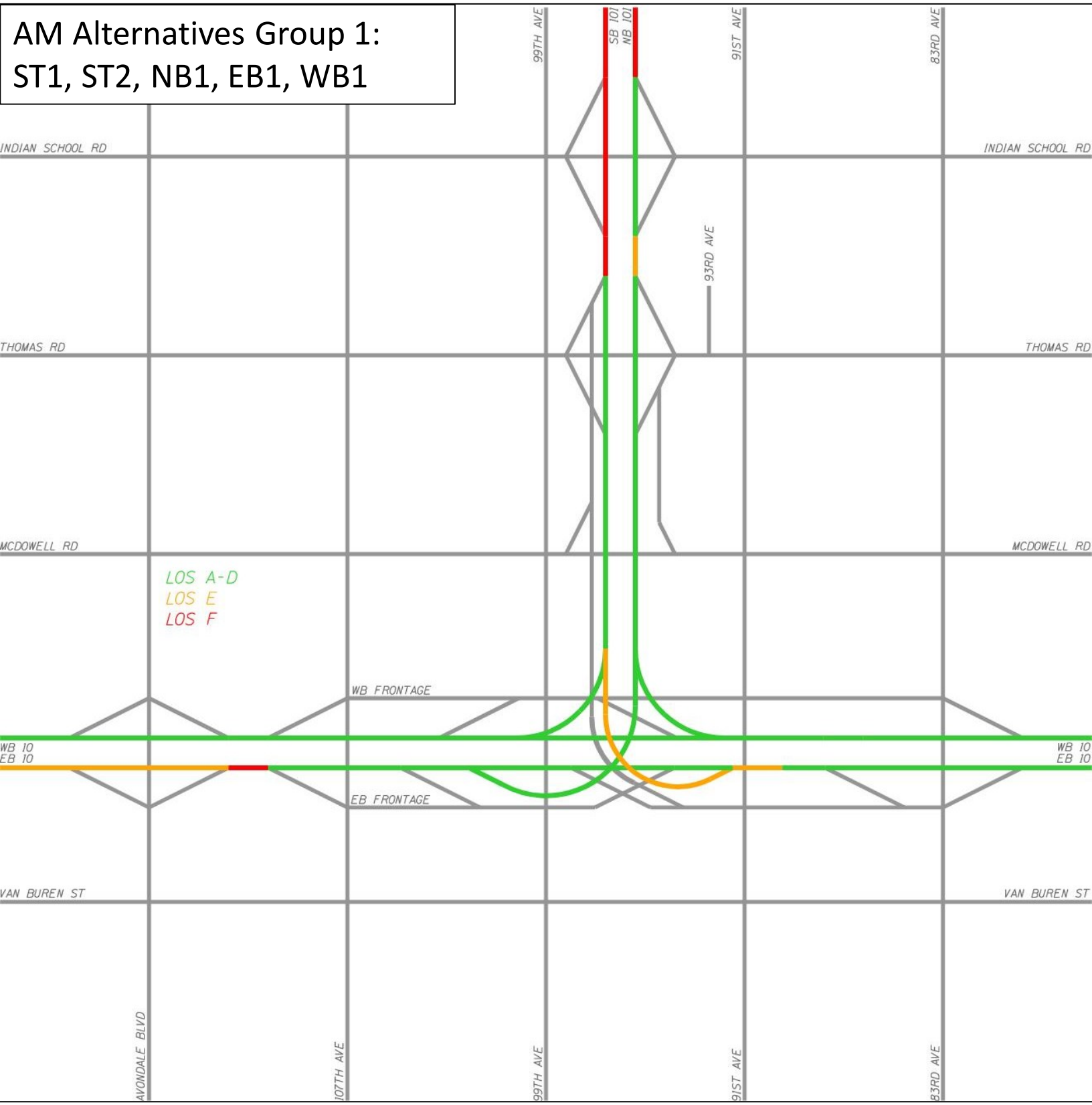
2040 Conformity Model

Alternative Group 3: ST1, SB1, NB3, EB3, & WB3

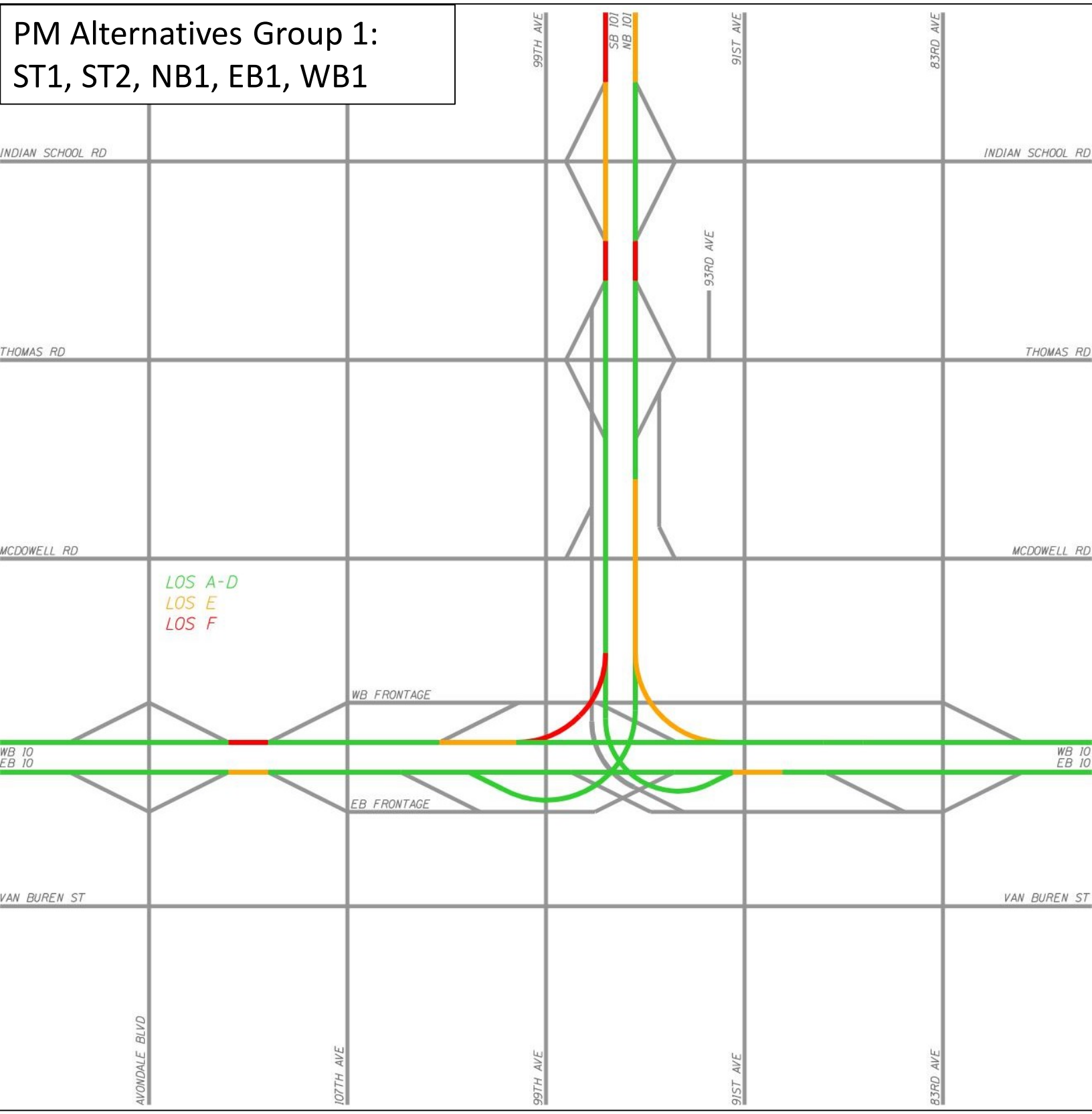


Appendix B:
HCS7 LOS Analysis

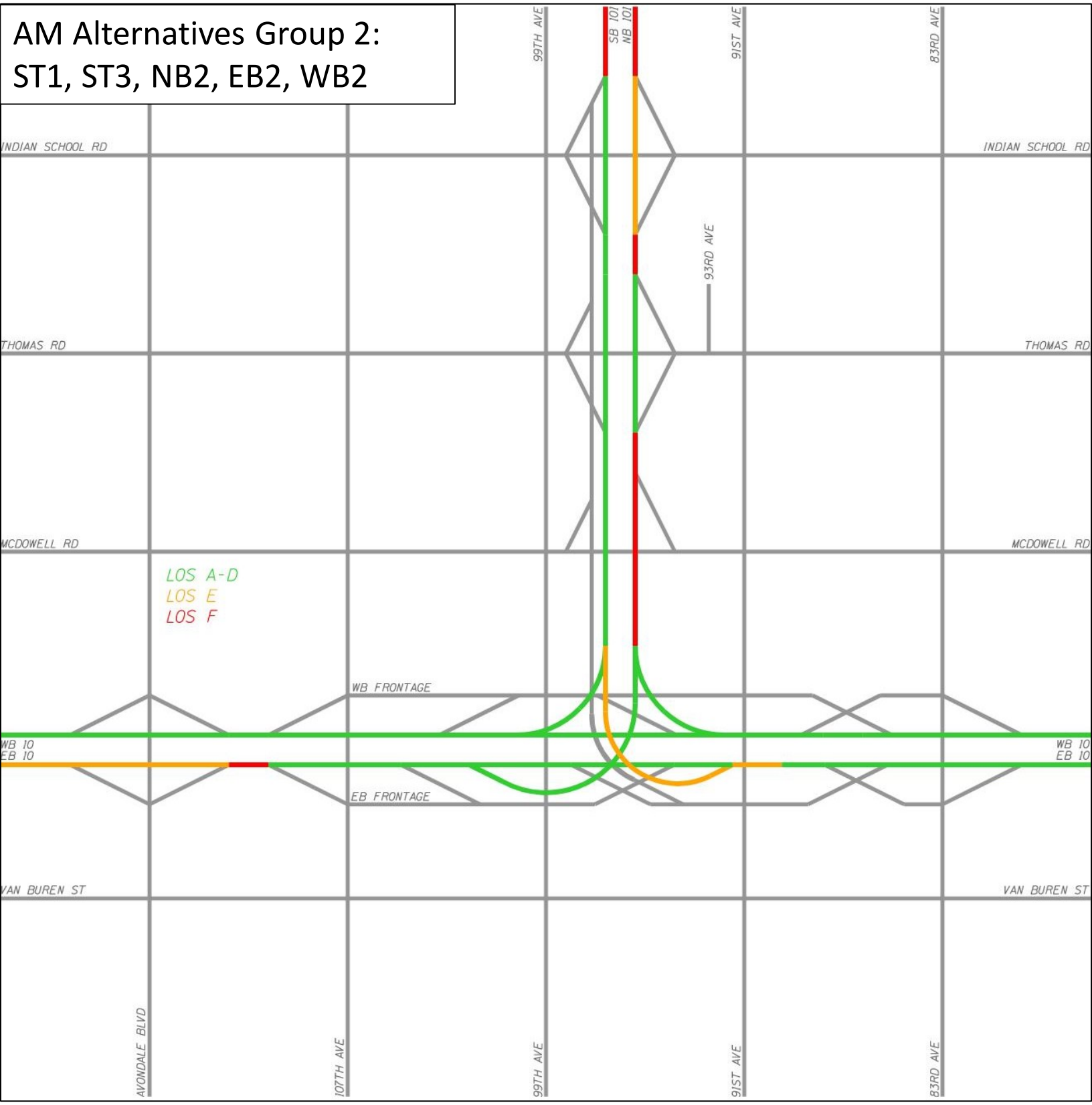
AM Alternatives Group 1: ST1, ST2, NB1, EB1, WB1



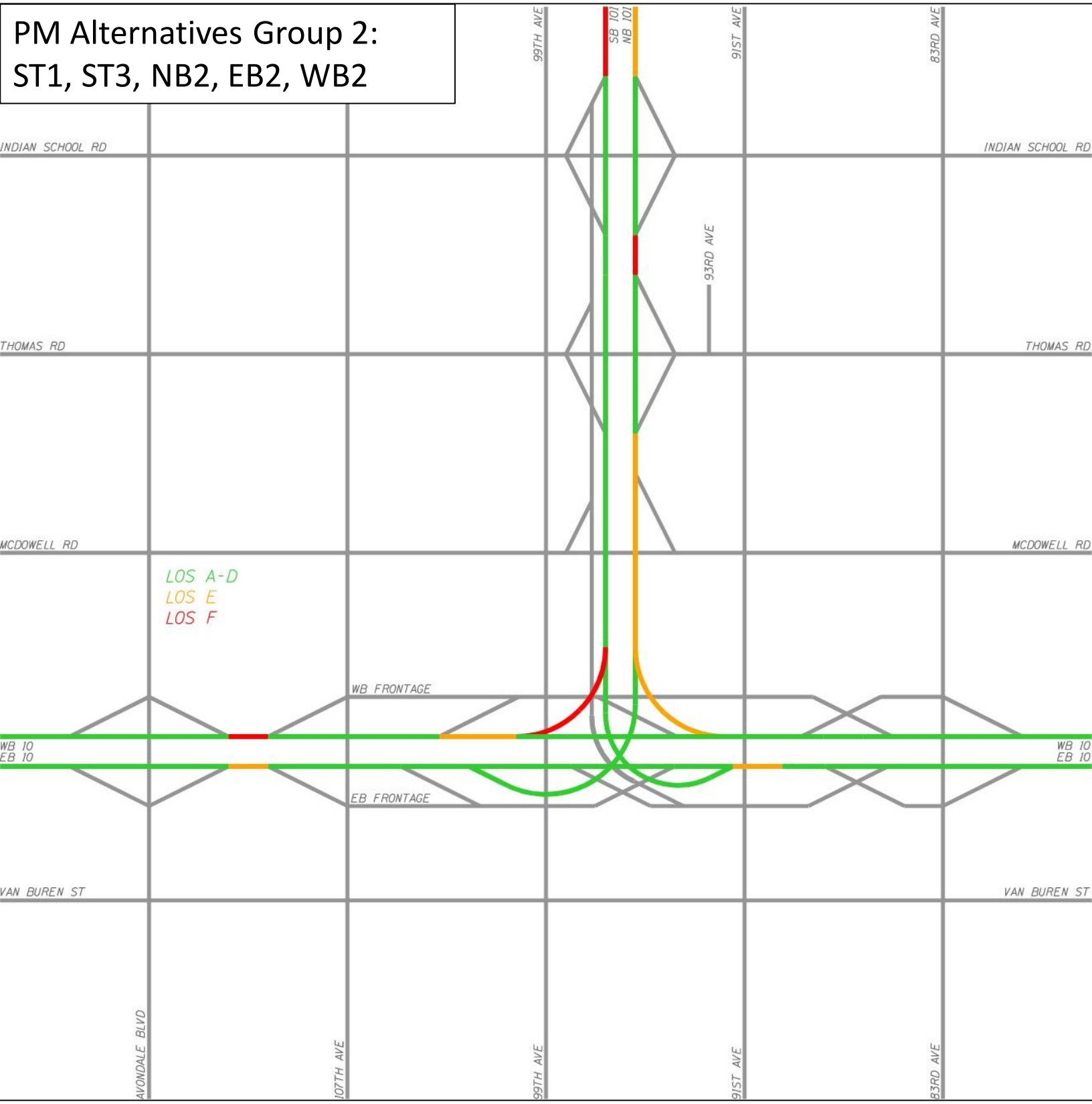
PM Alternatives Group 1: ST1, ST2, NB1, EB1, WB1



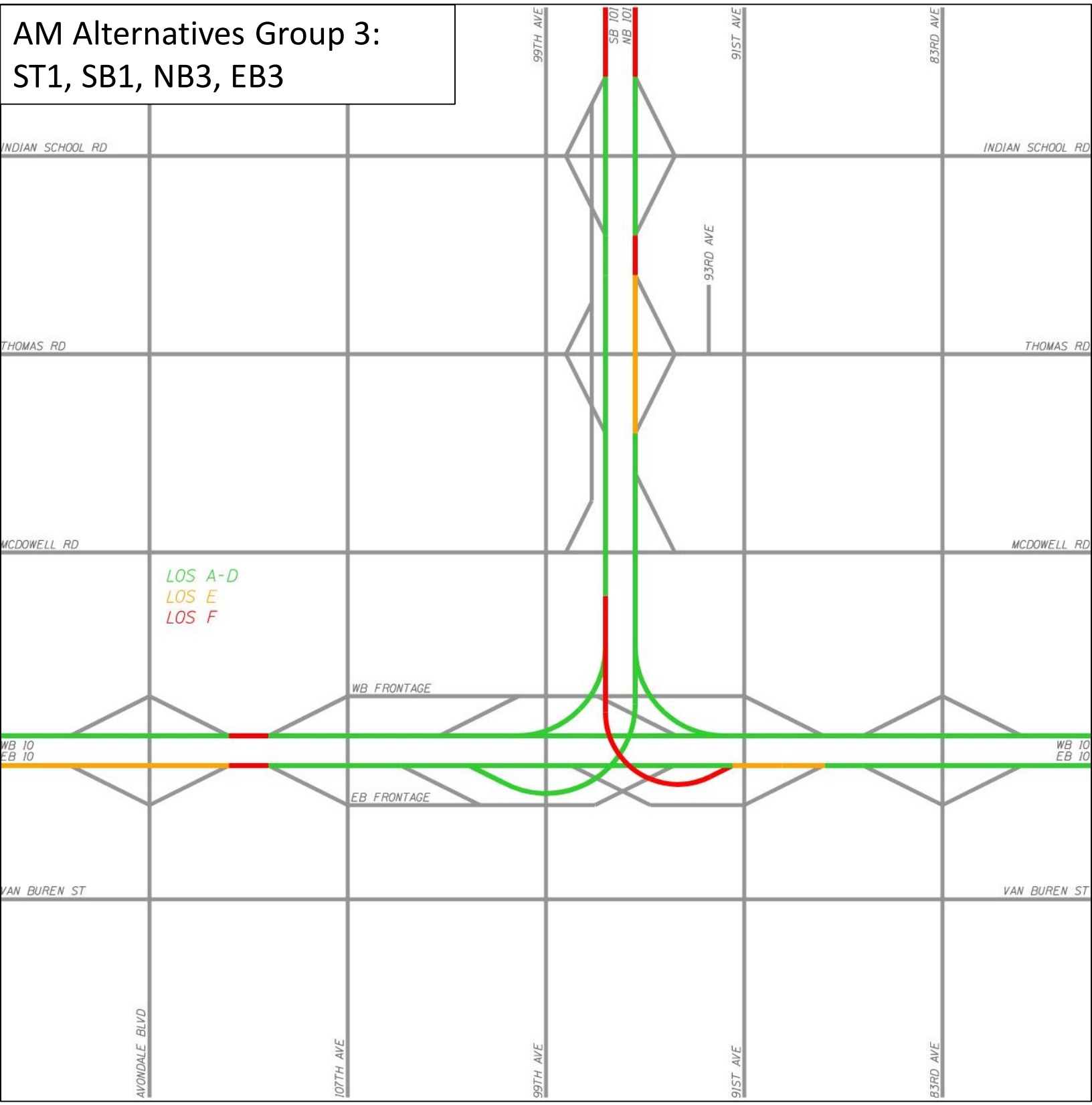
AM Alternatives Group 2: ST1, ST3, NB2, EB2, WB2



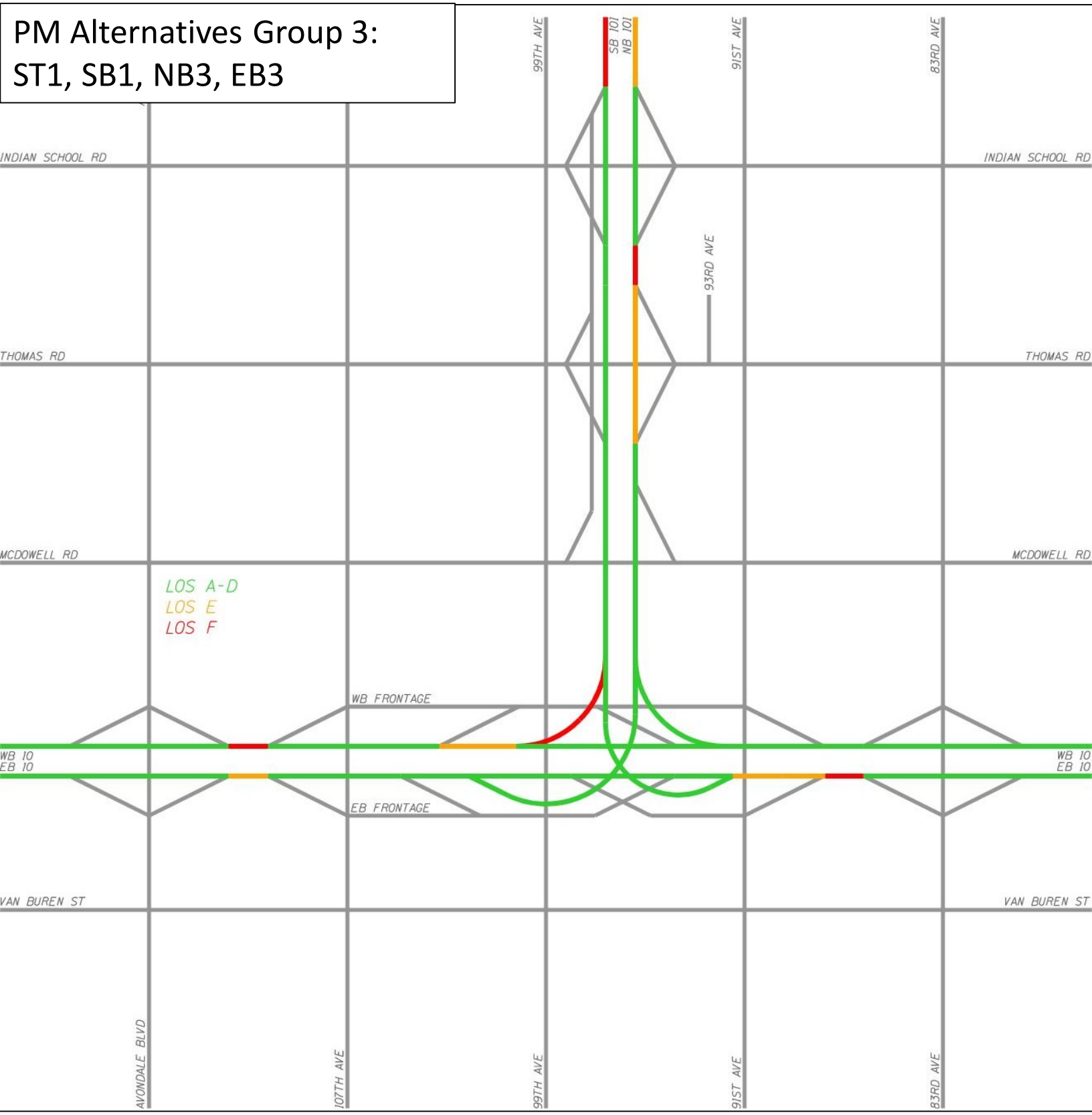
PM Alternatives Group 2: ST1, ST3, NB2, EB2, WB2



AM Alternatives Group 3: ST1, SB1, NB3, EB3



PM Alternatives Group 3: ST1, SB1, NB3, EB3



Appendix C:
Speed Heat Maps Along Freeway Mainlines

AM ST2
SR-101L Southbound

8:05	8:10	8:15	8:20	8:25	8:30	8:35	8:40	8:45	8:50	8:55	9:00
40	58	48	58	60	62	44	39	42	40	43	46
37	53	41	53	53	59	41	34	40	35	42	43
38	48	44	50	53	52	47	39	44	38	45	42
39	42	44	49	53	50	48	39	43	39	44	44
43	45	47	45	54	50	48	42	48	43	46	47
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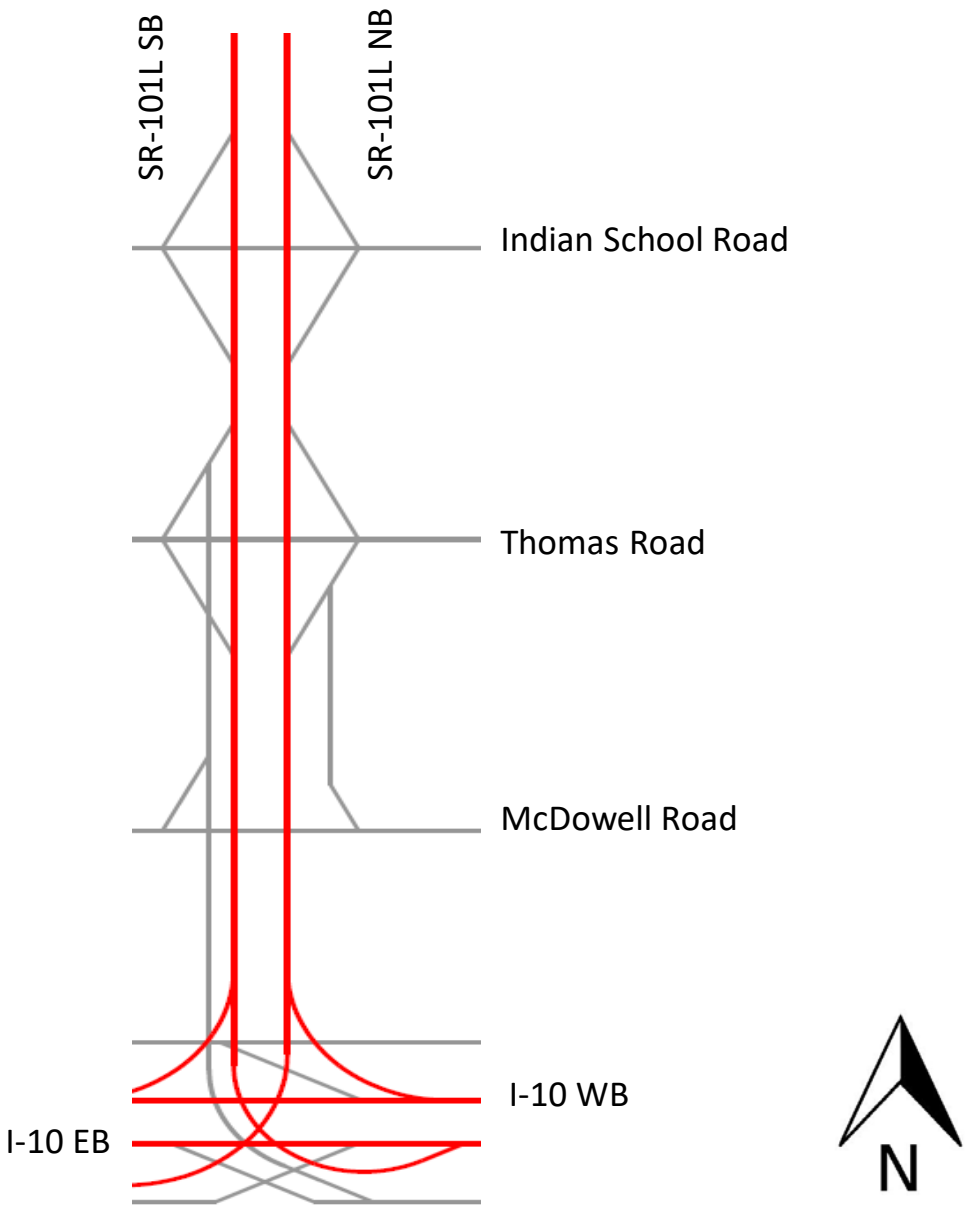

AM ST3
SR-101L Southbound

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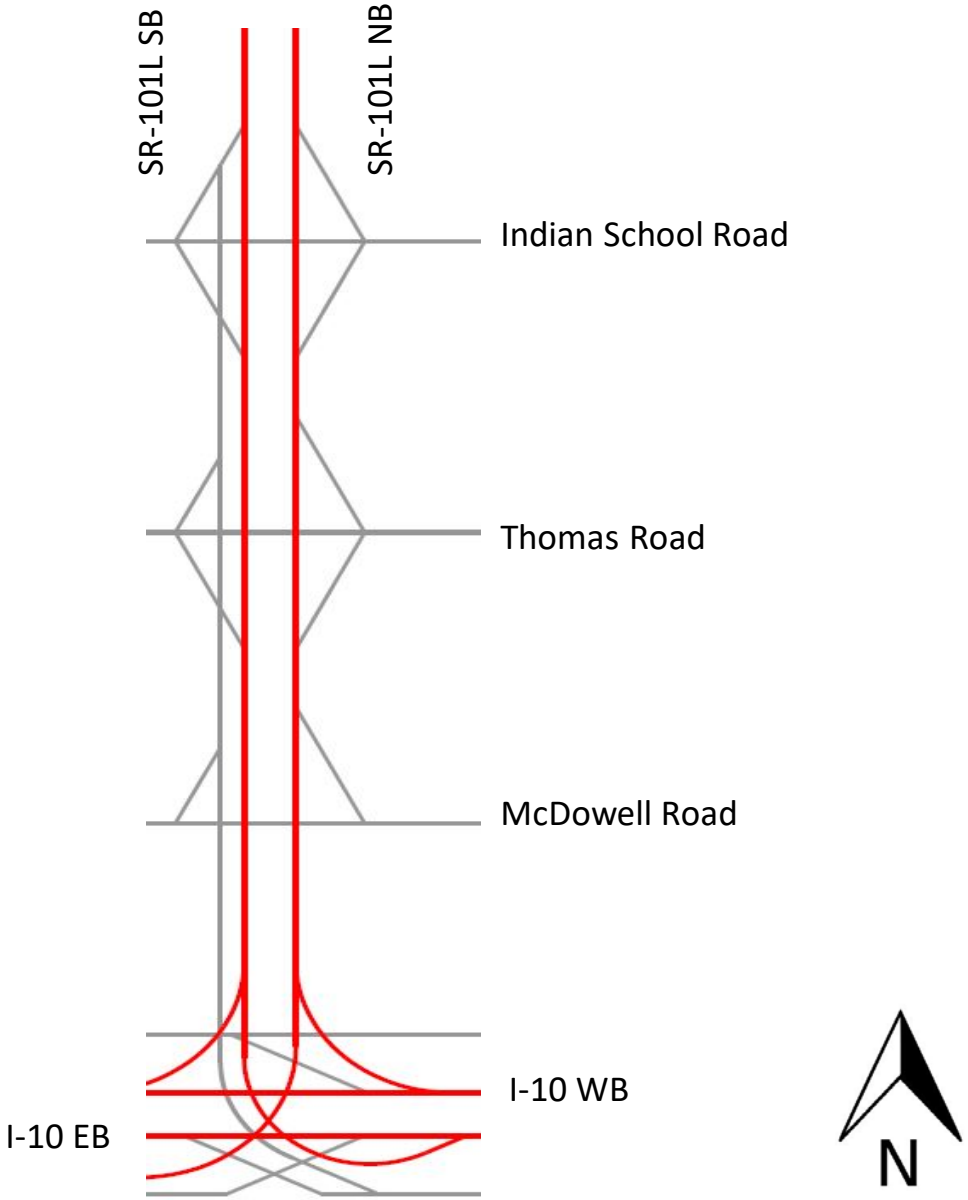

AM SB1
SR-101L Southbound

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48	52	54	55	60	59	55	51	56	50	48	48
50	46	40	49	56	55	54	48	53	47	41	43
50	42	37	45	54	53	54	49	53	46	41	43
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32	29	55	59	61	60	61	56	49	51	45	45
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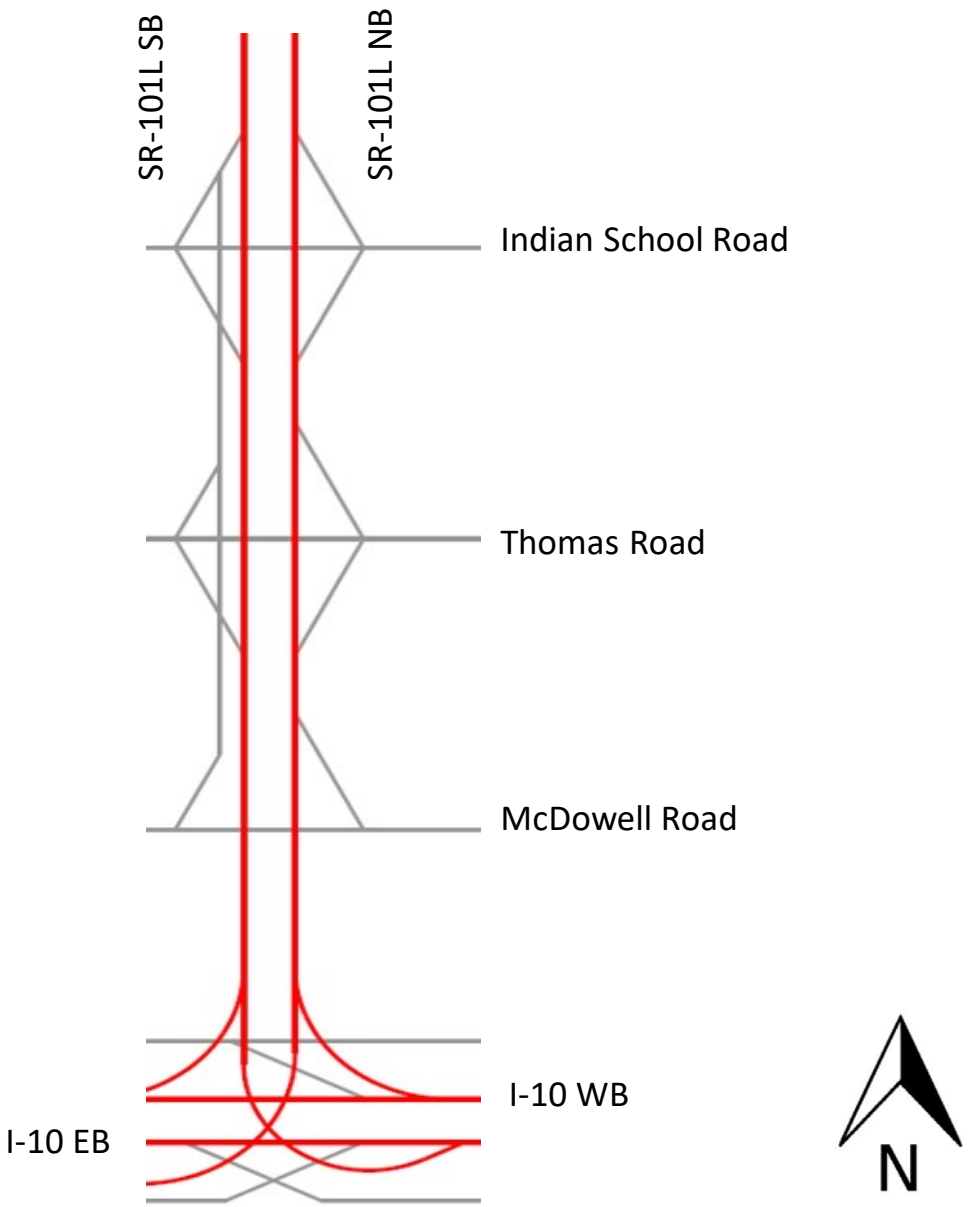

PM ST2
SR-101L Southbound

5:05	5:10	5:15	5:20	5:25	5:30	5:35	5:40	5:45	5:50	5:55	6:00
23	23	24	23	23	24	23	22	21	20	24	22
25	24	26	24	26	27	26	23	22	22	23	23
28	27	29	27	28	28	27	25	23	21	26	26
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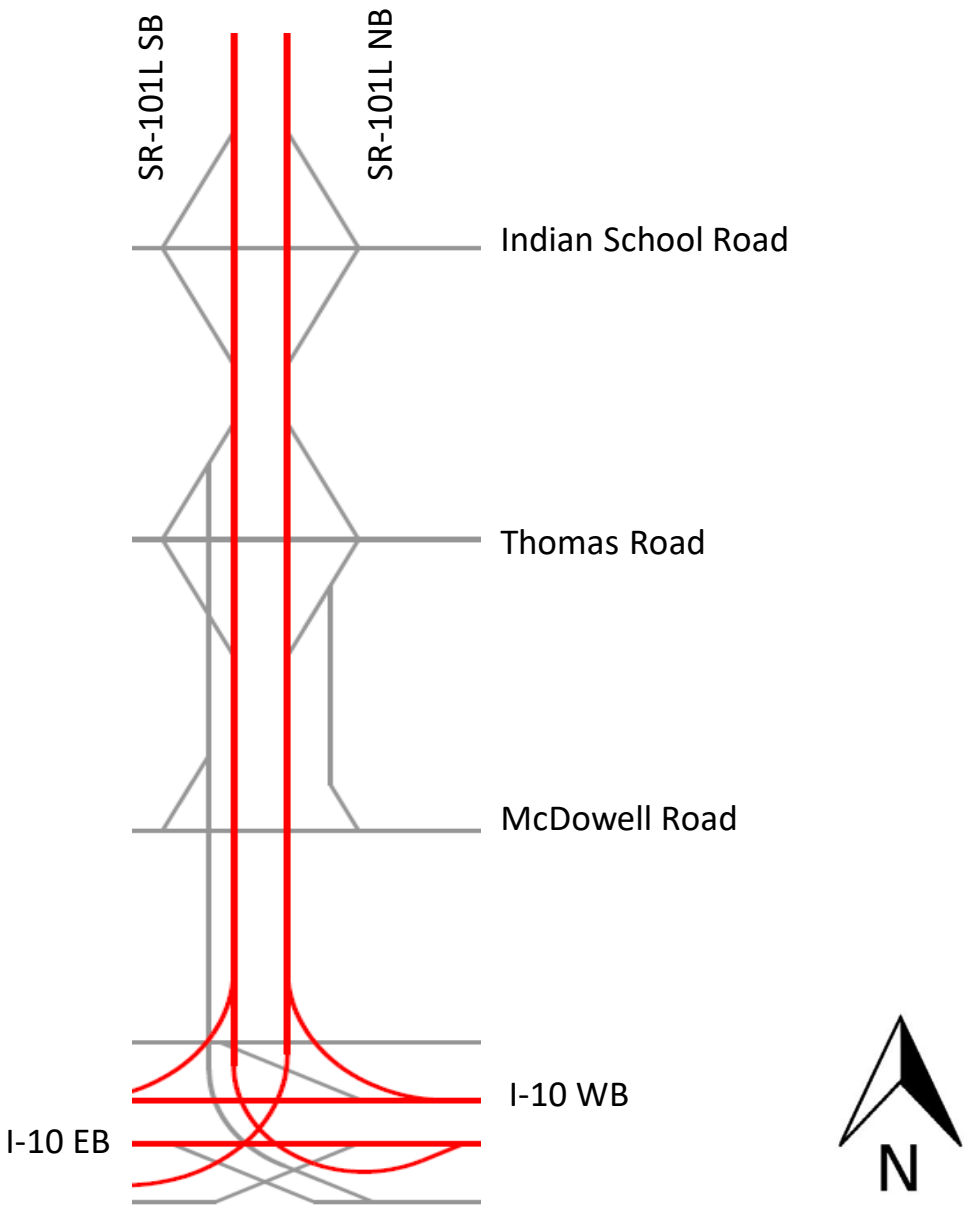

PM ST3
SR-101L Southbound

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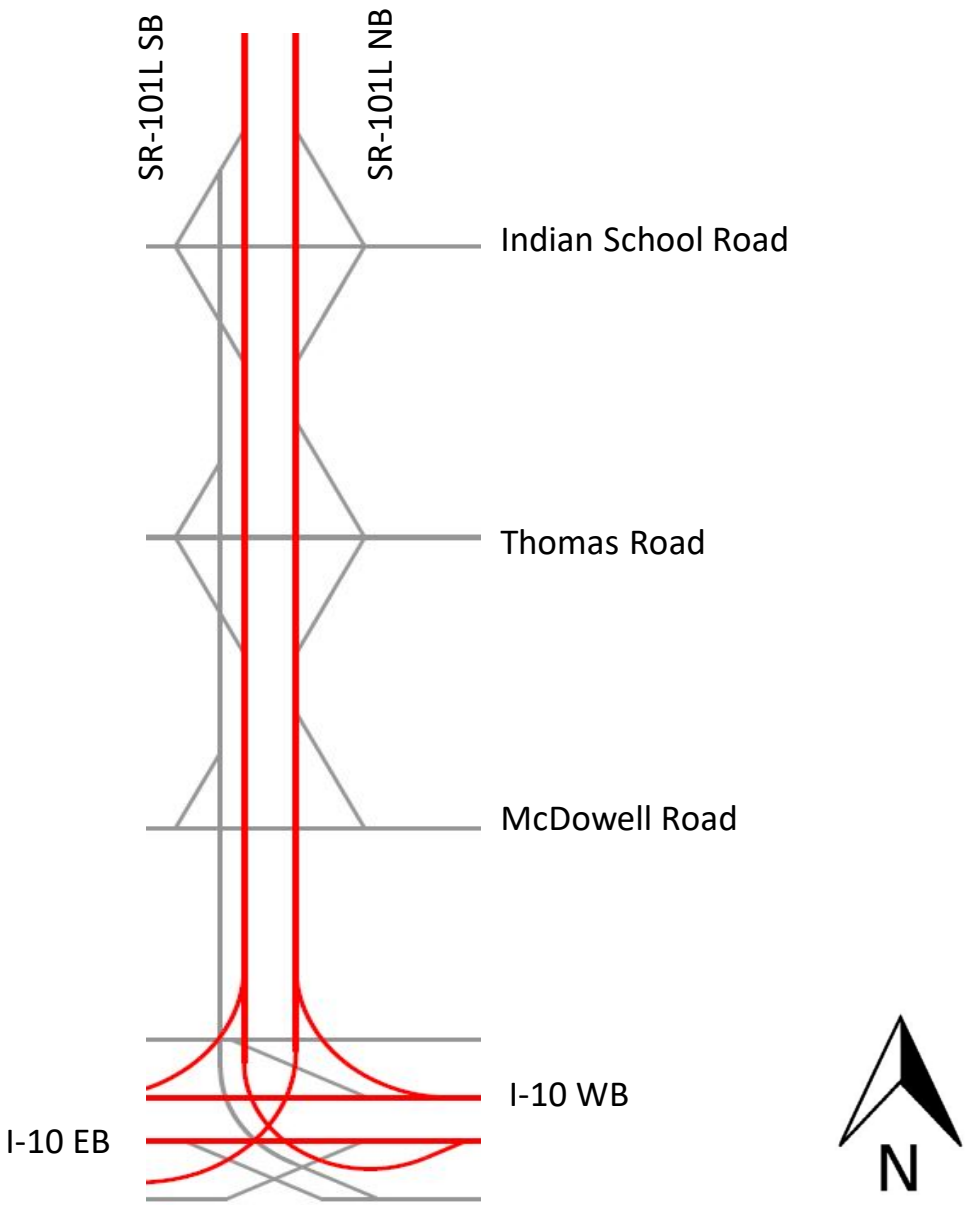

PM SB1
SR-101L Southbound

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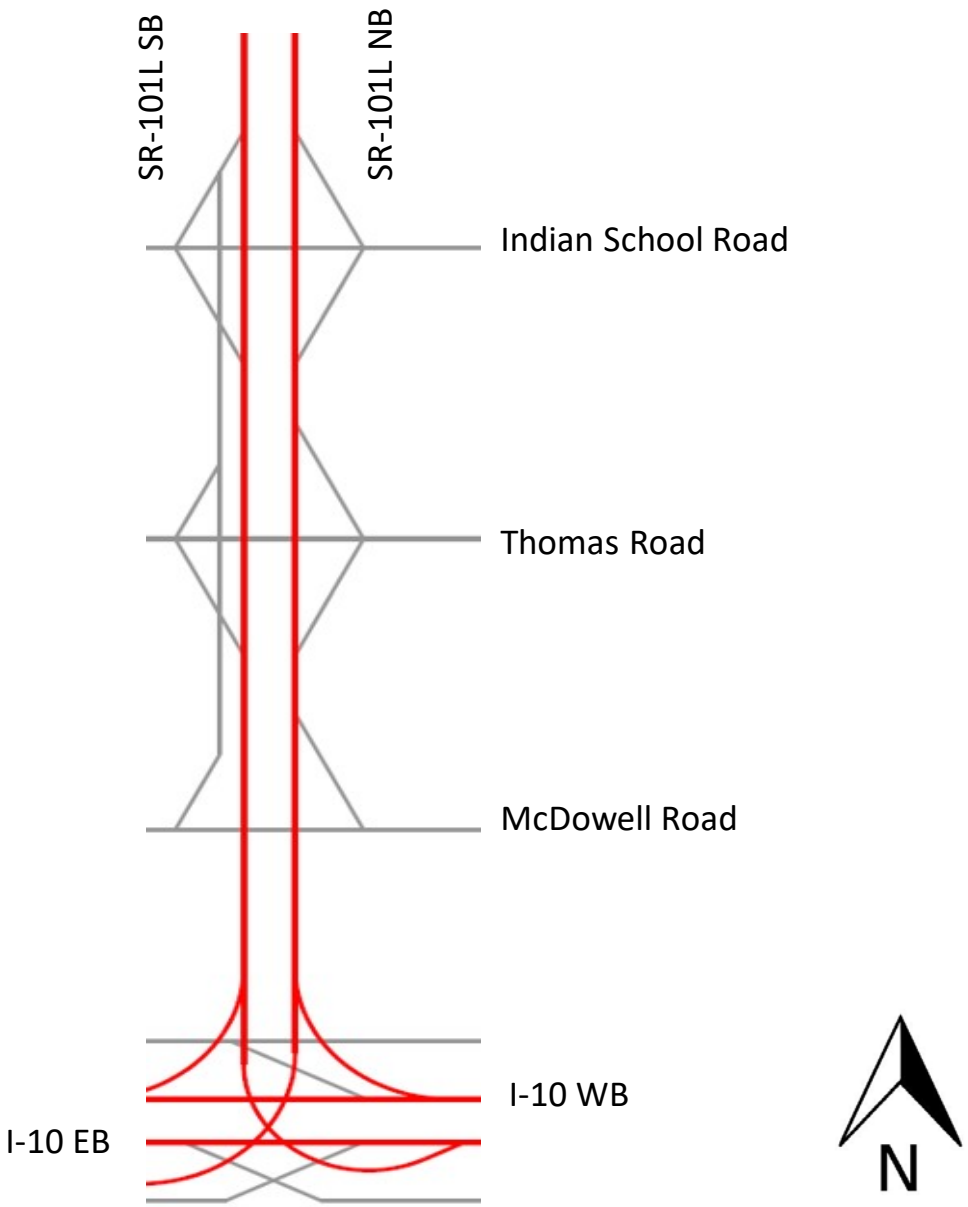
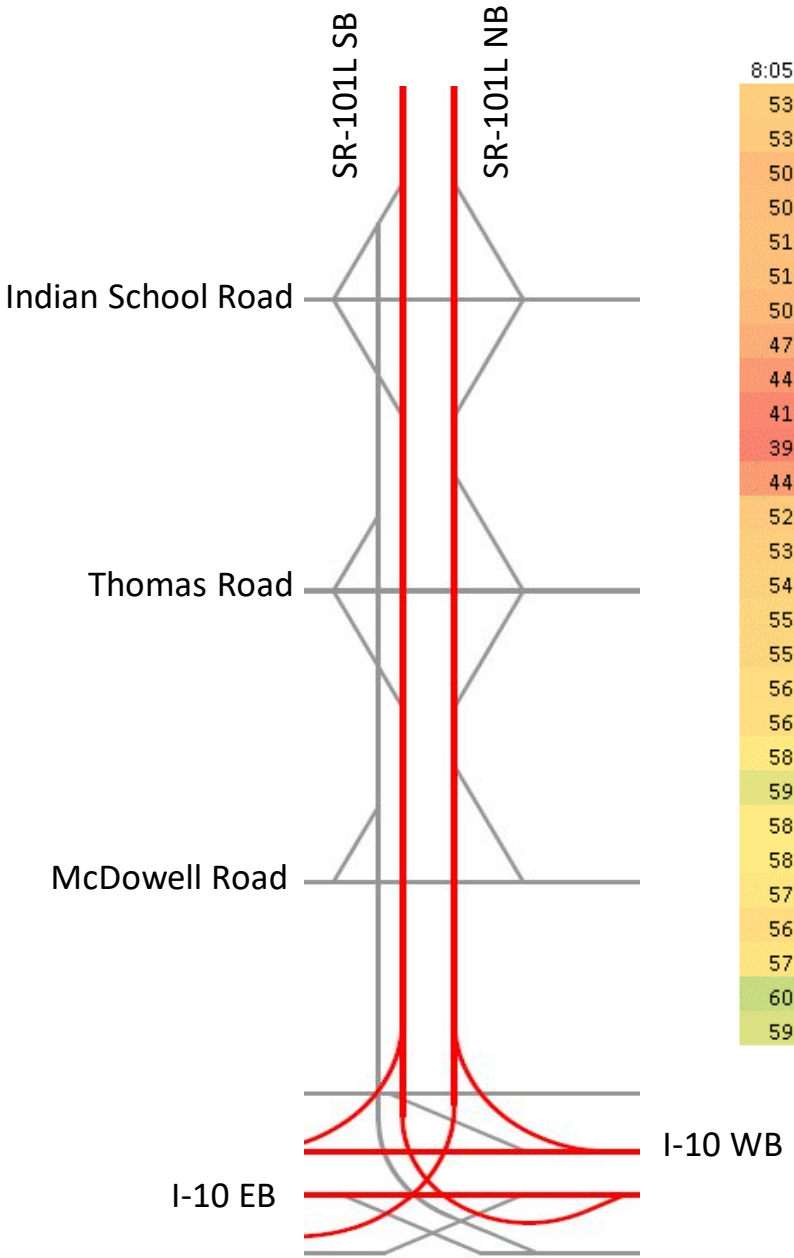


AM NB2
SR-101L Northbound



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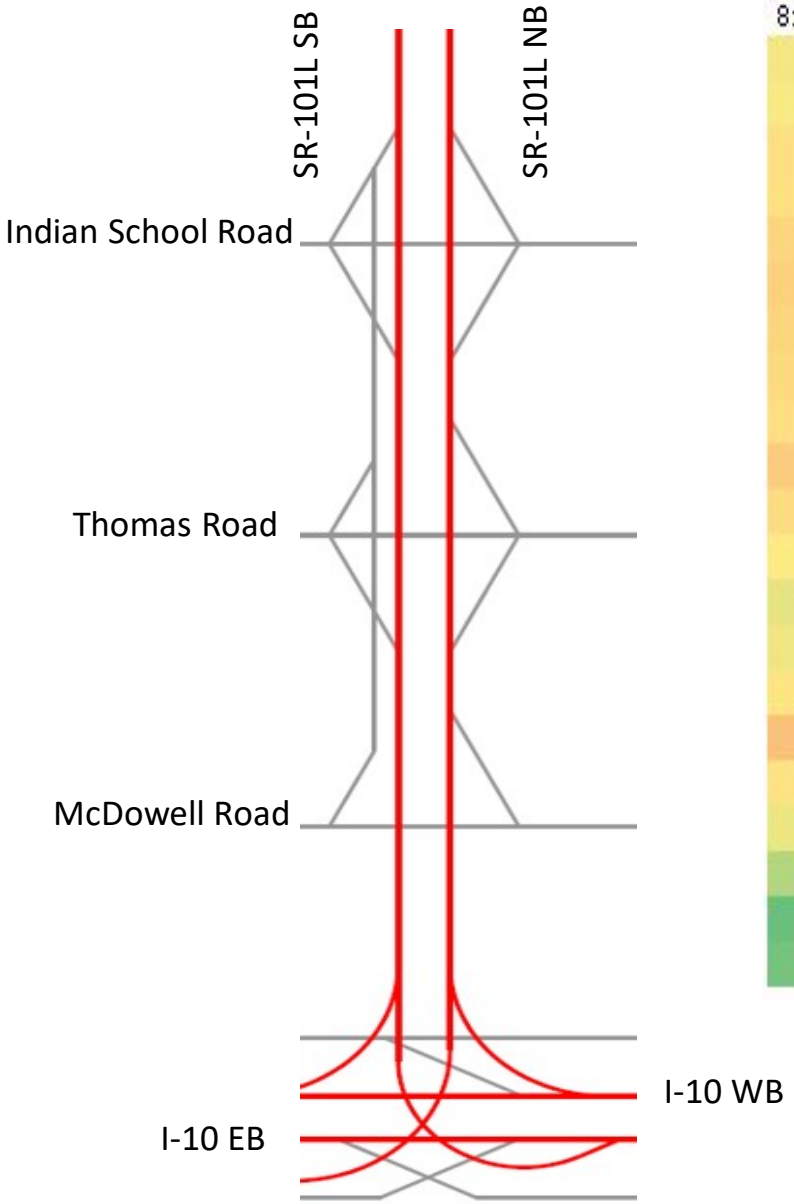
AM NB3
SR-101L Northbound



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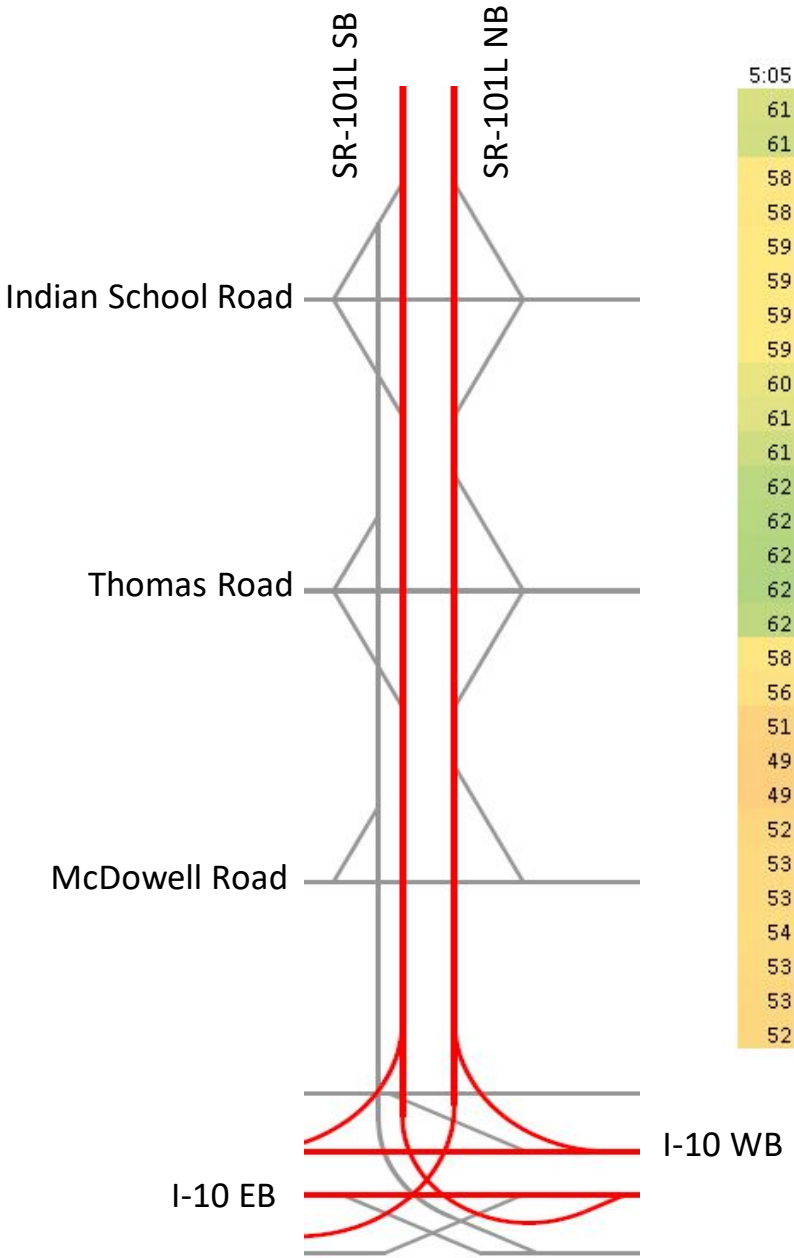
PM NB2
SR-101L Northbound



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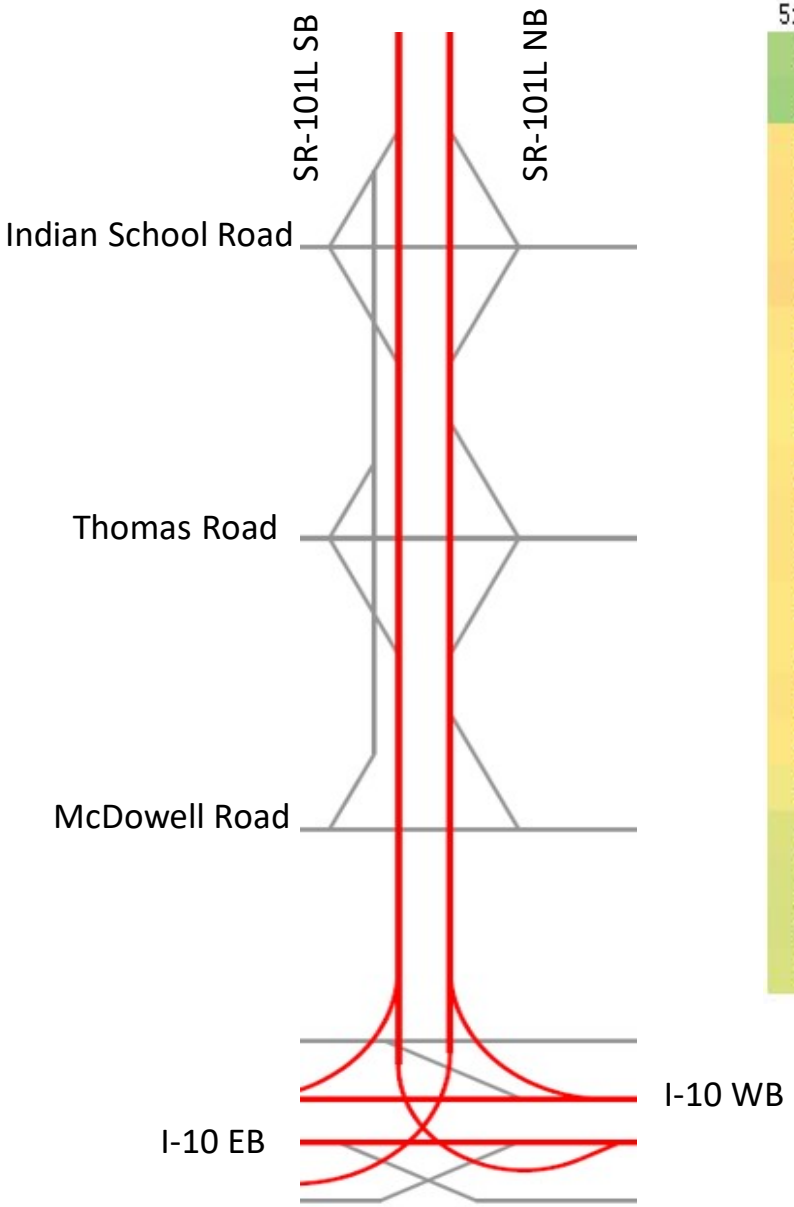
PM NB3
SR-101L Northbound



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N

AM EB1
I-10 Eastbound

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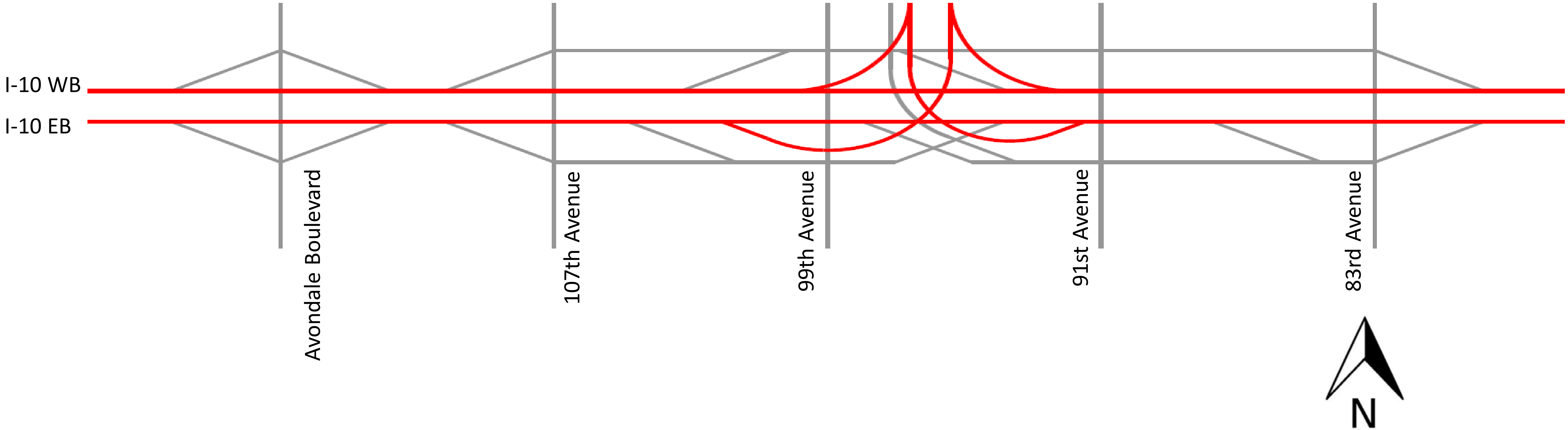

AM EB2
I-10 Eastbound

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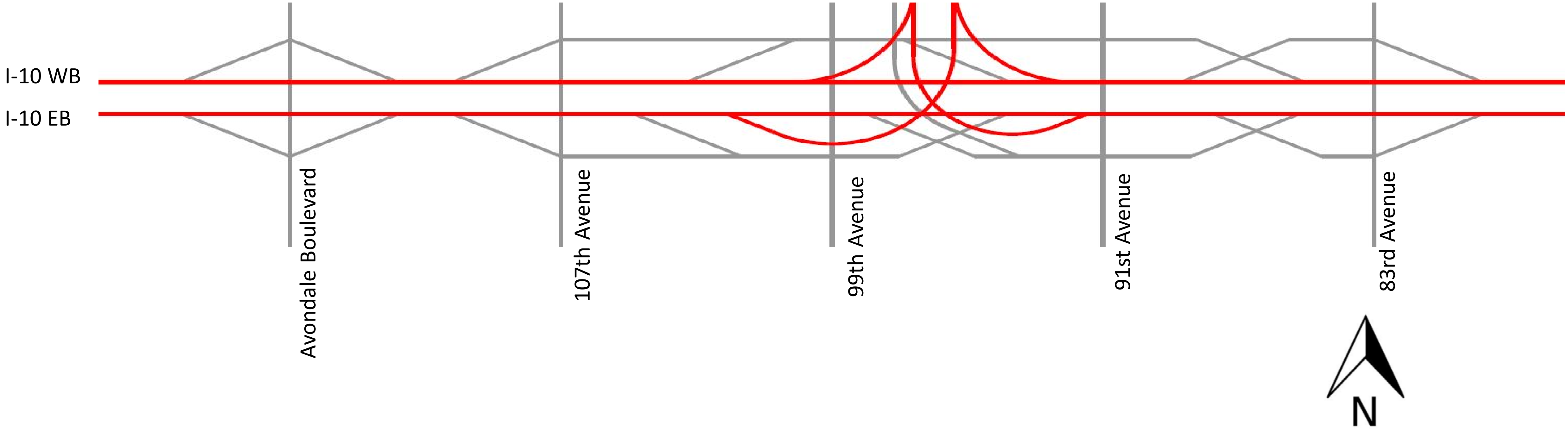

AM EB3
I-10 Eastbound

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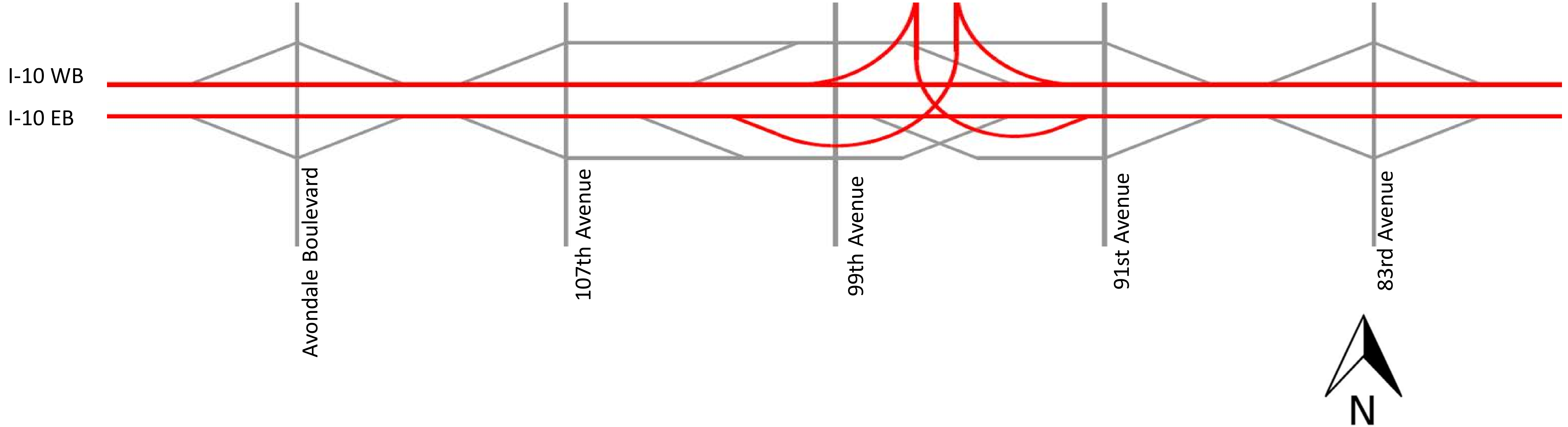

PM EB1
I-10 Eastbound

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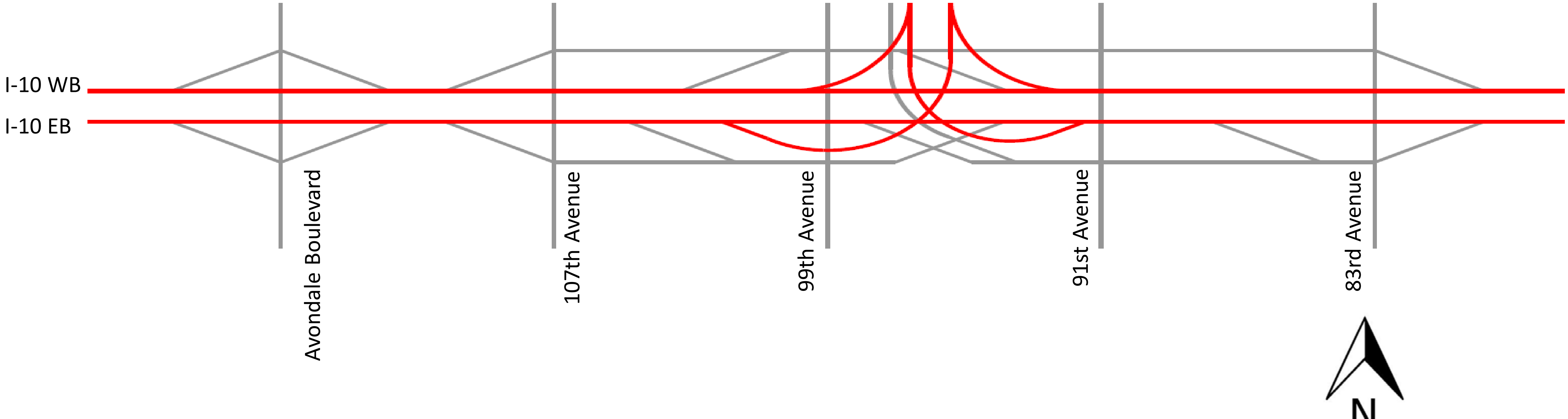

PM EB2
I-10 Eastbound

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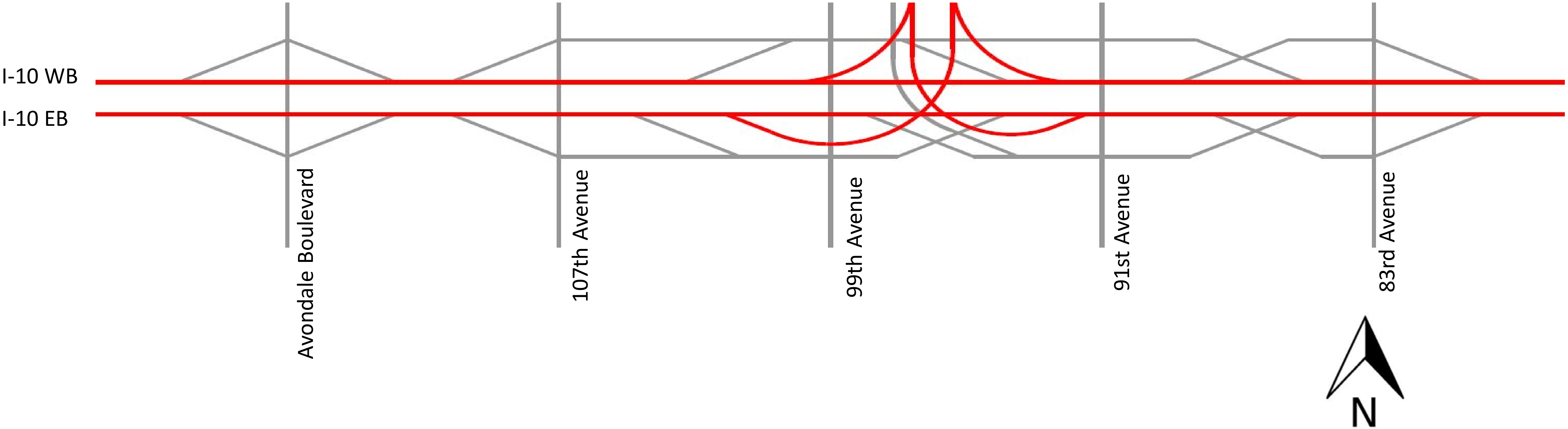

PM EB3
I-10 Eastbound

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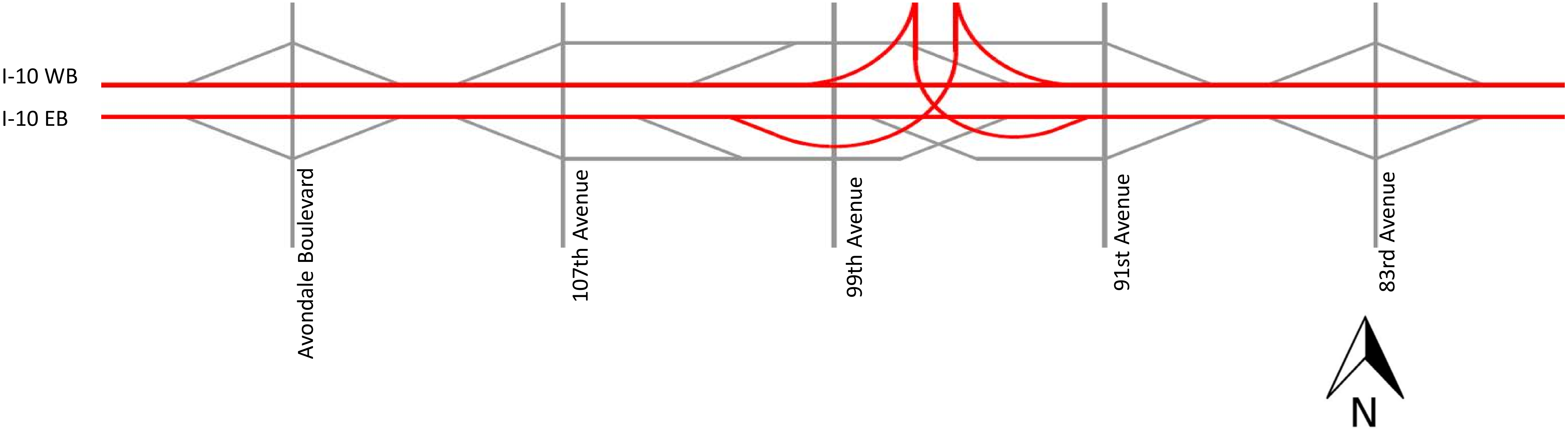

AM WB1
I-10 Westbound

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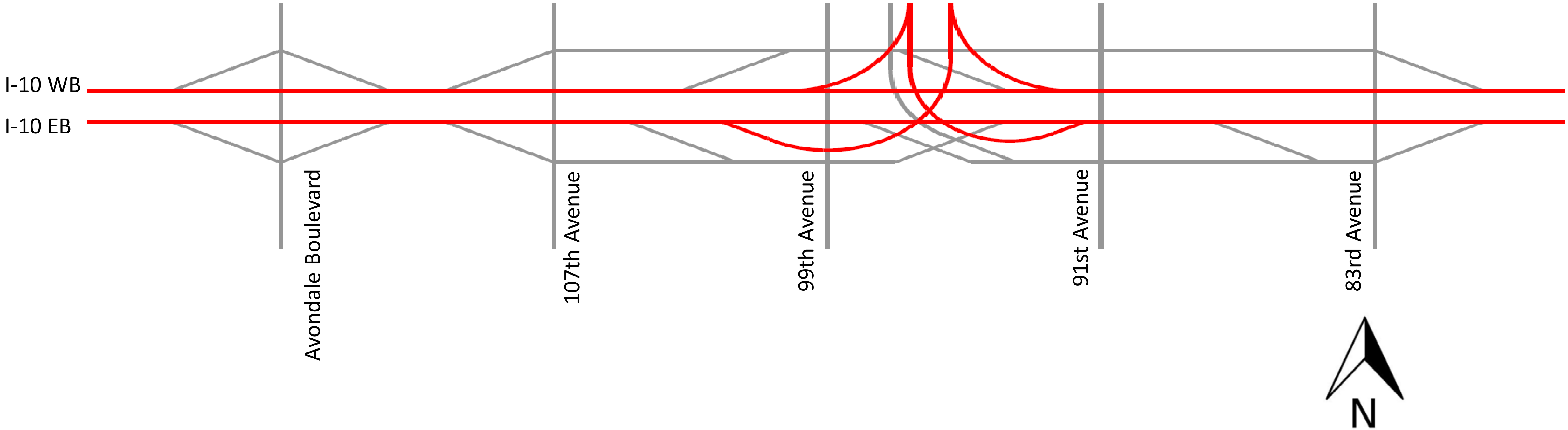

AM WB2
I-10 Westbound

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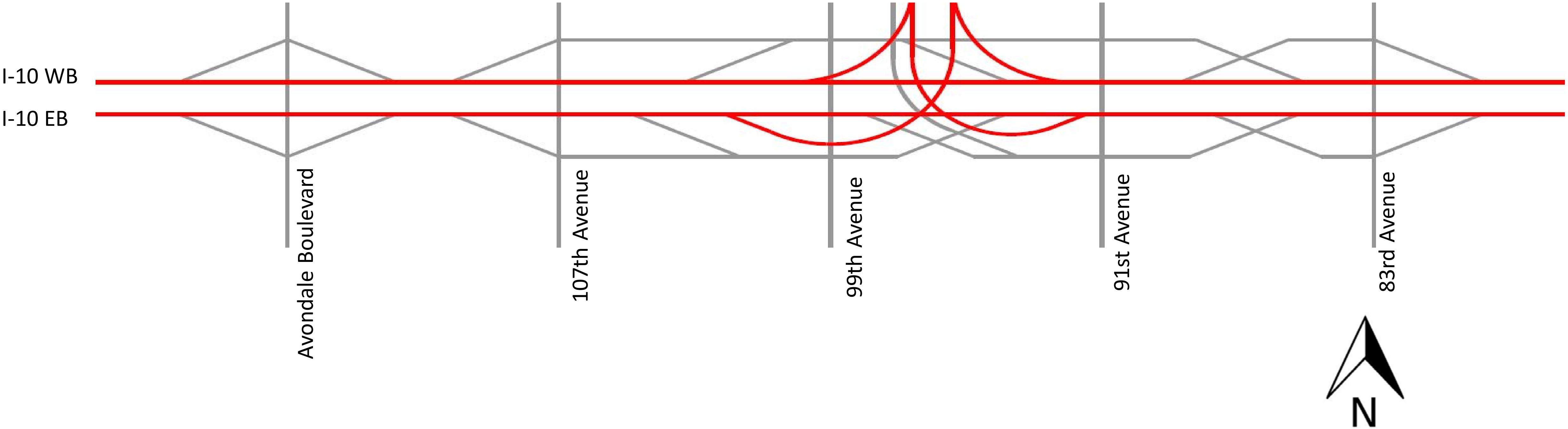

