ICE Analysis Technical Memorandum

Traffic and Safety Analysis at State Road 80 (Palm Beach Boulevard) and State Road 31

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Lee County, Florida

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ICE Analysis Technical Memorandum

Traffic and Safety Analysis at SR 80 and SR 31

Lee County, Florida

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INTRODUCTION

The SR 80 (Palm Beach Boulevard) and SR 31 intersection is located in Lee County, Florida, as illustrated in **Figure 1**. This project falls under State Financial Project Number 428979-1. The purpose of this ICE Analysis Technical Memorandum is to document the assumptions and analysis that were used for the Stage 2 ICE Analysis. Stage 2 ICE involves three analysis components: 1) A detailed operational assessment; 2) A refined safety assessment; and 3) Concept generation and planning level cost estimates.

PROJECT DESCRIPTION

The intersection of SR 80 and SR 31 are part of the Project Development and Environmental (PD&E) Study being conducted from SR 80 to SR 78 on SR 31. This ICE analysis is focused on the SR 80 and SR 31 intersection. SR 31 is being widened as part of the PD&E Study, therefore the improved signalized SR 80/SR 31 intersection will be the ICE analysis base condition. The project's purpose is to provide traffic and safety analysis support to determine an ultimate intersection/interchange configuration to provide safe and efficient movement for all modes of traffic for a 20-year design horizon (2045).

The following concepts were used as initial concepts developed by the PD&E consultants and FDOT:

- Alternative 1: Conventional traffic signal with maximum geometry
- Alternative 2: Quadrant intersection (NW quadrant)
- Alternative 3: Displaced Left Turn intersection (eastbound to northbound & southbound to eastbound)
- Alternative 4: Center Turning Overpass (centered on intersection) (eastbound to northbound & southbound to eastbound)
- Alternative 5: Center Turning Overpass (southside of intersection) (eastbound to northbound & southbound to eastbound)
- Alternative 6: Flyover Overpass with crossover (eastbound to northbound & southbound to eastbound)

The Intersection Control Evaluation (ICE) process was used to screen the six (6) initial concepts to provide two (2) viable alternative intersection configurations to be evaluated within the PD&E study.

Figure 1: Project Vicinity

DATA COLLECTION

The following data was provided by FDOT through the PD&E consultant to assist the ICE analysis.

- Traffic volumes for opening (2025), and design year (2045). Both AADTs and AM and PM peak hour TMCs provided for alternative 1-3 and the no-build alternative
- Existing crash data (consistent with analysis years used in the PD&E).
- Anticipated speed limits on SR 80 and SR 31 for Alternative 1-3.
- Existing and future context classification for both state roadways.
- Conceptual layouts for each alternative in CAD.
- Estimated Right of Way Costs for each alternative.
- Costs (design, construction, R/W) for each alternative
- Potential Business Impacts for each alternative
- Environmental Impacts (wetlands, floodplain, historic, cultural, etc. as defined within the PD&E Study process) for each alternative.

The following subsections detail the data that was collected and developed as used as part of the ICE analysis.

INITIAL ALTERNATIVES CONCEPTUAL LAYOUTS

Conceptual layouts for each alternative were provided by FDOT through the PD&E consultants and are included in **Appendix A**. The concept drawings were completed by others.

INTERSECTION TURNING MOVEMENT COUNTS

Intersection turning movement counts were collected by FDOT through the PD&E consultants and provided at the intersections listed below. A map of the study area intersections is shown in **Figure 2.**

The TMCs provided for the no build alternative were used to develop TMCs for Alternatives 4-6 following the assumptions for the volume distributions in Alterative 1-3 for opening and design year. The TMCs for all alternatives are included in **Appendix B**.

Figure 2: Study Area Intersections

1. SR 80 & SR 31
2. SR 31 & NW Development Driveway South/RaceTrac Driveway South
3. SR 31 & NW Development Driveway North/RaceTrac Driveway North
4. SR 31 & Dirt Driveway (Existing Homes)
5. SR 31 & Oak Driveway
6. SR 31 & Brandenburg Properties of FL
7. SR 31 & LJ's Lounge
8. SR 31 & Zero Five Zero Properties LLPI/Johnson Sam Trail
9. SR 31 & Melton Aviation LLC/Fox Family Trust
10. SR 31 & Marina Drive/Babcock Ranch Road LLC
11. SR 31 & West Marina Drive
12. SR 31 & Restaurant Driveway/Thirty One LLC
13. SR 31 & SR 78
14. SR 80 & First Bank Driveway
15. SR 80 & Wildwood Lane
16. SR 80 & Publix Driveway
17. SR 80 & New Development Driveway
18. SR 80 & RaceTrac Driveway West
19. SR 80 & RaceTrac Driveway East

AADT

AADTs for Alternative 1-3 were provided by FDOT through the PD&E consultant and are shown in **Appendix C**. Following the same process as outlined in the provided AADT spreadsheets, AADTs were developed for Alternatives 3-6 for opening and design year. AADTs were developed from PM Design Hourly Volumes (DHVs) developed for each alternative and assuming a 9% Standard K. The AADTs developed were adjusted based on the AADT volumes provided in the SR 31 from Cook Brown Road to SR 80 PD&E - Design Traffic Technical Memorandum (DTTM) provided by FDOT, as required.

COST ESTIMATES

Estimated Right of Way, design, and construction costs for each alternative were provided from FDOT through the PD&E consultant and can be seen in **Table 1**.

Table 1: Estimated Costs

At-Grade Intersections	Total Design & Construction	Total Right of Way Costs
Traffic Signal	$11,700,000	$9,580,000
Flyover	$29,700,000	$10,280,000
Displaced Left Turn (DLT)	$18,200,000	$16,275,000
Quadrant Roadway Intersection	$19,800,000	$14,535,000
Center Turning Overpass (center)	$32,100,000	$10,280,000
Center Turning Overpass (south)	$32,700,000	$10,280,000

These estimated costs are for the entire PD&E project to SR 78. From just south of the Caloosahatchee River bridge to the SR 78 intersection the construction and right-of-way costs are the same. Therefore, the cost differential for the six intersection alternatives as compared to the traffic signal represents the additional cost for a particular alternative. This differential is used in the benefit cost analysis.

TRAFFIC OPERATIONS ANALYSIS

A detailed operational analysis for each intersection alternative was performed for the AM/PM opening (2025) and design (2045) years. The intersection delay and LOS were analyzed using Highway Capacity Manual (HCM) methodologies as implemented by Synchro 11 and HCM 6th methodologies. The alternatives were evaluated based upon the measures of effectiveness (MOEs) summarized in **Table 2**.

Table 2: Performance Measures

Project Need	Performance MOE
Analyzing closely spaced intersections	LOS, V/C, delay
Analyzing unconventional (or complex) intersection	LOS, V/C, delay

The FDOT LOS target for urban area State facilities is LOS D.

Study limits were established in the network and used for the operational analysis to capture the intersection delays and travel time as shown by the red lines in **Figure 3**.

Figure 3: Analysis Study Limits

The intersection delays will only include delays from the intersections on the network within the study limits. Similarly, the travel time will only include the distance traveled from one study limit to the other. Any distances traveled, or signalized intersection delays, in the study area outside of the study limits were not included in the analysis.

The roadway geometry from the conceptual designs provided by FDOT were maintained during the intersection operational analysis. The following sections describe how the travel time and intersection delay was evaluated to establish the average delay and travel time per vehicle.

OPERATIONAL DELAY AND TRAVEL TIME ANALYSIS

Using the intersection analysis results, the total delay for each alterative was evaluated for opening and design year AM and PM time periods. The total delay was calculated by evaluating the travel time and intersection delay that a common vehicle would experience when traveling through the network using the following six critical movements at the SR 80 and SR 31 intersection:

- Eastbound Left;
- Eastbound Through;
- Westbound Right;
- Westbound Through;
- Southbound Right; and
- Southbound Left.

Network limits were established to capture the operational delays within the system as shown in **Table 3**.

Table 3: Network Limits for Operational Analysis

Limit	Location	Movement Start	Movement End
West Limit	West of SR 80 & First Bank Driveway	EBL, EBT	WBT, SBR
East Limit	East of SR 80 & RaceTrac Driveway East	WBR, WBT	EBT, SBL
North Limit	North of SR 31 & Brandenburg Properties of FL	SBR, SBL	EBL, WBR

Following the path traveled by the common vehicle using the six (6) different critical movements, the movement delay at the signalized intersections were used to capture the intersection delay as experienced by a vehicle traveling through the network. The distance traveled and the speed limit along the same path traveled by a vehicle, were used to calculate the experienced travel time.

For example, a vehicle traveling eastbound left using the Traffic Signal alternative would experience an eastbound left turn delay at the signalized SR 80 and SR 31 intersection. The vehicle would also experience a travel time going eastbound from the west limit to the SR 80 and SR 31 intersection and traveling northbound from the SR 80 and SR 31 intersection to the north limit. A vehicle traveling eastbound left using the Quadrant Roadway alternative, would experience two eastbound left turn delays, one at the SR 80 and Quadrant Roadway signalize intersection, and one at the signalized SR 31 and Quadrant Roadway intersection. The vehicle would also experience travel time going eastbound from the west limit to the SR 80 & Quadrant Roadway intersection, going northbound and eastbound on the quadrant roadway until reaching the SR 31 & Quadrant Roadway intersection, and finally the vehicle would experience travel time going northbound from the intersection to the north limit.

The assumed speed traveled at the different roadways used to calculate the travel time can be seen in **Table 4**.

Table 4: Speed Traveled

Roadway	Speed Traveled
SR 80	45 mph
SR 31	45 mph
Quadrant Roadway	35 mph
PDLT	30 mph
CTO	30 mph
Flyover	40 mph (turn at 25 mph)

OPERATIONAL ANALYSIS RESULT

The analysis results for all alternatives are shown in **Table 5** with full Synchro 11 reports in **Appendix D**. Approaches with a LOS E or F and/or v/c > 1.0 are marked in red as they do not meet the FDOT LOS target for urban areas.

As shown in **Table 5**, the Traffic Signal alternative is operating with LOS F during design year AM and PM. The PDLT alternative, is operating at LOS E during Design Year PM for the SR 31 & PDLT intersection. All other alternatives are operating at or above LOS D during AM and PM time periods for opening and design year.

Table 5: Intersection Analysis Result

Intersection	Year	Time Period	Measure	Traffic Signal	Quadrant Roadway	PDLT/MUT	CTO (Center)	CTO (South)	Flyover
SR80 & SR31	Opening Year	AM	LOS	C	B	A	B	B	B
			Delay	32	10	3.7	19.6	19.3	19.6
		PM	LOS	C	B	A	C	C	C
			Delay	32.6	14	8.1	22	22.8	22
	Design Year	AM	LOS	**F**	B	B	D	D	D
			Delay	**85.9**	13.3	10.5	44.5	44.2	44.5
		PM	LOS	**F**	B	B	D	D	D
			Delay	**96.5**	16.2	12.6	54.2	53.9	54.2
SR80 & Quad Road/ PDLT Crossover	Opening Year	AM	LOS	-	D	C	-	-	-
			Delay	-	53.6	20.2	-	-	-
		PM	LOS	-	C	B	-	-	-
			Delay	-	27	18	-	-	-
	Design Year	AM	LOS	-	D	C	-	-	-
			Delay	-	48	26.5	-	-	-
		PM	LOS	-	C	C	-	-	-
			Delay	-	27.9	21.6	-	-	-
SR31 & Quad Road/ PDLT Crossover	Opening Year	AM	LOS	-	B	C	-	-	-
			Delay	-	17.9	21.7	-	-	-
		PM	LOS	-	B	C	-	-	-
			Delay	-	13.3	34.3	-	-	-
	Design Year	AM	LOS	-	C	C	-	-	-
			Delay	-	29.1	27.1	-	-	-
		PM	LOS	-	C	**E**	-	-	-
			Delay	-	31	**55.5**	-	-	-
Flyover/CTO	Opening Year	AM	LOS	-	-	-	C	C	B
			Delay	-	-	-	20.6	20.6	16.6
		PM	LOS	-	-	-	B	B	B
			Delay	-	-	-	19.7	19.7	14.9
	Design Year	AM	LOS	-	-	-	C	C	C
			Delay	-	-	-	31.6	31.6	25
		PM	LOS	-	-	-	C	C	C
			Delay	-	-	-	26.9	26.9	23.3

Average Delay and Travel Time per Vehicle

Adding the intersection delay and travel time provides the total delay and travel time per vehicle for each critical movement. To establish an average delay and travel time per vehicle, a weighted average was computed using each critical movement volume. The critical movement volumes were estimated using an average of the incoming and outgoing vehicular volume at the critical movement's beginning and end to account for driveway volumes.

Each alternative's average delay and travel time for opening and design year AM and PM time periods can be seen in **Table 6**. For alternatives with higher delay than the Traffic Signal alternative, the delay is highlighted in red. It is noted that as the design year volumes are approached, all alternatives will perform better than the traffic signal. The Quadrant Roadway and the PDLT/MUT delay issue is the signalized intersection of SR 31/quadrant road or the SR 31 crossover intersection. This intersection has the two high volume left turn volumes plus will have the access for future development of the northwest quadrant in an at-grade signalized intersection. The analysis result is available in **Appendix D**.

These values are input into the FDOT ICE Tool as part of the comparative benefit-cost analysis.

Table 6: Average Delay and Travel Time per Vehicle

Average Delay and Travel Time per Vehicle							
Year	Time Period	Traffic Signal	Quadrant Roadway	PDLT/MUT	CTO (Center)	CTO (South)	Flyover
Opening Year	AM	94.1	**131.4**	**101.7**	84.2	84.3	80.9
	PM	93.5	**107.7**	**107.9**	82.3	81.6	78.9
Design Year	AM	152.5	138.1	119.0	103.6	103.7	97.9
	PM	164.8	124.7	134.9	105.0	102.8	100.8

SAFETY ANALYSIS

The predictive safety analysis is done to compare the relative safety benefits of the six alternatives. The analysis uses a combination of safety analysis methods documented in the Highway Safety Manual (HSM), 1st edition plus more recent research supporting the forthcoming HSM, 2nd edition.

The exact same limits on SR 80 and SR 31 as developed for the operations analysis have been used for the predictive safety analysis. The analysis was conducted using a combination of spreadsheet tools as explained below to conduct the intersection and segment crash prediction.

- FDOT Safety Performance for Intersection Control Evaluations (SPICE) tool – for intersection and ramp terminal intersection crash prediction. Primary intersection crash prediction tool used in this analysis.
- NCHRP 17-38 spreadsheets – for both intersection and segment crash prediction on 2 to 5 lane facilities. The spreadsheet applicable to HSM Chapter 12 roadway segment analysis was used.
- NCHRP 17-58 spreadsheets – for both intersection and segment crash prediction on 6 to 8 lane urban and suburban facilities and one-way streets. The tool was primarily used for segment analysis.
- Interchange Safety Analysis Tool (ISATe) – for freeways, ramps and ramp terminal intersections. This tool was used for ramp analysis associated with Alternatives 4, 5 and 6.