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I-10 Westbound

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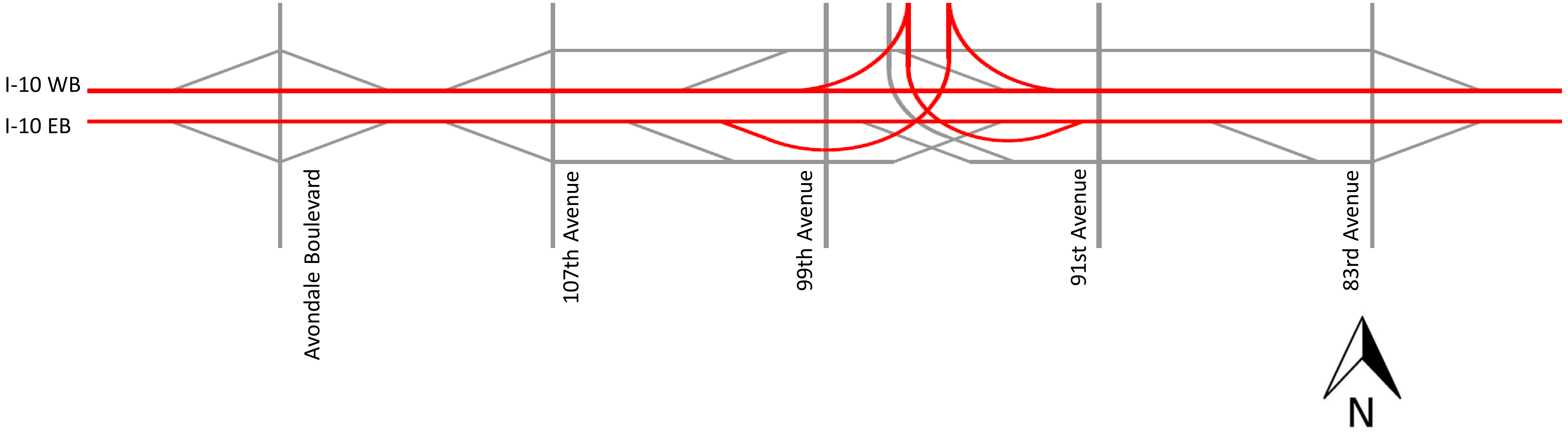

PM WB2
I-10 Westbound

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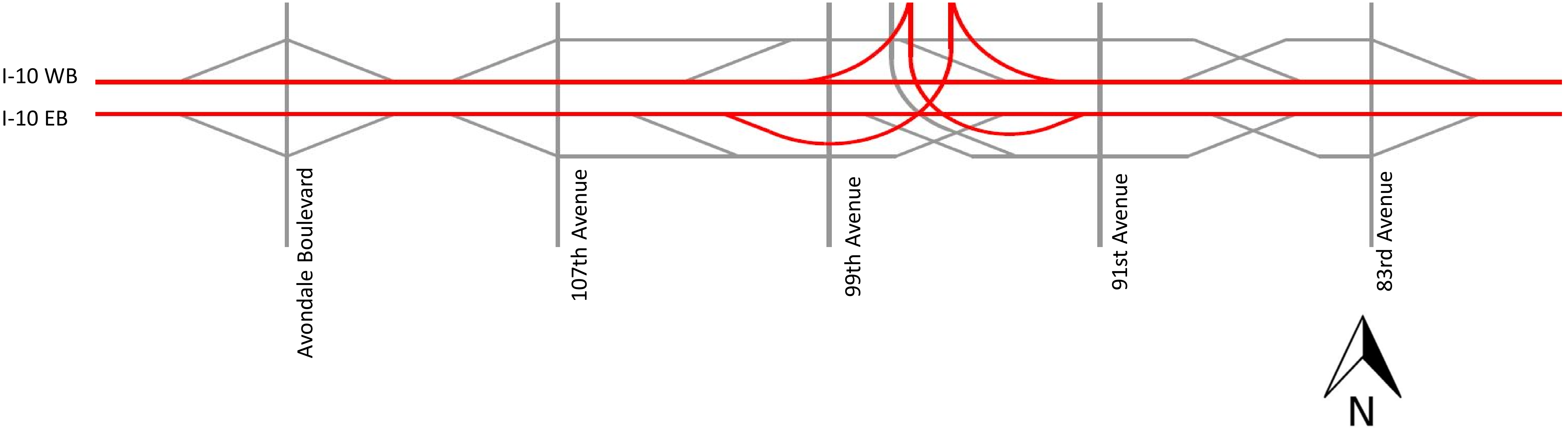


Appendix D:
LOS Summary from Synchro Output

SR-101 and Indian School Road TI AM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ Loop 101 NB & Indian School Rd	Delay (sec/veh)	48.8	9.2			16.8	30.9	46.0	46.1	36.4				19.8	24.8	42.0		26.2
	LOS	D	A			B	C	D	D	D				B	C	D		C
	Queue Length 95th (ft)	m194	392.0			105.0	#658	230.0	232.0	261.0								
	V/C Ratio	0.59	0.46			0.26	0.95	0.65	0.66	0.77								
	Cycle Length (s)									100.0								
2040 No Build/ Loop 101 SB & Indian School Rd	Delay (sec/veh)		17.3	7.4	51.8	5.0					56.7	56.7	8.1	12.9	24.6		48.9	24.3
	LOS		B	A	D	A					E	E	A	B	C		D	C
	Queue Length 95th (ft)		121.0	154.0	221.0	93.0					#341	#341	44.0					
	V/C Ratio		0.30	0.67	0.68	0.26					0.82	0.82	0.26					
	Cycle Length (s)									100.0								
TSR1/ Loop 101 NB & Indian School Rd	Delay (sec/veh)	51.5	17.1			11.3	10.9	54.8	55.1	9.0				26.3	11.1	35.7		21.7
	LOS	D	B			B	B	D	E	A				C	B	D		C
	Queue Length 95th (ft)	#196	405.0			80.0	294.0	#253	#255	73.0								
	V/C Ratio	0.79	0.60			0.22	0.83	0.78	0.78	0.60								
	Cycle Length (s)									90.0								
TSR1/ Loop 101 SB & Indian School Rd	Delay (sec/veh)		22.9	7.9	5.0	3.2					39.9	39.9	1.8	16.4	4.0		33.8	15.9
	LOS		C	A	A	A					D	D	A	B	A		C	B
	Queue Length 95th (ft)		140.0	128.0	m38	64.0					255.0	255.0	10.0					
	V/C Ratio		0.39	0.72	0.52	0.28					0.69	0.69	0.21					
	Cycle Length (s)									90.0								
TSR2/ Loop 101 NB & Indian School Rd	Delay (sec/veh)	74.5	9.4			15.7	18.9	53.9	54.1	30.7				29.3	17.5	44.3		27.1
	LOS	E	A			B	B	D	D	C				C	B	D		C
	Queue Length 95th (ft)	m#242	390.0			140.0	#622	269.0	271.0	229.0								
	V/C Ratio	0.83	0.40			0.28	0.88	0.66	0.67	0.72								
	Cycle Length (s)									120.0								
TSR2/ Loop 101 SB & Indian School Rd	Delay (sec/veh)		15.4	4.6	74.6	6.3					60.4	0.7		10.7	35.0		50.8	27.1
	LOS		B	A	E	A					E	A		B	C		D	C
	Queue Length 95th (ft)		123.0	96.0	#270	131.0					#321	0.0						
	V/C Ratio		0.26	0.61	0.83	0.25					0.86	0.19						
	Cycle Length (s)									120.0								
IS2/ Loop 101 NB & Indian School Rd	Delay (sec/veh)		16.1			13.0	5.8			14.3			9.2	16.1	8.9	14.3	9.2	12.0
	LOS		B			B	A			B			A	B	A	B	A	B
	Queue Length 95th (ft)		135.0			86.0	61.0			165.0			81.0					
	V/C Ratio		0.56			0.24	0.77			0.41			0.37					
	Cycle Length (s)									90.0								
IS2/ Loop 101 SB & Indian School Rd	Delay (sec/veh)		18.5	5.1		10.0				13.3			10.2	12.6	10.0	13.3	10.2	11.8
	LOS		B	A		A				B			B	B	A	B	B	B
	Queue Length 95th (ft)		121.0	69.0		86.0				140.0			54.0					
	V/C Ratio		0.33	0.66		0.35				0.43			0.16					
	Cycle Length (s)									90.0								

SR-101 and Indian School Road TI PM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ Loop 101 NB & Indian School Rd	Delay (sec/veh)	46.0	11.1			17.3	3.0	36.0	36.0	75.9				16.3	13.5	61.4		27.0
	LOS	D	B			B	A	D	D	E				B	B	E		C
	Queue Length 95th (ft)	m95	384.0			105.0	43.0	148.0	148.0	#501								
	V/C Ratio	0.29	0.45			0.26	0.31	0.36	0.36	1.02								
	Cycle Length (s)	100.0																
2040 No Build/ Loop 101 SB & Indian School Rd	Delay (sec/veh)		17.0	6.7	46.4	5.0					51.2	51.2	7.3	11.8	19.9		40.7	21.5
	LOS		B	A	D	A					D	D	A	B	B		D	C
	Queue Length 95th (ft)		93.0	135.0	184.0	80.0					#341	#341	56.0					
	V/C Ratio		0.24	0.67	0.56	0.28					0.76	0.76	0.37					
	Cycle Length (s)	100.0																
TSR1/ Loop 101 NB & Indian School Rd	Delay (sec/veh)	46.2	21.5			26.9	5.0	16.8	16.8	21.3				25.1	21.1	19.6		22.4
	LOS	D	C			C	A	B	B	C				C	C	B		C
	Queue Length 95th (ft)	m101	341.0			136.0	55.0	96.0	97.0	313.0								
	V/C Ratio	0.55	0.66			0.37	0.39	0.19	0.19	0.65								
	Cycle Length (s)	100.0																
TSR1/ Loop 101 SB & Indian School Rd	Delay (sec/veh)		25.0		42.9	9.9					25.2	25.2	4.0	25.0	21.8		20.1	22.8
	LOS		C		D	A					C	C	A	C	C		C	C
	Queue Length 95th (ft)		213.0		184.0	80.0					224.0	224.0	42.0					
	V/C Ratio		0.98dr		0.66	0.36					0.45	0.45	0.26					
	Cycle Length (s)	100.0																
TSR2/ Loop 101 NB & Indian School Rd	Delay (sec/veh)	49.9	15.4			20.8	3.7	22.3	22.3	31.0				20.5	16.3	27.8		21.0
	LOS	D	B			C	A	C	C	C				C	B	C		C
	Queue Length 95th (ft)	102.0	402.0			118.0	48.0	113.0	113.0	366.0								
	V/C Ratio	0.55	0.56			0.30	0.34	0.23	0.23	0.77								
	Cycle Length (s)	100.0																
TSR2/ Loop 101 SB & Indian School Rd	Delay (sec/veh)		20.5	5.4	47.9	8.3					31.0	1.9		12.9	22.5		24.0	18.8
	LOS		C	A	D	A					C	A		B	C		C	B
	Queue Length 95th (ft)		105.0	76.0	184.0	80.0					215.0	14.0						
	V/C Ratio		0.26	0.67	0.66	0.31					0.55	0.28						
	Cycle Length (s)	100.0																
IS2/ Loop 101 NB & Indian School Rd	Delay (sec/veh)		16.1			13.0	5.8			14.3			9.2	16.1	8.9	14.3	9.2	12.0
	LOS		B			B	A			B			A	B	A	B	A	B
	Queue Length 95th (ft)		135.0			86.0	61.0			165.0			81.0					
	V/C Ratio		0.56			0.24	0.77			0.41			0.37					
	Cycle Length (s)	90.0																
IS2/ Loop 101 SB & Indian School Rd	Delay (sec/veh)		18.5	5.1		10.0				13.3			10.2	12.6	10.0	13.3	10.2	11.8
	LOS		B	A		A				B			B	B	A	B	B	B
	Queue Length 95th (ft)		121.0	69.0		86.0				140.0			54.0					
	V/C Ratio		0.33	0.66		0.35				0.43			0.16					
	Cycle Length (s)	90.0																

SR-101 and Thomas Road TI AM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ Loop 101 NB & Thomas Rd	Delay (sec/veh)	72.4	14.7			28.5	11.1	29.2	29.3	38.3				38.4	17.7		35.1	30.6
	LOS	E	B			C	B	C	C	D				D	B		D	C
	Queue Length 95th (ft)	#420	211.0			117.0	#291	102.0	103.0	314.0								
	V/C Ratio	0.95	0.48			0.22	0.78	0.22	0.23	0.78								
	Cycle Length (s)	120.0																
2040 No Build/ Loop 101 SB & Thomas Rd	Delay (sec/veh)		34.3	7.1	53.4	9.9					34.0	34.1	4.2	26.8	30.2		23.8	26.6
	LOS		C	A	D	A					C	C	A	C	C		C	C
	Queue Length 95th (ft)		347.0	111.0	197.0	70.0					294.0	295.0	57.0					
	V/C Ratio		0.59	0.51	0.57	0.19					0.57	0.57	0.45					
	Cycle Length (s)	120.0																
TSR1/ Loop 101 NB & Thomas Rd	Delay (sec/veh)	54.4	15.8			32.2	16.8	30.8	30.9	41.4				31.6	22.7		37.7	29.6
	LOS	D	B			C	B	C	C	D				C	C		D	C
	Queue Length 95th (ft)	376.0	213.0			120.0	#406	109.0	110.0	338.0								
	V/C Ratio	0.75	0.47			0.25	0.85	0.23	0.24	0.80								
	Cycle Length (s)	120.0																
TSR1/ Loop 101 SB & Thomas Rd	Delay (sec/veh)		39.6	7.8	48.9	9.5					28.9	29.0	3.7	30.7	27.9		20.3	26.8
	LOS		D	A	D	A					C	C	A	C	C		C	C
	Queue Length 95th (ft)		#362	110.0	197.0	70.0					285.0	286.0	55.0					
	V/C Ratio		0.67	0.54	0.57	0.21					0.50	0.50	0.42					
	Cycle Length (s)	120.0																

SR-101 and Thomas Road TI PM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ Loop 101 NB & Thomas Rd	Delay (sec/veh)	53.4	11.5			20.9	5.7	28.4	28.4	35.8				16.9	11.9	33.8		18.2
	LOS	D	B			C	A	C	C	D				B	B	C		B
	Queue Length 95th (ft)	77.0	170.0			121.0	118.0	76.0	76.0	309.0								
	V/C Ratio	0.26	0.34			0.19	0.69	0.16	0.17	0.80								
	Cycle Length (s)	120.0																
2040 No Build/ Loop 101 SB & Thomas Rd	Delay (sec/veh)		21.3	4.2	57.9	6.9					39.1	39.1	6.1	13.3	30.7		22.9	21.6
	LOS		C	A	**E**	A					D	D	A	B	C		C	C
	Queue Length 95th (ft)		138.0	76.0	197.0	49.0					171.0	171.0	63.0					
	V/C Ratio		0.21	0.45	0.57	0.16					0.44	0.44	0.54					
	Cycle Length (s)	120.0																
TSR1/ Loop 101 NB & Thomas Rd	Delay (sec/veh)	42.3	10.5			19.8	6.2	23.8	23.9	28.0				14.6	11.8	26.9		15.9
	LOS	D	B			B	A	C	C	C				B	B	C		B
	Queue Length 95th (ft)	67.0	143.0			110.0	126.0	65.0	66.0	241.0								
	V/C Ratio	0.23	0.34			0.20	0.71	0.17	0.17	0.78								
	Cycle Length (s)	100.0																
TSR1/ Loop 101 SB & Thomas Rd	Delay (sec/veh)		20.3	4.6	49.1	5.7					28.0	28.0	5.7	12.9	25.9		17.0	18.2
	LOS		C	A	D	A					C	C	A	B	C		B	B
	Queue Length 95th (ft)		126.0	76.0	169.0	41.0					122.0	122.0	58.0					
	V/C Ratio		0.22	0.46	0.68	0.18					0.38	0.38	0.52					
	Cycle Length (s)	100.0																

SR-101 and McDowell Road TI AM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ Loop 101 NB & McDowell Rd	Delay (sec/veh)	31.8	0.9			94.9								13.4	94.9			43.1
	LOS	C	A			F								B	F			D
	Queue Length 95th (ft)	352.0	11.0			#618												
	V/C Ratio	0.54	0.42			1.13												
	Cycle Length (s)	90.0																
2040 No Build/ Loop 101 SB & McDowell Rd	Delay (sec/veh)		18.0			9.1					23.8		11.2	18.0	9.1		16.5	15.8
	LOS		B			A					C		B	B	A		B	B
	Queue Length 95th (ft)		286.0			m53					260.0		111.0					
	V/C Ratio		0.66			0.44					0.55		0.43					
	Cycle Length (s)	90.0																
TSR1/ Loop 101 NB & McDowell Rd	Delay (sec/veh)	36.1	0.7			31.9								15.0	31.9			21.2
	LOS	D	A			C								B	C			C
	Queue Length 95th (ft)	343.0	8.0			#530												
	V/C Ratio	0.66	0.42			0.91												
	Cycle Length (s)	90.0																
TSR1/ Loop 101 SB & McDowell Rd	Delay (sec/veh)		10.8			4.4					39.3		10.4	10.8	4.4		22.5	12.4
	LOS		B			A					D		B	B	A		C	B
	Queue Length 95th (ft)		213.0			m48					#340		97.0					
	V/C Ratio		0.54			0.36					0.76		0.51					
	Cycle Length (s)	90.0																
TSR2/ Loop 101 NB & McDowell Rd	Delay (sec/veh)	26.1	0.1			25.4								10.7	25.4			16.1
	LOS	C	A			C								B	C			B
	Queue Length 95th (ft)	296.0	0.0			294.0												
	V/C Ratio	0.56	0.29			0.96dr												
	Cycle Length (s)	90.0																
TSR2/ Loop 101 SB & McDowell Rd	Delay (sec/veh)		11.6			3.1					31.3		10.4	11.6	3.1		19.2	11.8
	LOS		B			A					C		B	B	A		B	B
	Queue Length 95th (ft)		184.0			23.0					294.0		100.0					
	V/C Ratio		0.48			0.26					0.66		0.47					
	Cycle Length (s)	90.0																
M1/ Loop 101 NB & McDowell Rd	Delay (sec/veh)		8.0			23.7	5.4							8.0	15.3			10.7
	LOS		A			C	A							A	B			B
	Queue Length 95th (ft)		109.0			231.0	69.0											
	V/C Ratio		0.72			0.58	0.66											
	Cycle Length (s)	90.0																
M1/ Loop 101 SB & McDowell Rd	Delay (sec/veh)		15.5			4.9					27.8		8.6	15.5	4.9	27.8	8.6	13.6
	LOS		B			A					C		A	B	A	C	A	B
	Queue Length 95th (ft)		272.0			21.0					269.0		102.0					
	V/C Ratio		0.61			0.56					0.67		0.34					
	Cycle Length (s)	90.0																

SR-101 and McDowell Road TI PM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ Loop 101 NB & McDowell Rd	Delay (sec/veh)	35.1	0.2			168.3								17.3	168.3			87.8
	LOS	D	A			F								B	F			F
	Queue Length 95th (ft)	345.0	0.0			#768												
	V/C Ratio	0.50	0.27			1.30												
	Cycle Length (s)	90.0																
2040 No Build/ Loop 101 SB & McDowell Rd	Delay (sec/veh)		16.3			10.1					18.1		102.3	16.3	10.1		94.1	43.8
	LOS		B			B					B		F	B	B		F	D
	Queue Length 95th (ft)		223.0			m55					97.0		#664					
	V/C Ratio		0.55			0.52					0.21		1.15					
	Cycle Length (s)	90.0																
TSR1/ Loop 101 NB & McDowell Rd	Delay (sec/veh)	72.1	0.2			88.0								35.4	88.0			60.0
	LOS	E	A			F								D	F			E
	Queue Length 95th (ft)	484.0	0.0			#960												
	V/C Ratio	0.55	0.27			1.10												
	Cycle Length (s)	130.0																
TSR1/ Loop 101 SB & McDowell Rd	Delay (sec/veh)		19.7			7.7					26.9		112.8	19.7	7.7		104.4	48.6
	LOS		B			A					C		F	B	A		F	D
	Queue Length 95th (ft)		295.0			m56					136.0		#903					
	V/C Ratio		0.51			0.49					0.22		1.16					
	Cycle Length (s)	130.0																
TSR2/ Loop 101 NB & McDowell Rd	Delay (sec/veh)	54.0	0.1			53.2								26.5	53.2			39.0
	LOS	D	A			D								C	D			D
	Queue Length 95th (ft)	468.0	0.0			#585												
	V/C Ratio	0.46	0.19			1.15dr												
	Cycle Length (s)	130.0																
TSR2/ Loop 101 SB & McDowell Rd	Delay (sec/veh)		28.6			9.4					19.1		53.7	28.6	9.4		50.3	32.5
	LOS		C			A					B		D	C	A		D	C
	Queue Length 95th (ft)		361.0			m59					113.0		#830					
	V/C Ratio		0.61			0.41					0.18		1.00					
	Cycle Length (s)	130.0																
M1/ Loop 101 NB & McDowell Rd	Delay (sec/veh)		5.9			22.1	5.2							5.9	14.6			10.0
	LOS		A			C	A							A	B			A
	Queue Length 95th (ft)		56.0			270.0	68.0											
	V/C Ratio		0.60			0.62	0.69											
	Cycle Length (s)	90.0																
M1/ Loop 101 SB & McDowell Rd	Delay (sec/veh)		16.7			4.7				14.1			36.5	16.7	4.7	14.1	36.5	20.6
	LOS		B			A				B			D	B	A	B	D	C
	Queue Length 95th (ft)		229.0			25.0				83.0			#597					
	V/C Ratio		0.55			0.60				0.23			0.96					
	Cycle Length (s)	90.0																

I-10 and Avondale Boulevard TI AM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ I-10 EB & Avondale Blvd	Delay (sec/veh)		80.1	51.5					48.5	5.4	23.0	2.8		61.2		26.3	10.7	25.0
	LOS		F	D					D	A	C	A		E		C	B	C
	Queue Length 95th (ft)		299.0	#383					181.0	61.0	m256	55.0						
	V/C Ratio		0.71	0.89					0.36	0.59	0.36	0.24						
	Cycle Length (s)	165.0																
2040 No Build/ I-10 WB & Avondale Blvd	Delay (sec/veh)				68.9	68.9	4.3	29.7	0.2			48.8			50.0	10.5	48.8	38.4
	LOS				E	E	A	C	A			D			D	B	D	D
	Queue Length 95th (ft)				#713	#713	42.0	213.0	0.0			247.0						
	V/C Ratio				0.86	0.86	0.33	0.30	0.19			0.49						
	Cycle Length (s)	165.0																
TSR1/ I-10 EB & Avondale Blvd	Delay (sec/veh)		45.4	41.3					38.2	4.8	13.4	1.2		42.7		21.0	6.0	17.9
	LOS		D	D					D	A	B	A		D		C	A	B
	Queue Length 95th (ft)		208.0	299.0					153.0	53.0	181.0	58.0						
	V/C Ratio		0.51	0.82					0.37	0.59	0.47	0.27						
	Cycle Length (s)	130.0																
TSR1/ I-10 WB & Avondale Blvd	Delay (sec/veh)				41.0	41.0	2.9	36.0	10.0			39.5			29.9	19.1	39.5	29.8
	LOS				D	D	A	D	A			D			C	B	D	C
	Queue Length 95th (ft)				453.0	453.0	32.0	198.0	51.0			208.0						
	V/C Ratio				0.75	0.75	0.30	0.34	0.21			0.53						
	Cycle Length (s)	130.0																
TSR2/ I-10 EB & Avondale Blvd	Delay (sec/veh)		53.1	15.5					36.4	4.7	13.7	0.4		28.2		19.6	5.6	14.9
	LOS		D	B					D	A	B	A		C		B	A	B
	Queue Length 95th (ft)		220.0	94.0					152.0	53.0	185.0	27.0						
	V/C Ratio		0.61	0.53					0.35	0.60	0.44	0.26						
	Cycle Length (s)	130.0																
TSR2/ I-10 WB & Avondale Blvd	Delay (sec/veh)				42.7	42.7	2.9	35.8	9.8			38.5	4.3		31.0	18.9	33.7	28.4
	LOS				D	D	A	D	A			D	A		C	B	C	C
	Queue Length 95th (ft)				453.0	453.0	32.0	198.0	51.0			181.0	32.0					
	V/C Ratio				0.77	0.77	0.31	0.33	0.21			0.44	0.28					
	Cycle Length (s)	130.0																
A1/ I-10 EB & Avondale Blvd	Delay (sec/veh)			10.4			3.3		8.2	1.3		35.0		10.4	3.3	4.5	35.0	18.9
	LOS			B			A		A	A		C		B	A	A	C	B
	Queue Length 95th (ft)			156.0			33.0		52.0	23.0		283.0						
	V/C Ratio			0.40			0.29		0.16	0.41		0.74						
	Cycle Length (s)	90.0																
A1/ I-10 WB & Avondale Blvd	Delay (sec/veh)			0.5			4.5		5.3			8.6	2.0	0.5	4.5	5.3	7.7	4.5
	LOS			A			A		A			A	A	A	A	A	A	A
	Queue Length 95th (ft)			0.0			41.0		31.0			75.0	23.0					
	V/C Ratio			0.38			0.33		0.17			0.22	0.14					
	Cycle Length (s)	90.0																

I-10 and Avondale Boulevard TI PM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ I-10 EB & Avondale Blvd	Delay (sec/veh)		62.8	58.9					49.2	4.7	22.9	4.1		59.5		29.1	8.0	20.7
	LOS		E	E					D	A	C	A		E		C	A	C
	Queue Length 95th (ft)		97.0	#290					235.0	53.0	m148	m87						
	V/C Ratio		0.21	0.80					0.44	0.58	0.25	0.40						
	Cycle Length (s)	165.0																
2040 No Build/ I-10 WB & Avondale Blvd	Delay (sec/veh)				121.3	121.3	8.0	34.4	0.2			48.4			85.6	13.7	48.4	56.2
	LOS				F	F	A	C	A			D			F	B	D	E
	Queue Length 95th (ft)				#1022	#1022	85.0	271.0	0.0			265.0						
	V/C Ratio				1.11	1.11	0.45	0.38	0.19			0.50						
	Cycle Length (s)	165.0																
TSR1/ I-10 EB & Avondale Blvd	Delay (sec/veh)		49.9	41.0					43.8	5.0	12.5	2.2		42.5		26.3	4.4	16.4
	LOS		D	D					D	A	B	A		D		C	A	B
	Queue Length 95th (ft)		81.0	#210					199.0	53.0	m135	71.0						
	V/C Ratio		0.20	0.74					0.51	0.61	0.24	0.40						
	Cycle Length (s)	130.0																
TSR1/ I-10 WB & Avondale Blvd	Delay (sec/veh)				43.8	43.8	6.2	38.0	0.2			43.8			32.0	15.1	43.8	30.9
	LOS				D	D	A	D	A			D			C	B	D	C
	Queue Length 95th (ft)				#633	#633	74.0	222.0	0.0			223.0						
	V/C Ratio				0.82	0.82	0.38	0.48	0.23			0.59						
	Cycle Length (s)	130.0																
TSR2/ I-10 EB & Avondale Blvd	Delay (sec/veh)		50.4	28.8					43.9	5.0	12.9	2.5		32.6		26.4	4.7	15.8
	LOS		D	C					D	A	B	A		C		C	A	B
	Queue Length 95th (ft)		81.0	103.0					199.0	53.0	m137	69.0						
	V/C Ratio		0.21	0.49					0.51	0.61	0.24	0.40						
	Cycle Length (s)	130.0																
TSR2/ I-10 WB & Avondale Blvd	Delay (sec/veh)				43.0	43.0	6.3	38.2	0.2			43.6	8.1		31.5	15.2	38.3	29.1
	LOS				D	D	A	D	A			D	A		C	B	D	C
	Queue Length 95th (ft)				623.0	623.0	75.0	222.0	0.0			193.0	18.0					
	V/C Ratio				0.81	0.81	0.38	0.49	0.23			0.50	0.34					
	Cycle Length (s)	130.0																
A1/ I-10 EB & Avondale Blvd	Delay (sec/veh)			9.4			0.3		9.4	1.3		35.4		9.4	0.3	5.8	35.4	21.0
	LOS			A			A		A	A		D		A	A	A	D	C
	Queue Length 95th (ft)			100.0			0.0		72.0	25.0		328.0						
	V/C Ratio			0.27			0.09		0.21	0.40		0.81						
	Cycle Length (s)	90.0																
A1/ I-10 WB & Avondale Blvd	Delay (sec/veh)			0.7			15.5		4.9			9.6	2.1	0.7	15.5	4.9	8.5	6.1
	LOS			A			B		A			A	A	A	B	A	A	A
	Queue Length 95th (ft)			0.0			132.0		27.0			85.0	26.0					
	V/C Ratio			0.49			0.48		0.23			0.24	0.17					
	Cycle Length (s)	90.0																

I-10 and 107th Avenue TI AM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ I-10 EB & 107th Ave	Delay (sec/veh)	70.0	42.6	35.9					104.4		24.3	1.3		45.0		104.4	11.9	56.4
	LOS	E	D	D					F		C	A		D		F	B	E
	Queue Length 95th (ft)	#414	#532	#480					#683		m373	m8						
	V/C Ratio	0.77	0.95	0.92					1.08		0.55	0.20						
	Cycle Length (s)	150.0																
2040 No Build/ I-10 WB & 107th Ave	Delay (sec/veh)				63.4	28.0	10.9	28.3	5.6			58.5			34.7	10.8	58.5	31.5
	LOS				E	C	B	C	A			E			C	B	E	C
	Queue Length 95th (ft)				247.0	154.0	73.0	m255	m56			#456						
	V/C Ratio				0.60	0.50	0.41	0.34	0.38			0.83						
	Cycle Length (s)	150.0																
TSR1/ I-10 EB & 107th Ave	Delay (sec/veh)	66.8	44.7	36.9					40.1		42.7	3.0		45.6		40.1	21.3	37.6
	LOS	E	D	D					D		D	A		D		D	C	D
	Queue Length 95th (ft)	#381	#492	#443					#452		346.0	54.0						
	V/C Ratio	0.81	0.96	0.93					0.73		0.75	0.20						
	Cycle Length (s)	130.0																
TSR1/ I-10 WB & 107th Ave	Delay (sec/veh)				36.2	13.7	12.4	46.4	11.6			40.3			21.0	19.5	40.3	26.9
	LOS				D	B	B	D	B			D			C	B	D	C
	Queue Length 95th (ft)				173.0	97.0	84.0	m352	m130			313.0						
	V/C Ratio				0.36	0.33	0.31	0.54	0.46			0.67						
	Cycle Length (s)	130.0																

I-10 and 107th Avenue TI PM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ I-10 EB & 107th Ave	Delay (sec/veh)	63.3	29.2	9.8					50.2		21.5	1.3		34.8		50.2	6.2	27.3
	LOS	E	C	A					D		C	A		C		D	A	C
	Queue Length 95th (ft)	235.0	148.0	64.0					#365		m254	16.0						
	V/C Ratio	0.57	0.48	0.40					0.65		0.33	0.30						
	Cycle Length (s)	150.0																
2040 No Build/ I-10 WB & 107th Ave	Delay (sec/veh)				61.3	28.5	8.8	26.6	1.3			55.0			33.8	11.1	55.0	35.1
	LOS				E	C	A	C	A			D			C	B	D	D
	Queue Length 95th (ft)				266.0	170.0	66.0	308.0	10.0			#505						
	V/C Ratio				0.60	0.50	0.40	0.38	0.19			0.78						
	Cycle Length (s)	150.0																
TSR1/ I-10 EB & 107th Ave	Delay (sec/veh)	62.4	62.6	12.2					38.9		21.6	0.8		36.1		38.9	5.9	23.5
	LOS	E	E	B					D		C	A		D		D	A	C
	Queue Length 95th (ft)	160.0	161.0	78.0					238.0		239.0	6.0						
	V/C Ratio	0.55	0.55	0.61					0.62		0.31	0.29						
	Cycle Length (s)	130.0																
TSR1/ I-10 WB & 107th Ave	Delay (sec/veh)				58.0	23.1	8.6	42.2	6.0			40.8			30.8	20.1	40.8	31.4
	LOS				E	C	A	D	A			D			C	C	D	C
	Queue Length 95th (ft)				230.0	135.0	60.0	339.0	60.0			294.0						
	V/C Ratio				0.65	0.51	0.42	0.41	0.18			0.69						
	Cycle Length (s)	130.0																

I-10 and 99th Avenue TI AM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ I-10 EB & 99th Ave	Delay (sec/veh)	95.1	91.6	37.2					47.9	42.2	36.9	5.4		80.1		46.2	12.7	42.6
	LOS	F	F	D					D	D	D	A		F		D	B	D
	Queue Length 95th (ft)	#490	#468	237.0					454.0	494.0	m244	m62						
	V/C Ratio	0.92	0.98	0.67					0.71	0.80	0.57	0.32						
	Cycle Length (s)	150.0																
2040 No Build/ I-10 WB & 99th Ave	Delay (sec/veh)				244.7	263.5	54.7	62.8	0.3			36.4			216.5	19.5	36.4	94.7
	LOS				F	F	D	E	A			D			F	B	D	F
	Queue Length 95th (ft)				#870	#851	#405	m#561	m2			310.0						
	V/C Ratio				1.41	1.48	0.86	0.87	0.31			0.57						
	Cycle Length (s)	150.0																
TSR1/ I-10 EB & 99th Ave	Delay (sec/veh)	42.1	39.6	19.9					73.5	61.8	41.7	14.0		35.8		70.0	20.5	44.3
	LOS	D	D	B					E	E	D	B		D		E	C	D
	Queue Length 95th (ft)	309.0	297.0	172.0					#483	#526	m260	m130						
	V/C Ratio	0.58	0.61	0.48					1.01	0.99	0.61	0.38						
	Cycle Length (s)	120.0																
TSR1/ I-10 WB & 99th Ave	Delay (sec/veh)				80.8	79.5	30.7	25.8	0.8			62.3			70.0	8.5	62.3	45.5
	LOS				F	E	C	C	A			E			E	A	E	D
	Queue Length 95th (ft)				#602	#572	276.0	m366	m2			#349						
	V/C Ratio				0.98	1.02	0.68	0.77	0.35			1.12dr						
	Cycle Length (s)	120.0																
TSR2/ I-10 EB & 99th Ave	Delay (sec/veh)	46.5	43.6	16.4					52.1	14.9	43.0	15.2		38.2		40.9	21.7	33.5
	LOS	D	D	B					D	B	D	B		D		D	C	C
	Queue Length 95th (ft)	351.0	332.0	157.0					442.0	136.0	m178	148.0						
	V/C Ratio	0.61	0.63	0.47					0.87	0.52	0.35	0.38						
	Cycle Length (s)	130.0																
TSR2/ I-10 WB & 99th Ave	Delay (sec/veh)				54.1	43.3	16.9	14.4	1.0			50.1	11.6		44.4	5.1	43.2	29.6
	LOS				D	D	B	B	A			D	B		D	A	D	C
	Queue Length 95th (ft)				404.0	292.0	154.0	m223	5.0			295.0	107.0					
	V/C Ratio				0.85	0.63	0.50	0.40	0.35			0.79	0.53					
	Cycle Length (s)	130.0																

I-10 and 99th Avenue TI PM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ I-10 EB & 99th Ave	Delay (sec/veh)	176.0	174.1	65.4					97.4	100.0	41.0	3.4		149.4		98.2	12.1	85.8
	LOS	F	F	E					F	F	D	A		F		F	B	F
	Queue Length 95th (ft)	#710	#661	#441					585.0	#922	m338	m42						
	V/C Ratio	1.22	1.25	0.91					0.86	1.07	0.57	0.33						
	Cycle Length (s)	150.0																
2040 No Build/ I-10 WB & 99th Ave	Delay (sec/veh)				238.4	254.5	71.1	36.2	0.3			42.7			213.4	5.6	42.7	81.0
	LOS				F	F	E	D	A			D			F	A	D	F
	Queue Length 95th (ft)				#859	#847	#465	m284	m0			457.0						
	V/C Ratio				1.39	1.45	0.92	0.50	0.45			0.90dr						
	Cycle Length (s)	150.0																
TSR1/ I-10 EB & 99th Ave	Delay (sec/veh)	71.1	63.7	34.6					97.4	103.1	60.0	9.6		58.8		99.2	21.3	64.8
	LOS	E	E	C					F	F	E	A		E		F	C	E
	Queue Length 95th (ft)	#579	#526	316.0					585.0	#975	m370	m109						
	V/C Ratio	0.85	0.88	0.67					0.86	1.11	0.73	0.36						
	Cycle Length (s)	150.0																
TSR1/ I-10 WB & 99th Ave	Delay (sec/veh)				109.1	110.3	35.5	24.6	1.4			59.4			94.9	4.8	59.4	49.8
	LOS				F	F	D	C	A			E			F	A	E	D
	Queue Length 95th (ft)				#739	#719	316.0	m299	31.0			#514						
	V/C Ratio				1.04	1.08	0.69	0.50	0.50			1.08dr						
	Cycle Length (s)	150.0																
TSR2/ I-10 EB & 99th Ave	Delay (sec/veh)	80.5	72.1	34.1					80.2	99.5	50.2	6.6		65.4		86.4	16.7	59.7
	LOS	F	E	C					F	F	D	A		E		F	B	E
	Queue Length 95th (ft)	#590	#538	298.0					551.0	#915	m390	83.0						
	V/C Ratio	0.92	0.95	0.70					0.87	1.10	0.69	0.36						
	Cycle Length (s)	140.0																
TSR2/ I-10 WB & 99th Ave	Delay (sec/veh)				51.5	96.7	35.6	17.1	0.8			50.3	16.6		71.0	3.2	44.2	37.0
	LOS				D	F	D	B	A			D	B		E	A	D	D
	Queue Length 95th (ft)				267.0	#593	298.0	m113	m0			413.0	197.0					
	V/C Ratio				0.61	1.05	0.73	0.24	0.48			0.83	0.60					
	Cycle Length (s)	140.0																

I-10 and 91st Avenue TI AM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ I-10 EB & 91st Ave	Delay (sec/veh)	62.8	183.2	64.1					152.8	16.3	8.7	5.5		111.5		137.8	6.4	86.7
	LOS	E	F	E					F	B	A	A		F		F	A	F
	Queue Length 95th (ft)	#352	#729	#475					#831	98.0	111.0	148.0						
	V/C Ratio	0.77	1.29	0.97					1.23	0.30	0.48	0.37						
	Cycle Length (s)	125.0																
2040 No Build/ I-10 WB & 91st Ave	Delay (sec/veh)				57.4	36.4	8.5	23.8	59.3			14.3			35.0	55.3	14.3	38.2
	LOS				E	D	A	C	E			B			C	E	B	D
	Queue Length 95th (ft)				290.0	221.0	69.0	m49	m104			278.0						
	V/C Ratio				0.69	0.60	0.45	0.75	0.96			0.49						
	Cycle Length (s)	125.0																
TSR1/ I-10 EB & 91st Ave	Delay (sec/veh)	52.6	118.8	51.1					100.9	14.4	17.5	7.2		78.6		91.4	9.9	60.8
	LOS	D	F	D					F	B	B	A		E		F	A	E
	Queue Length 95th (ft)	320.0	#701	#471					#791	92.0	129.0	154.0						
	V/C Ratio	0.65	1.12	0.90					1.11	0.27	0.58	0.39						
	Cycle Length (s)	130.0																
TSR1/ I-10 WB & 91st Ave	Delay (sec/veh)				49.9	32.9	7.4	22.5	36.5			18.6			30.8	35.0	18.6	29.0
	LOS				D	C	A	C	D			B			C	C	B	C
	Queue Length 95th (ft)				285.0	219.0	67.0	m66	m118			329.0						
	V/C Ratio				0.59	0.53	0.41	0.67	0.87			0.53						
	Cycle Length (s)	130.0																
TSR2/ I-10 EB & 91st Ave	Delay (sec/veh)	45.4	45.2	35.5					45.6	9.5	13.8	9.9		39.0		41.7	10.9	30.8
	LOS	D	D	D					D	A	B	A		D		D	B	C
	Queue Length 95th (ft)	245.0	249.0	321.0					435.0	69.0	122.0	268.0						
	V/C Ratio	0.48	0.48	0.82					0.80	0.27	0.58	0.40						
	Cycle Length (s)	130.0																
TSR2/ I-10 WB & 91st Ave	Delay (sec/veh)				53.7	35.4	8.0	22.2	10.7			17.3			33.2	12.0	17.3	18.1
	LOS				D	D	A	C	B			B			C	B	B	B
	Queue Length 95th (ft)				294.0	227.0	69.0	m96	97.0			206.0						
	V/C Ratio				0.63	0.56	0.42	0.51	0.59			0.39						
	Cycle Length (s)	130.0																

I-10 and 91st Avenue TI PM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ I-10 EB & 91st Ave	Delay (sec/veh)	69.1	248.0	42.2					300.7	15.0	7.0	2.9		130.6		278.6	3.9	162.5
	LOS	E	F	D					F	B	A	A		F		F	A	F
	Queue Length 95th (ft)	#398	#830	#398					#1119	81.0	65.0	57.0						
	V/C Ratio	0.84	1.44	0.90					1.59	0.26	0.33	0.31						
	Cycle Length (s)	125.0																
2040 No Build/ I-10 WB & 91st Ave	Delay (sec/veh)				45.5	11.1	8.7	679.0	57.5			16.0			19.7	227.0	16.0	127.6
	LOS				D	B	A	F	E			B			B	F	B	F
	Queue Length 95th (ft)				149.0	74.0	60.0	m#420	m76			373.0						
	V/C Ratio				0.34	0.38	0.36	2.47	0.98			0.63						
	Cycle Length (s)	125.0																
TSR1/ I-10 EB & 91st Ave	Delay (sec/veh)	83.2	23.8	22.1					94.1	11.6	23.9	3.0		40.0		87.7	7.8	53.3
	LOS	F	C	C					F	B	C	A		D		F	A	D
	Queue Length 95th (ft)	#445	226.0	206.0					#985	74.0	m117	m55						
	V/C Ratio	0.90	0.74	0.72					1.10	0.19	0.44	0.30						
	Cycle Length (s)	135.0																
TSR1/ I-10 WB & 91st Ave	Delay (sec/veh)				51.2	12.2	9.5	24.0	12.2			45.8			22.0	15.4	45.8	27.0
	LOS				D	B	A	C	B			D			C	B	D	C
	Queue Length 95th (ft)				163.0	79.0	63.0	m309	m107			#661						
	V/C Ratio				0.37	0.39	0.38	0.90	0.76			0.91						
	Cycle Length (s)	135.0																
TSR2/ I-10 EB & 91st Ave	Delay (sec/veh)	51.7	51.7	21.4					40.8	8.6	16.1	3.0		30.9		38.4	6.0	27.6
	LOS	D	D	C					D	A	B	A		C		D	A	C
	Queue Length 95th (ft)	207.0	207.0	189.0					510.0	60.0	108.0	59.0						
	V/C Ratio	0.49	0.49	0.76					0.83	0.20	0.41	0.30						
	Cycle Length (s)	130.0																
TSR2/ I-10 WB & 91st Ave	Delay (sec/veh)				48.4	11.7	9.2	50.8	8.7			27.3			20.9	20.2	27.3	22.8
	LOS				D	B	A	D	A			C			C	C	C	C
	Queue Length 95th (ft)				156.0	76.0	62.0	m#617	86.0			331.0						
	V/C Ratio				0.36	0.39	0.37	0.97	0.55			0.61						
	Cycle Length (s)	130.0																

I-10 and 83rd Avenue TI AM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ I-10 EB & 83rd Ave	Delay (sec/veh)	30.2	25.6	24.5					47.9	7.5	34.3	71.7		26.9		35.3	66.0	45.3
	LOS	C	C	C					D	A	C	E		C		D	E	D
	Queue Length 95th (ft)	435.0	397.0	349.0					274.0	82.0	134.0	#777						
	V/C Ratio	0.61	0.61	0.59					0.66	0.56	0.40	0.92						
	Cycle Length (s)	130.0																
2040 No Build/ I-10 WB & 83rd Ave	Delay (sec/veh)				24.5	17.1	15.3	43.8	24.7			45.4	7.5		19.2	30.6	31.8	28.2
	LOS				C	B	B	D	C			D	A		B	C	C	C
	Queue Length 95th (ft)				247.0	195.0	155.0	270.0	495.0			223.0	83.0					
	V/C Ratio				0.38	0.37	0.34	0.76	0.71			0.55	0.56					
	Cycle Length (s)	130.0																
TSR1/ I-10 EB & 83rd Ave	Delay (sec/veh)	38.8	28.6	27.4					53.9	8.6	24.3	50.8		31.8		39.8	46.8	40.1
	LOS	D	C	C					D	A	C	D		C		D	D	D
	Queue Length 95th (ft)	491.0	410.0	357.0					286.0	86.0	117.0	747.0						
	V/C Ratio	0.71	0.67	0.64					0.76	0.59	0.27	0.81						
	Cycle Length (s)	130.0																
TSR1/ I-10 WB & 83rd Ave	Delay (sec/veh)				31.2	18.2	15.4	29.3	9.7			51.3	8.9		22.0	15.7	36.1	23.1
	LOS				C	B	B	C	A			D	A		C	B	D	C
	Queue Length 95th (ft)				278.0	195.0	151.0	205.0	356.0			235.0	89.0					
	V/C Ratio				0.44	0.41	0.37	0.51	0.63			0.65	0.60					
	Cycle Length (s)	130.0																
TSR2/ I-10 EB & 83rd Ave	Delay (sec/veh)	38.7	20.7	20.6					56.0	5.9	18.4	23.7		31.4		40.4	22.9	30.3
	LOS	D	C	C					E	A	B	C		C		D	C	C
	Queue Length 95th (ft)	344.0	182.0	182.0					289.0	44.0	115.0	734.0						
	V/C Ratio	0.69	0.47	0.47					0.79	0.43	0.21	0.71						
	Cycle Length (s)	130.0																
TSR2/ I-10 WB & 83rd Ave	Delay (sec/veh)				30.5	18.1	15.6	28.9	3.3			51.3	8.9		21.7	11.2	36.1	20.9
	LOS				C	B	B	C	A			D	A		C	B	D	C
	Queue Length 95th (ft)				274.0	195.0	152.0	187.0	47.0			235.0	89.0					
	V/C Ratio				0.44	0.41	0.37	0.51	0.44			0.65	0.60					
	Cycle Length (s)	130.0																
83-1 & 83-2/ I-10 EB & 83rd Ave	Delay (sec/veh)			13.1			11.3		17.1	3.2		13.0		13.1	11.3	12.7	13.0	12.7
	LOS			B			B		B	A		B		B	B	B	B	B
	Queue Length 95th (ft)			98.0			106.0		137.0	48.0		114.0						
	V/C Ratio			0.29			0.38		0.36	0.40		0.43						
	Cycle Length (s)	90.0																
83-1 & 83-2/ I-10 WB & 83rd Ave	Delay (sec/veh)			9.2			0.1		12.4			16.4	3.2	9.2	0.1	12.4	11.7	10.3
	LOS			A			A		B			B	A	A	A	B	B	B
	Queue Length 95th (ft)			99.0			0.0		90.0			111.0	48.0					
	V/C Ratio			0.41			0.12		0.37			0.29	0.41					
	Cycle Length (s)	90.0																

I-10 and 83rd Avenue TI PM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ I-10 EB & 83rd Ave	Delay (sec/veh)	34.3	30.2	23.2					50.9	7.6	24.6	25.1		29.4		37.9	25.0	31.2
	LOS	C	C	C					D	A	C	C		C		D	C	C
	Queue Length 95th (ft)	513.0	473.0	374.0					320.0	86.0	106.0	384.0						
	V/C Ratio	0.69	0.69	0.64					0.76	0.59	0.28	0.45						
	Cycle Length (s)	130.0																
2040 No Build/ I-10 WB & 83rd Ave	Delay (sec/veh)				22.5	13.2	13.0	38.6	40.8			45.3	7.5		16.4	40.3	31.8	33.2
	LOS				C	B	B	D	D			D	A		B	D	C	C
	Queue Length 95th (ft)				184.0	126.0	118.0	211.0	592.0			223.0	83.0					
	V/C Ratio				0.29	0.29	0.28	0.59	0.80			0.55	0.56					
	Cycle Length (s)	130.0																
TSR1/ I-10 EB & 83rd Ave	Delay (sec/veh)	31.9	23.8	22.2					50.9	8.1	17.9	19.3		26.1		38.0	19.0	28.5
	LOS	C	C	C					D	A	B	B		C		D	B	C
	Queue Length 95th (ft)	475.0	394.0	345.0					294.0	86.0	91.0	328.0						
	V/C Ratio	0.71	0.69	0.66					0.84	0.61	0.25	0.45						
	Cycle Length (s)	115.0																
TSR1/ I-10 WB & 83rd Ave	Delay (sec/veh)				31.7	11.0	10.7	20.0	8.5			41.9	7.7		18.1	11.2	29.6	18.1
	LOS				C	B	B	B	A			D	A		B	B	C	B
	Queue Length 95th (ft)				210.0	101.0	94.0	m101	370.0			202.0	80.0					
	V/C Ratio				0.40	0.36	0.35	0.36	0.64			0.58	0.57					
	Cycle Length (s)	115.0																
TSR2/ I-10 EB & 83rd Ave	Delay (sec/veh)	25.2	16.4	16.4					48.4	5.1	17.5	19.2		20.9		35.4	18.9	25.4
	LOS	C	B	B					D	A	B	B		C		D	B	C
	Queue Length 95th (ft)	279.0	217.0	216.0					291.0	43.0	90.0	328.0						
	V/C Ratio	0.53	0.51	0.51					0.81	0.43	0.24	0.43						
	Cycle Length (s)	115.0																
TSR2/ I-10 WB & 83rd Ave	Delay (sec/veh)				34.4	11.9	11.6	16.6	2.3			41.9	7.7		19.7	5.6	29.6	15.6
	LOS				C	B	B	B	A			D	A		B	A	C	B
	Queue Length 95th (ft)				218.0	105.0	98.0	M69	13.0			202.0	80.0					
	V/C Ratio				0.43	0.38	0.37	0.33	0.42			0.58	0.57					
	Cycle Length (s)	115.0																
83-1 & 83-2/ I-10 EB & 83rd Ave	Delay (sec/veh)			15.0			18.1		16.3	3.0		8.1		15.0	18.1	12.3	8.1	13.0
	LOS			B			B		B	A		A		B	B	B	A	B
	Queue Length 95th (ft)			207.0			210.0		153.0	47.0		53.0						
	V/C Ratio			0.56			0.59		0.39	0.42		0.34						
	Cycle Length (s)	90.0																
83-1 & 83-2/ I-10 WB & 83rd Ave	Delay (sec/veh)			2.7			0.2		15.9			17.8	3.5	2.7	0.2	15.9	12.6	12.1
	LOS			A			A		B			B	A	A	A	B	B	B
	Queue Length 95th (ft)			25.0			0.0		168.0			116.0	50.0					
	V/C Ratio			0.18			0.17		0.58			0.31	0.42					
	Cycle Length (s)	90.0																

McDowell Road and 99th Avenue AM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ McDowell Rd and 99th Ave	Delay (sec/veh)	49.5	283.6	12.2	19.2	33.5		63.0	50.3	6.5	79.1	49.8	1.4	184.7	25.6	26.2	54.6	76.6
	LOS	D	F	B	B	C		E	D	A	E	D	A	F	C	C	D	E
	Queue Length 95th (ft)	229.0	#726	84.0	228.0	279.0		134.0	146.0	56.0	#205	114.0	0.0					
	V/C Ratio	0.52	1.53	0.49	0.57	0.50		0.58	0.45	0.73	0.83	0.34	0.25					
	Cycle Length (s)	135.0																
TSR1/ McDowell Rd and 99th Ave	Delay (sec/veh)	41.9	58.4	6.0	47.0	25.8		57.7	36.1	12.1	88.2	34.8	1.1	46.8	37.4	25.0	51.9	38.5
	LOS	D	E	A	D	C		E	D	B	F	C	A	D	D	C	D	D
	Queue Length 95th (ft)	174.0	#434	53.0	#300	214.0		#119	115.0	126.0	#181	86.0	0.0					
	V/C Ratio	0.61	0.96	0.36	0.94	0.51		0.71	0.41	0.79	0.96	0.30	0.23					
	Cycle Length (s)	100.0																
TSR2/ McDowell Rd and 99th Ave	Delay (sec/veh)	41.9	39.9	6.7	39.1	24.1		49.8	36.1	9.4	58.9	34.6	1.1	35.8	32.3	22.3	39.6	31.4
	LOS	D	D	A	D	C		D	D	A	E	C	A	D	C	C	D	C
	Queue Length 95th (ft)	174.0	249.0	56.0	309.0	138.0		107.0	115.0	9.0	#158	86.0	0.0					
	V/C Ratio	0.61	0.75	0.39	0.78	0.37		0.60	0.41	0.76	0.78	0.30	0.23					
	Cycle Length (s)	100.0																

McDowell Road and 99th Avenue PM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ McDowell Rd and 99th Ave	Delay (sec/veh)	55.9	170.9	16.9	26.3	166.9		75.9	45.0	4.5	89.3	48.8	4.6	119.5	124.8	35.3	53.6	84.9
	LOS	E	F	B	C	F		E	D	A	F	D	A	F	F	D	D	F
	Queue Length 95th (ft)	120.0	#561	126.0	238.0	#1106		#269	254.0	50.0	#235	237.0	36.0					
	V/C Ratio	0.37	1.25	0.58	0.65	1.28		0.87	0.59	0.60	0.91	0.61	0.33					
	Cycle Length (s)	135.0																
TSR1/ McDowell Rd and 99th Ave	Delay (sec/veh)	52.5	40.8	6.0	48.1	94.2		91.8	41.7	9.4	57.6	39.5	5.2	35.0	80.4	39.3	39.7	53.0
	LOS	D	D	A	D	F		F	D	A	E	D	A	C	F	D	D	D
	Queue Length 95th (ft)	95.0	304.0	59.0	#314	#784		#239	218.0	97.0	#169	193.0	38.0					
	V/C Ratio	0.6	0.8	0.4	0.9	1.1		1.0	0.7	0.7	0.8	0.7	0.3					
	Cycle Length (s)	100.0																
TSR2/ McDowell Rd and 99th Ave	Delay (sec/veh)	51.5	37.8	7.3	43.9	32.1		55.3	37.3	6.0	57.6	39.7	5.2	33.2	35.7	28.6	39.7	33.9
	LOS	D	D	A	D	C		E	D	A	E	D	A	C	D	C	D	C
	Queue Length 95th (ft)	95.0	203.0	65.0	#293	404.0		#204	209.0	63.0	#169	193.0	38.0					
	V/C Ratio	0.58	0.64	0.47	0.81	0.84		0.82	0.65	0.64	0.79	0.66	0.35					
	Cycle Length (s)	100.0																

McDowell Road and 91st Avenue AM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ McDowell Rd and 91st Ave	Delay (sec/veh)	104.1	43.9		42.5	32.0		130.1	48.4		50.9	47.4	4.6	56.4	33.8	74.6	37.6	53.7
	LOS	F	D		D	C		F	D		D	D	A	E	C	E	D	D
	Queue Length 95th (ft)	#363	#556		#160	317.0		#593	#493		#186	269.0	53.0					
	V/C Ratio	1.08	0.89		0.74	0.61		1.17	0.90		0.80	0.70	0.33					
	Cycle Length (s)	120.0																
TSR1/ McDowell Rd and 91st Ave	Delay (sec/veh)	67.8	46.7		58.7	45.7		76.6	42.8		47.2	52.7	4.6	51.1	47.9	53.6	40.0	49.0
	LOS	E	D		E	D		E	D		D	D	A	D	D	D	D	D
	Queue Length 95th (ft)	#354	#556		#198	374.0		#546	452.0		#175	278.0	53.0					
	V/C Ratio	0.93	0.91		0.83	0.79		1.01	0.85		0.76	0.77	0.33					
	Cycle Length (s)	120.0																
TSR2/ McDowell Rd and 91st Ave	Delay (sec/veh)	49.6	35.8		44.6	39.4		58.5	39.8		42.9	53.3	5.5	38.7	40.2	45.8	39.7	41.4
	LOS	D	D		D	D		E	D		D	D	A	D	D	D	D	D
	Queue Length 95th (ft)	#320	326.0		#165	240.0		#495	439.0		147.0	278.0	59.0					
	V/C Ratio	0.86	0.69		0.73	0.58		0.94	0.82		0.73	0.78	0.35					
	Cycle Length (s)	120.0																

McDowell Road and 91st Avenue PM Peak Hour LOS Summary

Alternative/Intersection	Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EB	WB	NB	SB	Overall
2040 No Build/ McDowell Rd and 91st Ave	Delay (sec/veh)	71.3	34.1		33.5	73.0		201.5	77.9		32.2	122.5	4.9	40.4	68.1	113.4	97.5	84.2
	LOS	E	C		C	E		F	E		C	F	A	D	E	F	F	F
	Queue Length 95th (ft)	#209	336.0		#144	#743		#673	#691		91.0	#604	49.0					
	V/C Ratio	0.90	0.64		0.71	1.05		1.34	1.05		0.56	1.15	0.27					
	Cycle Length (s)	120.0																
TSR1/ McDowell Rd and 91st Ave	Delay (sec/veh)	58.2	38.1		35.8	99.4		160.4	57.1		35.6	122.5	6.3	41.5	91.5	86.8	98.0	82.8
	LOS	E	D		D	F		F	E		D	F	A	40.0	F	F	F	F
	Queue Length 95th (ft)	#198	356.0		#160	#780		#648	#642		93.0	#604	57.0					
	V/C Ratio	0.83	0.69		0.72	1.12		1.24	0.98		0.60	1.15	0.29					
	Cycle Length (s)	120.0																
TSR2/ McDowell Rd and 91st Ave	Delay (sec/veh)	41.9	32.5		50.1	56.2		96.9	33.3		28.2	79.5	5.9	34.1	55.5	51.6	64.3	52.6
	LOS	D	C		D	E		F	C		C	E	A	C	E	D	E	D
	Queue Length 95th (ft)	#149	205.0		#171	#431		#534	468.0		75.0	#506	51.0					
	V/C Ratio	0.73	0.56		0.81	0.99		1.09	0.86		0.56	1.04	0.32					
	Cycle Length (s)	105.0																

Appendix E:
Synchro Outputs

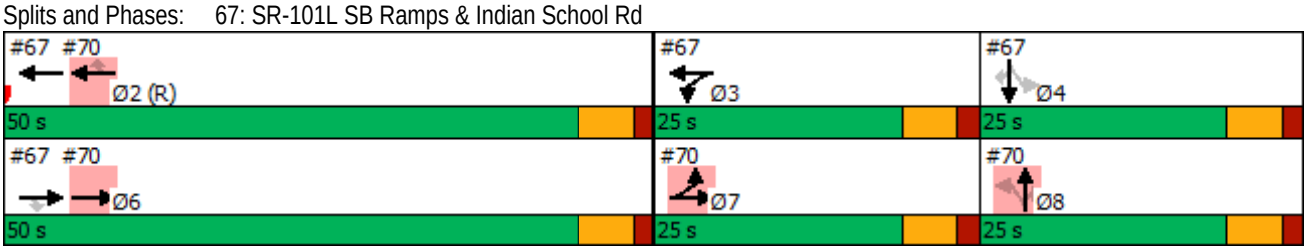
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	805	628	434	601	0	0	0	0	545	0	104
Future Volume (vph)	0	805	628	434	601	0	0	0	0	545	0	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		0	0		0	300		300
Storage Lanes	2		1	2		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.86	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950	0.950	
Satd. Flow (prot)	0	6408	1583	3433	3539	0	0	0	0	1681	1681	1583
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	6408	1583	3433	3539	0	0	0	0	1681	1681	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			572									113
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2391			401			966			652	
Travel Time (s)		54.3			9.1			22.0			14.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	875	683	472	653	0	0	0	0	592	0	113
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	875	683	472	653	0	0	0	0	296	296	113
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		100	20	20	100					20	100	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		6		3	2 3						4	
Permitted Phases			6							4		4
Detector Phase		6	6	3	2 3					4	4	4
Switch Phase												
Minimum Initial (s)		15.0	15.0	5.0						5.0	5.0	5.0
Minimum Split (s)		24.8	24.8	11.0						11.0	11.0	11.0
Total Split (s)		50.0	50.0	25.0						25.0	25.0	25.0
Total Split (%)		50.0%	50.0%	25.0%						25.0%	25.0%	25.0%
Maximum Green (s)		44.2	44.2	19.0						19.0	19.0	19.0
Yellow Time (s)		4.3	4.3	4.3						4.3	4.3	4.3
All-Red Time (s)		1.5	1.5	1.7						1.7	1.7	1.7

Lane Group	Ø2	Ø7	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	2	7	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	15.0	8.0	5.0
Minimum Split (s)	24.8	14.0	11.0
Total Split (s)	50.0	25.0	25.0
Total Split (%)	50%	25%	25%
Maximum Green (s)	44.2	19.0	19.0
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.5	1.7	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-1.8	0.0	-2.0						-2.0	-2.0	-2.0
Total Lost Time (s)		4.0	5.8	4.0						4.0	4.0	4.0
Lead/Lag				Lead						Lag	Lag	Lag
Lead-Lag Optimize?				Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0	3.0	3.0						3.0	3.0	3.0
Recall Mode		Min	Min	None						Min	Min	Min
Walk Time (s)		8.0	8.0									
Flash Dont Walk (s)		11.0	11.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)		46.0	44.2	20.4	70.4					21.6	21.6	21.6
Actuated g/C Ratio		0.46	0.44	0.20	0.70					0.22	0.22	0.22
v/c Ratio		0.30	0.67	0.68	0.26					0.82	0.82	0.26
Control Delay		17.2	7.4	51.8	4.8					56.7	56.7	8.1
Queue Delay		0.0	0.0	0.0	0.3					0.0	0.0	0.0
Total Delay		17.3	7.4	51.8	5.0					56.7	56.7	8.1
LOS		B	A	D	A					E	E	A
Approach Delay		12.9			24.6						48.9	
Approach LOS		B			C						D	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 24.3	Intersection LOS: C
Intersection Capacity Utilization 89.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 67: SR-101L SB Ramps & Indian School Rd



Lane Group	Ø2	Ø7	Ø8
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Min	Min	Max
Walk Time (s)	8.0		
Flash Dont Walk (s)	11.0		
Pedestrian Calls (#/hr)	0		
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

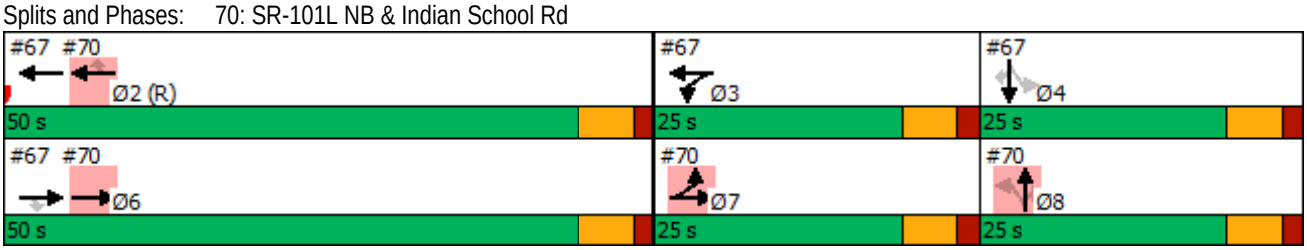
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	390	1067	0	0	698	915	428	0	307	0	0	0
Future Volume (vph)	390	1067	0	0	698	915	428	0	307	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	250		250	0		0
Storage Lanes	2		0	2		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.86	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950	0.950				
Satd. Flow (prot)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Flt Permitted	0.950						0.950	0.950				
Satd. Flow (perm)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						582			126			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		401			2486			1130			1068	
Travel Time (s)		9.1			56.5			25.7			24.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	424	1160	0	0	759	995	465	0	334	0	0	0
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	424	1160	0	0	759	995	232	233	334	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	100			100	20	20	100	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	7	6 7			2			8				
Permitted Phases						2	8		8			
Detector Phase	7	6 7			2	2	8	8	8			
Switch Phase												
Minimum Initial (s)	8.0				15.0	15.0	5.0	5.0	5.0			
Minimum Split (s)	14.0				24.8	24.8	11.0	11.0	11.0			
Total Split (s)	25.0				50.0	50.0	25.0	25.0	25.0			
Total Split (%)	25.0%				50.0%	50.0%	25.0%	25.0%	25.0%			
Maximum Green (s)	19.0				44.2	44.2	19.0	19.0	19.0			
Yellow Time (s)	4.3				4.3	4.3	4.3	4.3	4.3			
All-Red Time (s)	1.7				1.5	1.5	1.7	1.7	1.7			

Lane Group	Ø3	Ø4	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	3	4	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	11.0	24.8
Total Split (s)	25.0	25.0	50.0
Total Split (%)	25%	25%	50%
Maximum Green (s)	19.0	19.0	44.2
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.7	1.7	1.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.0				-1.8	-1.8	-2.0	-2.0	-2.0			
Total Lost Time (s)	4.0				4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead						Lag	Lag	Lag			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Vehicle Extension (s)	3.0				3.0	3.0	3.0	3.0	3.0			
Recall Mode	Min				C-Min	C-Min	Max	Max	Max			
Walk Time (s)					8.0	8.0						
Flash Dont Walk (s)					11.0	11.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	20.9	70.9			46.0	46.0	21.1	21.1	21.1			
Actuated g/C Ratio	0.21	0.71			0.46	0.46	0.21	0.21	0.21			
v/c Ratio	0.59	0.46			0.26	0.95	0.65	0.66	0.77			
Control Delay	48.8	8.7			16.8	30.9	46.0	46.1	36.4			
Queue Delay	0.0	0.4			0.0	0.0	0.0	0.0	0.0			
Total Delay	48.8	9.2			16.8	30.9	46.0	46.1	36.4			
LOS	D	A			B	C	D	D	D			
Approach Delay		19.8			24.8			42.0				
Approach LOS		B			C			D				

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 26.2	Intersection LOS: C
Intersection Capacity Utilization 89.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 70: SR-101L NB & Indian School Rd



Lane Group	Ø3	Ø4	Ø6
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	Min
Walk Time (s)			8.0
Flash Dont Walk (s)			11.0
Pedestrian Calls (#/hr)			0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

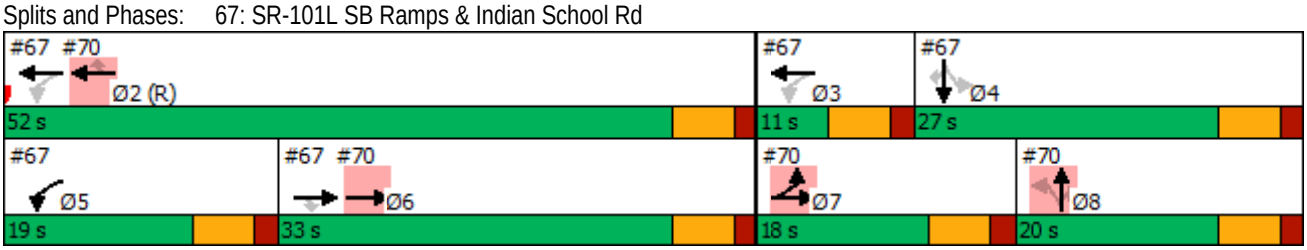
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	805	628	434	601	0	0	0	0	545	0	104
Future Volume (vph)	0	805	628	434	601	0	0	0	0	545	0	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		0	0		0	300		300
Storage Lanes	2		1	2		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.86	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950	0.950	
Satd. Flow (prot)	0	6408	1583	3433	3539	0	0	0	0	1681	1681	1583
Flt Permitted				0.229						0.950	0.950	
Satd. Flow (perm)	0	6408	1583	828	3539	0	0	0	0	1681	1681	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			643									179
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2391			401			966			652	
Travel Time (s)		54.3			9.1			22.0			14.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	875	683	472	653	0	0	0	0	592	0	113
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	875	683	472	653	0	0	0	0	296	296	113
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		100	20	20	100					20	100	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2 3						4	
Permitted Phases			6	2 3						4		4
Detector Phase		6	6	5	2 3					4	4	4
Switch Phase												
Minimum Initial (s)		15.0	15.0	5.0						5.0	5.0	5.0
Minimum Split (s)		24.8	24.8	11.0						11.0	11.0	11.0
Total Split (s)		33.0	33.0	19.0						27.0	27.0	27.0
Total Split (%)		36.7%	36.7%	21.1%						30.0%	30.0%	30.0%
Maximum Green (s)		27.2	27.2	13.0						21.0	21.0	21.0
Yellow Time (s)		4.3	4.3	4.3						4.3	4.3	4.3
All-Red Time (s)		1.5	1.5	1.7						1.7	1.7	1.7

Lane Group	Ø2	Ø3	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Turn Type				
Protected Phases	2	3	7	8
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	15.0	5.0	8.0	5.0
Minimum Split (s)	24.8	11.0	14.0	11.0
Total Split (s)	52.0	11.0	18.0	20.0
Total Split (%)	58%	12%	20%	22%
Maximum Green (s)	46.2	5.0	12.0	14.0
Yellow Time (s)	4.3	4.3	4.3	4.3
All-Red Time (s)	1.5	1.7	1.7	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-1.8	0.0	-2.0						-2.0	-2.0	-2.0
Total Lost Time (s)		4.0	5.8	4.0						4.0	4.0	4.0
Lead/Lag		Lag	Lag	Lead						Lag	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0	3.0	3.0						3.0	3.0	3.0
Recall Mode		Min	Min	None						Min	Min	Min
Walk Time (s)		8.0	8.0									
Flash Dont Walk (s)		11.0	11.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)		31.5	29.7	59.0	59.0					23.0	23.0	23.0
Actuated g/C Ratio		0.35	0.33	0.66	0.66					0.26	0.26	0.26
v/c Ratio		0.39	0.72	0.52	0.28					0.69	0.69	0.21
Control Delay		22.9	7.9	5.0	3.2					39.9	39.9	1.8
Queue Delay		0.1	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		22.9	7.9	5.0	3.2					39.9	39.9	1.8
LOS		C	A	A	A					D	D	A
Approach Delay		16.4			4.0						33.8	
Approach LOS		B			A						C	

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 15.9	Intersection LOS: B
Intersection Capacity Utilization 89.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 67: SR-101L SB Ramps & Indian School Rd



Lane Group	Ø2	Ø3	Ø7	Ø8
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag		Lead	Lead	Lag
Lead-Lag Optimize?		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	Min	Max
Walk Time (s)	8.0			
Flash Dont Walk (s)	11.0			
Pedestrian Calls (#/hr)	0			
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				

Intersection Summary

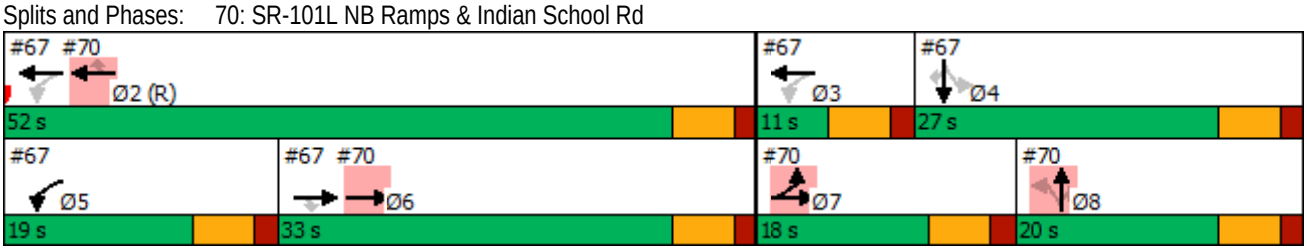
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	390	1067	0	0	698	915	428	0	307	0	0	0
Future Volume (vph)	390	1067	0	0	698	915	428	0	307	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	250		250	0		0
Storage Lanes	2		0	2		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.86	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950	0.950				
Satd. Flow (prot)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Flt Permitted	0.950						0.950	0.950				
Satd. Flow (perm)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						772			334			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		401			2486			1130			1068	
Travel Time (s)		9.1			56.5			25.7			24.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	424	1160	0	0	759	995	465	0	334	0	0	0
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	424	1160	0	0	759	995	232	233	334	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	100			100	20	20	100	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	7	6 7			2			8				
Permitted Phases						2	8		8			
Detector Phase	7	6 7			2	2	8	8	8			
Switch Phase												
Minimum Initial (s)	8.0				15.0	15.0	5.0	5.0	5.0			
Minimum Split (s)	14.0				24.8	24.8	11.0	11.0	11.0			
Total Split (s)	18.0				52.0	52.0	20.0	20.0	20.0			
Total Split (%)	20.0%				57.8%	57.8%	22.2%	22.2%	22.2%			
Maximum Green (s)	12.0				46.2	46.2	14.0	14.0	14.0			
Yellow Time (s)	4.3				4.3	4.3	4.3	4.3	4.3			
All-Red Time (s)	1.7				1.5	1.5	1.7	1.7	1.7			

Lane Group	Ø3	Ø4	Ø5	Ø6
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Turn Type				
Protected Phases	3	4	5	6
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	15.0
Minimum Split (s)	11.0	11.0	11.0	24.8
Total Split (s)	11.0	27.0	19.0	33.0
Total Split (%)	12%	30%	21%	37%
Maximum Green (s)	5.0	21.0	13.0	27.2
Yellow Time (s)	4.3	4.3	4.3	4.3
All-Red Time (s)	1.7	1.7	1.7	1.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.0				-1.8	-1.8	-2.0	-2.0	-2.0			
Total Lost Time (s)	4.0				4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead						Lag	Lag	Lag			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Vehicle Extension (s)	3.0				3.0	3.0	3.0	3.0	3.0			
Recall Mode	Min				C-Min	C-Min	Max	Max	Max			
Walk Time (s)					8.0	8.0						
Flash Dont Walk (s)					11.0	11.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	14.0	49.5			48.0	48.0	16.0	16.0	16.0			
Actuated g/C Ratio	0.16	0.55			0.53	0.53	0.18	0.18	0.18			
v/c Ratio	0.79	0.60			0.22	0.83	0.78	0.78	0.60			
Control Delay	51.5	16.7			11.3	10.9	54.8	55.1	9.0			
Queue Delay	0.0	0.5			0.0	0.0	0.0	0.0	0.0			
Total Delay	51.5	17.1			11.3	10.9	54.8	55.1	9.0			
LOS	D	B			B	B	D	E	A			
Approach Delay		26.3			11.1			35.7				
Approach LOS		C			B			D				

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 21.7	Intersection LOS: C
Intersection Capacity Utilization 89.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 70: SR-101L NB Ramps & Indian School Rd



Lane Group	Ø3	Ø4	Ø5	Ø6
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	Min	None	Min
Walk Time (s)				8.0
Flash Dont Walk (s)				11.0
Pedestrian Calls (#/hr)				0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				

Intersection Summary

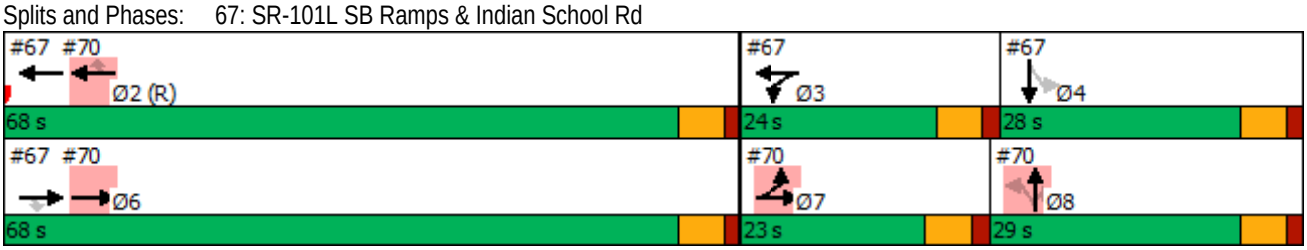
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	805	628	434	601	0	0	0	0	545	0	104
Future Volume (vph)	0	805	628	434	601	0	0	0	0	545	0	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		0	0		0	300		300
Storage Lanes	2		1	2		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.86	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850								0.850	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	6408	1583	3433	3539	0	0	0	0	3433	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	6408	1583	3433	3539	0	0	0	0	3433	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			626								344	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2391			401			966			652	
Travel Time (s)		54.3			9.1			22.0			14.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	875	683	472	653	0	0	0	0	592	0	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	875	683	472	653	0	0	0	0	592	113	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	
Detector Template		Thru	Right	Left	Thru					Left	Thru	
Leading Detector (ft)		100	20	20	100					20	100	
Trailing Detector (ft)		0	0	0	0					0	0	
Detector 1 Position(ft)		0	0	0	0					0	0	
Detector 1 Size(ft)		100	20	20	100					20	100	
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Turn Type		NA	Perm	Prot	NA					Perm	NA	
Protected Phases		6		3	2 3						4	
Permitted Phases			6							4		
Detector Phase		6	6	3	2 3					4	4	
Switch Phase												
Minimum Initial (s)		15.0	15.0	5.0						5.0	5.0	
Minimum Split (s)		24.8	24.8	11.0						11.0	11.0	
Total Split (s)		68.0	68.0	24.0						28.0	28.0	
Total Split (%)		56.7%	56.7%	20.0%						23.3%	23.3%	
Maximum Green (s)		62.2	62.2	18.0						22.0	22.0	
Yellow Time (s)		4.3	4.3	4.3						4.3	4.3	
All-Red Time (s)		1.5	1.5	1.7						1.7	1.7	

Lane Group	Ø2	Ø7	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	2	7	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	15.0	8.0	5.0
Minimum Split (s)	24.8	14.0	11.0
Total Split (s)	68.0	23.0	29.0
Total Split (%)	57%	19%	24%
Maximum Green (s)	62.2	17.0	23.0
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.5	1.7	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-1.8	0.0	-2.0						-2.0	-2.0	
Total Lost Time (s)		4.0	5.8	4.0						4.0	4.0	
Lead/Lag				Lead						Lag	Lag	
Lead-Lag Optimize?				Yes						Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0						3.0	3.0	
Recall Mode		Max	Max	Max						Min	Min	
Walk Time (s)		8.0	8.0									
Flash Dont Walk (s)		11.0	11.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)		64.0	62.2	20.0	88.0					24.0	24.0	
Actuated g/C Ratio		0.53	0.52	0.17	0.73					0.20	0.20	
v/c Ratio		0.26	0.61	0.83	0.25					0.86	0.19	
Control Delay		15.4	4.6	74.6	6.0					60.4	0.7	
Queue Delay		0.0	0.0	0.0	0.3					0.0	0.0	
Total Delay		15.4	4.6	74.6	6.3					60.4	0.7	
LOS		B	A	E	A					E	A	
Approach Delay		10.7			35.0						50.8	
Approach LOS		B			C						D	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 27.1	Intersection LOS: C
Intersection Capacity Utilization 90.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 67: SR-101L SB Ramps & Indian School Rd



Lane Group	Ø2	Ø7	Ø8
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Min	Min	Max
Walk Time (s)	8.0		
Flash Dont Walk (s)	11.0		
Pedestrian Calls (#/hr)	0		
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

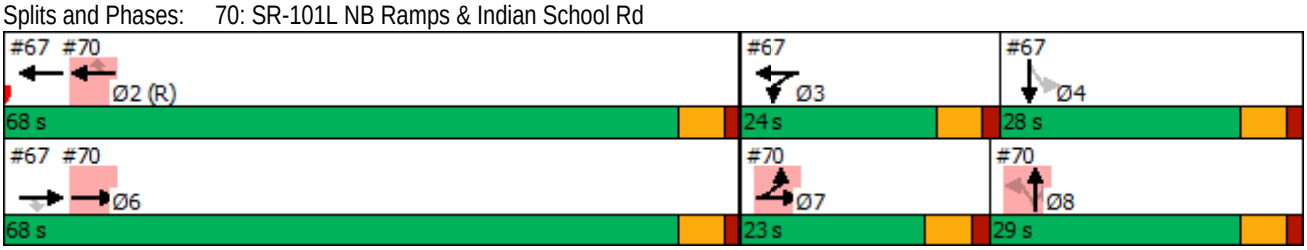
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	413	938	0	0	698	915	428	0	307	0	0	0
Future Volume (vph)	413	938	0	0	698	915	428	0	307	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	250		250	0		0
Storage Lanes	2		0	2		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950	0.950				
Satd. Flow (prot)	3433	3539	0	0	5085	1583	1681	1681	1583	0	0	0
Flt Permitted	0.950						0.950	0.950				
Satd. Flow (perm)	3433	3539	0	0	5085	1583	1681	1681	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						625			172			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		401			2486			1130			1068	
Travel Time (s)		9.1			56.5			25.7			24.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	449	1020	0	0	759	995	465	0	334	0	0	0
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	449	1020	0	0	759	995	232	233	334	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	100			100	20	20	100	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	7	6 7			2			8				
Permitted Phases						2	8		8			
Detector Phase	7	6 7			2	2	8	8	8			
Switch Phase												
Minimum Initial (s)	8.0				15.0	15.0	5.0	5.0	5.0			
Minimum Split (s)	14.0				24.8	24.8	11.0	11.0	11.0			
Total Split (s)	23.0				68.0	68.0	29.0	29.0	29.0			
Total Split (%)	19.2%				56.7%	56.7%	24.2%	24.2%	24.2%			
Maximum Green (s)	17.0				62.2	62.2	23.0	23.0	23.0			
Yellow Time (s)	4.3				4.3	4.3	4.3	4.3	4.3			
All-Red Time (s)	1.7				1.5	1.5	1.7	1.7	1.7			

Lane Group	Ø3	Ø4	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	3	4	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	11.0	24.8
Total Split (s)	24.0	28.0	68.0
Total Split (%)	20%	23%	57%
Maximum Green (s)	18.0	22.0	62.2
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.7	1.7	1.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.0				-1.8	-1.8	-2.0	-2.0	-2.0			
Total Lost Time (s)	4.0				4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead						Lag	Lag	Lag			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Vehicle Extension (s)	3.0				3.0	3.0	3.0	3.0	3.0			
Recall Mode	Min				C-Min	C-Min	Max	Max	Max			
Walk Time (s)					8.0	8.0						
Flash Dont Walk (s)					11.0	11.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	19.0	87.0			64.0	64.0	25.0	25.0	25.0			
Actuated g/C Ratio	0.16	0.72			0.53	0.53	0.21	0.21	0.21			
v/c Ratio	0.83	0.40			0.28	0.88	0.66	0.67	0.72			
Control Delay	74.5	9.0			15.7	18.9	53.9	54.1	30.7			
Queue Delay	0.0	0.4			0.0	0.0	0.0	0.0	0.0			
Total Delay	74.5	9.4			15.7	18.9	53.9	54.1	30.7			
LOS	E	A			B	B	D	D	C			
Approach Delay		29.3			17.5			44.3				
Approach LOS		C			B			D				

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 27.1	Intersection LOS: C
Intersection Capacity Utilization 90.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 70: SR-101L NB Ramps & Indian School Rd



Lane Group	Ø3	Ø4	Ø6
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	Max	Min	Max
Walk Time (s)			8.0
Flash Dont Walk (s)			11.0
Pedestrian Calls (#/hr)			0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

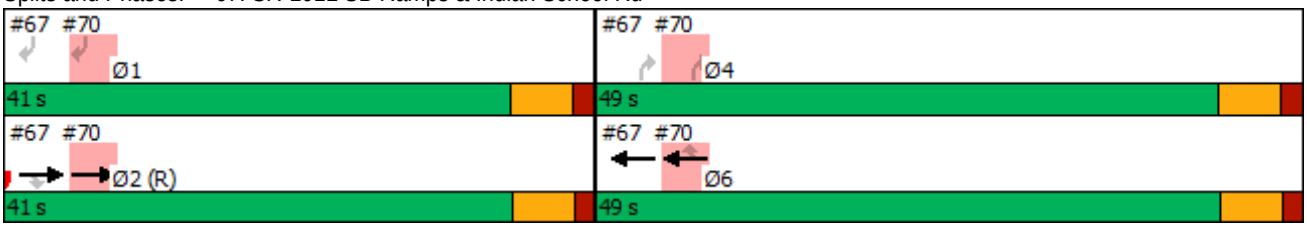
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	805	628	0	1035	0	0	0	545	0	0	104
Future Volume (vph)	0	805	628	0	1035	0	0	0	545	0	0	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.86	1.00	1.00	0.86	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Frt			0.850						0.850			0.865
Flt Protected												
Satd. Flow (prot)	0	6408	1583	0	6408	0	0	0	2787	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	6408	1583	0	6408	0	0	0	2787	0	0	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			683						112			53
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2391			401			966			652	
Travel Time (s)		54.3			9.1			22.0			14.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	875	683	0	1125	0	0	0	592	0	0	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	875	683	0	1125	0	0	0	592	0	0	113
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1		1				1			1
Detector Template		Thru	Right		Thru				Right			Right
Leading Detector (ft)		100	20		100				20			20
Trailing Detector (ft)		0	0		0				0			0
Detector 1 Position(ft)		0	0		0				0			0
Detector 1 Size(ft)		100	20		100				20			20
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex				Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0				0.0			0.0
Detector 1 Queue (s)		0.0	0.0		0.0				0.0			0.0
Detector 1 Delay (s)		0.0	0.0		0.0				0.0			0.0
Turn Type		NA	Perm		NA				Perm			Perm
Protected Phases		2			6							
Permitted Phases			2						4			1
Detector Phase		2	2		6				4			1
Switch Phase												
Minimum Initial (s)		15.0	15.0		15.0				5.0			5.0
Minimum Split (s)		24.8	24.8		24.8				11.0			11.0
Total Split (s)		41.0	41.0		49.0				49.0			41.0
Total Split (%)		45.6%	45.6%		54.4%				54.4%			45.6%
Maximum Green (s)		35.2	35.2		43.2				43.0			35.0
Yellow Time (s)		4.3	4.3		4.3				4.3			4.3
All-Red Time (s)		1.5	1.5		1.5				1.7			1.7
Lost Time Adjust (s)		-1.8	0.0		-1.8				0.0			-2.0
Total Lost Time (s)		4.0	5.8		4.0				6.0			4.0
Lead/Lag												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0		3.0				3.0			3.0
Recall Mode		C-Min	C-Min		Max				Min			Min
Walk Time (s)		8.0	8.0		8.0							
Flash Dont Walk (s)		11.0	11.0		11.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)		37.0	35.2		45.0				43.0			37.0
Actuated g/C Ratio		0.41	0.39		0.50				0.48			0.41
v/c Ratio		0.33	0.66		0.35				0.43			0.16
Control Delay		18.5	5.1		10.0				13.3			10.2
Queue Delay		0.0	0.0		0.0				0.0			0.0
Total Delay		18.5	5.1		10.0				13.3			10.2
LOS		B	A		A				B			B
Approach Delay		12.6			10.0			13.3			10.2	
Approach LOS		B			A			B			B	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 11.8	Intersection LOS: B
Intersection Capacity Utilization 43.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 67: SR-101L SB Ramps & Indian School Rd

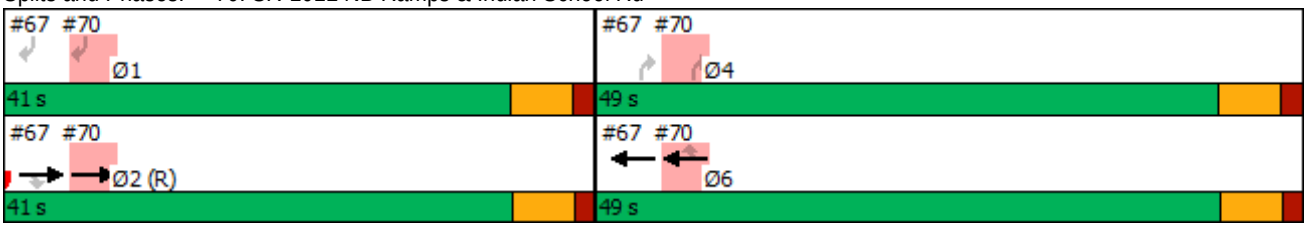


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1351	0	0	698	915	0	0	307	0	0	428
Future Volume (vph)	0	1351	0	0	698	915	0	0	307	0	0	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.86	1.00	1.00	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frt						0.850			0.865			0.850
Flt Protected												
Satd. Flow (prot)	0	6408	0	0	6408	1583	0	0	1611	0	0	2787
Flt Permitted												
Satd. Flow (perm)	0	6408	0	0	6408	1583	0	0	1611	0	0	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						995			36			260
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		401			2486			1130			1068	
Travel Time (s)		9.1			56.5			25.7			24.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1468	0	0	759	995	0	0	334	0	0	465
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1468	0	0	759	995	0	0	334	0	0	465
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1			1	1			1			1
Detector Template		Thru			Thru	Right			Right			Right
Leading Detector (ft)		100			100	20			20			20
Trailing Detector (ft)		0			0	0			0			0
Detector 1 Position(ft)		0			0	0			0			0
Detector 1 Size(ft)		100			100	20			20			20
Detector 1 Type		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0	0.0			0.0			0.0
Detector 1 Queue (s)		0.0			0.0	0.0			0.0			0.0
Detector 1 Delay (s)		0.0			0.0	0.0			0.0			0.0
Turn Type		NA			NA	Perm			Perm			Perm
Protected Phases		2			6							
Permitted Phases						6			4			1
Detector Phase		2			6	6			4			1
Switch Phase												
Minimum Initial (s)		15.0			15.0	15.0			5.0			5.0
Minimum Split (s)		24.8			24.8	24.8			11.0			11.0
Total Split (s)		41.0			49.0	49.0			49.0			41.0
Total Split (%)		45.6%			54.4%	54.4%			54.4%			45.6%
Maximum Green (s)		35.2			43.2	43.2			43.0			35.0
Yellow Time (s)		4.3			4.3	4.3			4.3			4.3
All-Red Time (s)		1.5			1.5	1.5			1.7			1.7
Lost Time Adjust (s)		-1.8			-1.8	-1.8			-2.0			0.0
Total Lost Time (s)		4.0			4.0	4.0			4.0			6.0
Lead/Lag												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0	3.0			3.0			3.0
Recall Mode		C-Min			Max	Max			Min			Min
Walk Time (s)		8.0			8.0	8.0						
Flash Dont Walk (s)		11.0			11.0	11.0						
Pedestrian Calls (#/hr)		0			0	0						
Act Effct Green (s)		37.0			45.0	45.0			45.0			35.0
Actuated g/C Ratio		0.41			0.50	0.50			0.50			0.39
v/c Ratio		0.56			0.24	0.77			0.41			0.37
Control Delay		16.0			13.0	5.8			14.3			9.2
Queue Delay		0.1			0.0	0.0			0.0			0.0
Total Delay		16.1			13.0	5.8			14.3			9.2
LOS		B			B	A			B			A
Approach Delay		16.1			8.9			14.3			9.2	
Approach LOS		B			A			B			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 60.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 70: SR-101L NB Ramps & Indian School Rd



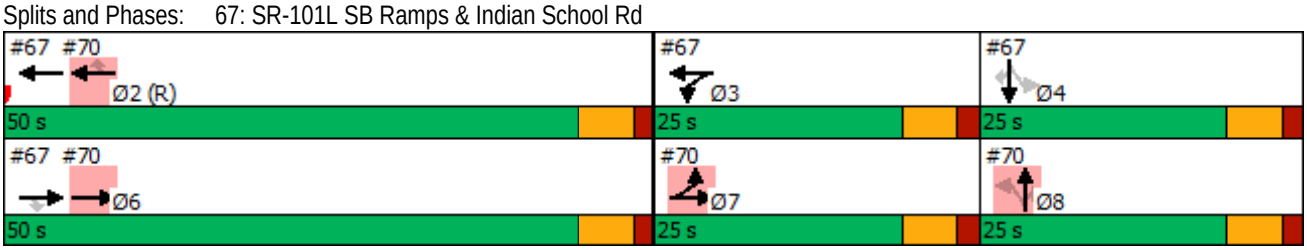
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	625	628	348	618	0	0	0	0	545	0	173
Future Volume (vph)	0	625	628	348	618	0	0	0	0	545	0	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		0	0		0	300		300
Storage Lanes	2		1	2		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.86	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950	0.950	
Satd. Flow (prot)	0	6408	1583	3433	3539	0	0	0	0	1681	1681	1583
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	6408	1583	3433	3539	0	0	0	0	1681	1681	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			595									188
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2391			401			966			652	
Travel Time (s)		54.3			9.1			22.0			14.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	679	683	378	672	0	0	0	0	592	0	188
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	679	683	378	672	0	0	0	0	296	296	188
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		100	20	20	100					20	100	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		6		3	2 3						4	
Permitted Phases			6							4		4
Detector Phase		6	6	3	2 3					4	4	4
Switch Phase												
Minimum Initial (s)		15.0	15.0	5.0						5.0	5.0	5.0
Minimum Split (s)		24.8	24.8	11.0						11.0	11.0	11.0
Total Split (s)		50.0	50.0	25.0						25.0	25.0	25.0
Total Split (%)		50.0%	50.0%	25.0%						25.0%	25.0%	25.0%
Maximum Green (s)		44.2	44.2	19.0						19.0	19.0	19.0
Yellow Time (s)		4.3	4.3	4.3						4.3	4.3	4.3
All-Red Time (s)		1.5	1.5	1.7						1.7	1.7	1.7

Lane Group	Ø2	Ø7	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	2	7	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	15.0	8.0	5.0
Minimum Split (s)	24.8	14.0	11.0
Total Split (s)	50.0	25.0	25.0
Total Split (%)	50%	25%	25%
Maximum Green (s)	44.2	19.0	19.0
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.5	1.7	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-1.8	0.0	-2.0						-2.0	-2.0	-2.0
Total Lost Time (s)		4.0	5.8	4.0						4.0	4.0	4.0
Lead/Lag				Lead						Lag	Lag	Lag
Lead-Lag Optimize?				Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0	3.0	3.0						3.0	3.0	3.0
Recall Mode		Min	Min	None						Min	Min	Min
Walk Time (s)		8.0	8.0									
Flash Dont Walk (s)		11.0	11.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)		45.1	43.3	19.8	68.9					23.1	23.1	23.1
Actuated g/C Ratio		0.45	0.43	0.20	0.69					0.23	0.23	0.23
v/c Ratio		0.24	0.67	0.56	0.28					0.76	0.76	0.37
Control Delay		17.0	6.7	46.4	4.8					51.2	51.2	7.3
Queue Delay		0.0	0.0	0.0	0.2					0.0	0.0	0.0
Total Delay		17.0	6.7	46.4	5.0					51.2	51.2	7.3
LOS		B	A	D	A					D	D	A
Approach Delay		11.8			19.9						40.7	
Approach LOS		B			B						D	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 21.5	Intersection LOS: C
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 67: SR-101L SB Ramps & Indian School Rd



Lane Group	Ø2	Ø7	Ø8
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Min	Min	Max
Walk Time (s)	8.0		
Flash Dont Walk (s)	11.0		
Pedestrian Calls (#/hr)	0		
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

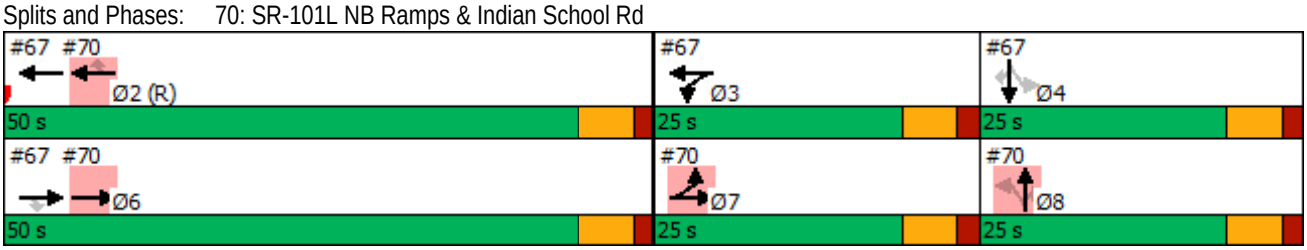
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	993	0	0	698	248	268	0	467	0	0	0
Future Volume (vph)	173	993	0	0	698	248	268	0	467	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	250		250	0		0
Storage Lanes	2		0	2		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.86	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950	0.950				
Satd. Flow (prot)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Flt Permitted	0.950						0.950	0.950				
Satd. Flow (perm)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						270			148			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		401			2486			1130			1068	
Travel Time (s)		9.1			56.5			25.7			24.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	188	1079	0	0	759	270	291	0	508	0	0	0
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	188	1079	0	0	759	270	145	146	508	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	100			100	20	20	100	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	7	6 7			2			8				
Permitted Phases						2	8		8			
Detector Phase	7	6 7			2	2	8	8	8			
Switch Phase												
Minimum Initial (s)	8.0				15.0	15.0	5.0	5.0	5.0			
Minimum Split (s)	14.0				24.8	24.8	11.0	11.0	11.0			
Total Split (s)	25.0				50.0	50.0	25.0	25.0	25.0			
Total Split (%)	25.0%				50.0%	50.0%	25.0%	25.0%	25.0%			
Maximum Green (s)	19.0				44.2	44.2	19.0	19.0	19.0			
Yellow Time (s)	4.3				4.3	4.3	4.3	4.3	4.3			
All-Red Time (s)	1.7				1.5	1.5	1.7	1.7	1.7			

Lane Group	Ø3	Ø4	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	3	4	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	11.0	24.8
Total Split (s)	25.0	25.0	50.0
Total Split (%)	25%	25%	50%
Maximum Green (s)	19.0	19.0	44.2
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.7	1.7	1.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.0				-1.8	-1.8	-2.0	-2.0	-2.0			
Total Lost Time (s)	4.0				4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead						Lag	Lag	Lag			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Vehicle Extension (s)	3.0				3.0	3.0	3.0	3.0	3.0			
Recall Mode	Min				C-Min	C-Min	Max	Max	Max			
Walk Time (s)					8.0	8.0						
Flash Dont Walk (s)					11.0	11.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	18.7	67.7			45.1	45.1	24.3	24.3	24.3			
Actuated g/C Ratio	0.19	0.68			0.45	0.45	0.24	0.24	0.24			
v/c Ratio	0.29	0.45			0.26	0.31	0.36	0.36	1.02			
Control Delay	46.0	10.6			17.3	3.0	36.0	36.0	75.9			
Queue Delay	0.0	0.5			0.0	0.0	0.0	0.0	0.0			
Total Delay	46.0	11.1			17.3	3.0	36.0	36.0	75.9			
LOS	D	B			B	A	D	D	E			
Approach Delay		16.3			13.5			61.4				
Approach LOS		B			B			E				

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 27.0	Intersection LOS: C
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 70: SR-101L NB Ramps & Indian School Rd



Lane Group	Ø3	Ø4	Ø6
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	Min
Walk Time (s)			8.0
Flash Dont Walk (s)			11.0
Pedestrian Calls (#/hr)			0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

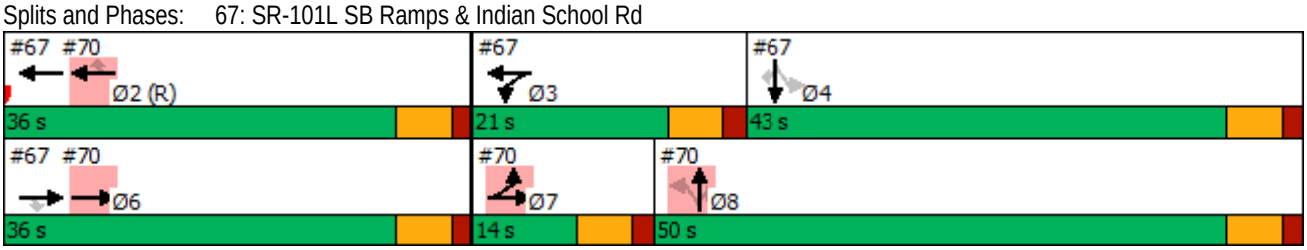
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	625	628	348	618	0	0	0	0	545	0	173
Future Volume (vph)	0	625	628	348	618	0	0	0	0	545	0	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		0	0		0	300		300
Storage Lanes	2		1	2		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.86	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950	0.950	
Satd. Flow (prot)	0	6408	1583	3433	3539	0	0	0	0	1681	1681	1583
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	6408	1583	3433	3539	0	0	0	0	1681	1681	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			683									188
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2391			401			966			652	
Travel Time (s)		54.3			9.1			22.0			14.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	679	683	378	672	0	0	0	0	592	0	188
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	679	683	378	672	0	0	0	0	296	296	188
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		100	20	20	100					20	100	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		6		3	2 3						4	
Permitted Phases			6							4		4
Detector Phase		6	6	3	2 3					4	4	4
Switch Phase												
Minimum Initial (s)		15.0	15.0	5.0						5.0	5.0	5.0
Minimum Split (s)		24.8	24.8	11.0						11.0	11.0	11.0
Total Split (s)		36.0	36.0	21.0						43.0	43.0	43.0
Total Split (%)		36.0%	36.0%	21.0%						43.0%	43.0%	43.0%
Maximum Green (s)		30.2	30.2	15.0						37.0	37.0	37.0
Yellow Time (s)		4.3	4.3	4.3						4.3	4.3	4.3
All-Red Time (s)		1.5	1.5	1.7						1.7	1.7	1.7

Lane Group	Ø2	Ø7	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	2	7	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	15.0	8.0	5.0
Minimum Split (s)	24.8	14.0	11.0
Total Split (s)	36.0	14.0	50.0
Total Split (%)	36%	14%	50%
Maximum Green (s)	30.2	8.0	44.0
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.5	1.7	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-1.8	0.0	-2.0						-2.0	-2.0	-2.0
Total Lost Time (s)		4.0	5.8	4.0						4.0	4.0	4.0
Lead/Lag				Lead						Lag	Lag	Lag
Lead-Lag Optimize?				Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0	3.0	3.0						3.0	3.0	3.0
Recall Mode		Min	Min	None						Min	Min	Min
Walk Time (s)		8.0	8.0									
Flash Dont Walk (s)		11.0	11.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)		32.0	30.2	16.8	52.8					39.2	39.2	39.2
Actuated g/C Ratio		0.32	0.30	0.17	0.53					0.39	0.39	0.39
v/c Ratio		0.33	0.72	0.66	0.36					0.45	0.45	0.26
Control Delay		26.4	7.1	42.9	9.7					25.2	25.2	4.0
Queue Delay		0.1	0.0	0.0	0.2					0.0	0.0	0.0
Total Delay		26.5	7.1	42.9	9.9					25.2	25.2	4.0
LOS		C	A	D	A					C	C	A
Approach Delay		16.7			21.8						20.1	
Approach LOS		B			C						C	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 19.2	Intersection LOS: B
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 67: SR-101L SB Ramps & Indian School Rd



Lane Group	Ø2	Ø7	Ø8
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Min	Min	Max
Walk Time (s)	8.0		
Flash Dont Walk (s)	11.0		
Pedestrian Calls (#/hr)	0		
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

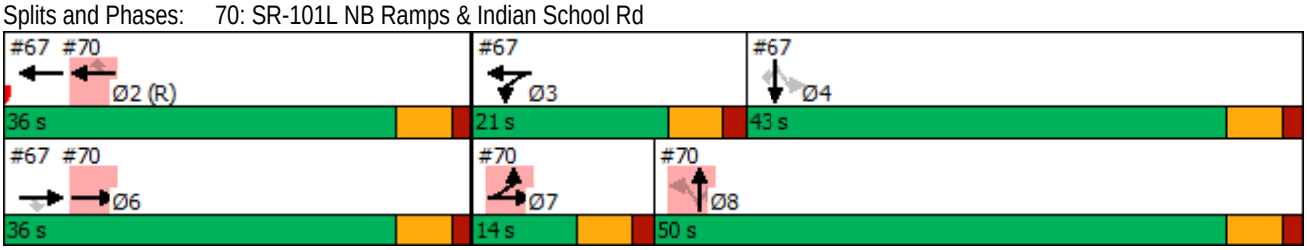
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	993	0	0	698	248	268	0	467	0	0	0
Future Volume (vph)	173	993	0	0	698	248	268	0	467	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	250		250	0		0
Storage Lanes	2		0	2		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.86	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950	0.950				
Satd. Flow (prot)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Flt Permitted	0.950						0.950	0.950				
Satd. Flow (perm)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						270			96			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		401			2486			1130			1068	
Travel Time (s)		9.1			56.5			25.7			24.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	188	1079	0	0	759	270	291	0	508	0	0	0
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	188	1079	0	0	759	270	145	146	508	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	100			100	20	20	100	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	7	6 7			2			8				
Permitted Phases						2	8		8			
Detector Phase	7	6 7			2	2	8	8	8			
Switch Phase												
Minimum Initial (s)	8.0				15.0	15.0	5.0	5.0	5.0			
Minimum Split (s)	14.0				24.8	24.8	11.0	11.0	11.0			
Total Split (s)	14.0				36.0	36.0	50.0	50.0	50.0			
Total Split (%)	14.0%				36.0%	36.0%	50.0%	50.0%	50.0%			
Maximum Green (s)	8.0				30.2	30.2	44.0	44.0	44.0			
Yellow Time (s)	4.3				4.3	4.3	4.3	4.3	4.3			
All-Red Time (s)	1.7				1.5	1.5	1.7	1.7	1.7			

Lane Group	Ø3	Ø4	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	3	4	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	11.0	24.8
Total Split (s)	21.0	43.0	36.0
Total Split (%)	21%	43%	36%
Maximum Green (s)	15.0	37.0	30.2
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.7	1.7	1.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.0				-1.8	-1.8	-2.0	-2.0	-2.0			
Total Lost Time (s)	4.0				4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead						Lag	Lag	Lag			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Vehicle Extension (s)	3.0				3.0	3.0	3.0	3.0	3.0			
Recall Mode	Min				C-Min	C-Min	Max	Max	Max			
Walk Time (s)					8.0	8.0						
Flash Dont Walk (s)					11.0	11.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	10.0	46.0			32.0	32.0	46.0	46.0	46.0			
Actuated g/C Ratio	0.10	0.46			0.32	0.32	0.46	0.46	0.46			
v/c Ratio	0.55	0.66			0.37	0.39	0.19	0.19	0.65			
Control Delay	46.0	19.2			26.9	5.0	16.8	16.8	21.3			
Queue Delay	0.0	0.4			0.0	0.0	0.0	0.0	0.0			
Total Delay	46.0	19.7			26.9	5.0	16.8	16.8	21.3			
LOS	D	B			C	A	B	B	C			
Approach Delay		23.6			21.1			19.6				
Approach LOS		C			C			B				

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 21.7	Intersection LOS: C
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 70: SR-101L NB Ramps & Indian School Rd



Lane Group	Ø3	Ø4	Ø6
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	Min
Walk Time (s)			8.0
Flash Dont Walk (s)			11.0
Pedestrian Calls (#/hr)			0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

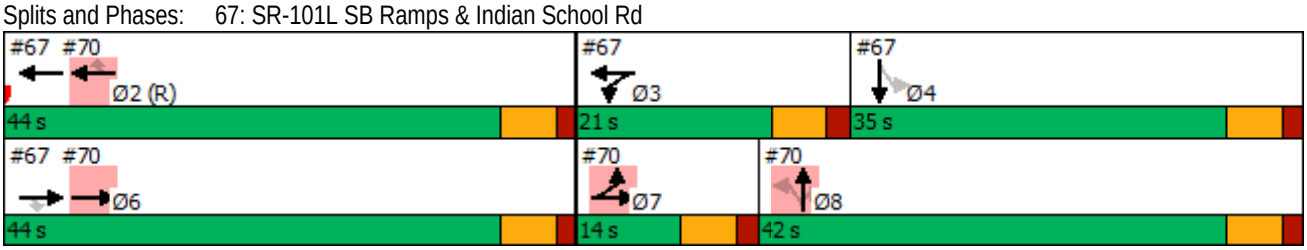
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	625	628	348	618	0	0	0	0	545	0	173
Future Volume (vph)	0	625	628	348	618	0	0	0	0	545	0	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		0	0		0	300		300
Storage Lanes	2		1	2		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.86	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850								0.850	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	6408	1583	3433	3539	0	0	0	0	3433	1583	0
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	6408	1583	3433	3539	0	0	0	0	3433	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			683								260	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2391			401			966			652	
Travel Time (s)		54.3			9.1			22.0			14.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	679	683	378	672	0	0	0	0	592	0	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	679	683	378	672	0	0	0	0	592	188	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	
Detector Template		Thru	Right	Left	Thru					Left	Thru	
Leading Detector (ft)		100	20	20	100					20	100	
Trailing Detector (ft)		0	0	0	0					0	0	
Detector 1 Position(ft)		0	0	0	0					0	0	
Detector 1 Size(ft)		100	20	20	100					20	100	
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Turn Type		NA	Perm	Prot	NA					Perm	NA	
Protected Phases		6		3	2 3						4	
Permitted Phases			6							4		
Detector Phase		6	6	3	2 3					4	4	
Switch Phase												
Minimum Initial (s)		15.0	15.0	5.0						5.0	5.0	
Minimum Split (s)		24.8	24.8	11.0						11.0	11.0	
Total Split (s)		44.0	44.0	21.0						35.0	35.0	
Total Split (%)		44.0%	44.0%	21.0%						35.0%	35.0%	
Maximum Green (s)		38.2	38.2	15.0						29.0	29.0	
Yellow Time (s)		4.3	4.3	4.3						4.3	4.3	
All-Red Time (s)		1.5	1.5	1.7						1.7	1.7	

Lane Group	Ø2	Ø7	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	2	7	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	15.0	8.0	5.0
Minimum Split (s)	24.8	14.0	11.0
Total Split (s)	44.0	14.0	42.0
Total Split (%)	44%	14%	42%
Maximum Green (s)	38.2	8.0	36.0
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.5	1.7	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-1.8	0.0	-2.0						-2.0	-2.0	
Total Lost Time (s)		4.0	5.8	4.0						4.0	4.0	
Lead/Lag				Lead						Lag	Lag	
Lead-Lag Optimize?				Yes						Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0						3.0	3.0	
Recall Mode		Min	Min	None						Min	Min	
Walk Time (s)		8.0	8.0									
Flash Dont Walk (s)		11.0	11.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)		40.0	38.2	16.8	60.8					31.2	31.2	
Actuated g/C Ratio		0.40	0.38	0.17	0.61					0.31	0.31	
v/c Ratio		0.26	0.67	0.66	0.31					0.55	0.28	
Control Delay		20.5	5.4	47.9	8.1					31.0	1.9	
Queue Delay		0.0	0.0	0.0	0.2					0.0	0.0	
Total Delay		20.5	5.4	47.9	8.3					31.0	1.9	
LOS		C	A	D	A					C	A	
Approach Delay		12.9			22.5						24.0	
Approach LOS		B			C						C	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 18.8	Intersection LOS: B
Intersection Capacity Utilization 75.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 67: SR-101L SB Ramps & Indian School Rd



Lane Group	Ø2	Ø7	Ø8
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Min	Min	Max
Walk Time (s)	8.0		
Flash Dont Walk (s)	11.0		
Pedestrian Calls (#/hr)	0		
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

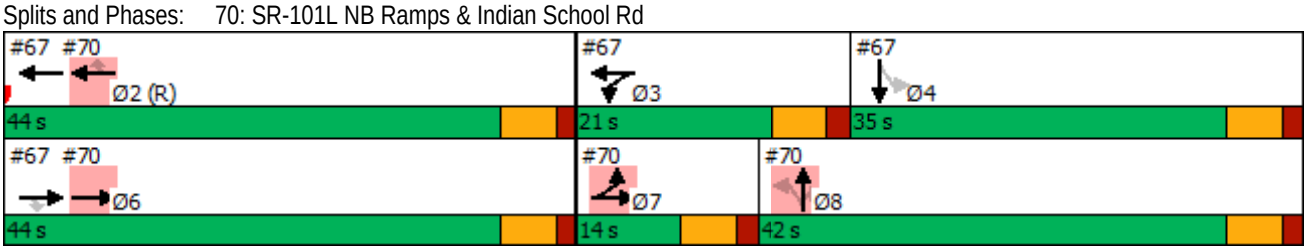
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	993	0	0	698	248	268	0	467	0	0	0
Future Volume (vph)	173	993	0	0	698	248	268	0	467	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	250		250	0		0
Storage Lanes	2		0	2		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.86	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950	0.950				
Satd. Flow (prot)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Flt Permitted	0.950						0.950	0.950				
Satd. Flow (perm)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						270			96			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		401			2486			1130			1068	
Travel Time (s)		9.1			56.5			25.7			24.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	188	1079	0	0	759	270	291	0	508	0	0	0
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	188	1079	0	0	759	270	145	146	508	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	100			100	20	20	100	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	7	6 7			2			8				
Permitted Phases						2	8		8			
Detector Phase	7	6 7			2	2	8	8	8			
Switch Phase												
Minimum Initial (s)	8.0				15.0	15.0	5.0	5.0	5.0			
Minimum Split (s)	14.0				24.8	24.8	11.0	11.0	11.0			
Total Split (s)	14.0				44.0	44.0	42.0	42.0	42.0			
Total Split (%)	14.0%				44.0%	44.0%	42.0%	42.0%	42.0%			
Maximum Green (s)	8.0				38.2	38.2	36.0	36.0	36.0			
Yellow Time (s)	4.3				4.3	4.3	4.3	4.3	4.3			
All-Red Time (s)	1.7				1.5	1.5	1.7	1.7	1.7			

Lane Group	Ø3	Ø4	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	3	4	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	11.0	24.8
Total Split (s)	21.0	35.0	44.0
Total Split (%)	21%	35%	44%
Maximum Green (s)	15.0	29.0	38.2
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.7	1.7	1.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.0				-1.8	-1.8	-2.0	-2.0	-2.0			
Total Lost Time (s)	4.0				4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead						Lag	Lag	Lag			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Vehicle Extension (s)	3.0				3.0	3.0	3.0	3.0	3.0			
Recall Mode	Min				C-Min	C-Min	Max	Max	Max			
Walk Time (s)					8.0	8.0						
Flash Dont Walk (s)					11.0	11.0						
Pedestrian Calls (#/hr)					0	0						
Act Effct Green (s)	10.0	54.0			40.0	40.0	38.0	38.0	38.0			
Actuated g/C Ratio	0.10	0.54			0.40	0.40	0.38	0.38	0.38			
v/c Ratio	0.55	0.56			0.30	0.34	0.23	0.23	0.77			
Control Delay	49.9	15.0			20.8	3.7	22.3	22.3	31.0			
Queue Delay	0.0	0.4			0.0	0.0	0.0	0.0	0.0			
Total Delay	49.9	15.4			20.8	3.7	22.3	22.3	31.0			
LOS	D	B			C	A	C	C	C			
Approach Delay		20.5			16.3			27.8				
Approach LOS		C			B			C				

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 21.0	Intersection LOS: C
Intersection Capacity Utilization 75.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 70: SR-101L NB Ramps & Indian School Rd



Lane Group	Ø3	Ø4	Ø6
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	Min
Walk Time (s)			8.0
Flash Dont Walk (s)			11.0
Pedestrian Calls (#/hr)			0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

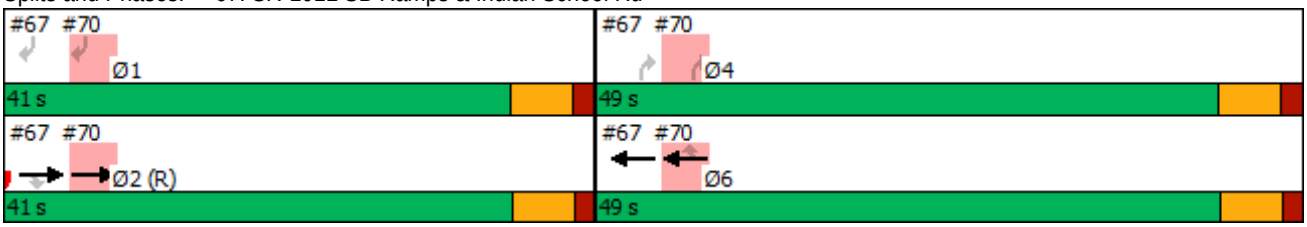
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	805	628	0	1035	0	0	0	545	0	0	104
Future Volume (vph)	0	805	628	0	1035	0	0	0	545	0	0	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.86	1.00	1.00	0.86	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Frt			0.850						0.850			0.865
Flt Protected												
Satd. Flow (prot)	0	6408	1583	0	6408	0	0	0	2787	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	6408	1583	0	6408	0	0	0	2787	0	0	1611
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			683						112			53
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2391			401			966			652	
Travel Time (s)		54.3			9.1			22.0			14.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	875	683	0	1125	0	0	0	592	0	0	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	875	683	0	1125	0	0	0	592	0	0	113
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1		1				1			1
Detector Template		Thru	Right		Thru				Right			Right
Leading Detector (ft)		100	20		100				20			20
Trailing Detector (ft)		0	0		0				0			0
Detector 1 Position(ft)		0	0		0				0			0
Detector 1 Size(ft)		100	20		100				20			20
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex				Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0				0.0			0.0
Detector 1 Queue (s)		0.0	0.0		0.0				0.0			0.0
Detector 1 Delay (s)		0.0	0.0		0.0				0.0			0.0
Turn Type		NA	Perm		NA				Perm			Perm
Protected Phases		2			6							
Permitted Phases			2						4			1
Detector Phase		2	2		6				4			1
Switch Phase												
Minimum Initial (s)		15.0	15.0		15.0				5.0			5.0
Minimum Split (s)		24.8	24.8		24.8				11.0			11.0
Total Split (s)		41.0	41.0		49.0				49.0			41.0
Total Split (%)		45.6%	45.6%		54.4%				54.4%			45.6%
Maximum Green (s)		35.2	35.2		43.2				43.0			35.0
Yellow Time (s)		4.3	4.3		4.3				4.3			4.3
All-Red Time (s)		1.5	1.5		1.5				1.7			1.7
Lost Time Adjust (s)		-1.8	0.0		-1.8				0.0			-2.0
Total Lost Time (s)		4.0	5.8		4.0				6.0			4.0
Lead/Lag												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0		3.0				3.0			3.0
Recall Mode		C-Min	C-Min		Max				Min			Min
Walk Time (s)		8.0	8.0		8.0							
Flash Dont Walk (s)		11.0	11.0		11.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)		37.0	35.2		45.0				43.0			37.0
Actuated g/C Ratio		0.41	0.39		0.50				0.48			0.41
v/c Ratio		0.33	0.66		0.35				0.43			0.16
Control Delay		18.5	5.1		10.0				13.3			10.2
Queue Delay		0.0	0.0		0.0				0.0			0.0
Total Delay		18.5	5.1		10.0				13.3			10.2
LOS		B	A		A				B			B
Approach Delay		12.6			10.0			13.3			10.2	
Approach LOS		B			A			B			B	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 11.8	Intersection LOS: B
Intersection Capacity Utilization 43.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 67: SR-101L SB Ramps & Indian School Rd

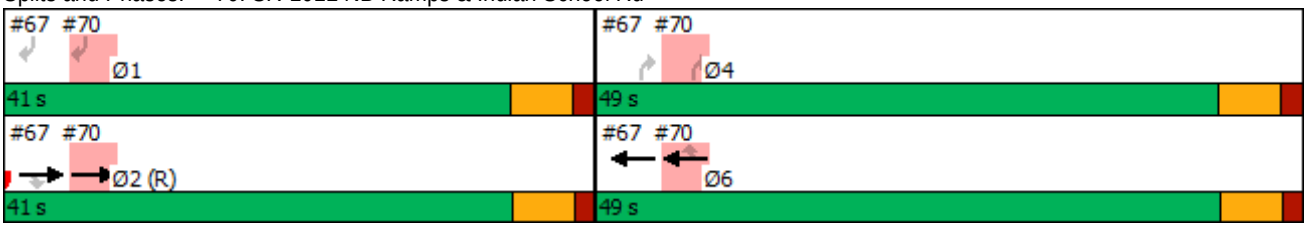


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1351	0	0	698	915	0	0	307	0	0	428
Future Volume (vph)	0	1351	0	0	698	915	0	0	307	0	0	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.86	1.00	1.00	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frt						0.850			0.865			0.850
Flt Protected												
Satd. Flow (prot)	0	6408	0	0	6408	1583	0	0	1611	0	0	2787
Flt Permitted												
Satd. Flow (perm)	0	6408	0	0	6408	1583	0	0	1611	0	0	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						995			36			260
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		401			2486			1130			1068	
Travel Time (s)		9.1			56.5			25.7			24.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1468	0	0	759	995	0	0	334	0	0	465
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1468	0	0	759	995	0	0	334	0	0	465
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1			1	1			1			1
Detector Template		Thru			Thru	Right			Right			Right
Leading Detector (ft)		100			100	20			20			20
Trailing Detector (ft)		0			0	0			0			0
Detector 1 Position(ft)		0			0	0			0			0
Detector 1 Size(ft)		100			100	20			20			20
Detector 1 Type		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0	0.0			0.0			0.0
Detector 1 Queue (s)		0.0			0.0	0.0			0.0			0.0
Detector 1 Delay (s)		0.0			0.0	0.0			0.0			0.0
Turn Type		NA			NA	Perm			Perm			Perm
Protected Phases		2			6							
Permitted Phases						6			4			1
Detector Phase		2			6	6			4			1
Switch Phase												
Minimum Initial (s)		15.0			15.0	15.0			5.0			5.0
Minimum Split (s)		24.8			24.8	24.8			11.0			11.0
Total Split (s)		41.0			49.0	49.0			49.0			41.0
Total Split (%)		45.6%			54.4%	54.4%			54.4%			45.6%
Maximum Green (s)		35.2			43.2	43.2			43.0			35.0
Yellow Time (s)		4.3			4.3	4.3			4.3			4.3
All-Red Time (s)		1.5			1.5	1.5			1.7			1.7
Lost Time Adjust (s)		-1.8			-1.8	-1.8			-2.0			0.0
Total Lost Time (s)		4.0			4.0	4.0			4.0			6.0
Lead/Lag												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0	3.0			3.0			3.0
Recall Mode		C-Min			Max	Max			Min			Min
Walk Time (s)		8.0			8.0	8.0						
Flash Dont Walk (s)		11.0			11.0	11.0						
Pedestrian Calls (#/hr)		0			0	0						
Act Effct Green (s)		37.0			45.0	45.0			45.0			35.0
Actuated g/C Ratio		0.41			0.50	0.50			0.50			0.39
v/c Ratio		0.56			0.24	0.77			0.41			0.37
Control Delay		16.0			13.0	5.8			14.3			9.2
Queue Delay		0.1			0.0	0.0			0.0			0.0
Total Delay		16.1			13.0	5.8			14.3			9.2
LOS		B			B	A			B			A
Approach Delay		16.1			8.9			14.3			9.2	
Approach LOS		B			A			B			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 60.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 70: SR-101L NB Ramps & Indian School Rd



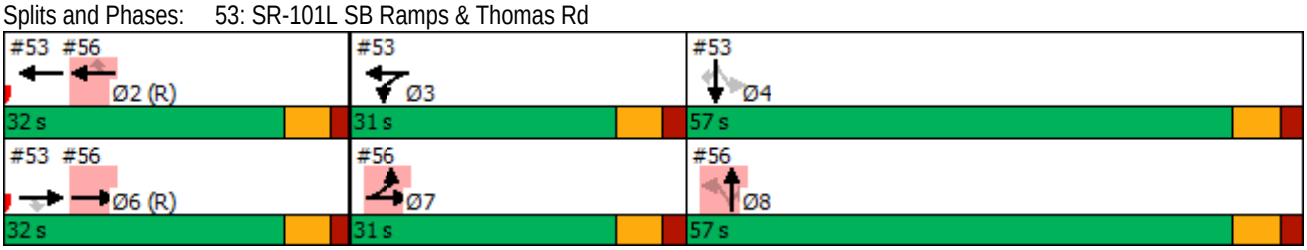
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	998	384	316	361	0	0	0	0	632	0	330
Future Volume (vph)	0	998	384	316	361	0	0	0	0	632	0	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	210		210	0		0	0		0	250		250
Storage Lanes	2		1	2		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950	0.950	
Satd. Flow (prot)	0	5085	1583	3433	3539	0	0	0	0	1681	1681	1583
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	5085	1583	3433	3539	0	0	0	0	1681	1681	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			386									359
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2400			432			1239			1211	
Travel Time (s)		36.4			6.5			18.8			18.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1085	417	343	392	0	0	0	0	687	0	359
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	1085	417	343	392	0	0	0	0	343	344	359
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		100	20	20	100					20	100	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		6		3	2 3						4	
Permitted Phases			6							4		4
Detector Phase		6	6	3	2 3					4	4	4
Switch Phase												
Minimum Initial (s)		5.0	5.0	5.0						5.0	5.0	5.0
Minimum Split (s)		30.0	30.0	30.0						56.6	56.6	56.6
Total Split (s)		32.0	32.0	31.0						57.0	57.0	57.0
Total Split (%)		26.7%	26.7%	25.8%						47.5%	47.5%	47.5%
Maximum Green (s)		25.8	25.8	24.4						50.4	50.4	50.4
Yellow Time (s)		4.3	4.3	4.3						4.3	4.3	4.3
All-Red Time (s)		1.9	1.9	2.3						2.3	2.3	2.3

Lane Group	Ø2	Ø7	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	2	7	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	56.6
Total Split (s)	32.0	31.0	57.0
Total Split (%)	27%	26%	48%
Maximum Green (s)	25.8	24.4	50.4
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.9	2.3	2.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-2.2	-2.2	-2.6						-2.6	-2.6	-2.6
Total Lost Time (s)		4.0	4.0	4.0						4.0	4.0	4.0
Lead/Lag				Lead						Lag	Lag	Lag
Lead-Lag Optimize?				Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0	3.0	3.0						3.0	3.0	3.0
Recall Mode		C-Min	C-Min	None						None	None	None
Walk Time (s)		8.0	8.0							10.0	10.0	10.0
Flash Dont Walk (s)		13.0	13.0							40.0	40.0	40.0
Pedestrian Calls (#/hr)		0	0							0	0	0
Act Effct Green (s)		43.6	43.6	21.0	68.6					43.4	43.4	43.4
Actuated g/C Ratio		0.36	0.36	0.18	0.57					0.36	0.36	0.36
v/c Ratio		0.59	0.51	0.57	0.19					0.57	0.57	0.45
Control Delay		34.3	7.1	53.4	9.9					34.0	34.1	4.2
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		34.3	7.1	53.4	9.9					34.0	34.1	4.2
LOS		C	A	D	A					C	C	A
Approach Delay		26.8			30.2						23.8	
Approach LOS		C			C						C	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 26.6	Intersection LOS: C
Intersection Capacity Utilization 81.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 53: SR-101L SB Ramps & Thomas Rd



Lane Group	Ø2	Ø7	Ø8
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Min	None	None
Walk Time (s)	8.0		10.0
Flash Dont Walk (s)	13.0		40.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

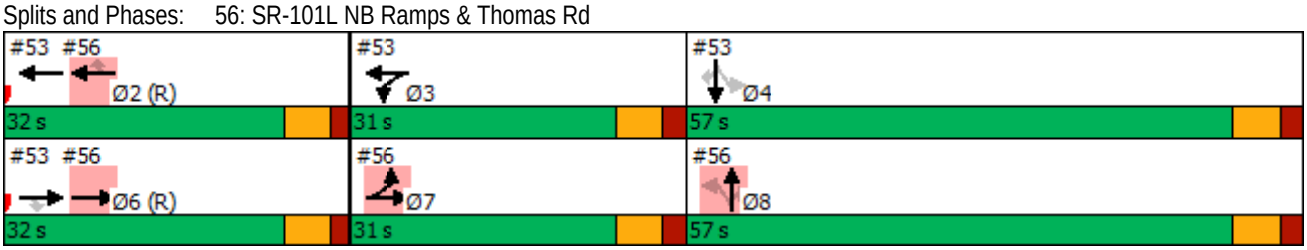
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	672	963	0	0	463	754	216	0	396	0	0	0
Future Volume (vph)	672	963	0	0	463	754	216	0	396	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	230		230	0		0
Storage Lanes	2		0	0		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.86	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950	0.950				
Satd. Flow (prot)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Flt Permitted	0.950						0.950	0.950				
Satd. Flow (perm)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						739			89			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		432			1105			1139			1188	
Travel Time (s)		9.8			25.1			25.9			27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	730	1047	0	0	503	820	235	0	430	0	0	0
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	730	1047	0	0	503	820	117	118	430	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	100			100	20	20	100	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	7	6 7			2			8				
Permitted Phases						2	8		8			
Detector Phase	7	6 7			2	2	8	8	8			
Switch Phase												
Minimum Initial (s)	5.0				5.0	5.0	5.0	5.0	5.0			
Minimum Split (s)	30.0				30.0	30.0	56.6	56.6	56.6			
Total Split (s)	31.0				32.0	32.0	57.0	57.0	57.0			
Total Split (%)	25.8%				26.7%	26.7%	47.5%	47.5%	47.5%			
Maximum Green (s)	24.4				25.8	25.8	50.4	50.4	50.4			
Yellow Time (s)	4.3				4.3	4.3	4.3	4.3	4.3			
All-Red Time (s)	2.3				1.9	1.9	2.3	2.3	2.3			

Lane Group	Ø3	Ø4	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	3	4	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	30.0	56.6	30.0
Total Split (s)	31.0	57.0	32.0
Total Split (%)	26%	48%	27%
Maximum Green (s)	24.4	50.4	25.8
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	2.3	2.3	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.6				-2.2	-2.2	-2.6	-2.6	-2.6			
Total Lost Time (s)	4.0				4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead						Lag	Lag	Lag			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Vehicle Extension (s)	3.0				3.0	3.0	3.0	3.0	3.0			
Recall Mode	None				C-Min	C-Min	None	None	None			
Walk Time (s)					8.0	8.0	10.0	10.0	10.0			
Flash Dont Walk (s)					13.0	13.0	40.0	40.0	40.0			
Pedestrian Calls (#/hr)					0	0	0	0	0			
Act Effct Green (s)	27.0	74.6			43.6	43.6	37.4	37.4	37.4			
Actuated g/C Ratio	0.22	0.62			0.36	0.36	0.31	0.31	0.31			
v/c Ratio	0.95	0.48			0.22	0.78	0.22	0.23	0.78			
Control Delay	72.4	14.1			28.5	11.1	29.2	29.3	38.3			
Queue Delay	0.0	0.6			0.0	0.0	0.0	0.0	0.0			
Total Delay	72.4	14.7			28.5	11.1	29.2	29.3	38.3			
LOS	E	B			C	B	C	C	D			
Approach Delay		38.4			17.7			35.1				
Approach LOS		D			B			D				

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 30.6	Intersection LOS: C
Intersection Capacity Utilization 81.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 56: SR-101L NB Ramps & Thomas Rd



Lane Group	Ø3	Ø4	Ø6
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	None	C-Min
Walk Time (s)		10.0	8.0
Flash Dont Walk (s)		40.0	13.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

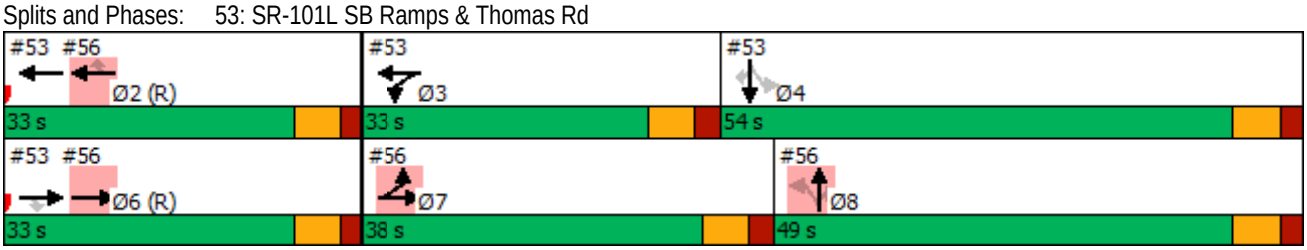
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	998	384	316	361	0	0	0	0	632	0	330
Future Volume (vph)	0	998	384	316	361	0	0	0	0	632	0	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	210		210	0		0	0		0	250		250
Storage Lanes	2		1	2		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950	0.950	
Satd. Flow (prot)	0	5085	1583	3433	3539	0	0	0	0	1681	1681	1583
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	5085	1583	3433	3539	0	0	0	0	1681	1681	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			391									359
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2400			432			1239			1211	
Travel Time (s)		36.4			6.5			18.8			18.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1085	417	343	392	0	0	0	0	687	0	359
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	1085	417	343	392	0	0	0	0	343	344	359
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		100	20	20	100					20	100	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		6		3	2 3						4	
Permitted Phases			6							4		4
Detector Phase		6	6	3	2 3					4	4	4
Switch Phase												
Minimum Initial (s)		5.0	5.0	5.0						5.0	5.0	5.0
Minimum Split (s)		30.0	30.0	30.0						56.6	56.6	56.6
Total Split (s)		33.0	33.0	33.0						54.0	54.0	54.0
Total Split (%)		27.5%	27.5%	27.5%						45.0%	45.0%	45.0%
Maximum Green (s)		26.8	26.8	26.4						47.4	47.4	47.4
Yellow Time (s)		4.3	4.3	4.3						4.3	4.3	4.3
All-Red Time (s)		1.9	1.9	2.3						2.3	2.3	2.3

Lane Group	Ø2	Ø7	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	2	7	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	56.6
Total Split (s)	33.0	38.0	49.0
Total Split (%)	28%	32%	41%
Maximum Green (s)	26.8	31.4	42.4
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.9	2.3	2.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-2.2	-2.2	-2.6						-2.6	-2.6	-2.6
Total Lost Time (s)		4.0	4.0	4.0						4.0	4.0	4.0
Lead/Lag				Lead						Lag	Lag	Lag
Lead-Lag Optimize?				Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0	3.0	3.0						3.0	3.0	3.0
Recall Mode		C-Min	C-Min	None						None	None	None
Walk Time (s)		8.0	8.0							10.0	10.0	10.0
Flash Dont Walk (s)		13.0	13.0							40.0	40.0	40.0
Pedestrian Calls (#/hr)		0	0							0	0	0
Act Effct Green (s)		38.1	38.1	21.0	63.2					48.8	48.8	48.8
Actuated g/C Ratio		0.32	0.32	0.18	0.53					0.41	0.41	0.41
v/c Ratio		0.67	0.54	0.57	0.21					0.50	0.50	0.42
Control Delay		39.4	7.8	48.9	9.5					28.9	29.0	3.7
Queue Delay		0.1	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		39.6	7.8	48.9	9.5					28.9	29.0	3.7
LOS		D	A	D	A					C	C	A
Approach Delay		30.7			27.9						20.3	
Approach LOS		C			C						C	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 81.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 53: SR-101L SB Ramps & Thomas Rd



Lane Group	Ø2	Ø7	Ø8
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Min	None	None
Walk Time (s)	8.0		10.0
Flash Dont Walk (s)	13.0		40.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

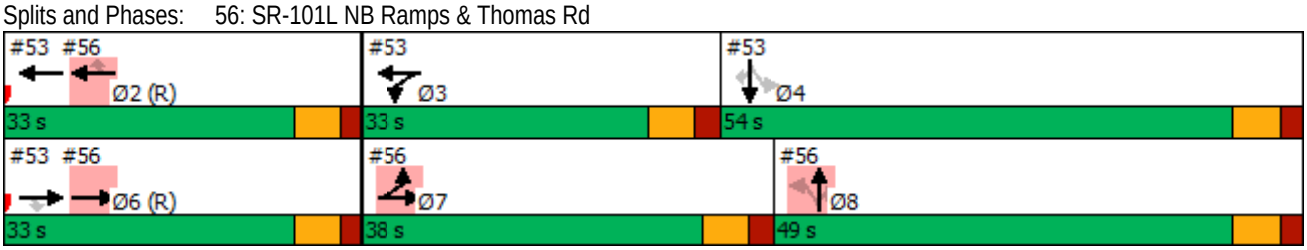
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	672	963	0	0	463	754	216	0	396	0	0	0
Future Volume (vph)	672	963	0	0	463	754	216	0	396	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	230		230	0		0
Storage Lanes	2		0	2		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.86	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950	0.950				
Satd. Flow (prot)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Flt Permitted	0.950						0.950	0.950				
Satd. Flow (perm)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						685			90			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		432			1105			1139			1188	
Travel Time (s)		9.8			25.1			25.9			27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	730	1047	0	0	503	820	235	0	430	0	0	0
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	730	1047	0	0	503	820	117	118	430	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	100			100	20	20	100	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	7	6 7			2			8				
Permitted Phases						2	8		8			
Detector Phase	7	6 7			2	2	8	8	8			
Switch Phase												
Minimum Initial (s)	5.0				5.0	5.0	5.0	5.0	5.0			
Minimum Split (s)	30.0				30.0	30.0	56.6	56.6	56.6			
Total Split (s)	38.0				33.0	33.0	49.0	49.0	49.0			
Total Split (%)	31.7%				27.5%	27.5%	40.8%	40.8%	40.8%			
Maximum Green (s)	31.4				26.8	26.8	42.4	42.4	42.4			
Yellow Time (s)	4.3				4.3	4.3	4.3	4.3	4.3			
All-Red Time (s)	2.3				1.9	1.9	2.3	2.3	2.3			

Lane Group	Ø3	Ø4	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	3	4	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	30.0	56.6	30.0
Total Split (s)	33.0	54.0	33.0
Total Split (%)	28%	45%	28%
Maximum Green (s)	26.4	47.4	26.8
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	2.3	2.3	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.6				-2.2	-2.2	-2.6	-2.6	-2.6			
Total Lost Time (s)	4.0				4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead						Lag	Lag	Lag			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Vehicle Extension (s)	3.0				3.0	3.0	3.0	3.0	3.0			
Recall Mode	None				C-Min	C-Min	None	None	None			
Walk Time (s)					8.0	8.0	10.0	10.0	10.0			
Flash Dont Walk (s)					13.0	13.0	40.0	40.0	40.0			
Pedestrian Calls (#/hr)					0	0	0	0	0			
Act Effct Green (s)	34.0	76.1			38.1	38.1	35.9	35.9	35.9			
Actuated g/C Ratio	0.28	0.63			0.32	0.32	0.30	0.30	0.30			
v/c Ratio	0.75	0.47			0.25	0.85	0.23	0.24	0.80			
Control Delay	52.1	14.6			32.2	16.8	30.8	30.9	41.4			
Queue Delay	2.3	1.2			0.0	0.0	0.0	0.0	0.0			
Total Delay	54.4	15.8			32.2	16.8	30.8	30.9	41.4			
LOS	D	B			C	B	C	C	D			
Approach Delay		31.6			22.7			37.7				
Approach LOS		C			C			D				

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 29.6	Intersection LOS: C
Intersection Capacity Utilization 81.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 56: SR-101L NB Ramps & Thomas Rd



Lane Group	Ø3	Ø4	Ø6
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	None	C-Min
Walk Time (s)		10.0	8.0
Flash Dont Walk (s)		40.0	13.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

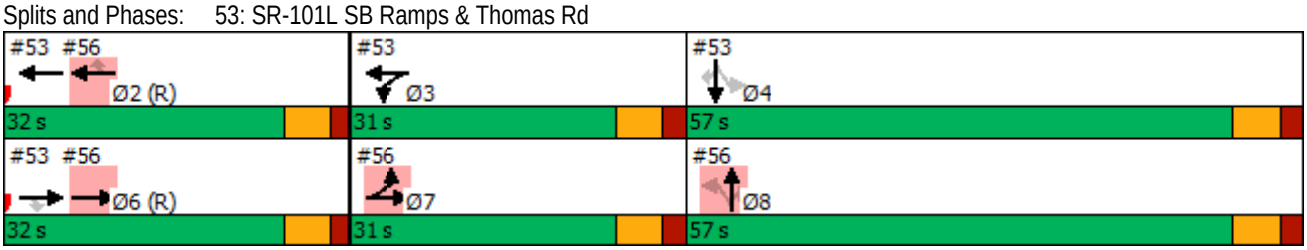
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	456	400	316	361	0	0	0	0	342	0	330
Future Volume (vph)	0	456	400	316	361	0	0	0	0	342	0	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	210		210	0		0	0		0	250		250
Storage Lanes	2		1	2		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950	0.950	
Satd. Flow (prot)	0	5085	1583	3433	3539	0	0	0	0	1681	1681	1583
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	5085	1583	3433	3539	0	0	0	0	1681	1681	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			435									359
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2400			432			1239			1211	
Travel Time (s)		36.4			6.5			18.8			18.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	496	435	343	392	0	0	0	0	372	0	359
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	496	435	343	392	0	0	0	0	186	186	359
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		100	20	20	100					20	100	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		6		3	2 3						4	
Permitted Phases			6							4		4
Detector Phase		6	6	3	2 3					4	4	4
Switch Phase												
Minimum Initial (s)		5.0	5.0	5.0						5.0	5.0	5.0
Minimum Split (s)		30.0	30.0	30.0						56.6	56.6	56.6
Total Split (s)		32.0	32.0	31.0						57.0	57.0	57.0
Total Split (%)		26.7%	26.7%	25.8%						47.5%	47.5%	47.5%
Maximum Green (s)		25.8	25.8	24.4						50.4	50.4	50.4
Yellow Time (s)		4.3	4.3	4.3						4.3	4.3	4.3
All-Red Time (s)		1.9	1.9	2.3						2.3	2.3	2.3

Lane Group	Ø2	Ø7	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	2	7	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	30.0	30.0	56.6
Total Split (s)	32.0	31.0	57.0
Total Split (%)	27%	26%	48%
Maximum Green (s)	25.8	24.4	50.4
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.9	2.3	2.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-2.2	-2.2	-2.6						-2.6	-2.6	-2.6
Total Lost Time (s)		4.0	4.0	4.0						4.0	4.0	4.0
Lead/Lag				Lead						Lag	Lag	Lag
Lead-Lag Optimize?				Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0	3.0	3.0						3.0	3.0	3.0
Recall Mode		C-Min	C-Min	None						None	None	None
Walk Time (s)		8.0	8.0							10.0	10.0	10.0
Flash Dont Walk (s)		13.0	13.0							40.0	40.0	40.0
Pedestrian Calls (#/hr)		0	0							0	0	0
Act Effct Green (s)		56.7	56.7	21.0	81.7					30.3	30.3	30.3
Actuated g/C Ratio		0.47	0.47	0.18	0.68					0.25	0.25	0.25
v/c Ratio		0.21	0.45	0.57	0.16					0.44	0.44	0.54
Control Delay		21.3	4.2	57.9	6.9					39.1	39.1	6.1
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		21.3	4.2	57.9	6.9					39.1	39.1	6.1
LOS		C	A	E	A					D	D	A
Approach Delay		13.3			30.7						22.9	
Approach LOS		B			C						C	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 21.6	Intersection LOS: C
Intersection Capacity Utilization 65.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 53: SR-101L SB Ramps & Thomas Rd



Lane Group	Ø2	Ø7	Ø8
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Min	None	None
Walk Time (s)	8.0		10.0
Flash Dont Walk (s)	13.0		40.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

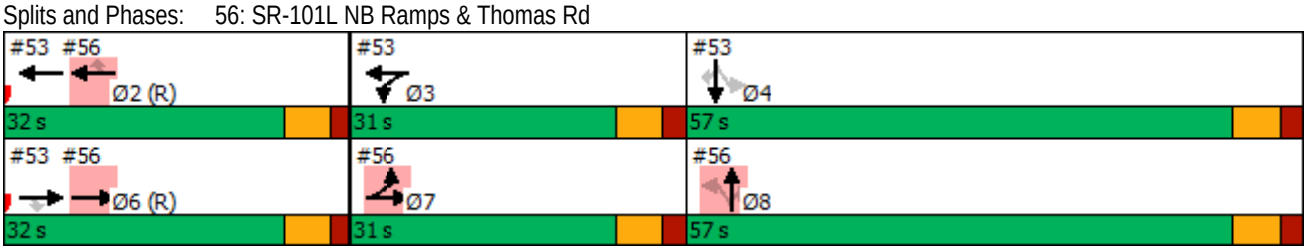
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	695	0	0	523	754	154	0	427	0	0	0
Future Volume (vph)	103	695	0	0	523	754	154	0	427	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	230		230	0		0
Storage Lanes	2		0	2		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.86	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950	0.950				
Satd. Flow (prot)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Flt Permitted	0.950						0.950	0.950				
Satd. Flow (perm)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						820			144			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		432			1105			1139			1188	
Travel Time (s)		9.8			25.1			25.9			27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	755	0	0	568	820	167	0	464	0	0	0
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	112	755	0	0	568	820	83	84	464	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	100			100	20	20	100	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	7	6 7			2			8				
Permitted Phases						2	8		8			
Detector Phase	7	6 7			2	2	8	8	8			
Switch Phase												
Minimum Initial (s)	5.0				5.0	5.0	5.0	5.0	5.0			
Minimum Split (s)	30.0				30.0	30.0	56.6	56.6	56.6			
Total Split (s)	31.0				32.0	32.0	57.0	57.0	57.0			
Total Split (%)	25.8%				26.7%	26.7%	47.5%	47.5%	47.5%			
Maximum Green (s)	24.4				25.8	25.8	50.4	50.4	50.4			
Yellow Time (s)	4.3				4.3	4.3	4.3	4.3	4.3			
All-Red Time (s)	2.3				1.9	1.9	2.3	2.3	2.3			

Lane Group	Ø3	Ø4	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	3	4	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	30.0	56.6	30.0
Total Split (s)	31.0	57.0	32.0
Total Split (%)	26%	48%	27%
Maximum Green (s)	24.4	50.4	25.8
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	2.3	2.3	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.6				-2.2	-2.2	-2.6	-2.6	-2.6			
Total Lost Time (s)	4.0				4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead						Lag	Lag	Lag			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Vehicle Extension (s)	3.0				3.0	3.0	3.0	3.0	3.0			
Recall Mode	None				C-Min	C-Min	None	None	None			
Walk Time (s)					8.0	8.0	10.0	10.0	10.0			
Flash Dont Walk (s)					13.0	13.0	40.0	40.0	40.0			
Pedestrian Calls (#/hr)					0	0	0	0	0			
Act Effct Green (s)	14.9	75.6			56.7	56.7	36.4	36.4	36.4			
Actuated g/C Ratio	0.12	0.63			0.47	0.47	0.30	0.30	0.30			
v/c Ratio	0.26	0.34			0.19	0.69	0.16	0.17	0.80			
Control Delay	53.4	11.4			20.9	5.7	28.4	28.4	35.8			
Queue Delay	0.0	0.1			0.0	0.0	0.0	0.0	0.0			
Total Delay	53.4	11.5			20.9	5.7	28.4	28.4	35.8			
LOS	D	B			C	A	C	C	D			
Approach Delay		16.9			11.9			33.8				
Approach LOS		B			B			C				

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 65.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 56: SR-101L NB Ramps & Thomas Rd



Lane Group	Ø3	Ø4	Ø6
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	None	C-Min
Walk Time (s)		10.0	8.0
Flash Dont Walk (s)		40.0	13.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

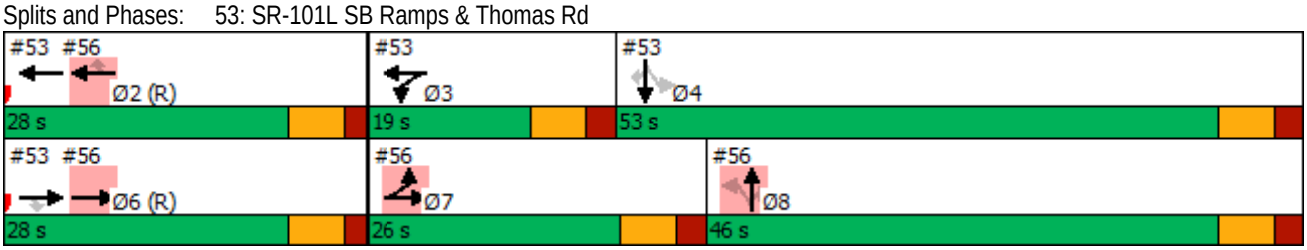
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	456	400	316	361	0	0	0	0	342	0	330
Future Volume (vph)	0	456	400	316	361	0	0	0	0	342	0	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	210		210	0		0	0		0	250		250
Storage Lanes	2		1	2		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950	0.950	
Satd. Flow (prot)	0	5085	1583	3433	3539	0	0	0	0	1681	1681	1583
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	5085	1583	3433	3539	0	0	0	0	1681	1681	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			435									335
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2400			432			1239			1211	
Travel Time (s)		36.4			6.5			18.8			18.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	496	435	343	392	0	0	0	0	372	0	359
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	496	435	343	392	0	0	0	0	186	186	359
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		100	20	20	100					20	100	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		6		3	2 3						4	
Permitted Phases			6							4		4
Detector Phase		6	6	3	2 3					4	4	4
Switch Phase												
Minimum Initial (s)		5.0	5.0	5.0						5.0	5.0	5.0
Minimum Split (s)		28.0	28.0	19.0						50.0	50.0	50.0
Total Split (s)		28.0	28.0	19.0						53.0	53.0	53.0
Total Split (%)		28.0%	28.0%	19.0%						53.0%	53.0%	53.0%
Maximum Green (s)		21.8	21.8	12.4						46.4	46.4	46.4
Yellow Time (s)		4.3	4.3	4.3						4.3	4.3	4.3
All-Red Time (s)		1.9	1.9	2.3						2.3	2.3	2.3

Lane Group	Ø2	Ø7	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	2	7	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	28.0	26.0	46.0
Total Split (s)	28.0	26.0	46.0
Total Split (%)	28%	26%	46%
Maximum Green (s)	21.8	19.4	39.4
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	1.9	2.3	2.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-2.2	-2.2	-2.6						-2.6	-2.6	-2.6
Total Lost Time (s)		4.0	4.0	4.0						4.0	4.0	4.0
Lead/Lag				Lead						Lag	Lag	Lag
Lead-Lag Optimize?				Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0	3.0	3.0						3.0	3.0	3.0
Recall Mode		C-Min	C-Min	None						None	None	None
Walk Time (s)		8.0	8.0							10.0	10.0	10.0
Flash Dont Walk (s)		13.0	13.0							30.0	30.0	30.0
Pedestrian Calls (#/hr)		0	0							0	0	0
Act Effct Green (s)		44.2	44.2	14.7	63.0					29.0	29.0	29.0
Actuated g/C Ratio		0.44	0.44	0.15	0.63					0.29	0.29	0.29
v/c Ratio		0.22	0.46	0.68	0.18					0.38	0.38	0.52
Control Delay		20.3	4.6	49.1	5.7					28.0	28.0	5.7
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		20.3	4.6	49.1	5.7					28.0	28.0	5.7
LOS		C	A	D	A					C	C	A
Approach Delay		12.9			25.9						17.0	
Approach LOS		B			C						B	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 65.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 53: SR-101L SB Ramps & Thomas Rd



Lane Group	Ø2	Ø7	Ø8
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Min	None	None
Walk Time (s)	8.0		10.0
Flash Dont Walk (s)	13.0		20.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

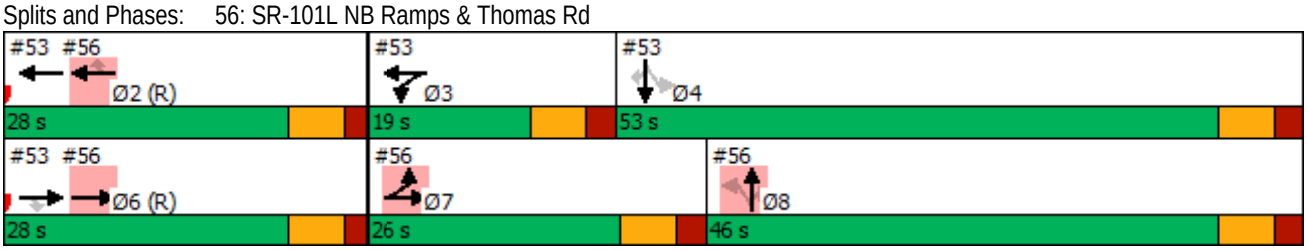
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	695	0	0	523	754	154	0	427	0	0	0
Future Volume (vph)	103	695	0	0	523	754	154	0	427	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	230		230	0		0
Storage Lanes	2		0	2		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.86	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950	0.950				
Satd. Flow (prot)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Flt Permitted	0.950						0.950	0.950				
Satd. Flow (perm)	3433	3539	0	0	6408	1583	1681	1681	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						820			179			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		432			1105			1139			1188	
Travel Time (s)		9.8			25.1			25.9			27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	755	0	0	568	820	167	0	464	0	0	0
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	112	755	0	0	568	820	83	84	464	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	100			100	20	20	100	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	7	6 7			2			8				
Permitted Phases						2	8		8			
Detector Phase	7	6 7			2	2	8	8	8			
Switch Phase												
Minimum Initial (s)	5.0				5.0	5.0	5.0	5.0	5.0			
Minimum Split (s)	26.0				28.0	28.0	46.0	46.0	46.0			
Total Split (s)	26.0				28.0	28.0	46.0	46.0	46.0			
Total Split (%)	26.0%				28.0%	28.0%	46.0%	46.0%	46.0%			
Maximum Green (s)	19.4				21.8	21.8	39.4	39.4	39.4			
Yellow Time (s)	4.3				4.3	4.3	4.3	4.3	4.3			
All-Red Time (s)	2.3				1.9	1.9	2.3	2.3	2.3			

Lane Group	Ø3	Ø4	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	3	4	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	19.0	50.0	28.0
Total Split (s)	19.0	53.0	28.0
Total Split (%)	19%	53%	28%
Maximum Green (s)	12.4	46.4	21.8
Yellow Time (s)	4.3	4.3	4.3
All-Red Time (s)	2.3	2.3	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.6				-2.2	-2.2	-2.6	-2.6	-2.6			
Total Lost Time (s)	4.0				4.0	4.0	4.0	4.0	4.0			
Lead/Lag	Lead						Lag	Lag	Lag			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Vehicle Extension (s)	3.0				3.0	3.0	3.0	3.0	3.0			
Recall Mode	None				C-Min	C-Min	None	None	None			
Walk Time (s)					8.0	8.0	10.0	10.0	10.0			
Flash Dont Walk (s)					13.0	13.0	20.0	20.0	20.0			
Pedestrian Calls (#/hr)					0	0	0	0	0			
Act Effct Green (s)	14.3	62.5			44.2	44.2	29.5	29.5	29.5			
Actuated g/C Ratio	0.14	0.62			0.44	0.44	0.30	0.30	0.30			
v/c Ratio	0.23	0.34			0.20	0.71	0.17	0.17	0.78			
Control Delay	42.3	10.4			19.8	6.2	23.8	23.9	28.0			
Queue Delay	0.0	0.1			0.0	0.0	0.0	0.0	0.0			
Total Delay	42.3	10.5			19.8	6.2	23.8	23.9	28.0			
LOS	D	B			B	A	C	C	C			
Approach Delay		14.6			11.8			26.9				
Approach LOS		B			B			C				