All the alternatives being analyzed were totally new intersections or interchanges. Therefore, the existing crashes for the SR 80 and SR 31 intersection are not applicable to safety analysis. In short, Empirical Bayes analysis is not done for this safety analysis.

Similar to the operations analysis, the safety analysis was conducted for the opening year (2025) and the design year (2045) to conduct a life cycle analysis.

Each safety analysis is unique and the analysis methodology will be separately described proceeding from Alternative 1 through 6. The SPICE, NCHRP 17-38, NCHRP 17-58, and ISATe safety analysis results are provided in **Appendix E**.

ALTERNATIVE 1

Alternative 1 is to signalize the improved SR 80 and SR 31 intersection. The intersection safety analysis was conducted using the FDOT SPICE tool and was based on SR 80 being 6 lanes thru the intersection.

The segment analysis is divided based on approach as described below:

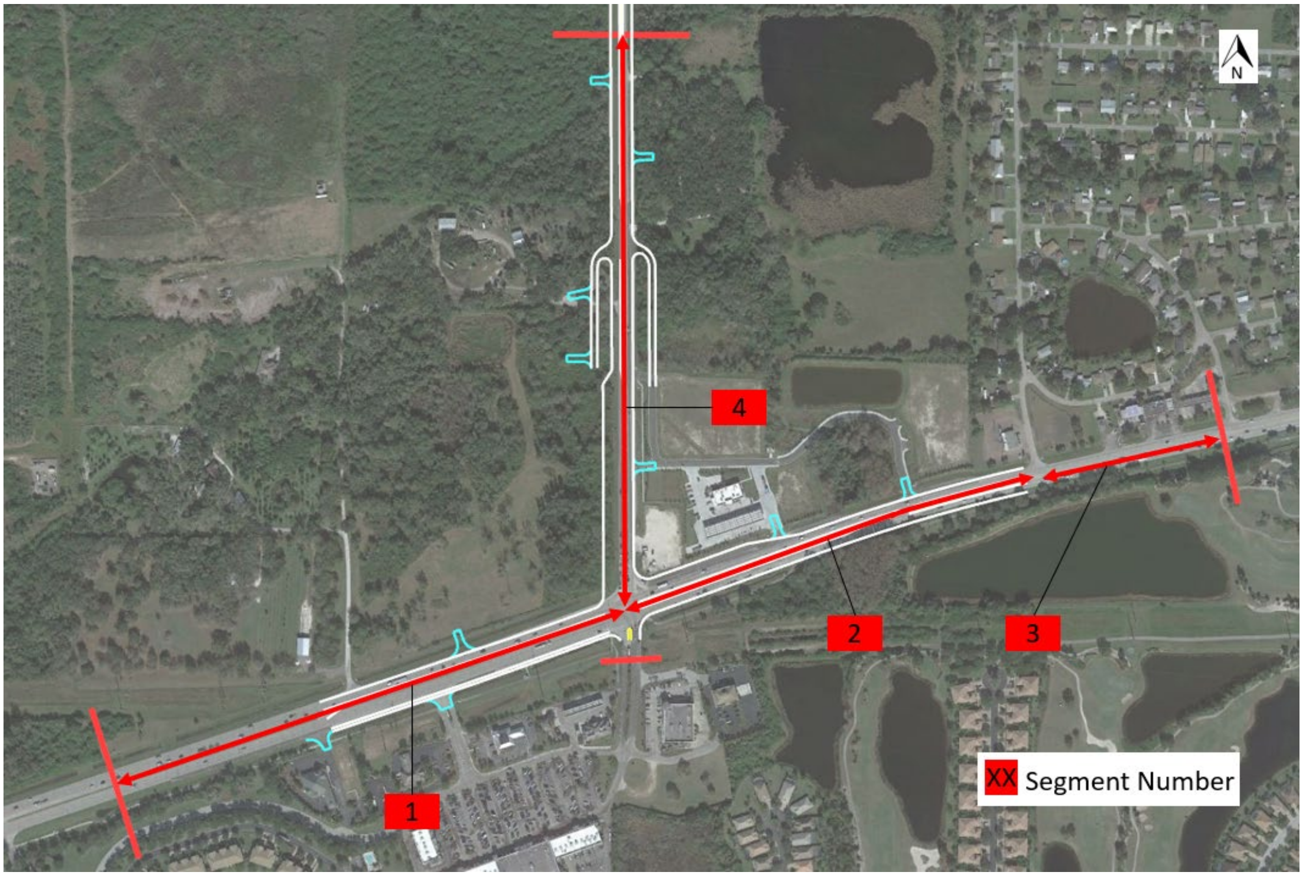
- The intersection’s west leg is Segment 1 being 6 lanes and 0.37 miles long from the western limit to the intersection’s centroid. The safety analysis was conducted using the NCHRP 17-58 spreadsheet for two-way segments.
- The intersections eastern leg will initially be 6 lanes for 0.3 miles (Segment 2) narrowing to 4 lanes with a two-way left turn lane for 0.13 miles (Segment 3) to the intersection’s eastern

limit. The Segment 2 safety analysis used the NCHRP 17-58 spreadsheet for two-way segments. The Segment 3 safety analysis used NCHRP 17-38 spreadsheet for roadway segments.

- The intersection's north leg is one segment being 6 lanes for 0.39 miles (Segment 4) to the northern limit. The Segment 4 safety analysis used the NCHRP 17-58 spreadsheet for two-way segments.

The Alternative 1 segments are shown in **Figure 4**.

Figure 4: Alternative 1 Segmentation



ALTERNATIVE 2

Alternative 2 is called the Quadrant Roadway alternative meaning a new roadway will be built in the SR 80 and SR 31 intersection's northwest quadrant to relieve the intersection's traffic. The two largest volume left turn movements being the eastbound left turn (EBL) and the southbound left turn (SBL) will not be allowed at the SR 80 and SR 31 intersection and must use the quadrant roadway. It is also anticipated most of the southbound right turn (SBR) traffic will also use the quadrant roadway.

This configuration creates three signalized intersections, the SR 80 and SR 31 intersection (with reduced traffic volumes), the SR 80 and Quadrant Roadway intersection and the SR 31 and Quadrant

Roadway intersection. The FDOT SPICE Tool is used for three separate, opening and design year crash predictions. Since the SR 80 and SR 31 intersection does not provide for the two high volume left turns the intersection's safety analysis is not consistent with HSM methodologies as the methodology considers left turns to be made at each approach regardless whether a left turn lane is provided. Therefore, this intersection operates much like the main intersection of a Median U-Turn (MUT) intersection.

The University of Central Florida (UCF) conducted a research report called *Safety Evaluation of Median U-Turn Crossover-Based Intersections* published in Transportation Research Record 2020. This report provides total and fatal plus injury Crash Modification Factors (CMFs) for the main intersection with the crossover intersections. The Table 6 Total CMF of 0.6330 and Fatal and Injury CMF of 0.7732 reflect the main intersection with crossover intersections. The study provided average crash frequency for the main intersection with crossover intersections combined, as well as the main intersection alone. The scenario of just the main intersection alone is similar to the Quadrant Roadway's main intersection so the report's Table 6 Total CMF of 0.6330 and Fatal and Injury CMF of 0.7732 were adjusted by a ratio developed using the difference in average crash frequency between the two scenarios. A Total CMF of 0.6116 and Fatal and Injury CMF of 0.7511 were applied to a standard intersection's predicted crash frequency. The SR 31 and Quadrant Roadway intersection is 6 lanes north of the intersection and 4 lanes south of the intersection. Two separate crash prediction analyses, one for 6 or more lanes and one for 5 or fewer lanes were done and the average was reported. As, the volume for the 6 lanes is projected to be considerably higher (27,000 in 2025) than the 4 lanes (14,000 in 2025) these were used in the separate analyses.