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 15.9	Intersection LOS: B
Intersection Capacity Utilization 65.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 56: SR-101L NB Ramps & Thomas Rd



Lane Group	Ø3	Ø4	Ø6
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	None	C-Min
Walk Time (s)		10.0	8.0
Flash Dont Walk (s)		30.0	13.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

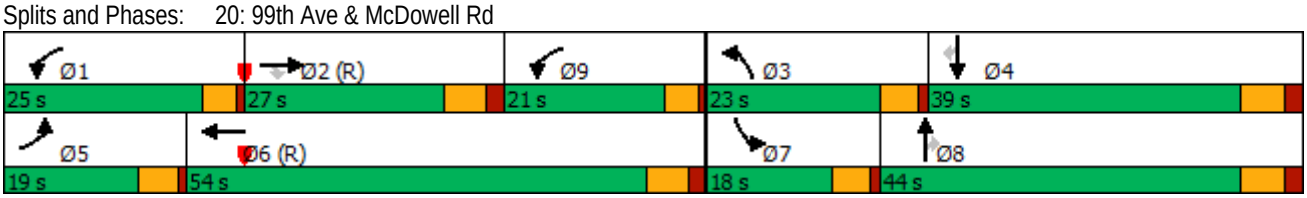
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	371	846	195	716	500	90	201	380	838	271	278	100
Future Volume (vph)	371	846	195	716	500	90	201	380	838	271	278	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	200		0	200		200	240		240
Storage Lanes	2		1	2		0	2		2	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.977				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3458	0	3433	5085	2787	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3458	0	3433	5085	2787	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			198		17				911			196
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5258			968			902			820	
Travel Time (s)		79.7			14.7			13.7			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	403	920	212	778	543	98	218	413	911	295	302	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	403	920	212	778	641	0	218	413	911	295	302	109
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	100	20	20	100		20	100	20	20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	26.4	26.4		26.4		11.0	24.6	24.6	11.0	24.6	24.6
Total Split (s)	19.0	27.0	27.0		54.0		23.0	44.0	44.0	18.0	39.0	39.0
Total Split (%)	14.1%	20.0%	20.0%		40.0%		17.0%	32.6%	32.6%	13.3%	28.9%	28.9%
Maximum Green (s)	14.0	20.6	20.6		47.6		18.0	37.4	37.4	13.0	32.4	32.4
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0

Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	9.5	9.5
Total Split (s)	25.0	21.0
Total Split (%)	19%	16%
Maximum Green (s)	20.5	16.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1.0	1.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.0	-2.4	-2.4		-2.4		-1.0	-2.6	-2.6	-1.0	-2.6	-2.6
Total Lost Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	C-Max		C-Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	30.7	23.0	23.0	53.7	50.0		14.9	24.3	24.3	14.0	23.5	23.5
Actuated g/C Ratio	0.23	0.17	0.17	0.40	0.37		0.11	0.18	0.18	0.10	0.17	0.17
v/c Ratio	0.52	1.53	0.49	0.57	0.50		0.58	0.45	0.73	0.83	0.34	0.25
Control Delay	49.5	283.6	12.2	19.2	33.5		63.0	50.3	6.5	79.1	49.8	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	283.6	12.2	19.2	33.5		63.0	50.3	6.5	79.1	49.8	1.4
LOS	D	F	B	B	C		E	D	A	E	D	A
Approach Delay		184.7			25.6			26.2			54.6	
Approach LOS		F			C			C			D	

Intersection Summary	
Area Type: Other	
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 3.5 (3%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.53	
Intersection Signal Delay: 76.7	Intersection LOS: E
Intersection Capacity Utilization 77.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 20: 99th Ave & McDowell Rd



Lane Group	Ø1	Ø9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	3.0
Recall Mode	Max	Max
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	371	846	195	716	500	90	201	380	838	271	278	100
Future Volume (vph)	371	846	195	716	500	90	201	380	838	271	278	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	200		0	200		200	240		240
Storage Lanes	2		1	2		0	2		2	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.977				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3458	0	3433	5085	2787	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3458	0	3433	5085	2787	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			213		23				758			211
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5258			968			902			820	
Travel Time (s)		79.7			14.7			13.7			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	403	920	212	778	543	98	218	413	911	295	302	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	403	920	212	778	641	0	218	413	911	295	302	109
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	100	20	20	100		20	100	20	20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	26.4	26.4		26.4		11.0	24.6	24.6	11.0	24.6	24.6
Total Split (s)	22.0	31.0	31.0		40.0		13.0	25.0	25.0	13.0	25.0	25.0
Total Split (%)	22.0%	31.0%	31.0%		40.0%		13.0%	25.0%	25.0%	13.0%	25.0%	25.0%
Maximum Green (s)	17.0	24.6	24.6		33.6		8.0	18.4	18.4	8.0	18.4	18.4
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0

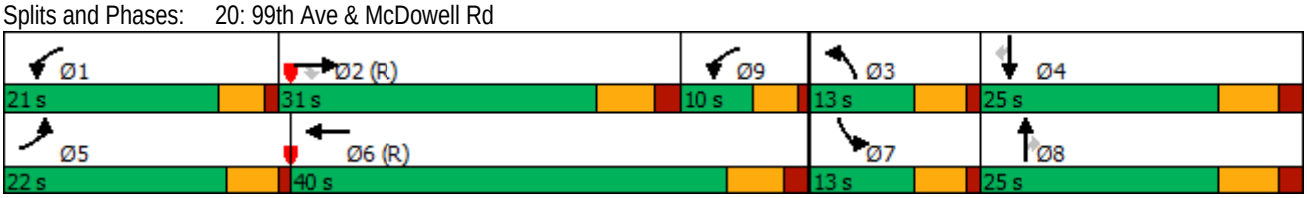
Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	9.5	9.5
Total Split (s)	21.0	10.0
Total Split (%)	21%	10%
Maximum Green (s)	16.5	5.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1.0	1.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.0	-2.4	-2.4		-2.4		-1.0	-2.6	-2.6	-1.0	-2.6	-2.6
Total Lost Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	C-Max		C-Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	19.2	27.0	27.0	24.2	36.0		9.0	19.8	19.8	9.0	19.8	19.8
Actuated g/C Ratio	0.19	0.27	0.27	0.24	0.36		0.09	0.20	0.20	0.09	0.20	0.20
v/c Ratio	0.61	0.96	0.36	0.94	0.51		0.71	0.41	0.79	0.96	0.30	0.23
Control Delay	41.9	58.4	6.0	47.0	25.8		57.7	36.1	12.1	88.2	34.8	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	58.4	6.0	47.0	25.8		57.7	36.1	12.1	88.2	34.8	1.1
LOS	D	E	A	D	C		E	D	B	F	C	A
Approach Delay		46.8			37.4			25.0			51.9	
Approach LOS		D			D			C			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 38.5 Intersection LOS: D
Intersection Capacity Utilization 77.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 20: 99th Ave & McDowell Rd



Lane Group	Ø1	Ø9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	3.0
Recall Mode	Max	Max
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

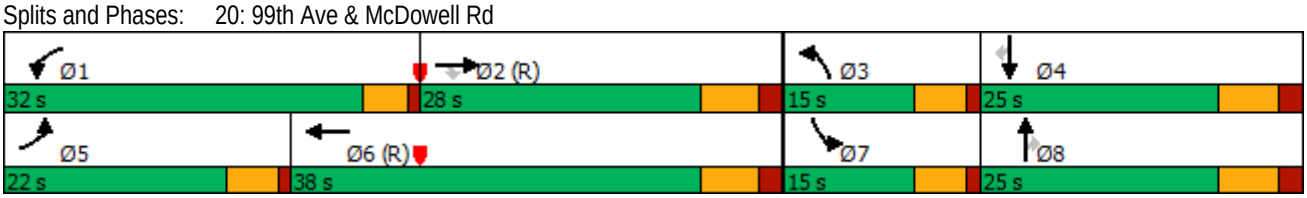
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	371	846	195	716	500	90	201	380	838	271	278	100
Future Volume (vph)	371	846	195	716	500	90	201	380	838	271	278	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	200		0	200		200	240		240
Storage Lanes	2		1	2		0	2		2	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	0.91	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.977				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	3433	4968	0	3433	5085	2787	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5085	1583	3433	4968	0	3433	5085	2787	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			212		39				812			195
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5258			968			902			820	
Travel Time (s)		79.7			14.7			13.7			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	403	920	212	778	543	98	218	413	911	295	302	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	403	920	212	778	641	0	218	413	911	295	302	109
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	100	20	20	100		20	100	20	20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	5.0	20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	26.4	26.4	9.5	26.4		11.0	24.6	24.6	11.0	24.6	24.6
Total Split (s)	22.0	28.0	28.0	32.0	38.0		15.0	25.0	25.0	15.0	25.0	25.0
Total Split (%)	22.0%	28.0%	28.0%	32.0%	38.0%		15.0%	25.0%	25.0%	15.0%	25.0%	25.0%
Maximum Green (s)	17.0	21.6	21.6	27.5	31.6		10.0	18.4	18.4	10.0	18.4	18.4
Yellow Time (s)	4.0	4.4	4.4	3.5	4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.0	-2.4	-2.4	-0.5	-2.4		-1.0	-2.6	-2.6	-1.0	-2.6	-2.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	C-Max	Max	C-Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	19.2	24.0	24.0	29.2	34.0		10.7	19.8	19.8	11.0	20.1	20.1
Actuated g/C Ratio	0.19	0.24	0.24	0.29	0.34		0.11	0.20	0.20	0.11	0.20	0.20
v/c Ratio	0.61	0.75	0.39	0.78	0.37		0.60	0.41	0.76	0.78	0.30	0.23
Control Delay	41.9	39.9	6.7	39.1	24.1		49.8	36.1	9.4	58.9	34.6	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	39.9	6.7	39.1	24.1		49.8	36.1	9.4	58.9	34.6	1.1
LOS	D	D	A	D	C		D	D	A	E	C	A
Approach Delay		35.8			32.3			22.3			39.6	
Approach LOS		D			C			C			D	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 91 (91%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 31.4	Intersection LOS: C
Intersection Capacity Utilization 70.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 20: 99th Ave & McDowell Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	692	241	649	1352	169	382	722	730	298	642	154
Future Volume (vph)	170	692	241	649	1352	169	382	722	730	298	642	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	200		0	200		200	240		240
Storage Lanes	2		1	2		0	2		2	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3479	0	3433	5085	2787	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3479	0	3433	5085	2787	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			215		11				793			196
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5258			968			902			820	
Travel Time (s)		79.7			14.7			13.7			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	752	262	705	1470	184	415	785	793	324	698	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	185	752	262	705	1654	0	415	785	793	324	698	167
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	100	20	20	100		20	100	20	20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1 9	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1 9	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0		20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	26.4	26.4		26.4		11.0	24.6	24.6	11.0	24.6	24.6
Total Split (s)	19.0	27.0	27.0		54.0		23.0	44.0	44.0	18.0	39.0	39.0
Total Split (%)	14.1%	20.0%	20.0%		40.0%		17.0%	32.6%	32.6%	13.3%	28.9%	28.9%
Maximum Green (s)	14.0	20.6	20.6		47.6		18.0	37.4	37.4	13.0	32.4	32.4
Yellow Time (s)	4.0	4.4	4.4		4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0		2.0		1.0	2.0	2.0	1.0	2.0	2.0

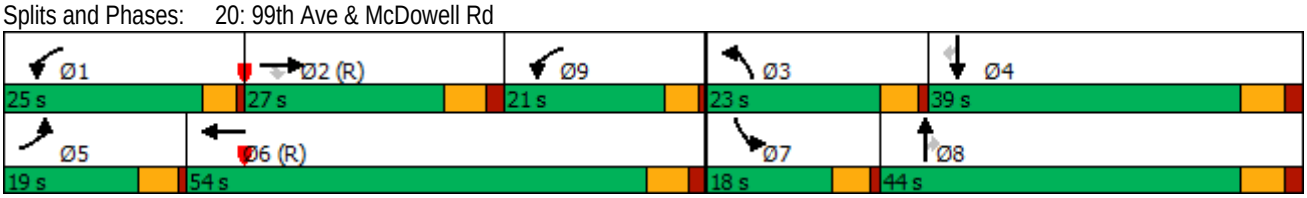
Lane Group	Ø1	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	1	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	9.5	9.5
Total Split (s)	25.0	21.0
Total Split (%)	19%	16%
Maximum Green (s)	20.5	16.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1.0	1.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.0	-2.4	-2.4		-2.4		-1.0	-2.6	-2.6	-1.0	-2.6	-2.6
Total Lost Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	C-Max		C-Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	19.6	23.0	23.0	42.6	50.0		18.8	35.4	35.4	14.0	30.6	30.6
Actuated g/C Ratio	0.15	0.17	0.17	0.32	0.37		0.14	0.26	0.26	0.10	0.23	0.23
v/c Ratio	0.37	1.25	0.58	0.65	1.28		0.87	0.59	0.60	0.91	0.61	0.33
Control Delay	55.9	170.9	16.9	26.3	166.9		75.9	45.0	4.5	89.3	48.8	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	170.9	16.9	26.3	166.9		75.9	45.0	4.5	89.3	48.8	4.6
LOS	E	F	B	C	F		E	D	A	F	D	A
Approach Delay		119.5			124.8			35.3			53.6	
Approach LOS		F			F			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 3.5 (3%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.28
Intersection Signal Delay: 84.9 Intersection LOS: F
Intersection Capacity Utilization 84.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 20: 99th Ave & McDowell Rd



Lane Group	Ø1	Ø9
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	3.0
Recall Mode	Max	Max
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	692	241	649	1352	169	382	722	730	298	642	154
Future Volume (vph)	170	692	241	649	1352	169	382	722	730	298	642	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	200		0	200		200	240		240
Storage Lanes	2		1	2		0	2		2	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3479	0	3433	5085	2787	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3479	0	3433	5085	2787	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			262		17				686			195
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5258			968			902			820	
Travel Time (s)		79.7			14.7			13.7			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	752	262	705	1470	184	415	785	793	324	698	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	185	752	262	705	1654	0	415	785	793	324	698	167
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	100	20	20	100		20	100	20	20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	5.0	20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	26.4	26.4	9.5	26.4		11.0	24.6	24.6	11.0	24.6	24.6
Total Split (s)	13.0	31.0	31.0	28.0	46.0		16.0	25.0	25.0	16.0	25.0	25.0
Total Split (%)	13.0%	31.0%	31.0%	28.0%	46.0%		16.0%	25.0%	25.0%	16.0%	25.0%	25.0%
Maximum Green (s)	8.0	24.6	24.6	23.5	39.6		11.0	18.4	18.4	11.0	18.4	18.4
Yellow Time (s)	4.0	4.4	4.4	3.5	4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.0	-2.4	-2.4	-0.5	-2.4		-1.0	-2.6	-2.6	-1.0	-2.6	-2.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	C-Max	Max	C-Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	9.0	27.0	27.0	24.0	42.0		12.0	21.0	21.0	12.0	21.0	21.0
Actuated g/C Ratio	0.09	0.27	0.27	0.24	0.42		0.12	0.21	0.21	0.12	0.21	0.21
v/c Ratio	0.60	0.79	0.42	0.86	1.12		1.01	0.74	0.70	0.79	0.65	0.34
Control Delay	52.5	40.8	6.0	48.1	94.2		91.8	41.7	9.4	57.6	39.5	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	40.8	6.0	48.1	94.2		91.8	41.7	9.4	57.6	39.5	5.2
LOS	D	D	A	D	F		F	D	A	E	D	A
Approach Delay		35.0			80.4			39.3			39.7	
Approach LOS		D			F			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 53.0 Intersection LOS: D
Intersection Capacity Utilization 84.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 20: 99th Ave & McDowell Rd

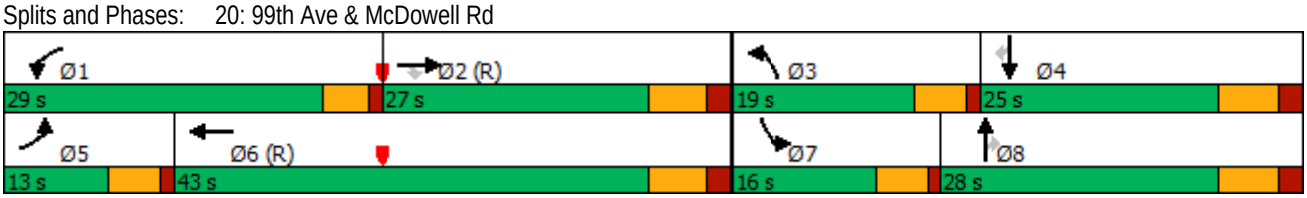
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	692	241	649	1352	169	382	722	730	298	642	154
Future Volume (vph)	170	692	241	649	1352	169	382	722	730	298	642	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	200		0	200		240	240		240
Storage Lanes	2		1	2		0	2		2	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	0.91	0.97	0.91	0.88	0.97	0.91	1.00
Frt			0.850		0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	3433	4999	0	3433	5085	2787	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5085	1583	3433	4999	0	3433	5085	2787	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			259		26				752			195
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		5258			968			902			820	
Travel Time (s)		79.7			14.7			13.7			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	752	262	705	1470	184	415	785	793	324	698	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	185	752	262	705	1654	0	415	785	793	324	698	167
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	100	20	20	100		20	100	20	20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	5.0	20.0		6.0	15.0	15.0	6.0	15.0	15.0
Minimum Split (s)	11.0	26.4	26.4	9.5	26.4		11.0	24.6	24.6	11.0	24.6	24.6
Total Split (s)	13.0	27.0	27.0	29.0	43.0		19.0	28.0	28.0	16.0	25.0	25.0
Total Split (%)	13.0%	27.0%	27.0%	29.0%	43.0%		19.0%	28.0%	28.0%	16.0%	25.0%	25.0%
Maximum Green (s)	8.0	20.6	20.6	24.5	36.6		14.0	21.4	21.4	11.0	18.4	18.4
Yellow Time (s)	4.0	4.4	4.4	3.5	4.4		4.0	4.6	4.6	4.0	4.6	4.6
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.0	-2.4	-2.4	-0.5	-2.4		-1.0	-2.6	-2.6	-1.0	-2.6	-2.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	C-Max	Max	C-Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	9.3	23.0	23.0	25.3	39.0		14.8	23.7	23.7	12.0	20.9	20.9
Actuated g/C Ratio	0.09	0.23	0.23	0.25	0.39		0.15	0.24	0.24	0.12	0.21	0.21
v/c Ratio	0.58	0.64	0.47	0.81	0.84		0.82	0.65	0.64	0.79	0.66	0.35
Control Delay	51.5	37.8	7.3	43.9	32.1		55.3	37.3	6.0	57.6	39.7	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	37.8	7.3	43.9	32.1		55.3	37.3	6.0	57.6	39.7	5.2
LOS	D	D	A	D	C		E	D	A	E	D	A
Approach Delay		33.2			35.7			28.6			39.7	
Approach LOS		C			D			C			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 71.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 20: 99th Ave & McDowell Rd

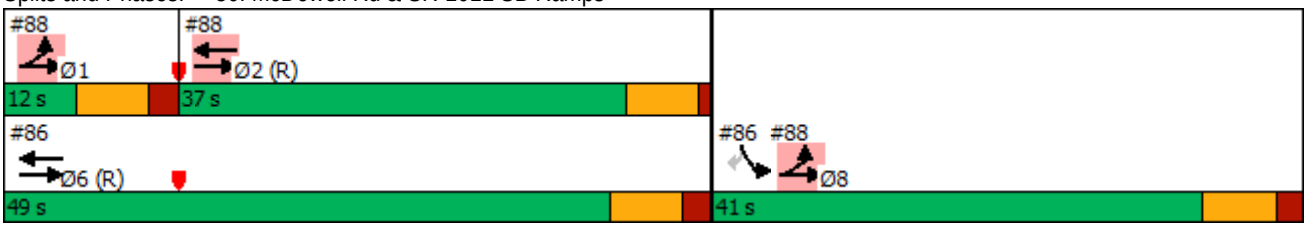


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1936	716	0	370	512		
Future Volume (vph)	0	1936	716	0	370	512		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	260			0	0	400		
Storage Lanes	2			0	1	2		
Taper Length (ft)	25				25			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6408	3539	0	1770	2787		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6408	3539	0	1770	2787		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						247		
Link Speed (mph)		45	45		45			
Link Distance (ft)		968	471		848			
Travel Time (s)		14.7	7.1		12.8			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	2104	778	0	402	557		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	2104	778	0	402	557		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Right	Left	Right		
Median Width(ft)		0	0		12			
Link Offset(ft)		0	0		0			
Crosswalk Width(ft)		16	16		16			
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15			9	15	9		
Number of Detectors		1	1		1	1		
Detector Template		Thru	Thru		Left	Right		
Leading Detector (ft)		100	100		20	20		
Trailing Detector (ft)		0	0		0	0		
Detector 1 Position(ft)		0	0		0	0		
Detector 1 Size(ft)		100	100		20	20		
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)		0.0	0.0		0.0	0.0		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		49.0	49.0		41.0	41.0	12.0	37.0
Total Split (%)		54.4%	54.4%		45.6%	45.6%	13%	41%
Maximum Green (s)		42.0	42.0		34.0	34.0	5.0	31.0
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	1.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lost Time Adjust (s)		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)		4.0	4.0		4.0	4.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?							Yes	Yes
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min	C-Min		None	None	Max	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0		0	0		0
Act Effct Green (s)		45.0	45.0		37.0	37.0		
Actuated g/C Ratio		0.50	0.50		0.41	0.41		
v/c Ratio		0.66	0.44		0.55	0.43		
Control Delay		18.0	9.1		23.8	11.2		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		18.0	9.1		23.8	11.2		
LOS		B	A		C	B		
Approach Delay		18.0	9.1		16.5			
Approach LOS		B	A		B			

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 86: McDowell Rd & SR-101L SB Ramps

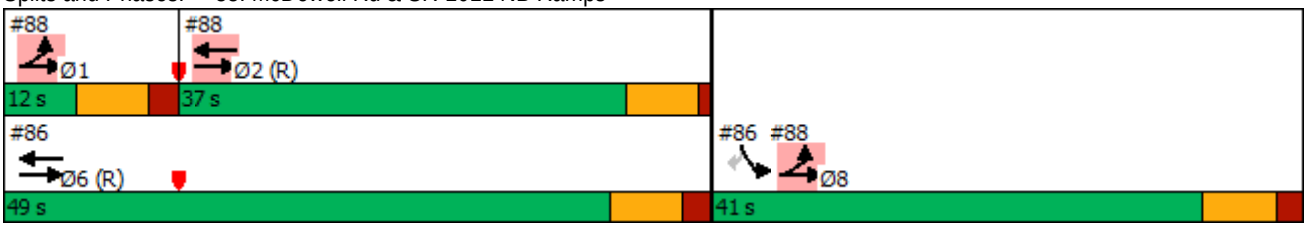


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	930	1361	716	599	0	0			
Future Volume (vph)	930	1361	716	599	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.932						
Flt Protected	0.950								
Satd. Flow (prot)	3433	3539	3299	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3433	3539	3299	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			93						
Link Speed (mph)		45	45		45				
Link Distance (ft)		471	3835		829				
Travel Time (s)		7.1	58.1		12.6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	1011	1479	778	651	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	1011	1479	1429	0	0	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		24	24		0				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Turning Speed (mph)	15			9	15	9			
Number of Detectors	1	1	1						
Detector Template	Left	Thru	Thru						
Leading Detector (ft)	20	100	100						
Trailing Detector (ft)	0	0	0						
Detector 1 Position(ft)	0	0	0						
Detector 1 Size(ft)	20	100	100						
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex						
Detector 1 Channel									
Detector 1 Extend (s)	0.0	0.0	0.0						
Detector 1 Queue (s)	0.0	0.0	0.0						
Detector 1 Delay (s)	0.0	0.0	0.0						
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			37.0				12.0	49.0	41.0
Total Split (%)			41.1%				13%	54%	46%
Maximum Green (s)			31.0				5.0	42.0	34.0
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			1.0				2.0	2.0	2.0
Lost Time Adjust (s)			-2.0						
Total Lost Time (s)			4.0						
Lead/Lag			Lag				Lead		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lead-Lag Optimize?			Yes				Yes		
Vehicle Extension (s)			3.0				3.0	3.0	3.0
Recall Mode			C-Min				Max	C-Min	None
Walk Time (s)			7.0					7.0	7.0
Flash Dont Walk (s)			11.0					11.0	11.0
Pedestrian Calls (#/hr)			0					0	0
Act Effct Green (s)	49.0	90.0	33.0						
Actuated g/C Ratio	0.54	1.00	0.37						
v/c Ratio	0.54	0.42	1.13						
Control Delay	30.9	0.9	94.9						
Queue Delay	1.0	0.0	0.0						
Total Delay	31.8	0.9	94.9						
LOS	C	A	F						
Approach Delay		13.4	94.9						
Approach LOS		B	F						

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 43.1	Intersection LOS: D
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 88: McDowell Rd & SR-101L NB Ramps

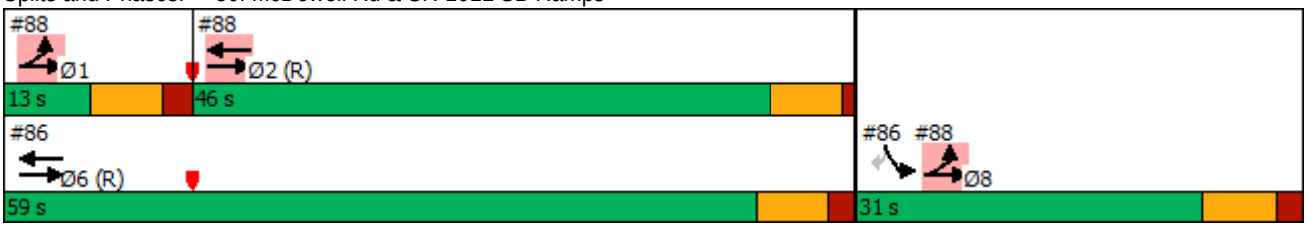


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1936	716	0	370	512		
Future Volume (vph)	0	1936	716	0	370	512		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	260			0	0	400		
Storage Lanes	2			0	1	2		
Taper Length (ft)	25				25			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6408	3539	0	1770	2787		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6408	3539	0	1770	2787		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						363		
Link Speed (mph)		45	45		45			
Link Distance (ft)		968	471		848			
Travel Time (s)		14.7	7.1		12.8			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	2104	778	0	402	557		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	2104	778	0	402	557		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Right	Left	Right		
Median Width(ft)		0	0		12			
Link Offset(ft)		0	0		0			
Crosswalk Width(ft)		16	16		16			
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15			9	15	9		
Number of Detectors		1	1		1	1		
Detector Template		Thru	Thru		Left	Right		
Leading Detector (ft)		100	100		20	20		
Trailing Detector (ft)		0	0		0	0		
Detector 1 Position(ft)		0	0		0	0		
Detector 1 Size(ft)		100	100		20	20		
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)		0.0	0.0		0.0	0.0		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		59.0	59.0		31.0	31.0	13.0	46.0
Total Split (%)		65.6%	65.6%		34.4%	34.4%	14%	51%
Maximum Green (s)		52.0	52.0		24.0	24.0	6.0	40.0
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	1.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lost Time Adjust (s)		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)		4.0	4.0		4.0	4.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?							Yes	Yes
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min	C-Min		None	None	Max	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0		0	0		0
Act Effct Green (s)		55.0	55.0		27.0	27.0		
Actuated g/C Ratio		0.61	0.61		0.30	0.30		
v/c Ratio		0.54	0.36		0.76	0.51		
Control Delay		10.8	4.4		39.3	10.4		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		10.8	4.4		39.3	10.4		
LOS		B	A		D	B		
Approach Delay		10.8	4.4		22.5			
Approach LOS		B	A		C			

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 86: McDowell Rd & SR-101L SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	930	1361	716	599	0	0			
Future Volume (vph)	930	1361	716	599	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.932						
Flt Protected	0.950								
Satd. Flow (prot)	3433	3539	3299	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3433	3539	3299	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			52						
Link Speed (mph)		45	45		45				
Link Distance (ft)		471	3835		829				
Travel Time (s)		7.1	58.1		12.6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	1011	1479	778	651	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	1011	1479	1429	0	0	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		24	24		0				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Turning Speed (mph)	15			9	15	9			
Number of Detectors	1	1	1						
Detector Template	Left	Thru	Thru						
Leading Detector (ft)	20	100	100						
Trailing Detector (ft)	0	0	0						
Detector 1 Position(ft)	0	0	0						
Detector 1 Size(ft)	20	100	100						
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex						
Detector 1 Channel									
Detector 1 Extend (s)	0.0	0.0	0.0						
Detector 1 Queue (s)	0.0	0.0	0.0						
Detector 1 Delay (s)	0.0	0.0	0.0						
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			46.0				13.0	59.0	31.0
Total Split (%)			51.1%				14%	66%	34%
Maximum Green (s)			40.0				6.0	52.0	24.0
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			1.0				2.0	2.0	2.0
Lost Time Adjust (s)			-2.0						
Total Lost Time (s)			4.0						
Lead/Lag			Lag				Lead		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lead-Lag Optimize?			Yes				Yes		
Vehicle Extension (s)			3.0				3.0	3.0	3.0
Recall Mode			C-Min				Max	C-Min	None
Walk Time (s)			7.0					7.0	7.0
Flash Dont Walk (s)			11.0					11.0	11.0
Pedestrian Calls (#/hr)			0					0	0
Act Effct Green (s)	40.0	90.0	42.0						
Actuated g/C Ratio	0.44	1.00	0.47						
v/c Ratio	0.66	0.42	0.91						
Control Delay	35.2	0.7	31.9						
Queue Delay	0.9	0.0	0.0						
Total Delay	36.1	0.7	31.9						
LOS	D	A	C						
Approach Delay		15.0	31.9						
Approach LOS		B	C						

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 21.2	Intersection LOS: C
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

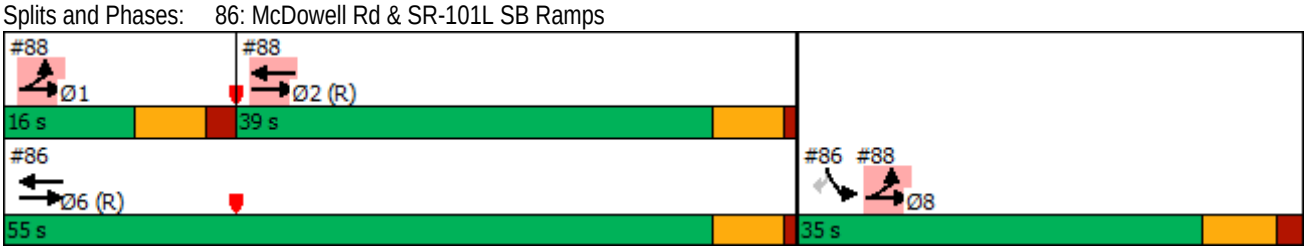
Splits and Phases: 88: McDowell Rd & SR-101L NB Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1936	716	0	370	512		
Future Volume (vph)	0	1936	716	0	370	512		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	260			0	0	400		
Storage Lanes	2			0	1	2		
Taper Length (ft)	25				25			
Lane Util. Factor	1.00	0.81	0.91	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	7544	5085	0	1770	2787		
Flt Permitted					0.950			
Satd. Flow (perm)	0	7544	5085	0	1770	2787		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						329		
Link Speed (mph)		45	45		45			
Link Distance (ft)		968	471		848			
Travel Time (s)		14.7	7.1		12.8			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	2104	778	0	402	557		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	2104	778	0	402	557		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Right	Left	Right		
Median Width(ft)		0	0		12			
Link Offset(ft)		0	0		0			
Crosswalk Width(ft)		16	16		16			
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15			9	15	9		
Number of Detectors		1	1		1	1		
Detector Template		Thru	Thru		Left	Right		
Leading Detector (ft)		100	100		20	20		
Trailing Detector (ft)		0	0		0	0		
Detector 1 Position(ft)		0	0		0	0		
Detector 1 Size(ft)		100	100		20	20		
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)		0.0	0.0		0.0	0.0		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		55.0	55.0		35.0	35.0	16.0	39.0
Total Split (%)		61.1%	61.1%		38.9%	38.9%	18%	43%
Maximum Green (s)		49.0	49.0		28.0	28.0	9.0	33.0
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		1.0	1.0		2.0	2.0	2.0	1.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lost Time Adjust (s)		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)		3.0	3.0		4.0	4.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?							Yes	Yes
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min	C-Min		None	None	Max	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0		0	0		0
Act Effct Green (s)		52.0	52.0		31.0	31.0		
Actuated g/C Ratio		0.58	0.58		0.34	0.34		
v/c Ratio		0.48	0.26		0.66	0.47		
Control Delay		11.6	3.1		31.3	10.4		
Queue Delay		0.0	0.0		0.0	0.0		
Total Delay		11.6	3.1		31.3	10.4		
LOS		B	A		C	B		
Approach Delay		11.6	3.1		19.2			
Approach LOS		B	A		B			

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 11.8	Intersection LOS: B
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 86: McDowell Rd & SR-101L SB Ramps

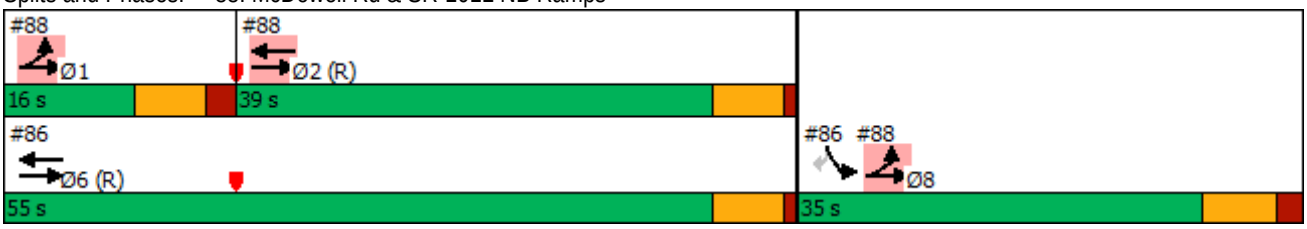


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	930	1361	716	599	0	0			
Future Volume (vph)	930	1361	716	599	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.97	0.91	0.91	0.91	1.00	1.00			
Frt			0.932						
Flt Protected	0.950								
Satd. Flow (prot)	3433	5085	4739	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3433	5085	4739	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			83						
Link Speed (mph)		45	45		45				
Link Distance (ft)		471	3835		829				
Travel Time (s)		7.1	58.1		12.6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	1011	1479	778	651	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	1011	1479	1429	0	0	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		24	24		0				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Turning Speed (mph)	15			9	15	9			
Number of Detectors	1	1	1						
Detector Template	Left	Thru	Thru						
Leading Detector (ft)	20	100	100						
Trailing Detector (ft)	0	0	0						
Detector 1 Position(ft)	0	0	0						
Detector 1 Size(ft)	20	100	100						
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex						
Detector 1 Channel									
Detector 1 Extend (s)	0.0	0.0	0.0						
Detector 1 Queue (s)	0.0	0.0	0.0						
Detector 1 Delay (s)	0.0	0.0	0.0						
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			39.0				16.0	55.0	35.0
Total Split (%)			43.3%				18%	61%	39%
Maximum Green (s)			33.0				9.0	49.0	28.0
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			1.0				2.0	1.0	2.0
Lost Time Adjust (s)			-2.0						
Total Lost Time (s)			4.0						
Lead/Lag			Lag				Lead		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lead-Lag Optimize?			Yes				Yes		
Vehicle Extension (s)			3.0				3.0	3.0	3.0
Recall Mode			C-Min				Max	C-Min	None
Walk Time (s)			7.0					7.0	7.0
Flash Dont Walk (s)			11.0					11.0	11.0
Pedestrian Calls (#/hr)			0					0	0
Act Effct Green (s)	47.0	90.0	35.0						
Actuated g/C Ratio	0.52	1.00	0.39						
v/c Ratio	0.56	0.29	0.96dr						
Control Delay	25.5	0.1	25.4						
Queue Delay	0.6	0.0	0.0						
Total Delay	26.1	0.1	25.4						
LOS	C	A	C						
Approach Delay		10.7	25.4						
Approach LOS		B	C						

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	
dr Defacto Right Lane. Recode with 1 though lane as a right lane.	

Splits and Phases: 88: McDowell Rd & SR-101L NB Ramps

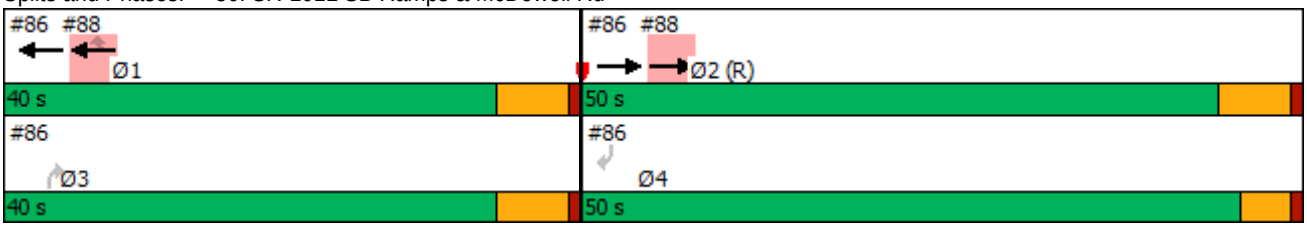


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1936	0	0	716	0	0	0	370	0	0	512
Future Volume (vph)	0	1936	0	0	716	0	0	0	370	0	0	512
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.86	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frt									0.865			0.850
Flt Protected												
Satd. Flow (prot)	0	6408	0	0	3539	0	0	0	1611	0	0	2787
Flt Permitted												
Satd. Flow (perm)	0	6408	0	0	3539	0	0	0	1611	0	0	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									36			155
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		968			471			258			848	
Travel Time (s)		14.7			7.1			5.9			12.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2104	0	0	778	0	0	0	402	0	0	557
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2104	0	0	778	0	0	0	402	0	0	557
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1			1				1			1
Detector Template		Thru			Thru				Right			Right
Leading Detector (ft)		100			100				20			20
Trailing Detector (ft)		0			0				0			0
Detector 1 Position(ft)		0			0				0			0
Detector 1 Size(ft)		100			100				20			20
Detector 1 Type		Cl+Ex			Cl+Ex				Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0				0.0			0.0
Detector 1 Queue (s)		0.0			0.0				0.0			0.0
Detector 1 Delay (s)		0.0			0.0				0.0			0.0
Turn Type		NA			NA				Perm			Perm
Protected Phases		2			1							
Permitted Phases									3			4
Detector Phase		2			1				3			4
Switch Phase												
Minimum Initial (s)		15.0			15.0				15.0			5.0
Minimum Split (s)		35.0			35.0				35.0			22.5
Total Split (s)		50.0			40.0				40.0			50.0
Total Split (%)		55.6%			44.4%				44.4%			55.6%
Maximum Green (s)		44.0			34.0				34.0			45.5
Yellow Time (s)		5.0			5.0				5.0			3.5
All-Red Time (s)		1.0			1.0				1.0			1.0
Lost Time Adjust (s)		-3.0			-3.0				0.0			-3.0
Total Lost Time (s)		3.0			3.0				6.0			1.5
Lead/Lag												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0				3.0			3.0
Recall Mode		C-Min			Min				Min			None
Walk Time (s)		7.0			7.0				7.0			7.0
Flash Dont Walk (s)		11.0			11.0				11.0			11.0
Pedestrian Calls (#/hr)		0			0				0			0
Act Effct Green (s)		48.6			35.4				32.4			50.1
Actuated g/C Ratio		0.54			0.39				0.36			0.56
v/c Ratio		0.61			0.56				0.67			0.34
Control Delay		15.5			4.9				27.8			8.6
Queue Delay		0.0			0.0				0.0			0.0
Total Delay		15.5			4.9				27.8			8.6
LOS		B			A				C			A
Approach Delay		15.5			4.9			27.8			8.6	
Approach LOS		B			A			C			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 13.6	Intersection LOS: B
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 86: SR-101L SB Ramps & McDowell Rd

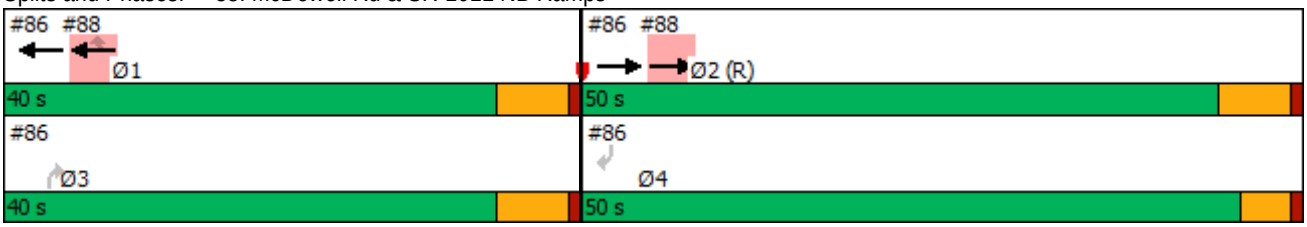


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3	Ø4
Lane Configurations								
Traffic Volume (vph)	0	2291	716	599	0	0		
Future Volume (vph)	0	2291	716	599	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	1.00		
Frt				0.850				
Flt Protected								
Satd. Flow (prot)	0	6408	3539	1583	0	0		
Flt Permitted								
Satd. Flow (perm)	0	6408	3539	1583	0	0		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)				651				
Link Speed (mph)		45	45		45			
Link Distance (ft)		471	3835		829			
Travel Time (s)		7.1	58.1		12.6			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	2490	778	651	0	0		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	2490	778	651	0	0		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Right	Left	Right		
Median Width(ft)		0	0		0			
Link Offset(ft)		0	0		0			
Crosswalk Width(ft)		16	16		16			
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15			9	15	9		
Number of Detectors		1	1	1				
Detector Template		Thru	Thru	Right				
Leading Detector (ft)		100	100	20				
Trailing Detector (ft)		0	0	0				
Detector 1 Position(ft)		0	0	0				
Detector 1 Size(ft)		100	100	20				
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex				
Detector 1 Channel								
Detector 1 Extend (s)		0.0	0.0	0.0				
Detector 1 Queue (s)		0.0	0.0	0.0				
Detector 1 Delay (s)		0.0	0.0	0.0				
Turn Type		NA	NA	Perm				
Protected Phases		2	1				3	4
Permitted Phases				1				
Detector Phase		2	1	1				
Switch Phase								
Minimum Initial (s)		15.0	15.0	15.0			15.0	5.0
Minimum Split (s)		35.0	35.0	35.0			35.0	22.5
Total Split (s)		50.0	40.0	40.0			40.0	50.0
Total Split (%)		55.6%	44.4%	44.4%			44%	56%
Maximum Green (s)		44.0	34.0	34.0			34.0	45.5
Yellow Time (s)		5.0	5.0	5.0			5.0	3.5
All-Red Time (s)		1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)		-3.0	-2.0	0.0				
Total Lost Time (s)		3.0	4.0	6.0				
Lead/Lag								

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3	Ø4
Lead-Lag Optimize?								
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0
Recall Mode		C-Min	Min	Min			Min	None
Walk Time (s)		7.0	7.0	7.0			7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0	0			0	0
Act Effct Green (s)		48.6	34.4	32.4				
Actuated g/C Ratio		0.54	0.38	0.36				
v/c Ratio		0.72	0.58	0.66				
Control Delay		8.0	23.7	5.4				
Queue Delay		0.0	0.0	0.0				
Total Delay		8.0	23.7	5.4				
LOS		A	C	A				
Approach Delay		8.0	15.3					
Approach LOS		A	B					

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 10.7	Intersection LOS: B
Intersection Capacity Utilization 42.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 88: McDowell Rd & SR-101L NB Ramps

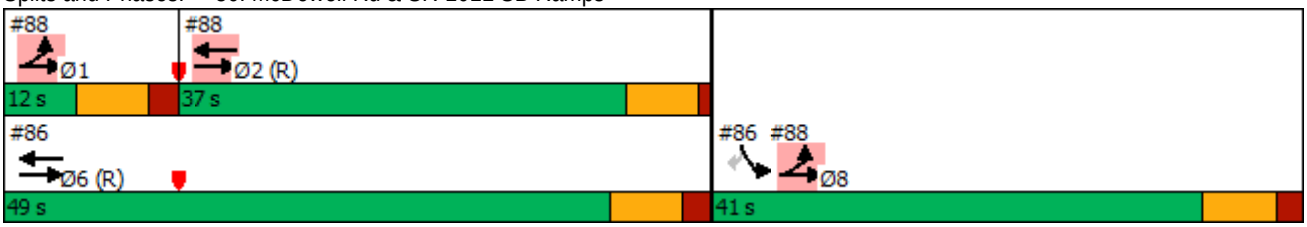


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1612	854	0	142	1315		
Future Volume (vph)	0	1612	854	0	142	1315		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	260			0	0	400		
Storage Lanes	2			0	1	2		
Taper Length (ft)	25				25			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6408	3539	0	1770	2787		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6408	3539	0	1770	2787		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						163		
Link Speed (mph)		45	45		45			
Link Distance (ft)		968	471		848			
Travel Time (s)		14.7	7.1		12.8			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1752	928	0	154	1429		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1752	928	0	154	1429		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Right	Left	Right		
Median Width(ft)		0	0		12			
Link Offset(ft)		0	0		0			
Crosswalk Width(ft)		16	16		16			
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15			9	15	9		
Number of Detectors		1	1		1	1		
Detector Template		Thru	Thru		Left	Right		
Leading Detector (ft)		100	100		20	20		
Trailing Detector (ft)		0	0		0	0		
Detector 1 Position(ft)		0	0		0	0		
Detector 1 Size(ft)		100	100		20	20		
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)		0.0	0.0		0.0	0.0		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		49.0	49.0		41.0	41.0	12.0	37.0
Total Split (%)		54.4%	54.4%		45.6%	45.6%	13%	41%
Maximum Green (s)		42.0	42.0		34.0	34.0	5.0	31.0
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	1.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lost Time Adjust (s)		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)		4.0	4.0		4.0	4.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?							Yes	Yes
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min	C-Min		None	None	Max	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0		0	0		0
Act Effct Green (s)		45.0	45.0		37.0	37.0		
Actuated g/C Ratio		0.50	0.50		0.41	0.41		
v/c Ratio		0.55	0.52		0.21	1.15		
Control Delay		16.3	9.9		18.1	102.3		
Queue Delay		0.0	0.2		0.0	0.0		
Total Delay		16.3	10.1		18.1	102.3		
LOS		B	B		B	F		
Approach Delay		16.3	10.1		94.1			
Approach LOS		B	B		F			

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.30	
Intersection Signal Delay: 43.8	Intersection LOS: D
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 86: McDowell Rd & SR-101L SB Ramps

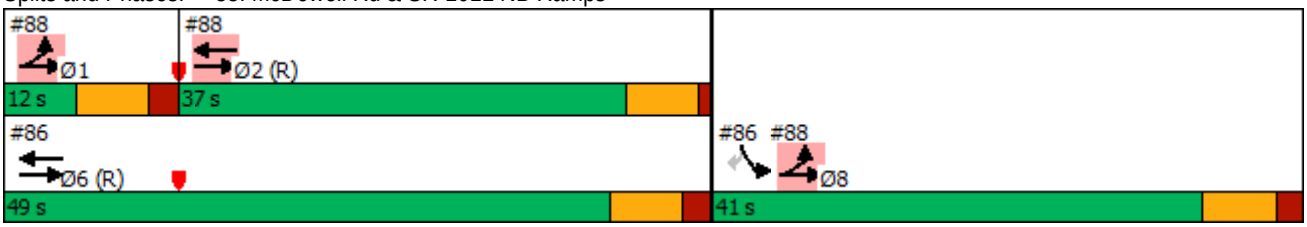


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	859	894	854	684	0	0			
Future Volume (vph)	859	894	854	684	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.933						
Flt Protected	0.950								
Satd. Flow (prot)	3433	3539	3302	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3433	3539	3302	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			113						
Link Speed (mph)		45	45		45				
Link Distance (ft)		471	3835		829				
Travel Time (s)		7.1	58.1		12.6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	934	972	928	743	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	934	972	1671	0	0	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		24	24		0				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Turning Speed (mph)	15			9	15	9			
Number of Detectors	1	1	1						
Detector Template	Left	Thru	Thru						
Leading Detector (ft)	20	100	100						
Trailing Detector (ft)	0	0	0						
Detector 1 Position(ft)	0	0	0						
Detector 1 Size(ft)	20	100	100						
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex						
Detector 1 Channel									
Detector 1 Extend (s)	0.0	0.0	0.0						
Detector 1 Queue (s)	0.0	0.0	0.0						
Detector 1 Delay (s)	0.0	0.0	0.0						
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			37.0				12.0	49.0	41.0
Total Split (%)			41.1%				13%	54%	46%
Maximum Green (s)			31.0				5.0	42.0	34.0
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			1.0				2.0	2.0	2.0
Lost Time Adjust (s)			-2.0						
Total Lost Time (s)			4.0						
Lead/Lag			Lag				Lead		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lead-Lag Optimize?			Yes				Yes		
Vehicle Extension (s)			3.0				3.0	3.0	3.0
Recall Mode			C-Min				Max	C-Min	None
Walk Time (s)			7.0					7.0	7.0
Flash Dont Walk (s)			11.0					11.0	11.0
Pedestrian Calls (#/hr)			0					0	0
Act Effct Green (s)	49.0	90.0	33.0						
Actuated g/C Ratio	0.54	1.00	0.37						
v/c Ratio	0.50	0.27	1.30						
Control Delay	34.3	0.2	168.3						
Queue Delay	0.8	0.0	0.0						
Total Delay	35.1	0.2	168.3						
LOS	D	A	F						
Approach Delay		17.3	168.3						
Approach LOS		B	F						

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.30	
Intersection Signal Delay: 87.8	Intersection LOS: F
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 88: McDowell Rd & SR-101L NB Ramps

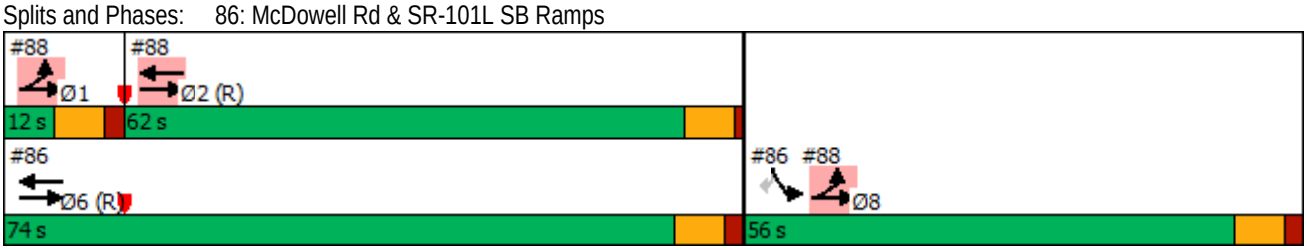


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1612	854	0	142	1315		
Future Volume (vph)	0	1612	854	0	142	1315		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	260			0	0	400		
Storage Lanes	2			0	1	2		
Taper Length (ft)	25				25			
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6408	3539	0	1770	2787		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6408	3539	0	1770	2787		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						196		
Link Speed (mph)		45	45		45			
Link Distance (ft)		968	471		848			
Travel Time (s)		14.7	7.1		12.8			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1752	928	0	154	1429		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1752	928	0	154	1429		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Right	Left	Right		
Median Width(ft)		0	0		12			
Link Offset(ft)		0	0		0			
Crosswalk Width(ft)		16	16		16			
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15			9	15	9		
Number of Detectors		1	1		1	1		
Detector Template		Thru	Thru		Left	Right		
Leading Detector (ft)		100	100		20	20		
Trailing Detector (ft)		0	0		0	0		
Detector 1 Position(ft)		0	0		0	0		
Detector 1 Size(ft)		100	100		20	20		
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)		0.0	0.0		0.0	0.0		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		74.0	74.0		56.0	56.0	12.0	62.0
Total Split (%)		56.9%	56.9%		43.1%	43.1%	9%	48%
Maximum Green (s)		67.0	67.0		49.0	49.0	5.0	56.0
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	1.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lost Time Adjust (s)		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)		4.0	4.0		4.0	4.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?							Yes	Yes
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min	C-Min		None	None	Max	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0		0	0		0
Act Effct Green (s)		70.0	70.0		52.0	52.0		
Actuated g/C Ratio		0.54	0.54		0.40	0.40		
v/c Ratio		0.51	0.49		0.22	1.16		
Control Delay		19.7	7.2		26.7	112.8		
Queue Delay		0.0	0.5		0.2	0.0		
Total Delay		19.7	7.7		26.9	112.8		
LOS		B	A		C	F		
Approach Delay		19.7	7.7		104.4			
Approach LOS		B	A		F			

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 48.6	Intersection LOS: D
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 86: McDowell Rd & SR-101L SB Ramps

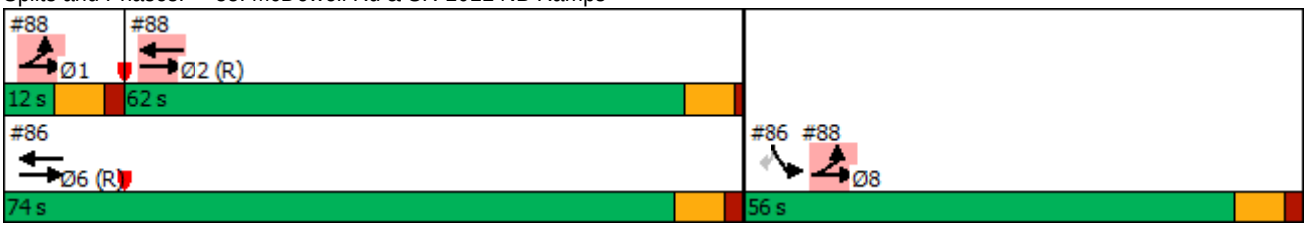


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	859	894	854	684	0	0			
Future Volume (vph)	859	894	854	684	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00			
Frt			0.933						
Flt Protected	0.950								
Satd. Flow (prot)	3433	3539	3302	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3433	3539	3302	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			88						
Link Speed (mph)		45	45		45				
Link Distance (ft)		471	3835		829				
Travel Time (s)		7.1	58.1		12.6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	934	972	928	743	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	934	972	1671	0	0	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		24	24		0				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Turning Speed (mph)	15			9	15	9			
Number of Detectors	1	1	1						
Detector Template	Left	Thru	Thru						
Leading Detector (ft)	20	100	100						
Trailing Detector (ft)	0	0	0						
Detector 1 Position(ft)	0	0	0						
Detector 1 Size(ft)	20	100	100						
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex						
Detector 1 Channel									
Detector 1 Extend (s)	0.0	0.0	0.0						
Detector 1 Queue (s)	0.0	0.0	0.0						
Detector 1 Delay (s)	0.0	0.0	0.0						
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			62.0				12.0	74.0	56.0
Total Split (%)			47.7%				9%	57%	43%
Maximum Green (s)			56.0				5.0	67.0	49.0
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			1.0				2.0	2.0	2.0
Lost Time Adjust (s)			-2.0						
Total Lost Time (s)			4.0						
Lead/Lag			Lag				Lead		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lead-Lag Optimize?			Yes				Yes		
Vehicle Extension (s)			3.0				3.0	3.0	3.0
Recall Mode			C-Min				Max	C-Min	None
Walk Time (s)			7.0					7.0	7.0
Flash Dont Walk (s)			11.0					11.0	11.0
Pedestrian Calls (#/hr)			0					0	0
Act Effct Green (s)	64.0	130.0	58.0						
Actuated g/C Ratio	0.49	1.00	0.45						
v/c Ratio	0.55	0.27	1.10						
Control Delay	54.7	0.2	88.0						
Queue Delay	17.4	0.0	0.0						
Total Delay	72.1	0.2	88.0						
LOS	E	A	F						
Approach Delay		35.4	88.0						
Approach LOS		D	F						

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 60.0	Intersection LOS: E
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 88: McDowell Rd & SR-101L NB Ramps

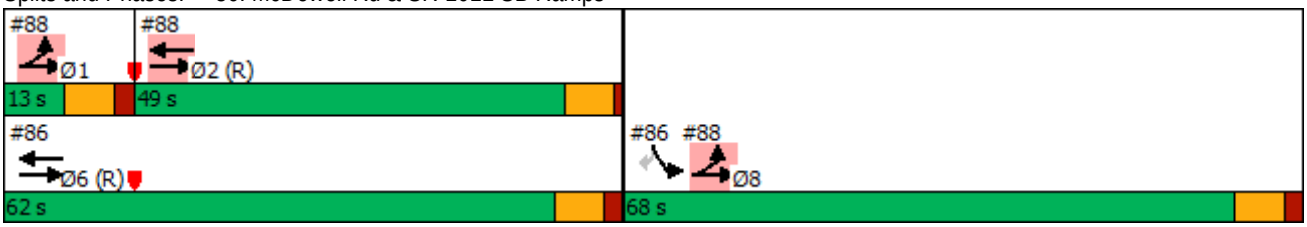


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	0	1612	854	0	142	1315		
Future Volume (vph)	0	1612	854	0	142	1315		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	260			0	0	400		
Storage Lanes	2			0	1	2		
Taper Length (ft)	25				25			
Lane Util. Factor	1.00	0.86	0.91	1.00	1.00	0.88		
Frt						0.850		
Flt Protected					0.950			
Satd. Flow (prot)	0	6408	5085	0	1770	2787		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6408	5085	0	1770	2787		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						119		
Link Speed (mph)		45	45		45			
Link Distance (ft)		968	471		848			
Travel Time (s)		14.7	7.1		12.8			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1752	928	0	154	1429		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1752	928	0	154	1429		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Right	Left	Right		
Median Width(ft)		0	0		12			
Link Offset(ft)		0	0		0			
Crosswalk Width(ft)		16	16		16			
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15			9	15	9		
Number of Detectors		1	1		1	1		
Detector Template		Thru	Thru		Left	Right		
Leading Detector (ft)		100	100		20	20		
Trailing Detector (ft)		0	0		0	0		
Detector 1 Position(ft)		0	0		0	0		
Detector 1 Size(ft)		100	100		20	20		
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)		0.0	0.0		0.0	0.0		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		6	6		8		1	2
Permitted Phases						8		
Detector Phase		6	6		8	8		
Switch Phase								
Minimum Initial (s)		15.0	15.0		10.0	10.0	5.0	15.0
Minimum Split (s)		35.0	35.0		31.0	31.0	12.0	35.0
Total Split (s)		62.0	62.0		68.0	68.0	13.0	49.0
Total Split (%)		47.7%	47.7%		52.3%	52.3%	10%	38%
Maximum Green (s)		55.0	55.0		61.0	61.0	6.0	43.0
Yellow Time (s)		5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0		2.0	2.0	2.0	1.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2
Lost Time Adjust (s)		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)		4.0	4.0		4.0	4.0		
Lead/Lag							Lead	Lag
Lead-Lag Optimize?							Yes	Yes
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min	C-Min		None	None	Max	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0		0	0		0
Act Effct Green (s)		58.0	58.0		64.0	64.0		
Actuated g/C Ratio		0.45	0.45		0.49	0.49		
v/c Ratio		0.61	0.41		0.18	1.00		
Control Delay		28.6	9.4		19.0	53.7		
Queue Delay		0.1	0.0		0.1	0.0		
Total Delay		28.6	9.4		19.1	53.7		
LOS		C	A		B	D		
Approach Delay		28.6	9.4		50.3			
Approach LOS		C	A		D			

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 32.5	Intersection LOS: C
Intersection Capacity Utilization 69.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 86: McDowell Rd & SR-101L SB Ramps

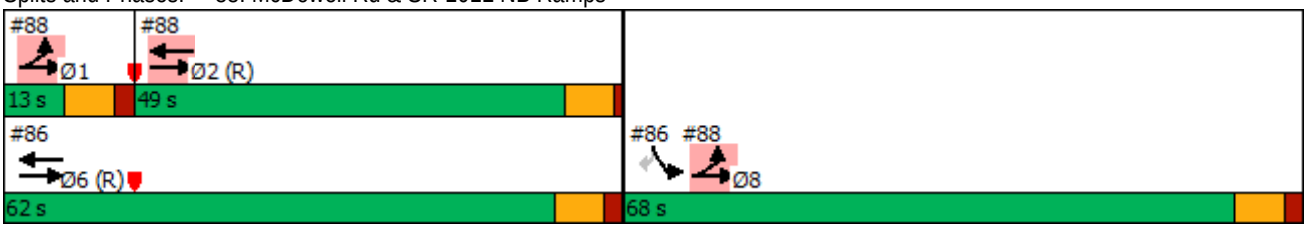


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lane Configurations									
Traffic Volume (vph)	859	894	854	684	0	0			
Future Volume (vph)	859	894	854	684	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.97	0.91	0.91	0.91	1.00	1.00			
Frt			0.933						
Flt Protected	0.950								
Satd. Flow (prot)	3433	5085	4745	0	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3433	5085	4745	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			136						
Link Speed (mph)		45	45		45				
Link Distance (ft)		471	3835		829				
Travel Time (s)		7.1	58.1		12.6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	934	972	928	743	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	934	972	1671	0	0	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		24	24		0				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Turning Speed (mph)	15			9	15	9			
Number of Detectors	1	1	1						
Detector Template	Left	Thru	Thru						
Leading Detector (ft)	20	100	100						
Trailing Detector (ft)	0	0	0						
Detector 1 Position(ft)	0	0	0						
Detector 1 Size(ft)	20	100	100						
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex						
Detector 1 Channel									
Detector 1 Extend (s)	0.0	0.0	0.0						
Detector 1 Queue (s)	0.0	0.0	0.0						
Detector 1 Delay (s)	0.0	0.0	0.0						
Turn Type	Prot	NA	NA						
Protected Phases	1 8	1 2 8	2				1	6	8
Permitted Phases									
Detector Phase	1 8	1 2 8	2						
Switch Phase									
Minimum Initial (s)			15.0				5.0	15.0	10.0
Minimum Split (s)			35.0				12.0	35.0	31.0
Total Split (s)			49.0				13.0	62.0	68.0
Total Split (%)			37.7%				10%	48%	52%
Maximum Green (s)			43.0				6.0	55.0	61.0
Yellow Time (s)			5.0				5.0	5.0	5.0
All-Red Time (s)			1.0				2.0	2.0	2.0
Lost Time Adjust (s)			-2.0						
Total Lost Time (s)			4.0						
Lead/Lag			Lag				Lead		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø6	Ø8
Lead-Lag Optimize?			Yes				Yes		
Vehicle Extension (s)			3.0				3.0	3.0	3.0
Recall Mode			C-Min				Max	C-Min	None
Walk Time (s)			7.0					7.0	7.0
Flash Dont Walk (s)			11.0					11.0	11.0
Pedestrian Calls (#/hr)			0					0	0
Act Effct Green (s)	77.0	130.0	45.0						
Actuated g/C Ratio	0.59	1.00	0.35						
v/c Ratio	0.46	0.19	1.15dr						
Control Delay	44.3	0.1	53.2						
Queue Delay	9.7	0.0	0.0						
Total Delay	54.0	0.1	53.2						
LOS	D	A	D						
Approach Delay		26.5	53.2						
Approach LOS		C	D						

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 39.0	Intersection LOS: D
Intersection Capacity Utilization 69.2%	ICU Level of Service C
Analysis Period (min) 15	
dr Defacto Right Lane. Recode with 1 though lane as a right lane.	

Splits and Phases: 88: McDowell Rd & SR-101L NB Ramps

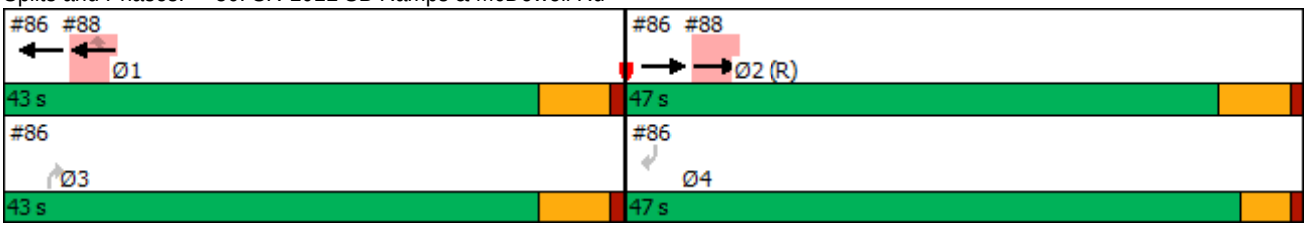


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1612	0	0	854	0	0	0	142	0	0	1315
Future Volume (vph)	0	1612	0	0	854	0	0	0	142	0	0	1315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.86	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frt									0.865			0.850
Flt Protected												
Satd. Flow (prot)	0	6408	0	0	3539	0	0	0	1611	0	0	2787
Flt Permitted												
Satd. Flow (perm)	0	6408	0	0	3539	0	0	0	1611	0	0	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									36			118
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		968			471			258			848	
Travel Time (s)		14.7			7.1			5.9			12.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1752	0	0	928	0	0	0	154	0	0	1429
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1752	0	0	928	0	0	0	154	0	0	1429
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1			1				1			1
Detector Template		Thru			Thru				Right			Right
Leading Detector (ft)		100			100				20			20
Trailing Detector (ft)		0			0				0			0
Detector 1 Position(ft)		0			0				0			0
Detector 1 Size(ft)		100			100				20			20
Detector 1 Type		Cl+Ex			Cl+Ex				Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0				0.0			0.0
Detector 1 Queue (s)		0.0			0.0				0.0			0.0
Detector 1 Delay (s)		0.0			0.0				0.0			0.0
Turn Type		NA			NA				Perm			Perm
Protected Phases		2			1							
Permitted Phases									3			4
Detector Phase		2			1				3			4
Switch Phase												
Minimum Initial (s)		15.0			15.0				15.0			5.0
Minimum Split (s)		35.0			35.0				35.0			22.5
Total Split (s)		47.0			43.0				43.0			47.0
Total Split (%)		52.2%			47.8%				47.8%			52.2%
Maximum Green (s)		41.0			37.0				37.0			42.5
Yellow Time (s)		5.0			5.0				5.0			3.5
All-Red Time (s)		1.0			1.0				1.0			1.0
Lost Time Adjust (s)		-3.0			-3.0				0.0			-3.0
Total Lost Time (s)		3.0			3.0				6.0			1.5
Lead/Lag												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0				3.0			3.0
Recall Mode		C-Min			Min				Min			None
Walk Time (s)		7.0			7.0				7.0			7.0
Flash Dont Walk (s)		11.0			11.0				11.0			11.0
Pedestrian Calls (#/hr)		0			0				0			0
Act Effct Green (s)		44.7			39.3				36.3			46.2
Actuated g/C Ratio		0.50			0.44				0.40			0.51
v/c Ratio		0.55			0.60				0.23			0.96
Control Delay		16.7			4.7				14.1			36.5
Queue Delay		0.0			0.0				0.0			0.0
Total Delay		16.7			4.7				14.1			36.5
LOS		B			A				B			D
Approach Delay		16.7			4.7			14.1			36.5	
Approach LOS		B			A			B			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 20.6	Intersection LOS: C
Intersection Capacity Utilization 76.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 86: SR-101L SB Ramps & McDowell Rd

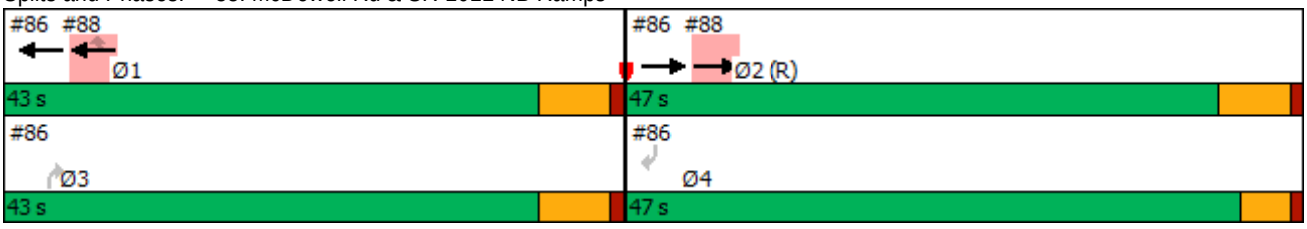


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3	Ø4
Lane Configurations								
Traffic Volume (vph)	0	1753	854	684	0	0		
Future Volume (vph)	0	1753	854	684	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Util. Factor	1.00	0.86	0.95	1.00	1.00	1.00		
Frt				0.850				
Flt Protected								
Satd. Flow (prot)	0	6408	3539	1583	0	0		
Flt Permitted								
Satd. Flow (perm)	0	6408	3539	1583	0	0		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)				743				
Link Speed (mph)		45	45		45			
Link Distance (ft)		471	3835		829			
Travel Time (s)		7.1	58.1		12.6			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	1905	928	743	0	0		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	1905	928	743	0	0		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Right	Left	Right		
Median Width(ft)		0	0		0			
Link Offset(ft)		0	0		0			
Crosswalk Width(ft)		16	16		16			
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15			9	15	9		
Number of Detectors		1	1	1				
Detector Template		Thru	Thru	Right				
Leading Detector (ft)		100	100	20				
Trailing Detector (ft)		0	0	0				
Detector 1 Position(ft)		0	0	0				
Detector 1 Size(ft)		100	100	20				
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex				
Detector 1 Channel								
Detector 1 Extend (s)		0.0	0.0	0.0				
Detector 1 Queue (s)		0.0	0.0	0.0				
Detector 1 Delay (s)		0.0	0.0	0.0				
Turn Type		NA	NA	Perm				
Protected Phases		2	1				3	4
Permitted Phases				1				
Detector Phase		2	1	1				
Switch Phase								
Minimum Initial (s)		15.0	15.0	15.0			15.0	5.0
Minimum Split (s)		35.0	35.0	35.0			35.0	22.5
Total Split (s)		47.0	43.0	43.0			43.0	47.0
Total Split (%)		52.2%	47.8%	47.8%			48%	52%
Maximum Green (s)		41.0	37.0	37.0			37.0	42.5
Yellow Time (s)		5.0	5.0	5.0			5.0	3.5
All-Red Time (s)		1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)		-3.0	-2.0	0.0				
Total Lost Time (s)		3.0	4.0	6.0				
Lead/Lag								

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3	Ø4
Lead-Lag Optimize?								
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0
Recall Mode		C-Min	Min	Min			Min	None
Walk Time (s)		7.0	7.0	7.0			7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0	0			0	0
Act Effct Green (s)		44.7	38.3	36.3				
Actuated g/C Ratio		0.50	0.43	0.40				
v/c Ratio		0.60	0.62	0.69				
Control Delay		5.9	22.1	5.2				
Queue Delay		0.0	0.0	0.0				
Total Delay		5.9	22.1	5.2				
LOS		A	C	A				
Approach Delay		5.9	14.6					
Approach LOS		A	B					

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 10.0	Intersection LOS: A
Intersection Capacity Utilization 47.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 88: McDowell Rd & SR-101L NB Ramps

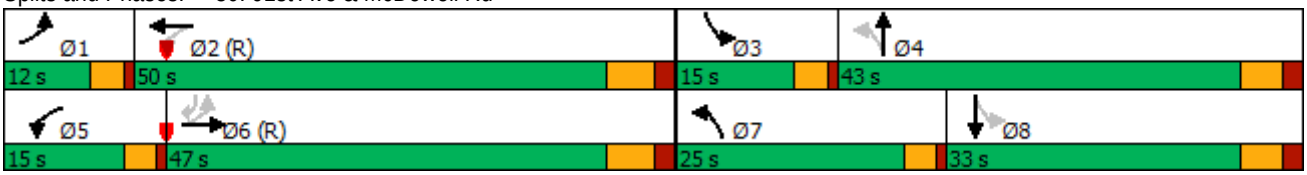


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	748	299	148	650	81	438	674	254	165	516	220
Future Volume (vph)	275	748	299	148	650	81	438	674	254	165	516	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	140		0	225		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.957			0.983			0.959				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3387	0	1770	3479	0	1770	3394	0	1770	3539	1583
Flt Permitted	0.200			0.094			0.167			0.158		
Satd. Flow (perm)	373	3387	0	175	3479	0	311	3394	0	294	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			13			48				239
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		3835			5254			731			1075	
Travel Time (s)		58.1			79.6			12.5			18.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	299	813	325	161	707	88	476	733	276	179	561	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	299	1138	0	161	795	0	476	1009	0	179	561	239
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	100		20	100		20	100		20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	12.0	47.0		15.0	50.0		25.0	43.0		15.0	33.0	47.0
Total Split (%)	10.0%	39.2%		12.5%	41.7%		20.8%	35.8%		12.5%	27.5%	39.2%
Maximum Green (s)	8.0	40.6		11.0	43.6		21.0	37.0		11.0	27.0	40.6
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	-2.4		0.0	-2.4		0.0	-2.0		0.0	-2.0	-2.4
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	C-Min
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	53.1	44.2		55.3	44.9		53.4	38.6		38.0	27.3	44.2
Actuated g/C Ratio	0.44	0.37		0.46	0.37		0.44	0.32		0.32	0.23	0.37
v/c Ratio	1.08	0.89		0.74	0.61		1.17	0.90		0.80	0.70	0.33
Control Delay	104.1	43.9		42.5	32.0		130.1	48.4		50.9	47.4	4.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	104.1	43.9		42.5	32.0		130.1	48.4		50.9	47.4	4.6
LOS	F	D		D	C		F	D		D	D	A
Approach Delay		56.4			33.8			74.6			37.6	
Approach LOS		E			C			E			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 53.7	Intersection LOS: D
Intersection Capacity Utilization 90.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 30: 91st Ave & McDowell Rd

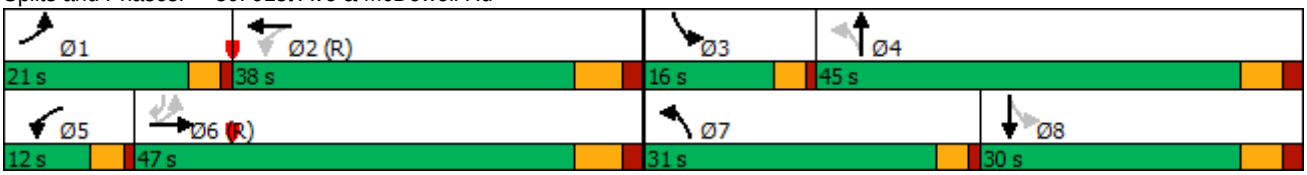


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	748	299	148	650	81	438	674	254	165	516	220
Future Volume (vph)	275	748	299	148	650	81	438	674	254	165	516	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	140		0	225		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.957			0.983			0.959				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3387	0	1770	3479	0	1770	3394	0	1770	3539	1583
Flt Permitted	0.111			0.125			0.149			0.175		
Satd. Flow (perm)	207	3387	0	233	3479	0	278	3394	0	326	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			11			49				239
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		3835			5254			731			1075	
Travel Time (s)		58.1			79.6			12.5			18.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	299	813	325	161	707	88	476	733	276	179	561	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	299	1138	0	161	795	0	476	1009	0	179	561	239
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	100		20	100		20	100		20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	21.0	47.0		12.0	38.0		31.0	45.0		16.0	30.0	47.0
Total Split (%)	17.5%	39.2%		10.0%	31.7%		25.8%	37.5%		13.3%	25.0%	39.2%
Maximum Green (s)	17.0	40.6		8.0	31.6		27.0	39.0		12.0	24.0	40.6
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	-2.4		0.0	-2.4		0.0	-2.0		0.0	-2.0	-2.4
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	C-Min
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	55.7	43.1		43.1	34.5		56.3	41.0		36.1	24.7	43.1
Actuated g/C Ratio	0.46	0.36		0.36	0.29		0.47	0.34		0.30	0.21	0.36
v/c Ratio	0.93	0.91		0.83	0.79		1.01	0.85		0.76	0.77	0.33
Control Delay	67.8	46.7		58.7	45.7		76.6	42.8		47.2	52.7	4.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	67.8	46.7		58.7	45.7		76.6	42.8		47.2	52.7	4.6
LOS	E	D		E	D		E	D		D	D	A
Approach Delay		51.1			47.9			53.6			40.0	
Approach LOS		D			D			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 49.0	Intersection LOS: D
Intersection Capacity Utilization 90.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 30: 91st Ave & McDowell Rd

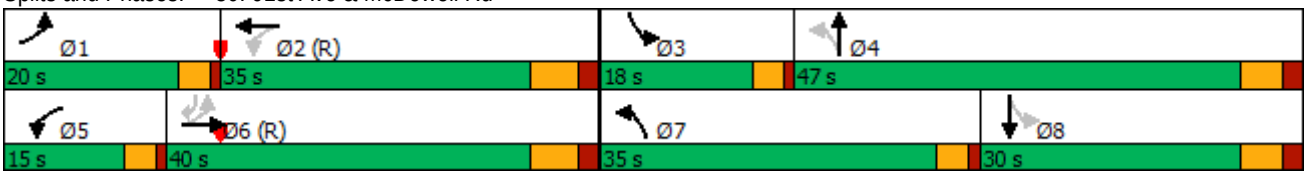


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	748	299	148	650	81	438	674	254	165	516	220
Future Volume (vph)	275	748	299	148	650	81	438	674	254	165	516	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	140		0	225		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.957			0.983			0.959				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4867	0	1770	4999	0	1770	3394	0	1770	3539	1583
Flt Permitted	0.172			0.132			0.151			0.178		
Satd. Flow (perm)	320	4867	0	246	4999	0	281	3394	0	332	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86			18			51				239
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		3835			5254			731			1075	
Travel Time (s)		58.1			79.6			12.5			18.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	299	813	325	161	707	88	476	733	276	179	561	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	299	1138	0	161	795	0	476	1009	0	179	561	239
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	100		20	100		20	100		20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	20.0	40.0		15.0	35.0		35.0	47.0		18.0	30.0	40.0
Total Split (%)	16.7%	33.3%		12.5%	29.2%		29.2%	39.2%		15.0%	25.0%	33.3%
Maximum Green (s)	16.0	33.6		11.0	28.6		31.0	41.0		14.0	24.0	33.6
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	-2.4		0.0	-2.4		0.0	-2.0		0.0	-2.0	-2.4
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	C-Min
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	53.5	39.1		43.1	32.6		58.5	42.4		36.6	24.5	39.1
Actuated g/C Ratio	0.45	0.33		0.36	0.27		0.49	0.35		0.30	0.20	0.33
v/c Ratio	0.86	0.69		0.73	0.58		0.94	0.82		0.73	0.78	0.35
Control Delay	49.6	35.8		44.6	39.4		58.5	39.8		42.9	53.3	5.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	49.6	35.8		44.6	39.4		58.5	39.8		42.9	53.3	5.5
LOS	D	D		D	D		E	D		D	D	A
Approach Delay		38.7			40.2			45.8			39.7	
Approach LOS		D			D			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 41.4	Intersection LOS: D
Intersection Capacity Utilization 81.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 30: 91st Ave & McDowell Rd

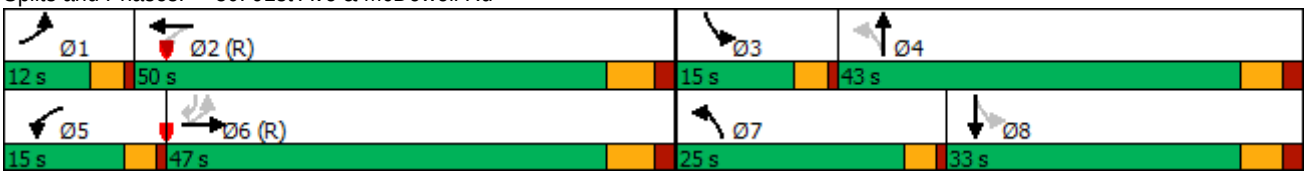


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	647	95	182	894	393	464	757	393	106	905	170
Future Volume (vph)	153	647	95	182	894	393	464	757	393	106	905	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	140		0	225		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.981			0.954			0.949				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3472	0	1770	3376	0	1770	3359	0	1770	3539	1583
Flt Permitted	0.098			0.169			0.129			0.148		
Satd. Flow (perm)	183	3472	0	315	3376	0	240	3359	0	276	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			67			82				184
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		3835			5254			731			1075	
Travel Time (s)		58.1			79.6			12.5			18.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	166	703	103	198	972	427	504	823	427	115	984	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	806	0	198	1399	0	504	1250	0	115	984	185
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	100		20	100		20	100		20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	12.0	47.0		15.0	50.0		25.0	43.0		15.0	33.0	47.0
Total Split (%)	10.0%	39.2%		12.5%	41.7%		20.8%	35.8%		12.5%	27.5%	39.2%
Maximum Green (s)	8.0	40.6		11.0	43.6		21.0	37.0		11.0	27.0	40.6
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	-2.4		0.0	-2.4		0.0	-2.0		0.0	-2.0	-2.4
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	C-Min
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	51.3	43.3		56.7	46.0		54.0	40.5		38.5	29.0	43.3
Actuated g/C Ratio	0.43	0.36		0.47	0.38		0.45	0.34		0.32	0.24	0.36
v/c Ratio	0.90	0.64		0.71	1.05		1.34	1.05		0.56	1.15	0.27
Control Delay	71.3	34.1		33.5	73.0		201.5	77.9		32.2	122.5	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	71.3	34.1		33.5	73.0		201.5	77.9		32.2	122.5	4.9
LOS	E	C		C	E		F	E		C	F	A
Approach Delay		40.4			68.1			113.4			97.5	
Approach LOS		D			E			F			F	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.34	
Intersection Signal Delay: 84.2	Intersection LOS: F
Intersection Capacity Utilization 109.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 30: 91st Ave & McDowell Rd

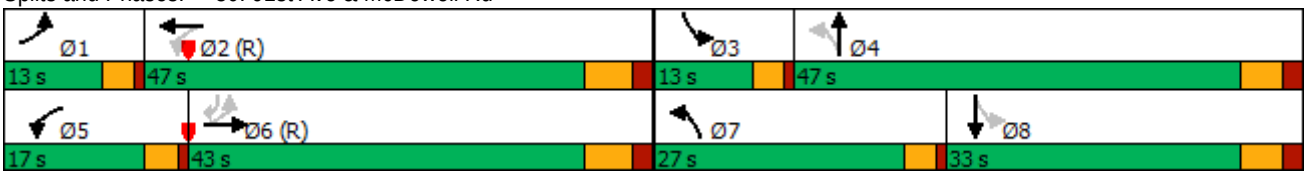


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	647	95	182	894	393	464	757	393	106	905	170
Future Volume (vph)	153	647	95	182	894	393	464	757	393	106	905	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	140		0	225		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.981			0.954			0.949				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3472	0	1770	3376	0	1770	3359	0	1770	3539	1583
Flt Permitted	0.107			0.144			0.129			0.148		
Satd. Flow (perm)	199	3472	0	268	3376	0	240	3359	0	276	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			65			86				175
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		3835			5254			731			1075	
Travel Time (s)		58.1			79.6			12.5			18.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	166	703	103	198	972	427	504	823	427	115	984	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	806	0	198	1399	0	504	1250	0	115	984	185
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	100		20	100		20	100		20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	13.0	43.0		17.0	47.0		27.0	47.0		13.0	33.0	43.0
Total Split (%)	10.8%	35.8%		14.2%	39.2%		22.5%	39.2%		10.8%	27.5%	35.8%
Maximum Green (s)	9.0	36.6		13.0	40.6		23.0	41.0		9.0	27.0	36.6
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	-2.4		0.0	-2.4		0.0	-2.0		0.0	-2.0	-2.4
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	C-Min
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	48.9	39.9		55.1	43.0		56.0	43.5		37.5	29.0	39.9
Actuated g/C Ratio	0.41	0.33		0.46	0.36		0.47	0.36		0.31	0.24	0.33
v/c Ratio	0.83	0.69		0.72	1.12		1.24	0.98		0.60	1.15	0.29
Control Delay	58.2	38.1		35.8	99.4		160.4	57.1		35.6	122.5	6.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	58.2	38.1		35.8	99.4		160.4	57.1		35.6	122.5	6.3
LOS	E	D		D	F		F	E		D	F	A
Approach Delay		41.5			91.5			86.8			98.0	
Approach LOS		D			F			F			F	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 82.8	Intersection LOS: F
Intersection Capacity Utilization 109.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 30: 91st Ave & McDowell Rd

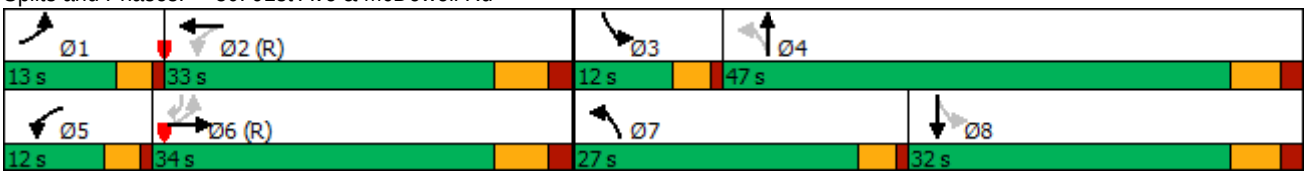


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	647	95	182	894	393	464	757	393	106	905	170
Future Volume (vph)	153	647	95	182	894	393	464	757	393	106	905	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	160		0	140		0	225		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.981			0.954			0.949				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4989	0	1770	4851	0	1770	3359	0	1770	3539	1583
Flt Permitted	0.145			0.212			0.133			0.154		
Satd. Flow (perm)	270	4989	0	395	4851	0	248	3359	0	287	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			104			107				185
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		3835			5254			731			1075	
Travel Time (s)		58.1			79.6			12.5			18.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	166	703	103	198	972	427	504	823	427	115	984	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	806	0	198	1399	0	504	1250	0	115	984	185
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	100		20	100		20	100		20	100	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	custom
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		6
Detector Phase	1	6		5	2		7	4		3	8	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0	8.0		4.0	8.0	15.0
Minimum Split (s)	9.0	30.0		9.0	34.4		9.0	30.0		9.0	30.0	30.0
Total Split (s)	13.0	34.0		12.0	33.0		27.0	47.0		12.0	32.0	34.0
Total Split (%)	12.4%	32.4%		11.4%	31.4%		25.7%	44.8%		11.4%	30.5%	32.4%
Maximum Green (s)	9.0	27.6		8.0	26.6		23.0	41.0		8.0	26.0	27.6
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	4.0		3.0	4.0	4.4
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	-2.4		0.0	-2.4		0.0	-2.0		0.0	-2.0	-2.4
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	C-Min
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	38.9	30.0		37.1	29.1		55.0	43.3		35.7	28.0	30.0
Actuated g/C Ratio	0.37	0.29		0.35	0.28		0.52	0.41		0.34	0.27	0.29
v/c Ratio	0.73	0.56		0.81	0.99		1.09	0.86		0.56	1.04	0.32
Control Delay	41.9	32.5		50.1	56.2		96.9	33.3		28.2	79.5	5.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	41.9	32.5		50.1	56.2		96.9	33.3		28.2	79.5	5.9
LOS	D	C		D	E		F	C		C	E	A
Approach Delay		34.1			55.5			51.6			64.3	
Approach LOS		C			E			D			E	

Intersection Summary	
Area Type: Other	
Cycle Length: 105	
Actuated Cycle Length: 105	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 52.6	Intersection LOS: D
Intersection Capacity Utilization 98.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 30: 91st Ave & McDowell Rd



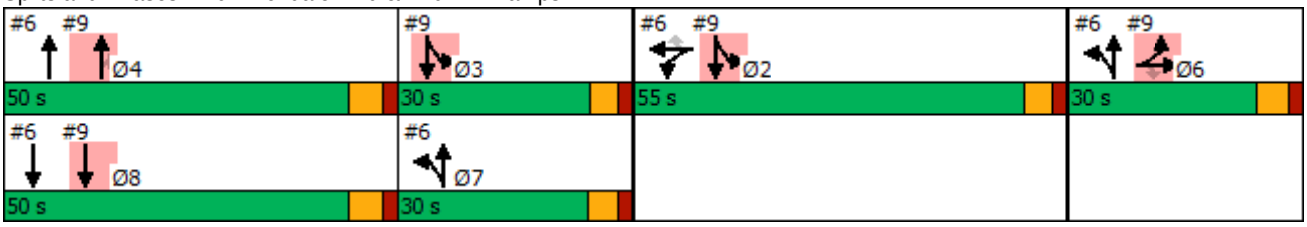
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	848	0	352	294	547	0	0	786	128
Future Volume (vph)	0	0	0	848	0	352	294	547	0	0	786	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		375	300		0	300		0
Storage Lanes	0		0	1		2	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.88	0.97	0.91	1.00	1.00	0.81	0.81
Frt						0.850					0.979	
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1681	1681	2787	3433	5085	0	0	7386	0
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1681	1681	2787	3433	5085	0	0	7386	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						383					25	
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		1334			1499			511			1483	
Travel Time (s)		30.3			22.7			11.6			33.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	922	0	383	320	595	0	0	854	139
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	461	461	383	320	595	0	0	993	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				2	2		6 7	4 6 7			8	
Permitted Phases						2						
Detector Phase				2	2	2	6 7	4 6 7			8	
Switch Phase												
Minimum Initial (s)				10.0	10.0	10.0					25.0	
Minimum Split (s)				55.0	55.0	55.0					31.3	
Total Split (s)				55.0	55.0	55.0					50.0	
Total Split (%)				33.3%	33.3%	33.3%					30.3%	
Maximum Green (s)				49.5	49.5	49.5					43.7	
Yellow Time (s)				3.5	3.5	3.5					4.3	
All-Red Time (s)				2.0	2.0	2.0					2.0	

Lane Group	Ø3	Ø4	Ø6	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Turn Type				
Protected Phases	3	4	6	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	8.0	25.0	10.0	8.0
Minimum Split (s)	13.5	35.3	30.0	14.0
Total Split (s)	30.0	50.0	30.0	30.0
Total Split (%)	18%	30%	18%	18%
Maximum Green (s)	24.5	43.7	24.0	24.0
Yellow Time (s)	3.5	4.3	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.5	-1.5	-1.5					-2.3	
Total Lost Time (s)				4.0	4.0	4.0					4.0	
Lead/Lag											Lead	
Lead-Lag Optimize?											Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				Min	Min	Min					Min	
Walk Time (s)											7.0	
Flash Dont Walk (s)											15.0	
Pedestrian Calls (#/hr)											5	
Act Effct Green (s)				51.1	51.1	51.1	49.7	97.5			43.5	
Actuated g/C Ratio				0.32	0.32	0.32	0.31	0.61			0.27	
v/c Ratio				0.86	0.86	0.33	0.30	0.19			0.49	
Control Delay				68.9	68.9	4.3	29.7	0.2			48.8	
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay				68.9	68.9	4.3	29.7	0.2			48.8	
LOS				E	E	A	C	A			D	
Approach Delay					50.0			10.5			48.8	
Approach LOS					D			B			D	

Intersection Summary	
Area Type: Other	
Cycle Length: 165	
Actuated Cycle Length: 160.3	
Natural Cycle: 135	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 38.4	Intersection LOS: D
Intersection Capacity Utilization 62.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Avondale Blvd & I-10 WB Ramps



Lane Group	Ø3	Ø4	Ø6	Ø7
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	Min	None	None
Walk Time (s)		7.0		
Flash Dont Walk (s)		22.0		
Pedestrian Calls (#/hr)		5		
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				

Intersection Summary

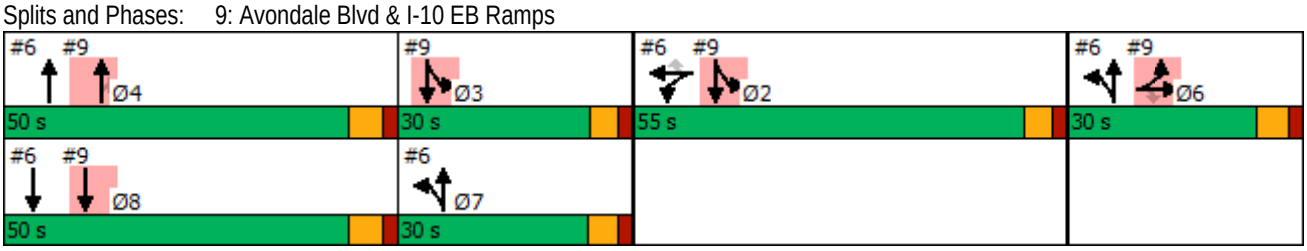
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	0	353	0	0	0	0	661	701	575	898	0
Future Volume (vph)	180	0	353	0	0	0	0	661	701	575	898	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	125		275	300		0
Storage Lanes	0		1	0		0	2		2	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.88	0.97	0.91	1.00
Frt			0.850						0.850			
Flt Protected		0.950								0.950		
Satd. Flow (prot)	0	1770	1583	0	0	0	0	7544	2787	3433	5085	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	7544	2787	3433	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			219						746			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		1433			1673			632			511	
Travel Time (s)		32.6			38.0			12.3			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	0	384	0	0	0	0	718	762	625	976	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	384	0	0	0	0	718	762	625	976	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	6	6						4		2 3	2 3 8	
Permitted Phases			6						4			
Detector Phase	6	6	6					4	4	2 3	2 3 8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					25.0	25.0			
Minimum Split (s)	30.0	30.0	30.0					35.3	35.3			
Total Split (s)	30.0	30.0	30.0					50.0	50.0			
Total Split (%)	18.2%	18.2%	18.2%					30.3%	30.3%			
Maximum Green (s)	24.0	24.0	24.0					43.7	43.7			
Yellow Time (s)	4.0	4.0	4.0					4.3	4.3			
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0			

Lane Group	Ø2	Ø3	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Turn Type				
Protected Phases	2	3	7	8
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	10.0	8.0	8.0	25.0
Minimum Split (s)	55.0	13.5	14.0	31.3
Total Split (s)	55.0	30.0	30.0	50.0
Total Split (%)	33%	18%	18%	30%
Maximum Green (s)	49.5	24.5	24.0	43.7
Yellow Time (s)	3.5	3.5	4.0	4.3
All-Red Time (s)	2.0	2.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-2.0	-2.0					-2.3	-2.3			
Total Lost Time (s)		4.0	4.0					4.0	4.0			
Lead/Lag								Lead	Lead			
Lead-Lag Optimize?								Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								22.0	22.0			
Pedestrian Calls (#/hr)								5	5			
Act Effct Green (s)		25.0	25.0					42.2	42.2	81.1	126.9	
Actuated g/C Ratio		0.16	0.16					0.26	0.26	0.51	0.79	
v/c Ratio		0.71	0.89					0.36	0.59	0.36	0.24	
Control Delay		80.1	51.5					48.5	5.4	22.4	2.5	
Queue Delay		0.0	0.0					0.0	0.0	0.6	0.2	
Total Delay		80.1	51.5					48.5	5.4	23.0	2.8	
LOS		F	D					D	A	C	A	
Approach Delay		61.2						26.3			10.7	
Approach LOS		E						C			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 165	
Actuated Cycle Length: 160.3	
Natural Cycle: 135	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 25.0	Intersection LOS: C
Intersection Capacity Utilization 62.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 9: Avondale Blvd & I-10 EB Ramps



Lane Group	Ø2	Ø3	Ø7	Ø8
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag		Lag	Lag	Lead
Lead-Lag Optimize?		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Min	None	None	Min
Walk Time (s)				7.0
Flash Dont Walk (s)				15.0
Pedestrian Calls (#/hr)				5
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				

Intersection Summary

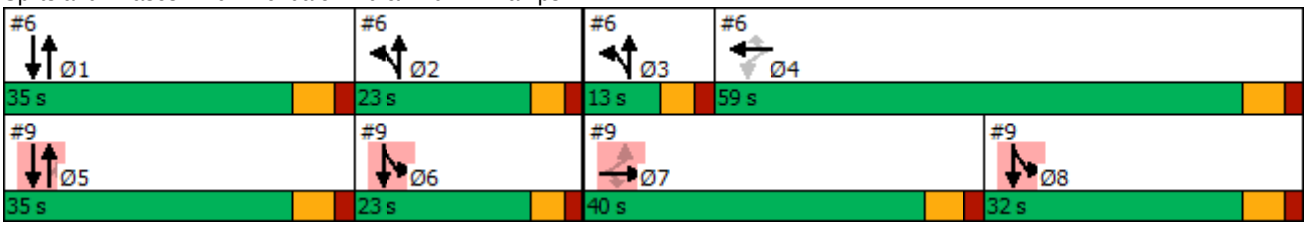
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	848	0	352	294	547	0	0	786	128
Future Volume (vph)	0	0	0	848	0	352	294	547	0	0	786	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		375	300		0	300		0
Storage Lanes	0		0	1		2	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.88	0.97	0.91	1.00	1.00	0.81	0.81
Frt						0.850					0.979	
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1681	1681	2787	3433	5085	0	0	7386	0
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1681	1681	2787	3433	5085	0	0	7386	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						383					30	
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		1334			1499			511			1483	
Travel Time (s)		30.3			22.7			11.6			33.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	922	0	383	320	595	0	0	854	139
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	461	461	383	320	595	0	0	993	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				25.0	25.0	25.0					25.0	
Minimum Split (s)				35.3	35.3	35.3					35.0	
Total Split (s)				59.0	59.0	59.0					35.0	
Total Split (%)				45.4%	45.4%	45.4%					26.9%	
Maximum Green (s)				52.7	52.7	52.7					28.7	
Yellow Time (s)				4.3	4.3	4.3					4.3	
All-Red Time (s)				2.0	2.0	2.0					2.0	

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	7.5	13.7	9.5	10.0	25.0
Minimum Split (s)	20.0	13.0	35.0	15.0	24.0	31.3
Total Split (s)	23.0	13.0	35.0	23.0	40.0	32.0
Total Split (%)	18%	10%	27%	18%	31%	25%
Maximum Green (s)	17.5	7.5	28.7	17.5	34.0	25.7
Yellow Time (s)	3.5	3.5	4.3	3.5	4.0	4.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.5	-1.5	-1.5					-2.3	
Total Lost Time (s)				4.8	4.8	4.8					4.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				Min	Min	Min					Min	
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				22.0	22.0	22.0						
Pedestrian Calls (#/hr)				5	5	5						
Act Effct Green (s)				44.4	44.4	44.4	33.5	66.8			30.3	
Actuated g/C Ratio				0.37	0.37	0.37	0.28	0.55			0.25	
v/c Ratio				0.75	0.75	0.30	0.34	0.21			0.53	
Control Delay				41.0	41.0	2.9	36.0	10.0			39.5	
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay				41.0	41.0	2.9	36.0	10.0			39.5	
LOS				D	D	A	D	B			D	
Approach Delay					29.9			19.1			39.5	
Approach LOS					C			B			D	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 120.5	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 29.8	Intersection LOS: C
Intersection Capacity Utilization 63.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Avondale Blvd & I-10 WB Ramps



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	None	Min	Min	None	Min
Walk Time (s)						7.0
Flash Dont Walk (s)						15.0
Pedestrian Calls (#/hr)						5
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	0	353	0	0	0	0	661	701	575	898	0
Future Volume (vph)	180	0	353	0	0	0	0	661	701	575	898	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	125		275	300		0
Storage Lanes	0		1	0		0	2		2	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.88	0.97	0.91	1.00
Frt			0.850						0.850			
Flt Protected		0.950								0.950		
Satd. Flow (prot)	0	1770	1583	0	0	0	0	7544	2787	3433	5085	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	7544	2787	3433	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			154						762			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		1433			1673			632			511	
Travel Time (s)		32.6			38.0			12.3			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	0	384	0	0	0	0	718	762	625	976	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	384	0	0	0	0	718	762	625	976	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						5		6 8	5 6 8	
Permitted Phases	7		7						5			
Detector Phase	7	7	7					5	5	6 8	5 6 8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					13.7	13.7			
Minimum Split (s)	24.0	24.0	24.0					35.0	35.0			
Total Split (s)	40.0	40.0	40.0					35.0	35.0			
Total Split (%)	30.8%	30.8%	30.8%					26.9%	26.9%			
Maximum Green (s)	34.0	34.0	34.0					28.7	28.7			
Yellow Time (s)	4.0	4.0	4.0					4.3	4.3			
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0			

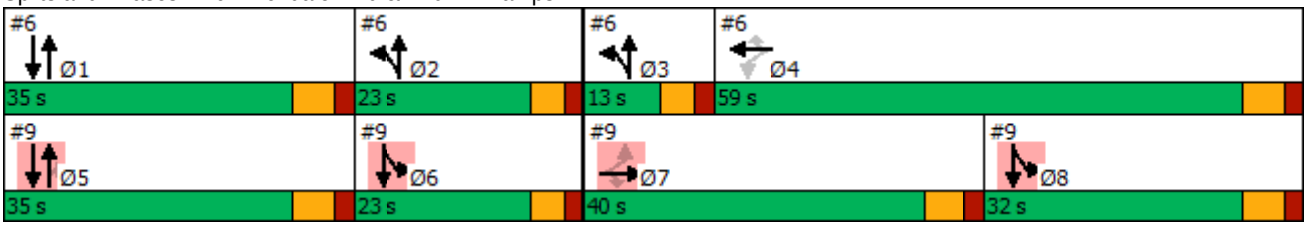
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	25.0	10.0	7.5	25.0	9.5	25.0
Minimum Split (s)	35.0	20.0	13.0	35.3	15.0	31.3
Total Split (s)	35.0	23.0	13.0	59.0	23.0	32.0
Total Split (%)	27%	18%	10%	45%	18%	25%
Maximum Green (s)	28.7	17.5	7.5	52.7	17.5	25.7
Yellow Time (s)	4.3	3.5	3.5	4.3	3.5	4.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-2.0	-2.0					-2.3	-2.3			
Total Lost Time (s)		4.0	4.0					4.0	4.0			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		26.4	26.4					31.1	31.1	46.9	85.3	
Actuated g/C Ratio		0.22	0.22					0.26	0.26	0.39	0.71	
v/c Ratio		0.51	0.82					0.37	0.59	0.47	0.27	
Control Delay		45.4	41.3					38.2	4.8	13.4	1.2	
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		45.4	41.3					38.2	4.8	13.4	1.2	
LOS		D	D					D	A	B	A	
Approach Delay		42.7						21.0			6.0	
Approach LOS		D						C			A	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 120.5
Natural Cycle: 115
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 63.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: Avondale Blvd & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	Min	Min
Walk Time (s)				7.0		7.0
Flash Dont Walk (s)				22.0		15.0
Pedestrian Calls (#/hr)				5		5
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

Lanes, Volumes, Timings
6: Avondale Blvd & I-10 WB Ramps

05/05/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	848	0	352	294	547	0	0	786	128
Future Volume (vph)	0	0	0	848	0	352	294	547	0	0	786	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		375	300		0	300		0
Storage Lanes	0		0	1		2	2		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.88	0.97	0.91	1.00	1.00	0.81	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1681	1681	2787	3433	5085	0	0	7544	1583
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1681	1681	2787	3433	5085	0	0	7544	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						383						170
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		1334			1499			511			1483	
Travel Time (s)		30.3			22.7			11.6			33.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	922	0	383	320	595	0	0	854	139
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	461	461	383	320	595	0	0	854	139
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	100	20	20	100			100	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						1
Detector Phase				4	4	4	2 3	1 2 3			1	1
Switch Phase												
Minimum Initial (s)				25.0	25.0	25.0					25.0	25.0
Minimum Split (s)				35.3	35.3	35.3					36.0	36.0
Total Split (s)				59.0	59.0	59.0					36.0	36.0
Total Split (%)				45.4%	45.4%	45.4%					27.7%	27.7%
Maximum Green (s)				52.7	52.7	52.7					29.7	29.7
Yellow Time (s)				4.3	4.3	4.3					4.3	4.3
All-Red Time (s)				2.0	2.0	2.0					2.0	2.0

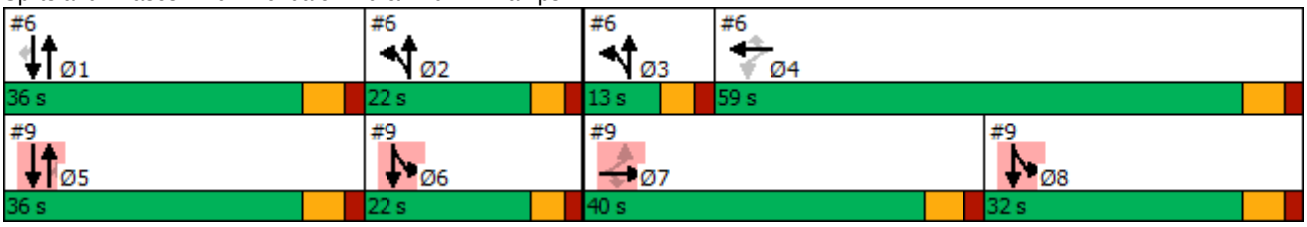
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	7.5	13.7	9.5	10.0	25.0
Minimum Split (s)	20.0	13.0	35.3	15.0	20.0	31.3
Total Split (s)	22.0	13.0	36.0	22.0	40.0	32.0
Total Split (%)	17%	10%	28%	17%	31%	25%
Maximum Green (s)	16.5	7.5	29.7	16.5	34.0	25.7
Yellow Time (s)	3.5	3.5	4.3	3.5	4.0	4.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.5	-1.5	-1.5					-2.3	0.0
Total Lost Time (s)				4.8	4.8	4.8					4.0	6.3
Lead/Lag				Lag	Lag	Lag					Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Recall Mode				None	None	None					Min	Min
Walk Time (s)				7.0	7.0	7.0					7.0	7.0
Flash Dont Walk (s)				22.0	22.0	22.0					22.0	22.0
Pedestrian Calls (#/hr)				5	5	5					5	5
Act Effct Green (s)				42.4	42.4	42.4	33.6	66.9			30.2	27.9
Actuated g/C Ratio				0.36	0.36	0.36	0.28	0.56			0.25	0.24
v/c Ratio				0.77	0.77	0.31	0.33	0.21			0.44	0.28
Control Delay				42.7	42.7	2.9	35.8	9.8			38.5	4.3
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				42.7	42.7	2.9	35.8	9.8			38.5	4.3
LOS				D	D	A	D	A			D	A
Approach Delay					31.0			18.9			33.7	
Approach LOS					C			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 118.6
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 28.4 Intersection LOS: C
Intersection Capacity Utilization 65.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 6: Avondale Blvd & I-10 WB Ramps



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	None	Min	None	None	None
Walk Time (s)			7.0			7.0
Flash Dont Walk (s)			22.0			15.0
Pedestrian Calls (#/hr)			5			5
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

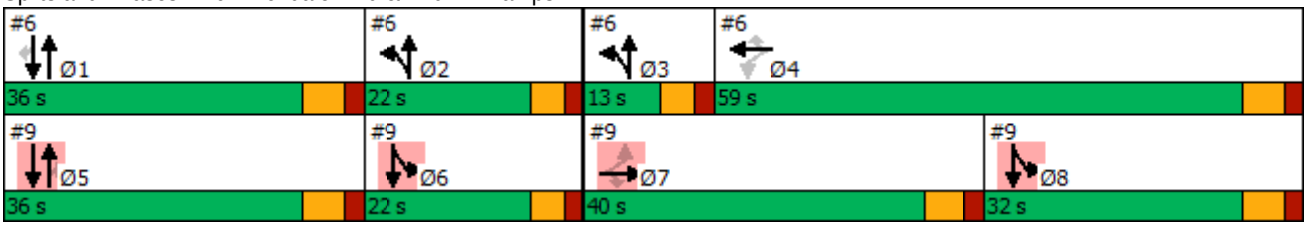
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	0	353	0	0	0	0	661	746	575	898	0
Future Volume (vph)	180	0	353	0	0	0	0	661	746	575	898	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	125		175	300		0
Storage Lanes	0		1	0		0	2		2	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.81	0.88	0.97	0.91	1.00
Frt			0.850						0.850			
Flt Protected		0.950								0.950		
Satd. Flow (prot)	0	1770	2787	0	0	0	0	7544	2787	3433	5085	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	2787	0	0	0	0	7544	2787	3433	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			271						811			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		1433			1673			632			511	
Travel Time (s)		32.6			38.0			12.3			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	0	384	0	0	0	0	718	811	625	976	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	384	0	0	0	0	718	811	625	976	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						5		6 8	5 6 8	
Permitted Phases	7		7						5			
Detector Phase	7	7	7					5	5	6 8	5 6 8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					13.7	13.7			
Minimum Split (s)	20.0	20.0	20.0					35.3	35.3			
Total Split (s)	40.0	40.0	40.0					36.0	36.0			
Total Split (%)	30.8%	30.8%	30.8%					27.7%	27.7%			
Maximum Green (s)	34.0	34.0	34.0					29.7	29.7			
Yellow Time (s)	4.0	4.0	4.0					4.3	4.3			
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0			

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	25.0	10.0	7.5	25.0	9.5	25.0
Minimum Split (s)	36.0	20.0	13.0	35.3	15.0	31.3
Total Split (s)	36.0	22.0	13.0	59.0	22.0	32.0
Total Split (%)	28%	17%	10%	45%	17%	25%
Maximum Green (s)	29.7	16.5	7.5	52.7	16.5	25.7
Yellow Time (s)	4.3	3.5	3.5	4.3	3.5	4.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-2.0	-2.0					-2.3	-2.3			
Total Lost Time (s)		4.0	4.0					4.0	4.0			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								22.0	22.0			
Pedestrian Calls (#/hr)								5	5			
Act Effct Green (s)		21.5	21.5					32.2	32.2	48.8	88.2	
Actuated g/C Ratio		0.18	0.18					0.27	0.27	0.41	0.74	
v/c Ratio		0.61	0.53					0.35	0.60	0.44	0.26	
Control Delay		53.1	15.5					36.4	4.7	13.7	0.4	
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay		53.1	15.5					36.4	4.7	13.7	0.4	
LOS		D	B					D	A	B	A	
Approach Delay		28.2						19.6			5.6	
Approach LOS		C						B			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 118.6	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 14.9	Intersection LOS: B
Intersection Capacity Utilization 65.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Avondale Blvd & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	None	None	None
Walk Time (s)	7.0			7.0		7.0
Flash Dont Walk (s)	22.0			22.0		15.0
Pedestrian Calls (#/hr)	5			5		5
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

Lanes, Volumes, Timings
6: Avondale Blvd & I-10 WB Ramps

05/05/2021

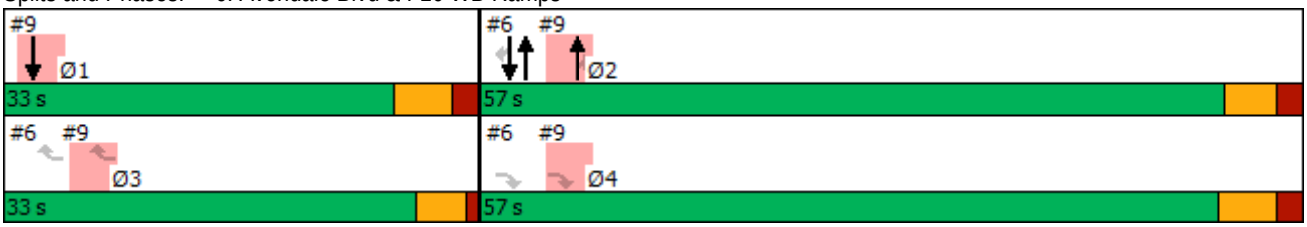
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	848	0	0	352	0	712	0	0	786	128
Future Volume (vph)	0	0	848	0	0	352	0	712	0	0	786	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	0.88	1.00	0.81	1.00	1.00	0.86	1.00
Frt			0.850			0.850						0.850
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	0	2787	0	7544	0	0	6408	1583
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	0	2787	0	7544	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			1920			347						139
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		1334			1499			511			1483	
Travel Time (s)		30.3			22.7			11.6			33.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	922	0	0	383	0	774	0	0	854	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	922	0	0	383	0	774	0	0	854	139
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1			1		1			1	1
Detector Template			Right			Right		Thru			Thru	Right
Leading Detector (ft)			20			20		100			100	20
Trailing Detector (ft)			0			0		0			0	0
Detector 1 Position(ft)			0			0		0			0	0
Detector 1 Size(ft)			20			20		100			100	20
Detector 1 Type			Cl+Ex			Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)			0.0			0.0		0.0			0.0	0.0
Detector 1 Queue (s)			0.0			0.0		0.0			0.0	0.0
Detector 1 Delay (s)			0.0			0.0		0.0			0.0	0.0
Turn Type			Perm			Perm		NA			NA	Perm
Protected Phases								2			2	
Permitted Phases			4			3						2
Detector Phase			4			3		2			2	2
Switch Phase												
Minimum Initial (s)			10.0			5.0		10.0			10.0	10.0
Minimum Split (s)			30.0			22.5		55.0			55.0	55.0
Total Split (s)			57.0			33.0		57.0			57.0	57.0
Total Split (%)			63.3%			36.7%		63.3%			63.3%	63.3%
Maximum Green (s)			51.0			28.5		51.5			51.5	51.5
Yellow Time (s)			4.0			3.5		3.5			3.5	3.5
All-Red Time (s)			2.0			1.0		2.0			2.0	2.0
Lost Time Adjust (s)			0.0			-1.5		-1.8			-2.3	0.0
Total Lost Time (s)			6.0			3.0		3.7			3.2	5.5
Lead/Lag												

Lane Group	Ø1
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	30.0
Total Split (s)	33.0
Total Split (%)	37%
Maximum Green (s)	27.0
Yellow Time (s)	4.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0			3.0		3.0			3.0	3.0
Recall Mode			None			None		Min			Min	Min
Walk Time (s)						7.0						
Flash Dont Walk (s)						11.0						
Pedestrian Calls (#/hr)						0						
Act Effct Green (s)			51.0			30.0		53.3			53.8	51.5
Actuated g/C Ratio			0.57			0.33		0.59			0.60	0.57
v/c Ratio			0.38			0.33		0.17			0.22	0.14
Control Delay			0.5			4.5		5.3			8.6	2.0
Queue Delay			0.0			0.0		0.0			0.0	0.0
Total Delay			0.5			4.5		5.3			8.6	2.0
LOS			A			A		A			A	A
Approach Delay		0.5			4.5			5.3			7.7	
Approach LOS		A			A			A			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 4.5	Intersection LOS: A
Intersection Capacity Utilization 49.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Avondale Blvd & I-10 WB Ramps



Lane Group	Ø1
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

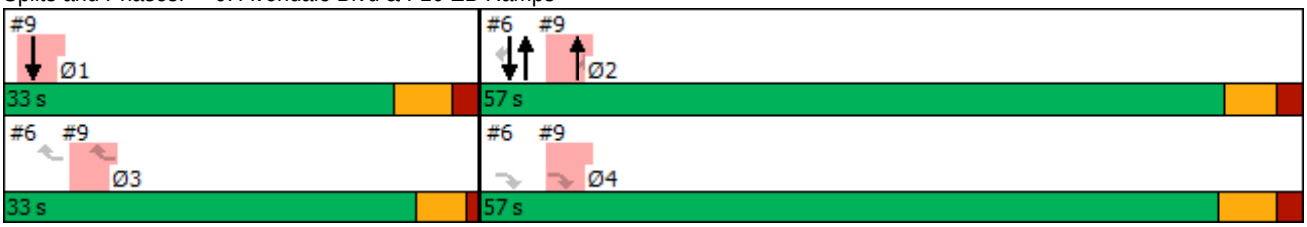
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	353	0	0	180	0	661	746	0	1620	0
Future Volume (vph)	0	0	353	0	0	180	0	661	746	0	1620	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.88	1.00	0.81	1.00
Frt			0.865			0.865			0.850			
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	7544	2787	0	7544	0
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	7544	2787	0	7544	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			36			227			811			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		1433			1673			632			511	
Travel Time (s)		32.6			38.0			12.3			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	384	0	0	196	0	718	811	0	1761	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	384	0	0	196	0	718	811	0	1761	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1			1		1	1		1	
Detector Template			Right			Right		Thru	Right		Thru	
Leading Detector (ft)			20			20		100	20		100	
Trailing Detector (ft)			0			0		0	0		0	
Detector 1 Position(ft)			0			0		0	0		0	
Detector 1 Size(ft)			20			20		100	20		100	
Detector 1 Type			Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)			0.0			0.0		0.0	0.0		0.0	
Detector 1 Queue (s)			0.0			0.0		0.0	0.0		0.0	
Detector 1 Delay (s)			0.0			0.0		0.0	0.0		0.0	
Turn Type			Perm			Perm		NA	Perm		NA	
Protected Phases								2			1	
Permitted Phases			4			3			2			
Detector Phase			4			3		2	2		1	
Switch Phase												
Minimum Initial (s)			10.0			5.0		10.0	10.0		10.0	
Minimum Split (s)			30.0			22.5		55.0	55.0		30.0	
Total Split (s)			57.0			33.0		57.0	57.0		33.0	
Total Split (%)			63.3%			36.7%		63.3%	63.3%		36.7%	
Maximum Green (s)			51.0			28.5		51.5	51.5		27.0	
Yellow Time (s)			4.0			3.5		3.5	3.5		4.0	
All-Red Time (s)			2.0			1.0		2.0	2.0		2.0	
Lost Time Adjust (s)			-2.0			0.0		-2.3	-2.3		-1.5	
Total Lost Time (s)			4.0			4.5		3.2	3.2		4.5	
Lead/Lag												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	
Recall Mode			None			None		Min	Min		None	
Walk Time (s)						7.0						
Flash Dont Walk (s)						11.0						
Pedestrian Calls (#/hr)						0						
Act Effct Green (s)			53.0			28.5		53.8	53.8		28.5	
Actuated g/C Ratio			0.59			0.32		0.60	0.60		0.32	
v/c Ratio			0.40			0.29		0.16	0.41		0.74	
Control Delay			10.4			3.3		8.2	1.3		35.0	
Queue Delay			0.0			0.0		0.0	0.0		0.0	
Total Delay			10.4			3.3		8.2	1.3		35.0	
LOS			B			A		A	A		C	
Approach Delay		10.4			3.3			4.5			35.0	
Approach LOS		B			A			A			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 18.9	Intersection LOS: B
Intersection Capacity Utilization 47.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Avondale Blvd & I-10 EB Ramps



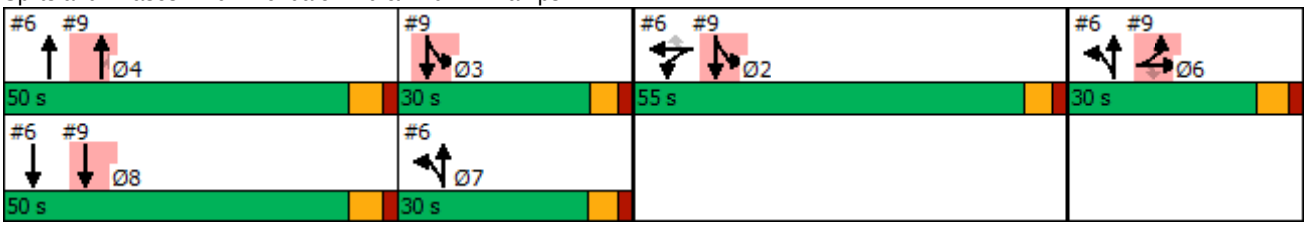
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	1076	0	495	357	547	0	0	828	147
Future Volume (vph)	0	0	0	1076	0	495	357	547	0	0	828	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		375	300		0	300		0
Storage Lanes	0		0	1		2	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.88	0.97	0.91	1.00	1.00	0.81	0.81
Frt						0.850					0.977	
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1681	1681	2787	3433	5085	0	0	7371	0
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1681	1681	2787	3433	5085	0	0	7371	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						465					27	
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		1334			1499			511			1483	
Travel Time (s)		30.3			22.7			11.6			33.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1170	0	538	388	595	0	0	900	160
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	585	585	538	388	595	0	0	1060	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				2	2		6 7	4 6 7			8	
Permitted Phases						2						
Detector Phase				2	2	2	6 7	4 6 7			8	
Switch Phase												
Minimum Initial (s)				10.0	10.0	10.0					25.0	
Minimum Split (s)				55.0	55.0	55.0					31.3	
Total Split (s)				55.0	55.0	55.0					50.0	
Total Split (%)				33.3%	33.3%	33.3%					30.3%	
Maximum Green (s)				49.5	49.5	49.5					43.7	
Yellow Time (s)				3.5	3.5	3.5					4.3	
All-Red Time (s)				2.0	2.0	2.0					2.0	

Lane Group	Ø3	Ø4	Ø6	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Turn Type				
Protected Phases	3	4	6	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	8.0	25.0	10.0	8.0
Minimum Split (s)	13.5	35.3	30.0	14.0
Total Split (s)	30.0	50.0	30.0	30.0
Total Split (%)	18%	30%	18%	18%
Maximum Green (s)	24.5	43.7	24.0	24.0
Yellow Time (s)	3.5	4.3	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.5	-1.5	-1.5					-2.3	
Total Lost Time (s)				4.0	4.0	4.0					4.0	
Lead/Lag											Lead	
Lead-Lag Optimize?											Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				Min	Min	Min					Min	
Walk Time (s)											7.0	
Flash Dont Walk (s)											15.0	
Pedestrian Calls (#/hr)											5	
Act Effct Green (s)				51.1	51.1	51.1	48.9	100.2			46.1	
Actuated g/C Ratio				0.32	0.32	0.32	0.30	0.62			0.28	
v/c Ratio				1.11	1.11	0.45	0.38	0.19			0.50	
Control Delay				121.3	121.3	8.0	34.4	0.2			48.4	
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay				121.3	121.3	8.0	34.4	0.2			48.4	
LOS				F	F	A	C	A			D	
Approach Delay					85.6			13.7			48.4	
Approach LOS					F			B			D	

Intersection Summary	
Area Type: Other	
Cycle Length: 165	
Actuated Cycle Length: 162	
Natural Cycle: 135	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 56.2	Intersection LOS: E
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Avondale Blvd & I-10 WB Ramps



Lane Group	Ø3	Ø4	Ø6	Ø7
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	Min	None	None
Walk Time (s)		7.0		
Flash Dont Walk (s)		22.0		
Pedestrian Calls (#/hr)		5		
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				

Intersection Summary

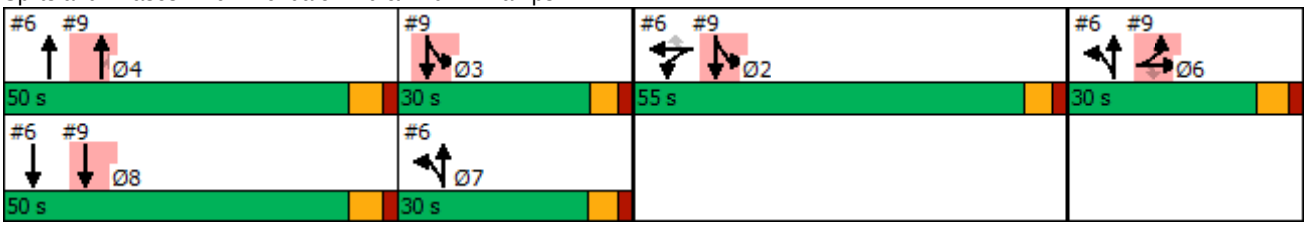
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	0	233	0	0	0	0	854	701	397	1507	0
Future Volume (vph)	50	0	233	0	0	0	0	854	701	397	1507	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	125		275	300		0
Storage Lanes	0		1	0		0	2		2	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.88	0.97	0.91	1.00
Frt			0.850						0.850			
Flt Protected		0.950								0.950		
Satd. Flow (prot)	0	1770	1583	0	0	0	0	7544	2787	3433	5085	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	7544	2787	3433	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			98						762			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		1433			1673			632			511	
Travel Time (s)		32.6			38.0			12.3			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	0	253	0	0	0	0	928	762	432	1638	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	253	0	0	0	0	928	762	432	1638	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	6	6						4		2 3	2 3 8	
Permitted Phases			6						4			
Detector Phase	6	6	6					4	4	2 3	2 3 8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					25.0	25.0			
Minimum Split (s)	30.0	30.0	30.0					35.3	35.3			
Total Split (s)	30.0	30.0	30.0					50.0	50.0			
Total Split (%)	18.2%	18.2%	18.2%					30.3%	30.3%			
Maximum Green (s)	24.0	24.0	24.0					43.7	43.7			
Yellow Time (s)	4.0	4.0	4.0					4.3	4.3			
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0			

Lane Group	Ø2	Ø3	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Turn Type				
Protected Phases	2	3	7	8
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	10.0	8.0	8.0	25.0
Minimum Split (s)	55.0	13.5	14.0	31.3
Total Split (s)	55.0	30.0	30.0	50.0
Total Split (%)	33%	18%	18%	30%
Maximum Green (s)	49.5	24.5	24.0	43.7
Yellow Time (s)	3.5	3.5	4.0	4.3
All-Red Time (s)	2.0	2.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-2.0	-2.0					-2.3	-2.3			
Total Lost Time (s)		4.0	4.0					4.0	4.0			
Lead/Lag								Lead	Lead			
Lead-Lag Optimize?								Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								22.0	22.0			
Pedestrian Calls (#/hr)								5	5			
Act Effct Green (s)		24.0	24.0					44.8	44.8	81.1	129.9	
Actuated g/C Ratio		0.15	0.15					0.28	0.28	0.50	0.80	
v/c Ratio		0.21	0.80					0.44	0.58	0.25	0.40	
Control Delay		62.8	58.9					49.2	4.7	22.9	3.7	
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.4	
Total Delay		62.8	58.9					49.2	4.7	22.9	4.1	
LOS		E	E					D	A	C	A	
Approach Delay		59.5						29.1			8.0	
Approach LOS		E						C			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 165	
Actuated Cycle Length: 162	
Natural Cycle: 135	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Avondale Blvd & I-10 EB Ramps



Lane Group	Ø2	Ø3	Ø7	Ø8
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag		Lag	Lag	Lead
Lead-Lag Optimize?		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Min	None	None	Min
Walk Time (s)				7.0
Flash Dont Walk (s)				15.0
Pedestrian Calls (#/hr)				5
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	1076	0	495	357	547	0	0	828	147
Future Volume (vph)	0	0	0	1076	0	495	357	547	0	0	828	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		375	300		0	300		0
Storage Lanes	0		0	1		2	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.88	0.97	0.91	1.00	1.00	0.81	0.81
Frt						0.850					0.977	
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1681	1681	2787	3433	5085	0	0	7371	0
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1681	1681	2787	3433	5085	0	0	7371	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						421					32	
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		1334			1499			511			1483	
Travel Time (s)		30.3			22.7			11.6			33.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1170	0	538	388	595	0	0	900	160
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	585	585	538	388	595	0	0	1060	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				2	2		6 7	4 6 7			8	
Permitted Phases						2						
Detector Phase				2	2	2	6 7	4 6 7			8	
Switch Phase												
Minimum Initial (s)				10.0	10.0	10.0					25.0	
Minimum Split (s)				20.0	20.0	20.0					31.3	
Total Split (s)				59.0	59.0	59.0					35.0	
Total Split (%)				45.4%	45.4%	45.4%					26.9%	
Maximum Green (s)				53.5	53.5	53.5					28.7	
Yellow Time (s)				3.5	3.5	3.5					4.3	
All-Red Time (s)				2.0	2.0	2.0					2.0	

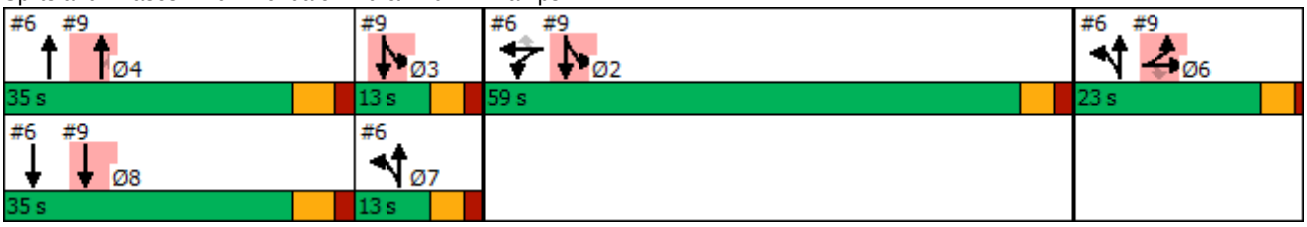
Lane Group	Ø3	Ø4	Ø6	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Turn Type				
Protected Phases	3	4	6	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	7.5	25.0	5.0	7.5
Minimum Split (s)	13.0	35.0	22.5	13.0
Total Split (s)	13.0	35.0	23.0	13.0
Total Split (%)	10%	27%	18%	10%
Maximum Green (s)	7.5	28.7	18.5	7.5
Yellow Time (s)	3.5	4.3	3.5	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.5	-1.5	-1.5					-2.3	
Total Lost Time (s)				4.0	4.0	4.0					4.0	
Lead/Lag											Lead	
Lead-Lag Optimize?											Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				Min	Min	Min					Min	
Walk Time (s)											7.0	
Flash Dont Walk (s)											15.0	
Pedestrian Calls (#/hr)											5	
Act Effct Green (s)				55.0	55.0	55.0	30.2	65.7			31.0	
Actuated g/C Ratio				0.43	0.43	0.43	0.23	0.51			0.24	
v/c Ratio				0.82	0.82	0.38	0.48	0.23			0.59	
Control Delay				43.8	43.8	6.2	38.0	0.2			43.8	
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay				43.8	43.8	6.2	38.0	0.2			43.8	
LOS				D	D	A	D	A			D	
Approach Delay					32.0			15.1			43.8	
Approach LOS					C			B			D	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 129.2
Natural Cycle: 105
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 30.9 Intersection LOS: C
Intersection Capacity Utilization 70.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 6: Avondale Blvd & I-10 WB Ramps



Lane Group	Ø3	Ø4	Ø6	Ø7
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	Min	None	None
Walk Time (s)			7.0	
Flash Dont Walk (s)			11.0	
Pedestrian Calls (#/hr)			0	
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				

Intersection Summary

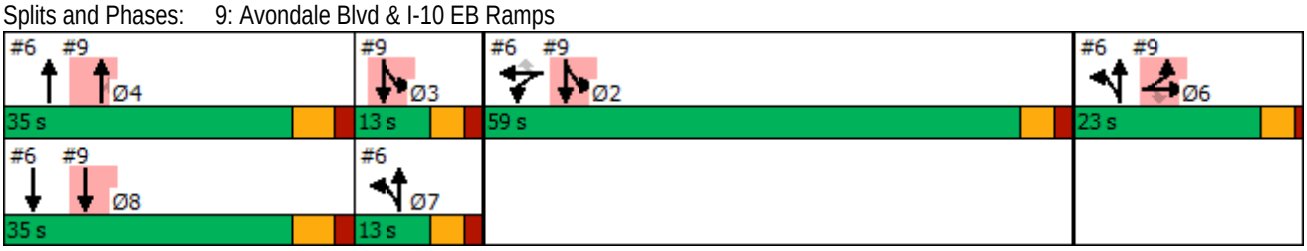
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	0	233	0	0	0	0	854	701	397	1507	0
Future Volume (vph)	50	0	233	0	0	0	0	854	701	397	1507	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	125		275	300		0
Storage Lanes	0		1	0		0	2		2	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.88	0.97	0.91	1.00
Frt			0.850						0.850			
Flt Protected		0.950								0.950		
Satd. Flow (prot)	0	1770	1583	0	0	0	0	7544	2787	3433	5085	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	7544	2787	3433	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120						762			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		1433			1673			632			511	
Travel Time (s)		32.6			38.0			12.3			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	0	253	0	0	0	0	928	762	432	1638	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	253	0	0	0	0	928	762	432	1638	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	6	6						4		2 3	2 3 8	
Permitted Phases			6						4			
Detector Phase	6	6	6					4	4	2 3	2 3 8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					25.0	25.0			
Minimum Split (s)	22.5	22.5	22.5					35.0	35.0			
Total Split (s)	23.0	23.0	23.0					35.0	35.0			
Total Split (%)	17.7%	17.7%	17.7%					26.9%	26.9%			
Maximum Green (s)	18.5	18.5	18.5					28.7	28.7			
Yellow Time (s)	3.5	3.5	3.5					4.3	4.3			
All-Red Time (s)	1.0	1.0	1.0					2.0	2.0			

Lane Group	Ø2	Ø3	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Turn Type				
Protected Phases	2	3	7	8
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	10.0	7.5	7.5	25.0
Minimum Split (s)	20.0	13.0	13.0	31.3
Total Split (s)	59.0	13.0	13.0	35.0
Total Split (%)	45%	10%	10%	27%
Maximum Green (s)	53.5	7.5	7.5	28.7
Yellow Time (s)	3.5	3.5	3.5	4.3
All-Red Time (s)	2.0	2.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-2.0	-2.0					-2.3	-2.3			
Total Lost Time (s)		2.5	2.5					4.0	4.0			
Lead/Lag								Lead	Lead			
Lead-Lag Optimize?								Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)	7.0	7.0	7.0									
Flash Dont Walk (s)	11.0	11.0	11.0									
Pedestrian Calls (#/hr)	0	0	0									
Act Effct Green (s)		19.6	19.6					31.0	31.0	68.0	103.0	
Actuated g/C Ratio		0.15	0.15					0.24	0.24	0.53	0.80	
v/c Ratio		0.20	0.74					0.51	0.61	0.24	0.40	
Control Delay		49.9	41.0					43.8	5.0	12.5	1.9	
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.3	
Total Delay		49.9	41.0					43.8	5.0	12.5	2.2	
LOS		D	D					D	A	B	A	
Approach Delay		42.5						26.3			4.4	
Approach LOS		D						C			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 129.2	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 16.4	Intersection LOS: B
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Avondale Blvd & I-10 EB Ramps



Lane Group	Ø2	Ø3	Ø7	Ø8
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag		Lag	Lag	Lead
Lead-Lag Optimize?		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Min	None	None	Min
Walk Time (s)				7.0
Flash Dont Walk (s)				15.0
Pedestrian Calls (#/hr)				5
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				

Intersection Summary

Lanes, Volumes, Timings
6: Avondale Blvd & I-10 WB Ramps

05/05/2021

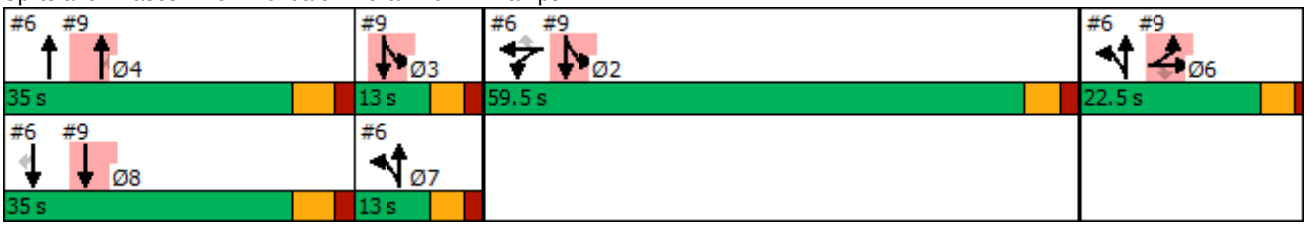
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	1076	0	495	357	547	0	0	828	147
Future Volume (vph)	0	0	0	1076	0	495	357	547	0	0	828	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		375	300		0	300		0
Storage Lanes	0		0	1		2	2		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.88	0.97	0.91	1.00	1.00	0.81	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1681	1681	2787	3433	5085	0	0	7544	1583
Flt Permitted				0.950	0.950		0.950					
Satd. Flow (perm)	0	0	0	1681	1681	2787	3433	5085	0	0	7544	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						416						160
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		1334			1499			511			1483	
Travel Time (s)		30.3			22.7			11.6			33.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1170	0	538	388	595	0	0	900	160
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	585	585	538	388	595	0	0	900	160
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	100	20	20	100			100	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				2	2		6 7	4 6 7			8	
Permitted Phases						2						8
Detector Phase				2	2	2	6 7	4 6 7			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0	10.0					25.0	25.0
Minimum Split (s)				20.0	20.0	20.0					31.3	31.3
Total Split (s)				59.5	59.5	59.5					35.0	35.0
Total Split (%)				45.8%	45.8%	45.8%					26.9%	26.9%
Maximum Green (s)				54.0	54.0	54.0					28.7	28.7
Yellow Time (s)				3.5	3.5	3.5					4.3	4.3
All-Red Time (s)				2.0	2.0	2.0					2.0	2.0

Lane Group	Ø3	Ø4	Ø6	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Turn Type				
Protected Phases	3	4	6	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	7.5	25.0	5.0	7.5
Minimum Split (s)	13.0	35.0	22.5	13.0
Total Split (s)	13.0	35.0	22.5	13.0
Total Split (%)	10%	27%	17%	10%
Maximum Green (s)	7.5	28.7	18.0	7.5
Yellow Time (s)	3.5	4.3	3.5	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.5	-1.5	-1.5					-2.3	0.0
Total Lost Time (s)				4.0	4.0	4.0					4.0	6.3
Lead/Lag											Lead	Lead
Lead-Lag Optimize?											Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Recall Mode				Min	Min	Min					Min	Min
Walk Time (s)											7.0	7.0
Flash Dont Walk (s)											15.0	15.0
Pedestrian Calls (#/hr)											5	5
Act Effct Green (s)				55.5	55.5	55.5	29.8	65.3			31.0	28.7
Actuated g/C Ratio				0.43	0.43	0.43	0.23	0.51			0.24	0.22
v/c Ratio				0.81	0.81	0.38	0.49	0.23			0.50	0.34
Control Delay				43.0	43.0	6.3	38.2	0.2			43.6	8.1
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				43.0	43.0	6.3	38.2	0.2			43.6	8.1
LOS				D	D	A	D	A			D	A
Approach Delay					31.5			15.2			38.3	
Approach LOS					C			B			D	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 129.3	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 29.1	Intersection LOS: C
Intersection Capacity Utilization 72.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Avondale Blvd & I-10 WB Ramps



Lane Group	Ø3	Ø4	Ø6	Ø7
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	Min	None	None
Walk Time (s)			7.0	
Flash Dont Walk (s)			11.0	
Pedestrian Calls (#/hr)			0	
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				

Intersection Summary

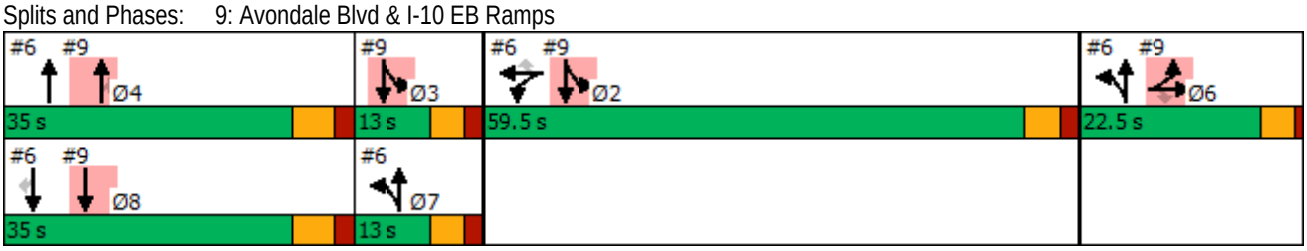
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	0	233	0	0	0	0	854	701	397	1507	0
Future Volume (vph)	50	0	233	0	0	0	0	854	701	397	1507	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	125		275	300		0
Storage Lanes	0		1	0		0	2		2	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.81	0.88	0.97	0.91	1.00
Frt			0.850						0.850			
Flt Protected		0.950								0.950		
Satd. Flow (prot)	0	1770	2787	0	0	0	0	7544	2787	3433	5085	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	2787	0	0	0	0	7544	2787	3433	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			123						762			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		1433			1673			632			511	
Travel Time (s)		32.6			38.0			12.3			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	0	253	0	0	0	0	928	762	432	1638	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	253	0	0	0	0	928	762	432	1638	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	6	6						4		2 3	2 3 8	
Permitted Phases			6						4			
Detector Phase	6	6	6					4	4	2 3	2 3 8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					25.0	25.0			
Minimum Split (s)	22.5	22.5	22.5					35.0	35.0			
Total Split (s)	22.5	22.5	22.5					35.0	35.0			
Total Split (%)	17.3%	17.3%	17.3%					26.9%	26.9%			
Maximum Green (s)	18.0	18.0	18.0					28.7	28.7			
Yellow Time (s)	3.5	3.5	3.5					4.3	4.3			
All-Red Time (s)	1.0	1.0	1.0					2.0	2.0			

Lane Group	Ø2	Ø3	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Turn Type				
Protected Phases	2	3	7	8
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	10.0	7.5	7.5	25.0
Minimum Split (s)	20.0	13.0	13.0	31.3
Total Split (s)	59.5	13.0	13.0	35.0
Total Split (%)	46%	10%	10%	27%
Maximum Green (s)	54.0	7.5	7.5	28.7
Yellow Time (s)	3.5	3.5	3.5	4.3
All-Red Time (s)	2.0	2.0	2.0	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-2.0	-2.0					-2.3	-2.3			
Total Lost Time (s)		2.5	2.5					4.0	4.0			
Lead/Lag								Lead	Lead			
Lead-Lag Optimize?								Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)	7.0	7.0	7.0									
Flash Dont Walk (s)	11.0	11.0	11.0									
Pedestrian Calls (#/hr)	0	0	0									
Act Effct Green (s)		19.3	19.3					31.0	31.0	68.5	103.5	
Actuated g/C Ratio		0.15	0.15					0.24	0.24	0.53	0.80	
v/c Ratio		0.21	0.49					0.51	0.61	0.24	0.40	
Control Delay		50.4	28.8					43.9	5.0	12.9	2.3	
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.3	
Total Delay		50.4	28.8					43.9	5.0	12.9	2.5	
LOS		D	C					D	A	B	A	
Approach Delay		32.6						26.4			4.7	
Approach LOS		C						C			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 129.3	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 72.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Avondale Blvd & I-10 EB Ramps



Lane Group	Ø2	Ø3	Ø7	Ø8
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag		Lag	Lag	Lead
Lead-Lag Optimize?		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Min	None	None	Min
Walk Time (s)				7.0
Flash Dont Walk (s)				15.0
Pedestrian Calls (#/hr)				5
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				

Intersection Summary

Lanes, Volumes, Timings
6: Avondale Blvd & I-10 WB Ramps

05/05/2021

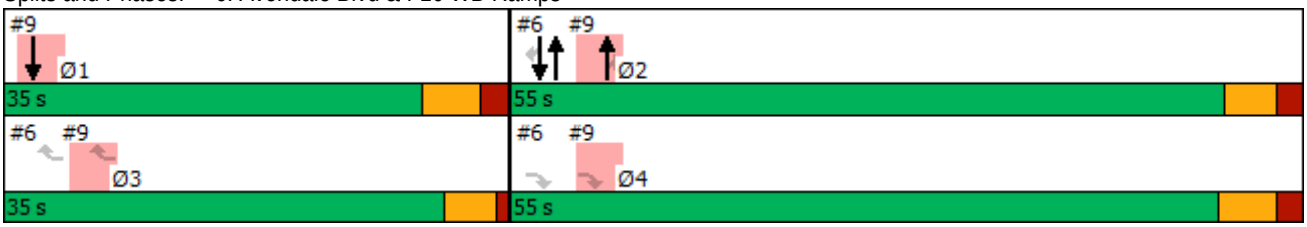
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	1076	0	0	495	0	904	0	0	828	147
Future Volume (vph)	0	0	1076	0	0	495	0	904	0	0	828	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	0.88	1.00	0.81	1.00	1.00	0.86	1.00
Frt			0.850			0.850						0.850
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	0	2787	0	7544	0	0	6408	1583
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	0	2787	0	7544	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			1920			196						160
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		1334			1499			511			1483	
Travel Time (s)		30.3			22.7			11.6			33.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1170	0	0	538	0	983	0	0	900	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1170	0	0	538	0	983	0	0	900	160
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1			1		1			1	1
Detector Template			Right			Right		Thru			Thru	Right
Leading Detector (ft)			20			20		100			100	20
Trailing Detector (ft)			0			0		0			0	0
Detector 1 Position(ft)			0			0		0			0	0
Detector 1 Size(ft)			20			20		100			100	20
Detector 1 Type			Cl+Ex			Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)			0.0			0.0		0.0			0.0	0.0
Detector 1 Queue (s)			0.0			0.0		0.0			0.0	0.0
Detector 1 Delay (s)			0.0			0.0		0.0			0.0	0.0
Turn Type			Perm			Perm		NA			NA	Perm
Protected Phases								2			2	
Permitted Phases			4			3						2
Detector Phase			4			3		2			2	2
Switch Phase												
Minimum Initial (s)			10.0			5.0		10.0			10.0	10.0
Minimum Split (s)			30.0			22.5		55.0			55.0	55.0
Total Split (s)			55.0			35.0		55.0			55.0	55.0
Total Split (%)			61.1%			38.9%		61.1%			61.1%	61.1%
Maximum Green (s)			49.0			30.5		49.5			49.5	49.5
Yellow Time (s)			4.0			3.5		3.5			3.5	3.5
All-Red Time (s)			2.0			1.0		2.0			2.0	2.0
Lost Time Adjust (s)			0.0			-1.5		-1.8			-2.3	0.0
Total Lost Time (s)			6.0			3.0		3.7			3.2	5.5
Lead/Lag												

Lane Group	Ø1
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	30.0
Total Split (s)	35.0
Total Split (%)	39%
Maximum Green (s)	29.0
Yellow Time (s)	4.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0			3.0		3.0			3.0	3.0
Recall Mode			None			None		Min			Min	Min
Walk Time (s)						7.0						
Flash Dont Walk (s)						11.0						
Pedestrian Calls (#/hr)						0						
Act Effct Green (s)			49.0			32.0		51.3			51.8	49.5
Actuated g/C Ratio			0.54			0.36		0.57			0.58	0.55
v/c Ratio			0.49			0.48		0.23			0.24	0.17
Control Delay			0.7			15.5		4.9			9.6	2.1
Queue Delay			0.0			0.0		0.0			0.0	0.0
Total Delay			0.7			15.5		4.9			9.6	2.1
LOS			A			B		A			A	A
Approach Delay		0.7			15.5			4.9			8.5	
Approach LOS		A			B			A			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 6.1	Intersection LOS: A
Intersection Capacity Utilization 58.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Avondale Blvd & I-10 WB Ramps



Lane Group	Ø1
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

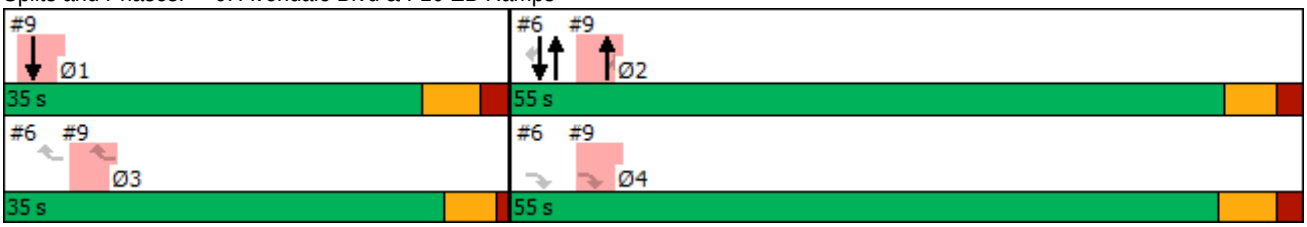
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	233	0	0	50	0	854	701	0	1904	0
Future Volume (vph)	0	0	233	0	0	50	0	854	701	0	1904	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.88	1.00	0.81	1.00
Frt			0.865			0.865			0.850			
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	7544	2787	0	7544	0
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	7544	2787	0	7544	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			36			130			762			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		1433			1673			632			511	
Travel Time (s)		32.6			38.0			12.3			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	253	0	0	54	0	928	762	0	2070	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	253	0	0	54	0	928	762	0	2070	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1			1		1	1		1	
Detector Template			Right			Right		Thru	Right		Thru	
Leading Detector (ft)			20			20		100	20		100	
Trailing Detector (ft)			0			0		0	0		0	
Detector 1 Position(ft)			0			0		0	0		0	
Detector 1 Size(ft)			20			20		100	20		100	
Detector 1 Type			Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)			0.0			0.0		0.0	0.0		0.0	
Detector 1 Queue (s)			0.0			0.0		0.0	0.0		0.0	
Detector 1 Delay (s)			0.0			0.0		0.0	0.0		0.0	
Turn Type			Perm			Perm		NA	Perm		NA	
Protected Phases								2			1	
Permitted Phases			4			3			2			
Detector Phase			4			3		2	2		1	
Switch Phase												
Minimum Initial (s)			10.0			5.0		10.0	10.0		10.0	
Minimum Split (s)			30.0			22.5		55.0	55.0		30.0	
Total Split (s)			55.0			35.0		55.0	55.0		35.0	
Total Split (%)			61.1%			38.9%		61.1%	61.1%		38.9%	
Maximum Green (s)			49.0			30.5		49.5	49.5		29.0	
Yellow Time (s)			4.0			3.5		3.5	3.5		4.0	
All-Red Time (s)			2.0			1.0		2.0	2.0		2.0	
Lost Time Adjust (s)			-2.0			0.0		-2.3	-2.3		-1.5	
Total Lost Time (s)			4.0			4.5		3.2	3.2		4.5	
Lead/Lag												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	
Recall Mode			None			None		Min	Min		None	
Walk Time (s)						7.0						
Flash Dont Walk (s)						11.0						
Pedestrian Calls (#/hr)						0						
Act Effct Green (s)			51.0			30.5		51.8	51.8		30.5	
Actuated g/C Ratio			0.57			0.34		0.58	0.58		0.34	
v/c Ratio			0.27			0.09		0.21	0.40		0.81	
Control Delay			9.4			0.3		9.4	1.3		35.4	
Queue Delay			0.0			0.0		0.0	0.0		0.0	
Total Delay			9.4			0.3		9.4	1.3		35.4	
LOS			A			A		A	A		D	
Approach Delay		9.4			0.3			5.8			35.4	
Approach LOS		A			A			A			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 21.0	Intersection LOS: C
Intersection Capacity Utilization 43.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Avondale Blvd & I-10 EB Ramps



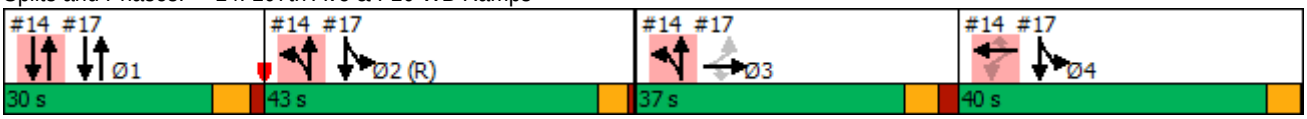
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	268	0	223	280	950	0	0	589	297
Future Volume (vph)	0	0	0	268	0	223	280	950	0	0	589	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	275		275	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.940	0.850					0.950	
Flt Protected				0.950	0.971		0.950					
Satd. Flow (prot)	0	0	0	1681	1547	1504	1770	3539	0	0	4831	0
Flt Permitted				0.950	0.971		0.950					
Satd. Flow (perm)	0	0	0	1681	1547	1504	1770	3539	0	0	4831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					99	160					73	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1317			1758			387			969	
Travel Time (s)		20.0			26.6			5.9			14.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	291	0	242	304	1033	0	0	640	323
Shared Lane Traffic (%)				37%		30%						
Lane Group Flow (vph)	0	0	0	183	181	169	304	1033	0	0	963	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.0	40.0	40.0					30.0	
Total Split (s)				40.0	40.0	40.0					30.0	
Total Split (%)				26.7%	26.7%	26.7%					20.0%	
Maximum Green (s)				35.6	35.6	35.6					24.0	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	

Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	6.0
Minimum Split (s)	22.5	12.1
Total Split (s)	43.0	37.0
Total Split (%)	29%	25%
Maximum Green (s)	38.5	30.9
Yellow Time (s)	3.5	3.9
All-Red Time (s)	1.0	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				0.0	0.0	-0.4					-2.0	
Total Lost Time (s)				4.4	4.4	4.0					4.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				None	None	None					Min	
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)				27.3	27.3	27.7	76.0	114.3			34.3	
Actuated g/C Ratio				0.18	0.18	0.18	0.51	0.76			0.23	
v/c Ratio				0.60	0.50	0.41	0.34	0.38			0.83	
Control Delay				63.4	27.9	10.9	22.1	2.6			57.9	
Queue Delay				0.0	0.0	0.0	6.2	3.0			0.6	
Total Delay				63.4	28.0	10.9	28.3	5.6			58.5	
LOS				E	C	B	C	A			E	
Approach Delay					34.7			10.8			58.5	
Approach LOS					C			B			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 31.5	Intersection LOS: C
Intersection Capacity Utilization 74.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 14: 107th Ave & I-10 WB Ramps



Lane Group	Ø2	Ø3
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None
Walk Time (s)	7.0	
Flash Dont Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