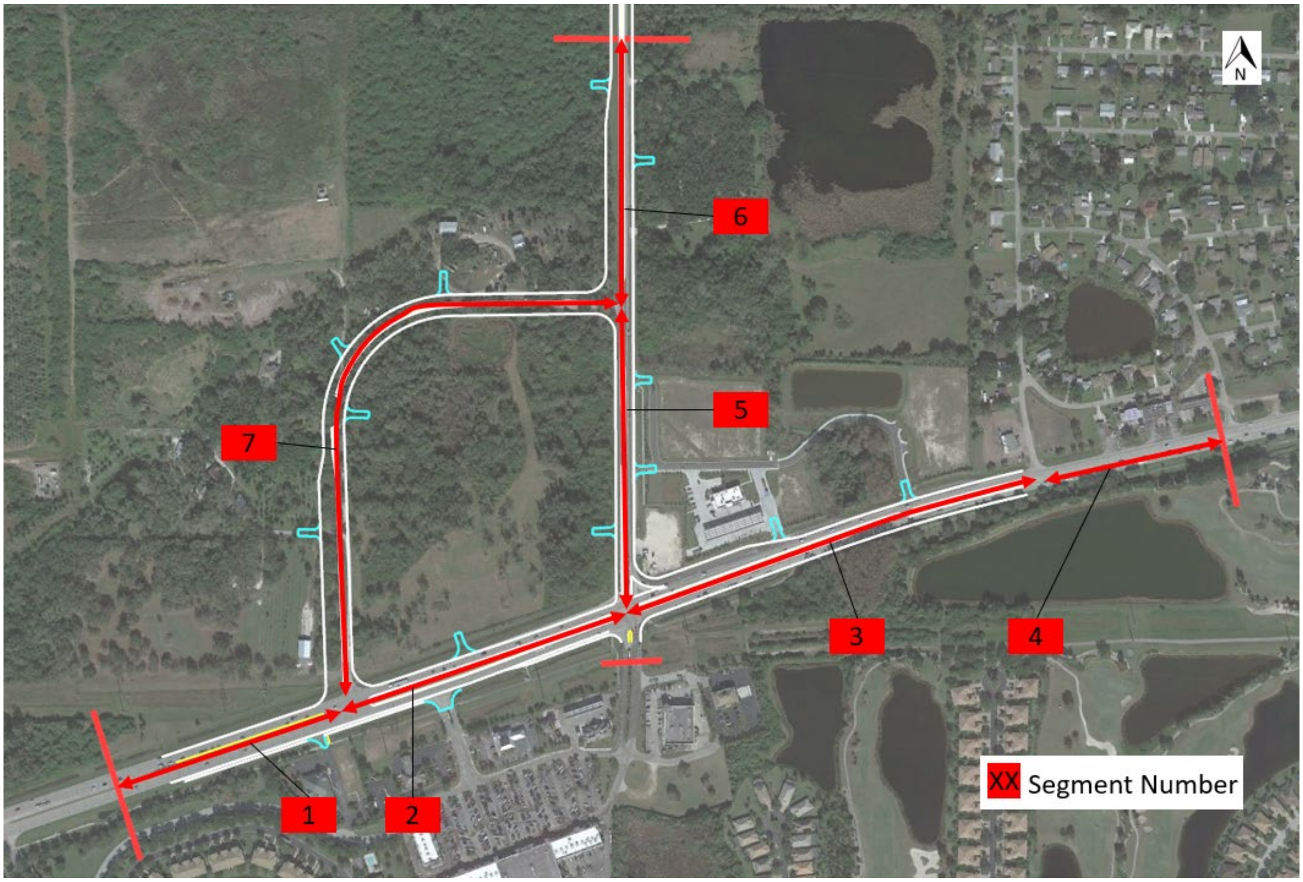
The segment analysis has seven segments.

- Segment 1 is on SR 80 from the western intersection limit to the SR 80 and Quadrant Roadway intersection. This is 0.17 miles for a 6-lane roadway using the NCHRP 17-58 spreadsheet for two-way segments.
- Segment 2 continues on SR 80 from the Quadrant Roadway intersection to the SR 31 intersection. This is 0.21 miles for a 6-lane roadway using the NCHRP 17-58 spreadsheet for two-way segments.
- Similar to Alternative 1, the intersection's eastern leg will initially be 6 lanes for 0.3 miles (Segment 3) narrowing to 4 lanes with a two-way left turn lane for 0.13 miles (Segment 4) to the intersection's eastern limit. The Segment 3 safety analysis used the NCHRP 17-58 spreadsheet for two-way segments. The Segment 4 safety analysis used NCHRP 17-38 spreadsheet for roadway segments.
- Segment 5 is the southern part of the intersection's north approach for SR 31. It is the 0.21 mile, 5 lane divided roadway between SR 80 and the SR 31 and Quadrant Road intersection. The southbound roadway is 2 lanes and the northbound roadway is 5 lanes. Therefore, the Segment 5 safety analysis used a combination of the NCHRP 17-38 (4 lanes) and NRHRP 17-58 (6 lanes) spreadsheets for roadway segments. Predicted values for both were computed and the average was used for Segment 5.

- Segment 6 is the part of SR 31 north of the Quadrant Roadway to the northern study limit. It is 6 lanes divided and 0.18 miles in length. The Segment 6 safety analysis used the NCHRP 17-58 spreadsheet for two-way segments.
- Segment 7 is the Quadrant Roadway being 6 lanes divided and 0.44 miles long. The Segment 7 safety analysis used the NCHRP 17-58 spreadsheet for two-way segments.

The Alternative 2 segments are shown in **Figure 5**.

Figure 5: Alternative 2 Segmentation



ALTERNATIVE 3

Alternative 3 is called the Partial Displaced Left Turn/Median U-Turn (PDLT/MUT) configuration. This configuration uses the Displaced Left Turn concept to accommodate the two high volume left turn movements being the eastbound and southbound left turns (EBL & SBL). These two left turns “crossover” the opposing through movements in advance of the main intersection having secondary signalized intersection about 1000 to 1200-feet from the main intersection. The signal timing allows the EBL to move concurrently with the SR 80 through movements. The SBL moves concurrently southbound and northbound through movements. The signal would be a three-phase signal as the northbound movements from the shopping center would be the 3rd phase.