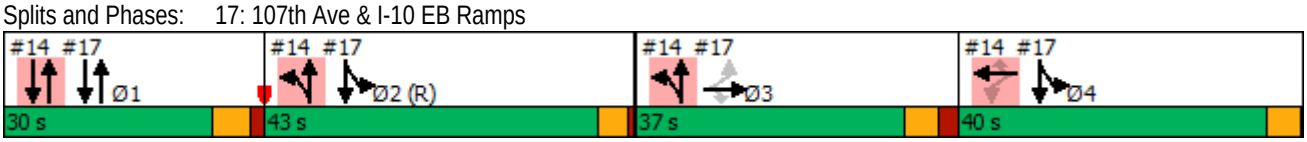
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	0	1119	0	0	0	0	897	246	399	468	0
Future Volume (vph)	292	0	1119	0	0	0	0	897	246	399	468	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	0		0	100		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.858	0.850					0.968				
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1681	1450	1504	0	0	0	0	4923	0	1770	3539	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	1681	1450	1504	0	0	0	0	4923	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		442	442					40				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1250			1451			3919			387	
Travel Time (s)		18.9			22.0			59.4			5.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	317	0	1216	0	0	0	0	975	267	434	509	0
Shared Lane Traffic (%)	10%		49%									
Lane Group Flow (vph)	285	628	620	0	0	0	0	1242	0	434	509	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1		1	1	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100		20	100	
Trailing Detector (ft)	0	0	0					0		0	0	
Detector 1 Position(ft)	0	0	0					0		0	0	
Detector 1 Size(ft)	20	100	20					100		20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	37.0	37.0	37.0					30.0				
Total Split (%)	24.7%	24.7%	24.7%					20.0%				
Maximum Green (s)	30.9	30.9	30.9					24.0				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	6.0
Minimum Split (s)	22.5	40.0
Total Split (s)	43.0	40.0
Total Split (%)	29%	27%
Maximum Green (s)	38.5	35.6
Yellow Time (s)	3.5	3.9
All-Red Time (s)	1.0	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.1	-2.1	-2.1					-2.0				
Total Lost Time (s)	4.0	4.0	4.0					4.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?	Yes	Yes	Yes					Yes				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Recall Mode	None	None	None					Min				
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	33.0	33.0	33.0					34.3		66.7	109.0	
Actuated g/C Ratio	0.22	0.22	0.22					0.23		0.44	0.73	
v/c Ratio	0.77	0.95	0.92					1.08		0.55	0.20	
Control Delay	70.0	41.0	35.9					100.2		23.6	0.9	
Queue Delay	0.0	1.5	0.0					4.2		0.7	0.4	
Total Delay	70.0	42.6	35.9					104.4		24.3	1.3	
LOS	E	D	D					F		C	A	
Approach Delay		45.0						104.4			11.9	
Approach LOS		D						F			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 56.4	Intersection LOS: E
Intersection Capacity Utilization 74.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 17: 107th Ave & I-10 EB Ramps



Lane Group	Ø2	Ø4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	11.0	11.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	268	0	223	280	950	0	0	589	297
Future Volume (vph)	0	0	0	268	0	223	280	950	0	0	589	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	275		275	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.940	0.850					0.950	
Flt Protected				0.950	0.971		0.950					
Satd. Flow (prot)	0	0	0	1681	1547	1504	1770	3539	0	0	4831	0
Flt Permitted				0.950	0.971		0.950					
Satd. Flow (perm)	0	0	0	1681	1547	1504	1770	3539	0	0	4831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					114	114					87	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1317			1758			387			969	
Travel Time (s)		20.0			26.6			5.9			14.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	291	0	242	304	1033	0	0	640	323
Shared Lane Traffic (%)				37%		30%						
Lane Group Flow (vph)	0	0	0	183	181	169	304	1033	0	0	963	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.0	40.0	40.0					30.0	
Total Split (s)				59.0	59.0	59.0					30.0	
Total Split (%)				45.4%	45.4%	45.4%					23.1%	
Maximum Green (s)				54.6	54.6	54.6					24.0	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	

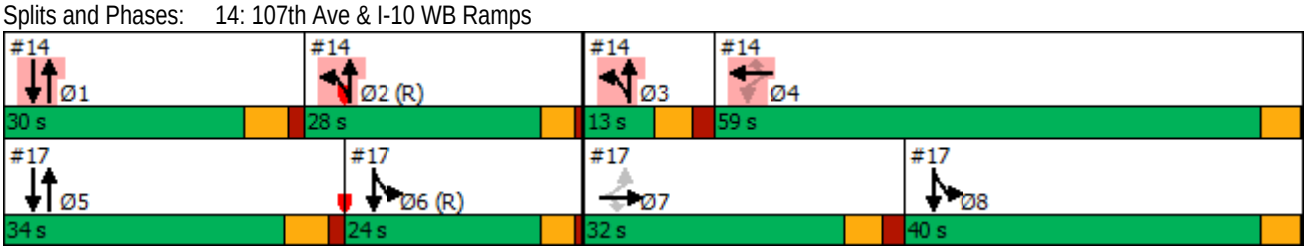
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	6.0	12.0	5.0	6.0	6.0
Minimum Split (s)	22.5	12.1	30.0	22.5	12.1	40.0
Total Split (s)	28.0	13.0	34.0	24.0	32.0	40.0
Total Split (%)	22%	10%	26%	18%	25%	31%
Maximum Green (s)	23.5	6.9	28.0	19.5	25.9	35.6
Yellow Time (s)	3.5	3.9	4.3	3.5	3.9	3.9
All-Red Time (s)	1.0	2.2	1.7	1.0	2.2	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				0.0	0.0	-0.4					-2.0	
Total Lost Time (s)				4.4	4.4	4.0					4.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				None	None	None					Min	
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)				39.3	39.3	39.7	41.4	82.3			36.9	
Actuated g/C Ratio				0.30	0.30	0.31	0.32	0.63			0.28	
v/c Ratio				0.36	0.33	0.31	0.54	0.46			0.67	
Control Delay				36.2	13.7	12.4	43.5	10.6			40.3	
Queue Delay				0.0	0.0	0.0	2.8	1.0			0.0	
Total Delay				36.2	13.7	12.4	46.4	11.6			40.3	
LOS				D	B	B	D	B			D	
Approach Delay					21.0			19.5			40.3	
Approach LOS					C			B			D	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 26.9 Intersection LOS: C
Intersection Capacity Utilization 74.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 14: 107th Ave & I-10 WB Ramps



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	Min	C-Max	None	None
Walk Time (s)	7.0			7.0		7.0
Flash Dont Walk (s)	11.0			11.0		11.0
Pedestrian Calls (#/hr)	0			0		0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

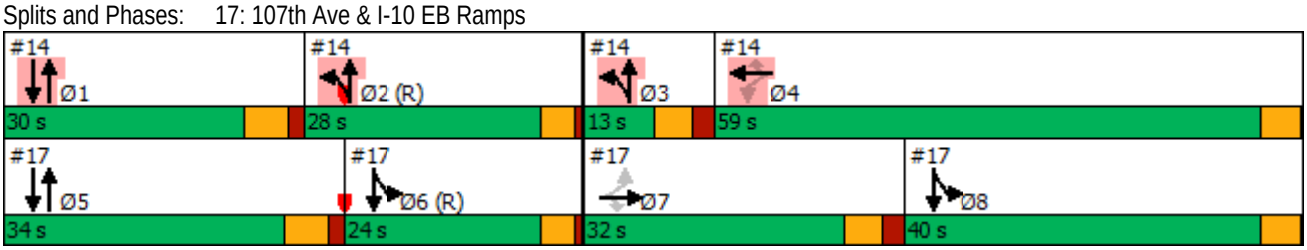
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	0	1119	0	0	0	0	897	246	399	468	0
Future Volume (vph)	292	0	1119	0	0	0	0	897	246	399	468	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	0		0	100		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.858	0.850					0.968				
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1681	1450	1504	0	0	0	0	4923	0	1770	3539	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	1681	1450	1504	0	0	0	0	4923	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		440	440					49				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1250			1451			3919			387	
Travel Time (s)		18.9			22.0			59.4			5.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	317	0	1216	0	0	0	0	975	267	434	509	0
Shared Lane Traffic (%)	10%		49%									
Lane Group Flow (vph)	285	628	620	0	0	0	0	1242	0	434	509	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1		1	1	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100		20	100	
Trailing Detector (ft)	0	0	0					0		0	0	
Detector 1 Position(ft)	0	0	0					0		0	0	
Detector 1 Size(ft)	20	100	20					100		20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		7						5		6 8	5 6 8	
Permitted Phases	7		7									
Detector Phase	7	7	7					5		6 8	5 6 8	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	32.0	32.0	32.0					34.0				
Total Split (%)	24.6%	24.6%	24.6%					26.2%				
Maximum Green (s)	25.9	25.9	25.9					28.0				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	12.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	30.0	22.5	12.1	40.0	22.5	40.0
Total Split (s)	30.0	28.0	13.0	59.0	24.0	40.0
Total Split (%)	23%	22%	10%	45%	18%	31%
Maximum Green (s)	24.0	23.5	6.9	54.6	19.5	35.6
Yellow Time (s)	4.3	3.5	3.9	3.9	3.5	3.9
All-Red Time (s)	1.7	1.0	2.2	0.5	1.0	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.1	-2.1	-2.1					-2.0				
Total Lost Time (s)	4.0	4.0	4.0					4.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?	Yes	Yes	Yes					Yes				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Recall Mode	None	None	None					Min				
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	27.4	27.4	27.4					44.1		42.6	94.6	
Actuated g/C Ratio	0.21	0.21	0.21					0.34		0.33	0.73	
v/c Ratio	0.81	0.96	0.93					0.73		0.75	0.20	
Control Delay	66.8	42.7	36.9					40.0		42.6	2.7	
Queue Delay	0.0	2.0	0.0					0.1		0.1	0.2	
Total Delay	66.8	44.7	36.9					40.1		42.7	3.0	
LOS	E	D	D					D		D	A	
Approach Delay		45.6						40.1			21.3	
Approach LOS		D						D			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 37.6	Intersection LOS: D
Intersection Capacity Utilization 74.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 17: 107th Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	C-Max	None	None	C-Max	None
Walk Time (s)		7.0		7.0	7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

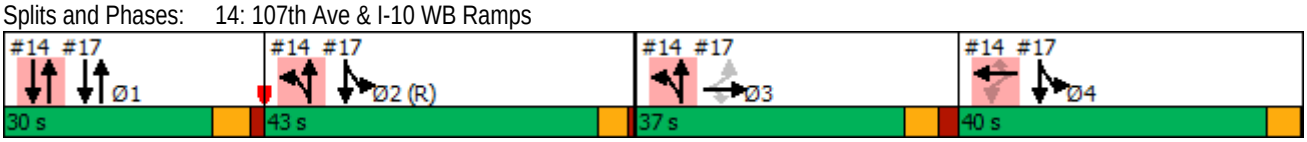
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	299	0	223	289	453	0	0	717	211
Future Volume (vph)	0	0	0	299	0	223	289	453	0	0	717	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	275		275	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.949	0.850					0.966	
Flt Protected				0.950	0.968		0.950					
Satd. Flow (prot)	0	0	0	1681	1557	1504	1770	3539	0	0	4912	0
Flt Permitted				0.950	0.968		0.950					
Satd. Flow (perm)	0	0	0	1681	1557	1504	1770	3539	0	0	4912	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					99	177					43	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1317			1758			387			969	
Travel Time (s)		20.0			26.6			5.9			14.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	325	0	242	314	492	0	0	779	229
Shared Lane Traffic (%)				39%		27%						
Lane Group Flow (vph)	0	0	0	198	192	177	314	492	0	0	1008	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.0	40.0	40.0					30.0	
Total Split (s)				40.0	40.0	40.0					30.0	
Total Split (%)				26.7%	26.7%	26.7%					20.0%	
Maximum Green (s)				35.6	35.6	35.6					24.0	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	

Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	6.0
Minimum Split (s)	22.5	12.1
Total Split (s)	43.0	37.0
Total Split (%)	29%	25%
Maximum Green (s)	38.5	30.9
Yellow Time (s)	3.5	3.9
All-Red Time (s)	1.0	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				0.0	0.0	-0.4					-2.0	
Total Lost Time (s)				4.4	4.4	4.0					4.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				None	None	None					Min	
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)				29.7	29.7	30.1	69.6	111.9			38.3	
Actuated g/C Ratio				0.20	0.20	0.20	0.46	0.75			0.26	
v/c Ratio				0.60	0.50	0.40	0.38	0.19			0.78	
Control Delay				61.3	28.5	8.8	24.6	1.0			55.0	
Queue Delay				0.0	0.0	0.0	2.0	0.3			0.0	
Total Delay				61.3	28.5	8.8	26.6	1.3			55.0	
LOS				E	C	A	C	A			E	
Approach Delay					33.8			11.1			55.0	
Approach LOS					C			B			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 35.1	Intersection LOS: D
Intersection Capacity Utilization 55.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 14: 107th Ave & I-10 WB Ramps



Lane Group	Ø2	Ø3
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None
Walk Time (s)	7.0	
Flash Dont Walk (s)	11.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

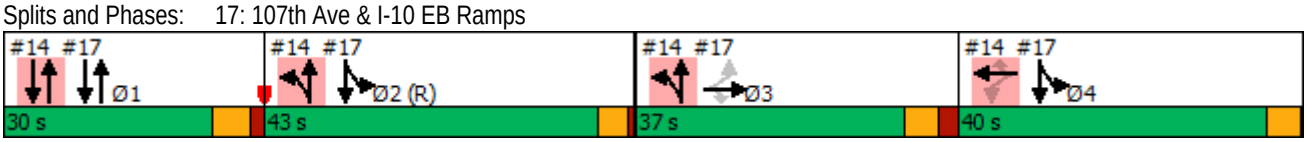
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	0	236	0	0	0	0	528	246	245	759	0
Future Volume (vph)	214	0	236	0	0	0	0	528	246	245	759	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	0		0	100		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.908	0.850					0.952				
Flt Protected	0.950	0.981								0.950		
Satd. Flow (prot)	1681	1510	1504	0	0	0	0	4841	0	1770	3539	0
Flt Permitted	0.950	0.981								0.950		
Satd. Flow (perm)	1681	1510	1504	0	0	0	0	4841	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87	157					68				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1250			1451			3919			387	
Travel Time (s)		18.9			22.0			59.4			5.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	0	257	0	0	0	0	574	267	266	825	0
Shared Lane Traffic (%)	27%		39%									
Lane Group Flow (vph)	170	163	157	0	0	0	0	841	0	266	825	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1		1	1	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100		20	100	
Trailing Detector (ft)	0	0	0					0		0	0	
Detector 1 Position(ft)	0	0	0					0		0	0	
Detector 1 Size(ft)	20	100	20					100		20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3									
Detector Phase	3	3	3					1		2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	37.0	37.0	37.0					30.0				
Total Split (%)	24.7%	24.7%	24.7%					20.0%				
Maximum Green (s)	30.9	30.9	30.9					24.0				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	6.0
Minimum Split (s)	22.5	40.0
Total Split (s)	43.0	40.0
Total Split (%)	29%	27%
Maximum Green (s)	38.5	35.6
Yellow Time (s)	3.5	3.9
All-Red Time (s)	1.0	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.1	-2.1	-2.1					-2.0				
Total Lost Time (s)	4.0	4.0	4.0					4.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?	Yes	Yes	Yes					Yes				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Recall Mode	None	None	None					Min				
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	26.6	26.6	26.6					38.3		69.1	115.4	
Actuated g/C Ratio	0.18	0.18	0.18					0.26		0.46	0.77	
v/c Ratio	0.57	0.48	0.40					0.65		0.33	0.30	
Control Delay	63.3	29.2	9.8					50.2		21.2	0.9	
Queue Delay	0.0	0.0	0.0					0.0		0.3	0.4	
Total Delay	63.3	29.2	9.8					50.2		21.5	1.3	
LOS	E	C	A					D		C	A	
Approach Delay		34.8						50.2			6.2	
Approach LOS		C						D			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 27.3	Intersection LOS: C
Intersection Capacity Utilization 55.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 17: 107th Ave & I-10 EB Ramps



Lane Group	Ø2	Ø4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	11.0	11.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	299	0	223	289	453	0	0	717	211
Future Volume (vph)	0	0	0	299	0	223	289	453	0	0	717	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	275		275	0		0	100		0
Storage Lanes	0		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt					0.949	0.850					0.966	
Flt Protected				0.950	0.968		0.950					
Satd. Flow (prot)	0	0	0	1681	1557	1504	1770	3539	0	0	4912	0
Flt Permitted				0.950	0.968		0.950					
Satd. Flow (perm)	0	0	0	1681	1557	1504	1770	3539	0	0	4912	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					114	177					54	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1317			1758			387			969	
Travel Time (s)		20.0			26.6			5.9			14.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	325	0	242	314	492	0	0	779	229
Shared Lane Traffic (%)				39%		27%						
Lane Group Flow (vph)	0	0	0	198	192	177	314	492	0	0	1008	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					4		2 3	1 2 3			1	
Permitted Phases				4		4						
Detector Phase				4	4	4	2 3	1 2 3			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0					12.0	
Minimum Split (s)				40.0	40.0	40.0					30.0	
Total Split (s)				50.0	50.0	50.0					35.0	
Total Split (%)				38.5%	38.5%	38.5%					26.9%	
Maximum Green (s)				45.6	45.6	45.6					29.0	
Yellow Time (s)				3.9	3.9	3.9					4.3	
All-Red Time (s)				0.5	0.5	0.5					1.7	

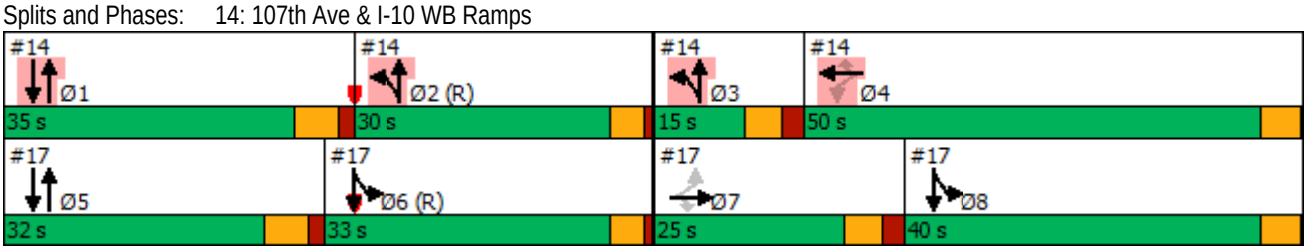
Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	6.0	12.0	5.0	6.0	6.0
Minimum Split (s)	22.5	12.1	30.0	22.5	12.1	40.0
Total Split (s)	30.0	15.0	32.0	33.0	25.0	40.0
Total Split (%)	23%	12%	25%	25%	19%	31%
Maximum Green (s)	25.5	8.9	26.0	28.5	18.9	35.6
Yellow Time (s)	3.5	3.9	4.3	3.5	3.9	3.9
All-Red Time (s)	1.0	2.2	1.7	1.0	2.2	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				0.0	0.0	-0.4					-2.0	
Total Lost Time (s)				4.4	4.4	4.0					4.0	
Lead/Lag				Lag	Lag	Lag					Lead	
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				None	None	None					Min	
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)				23.7	23.7	24.1	56.1	97.9			37.8	
Actuated g/C Ratio				0.18	0.18	0.19	0.43	0.75			0.29	
v/c Ratio				0.65	0.51	0.42	0.41	0.18			0.69	
Control Delay				58.0	23.1	8.6	40.2	5.6			40.8	
Queue Delay				0.0	0.0	0.0	2.0	0.3			0.0	
Total Delay				58.0	23.1	8.6	42.2	6.0			40.8	
LOS				E	C	A	D	A			D	
Approach Delay					30.8			20.1			40.8	
Approach LOS					C			C			D	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 31.4 Intersection LOS: C
Intersection Capacity Utilization 55.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 14: 107th Ave & I-10 WB Ramps



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	Min	C-Max	None	None
Walk Time (s)	7.0			7.0		7.0
Flash Dont Walk (s)	11.0			11.0		11.0
Pedestrian Calls (#/hr)	0			0		0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

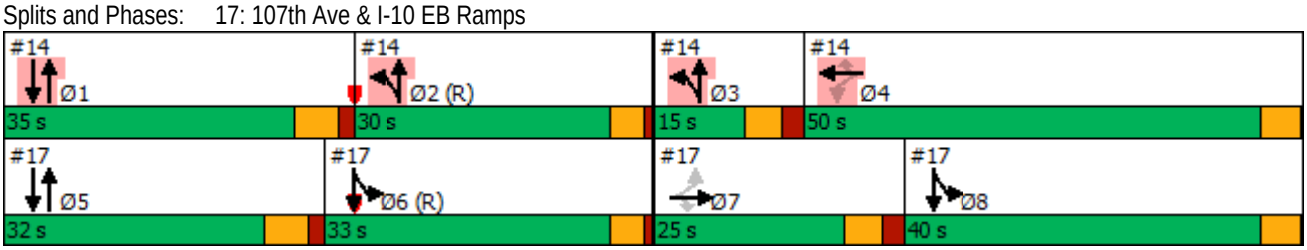
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	0	236	0	0	0	0	528	246	245	759	0
Future Volume (vph)	214	0	236	0	0	0	0	528	246	245	759	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	0		0	100		0	0		0
Storage Lanes	1		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt			0.850					0.952				
Flt Protected	0.950	0.950								0.950		
Satd. Flow (prot)	1681	1681	1583	0	0	0	0	4841	0	1770	3539	0
Flt Permitted	0.950	0.950								0.950		
Satd. Flow (perm)	1681	1681	1583	0	0	0	0	4841	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			257					83				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1250			1451			3919			387	
Travel Time (s)		18.9			22.0			59.4			5.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	0	257	0	0	0	0	574	267	266	825	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	116	117	257	0	0	0	0	841	0	266	825	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1		1	1	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100		20	100	
Trailing Detector (ft)	0	0	0					0		0	0	
Detector 1 Position(ft)	0	0	0					0		0	0	
Detector 1 Size(ft)	20	100	20					100		20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Turn Type	Perm	NA	Perm					NA		Prot	NA	
Protected Phases		7						5		6 8	5 6 8	
Permitted Phases	7		7									
Detector Phase	7	7	7					5		6 8	5 6 8	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					12.0				
Minimum Split (s)	12.1	12.1	12.1					30.0				
Total Split (s)	25.0	25.0	25.0					32.0				
Total Split (%)	19.2%	19.2%	19.2%					24.6%				
Maximum Green (s)	18.9	18.9	18.9					26.0				
Yellow Time (s)	3.9	3.9	3.9					4.3				
All-Red Time (s)	2.2	2.2	2.2					1.7				

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	12.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	30.0	22.5	12.1	40.0	22.5	40.0
Total Split (s)	35.0	30.0	15.0	50.0	33.0	40.0
Total Split (%)	27%	23%	12%	38%	25%	31%
Maximum Green (s)	29.0	25.5	8.9	45.6	28.5	35.6
Yellow Time (s)	4.3	3.5	3.9	3.9	3.5	3.9
All-Red Time (s)	1.7	1.0	2.2	0.5	1.0	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-2.1	-2.1	-2.1					-2.0				
Total Lost Time (s)	4.0	4.0	4.0					4.0				
Lead/Lag	Lead	Lead	Lead					Lead				
Lead-Lag Optimize?	Yes	Yes	Yes					Yes				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Recall Mode	None	None	None					Min				
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	16.4	16.4	16.4					35.1		62.5	105.6	
Actuated g/C Ratio	0.13	0.13	0.13					0.27		0.48	0.81	
v/c Ratio	0.55	0.55	0.61					0.62		0.31	0.29	
Control Delay	62.4	62.6	12.2					38.8		21.5	0.6	
Queue Delay	0.0	0.0	0.0					0.1		0.1	0.3	
Total Delay	62.4	62.6	12.2					38.9		21.6	0.8	
LOS	E	E	B					D		C	A	
Approach Delay		36.1						38.9			5.9	
Approach LOS		D						D			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 23.5	Intersection LOS: C
Intersection Capacity Utilization 55.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 17: 107th Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	C-Max	None	None	C-Max	None
Walk Time (s)		7.0		7.0	7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

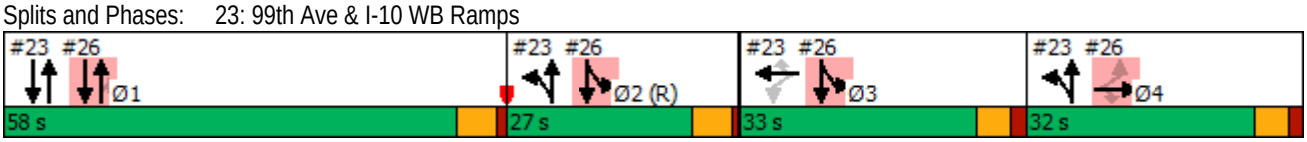
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	761	428	342	480	1081	0	0	758	428
Future Volume (vph)	0	0	0	761	428	342	480	1081	0	0	758	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	375		375	0		0	175		0
Storage Lanes	0		0	1		2	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.994	0.850					0.946	
Flt Protected				0.950	0.979		0.950					
Satd. Flow (prot)	0	0	0	1610	3118	1441	1770	5085	0	0	6062	0
Flt Permitted				0.950	0.979		0.950					
Satd. Flow (perm)	0	0	0	1610	3118	1441	1770	5085	0	0	6062	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	140					106	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1175			1087			533			902	
Travel Time (s)		17.8			16.5			8.1			13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	827	465	372	522	1175	0	0	824	465
Shared Lane Traffic (%)				47%		10%						
Lane Group Flow (vph)	0	0	0	438	891	335	522	1175	0	0	1289	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					3		2 4	1 2 4			1	
Permitted Phases				3		3						
Detector Phase				3	3	3	2 4	1 2 4			1	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0					20.0	
Minimum Split (s)				23.8	23.8	23.8					25.9	
Total Split (s)				33.0	33.0	33.0					58.0	
Total Split (%)				22.0%	22.0%	22.0%					38.7%	
Maximum Green (s)				27.2	27.2	27.2					52.1	
Yellow Time (s)				3.9	3.9	3.9					4.7	
All-Red Time (s)				1.9	1.9	1.9					1.2	

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	10.0
Minimum Split (s)	23.7	23.8
Total Split (s)	27.0	32.0
Total Split (%)	18%	21%
Maximum Green (s)	21.3	26.2
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.0	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.8	-1.8	-1.8					-1.9	
Total Lost Time (s)				4.0	4.0	4.0					4.0	
Lead/Lag				Lead	Lead	Lead					Lead	
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				None	None	None					Min	
Walk Time (s)				7.0	7.0	7.0					7.0	
Flash Dont Walk (s)				11.0	11.0	11.0					11.0	
Pedestrian Calls (#/hr)				0	0	0					0	
Act Effct Green (s)				29.0	29.0	29.0	51.0	113.0			54.0	
Actuated g/C Ratio				0.19	0.19	0.19	0.34	0.75			0.36	
v/c Ratio				1.41	1.48	0.86	0.87	0.31			0.57	
Control Delay				244.7	263.5	54.7	62.8	0.2			36.4	
Queue Delay				0.0	0.0	0.0	0.0	0.1			0.0	
Total Delay				244.7	263.5	54.7	62.8	0.3			36.4	
LOS				F	F	D	E	A			D	
Approach Delay					216.5			19.5			36.4	
Approach LOS					F			B			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 110 (73%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.48	
Intersection Signal Delay: 94.7	Intersection LOS: F
Intersection Capacity Utilization 79.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 23: 99th Ave & I-10 WB Ramps



Lane Group	Ø2	Ø4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Min	None
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	11.0	11.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

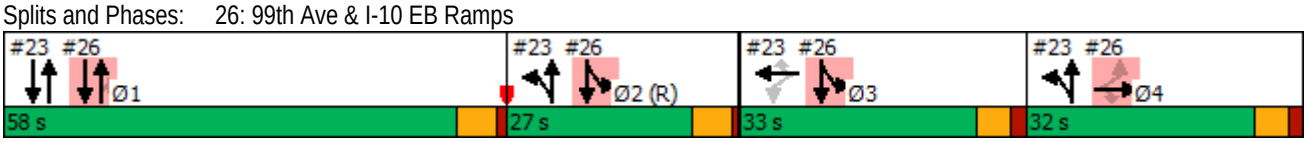
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	336	411	268	0	0	0	0	1193	513	348	1139	0
Future Volume (vph)	336	411	268	0	0	0	0	1193	513	348	1139	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.989	0.850						0.850			
Flt Protected	0.950	0.992								0.950		
Satd. Flow (prot)	1610	3143	1441	0	0	0	0	5085	1583	1770	5085	0
Flt Permitted	0.950	0.992								0.950		
Satd. Flow (perm)	1610	3143	1441	0	0	0	0	5085	1583	1770	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4	127						205			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1156			961			524			533	
Travel Time (s)		17.5			14.6			7.9			8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	365	447	291	0	0	0	0	1297	558	378	1238	0
Shared Lane Traffic (%)	24%		14%									
Lane Group Flow (vph)	277	576	250	0	0	0	0	1297	558	378	1238	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						1		2 3	1 2 3	
Permitted Phases	4		4						1			
Detector Phase	4	4	4					1	1	2 3	1 2 3	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					20.0	20.0			
Minimum Split (s)	23.8	23.8	23.8					25.9	25.9			
Total Split (s)	32.0	32.0	32.0					58.0	58.0			
Total Split (%)	21.3%	21.3%	21.3%					38.7%	38.7%			
Maximum Green (s)	26.2	26.2	26.2					52.1	52.1			
Yellow Time (s)	3.9	3.9	3.9					4.7	4.7			
All-Red Time (s)	1.9	1.9	1.9					1.2	1.2			

Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	23.7	23.8
Total Split (s)	27.0	33.0
Total Split (%)	18%	22%
Maximum Green (s)	21.3	27.2
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.0	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.8	-1.8	-1.8					-1.9	-1.9			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lag	Lag	Lag					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	28.0	28.0	28.0					54.0	54.0	56.0	114.0	
Actuated g/C Ratio	0.19	0.19	0.19					0.36	0.36	0.37	0.76	
v/c Ratio	0.92	0.98	0.67					0.71	0.80	0.57	0.32	
Control Delay	95.1	91.6	37.2					43.8	36.2	35.4	5.0	
Queue Delay	0.0	0.0	0.0					4.1	6.0	1.5	0.3	
Total Delay	95.1	91.6	37.2					47.9	42.2	36.9	5.4	
LOS	F	F	D					D	D	D	A	
Approach Delay		80.1						46.2			12.7	
Approach LOS		F						D			B	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 110 (73%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.48	
Intersection Signal Delay: 42.6	Intersection LOS: D
Intersection Capacity Utilization 79.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 26: 99th Ave & I-10 EB Ramps



Lane Group	Ø2	Ø3
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Min	None
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	11.0	11.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	761	428	342	480	1081	0	0	758	428
Future Volume (vph)	0	0	0	761	428	342	480	1081	0	0	758	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	375		375	0		0	175		0
Storage Lanes	0		0	1		2	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.994	0.850					0.946	
Flt Protected				0.950	0.979		0.950					
Satd. Flow (prot)	0	0	0	1610	3118	1441	1770	5085	0	0	6062	0
Flt Permitted				0.950	0.979		0.950					
Satd. Flow (perm)	0	0	0	1610	3118	1441	1770	5085	0	0	6062	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	131					107	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1175			1087			533			902	
Travel Time (s)		17.8			16.5			8.1			13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	827	465	372	522	1175	0	0	824	465
Shared Lane Traffic (%)				47%		10%						
Lane Group Flow (vph)	0	0	0	438	891	335	522	1175	0	0	1289	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					3		2 4	1 2 4			1	
Permitted Phases				3		3						
Detector Phase				3	3	3	2 4	1 2 4			1	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0					20.0	
Minimum Split (s)				23.8	23.8	23.8					25.9	
Total Split (s)				37.4	37.4	37.4					28.6	
Total Split (%)				31.2%	31.2%	31.2%					23.8%	
Maximum Green (s)				31.6	31.6	31.6					22.7	
Yellow Time (s)				3.9	3.9	3.9					4.7	
All-Red Time (s)				1.9	1.9	1.9					1.2	

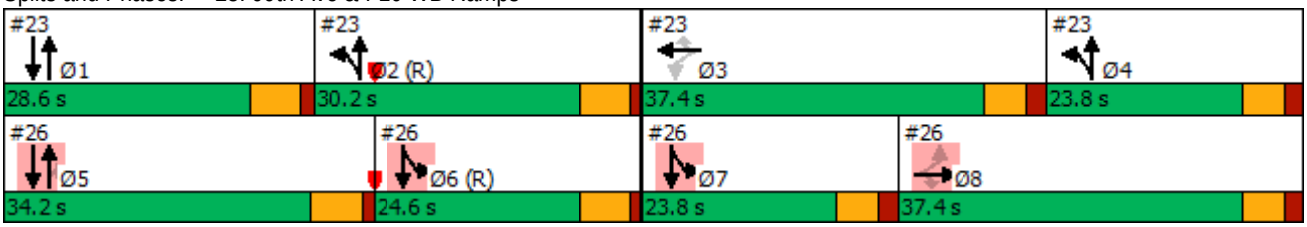
Lane Group	Ø2	Ø4	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	4	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	10.0	20.0	5.0	8.0	10.0
Minimum Split (s)	23.7	23.8	25.9	23.7	23.8	23.8
Total Split (s)	30.2	23.8	34.2	24.6	23.8	37.4
Total Split (%)	25%	20%	29%	21%	20%	31%
Maximum Green (s)	24.5	18.0	28.3	18.9	18.0	31.6
Yellow Time (s)	4.7	3.9	4.7	4.7	3.9	3.9
All-Red Time (s)	1.0	1.9	1.2	1.0	1.9	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.8	-1.8	-1.8					-1.9	
Total Lost Time (s)				4.0	4.0	4.0					4.0	
Lead/Lag				Lead	Lead	Lead					Lead	
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				None	None	None					Min	
Walk Time (s)				7.0	7.0	7.0					7.0	
Flash Dont Walk (s)				11.0	11.0	11.0					11.0	
Pedestrian Calls (#/hr)				0	0	0					0	
Act Effct Green (s)				33.4	33.4	33.4	46.0	78.6			24.6	
Actuated g/C Ratio				0.28	0.28	0.28	0.38	0.66			0.20	
v/c Ratio				0.98	1.02	0.68	0.77	0.35			1.12dr	
Control Delay				80.8	79.5	30.7	25.8	0.8			62.3	
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay				80.8	79.5	30.7	25.8	0.8			62.3	
LOS				F	E	C	C	A			E	
Approach Delay					70.0			8.5			62.3	
Approach LOS					E			A			E	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 45.4 Intersection LOS: D
Intersection Capacity Utilization 79.8% ICU Level of Service D
Analysis Period (min) 15
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 23: 99th Ave & I-10 WB Ramps



Lane Group	Ø2	Ø4	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	Min	C-Min	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	336	411	268	0	0	0	0	1193	513	348	1139	0
Future Volume (vph)	336	411	268	0	0	0	0	1193	513	348	1139	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.989	0.850						0.850			
Flt Protected	0.950	0.992								0.950		
Satd. Flow (prot)	1610	3143	1441	0	0	0	0	5085	1583	1770	5085	0
Flt Permitted	0.950	0.992								0.950		
Satd. Flow (perm)	1610	3143	1441	0	0	0	0	5085	1583	1770	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6	131						224			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1156			961			524			533	
Travel Time (s)		17.5			14.6			7.9			8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	365	447	291	0	0	0	0	1297	558	378	1238	0
Shared Lane Traffic (%)	24%		14%									
Lane Group Flow (vph)	277	576	250	0	0	0	0	1297	558	378	1238	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		8						5		6 7	5 6 7	
Permitted Phases	8		8						5			
Detector Phase	8	8	8					5	5	6 7	5 6 7	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					20.0	20.0			
Minimum Split (s)	23.8	23.8	23.8					25.9	25.9			
Total Split (s)	37.4	37.4	37.4					34.2	34.2			
Total Split (%)	31.2%	31.2%	31.2%					28.5%	28.5%			
Maximum Green (s)	31.6	31.6	31.6					28.3	28.3			
Yellow Time (s)	3.9	3.9	3.9					4.7	4.7			
All-Red Time (s)	1.9	1.9	1.9					1.2	1.2			

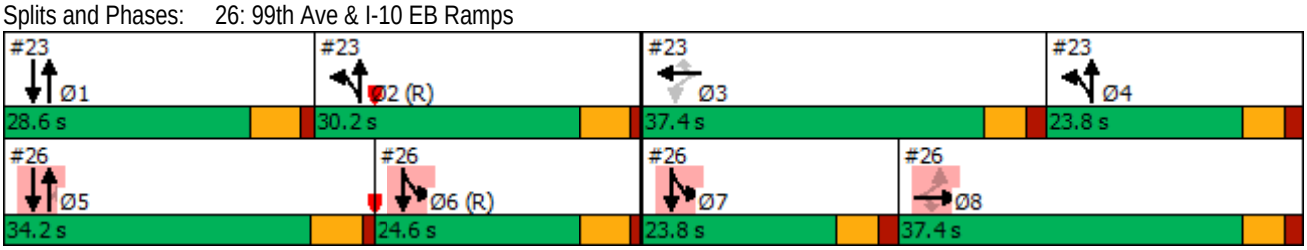
Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø7
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	7
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	5.0	8.0
Minimum Split (s)	25.9	23.7	23.8	23.8	23.7	23.8
Total Split (s)	28.6	30.2	37.4	23.8	24.6	23.8
Total Split (%)	24%	25%	31%	20%	21%	20%
Maximum Green (s)	22.7	24.5	31.6	18.0	18.9	18.0
Yellow Time (s)	4.7	4.7	3.9	3.9	4.7	3.9
All-Red Time (s)	1.2	1.0	1.9	1.9	1.0	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.8	-1.8	-1.8					-1.9	-1.9			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lag	Lag	Lag					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	35.8	35.8	35.8					30.2	30.2	42.0	76.2	
Actuated g/C Ratio	0.30	0.30	0.30					0.25	0.25	0.35	0.64	
v/c Ratio	0.58	0.61	0.48					1.01	0.99	0.61	0.38	
Control Delay	42.1	39.6	19.9					73.3	61.8	41.2	14.0	
Queue Delay	0.0	0.0	0.0					0.2	0.0	0.5	0.0	
Total Delay	42.1	39.6	19.9					73.5	61.8	41.7	14.0	
LOS	D	D	B					E	E	D	B	
Approach Delay		35.8						70.0			20.5	
Approach LOS		D						E			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 44.3 Intersection LOS: D
Intersection Capacity Utilization 79.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 26: 99th Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø7
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	C-Min	None	None	C-Min	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	731	428	342	480	1081	0	0	758	428
Future Volume (vph)	0	0	0	731	428	342	480	1081	0	0	758	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	375		375	0		0	175		0
Storage Lanes	0		0	1		2	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.91	0.91	0.97	0.91	1.00	1.00	0.81	0.81
Frt					0.970	0.850					0.967	0.850
Flt Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	3433	3288	1441	3433	5085	0	0	5836	1283
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	3433	3288	1441	3433	5085	0	0	5836	1283
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					22	170					51	218
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1175			1087			533			902	
Travel Time (s)		17.8			16.5			8.1			13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	795	465	372	522	1175	0	0	824	465
Shared Lane Traffic (%)						31%						50%
Lane Group Flow (vph)	0	0	0	795	580	257	522	1175	0	0	1057	232
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	100	20	20	100			100	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		2 4	1 2 4			1	
Permitted Phases				3		3						1
Detector Phase				3	3	3	2 4	1 2 4			1	1
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0					20.0	20.0
Minimum Split (s)				23.8	23.8	23.8					25.9	25.9
Total Split (s)				40.2	40.2	40.2					33.0	33.0
Total Split (%)				30.9%	30.9%	30.9%					25.4%	25.4%
Maximum Green (s)				34.4	34.4	34.4					27.1	27.1
Yellow Time (s)				3.9	3.9	3.9					4.7	4.7
All-Red Time (s)				1.9	1.9	1.9					1.2	1.2

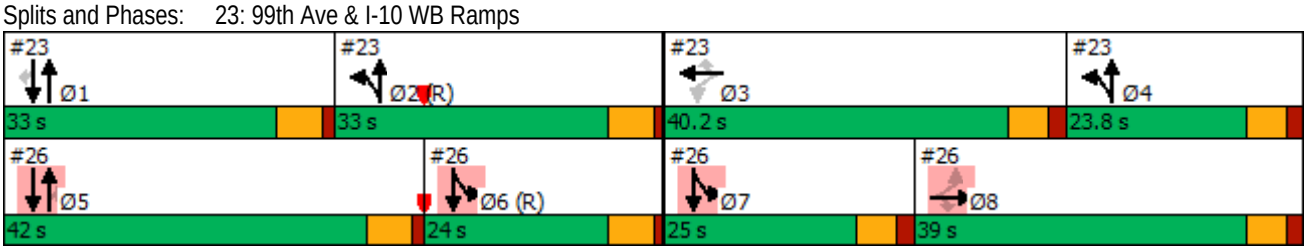
Lane Group	Ø2	Ø4	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	4	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	10.0	20.0	5.0	8.0	10.0
Minimum Split (s)	23.7	23.8	25.9	23.7	23.8	23.8
Total Split (s)	33.0	23.8	42.0	24.0	25.0	39.0
Total Split (%)	25%	18%	32%	18%	19%	30%
Maximum Green (s)	27.3	18.0	36.1	18.3	19.2	33.2
Yellow Time (s)	4.7	3.9	4.7	4.7	3.9	3.9
All-Red Time (s)	1.0	1.9	1.2	1.0	1.9	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.8	-1.8	-1.8					-1.9	0.0
Total Lost Time (s)				4.0	4.0	4.0					4.0	5.9
Lead/Lag				Lead	Lead	Lead					Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Recall Mode				None	None	None					Min	Min
Walk Time (s)				7.0	7.0	7.0					7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0					11.0	11.0
Pedestrian Calls (#/hr)				0	0	0					0	0
Act Effct Green (s)				35.6	35.6	35.6	49.3	86.4			29.1	27.2
Actuated g/C Ratio				0.27	0.27	0.27	0.38	0.66			0.22	0.21
v/c Ratio				0.85	0.63	0.50	0.40	0.35			0.79	0.53
Control Delay				54.1	43.3	16.9	14.4	1.0			50.1	11.6
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				54.1	43.3	16.9	14.4	1.0			50.1	11.6
LOS				D	D	B	B	A			D	B
Approach Delay					44.4			5.1			43.2	
Approach LOS					D			A			D	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 29.6 Intersection LOS: C
Intersection Capacity Utilization 63.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 23: 99th Ave & I-10 WB Ramps



Lane Group	Ø2	Ø4	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	Min	C-Min	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

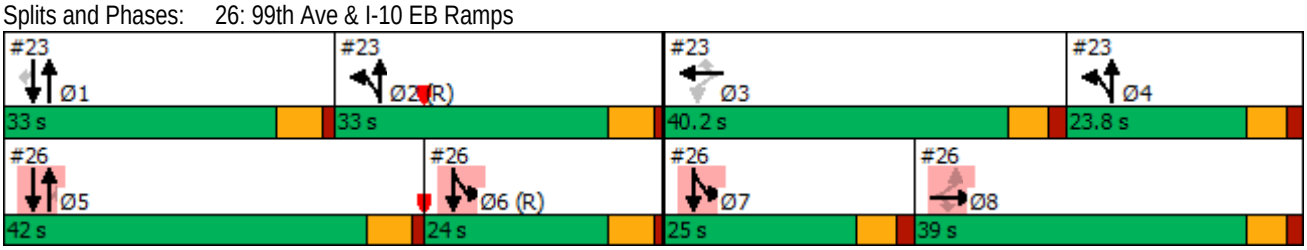
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	363	411	268	0	0	0	0	1193	513	348	1139	0
Future Volume (vph)	363	411	268	0	0	0	0	1193	513	348	1139	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		2	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	0.88	0.97	0.91	1.00
Frt		0.991	0.850						0.850			
Flt Protected	0.950	0.991								0.950		
Satd. Flow (prot)	1610	3147	1441	0	0	0	0	5085	2787	3433	5085	0
Flt Permitted	0.950	0.991								0.950		
Satd. Flow (perm)	1610	3147	1441	0	0	0	0	5085	2787	3433	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4	170						358			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1156			961			524			533	
Travel Time (s)		17.5			14.6			7.9			8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	395	447	291	0	0	0	0	1297	558	378	1238	0
Shared Lane Traffic (%)	27%		12%									
Lane Group Flow (vph)	288	589	256	0	0	0	0	1297	558	378	1238	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		8						5		6 7	5 6 7	
Permitted Phases	8		8						5			
Detector Phase	8	8	8					5	5	6 7	5 6 7	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					20.0	20.0			
Minimum Split (s)	23.8	23.8	23.8					25.9	25.9			
Total Split (s)	39.0	39.0	39.0					42.0	42.0			
Total Split (%)	30.0%	30.0%	30.0%					32.3%	32.3%			
Maximum Green (s)	33.2	33.2	33.2					36.1	36.1			
Yellow Time (s)	3.9	3.9	3.9					4.7	4.7			
All-Red Time (s)	1.9	1.9	1.9					1.2	1.2			

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø7
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	7
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	5.0	8.0
Minimum Split (s)	25.9	23.7	23.8	23.8	23.7	23.8
Total Split (s)	33.0	33.0	40.2	23.8	24.0	25.0
Total Split (%)	25%	25%	31%	18%	18%	19%
Maximum Green (s)	27.1	27.3	34.4	18.0	18.3	19.2
Yellow Time (s)	4.7	4.7	3.9	3.9	4.7	3.9
All-Red Time (s)	1.2	1.0	1.9	1.9	1.0	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.8	-1.8	-1.8					-1.9	-1.9			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lag	Lag	Lag					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	38.5	38.5	38.5					38.1	38.1	41.5	83.5	
Actuated g/C Ratio	0.30	0.30	0.30					0.29	0.29	0.32	0.64	
v/c Ratio	0.61	0.63	0.47					0.87	0.52	0.35	0.38	
Control Delay	46.5	43.6	16.4					51.2	14.9	43.0	14.6	
Queue Delay	0.0	0.0	0.0					0.9	0.0	0.0	0.6	
Total Delay	46.5	43.6	16.4					52.1	14.9	43.0	15.2	
LOS	D	D	B					D	B	D	B	
Approach Delay		38.2						40.9			21.7	
Approach LOS		D						D			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 33.5	Intersection LOS: C
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 26: 99th Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø7
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	C-Min	None	None	C-Min	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	453	734	341	277	1601	0	0	1055	531
Future Volume (vph)	0	0	0	453	734	341	277	1601	0	0	1055	531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	375		375	0		0	175		0
Storage Lanes	0		0	1		2	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.994	0.850					0.950	
Flt Protected				0.950	0.997		0.950					
Satd. Flow (prot)	0	0	0	1610	3175	1441	1770	5085	0	0	6087	0
Flt Permitted				0.950	0.997		0.950					
Satd. Flow (perm)	0	0	0	1610	3175	1441	1770	5085	0	0	6087	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	105					94	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1175			1087			533			902	
Travel Time (s)		17.8			16.5			8.1			13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	492	798	371	301	1740	0	0	1147	577
Shared Lane Traffic (%)				12%		10%						
Lane Group Flow (vph)	0	0	0	433	894	334	301	1740	0	0	1724	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					3		2 4	1 2 4			1	
Permitted Phases				3		3						
Detector Phase				3	3	3	2 4	1 2 4			1	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0					20.0	
Minimum Split (s)				23.8	23.8	23.8					25.9	
Total Split (s)				33.0	33.0	33.0					58.0	
Total Split (%)				22.0%	22.0%	22.0%					38.7%	
Maximum Green (s)				27.2	27.2	27.2					52.1	
Yellow Time (s)				3.9	3.9	3.9					4.7	
All-Red Time (s)				1.9	1.9	1.9					1.2	

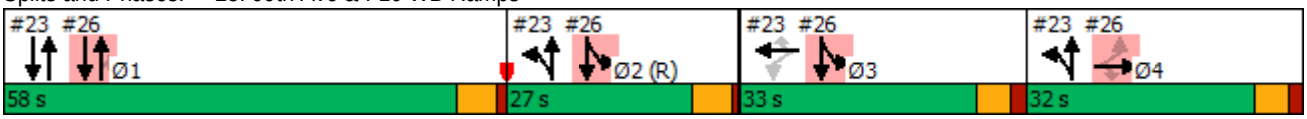
Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	10.0
Minimum Split (s)	23.7	23.8
Total Split (s)	27.0	32.0
Total Split (%)	18%	21%
Maximum Green (s)	21.3	26.2
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.0	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.8	-1.8	-1.8					-1.9	
Total Lost Time (s)				4.0	4.0	4.0					4.0	
Lead/Lag				Lead	Lead	Lead					Lead	
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				None	None	None					Min	
Walk Time (s)				7.0	7.0	7.0					7.0	
Flash Dont Walk (s)				11.0	11.0	11.0					11.0	
Pedestrian Calls (#/hr)				0	0	0					0	
Act Effct Green (s)				29.0	29.0	29.0	51.0	113.0			54.0	
Actuated g/C Ratio				0.19	0.19	0.19	0.34	0.75			0.36	
v/c Ratio				1.39	1.45	0.92	0.50	0.45			0.90dr	
Control Delay				238.4	254.5	71.1	36.2	0.1			42.7	
Queue Delay				0.0	0.0	0.0	0.0	0.2			0.0	
Total Delay				238.4	254.5	71.1	36.2	0.3			42.7	
LOS				F	F	E	D	A			D	
Approach Delay					213.4			5.6			42.7	
Approach LOS					F			A			D	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 110 (73%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.45
Intersection Signal Delay: 81.0 Intersection LOS: F
Intersection Capacity Utilization 91.2% ICU Level of Service F
Analysis Period (min) 15
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 23: 99th Ave & I-10 WB Ramps



Lane Group	Ø2	Ø4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Min	None
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	11.0	11.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

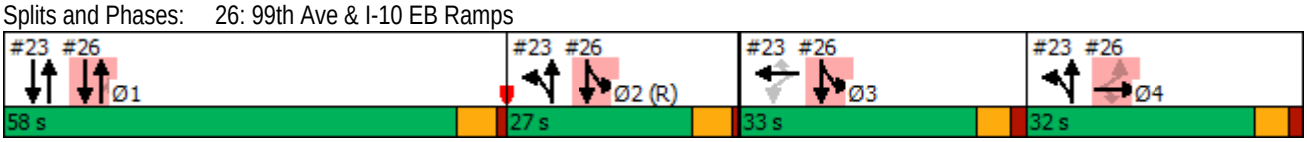
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	433	411	480	0	0	0	0	1445	687	348	1156	0
Future Volume (vph)	433	411	480	0	0	0	0	1445	687	348	1156	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.962	0.850						0.850			
Flt Protected	0.950	0.993								0.950		
Satd. Flow (prot)	1610	3061	1441	0	0	0	0	5085	1583	1770	5085	0
Flt Permitted	0.950	0.993								0.950		
Satd. Flow (perm)	1610	3061	1441	0	0	0	0	5085	1583	1770	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23	123						205			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1156			961			524			533	
Travel Time (s)		17.5			14.6			7.9			8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	471	447	522	0	0	0	0	1571	747	378	1257	0
Shared Lane Traffic (%)	22%		36%									
Lane Group Flow (vph)	367	739	334	0	0	0	0	1571	747	378	1257	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						1		2 3	1 2 3	
Permitted Phases	4		4						1			
Detector Phase	4	4	4					1	1	2 3	1 2 3	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					20.0	20.0			
Minimum Split (s)	23.8	23.8	23.8					25.9	25.9			
Total Split (s)	32.0	32.0	32.0					58.0	58.0			
Total Split (%)	21.3%	21.3%	21.3%					38.7%	38.7%			
Maximum Green (s)	26.2	26.2	26.2					52.1	52.1			
Yellow Time (s)	3.9	3.9	3.9					4.7	4.7			
All-Red Time (s)	1.9	1.9	1.9					1.2	1.2			

Lane Group	Ø2	Ø3
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	3
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	23.7	23.8
Total Split (s)	27.0	33.0
Total Split (%)	18%	22%
Maximum Green (s)	21.3	27.2
Yellow Time (s)	4.7	3.9
All-Red Time (s)	1.0	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.8	-1.8	-1.8					-1.9	-1.9			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lag	Lag	Lag					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	28.0	28.0	28.0					54.0	54.0	56.0	114.0	
Actuated g/C Ratio	0.19	0.19	0.19					0.36	0.36	0.37	0.76	
v/c Ratio	1.22	1.25	0.91					0.86	1.07	0.57	0.33	
Control Delay	176.0	174.1	65.4					50.3	85.9	38.4	3.0	
Queue Delay	0.0	0.0	0.0					47.1	14.1	2.5	0.4	
Total Delay	176.0	174.1	65.4					97.4	100.0	41.0	3.4	
LOS	F	F	E					F	F	D	A	
Approach Delay		149.4						98.2			12.1	
Approach LOS		F						F			B	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 110 (73%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.45	
Intersection Signal Delay: 85.8	Intersection LOS: F
Intersection Capacity Utilization 91.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 26: 99th Ave & I-10 EB Ramps



Lane Group	Ø2	Ø3
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Min	None
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	11.0	11.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	453	734	341	277	1601	0	0	1055	531
Future Volume (vph)	0	0	0	453	734	341	277	1601	0	0	1055	531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	375		375	0		0	175		0
Storage Lanes	0		0	1		2	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	1.00	0.91	1.00	1.00	0.86	0.86
Frt					0.994	0.850					0.950	
Flt Protected				0.950	0.997		0.950					
Satd. Flow (prot)	0	0	0	1610	3175	1441	1770	5085	0	0	6087	0
Flt Permitted				0.950	0.997		0.950					
Satd. Flow (perm)	0	0	0	1610	3175	1441	1770	5085	0	0	6087	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2	148					86	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1175			1087			533			902	
Travel Time (s)		17.8			16.5			8.1			13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	492	798	371	301	1740	0	0	1147	577
Shared Lane Traffic (%)				12%		10%						
Lane Group Flow (vph)	0	0	0	433	894	334	301	1740	0	0	1724	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	Prot	NA			NA	
Protected Phases					3		2 4	1 2 4			1	
Permitted Phases				3		3						
Detector Phase				3	3	3	2 4	1 2 4			1	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0					20.0	
Minimum Split (s)				23.8	23.8	23.8					25.9	
Total Split (s)				43.0	43.0	43.0					48.0	
Total Split (%)				28.7%	28.7%	28.7%					32.0%	
Maximum Green (s)				37.2	37.2	37.2					42.1	
Yellow Time (s)				3.9	3.9	3.9					4.7	
All-Red Time (s)				1.9	1.9	1.9					1.2	

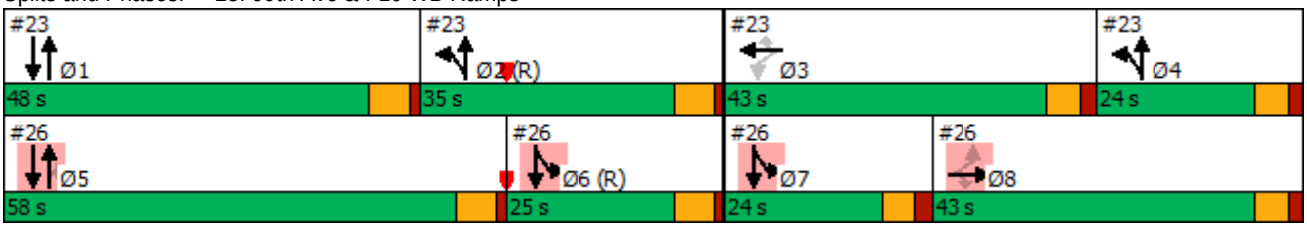
Lane Group	Ø2	Ø4	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	4	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	10.0	20.0	5.0	8.0	10.0
Minimum Split (s)	23.7	23.8	25.9	23.7	23.8	23.8
Total Split (s)	35.0	24.0	58.0	25.0	24.0	43.0
Total Split (%)	23%	16%	39%	17%	16%	29%
Maximum Green (s)	29.3	18.2	52.1	19.3	18.2	37.2
Yellow Time (s)	4.7	3.9	4.7	4.7	3.9	3.9
All-Red Time (s)	1.0	1.9	1.2	1.0	1.9	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.8	-1.8	-1.8					-1.9	
Total Lost Time (s)				4.0	4.0	4.0					4.0	
Lead/Lag				Lead	Lead	Lead					Lead	
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Recall Mode				None	None	None					Min	
Walk Time (s)				7.0	7.0	7.0					7.0	
Flash Dont Walk (s)				11.0	11.0	11.0					11.0	
Pedestrian Calls (#/hr)				0	0	0					0	
Act Effct Green (s)				39.0	39.0	39.0	51.0	103.0			44.0	
Actuated g/C Ratio				0.26	0.26	0.26	0.34	0.69			0.29	
v/c Ratio				1.04	1.08	0.69	0.50	0.50			1.08dr	
Control Delay				106.6	107.1	35.5	24.6	1.1			59.2	
Queue Delay				2.4	3.2	0.0	0.0	0.2			0.2	
Total Delay				109.1	110.3	35.5	24.6	1.4			59.4	
LOS				F	F	D	C	A			E	
Approach Delay					94.9			4.8			59.4	
Approach LOS					F			A			E	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 110 (73%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 49.8 Intersection LOS: D
Intersection Capacity Utilization 91.2% ICU Level of Service F
Analysis Period (min) 15
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 23: 99th Ave & I-10 WB Ramps



Lane Group	Ø2	Ø4	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	Min	C-Min	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

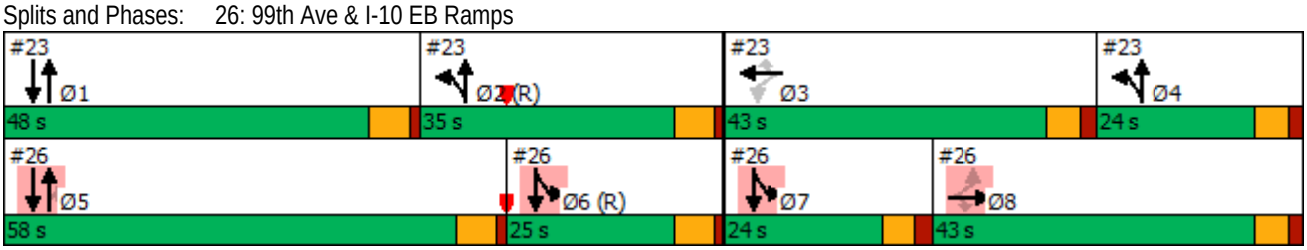
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	433	411	480	0	0	0	0	1445	687	348	1156	0
Future Volume (vph)	433	411	480	0	0	0	0	1445	687	348	1156	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.962	0.850						0.850			
Flt Protected	0.950	0.993								0.950		
Satd. Flow (prot)	1610	3061	1441	0	0	0	0	5085	1583	1770	5085	0
Flt Permitted	0.950	0.993								0.950		
Satd. Flow (perm)	1610	3061	1441	0	0	0	0	5085	1583	1770	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25	148						165			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1156			961			524			533	
Travel Time (s)		17.5			14.6			7.9			8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	471	447	522	0	0	0	0	1571	747	378	1257	0
Shared Lane Traffic (%)	22%		36%									
Lane Group Flow (vph)	367	739	334	0	0	0	0	1571	747	378	1257	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		8						5		6 7	5 6 7	
Permitted Phases	8		8						5			
Detector Phase	8	8	8					5	5	6 7	5 6 7	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					20.0	20.0			
Minimum Split (s)	23.8	23.8	23.8					25.9	25.9			
Total Split (s)	43.0	43.0	43.0					58.0	58.0			
Total Split (%)	28.7%	28.7%	28.7%					38.7%	38.7%			
Maximum Green (s)	37.2	37.2	37.2					52.1	52.1			
Yellow Time (s)	3.9	3.9	3.9					4.7	4.7			
All-Red Time (s)	1.9	1.9	1.9					1.2	1.2			

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø7
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	7
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	5.0	8.0
Minimum Split (s)	25.9	23.7	23.8	23.8	23.7	23.8
Total Split (s)	48.0	35.0	43.0	24.0	25.0	24.0
Total Split (%)	32%	23%	29%	16%	17%	16%
Maximum Green (s)	42.1	29.3	37.2	18.2	19.3	18.2
Yellow Time (s)	4.7	4.7	3.9	3.9	4.7	3.9
All-Red Time (s)	1.2	1.0	1.9	1.9	1.0	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.8	-1.8	-1.8					-1.9	-1.9			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lag	Lag	Lag					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	40.3	40.3	40.3					54.0	54.0	43.7	101.7	
Actuated g/C Ratio	0.27	0.27	0.27					0.36	0.36	0.29	0.68	
v/c Ratio	0.85	0.88	0.67					0.86	1.11	0.73	0.36	
Control Delay	71.1	63.7	34.6					50.3	102.3	57.1	8.8	
Queue Delay	0.0	0.0	0.0					47.1	0.9	2.9	0.8	
Total Delay	71.1	63.7	34.6					97.4	103.1	60.0	9.6	
LOS	E	E	C					F	F	E	A	
Approach Delay		58.8						99.2			21.3	
Approach LOS		E						F			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 110 (73%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 64.8	Intersection LOS: E
Intersection Capacity Utilization 91.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 26: 99th Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø7
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	C-Min	None	None	C-Min	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

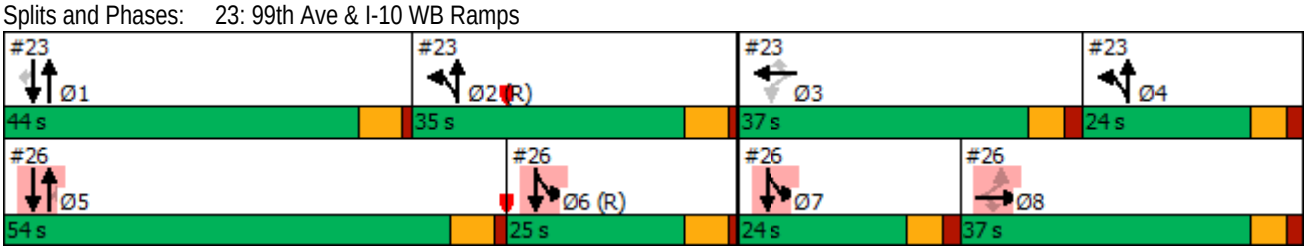
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	453	734	341	277	1601	0	0	1055	531
Future Volume (vph)	0	0	0	453	734	341	277	1601	0	0	1055	531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	375		375	0		0	175		0
Storage Lanes	0		0	1		2	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.91	0.91	0.97	0.91	1.00	1.00	0.81	0.81
Frt					0.993	0.850					0.972	0.850
Flt Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	3433	3366	1441	3433	5085	0	0	5866	1283
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	3433	3366	1441	3433	5085	0	0	5866	1283
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3	158					42	236
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1175			1087			533			902	
Travel Time (s)		17.8			16.5			8.1			13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	492	798	371	301	1740	0	0	1147	577
Shared Lane Traffic (%)						10%						46%
Lane Group Flow (vph)	0	0	0	492	835	334	301	1740	0	0	1412	312
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	100	20	20	100			100	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		2 4	1 2 4			1	
Permitted Phases				3		3						1
Detector Phase				3	3	3	2 4	1 2 4			1	1
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0					20.0	20.0
Minimum Split (s)				23.8	23.8	23.8					25.9	25.9
Total Split (s)				37.0	37.0	37.0					44.0	44.0
Total Split (%)				26.4%	26.4%	26.4%					31.4%	31.4%
Maximum Green (s)				31.2	31.2	31.2					38.1	38.1
Yellow Time (s)				3.9	3.9	3.9					4.7	4.7
All-Red Time (s)				1.9	1.9	1.9					1.2	1.2

Lane Group	Ø2	Ø4	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	4	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	5.0	10.0	20.0	5.0	8.0	10.0
Minimum Split (s)	23.7	23.8	25.9	23.7	23.8	23.8
Total Split (s)	35.0	24.0	54.0	25.0	24.0	37.0
Total Split (%)	25%	17%	39%	18%	17%	26%
Maximum Green (s)	29.3	18.2	48.1	19.3	18.2	31.2
Yellow Time (s)	4.7	3.9	4.7	4.7	3.9	3.9
All-Red Time (s)	1.0	1.9	1.2	1.0	1.9	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.8	-1.8	-1.8					-1.9	0.0
Total Lost Time (s)				4.0	4.0	4.0					4.0	5.9
Lead/Lag				Lead	Lead	Lead					Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes					Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0					3.0	3.0
Recall Mode				None	None	None					Min	Min
Walk Time (s)				7.0	7.0	7.0					7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0					11.0	11.0
Pedestrian Calls (#/hr)				0	0	0					0	0
Act Effct Green (s)				33.0	33.0	33.0	51.0	99.0			40.0	38.1
Actuated g/C Ratio				0.24	0.24	0.24	0.36	0.71			0.29	0.27
v/c Ratio				0.61	1.05	0.73	0.24	0.48			0.83	0.60
Control Delay				51.5	96.7	35.6	17.1	0.6			50.3	16.6
Queue Delay				0.0	0.0	0.0	0.0	0.2			0.0	0.0
Total Delay				51.5	96.7	35.6	17.1	0.8			50.3	16.6
LOS				D	F	D	B	A			D	B
Approach Delay					71.0			3.2			44.2	
Approach LOS					E			A			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 37.0	Intersection LOS: D
Intersection Capacity Utilization 91.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 23: 99th Ave & I-10 WB Ramps



Lane Group	Ø2	Ø4	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	None	Min	C-Min	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

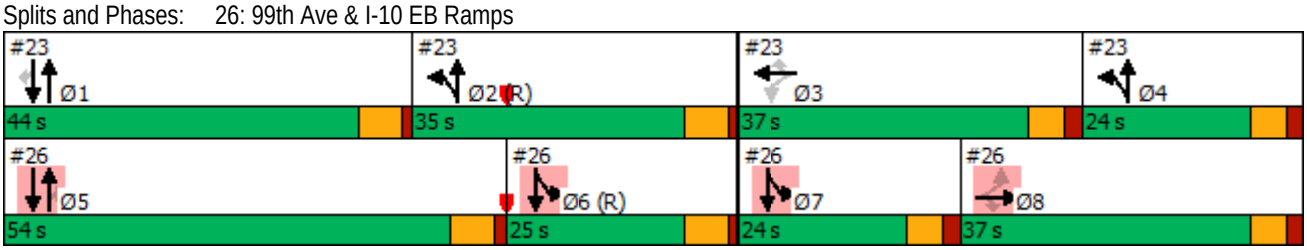
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	433	411	480	0	0	0	0	1445	687	348	1156	0
Future Volume (vph)	433	411	480	0	0	0	0	1445	687	348	1156	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		175	0		0	0		0	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.86	0.91	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.962	0.850						0.850			
Flt Protected	0.950	0.993								0.950		
Satd. Flow (prot)	1610	3061	1441	0	0	0	0	5085	1583	1770	5085	0
Flt Permitted	0.950	0.993								0.950		
Satd. Flow (perm)	1610	3061	1441	0	0	0	0	5085	1583	1770	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26	158						175			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1156			961			524			533	
Travel Time (s)		17.5			14.6			7.9			8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	471	447	522	0	0	0	0	1571	747	378	1257	0
Shared Lane Traffic (%)	22%		36%									
Lane Group Flow (vph)	367	739	334	0	0	0	0	1571	747	378	1257	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		8						5		6 7	5 6 7	
Permitted Phases	8		8						5			
Detector Phase	8	8	8					5	5	6 7	5 6 7	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					20.0	20.0			
Minimum Split (s)	23.8	23.8	23.8					25.9	25.9			
Total Split (s)	37.0	37.0	37.0					54.0	54.0			
Total Split (%)	26.4%	26.4%	26.4%					38.6%	38.6%			
Maximum Green (s)	31.2	31.2	31.2					48.1	48.1			
Yellow Time (s)	3.9	3.9	3.9					4.7	4.7			
All-Red Time (s)	1.9	1.9	1.9					1.2	1.2			

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø7
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	7
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	20.0	5.0	8.0	10.0	5.0	8.0
Minimum Split (s)	25.9	23.7	23.8	23.8	23.7	23.8
Total Split (s)	44.0	35.0	37.0	24.0	25.0	24.0
Total Split (%)	31%	25%	26%	17%	18%	17%
Maximum Green (s)	38.1	29.3	31.2	18.2	19.3	18.2
Yellow Time (s)	4.7	4.7	3.9	3.9	4.7	3.9
All-Red Time (s)	1.2	1.0	1.9	1.9	1.0	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.8	-1.8	-1.8					-1.9	-1.9			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lag	Lag	Lag					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	None	None	None					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	34.7	34.7	34.7					50.0	50.0	43.3	97.3	
Actuated g/C Ratio	0.25	0.25	0.25					0.36	0.36	0.31	0.70	
v/c Ratio	0.92	0.95	0.70					0.87	1.10	0.69	0.36	
Control Delay	80.5	72.1	34.1					48.0	98.8	49.2	6.1	
Queue Delay	0.0	0.0	0.0					32.3	0.7	1.1	0.5	
Total Delay	80.5	72.1	34.1					80.2	99.5	50.2	6.6	
LOS	F	E	C					F	F	D	A	
Approach Delay		65.4						86.4			16.7	
Approach LOS		E						F			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 59.7	Intersection LOS: E
Intersection Capacity Utilization 91.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 26: 99th Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø7
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	C-Min	None	None	C-Min	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

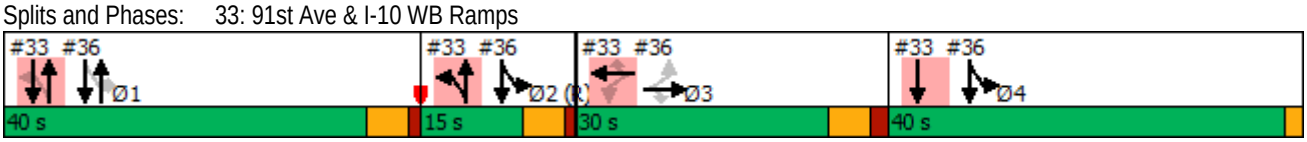
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	371	0	268	161	1300	0	0	824	132
Future Volume (vph)	0	0	0	371	0	268	161	1300	0	0	824	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.953	0.850					0.979	
Flt Protected				0.950	0.967		0.950					
Satd. Flow (prot)	0	0	0	1681	1562	1504	1770	3539	0	0	3465	0
Flt Permitted				0.950	0.967		0.143					
Satd. Flow (perm)	0	0	0	1681	1562	1504	266	3539	0	0	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					80	218					26	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1015			1514			509			731	
Travel Time (s)		15.4			22.9			8.7			12.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	403	0	291	175	1413	0	0	896	143
Shared Lane Traffic (%)				40%		25%						
Lane Group Flow (vph)	0	0	0	242	234	218	175	1413	0	0	1039	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	15.0					
Total Split (s)				30.0	30.0	30.0	15.0					
Total Split (%)				24.0%	24.0%	24.0%	12.0%					
Maximum Green (s)				24.3	24.3	24.3	9.9					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					

Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	40.0	40.0
Total Split (%)	32%	32%
Maximum Green (s)	34.9	38.0
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.7	-1.7	-1.7	-1.1					
Total Lost Time (s)				4.0	4.0	4.0	4.0					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?				Yes	Yes	Yes	Yes					
Vehicle Extension (s)				3.0	3.0	3.0	3.0					
Recall Mode				Max	Max	Max	C-Min					
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)				26.0	26.0	26.0	48.0	52.0			76.0	
Actuated g/C Ratio				0.21	0.21	0.21	0.38	0.42			0.61	
v/c Ratio				0.69	0.60	0.45	0.75	0.96			0.49	
Control Delay				57.4	36.4	8.5	23.8	16.5			14.3	
Queue Delay				0.0	0.0	0.0	0.0	42.8			0.0	
Total Delay				57.4	36.4	8.5	23.8	59.3			14.3	
LOS				E	D	A	C	E			B	
Approach Delay					35.0			55.3			14.3	
Approach LOS					C			E			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.29	
Intersection Signal Delay: 38.2	Intersection LOS: D
Intersection Capacity Utilization 78.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 33: 91st Ave & I-10 WB Ramps



Lane Group	Ø1	Ø4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Min	Min
Walk Time (s)	7.0	
Flash Dont Walk (s)	17.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

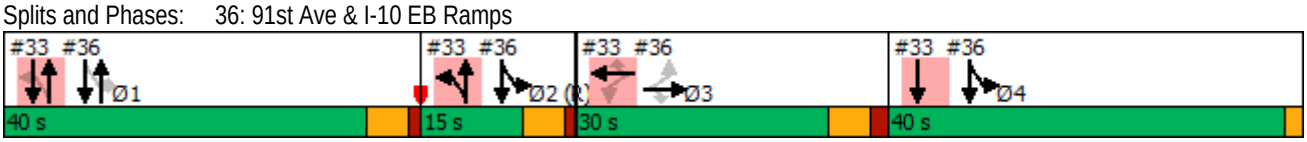
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	276	115	723	0	0	0	0	1190	147	316	879	0
Future Volume (vph)	276	115	723	0	0	0	0	1190	147	316	879	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	0		225	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.898	0.850						0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1681	1518	1504	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950	0.997								0.108		
Satd. Flow (perm)	1681	1518	1504	0	0	0	0	3539	1583	201	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		77	196						95			
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		862			1328			761			509	
Travel Time (s)		13.1			20.1			13.0			8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	300	125	786	0	0	0	0	1293	160	343	955	0
Shared Lane Traffic (%)	10%		42%									
Lane Group Flow (vph)	270	485	456	0	0	0	0	1293	160	343	955	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					40.0	40.0			
Total Split (%)	24.0%	24.0%	24.0%					32.0%	32.0%			
Maximum Green (s)	24.3	24.3	24.3					34.9	34.9			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	15.0	30.0
Total Split (s)	15.0	40.0
Total Split (%)	12%	32%
Maximum Green (s)	9.9	38.0
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.7	-1.7	-1.7					-1.1	-1.1			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	Max	Max	Max					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					17.0	17.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	26.0	26.0	26.0					37.0	37.0	83.0	91.0	
Actuated g/C Ratio	0.21	0.21	0.21					0.30	0.30	0.66	0.73	
v/c Ratio	0.77	1.29	0.97					1.23	0.30	0.48	0.37	
Control Delay	62.8	183.2	64.1					152.3	16.3	8.7	5.3	
Queue Delay	0.0	0.0	0.0					0.5	0.0	0.0	0.2	
Total Delay	62.8	183.2	64.1					152.8	16.3	8.7	5.5	
LOS	E	F	E					F	B	A	A	
Approach Delay		111.5						137.8			6.4	
Approach LOS		F						F			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.29	
Intersection Signal Delay: 86.7	Intersection LOS: F
Intersection Capacity Utilization 78.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 36: 91st Ave & I-10 EB Ramps



Lane Group	Ø2	Ø4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Min	Min
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

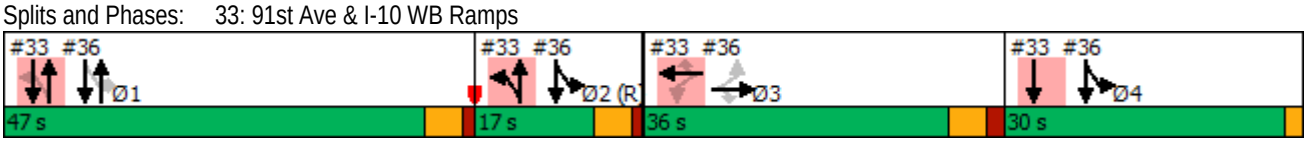
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	371	0	268	161	1300	0	0	824	132
Future Volume (vph)	0	0	0	371	0	268	161	1300	0	0	824	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.953	0.850					0.979	
Flt Protected				0.950	0.967		0.950					
Satd. Flow (prot)	0	0	0	1681	1562	1504	1770	3539	0	0	3465	0
Flt Permitted				0.950	0.967		0.139					
Satd. Flow (perm)	0	0	0	1681	1562	1504	259	3539	0	0	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					77	218					22	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1015			1514			509			731	
Travel Time (s)		15.4			22.9			8.7			12.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	403	0	291	175	1413	0	0	896	143
Shared Lane Traffic (%)				40%		25%						
Lane Group Flow (vph)	0	0	0	242	234	218	175	1413	0	0	1039	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	15.0					
Total Split (s)				36.0	36.0	36.0	17.0					
Total Split (%)				27.7%	27.7%	27.7%	13.1%					
Maximum Green (s)				30.3	30.3	30.3	11.9					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					

Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	47.0	30.0
Total Split (%)	36%	23%
Maximum Green (s)	41.9	28.0
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.7	-1.7	-1.7	-1.1					
Total Lost Time (s)				4.0	4.0	4.0	4.0					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?				Yes	Yes	Yes	Yes					
Vehicle Extension (s)				3.0	3.0	3.0	3.0					
Recall Mode				Max	Max	Max	C-Min					
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)				32.0	32.0	32.0	56.0	60.0			73.0	
Actuated g/C Ratio				0.25	0.25	0.25	0.43	0.46			0.56	
v/c Ratio				0.59	0.53	0.41	0.67	0.87			0.53	
Control Delay				49.9	32.9	7.4	22.5	11.9			18.6	
Queue Delay				0.0	0.0	0.0	0.0	24.6			0.0	
Total Delay				49.9	32.9	7.4	22.5	36.5			18.6	
LOS				D	C	A	C	D			B	
Approach Delay					30.8			35.0			18.6	
Approach LOS					C			C			B	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 29.0	Intersection LOS: C
Intersection Capacity Utilization 78.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 33: 91st Ave & I-10 WB Ramps



Lane Group	Ø1	Ø4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Min	Min
Walk Time (s)	7.0	
Flash Dont Walk (s)	17.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