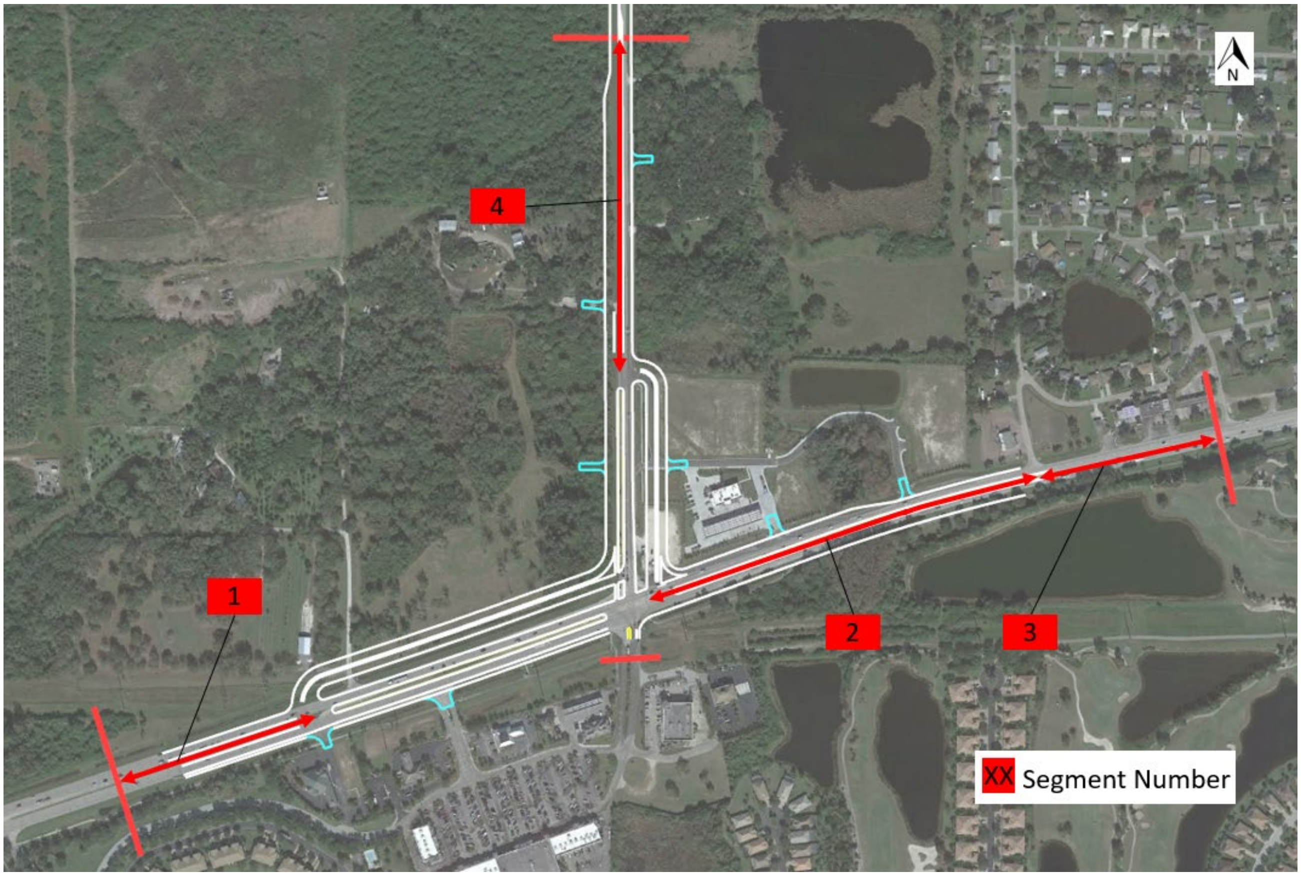
The safety analysis is based upon a CMF being applied to the SR 80 and SR 31 signalized intersection crash prediction. This analysis is the Alternative 1 crash prediction with a CMF applied which is the typical PDLT crash prediction. Since the concept design is the combination of a PDLT and a MUT, the CMFs for both intersection types were averaged to obtain the PDLT/MUT crash prediction, and this value was entered into the SPICE tool.

The segment analysis considers SR 80 and SR 31 main intersection, the two crossover intersections and the connecting roadways to be all part of the intersection crash prediction. Therefore, the segments are those roadways from the main or crossover intersections to the study limits. The four segments for this analysis are as follows.

- Segment 1 is the 6 lane, divided roadway from the study area's western limit to the SR 80 crossover roadway being 0.14 miles in length. The Segment 1 safety analysis used the NCHRP 17-58 spreadsheet for two-way segments.
- Segment 2 begins is the SR 80 and SR 31 intersection's eastern approach and is similar in segmentation to Alternatives 1 and 2. This segment will initially be 6 lanes for 0.28 miles (Segment 2) narrowing to 4 lanes with a two-way left turn lane for 0.13 miles (Segment 3) to the intersection's eastern limit. The Segment 2 safety analysis used the NCHRP 17-58 spreadsheet for two-way segments. The Segment 3 safety analysis used NCHRP 17-38 spreadsheet for roadway segments.
- Segment 4 is the part of SR 31 north of the crossover roadway to the northern study limit. It is 6 lanes divided and 0.23 miles in length. The Segment 4 safety analysis used the NCHRP 17-58 spreadsheet for two-way segments.

The Alternative 3 segments are shown in **Figure 6**.

Figure 6: Alternative 3 Segmentation



ALTERNATIVES 4 AND 5

Alternatives 4 and 5 are described as the Center Turn Lane Option (CTO). In this alternative, the two high volume movements are grade separated on a bridge structure with the remainder of the intersection's movements located below. The only difference between these two alternatives is Alternative 4 has the SR 80 ramps up and down from the elevated intersection being in SR 80's median. Alternative 5 has the SR 80 ramps up and down from the elevated intersection being along SR 80's south edge of pavement. From a safety perspective these two alternatives are nearly the same and will be described together.

There is no research regarding the safety prediction for a CTO concept; therefore, we have broken it into multiple components. The two intersections at SR 80 and SR 31 will be separately analyzed. The elevated intersection is a two lane, one-way ramp from SR 80 crossing a two lane, one-way ramp from SR 31. This is basically two one-way roadways intersecting under signal control. The crash prediction in the NCHRP 17-58 spreadsheet for two one-way streets intersecting under signal control was used for the analysis.

The at-grade intersection is also unique. With the bridge structure and associated ramps, the intersection has a much larger footprint similar to a single point urban interchange's (SPUI) crossroad or ramp terminal intersection. The chosen safety analysis method was to use the SPICE ramp terminal intersection method for a SPUI with SR 80 being the major road and the SR 31 and shopping center approach acting as ramps.

Another unique aspect of this safety analysis are the aforementioned ramps both up and down from the elevated intersection. The Enhanced Interchange Safety Analysis Tool (ISATe) was used for the ramp analysis. This also included the merge and diverge areas at the ramp gores called “speed change lanes”. ISATe separates the entrance and exit ramps so eight separate crash analyses were conducted. All speed change lanes were analyzed using the ISATe spreadsheet for freeway segments and all one-way ramps were analyzed using the ISATe spreadsheet for ramp segments.

The roadway and ramp segmentation for Alternative 4 and 5 are described below.

Alternative 4 at-grade segments:

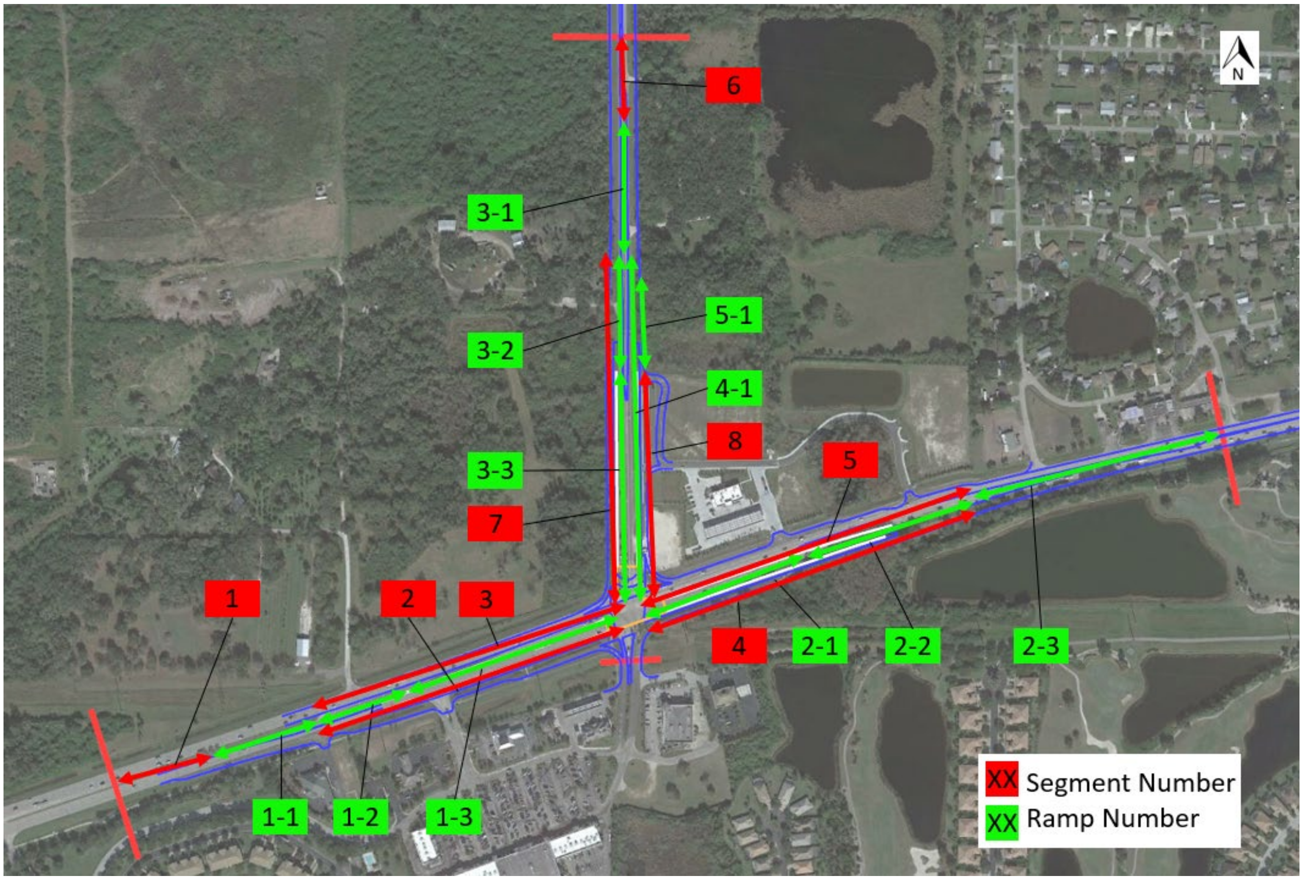
- Segment 1 is the 6 lane, divided roadway from the study area’s western limit to the beginning of the eastbound approach ramp’s speed change lane. This is 0.07 miles in length and used the NCHRP 17-58 spreadsheet for two-way segments.
- Segment 2 is the eastbound 2 lane, one-way roadway on the west leg from the eastbound approach ramp’s gore point to the SR 31 intersection. This is 0.23 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.
- Segment 3 is the westbound 3 lane, one-way roadway on the west leg from the SR 31 intersection to the eastbound approach ramp’s gore point. This is 0.23 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.
- Segment 4 is the eastbound 2 lane, one-way roadway on the east leg from the SR 31 intersection to eastbound departure ramp’s gore point. This is 0.24 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.
- Segment 5 is the westbound 2 lane, one-way roadway on the east leg from the eastbound departure ramp’s gore point to the SR 31 intersection. This is 0.24 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.
- Segment 6 is the 6 lane, divided roadway from the study area’s northern limit to the beginning of the southbound approach ramp’s speed change lane. This is 0.06 miles in length and used the NCHRP 17-58 spreadsheet for two-way segments.
- Segment 7 is the southbound 2 lane, one-way roadway on the north leg from the southbound approach ramp’s gore point to the SR 80 intersection. This is 0.25 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.
- Segment 8 is the northbound 2 lane, one-way roadway on the north leg from the SR 80 intersection to the northern RaceTrac driveway. This is 0.15 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.

Alternative 4 ramps:

- Ramp 1-1 is a 6 lane, divided speed change lane on the west leg from segment 1 to the eastbound approach ramp's gore point. This is 0.08 miles in length and used the ISATe spreadsheet for freeway segments.
- Ramp 1-2 is a 1 lane, one-way ramp on the west leg from the eastbound approach ramp's gore point to the beginning of the 2 lane taper. This is 0.07 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 1-3 is a 2 lane, one-way ramp on the west leg from the eastbound approach ramp's 2 lane taper to the grade-separated intersection. This is 0.15 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-1 is a 2 lane, one-way ramp on the east leg from the grade-separated intersection to the beginning of the eastbound departure ramp's 1 lane taper. This is 0.12 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-2 is a 1 lane, one-way ramp on the east leg from the eastbound departure ramp's 1 lane taper to the gore point. This is 0.11 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-3 is a 4 lane, divided speed change lane on the east leg from the eastbound departure ramp's gore point to the study area's eastern limit. This is 0.19 miles in length and used the ISATe spreadsheet for freeway segments.
- Ramp 3-1 is a 6 lane, divided speed change lane on the north leg from segment 6 to the southbound approach ramp's gore point. This is 0.09 miles in length and used the ISATe spreadsheet for freeway segments.
- Ramp 3-2 is a 1 lane, one-way ramp on the north leg from the southbound approach ramp's gore point to the beginning of the 2 lane taper. This is 0.08 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 3-3 is a 2 lane, one-way ramp on the north leg from the southbound approach ramp's 2 lane taper to the grade separated intersection. This is 0.17 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 4-1 is a 2 lane, one-way ramp on the north leg from the grade separated intersection to northbound departure ramp's gore point. This is 0.26 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 5-1 is a 1 lane, one-way ramp on the north leg from the northern RaceTrac driveway to the northbound departure ramp's gore point. This is 0.09 miles in length and used the ISATe spreadsheet for ramp segments.

Alternative 4 segments and ramps are shown in **Figure 7**.

Figure 7: Alternative 4 Segmentation



Alternative 5 at-grade segments:

- Segment 1 is the 6 lane, divided roadway from the study area's western limit to the beginning of the eastbound approach ramp's speed change lane. This is 0.16 miles in length and used the NCHRP 17-58 spreadsheet for two-way segments.
- Segment 2 is the 5 lane, divided roadway on the west leg from the eastbound approach ramp's gore point to the SR 31 intersection. This is 0.21 miles in length and used a combination of the NCHRP 17-38 (4 lanes) and NCHRP 17-58 (6 lanes) spreadsheets for two-way segments. Predicted values for both were computed and the average was used for Segment 2.
- Segment 3 is the 4 lane, divided roadway on the east leg from the SR 31 intersection to the eastbound departure ramp's gore point. This is 0.25 miles in length and used the NCHRP 17-38 spreadsheet for roadway segments.
- Segment 4 is the 6 lane, divided roadway from the study area's northern limit to the beginning of the southbound approach ramp's speed change lane. This is 0.06 miles in length and used the NCHRP 17-58 spreadsheet for two-way segments.
- Segment 5 is the southbound 2 lane, one-way roadway on the north leg from the southbound approach ramp's gore point to the SR 80 intersection. This is 0.25 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.