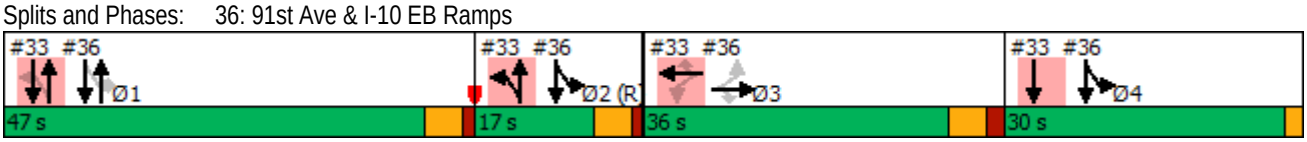
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	276	115	723	0	0	0	0	1190	147	316	879	0
Future Volume (vph)	276	115	723	0	0	0	0	1190	147	316	879	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	0		225	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.898	0.850						0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1681	1518	1504	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950	0.997								0.093		
Satd. Flow (perm)	1681	1518	1504	0	0	0	0	3539	1583	173	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		78	179						97			
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		862			1328			761			509	
Travel Time (s)		13.1			20.1			13.0			8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	300	125	786	0	0	0	0	1293	160	343	955	0
Shared Lane Traffic (%)	10%		42%									
Lane Group Flow (vph)	270	485	456	0	0	0	0	1293	160	343	955	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	36.0	36.0	36.0					47.0	47.0			
Total Split (%)	27.7%	27.7%	27.7%					36.2%	36.2%			
Maximum Green (s)	30.3	30.3	30.3					41.9	41.9			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	15.0	30.0
Total Split (s)	17.0	30.0
Total Split (%)	13%	23%
Maximum Green (s)	11.9	28.0
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.7	-1.7	-1.7					-1.1	-1.1			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	Max	Max	Max					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					17.0	17.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	32.0	32.0	32.0					43.0	43.0	82.0	90.0	
Actuated g/C Ratio	0.25	0.25	0.25					0.33	0.33	0.63	0.69	
v/c Ratio	0.65	1.12	0.90					1.11	0.27	0.58	0.39	
Control Delay	52.6	118.8	51.1					100.8	14.4	17.5	7.0	
Queue Delay	0.0	0.0	0.0					0.2	0.0	0.0	0.2	
Total Delay	52.6	118.8	51.1					100.9	14.4	17.5	7.2	
LOS	D	F	D					F	B	B	A	
Approach Delay		78.6						91.4			9.9	
Approach LOS		E						F			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 60.8	Intersection LOS: E
Intersection Capacity Utilization 78.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 36: 91st Ave & I-10 EB Ramps



Lane Group	Ø2	Ø4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Min	Min
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	371	0	268	161	1300	0	0	824	132
Future Volume (vph)	0	0	0	371	0	268	161	1300	0	0	824	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	0.91
Frt					0.953	0.850					0.979	
Flt Protected				0.950	0.967		0.950					
Satd. Flow (prot)	0	0	0	1681	1562	1504	1770	5085	0	0	4979	0
Flt Permitted				0.950	0.967		0.179					
Satd. Flow (perm)	0	0	0	1681	1562	1504	333	5085	0	0	4979	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					77	218					36	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1015			1514			509			731	
Travel Time (s)		15.4			22.9			8.7			12.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	403	0	291	175	1413	0	0	896	143
Shared Lane Traffic (%)				40%		25%						
Lane Group Flow (vph)	0	0	0	242	234	218	175	1413	0	0	1039	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	15.0					
Total Split (s)				33.0	33.0	33.0	23.0					
Total Split (%)				25.4%	25.4%	25.4%	17.7%					
Maximum Green (s)				27.3	27.3	27.3	17.9					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					

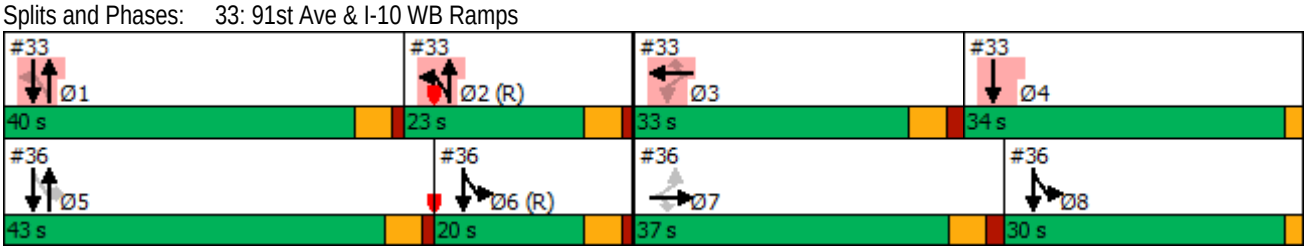
Lane Group	Ø1	Ø4	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	4	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	10.0	5.0	8.0	1.0
Minimum Split (s)	30.0	30.0	30.0	15.0	30.0	30.0
Total Split (s)	40.0	34.0	43.0	20.0	37.0	30.0
Total Split (%)	31%	26%	33%	15%	28%	23%
Maximum Green (s)	34.9	32.0	37.9	14.9	31.3	28.0
Yellow Time (s)	3.9	2.0	3.9	3.9	3.9	2.0
All-Red Time (s)	1.2	0.0	1.2	1.2	1.8	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.7	-1.7	-1.7	-1.1					
Total Lost Time (s)				4.0	4.0	4.0	4.0					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?				Yes	Yes	Yes	Yes					
Vehicle Extension (s)				3.0	3.0	3.0	3.0					
Recall Mode				Max	Max	Max	C-Min					
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)				29.9	29.9	29.9	56.7	60.7			70.0	
Actuated g/C Ratio				0.23	0.23	0.23	0.44	0.47			0.54	
v/c Ratio				0.63	0.56	0.42	0.51	0.59			0.39	
Control Delay				53.7	35.4	8.0	22.2	10.2			17.3	
Queue Delay				0.0	0.0	0.0	0.0	0.5			0.0	
Total Delay				53.7	35.4	8.0	22.2	10.7			17.3	
LOS				D	D	A	C	B			B	
Approach Delay					33.2			12.0			17.3	
Approach LOS					C			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 18.1 Intersection LOS: B
Intersection Capacity Utilization 61.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 33: 91st Ave & I-10 WB Ramps



Lane Group	Ø1	Ø4	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	C-Min	Max	Min
Walk Time (s)	7.0		7.0		7.0	
Flash Dont Walk (s)	17.0		17.0		11.0	
Pedestrian Calls (#/hr)	0		0		0	
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

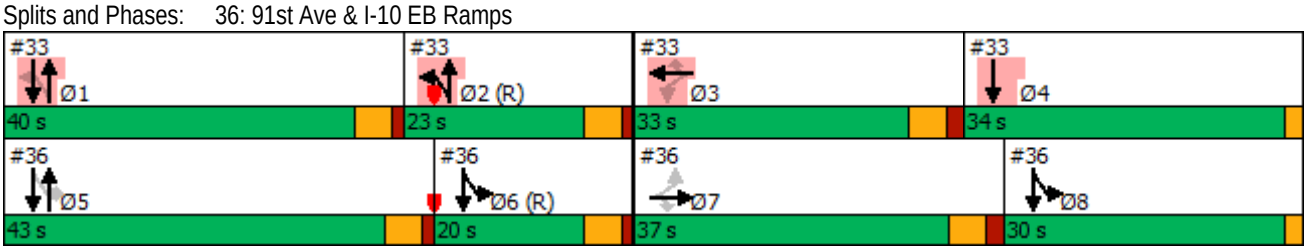
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	276	115	723	0	0	0	0	1190	147	316	879	0
Future Volume (vph)	276	115	723	0	0	0	0	1190	147	316	879	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	0		225	0		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.88	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.979								0.950		
Satd. Flow (prot)	1681	1732	2787	0	0	0	0	5085	1583	1770	3539	0
Flt Permitted	0.950	0.979								0.097		
Satd. Flow (perm)	1681	1732	2787	0	0	0	0	5085	1583	181	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			308						134			
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		862			1328			761			509	
Travel Time (s)		13.1			20.1			13.0			8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	300	125	786	0	0	0	0	1293	160	343	955	0
Shared Lane Traffic (%)	30%											
Lane Group Flow (vph)	210	215	786	0	0	0	0	1293	160	343	955	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		7						5		6 8	5 6 8	
Permitted Phases	7		7						5	5 6 8		
Detector Phase	7	7	7					5	5	6 8	5 6 8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	37.0	37.0	37.0					43.0	43.0			
Total Split (%)	28.5%	28.5%	28.5%					33.1%	33.1%			
Maximum Green (s)	31.3	31.3	31.3					37.9	37.9			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	5.0	8.0	1.0	5.0	1.0
Minimum Split (s)	30.0	15.0	30.0	30.0	15.0	30.0
Total Split (s)	40.0	23.0	33.0	34.0	20.0	30.0
Total Split (%)	31%	18%	25%	26%	15%	23%
Maximum Green (s)	34.9	17.9	27.3	32.0	14.9	28.0
Yellow Time (s)	3.9	3.9	3.9	2.0	3.9	2.0
All-Red Time (s)	1.2	1.2	1.8	0.0	1.2	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.7	-1.7	-1.7					-1.1	-1.1			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	Max	Max	Max					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					17.0	17.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	33.9	33.9	33.9					41.2	41.2	80.1	88.1	
Actuated g/C Ratio	0.26	0.26	0.26					0.32	0.32	0.62	0.68	
v/c Ratio	0.48	0.48	0.82					0.80	0.27	0.58	0.40	
Control Delay	45.4	45.2	35.5					45.6	9.5	13.8	9.6	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.3	
Total Delay	45.4	45.2	35.5					45.6	9.5	13.8	9.9	
LOS	D	D	D					D	A	B	A	
Approach Delay		39.0						41.7			10.9	
Approach LOS		D						D			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 30.8	Intersection LOS: C
Intersection Capacity Utilization 61.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 36: 91st Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	C-Min	Max	Min	C-Min	Min
Walk Time (s)	7.0		7.0			
Flash Dont Walk (s)	17.0		11.0			
Pedestrian Calls (#/hr)	0		0			
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

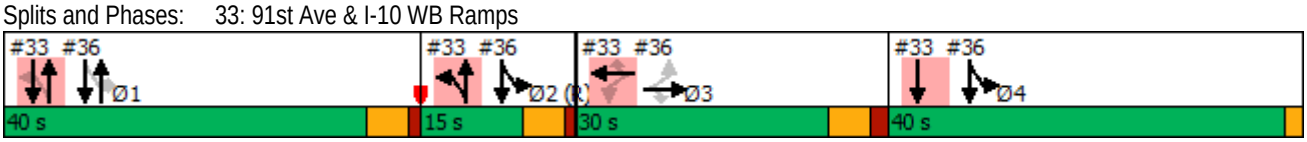
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	122	0	277	488	1300	0	0	824	381
Future Volume (vph)	0	0	0	122	0	277	488	1300	0	0	824	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.862	0.850					0.953	
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1681	1455	1504	1770	3539	0	0	3373	0
Flt Permitted				0.950	0.996		0.111					
Satd. Flow (perm)	0	0	0	1681	1455	1504	207	3539	0	0	3373	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					144	157					111	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1015			1514			509			731	
Travel Time (s)		15.4			22.9			8.7			12.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	133	0	301	530	1413	0	0	896	414
Shared Lane Traffic (%)				10%		48%						
Lane Group Flow (vph)	0	0	0	120	157	157	530	1413	0	0	1310	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	15.0					
Total Split (s)				30.0	30.0	30.0	15.0					
Total Split (%)				24.0%	24.0%	24.0%	12.0%					
Maximum Green (s)				24.3	24.3	24.3	9.9					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					

Lane Group	Ø1	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	1	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	1.0
Minimum Split (s)	30.0	30.0
Total Split (s)	40.0	40.0
Total Split (%)	32%	32%
Maximum Green (s)	34.9	38.0
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.7	-1.7	-1.7	-1.1					
Total Lost Time (s)				4.0	4.0	4.0	4.0					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?				Yes	Yes	Yes	Yes					
Vehicle Extension (s)				3.0	3.0	3.0	3.0					
Recall Mode				Max	Max	Max	C-Min					
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)				26.0	26.0	26.0	47.0	51.0			76.0	
Actuated g/C Ratio				0.21	0.21	0.21	0.38	0.41			0.61	
v/c Ratio				0.34	0.38	0.36	2.47	0.98			0.63	
Control Delay				45.5	11.1	8.7	679.0	16.9			15.6	
Queue Delay				0.0	0.0	0.0	0.0	40.6			0.4	
Total Delay				45.5	11.1	8.7	679.0	57.5			16.0	
LOS				D	B	A	F	E			B	
Approach Delay					19.7			227.0			16.0	
Approach LOS					B			F			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.47	
Intersection Signal Delay: 127.6	Intersection LOS: F
Intersection Capacity Utilization 83.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 33: 91st Ave & I-10 WB Ramps



Lane Group	Ø1	Ø4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Min	Min
Walk Time (s)	7.0	
Flash Dont Walk (s)	17.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

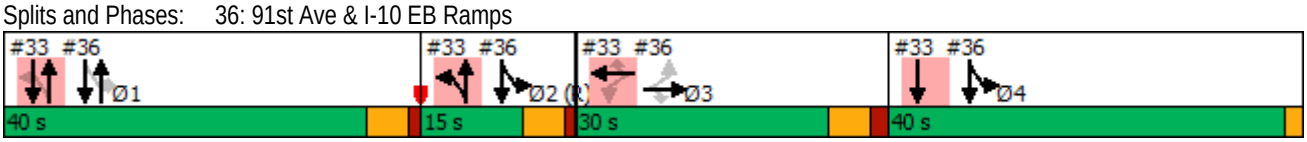
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	214	653	0	0	0	0	1488	124	218	728	0
Future Volume (vph)	300	214	653	0	0	0	0	1488	124	218	728	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	0		225	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.929	0.850						0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1681	1570	1504	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950	0.997								0.111		
Satd. Flow (perm)	1681	1570	1504	0	0	0	0	3539	1583	207	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33	265						86			
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		862			1328			761			509	
Travel Time (s)		13.1			20.1			13.0			8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	233	710	0	0	0	0	1617	135	237	791	0
Shared Lane Traffic (%)	10%		34%									
Lane Group Flow (vph)	293	507	469	0	0	0	0	1617	135	237	791	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2 4	1 2 4	
Permitted Phases	3		3						1	1 2 4		
Detector Phase	3	3	3					1	1	2 4	1 2 4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					40.0	40.0			
Total Split (%)	24.0%	24.0%	24.0%					32.0%	32.0%			
Maximum Green (s)	24.3	24.3	24.3					34.9	34.9			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	1.0
Minimum Split (s)	15.0	30.0
Total Split (s)	15.0	40.0
Total Split (%)	12%	32%
Maximum Green (s)	9.9	38.0
Yellow Time (s)	3.9	2.0
All-Red Time (s)	1.2	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.7	-1.7	-1.7					-1.1	-1.1			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	Max	Max	Max					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					17.0	17.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	26.0	26.0	26.0					36.0	36.0	83.0	91.0	
Actuated g/C Ratio	0.21	0.21	0.21					0.29	0.29	0.66	0.73	
v/c Ratio	0.84	1.44	0.90					1.59	0.26	0.33	0.31	
Control Delay	69.1	248.0	42.2					300.4	15.0	7.0	2.8	
Queue Delay	0.0	0.0	0.0					0.2	0.0	0.0	0.2	
Total Delay	69.1	248.0	42.2					300.7	15.0	7.0	2.9	
LOS	E	F	D					F	B	A	A	
Approach Delay		130.6						278.6			3.9	
Approach LOS		F						F			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.47	
Intersection Signal Delay: 162.5	Intersection LOS: F
Intersection Capacity Utilization 83.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 36: 91st Ave & I-10 EB Ramps



Lane Group	Ø2	Ø4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Min	Min
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	122	0	277	488	1300	0	0	824	381
Future Volume (vph)	0	0	0	122	0	277	488	1300	0	0	824	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.862	0.850					0.953	
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1681	1455	1504	1770	3539	0	0	3373	0
Flt Permitted				0.950	0.996		0.154					
Satd. Flow (perm)	0	0	0	1681	1455	1504	287	3539	0	0	3373	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					144	157					69	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1015			1514			509			731	
Travel Time (s)		15.4			22.9			8.7			12.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	133	0	301	530	1413	0	0	896	414
Shared Lane Traffic (%)				10%		48%						
Lane Group Flow (vph)	0	0	0	120	157	157	530	1413	0	0	1310	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	15.0					
Total Split (s)				30.0	30.0	30.0	45.0					
Total Split (%)				22.2%	22.2%	22.2%	33.3%					
Maximum Green (s)				24.3	24.3	24.3	39.9					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					

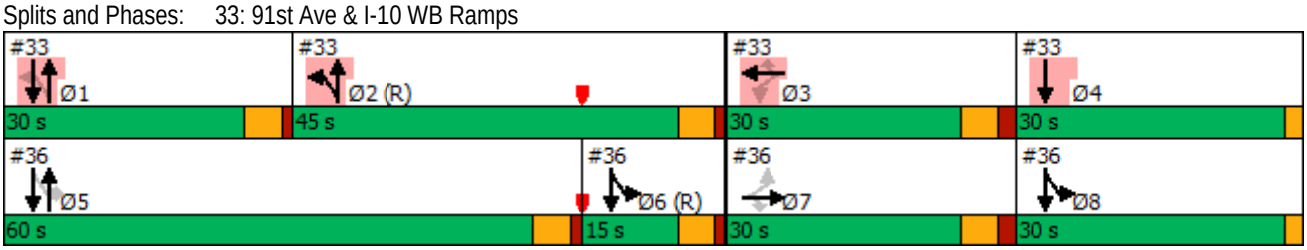
Lane Group	Ø1	Ø4	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	4	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	10.0	5.0	8.0	1.0
Minimum Split (s)	30.0	30.0	30.0	15.0	30.0	30.0
Total Split (s)	30.0	30.0	60.0	15.0	30.0	30.0
Total Split (%)	22%	22%	44%	11%	22%	22%
Maximum Green (s)	24.9	28.0	54.9	9.9	24.3	28.0
Yellow Time (s)	3.9	2.0	3.9	3.9	3.9	2.0
All-Red Time (s)	1.2	0.0	1.2	1.2	1.8	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.7	-1.7	-1.7	-1.1					
Total Lost Time (s)				4.0	4.0	4.0	4.0					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?				Yes	Yes	Yes	Yes					
Vehicle Extension (s)				3.0	3.0	3.0	3.0					
Recall Mode				Max	Max	Max	C-Min					
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)				26.2	26.2	26.2	66.8	70.8			56.0	
Actuated g/C Ratio				0.19	0.19	0.19	0.49	0.52			0.41	
v/c Ratio				0.37	0.39	0.38	0.90	0.76			0.91	
Control Delay				51.2	12.2	9.5	24.0	7.5			45.6	
Queue Delay				0.0	0.0	0.0	0.0	4.6			0.2	
Total Delay				51.2	12.2	9.5	24.0	12.2			45.8	
LOS				D	B	A	C	B			D	
Approach Delay					22.0			15.4			45.8	
Approach LOS					C			B			D	

Intersection Summary

Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 27.0	Intersection LOS: C
Intersection Capacity Utilization 78.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 33: 91st Ave & I-10 WB Ramps



Lane Group	Ø1	Ø4	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	C-Min	Max	Min
Walk Time (s)	7.0		7.0		7.0	
Flash Dont Walk (s)	17.0		17.0		11.0	
Pedestrian Calls (#/hr)	0		0		0	
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

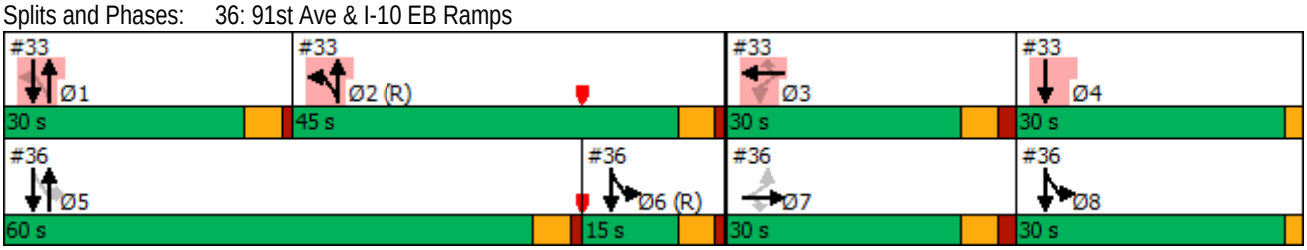
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	0	653	0	0	0	0	1488	124	218	728	0
Future Volume (vph)	300	0	653	0	0	0	0	1488	124	218	728	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	0		225	0		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.863	0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1681	1457	1504	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950	0.996								0.071		
Satd. Flow (perm)	1681	1457	1504	0	0	0	0	3539	1583	132	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		276	276						79			
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		862			1328			761			509	
Travel Time (s)		13.1			20.1			13.0			8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	0	710	0	0	0	0	1617	135	237	791	0
Shared Lane Traffic (%)	10%		48%									
Lane Group Flow (vph)	293	374	369	0	0	0	0	1617	135	237	791	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		7						5		6 8	5 6 8	
Permitted Phases	7		7						5	5 6 8		
Detector Phase	7	7	7					5	5	6 8	5 6 8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					60.0	60.0			
Total Split (%)	22.2%	22.2%	22.2%					44.4%	44.4%			
Maximum Green (s)	24.3	24.3	24.3					54.9	54.9			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	5.0	8.0	1.0	5.0	1.0
Minimum Split (s)	30.0	15.0	30.0	30.0	15.0	30.0
Total Split (s)	30.0	45.0	30.0	30.0	15.0	30.0
Total Split (%)	22%	33%	22%	22%	11%	22%
Maximum Green (s)	24.9	39.9	24.3	28.0	9.9	28.0
Yellow Time (s)	3.9	3.9	3.9	2.0	3.9	2.0
All-Red Time (s)	1.2	1.2	1.8	0.0	1.2	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.7	-1.7	-1.7					-1.1	-1.1			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	Max	Max	Max					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					17.0	17.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	26.2	26.2	26.2					56.0	56.0	92.8	100.8	
Actuated g/C Ratio	0.19	0.19	0.19					0.41	0.41	0.69	0.75	
v/c Ratio	0.90	0.74	0.72					1.10	0.19	0.44	0.30	
Control Delay	83.2	23.7	22.1					93.9	11.6	23.9	2.5	
Queue Delay	0.0	0.1	0.0					0.2	0.0	0.0	0.5	
Total Delay	83.2	23.8	22.1					94.1	11.6	23.9	3.0	
LOS	F	C	C					F	B	C	A	
Approach Delay		40.0						87.7			7.8	
Approach LOS		D						F			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 53.3	Intersection LOS: D
Intersection Capacity Utilization 78.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 36: 91st Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	C-Min	Max	Min	C-Min	Min
Walk Time (s)	7.0		7.0			
Flash Dont Walk (s)	17.0		11.0			
Pedestrian Calls (#/hr)	0		0			
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

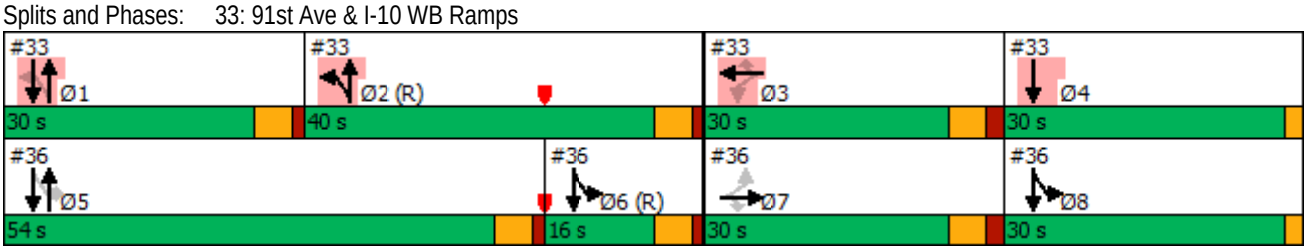
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	122	0	277	488	1300	0	0	824	381
Future Volume (vph)	0	0	0	122	0	277	488	1300	0	0	824	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	450		450	0		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	0.91
Frt					0.862	0.850					0.953	
Flt Protected				0.950	0.996		0.950					
Satd. Flow (prot)	0	0	0	1681	1455	1504	1770	5085	0	0	4846	0
Flt Permitted				0.950	0.996		0.154					
Satd. Flow (perm)	0	0	0	1681	1455	1504	287	5085	0	0	4846	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					144	157					113	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1015			1514			509			731	
Travel Time (s)		15.4			22.9			8.7			12.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	133	0	301	530	1413	0	0	896	414
Shared Lane Traffic (%)				10%		48%						
Lane Group Flow (vph)	0	0	0	120	157	157	530	1413	0	0	1310	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	
Leading Detector (ft)				20	100	20	20	100			100	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	100	20	20	100			100	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					3		2	1 2			1 4	
Permitted Phases				3		3	1 2					
Detector Phase				3	3	3	2	1 2			1 4	
Switch Phase												
Minimum Initial (s)				8.0	8.0	8.0	5.0					
Minimum Split (s)				30.0	30.0	30.0	15.0					
Total Split (s)				30.0	30.0	30.0	40.0					
Total Split (%)				23.1%	23.1%	23.1%	30.8%					
Maximum Green (s)				24.3	24.3	24.3	34.9					
Yellow Time (s)				3.9	3.9	3.9	3.9					
All-Red Time (s)				1.8	1.8	1.8	1.2					

Lane Group	Ø1	Ø4	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	4	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	1.0	10.0	5.0	8.0	1.0
Minimum Split (s)	30.0	30.0	30.0	15.0	30.0	30.0
Total Split (s)	30.0	30.0	54.0	16.0	30.0	30.0
Total Split (%)	23%	23%	42%	12%	23%	23%
Maximum Green (s)	24.9	28.0	48.9	10.9	24.3	28.0
Yellow Time (s)	3.9	2.0	3.9	3.9	3.9	2.0
All-Red Time (s)	1.2	0.0	1.2	1.2	1.8	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)				-1.7	-1.7	-1.7	-1.1					
Total Lost Time (s)				4.0	4.0	4.0	4.0					
Lead/Lag				Lead	Lead	Lead	Lag					
Lead-Lag Optimize?				Yes	Yes	Yes	Yes					
Vehicle Extension (s)				3.0	3.0	3.0	3.0					
Recall Mode				Max	Max	Max	C-Min					
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)				26.0	26.0	26.0	62.0	66.0			56.0	
Actuated g/C Ratio				0.20	0.20	0.20	0.48	0.51			0.43	
v/c Ratio				0.36	0.39	0.37	0.97	0.55			0.61	
Control Delay				48.4	11.7	9.2	50.8	8.4			27.3	
Queue Delay				0.0	0.0	0.0	0.0	0.3			0.0	
Total Delay				48.4	11.7	9.2	50.8	8.7			27.3	
LOS				D	B	A	D	A			C	
Approach Delay					20.9			20.2			27.3	
Approach LOS					C			C			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 22.8	Intersection LOS: C
Intersection Capacity Utilization 68.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 33: 91st Ave & I-10 WB Ramps



Lane Group	Ø1	Ø4	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	C-Min	Max	Min
Walk Time (s)	7.0		7.0		7.0	
Flash Dont Walk (s)	17.0		17.0		11.0	
Pedestrian Calls (#/hr)	0		0		0	
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

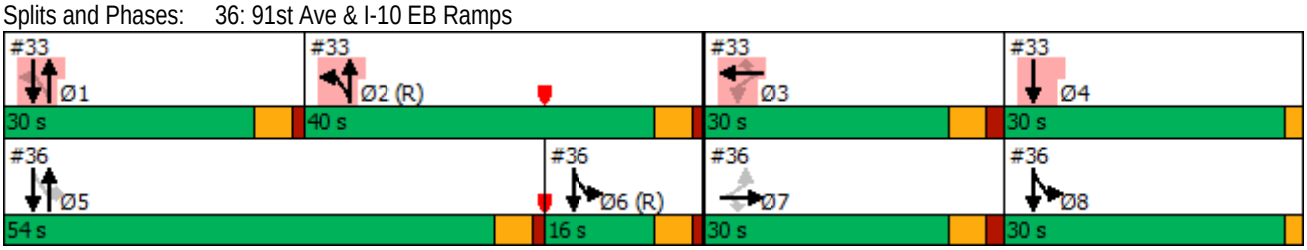
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	0	653	0	0	0	0	1488	124	218	728	0
Future Volume (vph)	300	0	653	0	0	0	0	1488	124	218	728	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	0		225	0		0
Storage Lanes	1		2	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.88	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.950								0.950		
Satd. Flow (prot)	1681	1681	2787	0	0	0	0	5085	1583	1770	3539	0
Flt Permitted	0.950	0.950								0.080		
Satd. Flow (perm)	1681	1681	2787	0	0	0	0	5085	1583	149	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			477						103			
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		862			1328			761			509	
Travel Time (s)		13.1			20.1			13.0			8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	0	710	0	0	0	0	1617	135	237	791	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	163	163	710	0	0	0	0	1617	135	237	791	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		7						5		6 8	5 6 8	
Permitted Phases	7		7						5	5 6 8		
Detector Phase	7	7	7					5	5	6 8	5 6 8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0					10.0	10.0			
Minimum Split (s)	30.0	30.0	30.0					30.0	30.0			
Total Split (s)	30.0	30.0	30.0					54.0	54.0			
Total Split (%)	23.1%	23.1%	23.1%					41.5%	41.5%			
Maximum Green (s)	24.3	24.3	24.3					48.9	48.9			
Yellow Time (s)	3.9	3.9	3.9					3.9	3.9			
All-Red Time (s)	1.8	1.8	1.8					1.2	1.2			

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	6	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	5.0	8.0	1.0	5.0	1.0
Minimum Split (s)	30.0	15.0	30.0	30.0	15.0	30.0
Total Split (s)	30.0	40.0	30.0	30.0	16.0	30.0
Total Split (%)	23%	31%	23%	23%	12%	23%
Maximum Green (s)	24.9	34.9	24.3	28.0	10.9	28.0
Yellow Time (s)	3.9	3.9	3.9	2.0	3.9	2.0
All-Red Time (s)	1.2	1.2	1.8	0.0	1.2	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.7	-1.7	-1.7					-1.1	-1.1			
Total Lost Time (s)	4.0	4.0	4.0					4.0	4.0			
Lead/Lag	Lead	Lead	Lead					Lead	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0			
Recall Mode	Max	Max	Max					Min	Min			
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Dont Walk (s)	11.0	11.0	11.0					17.0	17.0			
Pedestrian Calls (#/hr)	0	0	0					0	0			
Act Effct Green (s)	26.0	26.0	26.0					50.0	50.0	88.0	96.0	
Actuated g/C Ratio	0.20	0.20	0.20					0.38	0.38	0.68	0.74	
v/c Ratio	0.49	0.49	0.76					0.83	0.20	0.41	0.30	
Control Delay	51.7	51.7	21.4					40.6	8.6	16.1	2.8	
Queue Delay	0.0	0.0	0.0					0.3	0.0	0.0	0.3	
Total Delay	51.7	51.7	21.4					40.8	8.6	16.1	3.0	
LOS	D	D	C					D	A	B	A	
Approach Delay		30.9						38.4			6.0	
Approach LOS		C						D			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 27.6	Intersection LOS: C
Intersection Capacity Utilization 68.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 36: 91st Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø6	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	C-Min	Max	Min	C-Min	Min
Walk Time (s)	7.0		7.0			
Flash Dont Walk (s)	17.0		11.0			
Pedestrian Calls (#/hr)	0		0			
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

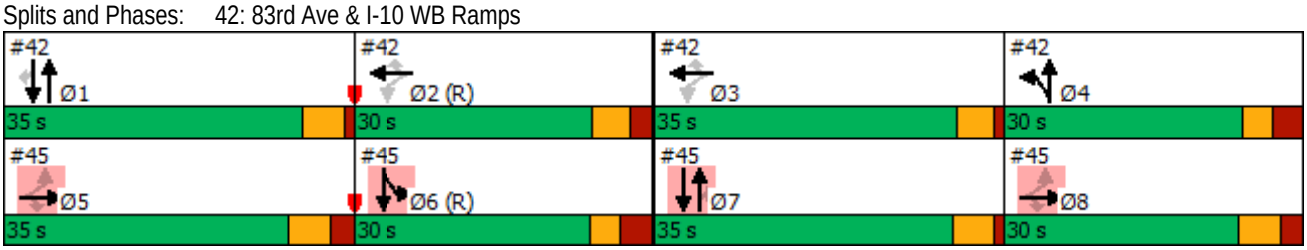
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	524	0	260	480	1081	0	0	608	340
Future Volume (vph)	0	0	0	524	0	260	480	1081	0	0	608	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	0		0	225		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.95	1.00	1.00	0.91	1.00
Frt					0.986	0.850						0.850
Flt Protected				0.950	0.957		0.950					
Satd. Flow (prot)	0	0	0	1681	1599	1504	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.957		0.950					
Satd. Flow (perm)	0	0	0	1681	1599	1504	3433	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					87	87						370
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1401			1690			517			864	
Travel Time (s)		21.2			25.6			7.8			13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	570	0	283	522	1175	0	0	661	370
Shared Lane Traffic (%)				47%		10%						
Lane Group Flow (vph)	0	0	0	302	296	255	522	1175	0	0	661	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	100	20	20	100			100	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							30.0				35.0	35.0
Total Split (%)							23.1%				26.9%	26.9%
Maximum Green (s)							23.8				29.7	29.7
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	5.0	5.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.9	30.0	30.0	30.0	24.7
Total Split (s)	30.0	35.0	35.0	30.0	35.0	30.0
Total Split (%)	23%	27%	27%	23%	27%	23%
Maximum Green (s)	23.7	30.1	28.3	23.5	29.7	23.3
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	1.0	2.4	3.5	1.0	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)							-2.2				-1.3	-1.3
Total Lost Time (s)							4.0				4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)							3.0				3.0	3.0
Recall Mode							None				Max	Max
Walk Time (s)											7.0	7.0
Flash Dont Walk (s)											15.0	15.0
Pedestrian Calls (#/hr)											0	0
Act Effct Green (s)				61.0	61.0	61.0	26.0	61.0			31.0	31.0
Actuated g/C Ratio				0.47	0.47	0.47	0.20	0.47			0.24	0.24
v/c Ratio				0.38	0.37	0.34	0.76	0.71			0.55	0.56
Control Delay				24.1	16.7	15.3	43.8	22.7			45.3	7.5
Queue Delay				0.4	0.3	0.0	0.0	2.0			0.1	0.0
Total Delay				24.5	17.1	15.3	43.8	24.7			45.4	7.5
LOS				C	B	B	D	C			D	A
Approach Delay					19.2			30.6			31.8	
Approach LOS					B			C			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 28.2	Intersection LOS: C
Intersection Capacity Utilization 71.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 42: 83rd Ave & I-10 WB Ramps



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	Max	Max	C-Max	Max	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			15.0		17.0	11.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

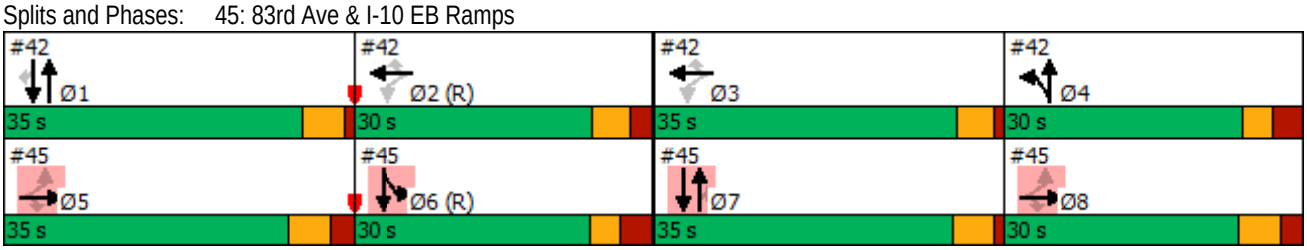
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	765	0	518	0	0	0	0	740	334	249	1401	0
Future Volume (vph)	765	0	518	0	0	0	0	740	334	249	1401	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	625		625	0		0	225		225	0		0
Storage Lanes	1		1	0		0	0		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00
Frt		0.961	0.850						0.850			
Flt Protected	0.950	0.964								0.950		
Satd. Flow (prot)	1681	1570	1504	0	0	0	0	5085	1583	3433	3539	0
Flt Permitted	0.950	0.964								0.950		
Satd. Flow (perm)	1681	1570	1504	0	0	0	0	5085	1583	3433	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		74	74						363			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1408			1403			900			517	
Travel Time (s)		21.3			21.3			13.6			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	832	0	563	0	0	0	0	804	363	271	1523	0
Shared Lane Traffic (%)	42%		22%									
Lane Group Flow (vph)	483	473	439	0	0	0	0	804	363	271	1523	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								35.0	35.0	30.0		
Total Split (%)								26.9%	26.9%	23.1%		
Maximum Green (s)								29.7	29.7	23.5		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	5.0	5.0	5.0	10.0
Minimum Split (s)	30.0	30.0	9.9	30.0	30.0	24.7
Total Split (s)	35.0	30.0	35.0	30.0	35.0	30.0
Total Split (%)	27%	23%	27%	23%	27%	23%
Maximum Green (s)	29.7	23.7	30.1	23.8	28.3	23.3
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	1.0	3.2	2.4	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)								-1.3	-1.3	-2.5		
Total Lost Time (s)								4.0	4.0	4.0		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)								3.0	3.0	3.0		
Recall Mode								Max	Max	C-Max		
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								17.0	17.0			
Pedestrian Calls (#/hr)								0	0			
Act Effct Green (s)	61.0	61.0	61.0					31.0	31.0	26.0	61.0	
Actuated g/C Ratio	0.47	0.47	0.47					0.24	0.24	0.20	0.47	
v/c Ratio	0.61	0.61	0.59					0.66	0.56	0.40	0.92	
Control Delay	29.9	25.3	24.5					47.9	7.5	34.3	40.8	
Queue Delay	0.4	0.3	0.0					0.0	0.0	0.0	30.9	
Total Delay	30.2	25.6	24.5					47.9	7.5	34.3	71.7	
LOS	C	C	C					D	A	C	E	
Approach Delay		26.9						35.3			66.0	
Approach LOS		C						D			E	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 45.3	Intersection LOS: D
Intersection Capacity Utilization 71.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 45: 83rd Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	Max	None	Max	None
Walk Time (s)	7.0				7.0	7.0
Flash Dont Walk (s)	15.0				15.0	11.0
Pedestrian Calls (#/hr)	0				0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

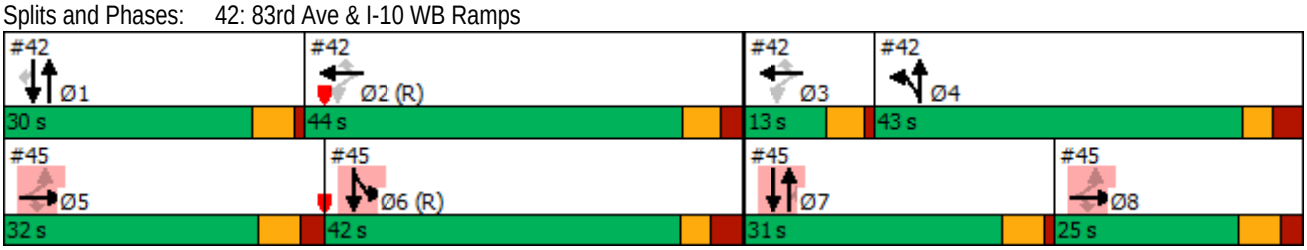
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	524	0	260	480	1081	0	0	608	340
Future Volume (vph)	0	0	0	524	0	260	480	1081	0	0	608	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	0		0	225		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.95	1.00	1.00	0.91	1.00
Frt					0.986	0.850						0.850
Flt Protected				0.950	0.957		0.950					
Satd. Flow (prot)	0	0	0	1681	1599	1504	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.957		0.950					
Satd. Flow (perm)	0	0	0	1681	1599	1504	3433	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					120	120						370
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1401			1690			517			864	
Travel Time (s)		21.2			25.6			7.8			13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	570	0	283	522	1175	0	0	661	370
Shared Lane Traffic (%)				47%		10%						
Lane Group Flow (vph)	0	0	0	302	296	255	522	1175	0	0	661	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	100	20	20	100			100	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							43.0				30.0	30.0
Total Split (%)							33.1%				23.1%	23.1%
Maximum Green (s)							36.8				24.7	24.7
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	5.0	5.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.9	30.0	30.0	30.0	24.7
Total Split (s)	44.0	13.0	32.0	42.0	31.0	25.0
Total Split (%)	34%	10%	25%	32%	24%	19%
Maximum Green (s)	37.7	8.1	25.3	35.5	25.7	18.3
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	1.0	2.4	3.5	1.0	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)							-2.2				-1.3	-1.3
Total Lost Time (s)							4.0				4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)							3.0				3.0	3.0
Recall Mode							None				Max	Max
Walk Time (s)											7.0	7.0
Flash Dont Walk (s)											15.0	15.0
Pedestrian Calls (#/hr)											0	0
Act Effct Green (s)				53.0	53.0	53.0	39.0	69.0			26.0	26.0
Actuated g/C Ratio				0.41	0.41	0.41	0.30	0.53			0.20	0.20
v/c Ratio				0.44	0.41	0.37	0.51	0.63			0.65	0.60
Control Delay				30.4	17.6	15.4	29.3	8.7			51.3	8.9
Queue Delay				0.8	0.6	0.0	0.0	1.0			0.1	0.0
Total Delay				31.2	18.2	15.4	29.3	9.7			51.3	8.9
LOS				C	B	B	C	A			D	A
Approach Delay					22.0			15.7			36.1	
Approach LOS					C			B			D	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 23.1	Intersection LOS: C
Intersection Capacity Utilization 71.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 42: 83rd Ave & I-10 WB Ramps



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	Max	Max	C-Max	Max	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			15.0		17.0	11.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

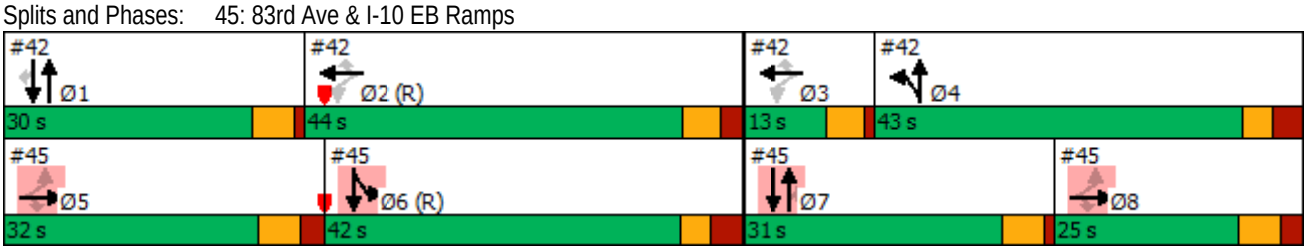
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	765	0	518	0	0	0	0	740	334	249	1401	0
Future Volume (vph)	765	0	518	0	0	0	0	740	334	249	1401	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	625		625	0		0	225		225	0		0
Storage Lanes	1		1	0		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00
Frt		0.961	0.850						0.850			
Flt Protected	0.950	0.964								0.950		
Satd. Flow (prot)	1681	1570	1504	0	0	0	0	5085	1583	3433	3539	0
Flt Permitted	0.950	0.964								0.950		
Satd. Flow (perm)	1681	1570	1504	0	0	0	0	5085	1583	3433	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		115	115						363			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1408			1403			900			517	
Travel Time (s)		21.3			21.3			13.6			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	832	0	563	0	0	0	0	804	363	271	1523	0
Shared Lane Traffic (%)	42%		22%									
Lane Group Flow (vph)	483	473	439	0	0	0	0	804	363	271	1523	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								31.0	31.0	42.0		
Total Split (%)								23.8%	23.8%	32.3%		
Maximum Green (s)								25.7	25.7	35.5		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	5.0	5.0	5.0	10.0
Minimum Split (s)	30.0	30.0	9.9	30.0	30.0	24.7
Total Split (s)	30.0	44.0	13.0	43.0	32.0	25.0
Total Split (%)	23%	34%	10%	33%	25%	19%
Maximum Green (s)	24.7	37.7	8.1	36.8	25.3	18.3
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	1.0	3.2	2.4	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)								-1.3	-1.3	-2.5		
Total Lost Time (s)								4.0	4.0	4.0		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)								3.0	3.0	3.0		
Recall Mode								Max	Max	C-Max		
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								17.0	17.0			
Pedestrian Calls (#/hr)								0	0			
Act Effct Green (s)	53.0	53.0	53.0					27.0	27.0	38.0	69.0	
Actuated g/C Ratio	0.41	0.41	0.41					0.21	0.21	0.29	0.53	
v/c Ratio	0.71	0.67	0.64					0.76	0.59	0.27	0.81	
Control Delay	38.8	28.6	27.4					53.9	8.6	24.3	31.2	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	19.6	
Total Delay	38.8	28.6	27.4					53.9	8.6	24.3	50.8	
LOS	D	C	C					D	A	C	D	
Approach Delay		31.8						39.8			46.8	
Approach LOS		C						D			D	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 40.1	Intersection LOS: D
Intersection Capacity Utilization 71.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 45: 83rd Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	Max	None	Max	None
Walk Time (s)	7.0				7.0	7.0
Flash Dont Walk (s)	15.0				15.0	11.0
Pedestrian Calls (#/hr)	0				0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

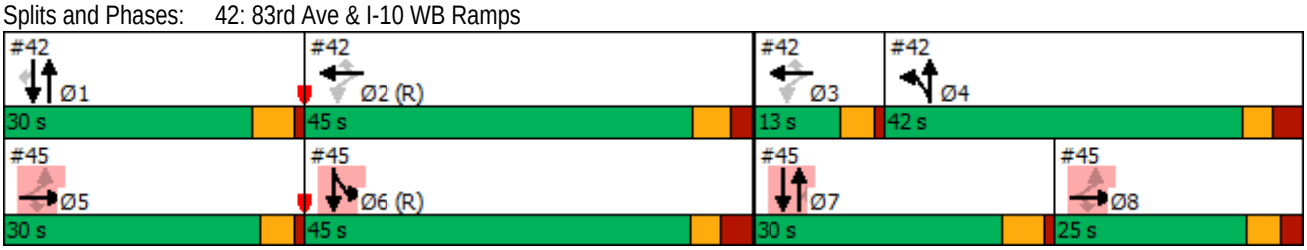
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	524	0	260	480	1081	0	0	608	340
Future Volume (vph)	0	0	0	524	0	260	480	1081	0	0	608	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	0		0	225		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.986	0.850						0.850
Flt Protected				0.950	0.957		0.950					
Satd. Flow (prot)	0	0	0	1681	1599	1504	3433	5085	0	0	5085	1583
Flt Permitted				0.950	0.957		0.950					
Satd. Flow (perm)	0	0	0	1681	1599	1504	3433	5085	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					116	116						370
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1401			1690			517			864	
Travel Time (s)		21.2			25.6			7.8			13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	570	0	283	522	1175	0	0	661	370
Shared Lane Traffic (%)				47%		10%						
Lane Group Flow (vph)	0	0	0	302	296	255	522	1175	0	0	661	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	100	20	20	100			100	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							42.0				30.0	30.0
Total Split (%)							32.3%				23.1%	23.1%
Maximum Green (s)							35.8				24.7	24.7
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	5.0	5.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.5	22.5	30.0	30.0	24.7
Total Split (s)	45.0	13.0	30.0	45.0	30.0	25.0
Total Split (%)	35%	10%	23%	35%	23%	19%
Maximum Green (s)	38.7	8.5	25.5	38.5	24.7	19.1
Yellow Time (s)	3.9	3.5	3.5	3.0	4.3	3.5
All-Red Time (s)	2.4	1.0	1.0	3.5	1.0	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)							-2.2				-1.3	-1.3
Total Lost Time (s)							4.0				4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)							3.0				3.0	3.0
Recall Mode							None				Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				53.2	53.2	53.2	38.8	68.8			26.0	26.0
Actuated g/C Ratio				0.41	0.41	0.41	0.30	0.53			0.20	0.20
v/c Ratio				0.44	0.41	0.37	0.51	0.44			0.65	0.60
Control Delay				30.0	17.7	15.6	28.9	3.1			51.3	8.9
Queue Delay				0.5	0.3	0.0	0.0	0.2			0.1	0.0
Total Delay				30.5	18.1	15.6	28.9	3.3			51.3	8.9
LOS				C	B	B	C	A			D	A
Approach Delay					21.7			11.2			36.1	
Approach LOS					C			B			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 67.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 42: 83rd Ave & I-10 WB Ramps



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	None	C-Max	Max	None
Walk Time (s)			7.0			7.0
Flash Dont Walk (s)			11.0			11.0
Pedestrian Calls (#/hr)			0			0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

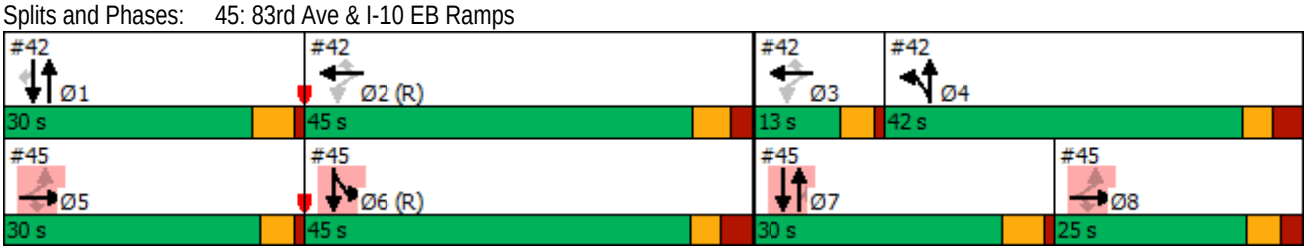
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	765	0	518	0	0	0	0	740	334	249	1401	0
Future Volume (vph)	765	0	518	0	0	0	0	740	334	249	1401	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	625		625	0		0	225		225	0		0
Storage Lanes	2		1	0		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.91	0.88	0.97	0.95	1.00
Frt		0.850	0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	3433	1504	1504	0	0	0	0	5085	2787	3433	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	3433	1504	1504	0	0	0	0	5085	2787	3433	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		112	112						363			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1408			1403			900			517	
Travel Time (s)		21.3			21.3			13.6			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	832	0	563	0	0	0	0	804	363	271	1523	0
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	832	282	281	0	0	0	0	804	363	271	1523	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								30.0	30.0	45.0		
Total Split (%)								23.1%	23.1%	34.6%		
Maximum Green (s)								24.7	24.7	38.5		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	5.0	5.0	5.0	10.0
Minimum Split (s)	30.0	30.0	9.5	30.0	22.5	24.7
Total Split (s)	30.0	45.0	13.0	42.0	30.0	25.0
Total Split (%)	23%	35%	10%	32%	23%	19%
Maximum Green (s)	24.7	38.7	8.5	35.8	25.5	19.1
Yellow Time (s)	4.3	3.9	3.5	3.0	3.5	3.5
All-Red Time (s)	1.0	2.4	1.0	3.2	1.0	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)								-1.3	-1.3	-2.5		
Total Lost Time (s)								4.0	4.0	4.0		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)								3.0	3.0	3.0		
Recall Mode								Max	Max	C-Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	45.8	45.8	45.8					26.0	26.0	48.4	78.4	
Actuated g/C Ratio	0.35	0.35	0.35					0.20	0.20	0.37	0.60	
v/c Ratio	0.69	0.47	0.47					0.79	0.43	0.21	0.71	
Control Delay	38.7	20.7	20.6					56.0	5.9	18.4	21.7	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	2.0	
Total Delay	38.7	20.7	20.6					56.0	5.9	18.4	23.7	
LOS	D	C	C					E	A	B	C	
Approach Delay		31.4						40.4			22.9	
Approach LOS		C						D			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 30.3	Intersection LOS: C
Intersection Capacity Utilization 67.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 45: 83rd Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	None	None	None	None
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					11.0	11.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

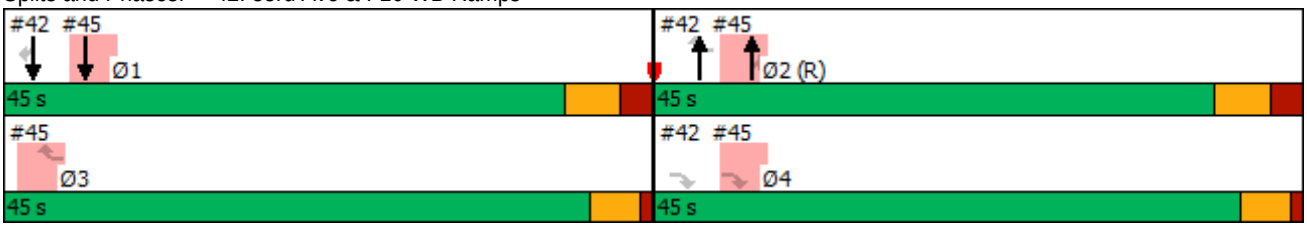
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	524	0	0	260	0	982	0	0	608	340
Future Volume (vph)	0	0	524	0	0	260	0	982	0	0	608	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	0.88	1.00	0.86	1.00	1.00	0.91	1.00
Frt			0.850			0.850						0.850
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	0	2787	0	6408	0	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	0	2787	0	6408	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			272			1920						370
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1401			1690			517			864	
Travel Time (s)		21.2			25.6			7.8			13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	570	0	0	283	0	1067	0	0	661	370
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	570	0	0	283	0	1067	0	0	661	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1			1		1			1	1
Detector Template			Right			Right		Thru			Thru	Right
Leading Detector (ft)			20			20		100			100	20
Trailing Detector (ft)			0			0		0			0	0
Detector 1 Position(ft)			0			0		0			0	0
Detector 1 Size(ft)			20			20		100			100	20
Detector 1 Type			Cl+Ex			Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)			0.0			0.0		0.0			0.0	0.0
Detector 1 Queue (s)			0.0			0.0		0.0			0.0	0.0
Detector 1 Delay (s)			0.0			0.0		0.0			0.0	0.0
Turn Type			Perm			Perm		NA			NA	Perm
Protected Phases								2			1	
Permitted Phases			4			2						1
Detector Phase			4			2		2			1	1
Switch Phase												
Minimum Initial (s)			5.0			10.0		10.0			10.0	10.0
Minimum Split (s)			22.5			30.0		30.0			30.0	30.0
Total Split (s)			45.0			45.0		45.0			45.0	45.0
Total Split (%)			50.0%			50.0%		50.0%			50.0%	50.0%
Maximum Green (s)			40.5			38.7		38.7			38.7	38.7
Yellow Time (s)			3.5			3.9		3.9			3.9	3.9
All-Red Time (s)			1.0			2.4		2.4			2.4	2.4
Lost Time Adjust (s)			0.0			-2.3		-1.3			-1.3	-1.3
Total Lost Time (s)			4.5			4.0		5.0			5.0	5.0
Lead/Lag												

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.5
Total Split (s)	45.0
Total Split (%)	50%
Maximum Green (s)	40.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0			3.0		3.0			3.0	3.0
Recall Mode			None			C-Max		C-Max			Max	Max
Walk Time (s)			7.0									
Flash Dont Walk (s)			11.0									
Pedestrian Calls (#/hr)			0									
Act Effct Green (s)			40.5			41.0		40.0			40.0	40.0
Actuated g/C Ratio			0.45			0.46		0.44			0.44	0.44
v/c Ratio			0.41			0.12		0.37			0.29	0.41
Control Delay			9.2			0.1		12.4			16.4	3.2
Queue Delay			0.0			0.0		0.0			0.0	0.0
Total Delay			9.2			0.1		12.4			16.4	3.2
LOS			A			A		B			B	A
Approach Delay		9.2			0.1			12.4			11.7	
Approach LOS		A			A			B			B	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.43	
Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 38.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 42: 83rd Ave & I-10 WB Ramps



Lane Group	Ø3
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

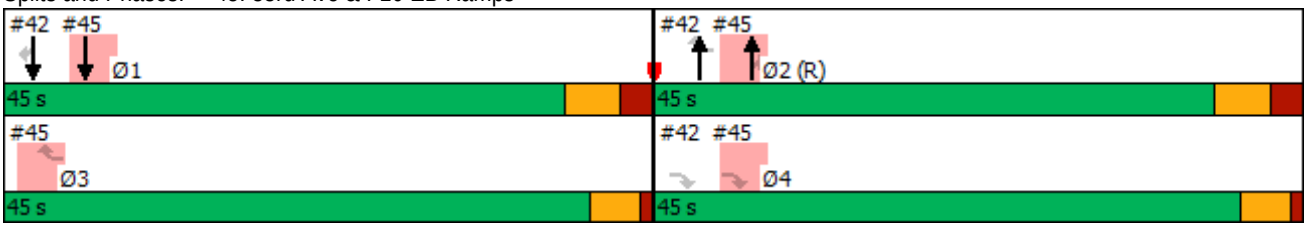
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	367	0	0	469	0	740	334	0	1150	0
Future Volume (vph)	0	0	367	0	0	469	0	740	334	0	1150	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	0.88	1.00	0.91	1.00	1.00	0.86	1.00
Frt			0.850			0.850			0.850			
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	0	2787	0	5085	1583	0	6408	0
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	0	2787	0	5085	1583	0	6408	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			47			174			363			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1408			1403			900			517	
Travel Time (s)		21.3			21.3			13.6			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	399	0	0	510	0	804	363	0	1250	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	399	0	0	510	0	804	363	0	1250	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1			1		1	1		1	
Detector Template			Right			Right		Thru	Right		Thru	
Leading Detector (ft)			20			20		100	20		100	
Trailing Detector (ft)			0			0		0	0		0	
Detector 1 Position(ft)			0			0		0	0		0	
Detector 1 Size(ft)			20			20		100	20		100	
Detector 1 Type			Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)			0.0			0.0		0.0	0.0		0.0	
Detector 1 Queue (s)			0.0			0.0		0.0	0.0		0.0	
Detector 1 Delay (s)			0.0			0.0		0.0	0.0		0.0	
Turn Type			Perm			Perm		NA	Perm		NA	
Protected Phases								2			1	
Permitted Phases			4			3			2			
Detector Phase			4			3		2	2		1	
Switch Phase												
Minimum Initial (s)			5.0			5.0		10.0	10.0		10.0	
Minimum Split (s)			22.5			22.5		30.0	30.0		30.0	
Total Split (s)			45.0			45.0		45.0	45.0		45.0	
Total Split (%)			50.0%			50.0%		50.0%	50.0%		50.0%	
Maximum Green (s)			40.5			40.5		38.7	38.7		38.7	
Yellow Time (s)			3.5			3.5		3.9	3.9		3.9	
All-Red Time (s)			1.0			1.0		2.4	2.4		2.4	
Lost Time Adjust (s)			-2.7			0.0		-1.3	-1.3		-2.5	
Total Lost Time (s)			1.8			4.5		5.0	5.0		3.8	
Lead/Lag												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	
Recall Mode			None			None		C-Max	C-Max		Max	
Walk Time (s)			7.0			7.0						
Flash Dont Walk (s)			11.0			11.0						
Pedestrian Calls (#/hr)			0			0						
Act Effct Green (s)			43.2			40.5		40.0	40.0		41.2	
Actuated g/C Ratio			0.48			0.45		0.44	0.44		0.46	
v/c Ratio			0.29			0.38		0.36	0.40		0.43	
Control Delay			13.1			11.3		17.1	3.2		13.0	
Queue Delay			0.0			0.0		0.0	0.0		0.0	
Total Delay			13.1			11.3		17.1	3.2		13.0	
LOS			B			B		B	A		B	
Approach Delay		13.1			11.3			12.7			13.0	
Approach LOS		B			B			B			B	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.43	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 38.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 45: 83rd Ave & I-10 EB Ramps



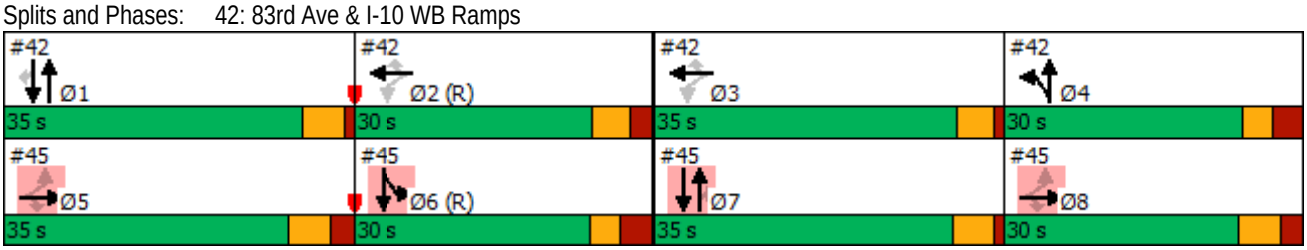
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	241	0	357	371	1224	0	0	608	340
Future Volume (vph)	0	0	0	241	0	357	371	1224	0	0	608	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	0		0	225		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.95	1.00	1.00	0.91	1.00
Frt					0.874	0.850						0.850
Flt Protected				0.950	0.992		0.950					
Satd. Flow (prot)	0	0	0	1681	1470	1504	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.992		0.950					
Satd. Flow (perm)	0	0	0	1681	1470	1504	3433	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					87	87						370
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1401			1690			517			864	
Travel Time (s)		21.2			25.6			7.8			13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	262	0	388	403	1330	0	0	661	370
Shared Lane Traffic (%)				13%		46%						
Lane Group Flow (vph)	0	0	0	228	212	210	403	1330	0	0	661	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	100	20	20	100			100	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							30.0				35.0	35.0
Total Split (%)							23.1%				26.9%	26.9%
Maximum Green (s)							23.8				29.7	29.7
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	5.0	5.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.9	30.0	30.0	30.0	24.7
Total Split (s)	30.0	35.0	35.0	30.0	35.0	30.0
Total Split (%)	23%	27%	27%	23%	27%	23%
Maximum Green (s)	23.7	30.1	28.3	23.5	29.7	23.3
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	1.0	2.4	3.5	1.0	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)							-2.2				-1.3	-1.3
Total Lost Time (s)							4.0				4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)							3.0				3.0	3.0
Recall Mode							None				Max	Max
Walk Time (s)											7.0	7.0
Flash Dont Walk (s)											15.0	15.0
Pedestrian Calls (#/hr)											0	0
Act Effct Green (s)				61.0	61.0	61.0	26.0	61.0			31.0	31.0
Actuated g/C Ratio				0.47	0.47	0.47	0.20	0.47			0.24	0.24
v/c Ratio				0.29	0.29	0.28	0.59	0.80			0.55	0.56
Control Delay				22.5	13.2	13.0	38.6	25.6			45.3	7.5
Queue Delay				0.0	0.0	0.0	0.0	15.2			0.0	0.0
Total Delay				22.5	13.2	13.0	38.6	40.8			45.3	7.5
LOS				C	B	B	D	D			D	A
Approach Delay					16.4			40.3			31.8	
Approach LOS					B			D			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 33.2	Intersection LOS: C
Intersection Capacity Utilization 65.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 42: 83rd Ave & I-10 WB Ramps



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	Max	Max	C-Max	Max	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			15.0		17.0	11.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

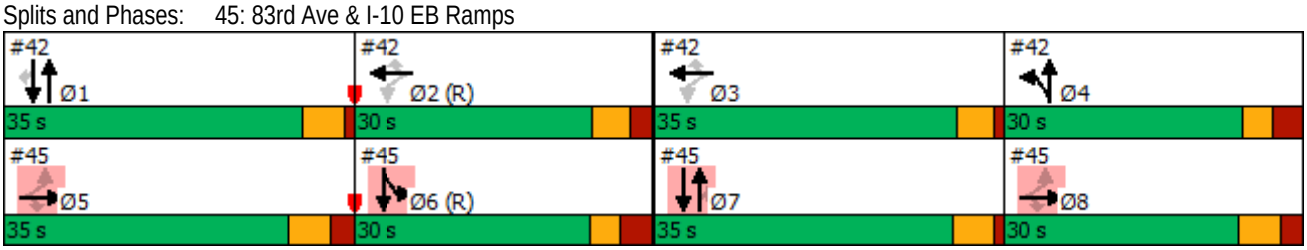
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	744	0	693	0	0	0	0	851	367	177	693	0
Future Volume (vph)	744	0	693	0	0	0	0	851	367	177	693	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	625		625	0		0	225		225	0		0
Storage Lanes	1		1	0		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00
Frt		0.927	0.850						0.850			
Flt Protected	0.950	0.975								0.950		
Satd. Flow (prot)	1681	1532	1504	0	0	0	0	5085	1583	3433	3539	0
Flt Permitted	0.950	0.975								0.950		
Satd. Flow (perm)	1681	1532	1504	0	0	0	0	5085	1583	3433	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		74	131						399			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1408			1403			900			517	
Travel Time (s)		21.3			21.3			13.6			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	809	0	753	0	0	0	0	925	399	192	753	0
Shared Lane Traffic (%)	33%		34%									
Lane Group Flow (vph)	542	523	497	0	0	0	0	925	399	192	753	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								30.0	30.0	30.0		
Total Split (s)								35.0	35.0	30.0		
Total Split (%)								26.9%	26.9%	23.1%		
Maximum Green (s)								29.7	29.7	23.5		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	5.0	5.0	5.0	10.0
Minimum Split (s)	30.0	30.0	9.9	30.0	30.0	24.7
Total Split (s)	35.0	30.0	35.0	30.0	35.0	30.0
Total Split (%)	27%	23%	27%	23%	27%	23%
Maximum Green (s)	29.7	23.7	30.1	23.8	28.3	23.3
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	1.0	3.2	2.4	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)								-1.3	-1.3	-2.5		
Total Lost Time (s)								4.0	4.0	4.0		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)								3.0	3.0	3.0		
Recall Mode								Max	Max	C-Max		
Walk Time (s)								7.0	7.0			
Flash Dont Walk (s)								17.0	17.0			
Pedestrian Calls (#/hr)								0	0			
Act Effct Green (s)	61.0	61.0	61.0					31.0	31.0	26.0	61.0	
Actuated g/C Ratio	0.47	0.47	0.47					0.24	0.24	0.20	0.47	
v/c Ratio	0.69	0.69	0.64					0.76	0.59	0.28	0.45	
Control Delay	32.6	28.6	23.2					50.9	7.6	24.6	24.4	
Queue Delay	1.6	1.6	0.0					0.0	0.0	0.0	0.7	
Total Delay	34.3	30.2	23.2					50.9	7.6	24.6	25.1	
LOS	C	C	C					D	A	C	C	
Approach Delay		29.4						37.9			25.0	
Approach LOS		C						D			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 65.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 45: 83rd Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	Max	None	Max	None
Walk Time (s)	7.0				7.0	7.0
Flash Dont Walk (s)	15.0				15.0	11.0
Pedestrian Calls (#/hr)	0				0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

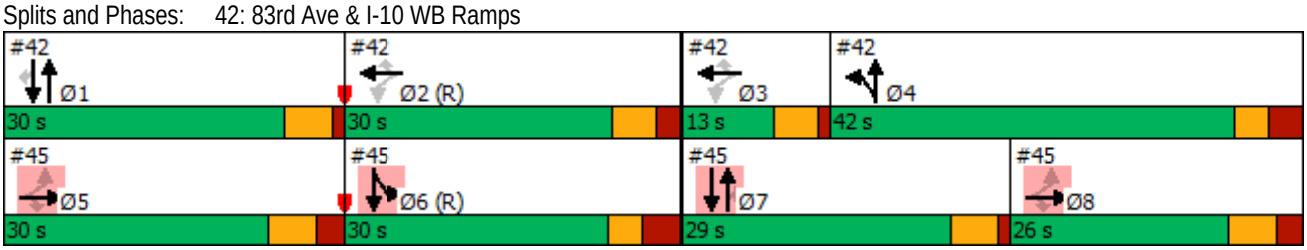
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	241	0	357	371	1224	0	0	608	340
Future Volume (vph)	0	0	0	241	0	357	371	1224	0	0	608	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	0		0	225		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.95	1.00	1.00	0.91	1.00
Frt					0.874	0.850						0.850
Flt Protected				0.950	0.992		0.950					
Satd. Flow (prot)	0	0	0	1681	1470	1504	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.992		0.950					
Satd. Flow (perm)	0	0	0	1681	1470	1504	3433	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					149	149						370
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1401			1690			517			864	
Travel Time (s)		21.2			25.6			7.8			13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	262	0	388	403	1330	0	0	661	370
Shared Lane Traffic (%)				13%		46%						
Lane Group Flow (vph)	0	0	0	228	212	210	403	1330	0	0	661	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	100	20	20	100			100	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							42.0				30.0	30.0
Total Split (%)							36.5%				26.1%	26.1%
Maximum Green (s)							35.8				24.7	24.7
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	5.0	5.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.9	30.0	30.0	29.0	24.7
Total Split (s)	30.0	13.0	30.0	30.0	29.0	26.0
Total Split (%)	26%	11%	26%	26%	25%	23%
Maximum Green (s)	23.7	8.1	23.3	23.5	23.7	19.3
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	1.0	2.4	3.5	1.0	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)							-2.2				-1.3	-1.3
Total Lost Time (s)							4.0				4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)							3.0				3.0	3.0
Recall Mode							None				Max	Max
Walk Time (s)											7.0	7.0
Flash Dont Walk (s)											15.0	15.0
Pedestrian Calls (#/hr)											0	0
Act Effct Green (s)				39.0	39.0	39.0	38.0	68.0			26.0	26.0
Actuated g/C Ratio				0.34	0.34	0.34	0.33	0.59			0.23	0.23
v/c Ratio				0.40	0.36	0.35	0.36	0.64			0.58	0.57
Control Delay				31.7	11.0	10.7	20.0	7.3			41.9	7.7
Queue Delay				0.0	0.0	0.0	0.0	1.2			0.0	0.0
Total Delay				31.7	11.0	10.7	20.0	8.5			41.9	7.7
LOS				C	B	B	B	A			D	A
Approach Delay					18.1			11.2			29.6	
Approach LOS					B			B			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 115	
Actuated Cycle Length: 115	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 65.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 42: 83rd Ave & I-10 WB Ramps



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	Max	Max	C-Max	Max	None
Walk Time (s)			7.0			7.0
Flash Dont Walk (s)			15.0			11.0
Pedestrian Calls (#/hr)			0			0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

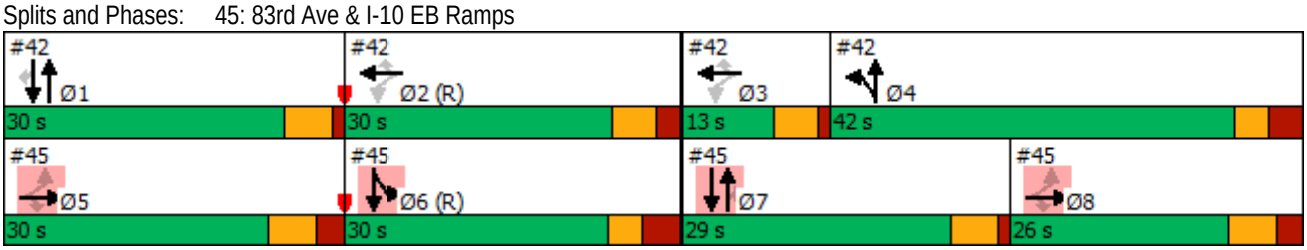
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	744	0	693	0	0	0	0	851	367	177	693	0
Future Volume (vph)	744	0	693	0	0	0	0	851	367	177	693	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	625		625	0		0	225		225	0		0
Storage Lanes	1		1	0		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.91	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00
Frt		0.927	0.850						0.850			
Flt Protected	0.950	0.975								0.950		
Satd. Flow (prot)	1681	1532	1504	0	0	0	0	5085	1583	3433	3539	0
Flt Permitted	0.950	0.975								0.950		
Satd. Flow (perm)	1681	1532	1504	0	0	0	0	5085	1583	3433	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		130	137						399			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1408			1403			900			517	
Travel Time (s)		21.3			21.3			13.6			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	809	0	753	0	0	0	0	925	399	192	753	0
Shared Lane Traffic (%)	33%		34%									
Lane Group Flow (vph)	542	523	497	0	0	0	0	925	399	192	753	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								29.0	29.0	30.0		
Total Split (s)								29.0	29.0	30.0		
Total Split (%)								25.2%	25.2%	26.1%		
Maximum Green (s)								23.7	23.7	23.5		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	5.0	5.0	5.0	10.0
Minimum Split (s)	30.0	30.0	9.9	30.0	30.0	24.7
Total Split (s)	30.0	30.0	13.0	42.0	30.0	26.0
Total Split (%)	26%	26%	11%	37%	26%	23%
Maximum Green (s)	24.7	23.7	8.1	35.8	23.3	19.3
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	1.0	3.2	2.4	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)								-1.3	-1.3	-2.5		
Total Lost Time (s)								4.0	4.0	4.0		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)								3.0	3.0	3.0		
Recall Mode								Max	Max	C-Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	52.0	52.0	52.0					25.0	25.0	26.0	55.0	
Actuated g/C Ratio	0.45	0.45	0.45					0.22	0.22	0.23	0.48	
v/c Ratio	0.71	0.69	0.66					0.84	0.61	0.25	0.45	
Control Delay	31.9	23.8	22.2					50.9	8.1	17.9	19.3	
Queue Delay	0.1	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	31.9	23.8	22.2					50.9	8.1	17.9	19.3	
LOS	C	C	C					D	A	B	B	
Approach Delay		26.1						38.0			19.0	
Approach LOS		C						D			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 115	
Actuated Cycle Length: 115	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 28.5	Intersection LOS: C
Intersection Capacity Utilization 65.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 45: 83rd Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	Max	None	Max	None
Walk Time (s)	7.0				7.0	7.0
Flash Dont Walk (s)	15.0				15.0	11.0
Pedestrian Calls (#/hr)	0				0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

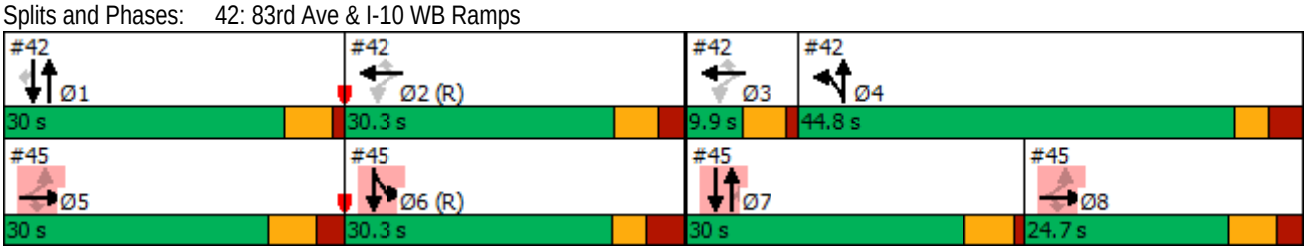
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	241	0	357	371	1224	0	0	608	340
Future Volume (vph)	0	0	0	241	0	357	371	1224	0	0	608	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		250	0		0	225		0
Storage Lanes	0		0	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	0.97	0.91	1.00	1.00	0.91	1.00
Frt					0.874	0.850						0.850
Flt Protected				0.950	0.992		0.950					
Satd. Flow (prot)	0	0	0	1681	1470	1504	3433	5085	0	0	5085	1583
Flt Permitted				0.950	0.992		0.950					
Satd. Flow (perm)	0	0	0	1681	1470	1504	3433	5085	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					149	149						370
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1401			1690			517			864	
Travel Time (s)		21.2			25.6			7.8			13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	262	0	388	403	1330	0	0	661	370
Shared Lane Traffic (%)				13%		46%						
Lane Group Flow (vph)	0	0	0	228	212	210	403	1330	0	0	661	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	100	20	20	100			100	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					2 3		4	1 4			1	
Permitted Phases				2 3		2 3						1
Detector Phase				2 3	2 3	2 3	4	1 4			1	1
Switch Phase												
Minimum Initial (s)							5.0				8.0	8.0
Minimum Split (s)							30.0				30.0	30.0
Total Split (s)							44.8				30.0	30.0
Total Split (%)							39.0%				26.1%	26.1%
Maximum Green (s)							38.6				24.7	24.7
Yellow Time (s)							3.0				4.3	4.3
All-Red Time (s)							3.2				1.0	1.0

Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	2	3	5	6	7	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	10.0	5.0	5.0	5.0	8.0	10.0
Minimum Split (s)	30.0	9.9	30.0	30.0	29.0	24.7
Total Split (s)	30.3	9.9	30.0	30.3	30.0	24.7
Total Split (%)	26%	9%	26%	26%	26%	21%
Maximum Green (s)	24.0	5.0	23.3	23.8	24.7	18.0
Yellow Time (s)	3.9	3.9	4.3	3.0	4.3	4.3
All-Red Time (s)	2.4	1.0	2.4	3.5	1.0	2.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)							-2.2				-1.3	-1.3
Total Lost Time (s)							4.0				4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)							3.0				3.0	3.0
Recall Mode							None				Max	Max
Walk Time (s)											7.0	7.0
Flash Dont Walk (s)											15.0	15.0
Pedestrian Calls (#/hr)											0	0
Act Effct Green (s)				36.2	36.2	36.2	40.8	70.8			26.0	26.0
Actuated g/C Ratio				0.31	0.31	0.31	0.35	0.62			0.23	0.23
v/c Ratio				0.43	0.38	0.37	0.33	0.42			0.58	0.57
Control Delay				34.4	11.9	11.6	16.6	2.1			41.9	7.7
Queue Delay				0.0	0.0	0.0	0.0	0.2			0.0	0.0
Total Delay				34.4	11.9	11.6	16.6	2.3			41.9	7.7
LOS				C	B	B	B	A			D	A
Approach Delay					19.7			5.6			29.6	
Approach LOS					B			A			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 115	
Actuated Cycle Length: 115	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 15.6	Intersection LOS: B
Intersection Capacity Utilization 54.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 42: 83rd Ave & I-10 WB Ramps