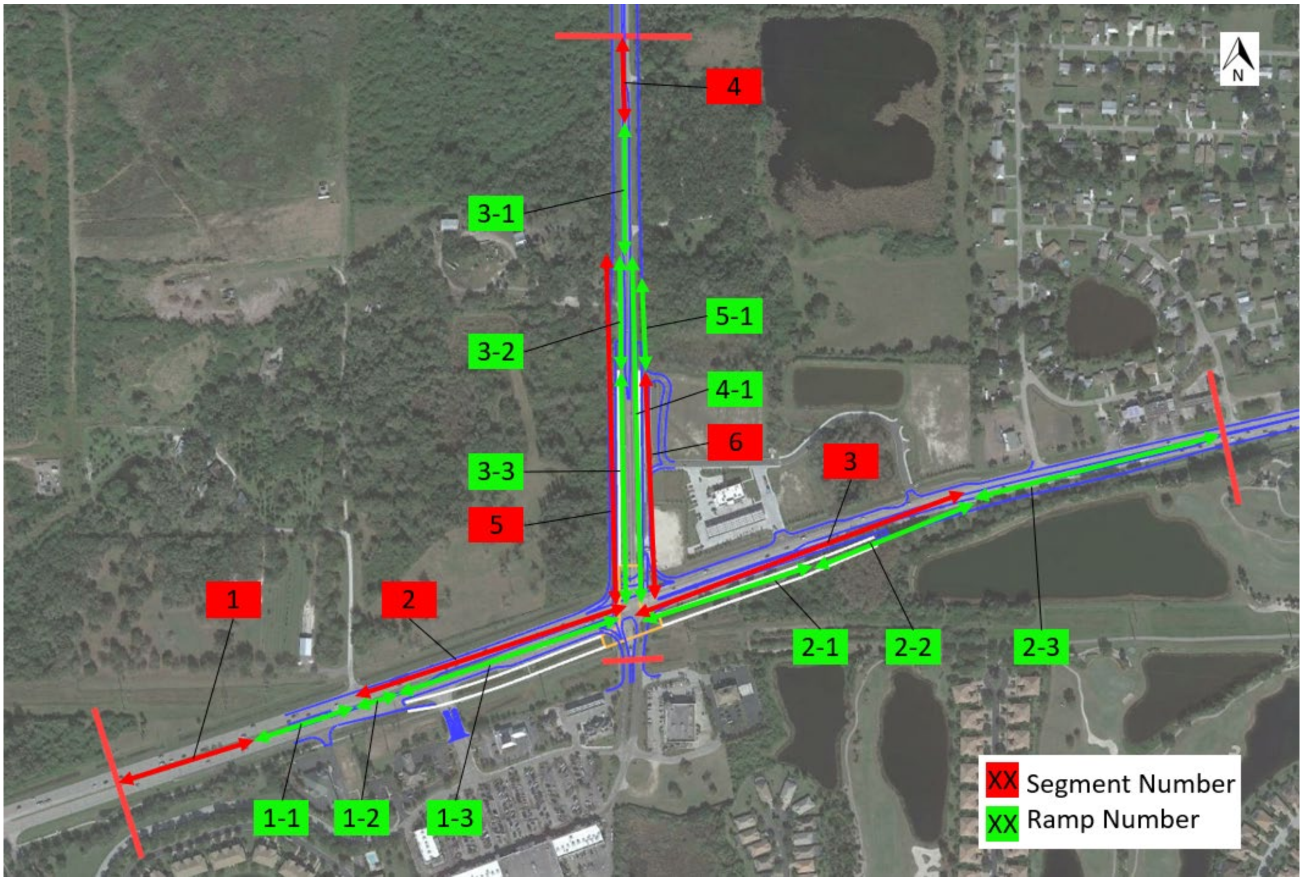
- Segment 6 is the northbound 2 lane, one-way roadway on the north leg from the SR 80 intersection to the northern RaceTrac driveway. This is 0.15 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.

Alternative 5 ramps:

- Ramp 1-1 is a 6 lane, divided speed change lane on the west leg from segment 1 to the eastbound approach ramp's gore point. This is 0.08 miles in length and used the ISATe spreadsheet for freeway segments.
- Ramp 1-2 is a 1 lane, one-way ramp on the west leg from the eastbound approach ramp's gore point to the beginning of the 2 lane taper. This is 0.04 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 1-3 is a 2 lane, one-way ramp on the west leg from the eastbound approach ramp's 2 lane taper to the grade-separated intersection. This is 0.16 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-1 is a 2 lane, one-way ramp on the east leg from the grade-separated intersection to the beginning of the eastbound departure ramp's 1 lane taper. This is 0.12 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-2 is a 1 lane, one-way ramp on the east leg from the eastbound departure ramp's 1 lane taper to the gore point. This is 0.13 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-3 is a 4 lane, divided speed change lane on the east leg from the eastbound departure ramp's gore point to the study area's eastern limit. This is 0.18 miles in length and used the ISATe spreadsheet for freeway segments.
- Ramp 3-1 is a 6 lane, divided speed change lane on the north leg from segment 4 to the southbound approach ramp's gore point. This is 0.09 miles in length and used the ISATe spreadsheet for freeway segments.
- Ramp 3-2 is a 1 lane, one-way ramp on the north leg from the southbound approach ramp's gore point to the beginning of the 2-lane taper. This is 0.08 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 3-3 is a 2 lane, one-way ramp on the north leg from the southbound approach ramp's 2 lane taper to the grade separated intersection. This is 0.17 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 4-1 is a 2 lane, one-way ramp on the north leg from the grade separated intersection to northbound departure ramp's gore point. This is 0.26 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 5-1 is a 1 lane, one-way ramp on the north leg from the northern RaceTrac driveway to the northbound departure ramp's gore point. This is 0.09 miles in length and used the ISATe spreadsheet for ramp segments.

Alternative 5 segments and ramps are shown in Error! Not a valid bookmark self-reference..

Figure 8: Alternative 5 Segmentation



ALTERNATIVE 6

Alternative 6 is known as the Flyover alternative as flyovers are used to accommodate the two high volume left turn movements being the eastbound and southbound left turns (EBL & SBL). The EBL has an inside or median ramp gore spanning the at-grade SR 80 and SR 31 intersection movements below. The SBL separates from SR 31 approximately 1300-feet north of the SR 80 and SR 31 intersection and then has an at-grade, crossover intersection with EBL movement before it elevates over the SR 80 and SR 31 intersection. The SBL ramp merges into the SR 80 eastbound traffic by the study's eastern limit.

This is also a unique safety analysis with two unique signalized intersections. The SR 80 and SR 31 at-grade intersection is similar to Alternatives 4 and 5 intersections. The same ramp terminal methodology for a SPUI intersection was selected for the analysis. The crossover intersection is two one-way roadways and was analyzed accordingly using the NCHRP 17-58 methods.

The roadway and ramp segmentation for Alternative 6 is described below.