Lane Group	Ø2	Ø3	Ø5	Ø6	Ø7	Ø8
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	Max	Max	C-Max	Max	None
Walk Time (s)			7.0			7.0
Flash Dont Walk (s)			15.0			11.0
Pedestrian Calls (#/hr)			0			0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

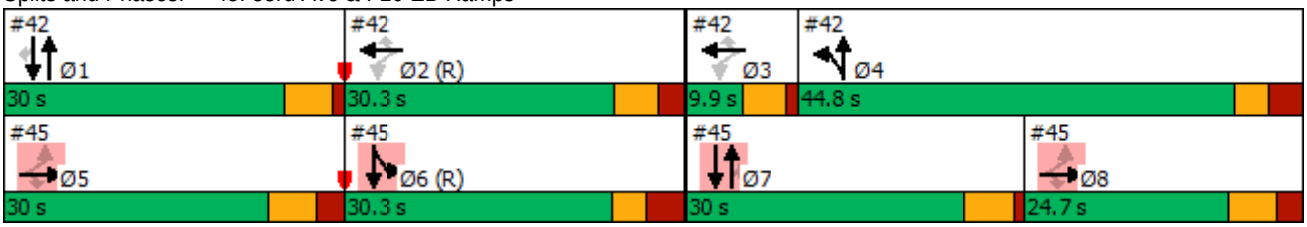
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	744	0	693	0	0	0	0	851	367	177	693	0
Future Volume (vph)	744	0	693	0	0	0	0	851	367	177	693	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.91	0.88	0.97	0.95	1.00
Frt		0.850	0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	3433	1504	1504	0	0	0	0	5085	2787	3433	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	3433	1504	1504	0	0	0	0	5085	2787	3433	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		144	144						399			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1408			1403			900			517	
Travel Time (s)		21.3			21.3			13.6			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	809	0	753	0	0	0	0	925	399	192	753	0
Shared Lane Traffic (%)			50%									
Lane Group Flow (vph)	809	377	376	0	0	0	0	925	399	192	753	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	100	20					100	20	20	100	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		5 8						7		6	6 7	
Permitted Phases	5 8		5 8						7			
Detector Phase	5 8	5 8	5 8					7	7	6	6 7	
Switch Phase												
Minimum Initial (s)								8.0	8.0	5.0		
Minimum Split (s)								29.0	29.0	30.0		
Total Split (s)								30.0	30.0	30.3		
Total Split (%)								26.1%	26.1%	26.3%		
Maximum Green (s)								24.7	24.7	23.8		
Yellow Time (s)								4.3	4.3	3.0		
All-Red Time (s)								1.0	1.0	3.5		
Lost Time Adjust (s)								-1.3	-1.3	-2.5		
Total Lost Time (s)								4.0	4.0	4.0		
Lead/Lag								Lead	Lead	Lag		

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lane Configurations						
Traffic Volume (vph)						
Future Volume (vph)						
Ideal Flow (vphpl)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Number of Detectors						
Detector Template						
Leading Detector (ft)						
Trailing Detector (ft)						
Detector 1 Position(ft)						
Detector 1 Size(ft)						
Detector 1 Type						
Detector 1 Channel						
Detector 1 Extend (s)						
Detector 1 Queue (s)						
Detector 1 Delay (s)						
Turn Type						
Protected Phases	1	2	3	4	5	8
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	8.0	10.0	5.0	5.0	5.0	10.0
Minimum Split (s)	30.0	30.0	9.9	30.0	30.0	24.7
Total Split (s)	30.0	30.3	9.9	44.8	30.0	24.7
Total Split (%)	26%	26%	9%	39%	26%	21%
Maximum Green (s)	24.7	24.0	5.0	38.6	23.3	18.0
Yellow Time (s)	4.3	3.9	3.9	3.0	4.3	4.3
All-Red Time (s)	1.0	2.4	1.0	3.2	2.4	2.4
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)								3.0	3.0	3.0		
Recall Mode								Max	Max	C-Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	50.7	50.7	50.7					26.0	26.0	26.3	56.3	
Actuated g/C Ratio	0.44	0.44	0.44					0.23	0.23	0.23	0.49	
v/c Ratio	0.53	0.51	0.51					0.81	0.43	0.24	0.43	
Control Delay	25.2	16.4	16.4					48.4	5.1	17.5	19.2	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	25.2	16.4	16.4					48.4	5.1	17.5	19.2	
LOS	C	B	B					D	A	B	B	
Approach Delay		20.9						35.4			18.9	
Approach LOS		C						D			B	

Intersection Summary	
Area Type:	Other
Cycle Length: 115	
Actuated Cycle Length: 115	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 25.4	Intersection LOS: C
Intersection Capacity Utilization 54.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 45: 83rd Ave & I-10 EB Ramps



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø8
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	Max	None	Max	None
Walk Time (s)	7.0				7.0	7.0
Flash Dont Walk (s)	15.0				15.0	11.0
Pedestrian Calls (#/hr)	0				0	0
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						

Intersection Summary

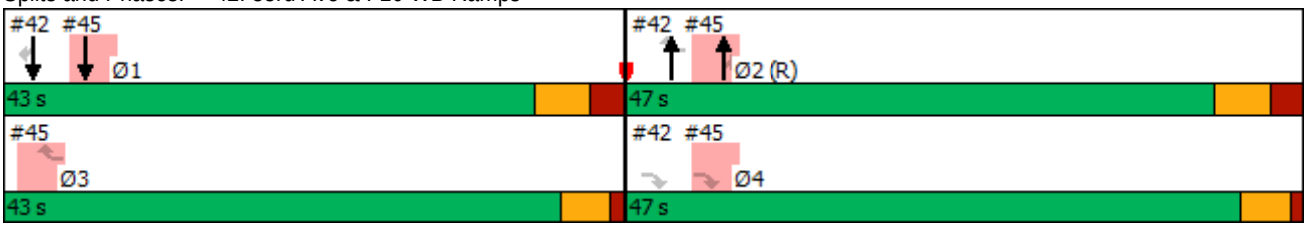
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	241	0	0	357	0	1595	0	0	608	340
Future Volume (vph)	0	0	241	0	0	357	0	1595	0	0	608	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	0.88	1.00	0.86	1.00	1.00	0.91	1.00
Frt			0.850			0.850						0.850
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	0	2787	0	6408	0	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	0	2787	0	6408	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			244			1920						370
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1401			1690			517			864	
Travel Time (s)		21.2			25.6			7.8			13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	262	0	0	388	0	1734	0	0	661	370
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	262	0	0	388	0	1734	0	0	661	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1			1		1			1	1
Detector Template			Right			Right		Thru			Thru	Right
Leading Detector (ft)			20			20		100			100	20
Trailing Detector (ft)			0			0		0			0	0
Detector 1 Position(ft)			0			0		0			0	0
Detector 1 Size(ft)			20			20		100			100	20
Detector 1 Type			Cl+Ex			Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)			0.0			0.0		0.0			0.0	0.0
Detector 1 Queue (s)			0.0			0.0		0.0			0.0	0.0
Detector 1 Delay (s)			0.0			0.0		0.0			0.0	0.0
Turn Type			Perm			Perm		NA			NA	Perm
Protected Phases								2			1	
Permitted Phases			4			2						1
Detector Phase			4			2		2			1	1
Switch Phase												
Minimum Initial (s)			5.0			10.0		10.0			10.0	10.0
Minimum Split (s)			22.5			30.0		30.0			30.0	30.0
Total Split (s)			47.0			47.0		47.0			43.0	43.0
Total Split (%)			52.2%			52.2%		52.2%			47.8%	47.8%
Maximum Green (s)			42.5			40.7		40.7			36.7	36.7
Yellow Time (s)			3.5			3.9		3.9			3.9	3.9
All-Red Time (s)			1.0			2.4		2.4			2.4	2.4
Lost Time Adjust (s)			0.0			-2.3		-1.3			-1.3	-1.3
Total Lost Time (s)			4.5			4.0		5.0			5.0	5.0
Lead/Lag												

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.5
Total Split (s)	43.0
Total Split (%)	48%
Maximum Green (s)	38.5
Yellow Time (s)	3.5
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0			3.0		3.0			3.0	3.0
Recall Mode			None			C-Max		C-Max			Max	Max
Walk Time (s)			7.0									
Flash Dont Walk (s)			11.0									
Pedestrian Calls (#/hr)			0									
Act Effct Green (s)			42.5			43.0		42.0			38.0	38.0
Actuated g/C Ratio			0.47			0.48		0.47			0.42	0.42
v/c Ratio			0.18			0.17		0.58			0.31	0.42
Control Delay			2.7			0.2		15.9			17.8	3.5
Queue Delay			0.0			0.0		0.0			0.0	0.0
Total Delay			2.7			0.2		15.9			17.8	3.5
LOS			A			A		B			B	A
Approach Delay		2.7			0.2			15.9			12.6	
Approach LOS		A			A			B			B	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 12.1	Intersection LOS: B
Intersection Capacity Utilization 43.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 42: 83rd Ave & I-10 WB Ramps



Lane Group	Ø3
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

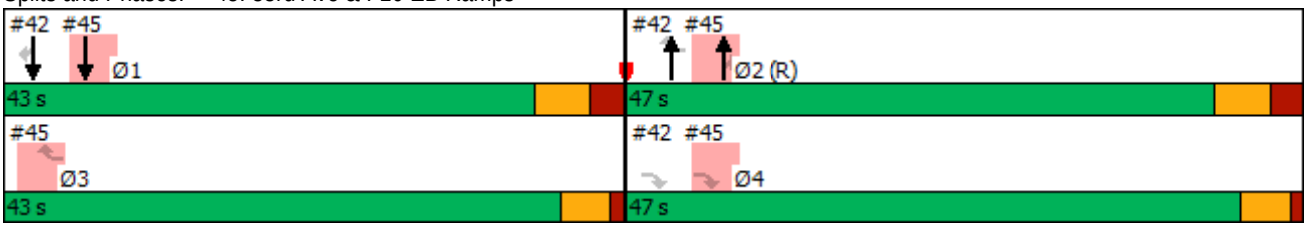
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	744	0	0	693	0	851	367	0	870	0
Future Volume (vph)	0	0	744	0	0	693	0	851	367	0	870	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	0.88	1.00	0.91	1.00	1.00	0.86	1.00
Frt			0.850			0.850			0.850			
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	0	2787	0	5085	1583	0	6408	0
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	0	2787	0	5085	1583	0	6408	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105			137			399			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1408			1403			900			517	
Travel Time (s)		21.3			21.3			13.6			7.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	809	0	0	753	0	925	399	0	946	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	809	0	0	753	0	925	399	0	946	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1			1		1	1		1	
Detector Template			Right			Right		Thru	Right		Thru	
Leading Detector (ft)			20			20		100	20		100	
Trailing Detector (ft)			0			0		0	0		0	
Detector 1 Position(ft)			0			0		0	0		0	
Detector 1 Size(ft)			20			20		100	20		100	
Detector 1 Type			Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)			0.0			0.0		0.0	0.0		0.0	
Detector 1 Queue (s)			0.0			0.0		0.0	0.0		0.0	
Detector 1 Delay (s)			0.0			0.0		0.0	0.0		0.0	
Turn Type			Perm			Perm		NA	Perm		NA	
Protected Phases								2			1	
Permitted Phases			4			3			2			
Detector Phase			4			3		2	2		1	
Switch Phase												
Minimum Initial (s)			5.0			5.0		10.0	10.0		10.0	
Minimum Split (s)			22.5			22.5		30.0	30.0		30.0	
Total Split (s)			47.0			43.0		47.0	47.0		43.0	
Total Split (%)			52.2%			47.8%		52.2%	52.2%		47.8%	
Maximum Green (s)			42.5			38.5		40.7	40.7		36.7	
Yellow Time (s)			3.5			3.5		3.9	3.9		3.9	
All-Red Time (s)			1.0			1.0		2.4	2.4		2.4	
Lost Time Adjust (s)			-2.7			0.0		-1.3	-1.3		-2.5	
Total Lost Time (s)			1.8			4.5		5.0	5.0		3.8	
Lead/Lag												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	
Recall Mode			None			None		C-Max	C-Max		Max	
Walk Time (s)			7.0			7.0						
Flash Dont Walk (s)			11.0			11.0						
Pedestrian Calls (#/hr)			0			0						
Act Effct Green (s)			45.2			38.5		42.0	42.0		39.2	
Actuated g/C Ratio			0.50			0.43		0.47	0.47		0.44	
v/c Ratio			0.56			0.59		0.39	0.42		0.34	
Control Delay			15.0			18.1		16.3	3.0		8.1	
Queue Delay			0.0			0.0		0.0	0.0		0.0	
Total Delay			15.0			18.1		16.3	3.0		8.1	
LOS			B			B		B	A		A	
Approach Delay		15.0			18.1			12.3			8.1	
Approach LOS		B			B			B			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 48.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 45: 83rd Ave & I-10 EB Ramps



Appendix F:
HCS7 Reports

Alternatives Group 1:
ST1, ST2, NB1, EB1, WB1
AM Peak Hour

HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5942	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1159
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

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Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6771	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1321
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

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Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7939	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2323
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.9
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

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Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3237	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	947
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.1
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6771	829
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	7924	970
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.55	0.49

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.515
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1403
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	81.1
Flow in Lanes 1 and 2 (v12), pc/h	3138	Ramp Junction Speed (S), mi/h	67.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	19.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.6

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5330	995
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	6238	1164
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.65	0.55

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.403
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1431
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	61.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	81.0
Flow in Lanes 1 and 2 (v12), pc/h	3376	Ramp Junction Speed (S), mi/h	69.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	22.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.9

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	8036	432
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	9405	506
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.78	0.24

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.344
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1979
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	78.9
Flow in Lanes 1 and 2 (v12), pc/h	3566	Ramp Junction Speed (S), mi/h	71.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	26.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.3

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7604	2273
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	8899	2660
Capacity (c), pc/h	11000	4200
Volume-to-Capacity Ratio (v/c)	0.81	0.63

Density and LOS			
Average Density (D), pc/mi/ln	31.1	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	31.1	Level of Service (LOS)	D

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3237	1150
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3788	1346
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.53	0.64

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.317
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1137
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.050	Outer Lanes Freeway Speed (SO), mi/h	73.1
Flow in Lanes 1 and 2 (v12), pc/h	1515	Ramp Junction Speed (S), mi/h	68.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2861	Average Density (D), pc/mi/ln	18.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.2

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HCS7 Freeway Merge Report

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Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4387	2384
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	5134	2790
Capacity (c), pc/h	14400	4200
Volume-to-Capacity Ratio (v/c)	0.55	0.66

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.617
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1155
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	73.0
Flow in Lanes 1 and 2 (v12), pc/h	1540	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	4330	Average Density (D), pc/mi/ln	22.0
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	38.0

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1600	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7547	489	670	392
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000	1.000	1.000
Flow Rate (v_i), pc/h	8029	520	713	417
Weaving Flow Rate (v_W), pc/h	937	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8742	Density-Based Capacity (c_{IWL}), pc/h/ln		2254
Total Flow Rate (v), pc/h	9679	Demand Flow-Based Capacity (c_{IW}), pc/h		24742
Volume Ratio (VR)	0.097	Weaving Segment Capacity (c_W), veh/h		9016
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		9016
Maximum Weaving Length (L_{MAX}), ft	3511	Volume-to-Capacity Ratio (v/c)		1.07

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5394	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1578
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6671	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1952
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 amd 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5208	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1524
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5394	186
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	6313	218
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.66	0.10

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.318
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1719
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	79.9
Flow in Lanes 1 and 2 (v12), pc/h	2875	Ramp Junction Speed (S), mi/h	72.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3121	2273
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3653	2660
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.66	0.60

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.429
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1096
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	72.9
Flow in Lanes 1 and 2 (v12), pc/h	1461	Ramp Junction Speed (S), mi/h	64.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	4121	Average Density (D), pc/mi/ln	24.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.9

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	5/3/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	8618	0	0	900
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	0.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	1.000	0.952
Flow Rate (v_i), pc/h	10086	0	0	1006
Weaving Flow Rate (v_W), pc/h	1006	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	10086	Density-Based Capacity (c_{IWL}), pc/h/ln		2251
Total Flow Rate (v), pc/h	11092	Demand Flow-Based Capacity (c_{IW}), pc/h		26374
Volume Ratio (VR)	0.091	Weaving Segment Capacity (c_W), veh/h		8220
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		9004
Maximum Weaving Length (L_{MAX}), ft	3452	Volume-to-Capacity Ratio (v/c)		1.23

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4824	1846	509	384
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000	1.000	1.000
Flow Rate (v_i), pc/h	5132	1964	541	409
Weaving Flow Rate (v_W), pc/h	2373	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	5673	Density-Based Capacity (c_{IWL}), pc/h/ln		2015
Total Flow Rate (v), pc/h	8046	Demand Flow-Based Capacity (c_{IW}), pc/h		8136
Volume Ratio (VR)	0.295	Weaving Segment Capacity (c_W), veh/h		8060
Minimum Lane Change Rate (LC_{MIN}), lc/h	2373	Adjusted Weaving Area Capacity, pc/h		8060
Maximum Weaving Length (L_{MAX}), ft	5530	Volume-to-Capacity Ratio (v/c)		1.00

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	95	Average Weaving Speed (S_W), mi/h	45.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	669	Average Non-Weaving Speed (S_{NW}), mi/h	48.7
Weaving Lane Change Rate (LC_W), lc/h	2484	Average Speed (S), mi/h	47.8
Weaving Lane Change Rate (LC_{All}), lc/h	3153	Density (D), pc/mi/ln	42.1
Weaving Intensity Factor (W)	0.966	Level of Service (LOS)	E

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HCS7 Basic Freeway Report

Project Information

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Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6245	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1661
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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Project Information

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Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8400	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2458
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.02
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

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Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6551	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1917
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6478	3765
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7581	4406
Capacity (c), pc/h	8800	4400
Volume-to-Capacity Ratio (v/c)	0.86	1.00

Density and LOS			
Average Density (D), pc/mi/ln	45.0	Average Speed (S), mi/h	48.9
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	33.2	Level of Service (LOS)	F

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6478	2713
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7581	3175
Capacity (c), pc/h	8800	4400
Volume-to-Capacity Ratio (v/c)	0.86	0.72

Density and LOS			
Average Density (D), pc/mi/ln	33.2	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	33.2	Level of Service (LOS)	D

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6551	367
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	7667	430
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.84	0.20

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.378
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2300
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.164	Outer Lanes Freeway Speed (SO), mi/h	68.9
Flow in Lanes 1 and 2 (v12), pc/h	3067	Ramp Junction Speed (S), mi/h	66.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	3497	Average Density (D), pc/mi/ln	30.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.6

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	5/3/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7500	900	0	777
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.909
Flow Rate (v_i), pc/h	8777	1006	0	909
Weaving Flow Rate (v_W), pc/h	1915	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8777	Density-Based Capacity (c_{IWL}), pc/h/ln		2108
Total Flow Rate (v), pc/h	10692	Demand Flow-Based Capacity (c_{IW}), pc/h		13408
Volume Ratio (VR)	0.179	Weaving Segment Capacity (c_W), veh/h		7699
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8432
Maximum Weaving Length (L_{MAX}), ft	4323	Volume-to-Capacity Ratio (v/c)		1.27

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	5	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6371	180	1046	2029
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.909
Flow Rate (v_i), pc/h	7456	201	1169	2375
Weaving Flow Rate (v_W), pc/h	2576	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8625	Density-Based Capacity (c_{IWL}), pc/h/ln		2136
Total Flow Rate (v), pc/h	11201	Demand Flow-Based Capacity (c_{IW}), pc/h		10435
Volume Ratio (VR)	0.230	Weaving Segment Capacity (c_W), veh/h		9540
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		10435
Maximum Weaving Length (L_{MAX}), ft	4845	Volume-to-Capacity Ratio (v/c)		1.07

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6107	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1191
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 amd 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7662	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1358
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	73.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6884	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2014
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.0
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2556	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	748
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.31
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2986	430
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3495	503
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.29	0.24

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.343
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	844
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	82.7
Flow in Lanes 1 and 2 (v12), pc/h	1808	Ramp Junction Speed (S), mi/h	71.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.2

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6107	3121
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7147	3653
Capacity (c), pc/h	13200	4400
Volume-to-Capacity Ratio (v/c)	0.54	0.83

Density and LOS			
Average Density (D), pc/mi/ln	20.8	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	20.8	Level of Service (LOS)	C

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6417	1245
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	7510	1457
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.62	0.69

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.390
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1690
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.036	Outer Lanes Freeway Speed (SO), mi/h	71.1
Flow in Lanes 1 and 2 (v12), pc/h	2253	Ramp Junction Speed (S), mi/h	66.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3710	Average Density (D), pc/mi/ln	22.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.5

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2556	3861
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	2991	4519
Capacity (c), pc/h	8800	4000
Volume-to-Capacity Ratio (v/c)	0.85	1.13

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	1.420
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	898
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	28.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	74.0
Flow in Lanes 1 and 2 (v12), pc/h	1196	Ramp Junction Speed (S), mi/h	32.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	5715	Average Density (D), pc/mi/ln	57.1
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	40.5

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5622	598	754	994
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	6580	700	882	1163
Weaving Flow Rate (v_W), pc/h	1863	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	7462	Density-Based Capacity (c_{IWL}), pc/h/ln		2168
Total Flow Rate (v), pc/h	9325	Demand Flow-Based Capacity (c_{IW}), pc/h		12000
Volume Ratio (VR)	0.200	Weaving Segment Capacity (c_W), veh/h		10908
Minimum Lane Change Rate (LC_{MIN}), lc/h	1863	Adjusted Weaving Area Capacity, pc/h		12000
Maximum Weaving Length (L_{MAX}), ft	4536	Volume-to-Capacity Ratio (v/c)		0.78

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1119	Average Weaving Speed (S_W), mi/h	55.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1195	Average Non-Weaving Speed (S_{NW}), mi/h	54.5
Weaving Lane Change Rate (LC_W), lc/h	2710	Average Speed (S), mi/h	54.8
Weaving Lane Change Rate (LC_{All}), lc/h	3905	Density (D), pc/mi/ln	28.4
Weaving Intensity Factor (W)	0.481	Level of Service (LOS)	D

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Alternatives Group 1:
ST1, ST2, NB1, EB1, WB1
PM Peak Hour

HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5942	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1159
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6771	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1321
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7939	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2323
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.9
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3237	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	947
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.1
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6771	829
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	7924	970
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.55	0.46

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.385
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1403
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	62.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	81.1
Flow in Lanes 1 and 2 (v12), pc/h	3138	Ramp Junction Speed (S), mi/h	70.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	18.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.6

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HCS7 Freeway Diverge Report

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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5330	995
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	6238	1164
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.65	0.55

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.403
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1431
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	61.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	81.0
Flow in Lanes 1 and 2 (v12), pc/h	3376	Ramp Junction Speed (S), mi/h	69.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	22.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.9

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HCS7 Freeway Diverge Report

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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	8036	432
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	9405	506
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.78	0.24

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.344
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1979
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	78.9
Flow in Lanes 1 and 2 (v12), pc/h	3566	Ramp Junction Speed (S), mi/h	71.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	26.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.3

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HCS7 Freeway Diverge Report

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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7604	2273
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	8899	2660
Capacity (c), pc/h	11000	4200
Volume-to-Capacity Ratio (v/c)	0.81	0.63

Density and LOS			
Average Density (D), pc/mi/ln	31.1	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	31.1	Level of Service (LOS)	D

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HCS7 Freeway Merge Report

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Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3237	1150
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3788	1346
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.53	0.64

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.317
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1137
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.050	Outer Lanes Freeway Speed (SO), mi/h	73.1
Flow in Lanes 1 and 2 (v12), pc/h	1515	Ramp Junction Speed (S), mi/h	68.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2861	Average Density (D), pc/mi/ln	18.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.2

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HCS7 Freeway Merge Report

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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4387	2384
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	5134	2790
Capacity (c), pc/h	14400	4200
Volume-to-Capacity Ratio (v/c)	0.55	0.66

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.617
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1155
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	73.0
Flow in Lanes 1 and 2 (v12), pc/h	1540	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	4330	Average Density (D), pc/mi/ln	22.0
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	38.0

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HCS7 Freeway Weaving Report

Project Information

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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1600	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7547	489	670	392
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	0.00	0.00	0.00	0.00
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000	1.000	1.000
Flow Rate (v_i), pc/h	8029	520	713	417
Weaving Flow Rate (v_W), pc/h	937	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8742	Density-Based Capacity (c_{IWL}), pc/h/ln		2254
Total Flow Rate (v), pc/h	9679	Demand Flow-Based Capacity (c_{IW}), pc/h		24742
Volume Ratio (VR)	0.097	Weaving Segment Capacity (c_W), veh/h		9016
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		9016
Maximum Weaving Length (L_{MAX}), ft	3511	Volume-to-Capacity Ratio (v/c)		1.07

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5394	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1578
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6671	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1952
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 amd 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5208	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1524
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5394	186
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	6313	218
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.66	0.10

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.318
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1719
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	79.9
Flow in Lanes 1 and 2 (v12), pc/h	2875	Ramp Junction Speed (S), mi/h	72.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3121	2273
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3653	2660
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.66	0.60

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.429
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1096
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	72.9
Flow in Lanes 1 and 2 (v12), pc/h	1461	Ramp Junction Speed (S), mi/h	64.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	4121	Average Density (D), pc/mi/ln	24.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.9

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4824	1846	509	384
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	5646	2160	596	449
Weaving Flow Rate (v_W), pc/h	2609	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	6242	Density-Based Capacity (c_{IWL}), pc/h/ln		2015
Total Flow Rate (v), pc/h	8851	Demand Flow-Based Capacity (c_{IW}), pc/h		8136
Volume Ratio (VR)	0.295	Weaving Segment Capacity (c_W), veh/h		7327
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8061
Maximum Weaving Length (L_{MAX}), ft	5530	Volume-to-Capacity Ratio (v/c)		1.10

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

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Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6245	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1661
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

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Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7536	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2205
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5873	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1718
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6245	2384
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7309	2790
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.76	0.63

Density and LOS			
Average Density (D), pc/mi/ln	32.0	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	32.0	Level of Service (LOS)	D

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6245	3861
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7309	4519
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.76	1.03

Density and LOS			
Average Density (D), pc/mi/ln	45.0	Average Speed (S), mi/h	53.3
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	32.0	Level of Service (LOS)	F

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5873	600
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	6873	702
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.79	0.33

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.372
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2062
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.130	Outer Lanes Freeway Speed (SO), mi/h	69.8
Flow in Lanes 1 and 2 (v12), pc/h	2749	Ramp Junction Speed (S), mi/h	66.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3451	Average Density (D), pc/mi/ln	28.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.1

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	5/3/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101 System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1750	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6636	900	0	649
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.952
Flow Rate (v_i), pc/h	7766	1006	0	725
Weaving Flow Rate (v_W), pc/h	1731	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	7766	Density-Based Capacity (c_{IWL}), pc/h/ln		2201
Total Flow Rate (v), pc/h	9497	Demand Flow-Based Capacity (c_{IW}), pc/h		13187
Volume Ratio (VR)	0.182	Weaving Segment Capacity (c_W), veh/h		8072
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8804
Maximum Weaving Length (L_{MAX}), ft	4353	Volume-to-Capacity Ratio (v/c)		1.08

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	5	Segment Type	Highway/CD Roadway
Segment Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5254	619	796	2282
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.909
Flow Rate (v_i), pc/h	6149	692	890	2671
Weaving Flow Rate (v_W), pc/h	3363	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	7039	Density-Based Capacity (c_{IWL}), pc/h/ln		2061
Total Flow Rate (v), pc/h	10402	Demand Flow-Based Capacity (c_{IW}), pc/h		7430
Volume Ratio (VR)	0.323	Weaving Segment Capacity (c_W), veh/h		6803
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		7431
Maximum Weaving Length (L_{MAX}), ft	5832	Volume-to-Capacity Ratio (v/c)		1.40

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6107	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1191
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 amd 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7662	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1358
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	73.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

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Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6884	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2014
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.0
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

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Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2556	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	748
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.31
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2986	430
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3495	503
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.29	0.24

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.343
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	844
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	82.7
Flow in Lanes 1 and 2 (v12), pc/h	1808	Ramp Junction Speed (S), mi/h	71.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.2

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6107	3121
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7147	3653
Capacity (c), pc/h	13200	4400
Volume-to-Capacity Ratio (v/c)	0.54	0.83

Density and LOS			
Average Density (D), pc/mi/ln	20.8	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	20.8	Level of Service (LOS)	C

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6417	1245
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	7510	1457
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.62	0.69

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.390
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1690
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.036	Outer Lanes Freeway Speed (SO), mi/h	71.1
Flow in Lanes 1 and 2 (v12), pc/h	2253	Ramp Junction Speed (S), mi/h	66.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3710	Average Density (D), pc/mi/ln	22.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.5

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HCS7 Freeway Merge Report

Project Information			
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Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2556	3861
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	2991	4519
Capacity (c), pc/h	8800	4000
Volume-to-Capacity Ratio (v/c)	0.85	1.13

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	1.504
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	898
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	25.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	74.0
Flow in Lanes 1 and 2 (v12), pc/h	1196	Ramp Junction Speed (S), mi/h	29.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	5715	Average Density (D), pc/mi/ln	62.8
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	48.0

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/25/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6286	598	1083	1376
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	7357	700	1267	1610
Weaving Flow Rate (v_W), pc/h	2310	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8624	Density-Based Capacity (c_{IWL}), pc/h/ln		2083
Total Flow Rate (v), pc/h	10934	Demand Flow-Based Capacity (c_{IW}), pc/h		11374
Volume Ratio (VR)	0.211	Weaving Segment Capacity (c_W), veh/h		10339
Minimum Lane Change Rate (LC_{MIN}), lc/h	2310	Adjusted Weaving Area Capacity, pc/h		11374
Maximum Weaving Length (L_{MAX}), ft	4649	Volume-to-Capacity Ratio (v/c)		0.96

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	144	Average Weaving Speed (S_W), mi/h	44.6
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	892	Average Non-Weaving Speed (S_{NW}), mi/h	50.0
Weaving Lane Change Rate (LC_W), lc/h	2560	Average Speed (S), mi/h	48.8
Weaving Lane Change Rate (LC_{All}), lc/h	3452	Density (D), pc/mi/ln	37.3
Weaving Intensity Factor (W)	1.038	Level of Service (LOS)	E

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Alternatives Group 2:
ST1, ST3, NB2, EB2, WB2
AM Peak Hour

HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8218	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2404
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

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Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8136	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1587
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DALK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3673	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1075
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	8100	1100
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	9480	1287
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.66	0.61

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.414
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1642
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	61.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	80.2
Flow in Lanes 1 and 2 (v12), pc/h	3826	Ramp Junction Speed (S), mi/h	69.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	22.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	33.6

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	4492	818
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	5257	957
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.55	0.48

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.514
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1213
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	81.9
Flow in Lanes 1 and 2 (v12), pc/h	2832	Ramp Junction Speed (S), mi/h	67.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	19.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.3

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	700
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	8159	817
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	9549	956
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.80	0.46

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.384
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1885
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	62.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	79.3
Flow in Lanes 1 and 2 (v12), pc/h	3870	Ramp Junction Speed (S), mi/h	69.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	27.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.2

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7343	2851
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	8594	3337
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.72	0.83

Density and LOS			
Average Density (D), pc/mi/ln	30.1	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	30.1	Level of Service (LOS)	D

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/24/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5337	3490
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	6246	4084
Capacity (c), pc/h	14400	4000
Volume-to-Capacity Ratio (v/c)	0.72	1.02

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	1.830
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1405
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	14.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	72.1
Flow in Lanes 1 and 2 (v12), pc/h	1874	Ramp Junction Speed (S), mi/h	19.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	5958	Average Density (D), pc/mi/ln	89.7
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	50.1

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6922	1214
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	8101	1421
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.66	0.68

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.432
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1823
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.040	Outer Lanes Freeway Speed (SO), mi/h	70.6
Flow in Lanes 1 and 2 (v12), pc/h	2430	Ramp Junction Speed (S), mi/h	65.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3851	Average Density (D), pc/mi/ln	24.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.9

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4154	1900
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	4862	2224
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.74	1.06

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.501
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1459
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.000	Outer Lanes Freeway Speed (SO), mi/h	71.9
Flow in Lanes 1 and 2 (v12), pc/h	1945	Ramp Junction Speed (S), mi/h	63.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	4169	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	32.0

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1700	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7074	1086	416	1144
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	8279	1271	487	1339
Weaving Flow Rate (v_W), pc/h	2610	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8766	Density-Based Capacity (c_{IWL}), pc/h/ln		2160
Total Flow Rate (v), pc/h	11376	Demand Flow-Based Capacity (c_{IW}), pc/h		10480
Volume Ratio (VR)	0.229	Weaving Segment Capacity (c_W), veh/h		7854
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8640
Maximum Weaving Length (L_{MAX}), ft	4835	Volume-to-Capacity Ratio (v/c)		1.32

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2851	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1820
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7817	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2287
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

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Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6121	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1791
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3069	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1960
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3069	2851
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3592	3337
Capacity (c), pc/h	4400	4400
Volume-to-Capacity Ratio (v/c)	1.57	0.76

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	2623.4	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	-
Downstream Equilibrium Distance (LEQ), ft	0.0	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	-
Flow in Lanes 1 and 2 (v12), pc/h	3592	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (vR12), pc/h	6929	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	-

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	2.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6911	1144	0	900
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	0.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	1.000	0.909
Flow Rate (v_i), pc/h	8088	1278	0	1053
Weaving Flow Rate (v_W), pc/h	2331	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8088	Density-Based Capacity (c_{IWL}), pc/h/ln		2149
Total Flow Rate (v), pc/h	10419	Demand Flow-Based Capacity (c_{IW}), pc/h		10714
Volume Ratio (VR)	0.224	Weaving Segment Capacity (c_W), veh/h		7859
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8596
Maximum Weaving Length (L_{MAX}), ft	4783	Volume-to-Capacity Ratio (v/c)		1.21

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1720	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5466	655	1203	454
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	5.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.952	0.909
Flow Rate (v_i), pc/h	6397	767	1344	531
Weaving Flow Rate (v_W), pc/h	1298	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	7741	Density-Based Capacity (c_{IWL}), pc/h/ln		2228
Total Flow Rate (v), pc/h	9039	Demand Flow-Based Capacity (c_{IW}), pc/h		16667
Volume Ratio (VR)	0.144	Weaving Segment Capacity (c_W), veh/h		8158
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8912
Maximum Weaving Length (L_{MAX}), ft	3972	Volume-to-Capacity Ratio (v/c)		1.01

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5810	2007	391	310
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.909
Flow Rate (v_i), pc/h	6800	2243	437	363
Weaving Flow Rate (v_w), pc/h	2606	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	7237	Density-Based Capacity (c_{IWL}), pc/h/ln		2116
Total Flow Rate (v), pc/h	9843	Demand Flow-Based Capacity (c_{IW}), pc/h		9057
Volume Ratio (VR)	0.265	Weaving Segment Capacity (c_W), veh/h		7793
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8464
Maximum Weaving Length (L_{MAX}), ft	5211	Volume-to-Capacity Ratio (v/c)		1.16

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6079	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1778
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4598	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1345
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	74.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3490	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2228
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.93
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	55.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2489	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1590
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2218
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2218
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5803	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1698
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	5979	3490
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	6997	4084
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.73	0.93

Density and LOS			
Average Density (D), pc/mi/ln	30.6	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	30.6	Level of Service (LOS)	D

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	5979	2489
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	6997	2913
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.73	0.66

Density and LOS			
Average Density (D), pc/mi/ln	30.6	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	30.6	Level of Service (LOS)	D

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	4598	1204
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Flow Rate (v_i),pc/h	5381	1345
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.70	0.64

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.324
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1615
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	64.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.050	Outer Lanes Freeway Speed (S_O), mi/h	71.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2152	Ramp Junction Speed (S), mi/h	67.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3497	Average Density (D), pc/mi/ln	24.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5803	276
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.952
Flow Rate (vi),pc/h	6791	308
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.74	0.15

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.275
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2038
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.179	Outer Lanes Freeway Speed (SO), mi/h	69.9
Flow in Lanes 1 and 2 (v12), pc/h	2716	Ramp Junction Speed (S), mi/h	68.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3024	Average Density (D), pc/mi/ln	26.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.2

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3698	900	0	3002
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	0.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	1.000	0.909
Flow Rate (v_i), pc/h	4328	1006	0	3513
Weaving Flow Rate (v_W), pc/h	4519	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	4328	Density-Based Capacity (c_{IWL}), pc/h/ln		1906
Total Flow Rate (v), pc/h	8847	Demand Flow-Based Capacity (c_{IW}), pc/h		4697
Volume Ratio (VR)	0.511	Weaving Segment Capacity (c_W), veh/h		4292
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		4696
Maximum Weaving Length (L_{MAX}), ft	7955	Volume-to-Capacity Ratio (v/c)		1.88

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6909	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1348
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5630	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1098
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4930	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1442
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2912	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	852
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	6184	1058
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	7237	1238
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.50	0.59

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.409
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1181
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	61.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	82.0
Flow in Lanes 1 and 2 (v12), pc/h	3065	Ramp Junction Speed (S), mi/h	69.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.4
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.3

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3617	705
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	4233	825
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.35	0.39

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.372
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	842
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	82.7
Flow in Lanes 1 and 2 (v12), pc/h	2126	Ramp Junction Speed (S), mi/h	70.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	12.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.2

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6687	3069
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7826	3592
Capacity (c), pc/h	13200	4400
Volume-to-Capacity Ratio (v/c)	0.59	0.82

Density and LOS			
Average Density (D), pc/mi/ln	22.8	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	22.8	Level of Service (LOS)	C

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5125	1561
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	5998	1827
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.54	0.87

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.395
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1350
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.000	Outer Lanes Freeway Speed (SO), mi/h	72.3
Flow in Lanes 1 and 2 (v12), pc/h	1799	Ramp Junction Speed (S), mi/h	66.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	3626	Average Density (D), pc/mi/ln	19.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	28.0

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5402	228
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	6322	267
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.46	0.13

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.283
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1422
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.184	Outer Lanes Freeway Speed (SO), mi/h	72.1
Flow in Lanes 1 and 2 (v12), pc/h	1897	Ramp Junction Speed (S), mi/h	69.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	2164	Average Density (D), pc/mi/ln	15.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.3

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2912	2489
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3408	2913
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.66	0.66

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.602
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1023
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	55.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	73.5
Flow in Lanes 1 and 2 (v12), pc/h	1363	Ramp Junction Speed (S), mi/h	60.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	4276	Average Density (D), pc/mi/ln	26.3
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	37.6

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	1800	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4629	302	560	1001
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	5417	353	655	1172
Weaving Flow Rate (v_W), pc/h	1525	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	6072	Density-Based Capacity (c_{IWL}), pc/h/ln		2190
Total Flow Rate (v), pc/h	7597	Demand Flow-Based Capacity (c_{IW}), pc/h		11940
Volume Ratio (VR)	0.201	Weaving Segment Capacity (c_W), veh/h		10854
Minimum Lane Change Rate (LC_{MIN}), lc/h	353	Adjusted Weaving Area Capacity, pc/h		11941
Maximum Weaving Length (L_{MAX}), ft	4546	Volume-to-Capacity Ratio (v/c)		0.64

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1093	Average Weaving Speed (S_W), mi/h	62.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1071	Average Non-Weaving Speed (S_{NW}), mi/h	66.8
Weaving Lane Change Rate (LC_W), lc/h	1300	Average Speed (S), mi/h	65.8
Weaving Lane Change Rate (LC_{All}), lc/h	2371	Density (D), pc/mi/ln	19.2
Weaving Intensity Factor (W)	0.281	Level of Service (LOS)	B

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Alternatives Group 2:
ST1, ST3, NB2, EB2, WB2
PM Peak Hour

HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7939	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2323
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7752	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1512
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4154	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1216
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	8467	1890
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	9909	2212
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.69	1.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	0.0	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.497
Downstream Equilibrium Distance (LEQ), ft	0.0	Flow Outer Lanes (vOA), pc/h/ln	1472
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	80.9
Flow in Lanes 1 and 2 (v12), pc/h	4488	Ramp Junction Speed (S), mi/h	53.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	4488	Average Density (D), pc/mi/ln	45.0
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	39.2

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HCS7 Freeway Diverge Report

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Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	5148	994
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	6025	1163
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.63	0.58

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.533
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1371
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	57.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	81.3
Flow in Lanes 1 and 2 (v12), pc/h	3283	Ramp Junction Speed (S), mi/h	66.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	22.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.1

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	700
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	7296	323
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	8539	378
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.71	0.18

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.332
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1820
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	79.5
Flow in Lanes 1 and 2 (v12), pc/h	3192	Ramp Junction Speed (S), mi/h	71.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.4

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7296	2148
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	8539	2514
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.71	0.63

Density and LOS			
Average Density (D), pc/mi/ln	29.9	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	29.9	Level of Service (LOS)	D

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6577	1175
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	7697	1375
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.63	0.65

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.404
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1732
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.046	Outer Lanes Freeway Speed (SO), mi/h	71.0
Flow in Lanes 1 and 2 (v12), pc/h	2309	Ramp Junction Speed (S), mi/h	66.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	3684	Average Density (D), pc/mi/ln	22.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.6

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4154	1900
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	4862	2224
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.74	1.06

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.501
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1459
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.000	Outer Lanes Freeway Speed (SO), mi/h	71.9
Flow in Lanes 1 and 2 (v12), pc/h	1945	Ramp Junction Speed (S), mi/h	63.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	4169	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	32.0

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1700	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7369	250	605	570
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	8624	293	708	667
Weaving Flow Rate (v_w), pc/h	960	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	9332	Density-Based Capacity (c_{IWL}), pc/h/ln		2264
Total Flow Rate (v), pc/h	10292	Demand Flow-Based Capacity (c_{IW}), pc/h		25806
Volume Ratio (VR)	0.093	Weaving Segment Capacity (c_W), veh/h		8232
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		9056
Maximum Weaving Length (L_{MAX}), ft	3472	Volume-to-Capacity Ratio (v/c)		1.14

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2148	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1372
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.2
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6671	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1952
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6489	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1898
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3441	2148
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	4027	2514
Capacity (c), pc/h	4400	4400
Volume-to-Capacity Ratio (v/c)	1.49	0.57

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	2540.4	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	-
Downstream Equilibrium Distance (LEQ), ft	0.0	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	-
Flow in Lanes 1 and 2 (v12), pc/h	4027	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (vR12), pc/h	6541	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	-

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1720	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5132	1358	157	457
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	5.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.952	0.909
Flow Rate (v_i), pc/h	6006	1589	175	535
Weaving Flow Rate (v_W), pc/h	2124	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	6181	Density-Based Capacity (c_{IWL}), pc/h/ln		2140
Total Flow Rate (v), pc/h	8305	Demand Flow-Based Capacity (c_{IW}), pc/h		9375
Volume Ratio (VR)	0.256	Weaving Segment Capacity (c_W), veh/h		7789
Minimum Lane Change Rate (LC_{MIN}), lc/h	2124	Adjusted Weaving Area Capacity, pc/h		8560
Maximum Weaving Length (L_{MAX}), ft	5117	Volume-to-Capacity Ratio (v/c)		0.97

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1063	Average Weaving Speed (S_W), mi/h	57.0
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1435	Average Non-Weaving Speed (S_{NW}), mi/h	50.1
Weaving Lane Change Rate (LC_W), lc/h	2533	Average Speed (S), mi/h	51.7
Weaving Lane Change Rate (LC_{All}), lc/h	3968	Density (D), pc/mi/ln	40.2
Weaving Intensity Factor (W)	0.437	Level of Service (LOS)	E

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HCS7 Freeway Weaving Report

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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5856	815	452	634
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.909
Flow Rate (v_i), pc/h	6853	911	505	742
Weaving Flow Rate (v_W), pc/h	1653	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	7358	Density-Based Capacity (c_{IWL}), pc/h/ln		2181
Total Flow Rate (v), pc/h	9011	Demand Flow-Based Capacity (c_{IW}), pc/h		13115
Volume Ratio (VR)	0.183	Weaving Segment Capacity (c_W), veh/h		7989
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8724
Maximum Weaving Length (L_{MAX}), ft	4363	Volume-to-Capacity Ratio (v/c)		1.03

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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Project Information

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Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6586	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1752
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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Project Information

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Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4863	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1423
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	73.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2413	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1541
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.0
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4173	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2442
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.02
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6470	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1893
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6586	2413
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7708	2824
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.80	0.64

Density and LOS			
Average Density (D), pc/mi/ln	33.7	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	33.7	Level of Service (LOS)	D

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
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Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6586	4173
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7708	4884
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.80	1.11

Density and LOS			
Average Density (D), pc/mi/ln	45.0	Average Speed (S), mi/h	53.3
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	33.7	Level of Service (LOS)	F

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
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Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4863	1607
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.952
Flow Rate (vi),pc/h	5691	1796
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.78	0.86

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.424
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1708
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.000	Outer Lanes Freeway Speed (SO), mi/h	71.1
Flow in Lanes 1 and 2 (v12), pc/h	2276	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	4072	Average Density (D), pc/mi/ln	28.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.7

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Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6470	600
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	1.000	1.000
Flow Rate (vi),pc/h	6883	638
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.78	0.30

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.311
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2065
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.138	Outer Lanes Freeway Speed (SO), mi/h	69.8
Flow in Lanes 1 and 2 (v12), pc/h	2753	Ramp Junction Speed (S), mi/h	67.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3391	Average Density (D), pc/mi/ln	27.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.9

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	5/3/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description		Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3783	900	0	3322
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.909
Flow Rate (v_i), pc/h	4427	1006	0	3888
Weaving Flow Rate (v_W), pc/h	4894	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	4427	Density-Based Capacity (c_{IWL}), pc/h/ln		1894
Total Flow Rate (v), pc/h	9321	Demand Flow-Based Capacity (c_{IW}), pc/h		4571
Volume Ratio (VR)	0.525	Weaving Segment Capacity (c_W), veh/h		4177
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		4572
Maximum Weaving Length (L_{MAX}), ft	8120	Volume-to-Capacity Ratio (v/c)		2.04

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6488	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1150
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7452	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1454
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	73.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6437	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1883
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2903	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	849
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3441	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2198
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6488	931
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	7593	1090
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.53	0.52

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.396
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1298
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	62.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	81.6
Flow in Lanes 1 and 2 (v12), pc/h	3098	Ramp Junction Speed (S), mi/h	69.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	18.1
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.5

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3407	504
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3987	590
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.33	0.28

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.351
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	958
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	82.7
Flow in Lanes 1 and 2 (v12), pc/h	2071	Ramp Junction Speed (S), mi/h	71.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.7

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Major Diverge

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6848	3441
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	8014	4027
Capacity (c), pc/h	13200	4400
Volume-to-Capacity Ratio (v/c)	0.61	0.92

Density and LOS			
Average Density (D), pc/mi/ln	23.4	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	23.4	Level of Service (LOS)	C

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	5557	1290
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	6504	1510
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.56	0.72

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.373
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1464
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	62.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.029	Outer Lanes Freeway Speed (S_O), mi/h	71.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	1951	Ramp Junction Speed (S), mi/h	66.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3461	Average Density (D), pc/mi/ln	20.0
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.8

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	7452	376
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	8721	440
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.64	0.21

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.332
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1962
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.163	Outer Lanes Freeway Speed (SO), mi/h	70.1
Flow in Lanes 1 and 2 (v12), pc/h	2616	Ramp Junction Speed (S), mi/h	67.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	3056	Average Density (D), pc/mi/ln	22.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.2

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided Two-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2903	4173
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3397	4884
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.86	1.11

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	2.327
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1019
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	0.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	73.5
Flow in Lanes 1 and 2 (v12), pc/h	1359	Ramp Junction Speed (S), mi/h	1.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	6243	Average Density (D), pc/mi/ln	1592.5
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	52.0

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/23/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	1800	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5707	730	424	1744
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	6679	854	496	2041
Weaving Flow Rate (v_W), pc/h	2895	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	7175	Density-Based Capacity (c_{IWL}), pc/h/ln		2121
Total Flow Rate (v), pc/h	10070	Demand Flow-Based Capacity (c_{IW}), pc/h		8362
Volume Ratio (VR)	0.287	Weaving Segment Capacity (c_W), veh/h		7601
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8362
Maximum Weaving Length (L_{MAX}), ft	5445	Volume-to-Capacity Ratio (v/c)		1.20

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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Alternatives Group 3:
ST1, SB1, NB3, EB3, WB3
AM Peak Hour

HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7813	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1524
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7879	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2305
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.2
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2805	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	821
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2805	967
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3283	1132
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.34	0.54

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.400
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	607
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	62.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	82.7
Flow in Lanes 1 and 2 (V12), pc/h	2070	Ramp Junction Speed (S), mi/h	68.3
Flow Entering Ramp-Infl. Area (VR12), pc/h	-	Average Density (D), pc/mi/ln	12.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.7

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	7861	809
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	9200	947
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.77	0.45

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.383
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1809
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	62.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	79.6
Flow in Lanes 1 and 2 (V12), pc/h	3743	Ramp Junction Speed (S), mi/h	69.9
Flow Entering Ramp-Infl. Area (VR12), pc/h	-	Average Density (D), pc/mi/ln	26.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.2

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HCS7 Freeway Diverge Report

Project Information			
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Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7052	3281
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	8253	3840
Capacity (c), pc/h	12000	4400
Volume-to-Capacity Ratio (v/c)	0.69	0.87

Density and LOS			
Average Density (D), pc/mi/ln	28.9	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	28.9	Level of Service (LOS)	D

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	2805	1305
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	3283	1527
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.50	0.76

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.332
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	985
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.027	Outer Lanes Freeway Speed (S_O), mi/h	73.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	1313	Ramp Junction Speed (S), mi/h	67.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2840	Average Density (D), pc/mi/ln	17.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.0

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/22/2021
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Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i)	4110	4401
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	4810	5151
Capacity (c), pc/h	13200	4400
Volume-to-Capacity Ratio (v/c)	0.75	1.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	3.171
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1082
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	0.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.209	Outer Lanes Freeway Speed (S_O), mi/h	73.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	1443	Ramp Junction Speed (S), mi/h	1.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	6594	Average Density (D), pc/mi/ln	1277.1
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	54.6

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/22/2021
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Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7178	635	328	1333
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	8401	743	384	1560
Weaving Flow Rate (v_W), pc/h	2303	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8785	Density-Based Capacity (c_{IWL}), pc/h/ln		2085
Total Flow Rate (v), pc/h	11088	Demand Flow-Based Capacity (c_{IW}), pc/h		11538
Volume Ratio (VR)	0.208	Weaving Segment Capacity (c_W), veh/h		10488
Minimum Lane Change Rate (LC_{MIN}), lc/h	2303	Adjusted Weaving Area Capacity, pc/h		11538
Maximum Weaving Length (L_{MAX}), ft	4618	Volume-to-Capacity Ratio (v/c)		0.96

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	146	Average Weaving Speed (S_W), mi/h	44.5
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	925	Average Non-Weaving Speed (S_{NW}), mi/h	49.9
Weaving Lane Change Rate (LC_W), lc/h	2553	Average Speed (S), mi/h	48.7
Weaving Lane Change Rate (LC_{All}), lc/h	3478	Density (D), pc/mi/ln	37.9
Weaving Intensity Factor (W)	1.044	Level of Service (LOS)	E

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HCS7 Freeway Weaving Report

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Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Segment Length (L_S), ft	1600	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6677	1184	300	302
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	7814	1386	351	353
Weaving Flow Rate (v_W), pc/h	1739	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8165	Density-Based Capacity (c_{IWL}), pc/h/ln		2194
Total Flow Rate (v), pc/h	9904	Demand Flow-Based Capacity (c_{IW}), pc/h		13636
Volume Ratio (VR)	0.176	Weaving Segment Capacity (c_W), veh/h		9972
Minimum Lane Change Rate (LC_{MIN}), lc/h	1739	Adjusted Weaving Area Capacity, pc/h		10970
Maximum Weaving Length (L_{MAX}), ft	4292	Volume-to-Capacity Ratio (v/c)		0.90

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	435	Average Weaving Speed (S_W), mi/h	56.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1586	Average Non-Weaving Speed (S_{NW}), mi/h	53.4
Weaving Lane Change Rate (LC_W), lc/h	2182	Average Speed (S), mi/h	54.0
Weaving Lane Change Rate (LC_{All}), lc/h	3768	Density (D), pc/mi/ln	36.7
Weaving Intensity Factor (W)	0.444	Level of Service (LOS)	E

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3281	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2095
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.2
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	74.1
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6920	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2025
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.0
Total Ramp Density Adjustment	1.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	74.1		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2865	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1676
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Left

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3885	3281
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	4547	3840
Capacity (c), pc/h	8800	4400
Volume-to-Capacity Ratio (v/c)	0.95	0.87

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	1.275
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1364
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	32.8
Prop. Freeway Vehicles in Lane 3 and 4 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	72.3
Flow in Lanes 3 and 4 (v34), pc/h	1819	Ramp Junction Speed (S), mi/h	39.9
Flow Entering Ramp-Infl. Area (vR34), pc/h	5659	Average Density (D), pc/mi/ln	52.6
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	38.5

Managed Lane Geometric Data

Managed Lane Type	Continuous Access	Free-Flow Speed (FFS), mi/h	75.4
			Level

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Managed Lane Length, ft	5280	Percent Grade, %	-
Managed Lane Adjustment Factors			
Driver Population	All Familiar	Driver Population CAF	1.000
Weather Type	Non-Severe Weather	Weather Type CAF	1.000
Driver Population SAF	1.000	Final Speed Adjustment Factor (SAF)	1.000
Weather Type SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Demand Adjustment Factor (DAF)	1.000		
Managed Lane Demand and Capacity			
Volume (V_{ML}), veh/h	0	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor	0.94	Flow Rate ($V_{p,ML}$), pc/h/ln	0
Total Trucks, %	0.00	Capacity (c), pc/h/ln	1804
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	1804
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.00
Passenger Car Equivalent (E_T)	2.000		
Managed Lane Speed and Density			
Breakpoint (BP_{ML})	500	Indicator Variable (I_c)	-
Speed 1 (S_1), mi/h	75.4	Average Speed (S_{ML}), mi/h	75.4
Speed 2 (S_2), mi/h	-	Density (D_{ML}), pc/mi/ln	0.0
Speed 3 (S_3), mi/h	-	Level of Service (LOS)	A

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6705	1098	0	900
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.952
Flow Rate (v_i), pc/h	7847	1227	0	1006
Weaving Flow Rate (v_W), pc/h	2233	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	7847	Density-Based Capacity (c_{IWL}), pc/h/ln		2150
Total Flow Rate (v), pc/h	10080	Demand Flow-Based Capacity (c_{IW}), pc/h		10811
Volume Ratio (VR)	0.222	Weaving Segment Capacity (c_W), veh/h		7899
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8600
Maximum Weaving Length (L_{MAX}), ft	4762	Volume-to-Capacity Ratio (v/c)		1.17

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1100	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	Yes

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5843	1077	248	1129
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.952
Flow Rate (v_i), pc/h	6838	1204	277	1262
Weaving Flow Rate (v_w), pc/h	2466	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	7115	Density-Based Capacity (c_{IWL}), pc/h/ln		2092
Total Flow Rate (v), pc/h	9581	Demand Flow-Based Capacity (c_{IW}), pc/h		9339
Volume Ratio (VR)	0.257	Weaving Segment Capacity (c_W), veh/h		7710
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8369
Maximum Weaving Length (L_{MAX}), ft	5127	Volume-to-Capacity Ratio (v/c)		1.14

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Freeway
Segment Length (L_S), ft	1720	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2600	1286	145	266
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.952
Flow Rate (v_i), pc/h	3043	1437	162	297
Weaving Flow Rate (v_W), pc/h	1734	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	3205	Density-Based Capacity (c_{IWL}), pc/h/ln		2182
Total Flow Rate (v), pc/h	4939	Demand Flow-Based Capacity (c_{IW}), pc/h		9972
Volume Ratio (VR)	0.351	Weaving Segment Capacity (c_W), veh/h		6058
Minimum Lane Change Rate (LC_{MIN}), lc/h	1734	Adjusted Weaving Area Capacity, pc/h		6546
Maximum Weaving Length (L_{MAX}), ft	4571	Volume-to-Capacity Ratio (v/c)		0.75

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	551	Average Weaving Speed (S_W), mi/h	59.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1015	Average Non-Weaving Speed (S_{NW}), mi/h	55.0
Weaving Lane Change Rate (LC_W), lc/h	1964	Average Speed (S), mi/h	56.6
Weaving Lane Change Rate (LC_{All}), lc/h	2979	Density (D), pc/mi/ln	29.1
Weaving Intensity Factor (W)	0.349	Level of Service (LOS)	D

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NB Weave W_N McDowell ON Thomas OFF AM 2040 ALT 3.xuf

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	74.1
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6501	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1902
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.9
Total Ramp Density Adjustment	1.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	74.1		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	74.1
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6771	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1981
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.9
Total Ramp Density Adjustment	1.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	74.1		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	74.1
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5310	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1554
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.9
Total Ramp Density Adjustment	1.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	74.1		

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Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4401	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2810
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.17
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2370	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1387
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6771	4401
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7924	5151
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.83	1.17

Density and LOS			
Average Density (D), pc/mi/ln	45.0	Average Speed (S), mi/h	53.3
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	34.7	Level of Service (LOS)	F

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	2040 PM
Project Description	I10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5526	2659
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.952
Flow Rate (vi),pc/h	6467	2971
Capacity (c), pc/h	11000	4200
Volume-to-Capacity Ratio (v/c)	0.59	0.71

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.565
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	934
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	56.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	82.7
Flow in Lanes 1 and 2 (v12), pc/h	3628	Ramp Junction Speed (S), mi/h	63.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.0

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6771	2370
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7924	2774
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.83	0.63

Density and LOS			
Average Density (D), pc/mi/ln	34.7	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	34.7	Level of Service (LOS)	D

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	5310	1191
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.952
Flow Rate (vi),pc/h	6214	1331
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.79	0.63

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.372
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1864
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.051	Outer Lanes Freeway Speed (SO), mi/h	70.5
Flow in Lanes 1 and 2 (v12), pc/h	2486	Ramp Junction Speed (S), mi/h	66.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3817	Average Density (D), pc/mi/ln	28.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.9

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	6501	271
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.952
Flow Rate (vi),pc/h	7608	303
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.82	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.306
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2283
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.180	Outer Lanes Freeway Speed (SO), mi/h	69.0
Flow in Lanes 1 and 2 (v12), pc/h	3043	Ramp Junction Speed (S), mi/h	67.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3346	Average Density (D), pc/mi/ln	29.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.7

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4410	900	0	2075
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	0.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	1.000	0.909
Flow Rate (v_i), pc/h	5161	1006	0	2428
Weaving Flow Rate (v_W), pc/h	3434	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	5161	Density-Based Capacity (c_{IWL}), pc/h/ln		2004
Total Flow Rate (v), pc/h	8595	Demand Flow-Based Capacity (c_{IW}), pc/h		6000
Volume Ratio (VR)	0.400	Weaving Segment Capacity (c_W), veh/h		5484
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		6000
Maximum Weaving Length (L_{MAX}), ft	6681	Volume-to-Capacity Ratio (v/c)		1.43

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6029	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1176
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L Sytem TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6638	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1295
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.0
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5333	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1040
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6374	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1865
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2485	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	727
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.1
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L Sytem TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3087	602
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	3613	705
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.30	0.34

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.361
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	820
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	82.7
Flow in Lanes 1 and 2 (V12), pc/h	1973	Ramp Junction Speed (S), mi/h	70.8
Flow Entering Ramp-Infl. Area (VR12), pc/h	-	Average Density (D), pc/mi/ln	10.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.9

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	5952	2865
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	6966	3353
Capacity (c), pc/h	13200	4400
Volume-to-Capacity Ratio (v/c)	0.53	0.76

Density and LOS			
Average Density (D), pc/mi/ln	20.3	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	20.3	Level of Service (LOS)	C

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	4855	478
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	5682	559
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.43	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.251
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1278
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	67.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.148	Outer Lanes Freeway Speed (SO), mi/h	72.6
Flow in Lanes 1 and 2 (V12), pc/h	1705	Ramp Junction Speed (S), mi/h	69.9
Flow Entering Ramp-Infl. Area (VR12), pc/h	2264	Average Density (D), pc/mi/ln	14.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.4

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i)	2485	2517
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	2908	2946
Capacity (c), pc/h	8800	4400
Volume-to-Capacity Ratio (v/c)	0.67	0.67

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.393
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	873
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	62.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.209	Outer Lanes Freeway Speed (S_O), mi/h	74.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	1163	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4109	Average Density (D), pc/mi/ln	22.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.8

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 amd 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	1800	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5125	827	417	904
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	5998	968	488	1058
Weaving Flow Rate (v_W), pc/h	2026	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	6486	Density-Based Capacity (c_{IWL}), pc/h/ln		2161
Total Flow Rate (v), pc/h	8512	Demand Flow-Based Capacity (c_{IW}), pc/h		10084
Volume Ratio (VR)	0.238	Weaving Segment Capacity (c_W), veh/h		9166
Minimum Lane Change Rate (LC_{MIN}), lc/h	2026	Adjusted Weaving Area Capacity, pc/h		10084
Maximum Weaving Length (L_{MAX}), ft	4928	Volume-to-Capacity Ratio (v/c)		0.84

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1167	Average Weaving Speed (S_W), mi/h	57.1
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1156	Average Non-Weaving Speed (S_{NW}), mi/h	54.0
Weaving Lane Change Rate (LC_W), lc/h	2973	Average Speed (S), mi/h	54.7
Weaving Lane Change Rate (LC_{All}), lc/h	4129	Density (D), pc/mi/ln	25.9
Weaving Intensity Factor (W)	0.435	Level of Service (LOS)	C

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	AM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	2000	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6761	1247	200	1118
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.909
Flow Rate (v_i), pc/h	7913	1393	223	1308
Weaving Flow Rate (v_W), pc/h	2701	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8136	Density-Based Capacity (c_{IWL}), pc/h/ln		2167
Total Flow Rate (v), pc/h	10837	Demand Flow-Based Capacity (c_{IW}), pc/h		9639
Volume Ratio (VR)	0.249	Weaving Segment Capacity (c_W), veh/h		8823
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		9638
Maximum Weaving Length (L_{MAX}), ft	5043	Volume-to-Capacity Ratio (v/c)		1.12

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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Alternatives Group 3:
ST1, SB1, NB3, EB1, WB1
PM Peak Hour

HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7752	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1512
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6800	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1990
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3779	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1106
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	4804	1025
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	5622	1200
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.59	0.57

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.406
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1247
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	61.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	81.8
Flow in Lanes 1 and 2 (V12), pc/h	3128	Ramp Junction Speed (S), mi/h	69.3
Flow Entering Ramp-Infl. Area (VR12), pc/h	-	Average Density (D), pc/mi/ln	20.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.8

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	8115	951
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	9497	1113
Capacity (c), pc/h	12000	2000
Volume-to-Capacity Ratio (v/c)	0.79	0.56

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.528
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1829
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	79.5
Flow in Lanes 1 and 2 (V12), pc/h	3940	Ramp Junction Speed (S), mi/h	66.5
Flow Entering Ramp-Infl. Area (VR12), pc/h	-	Average Density (D), pc/mi/ln	28.6
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.9

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7171	2367
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	8392	2770
Capacity (c), pc/h	12000	4400
Volume-to-Capacity Ratio (v/c)	0.70	0.63

Density and LOS			
Average Density (D), pc/mi/ln	29.4	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	29.4	Level of Service (LOS)	D

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4263	1078
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	4989	1262
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.63

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.366
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1497
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.060	Outer Lanes Freeway Speed (SO), mi/h	71.8
Flow in Lanes 1 and 2 (V12), pc/h	1996	Ramp Junction Speed (S), mi/h	67.0
Flow Entering Ramp-Infl. Area (VR12), pc/h	3258	Average Density (D), pc/mi/ln	23.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.4

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	5341	3204
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	6251	3750
Capacity (c), pc/h	14400	4400
Volume-to-Capacity Ratio (v/c)	0.69	0.85

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	1.402
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1407
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	28.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.209	Outer Lanes Freeway Speed (SO), mi/h	72.1
Flow in Lanes 1 and 2 (V12), pc/h	1875	Ramp Junction Speed (S), mi/h	35.8
Flow Entering Ramp-Infl. Area (VR12), pc/h	5625	Average Density (D), pc/mi/ln	46.6
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	47.7

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6993	760	480	1553
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	8184	889	562	1818
Weaving Flow Rate (v_W), pc/h	2707	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8746	Density-Based Capacity (c_{IWL}), pc/h/ln		2063
Total Flow Rate (v), pc/h	11453	Demand Flow-Based Capacity (c_{IW}), pc/h		10169
Volume Ratio (VR)	0.236	Weaving Segment Capacity (c_W), veh/h		9244
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		10169
Maximum Weaving Length (L_{MAX}), ft	4908	Volume-to-Capacity Ratio (v/c)		1.13

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Segment Length (L_S), ft	1600	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7547	489	400	697
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	8832	572	468	816
Weaving Flow Rate (v_W), pc/h	1388	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	9300	Density-Based Capacity (c_{IWL}), pc/h/ln		2229
Total Flow Rate (v), pc/h	10688	Demand Flow-Based Capacity (c_{IW}), pc/h		18462
Volume Ratio (VR)	0.130	Weaving Segment Capacity (c_W), veh/h		10131
Minimum Lane Change Rate (LC_{MIN}), lc/h	1388	Adjusted Weaving Area Capacity, pc/h		11145
Maximum Weaving Length (L_{MAX}), ft	3833	Volume-to-Capacity Ratio (v/c)		0.96

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	496	Average Weaving Speed (S_W), mi/h	57.1
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1820	Average Non-Weaving Speed (S_{NW}), mi/h	55.1
Weaving Lane Change Rate (LC_W), lc/h	1831	Average Speed (S), mi/h	55.4
Weaving Lane Change Rate (LC_{All}), lc/h	3651	Density (D), pc/mi/ln	38.6
Weaving Intensity Factor (W)	0.433	Level of Service (LOS)	E

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2481	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1584
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6173	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1806
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.1
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3362	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1968
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3069	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1796
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Left

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i)	4348	2141
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	5089	2506
Capacity (c), pc/h	8800	4400
Volume-to-Capacity Ratio (v/c)	0.86	0.57

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.654
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1527
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.6
Prop. Freeway Vehicles in Lane 3 and 4 (P_{FM})	0.209	Outer Lanes Freeway Speed (S_O), mi/h	71.7
Flow in Lanes 3 and 4 (v_{34}), pc/h	2036	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (v_{R34}), pc/h	4542	Average Density (D), pc/mi/ln	31.8
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	37.9

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA),ft	1600	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3378	1390
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.952
Flow Rate (vi),pc/h	3953	1553
Capacity (c), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	1.15	0.71

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	1830.5	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	-
Downstream Equilibrium Distance (LEQ), ft	0.0	Flow Outer Lanes (VOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	-
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	-
Flow in Lanes 1 and 2 (v12), pc/h	3953	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (vR12), pc/h	5506	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	-

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5273	793	0	900
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	0.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	1.000	0.909
Flow Rate (v_i), pc/h	6171	886	0	1053
Weaving Flow Rate (v_W), pc/h	1939	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	6171	Density-Based Capacity (c_{IWL}), pc/h/ln		2137
Total Flow Rate (v), pc/h	8110	Demand Flow-Based Capacity (c_{IW}), pc/h		10042
Volume Ratio (VR)	0.239	Weaving Segment Capacity (c_W), veh/h		7810
Minimum Lane Change Rate (LC_{MIN}), lc/h	1939	Adjusted Weaving Area Capacity, pc/h		8548
Maximum Weaving Length (L_{MAX}), ft	4939	Volume-to-Capacity Ratio (v/c)		0.95

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	926	Average Weaving Speed (S_W), mi/h	56.5
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1314	Average Non-Weaving Speed (S_{NW}), mi/h	51.7
Weaving Lane Change Rate (LC_W), lc/h	2315	Average Speed (S), mi/h	52.8
Weaving Lane Change Rate (LC_{All}), lc/h	3629	Density (D), pc/mi/ln	38.4
Weaving Intensity Factor (W)	0.454	Level of Service (LOS)	E

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Freeway
Segment Length (L_S), ft	1720	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3109	1239	151	252
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.952
Flow Rate (v_i), pc/h	3639	1385	169	282
Weaving Flow Rate (v_W), pc/h	1667	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	3808	Density-Based Capacity (c_{IWL}), pc/h/ln		2221
Total Flow Rate (v), pc/h	5475	Demand Flow-Based Capacity (c_{IW}), pc/h		11513
Volume Ratio (VR)	0.304	Weaving Segment Capacity (c_W), veh/h		6153
Minimum Lane Change Rate (LC_{MIN}), lc/h	1667	Adjusted Weaving Area Capacity, pc/h		6663
Maximum Weaving Length (L_{MAX}), ft	4061	Volume-to-Capacity Ratio (v/c)		0.82

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	655	Average Weaving Speed (S_W), mi/h	59.6
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1139	Average Non-Weaving Speed (S_{NW}), mi/h	54.6
Weaving Lane Change Rate (LC_W), lc/h	1897	Average Speed (S), mi/h	56.0
Weaving Lane Change Rate (LC_{All}), lc/h	3036	Density (D), pc/mi/ln	32.6
Weaving Intensity Factor (W)	0.354	Level of Service (LOS)	D

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1100	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	Yes

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5358	815	452	1132
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.952
Flow Rate (v_i), pc/h	6271	911	505	1265
Weaving Flow Rate (v_W), pc/h	2176	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	6776	Density-Based Capacity (c_{IWL}), pc/h/ln		2103
Total Flow Rate (v), pc/h	8952	Demand Flow-Based Capacity (c_{IW}), pc/h		9877
Volume Ratio (VR)	0.243	Weaving Segment Capacity (c_W), veh/h		7755
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		8412
Maximum Weaving Length (L_{MAX}), ft	4981	Volume-to-Capacity Ratio (v/c)		1.06

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7133	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2087
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.0
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	73.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7268	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2126
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.0
Total Ramp Density Adjustment	1.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	73.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5546	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1623
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3195	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2040
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Rolling
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4073	Heavy Vehicle Adjustment Factor (f_{HV})	0.833
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	2601
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.08
Passenger Car Equivalent (E_T)	3.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	7849	4073
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	9186	4767
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.96	1.08

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	0.0	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.597
Downstream Equilibrium Distance (LEQ), ft	0.0	Flow Outer Lanes (VOA), pc/h/ln	1635
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	80.2
Flow in Lanes 1 and 2 (V12), pc/h	5916	Ramp Junction Speed (S), mi/h	53.3
Flow Entering Ramp-Infl. Area (VR12), pc/h	5916	Average Density (D), pc/mi/ln	45.0
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	55.1

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HCS7 Freeway Merge Report

Project Information			
Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5546	1607
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.952
Flow Rate (vi),pc/h	6491	1796
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.69	0.86

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.364
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1480
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.000	Outer Lanes Freeway Speed (SO), mi/h	71.9
Flow in Lanes 1 and 2 (V12), pc/h	1973	Ramp Junction Speed (S), mi/h	66.8
Flow Entering Ramp-Infl. Area (VR12), pc/h	3769	Average Density (D), pc/mi/ln	24.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.3

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	7249	600
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.952
Flow Rate (vi),pc/h	8484	670
Capacity (c), pc/h	9600	2100
Volume-to-Capacity Ratio (v/c)	0.95	0.32

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.422
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2545
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.134	Outer Lanes Freeway Speed (SO), mi/h	67.4
Flow in Lanes 1 and 2 (v12), pc/h	3394	Ramp Junction Speed (S), mi/h	64.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	4064	Average Density (D), pc/mi/ln	35.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.2

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	7849	3195
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	9186	3739
Capacity (c), pc/h	9600	4400
Volume-to-Capacity Ratio (v/c)	0.96	0.85

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.505
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1758
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.5
Prop. Freeway Vehicles in Lane 3 and 4 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	79.8
Flow in Lanes 3 and 4 (v34), pc/h	5671	Ramp Junction Speed (S), mi/h	65.2
Flow Entering Ramp-Infl. Area (vR34), pc/h	-	Average Density (D), pc/mi/ln	35.2
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	53.0

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	5/4/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4646	900	0	2640
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	0.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	1.000	0.909
Flow Rate (v_i), pc/h	5437	1006	0	3090
Weaving Flow Rate (v_W), pc/h	4096	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	5437	Density-Based Capacity (c_{IWL}), pc/h/ln		1978
Total Flow Rate (v), pc/h	9533	Demand Flow-Based Capacity (c_{IW}), pc/h		5581
Volume Ratio (VR)	0.430	Weaving Segment Capacity (c_W), veh/h		5099
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		5582
Maximum Weaving Length (L_{MAX}), ft	7020	Volume-to-Capacity Ratio (v/c)		1.71

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6488	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1266
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L Sytem TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6638	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1295
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.0
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6811	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1328
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	71.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6374	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1865
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.4	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	72.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2819	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	825
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	72.2		

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HCS7 Freeway Diverge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L Sytem TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	150
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3260	441
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.990
Flow Rate (vi),pc/h	3815	474
Capacity (c), pc/h	12000	2100
Volume-to-Capacity Ratio (v/c)	0.32	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.341
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	942
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	82.7
Flow in Lanes 1 and 2 (V12), pc/h	1931	Ramp Junction Speed (S), mi/h	72.0
Flow Entering Ramp-Infl. Area (VR12), pc/h	-	Average Density (D), pc/mi/ln	10.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.5

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HCS7 Freeway Diverge Report

Project Information			
Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6638	3378
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	7769	3953
Capacity (c), pc/h	13200	4400
Volume-to-Capacity Ratio (v/c)	0.59	0.90

Density and LOS			
Average Density (D), pc/mi/ln	22.7	Average Speed (S), mi/h	57.1
Density in Ramp Influence Area (D_{MD}), pc/mi/ln	22.7	Level of Service (LOS)	C

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	6811	474
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.909	0.909
Flow Rate (vi),pc/h	7971	555
Capacity (c), pc/h	14400	2100
Volume-to-Capacity Ratio (v/c)	0.59	0.26

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.287
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1794
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.148	Outer Lanes Freeway Speed (SO), mi/h	70.7
Flow in Lanes 1 and 2 (V12), pc/h	2391	Ramp Junction Speed (S), mi/h	68.4
Flow Entering Ramp-Infl. Area (VR12), pc/h	2946	Average Density (D), pc/mi/ln	20.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.7

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HCS7 Freeway Merge Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	0
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i)	2819	3992
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i),pc/h	3299	4672
Capacity (c), pc/h	8800	4400
Volume-to-Capacity Ratio (v/c)	0.91	1.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	1.882
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	990
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	12.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.209	Outer Lanes Freeway Speed (S_O), mi/h	73.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	1320	Ramp Junction Speed (S), mi/h	15.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	5992	Average Density (D), pc/mi/ln	126.9
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	50.1

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/22/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 and 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	2000	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6197	286	924	1225
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	5.00	5.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	0.952	0.909
Flow Rate (v_i), pc/h	7253	320	1033	1434
Weaving Flow Rate (v_W), pc/h	1754	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	8286	Density-Based Capacity (c_{IWL}), pc/h/ln		2225
Total Flow Rate (v), pc/h	10040	Demand Flow-Based Capacity (c_{IW}), pc/h		13714
Volume Ratio (VR)	0.175	Weaving Segment Capacity (c_W), veh/h		12212
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		13349
Maximum Weaving Length (L_{MAX}), ft	4282	Volume-to-Capacity Ratio (v/c)		0.75

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	DAK	Date	4/16/2021
Agency	MAG	Analysis Year	2040
Jurisdiction	Phoenix	Time Period Analyzed	PM
Project Description	I-10 amd 101L System TI	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	1800	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5891	868	610	598
Peak Hour Factor (PHF)	0.94	0.94	0.94	0.94
Total Trucks, %	10.00	10.00	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909	0.909	0.909
Flow Rate (v_i), pc/h	6894	1016	714	700
Weaving Flow Rate (v_W), pc/h	1716	Freeway Max Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	7608	Density-Based Capacity (c_{IWL}), pc/h/ln		2203
Total Flow Rate (v), pc/h	9324	Demand Flow-Based Capacity (c_{IW}), pc/h		13043
Volume Ratio (VR)	0.184	Weaving Segment Capacity (c_W), veh/h		11857
Minimum Lane Change Rate (LC_{MIN}), lc/h	1716	Adjusted Weaving Area Capacity, pc/h		13044
Maximum Weaving Length (L_{MAX}), ft	4373	Volume-to-Capacity Ratio (v/c)		0.71

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1369	Average Weaving Speed (S_W), mi/h	56.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1599	Average Non-Weaving Speed (S_{NW}), mi/h	55.6
Weaving Lane Change Rate (LC_W), lc/h	2663	Average Speed (S), mi/h	55.8
Weaving Lane Change Rate (LC_{All}), lc/h	4262	Density (D), pc/mi/ln	27.8
Weaving Intensity Factor (W)	0.446	Level of Service (LOS)	C

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