Alternative 6 at-grade segments:

- Segment 1 is the 6 lane, divided roadway from the study area's western limit to the beginning of the eastbound approach ramp's speed change lane. This is 0.07 miles in length and used the NCHRP 17-58 spreadsheet for two-way segments.
- Segment 2 is the eastbound 2 lane, one-way roadway on the west leg from the eastbound approach ramp's gore point to the SR 31 intersection. This is 0.23 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.
- Segment 3 is the westbound 3 lane, one-way roadway on the west leg from the SR 31 intersection to the eastbound approach ramp's gore point. This is 0.23 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.
- Segment 4 is the 4 lane, divided roadway on the east leg from the SR 31 intersection to the eastbound departure ramp's gore point. This is 0.23 miles in length and used the NCHRP 17-38 spreadsheet for roadway segments.
- Segment 5 is the 6 lane, divided roadway from the study area's northern limit to the beginning of the southbound approach ramp's speed change lane. This is 0.07 miles in length and used the NCHRP 17-58 spreadsheet for two-way segments.
- Segment 6 is the southbound 2 lane, one-way roadway on the north leg from the southbound approach ramp's gore point to the SR 80 intersection. This is 0.16 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.
- Segment 7 is the northbound 2 lane, one-way roadway on the north leg from the SR 80 intersection to the northern RaceTrac driveway. This is 0.16 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.
- Segment 8 is the southbound 2 lane, one-way roadway on the north leg from southbound approach ramp's gore point to the crossover intersection. This is 0.03 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.
- Segment 9 is the northbound 2 lane, one-way roadway on the north leg from the crossover intersection to the northbound departure ramp's gore point. This is 0.02 miles in length and used the NCHRP 17-58 spreadsheet for one-way segments.

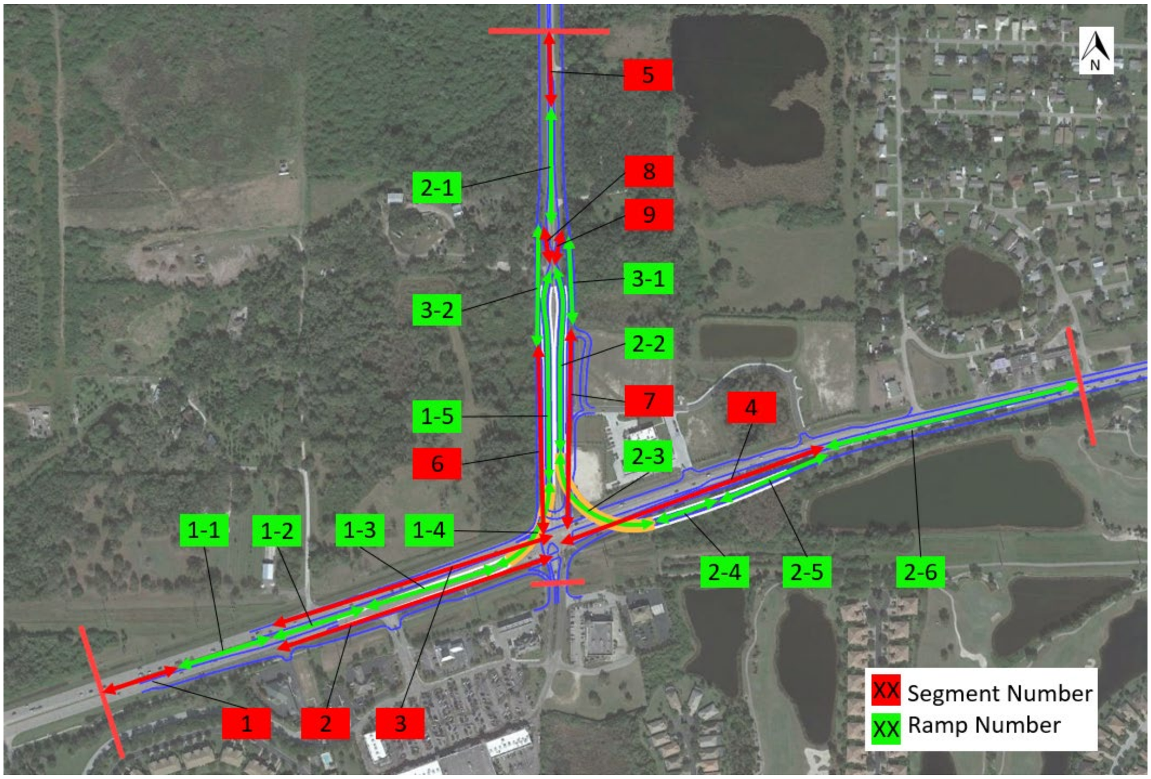
Alternative 6 ramps:

- Ramp 1-1 is a 6 lane, divided speed change lane on the west leg from segment 1 to the eastbound approach ramp's gore point. This is 0.08 miles in length and used the ISATe spreadsheet for freeway segments.
- Ramp 1-2 is a 1 lane, one-way ramp on the west leg from the eastbound approach ramp's gore point to the beginning of the 2-lane taper. This is 0.07 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 1-3 is a 2 lane, one-way ramp on the west leg from the eastbound approach ramp's 2 lane taper to the beginning of the ramp curve. This is 0.11 miles in length and used the ISATe spreadsheet for ramp segments.

- Ramp 1-4 is a 2 lane, one-way ramp from the beginning of the ramp curve to the end of the ramp curve. This is 0.08 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 1-5 is a 2 lane, one-way ramp on the north leg from the end of the ramp curve to the crossover intersection. This is 0.17 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-1 is a 6 lane, divided speed change lane on the north leg from segment 5 to the southbound approach ramp's gore point. This is 0.08 miles in length and used the ISATe spreadsheet for freeway segments.
- Ramp 2-2 is a 2 lane, one-way ramp on the north leg from the crossover intersection to the beginning of the ramp curve. This is 0.14 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-3 is a 2 lane, one-way ramp from the beginning of the ramp curve to the end of the ramp curve. This is 0.10 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-4 is a 2 lane, one-way ramp on the east leg from the end of the ramp curve to the beginning of the 1 lane taper. This is 0.06 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-5 is a 1 lane, one-way ramp on the east leg from the beginning of the 1 lane taper to the eastbound departure ramp's gore point. This is 0.09 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 2-6 is a 4 lane, divided speed change lane on the east leg from the eastbound departure ramp's gore point to the study area's eastern limit. This is 0.20 miles in length and used the ISATe spreadsheet for freeway segments.
- Ramp 3-1 is a 1 lane, one-way roadway segment on the north leg from the northern RaceTrac driveway to the northbound departure ramp's gore point. Because there is no option for a 1 lane, one-way roadway segment in the NCHRP 17-58 spreadsheet it was decided that the 1 lane, one-way ramp in the ISATe spreadsheet more accurately modeled the segment. This is 0.08 miles in length and used the ISATe spreadsheet for ramp segments.
- Ramp 3-2 is a 1 lane, one-way roadway segment on the north leg from the southbound approach ramp's gore point to segment 6. Like Ramp 3-1, because there is no option for a 1 lane, one-way roadway segment in the NCHRP 17-58 spreadsheet it was decided that the 1 lane, one-way ramp in the ISATe spreadsheet more accurately modeled the segment. This is 0.09 miles in length and used the ISATe spreadsheet for ramp segments.

Alternative 6 segments and ramps are shown in **Figure 9**.

Figure 9: Alternative 6 Segmentation



PREDICTED CRASHES BY BUILD ALTERNATIVE

The predicted opening year and design year crashed by alternative are shown below. These values represent annual total crashes (including property damage only (PDO)) and annual fatal plus injury (F+I) without PDO crashes. This analysis does not consider historic crash data as the alternatives are a total rebuild of the intersection and historic crash data is not applicable due to the significance of the changes.

Table 7: Predicted Opening and Design Year Crashes

		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
		Signal	QR	PDLT/MUT	CTO (Center)	CTO (South)	Flyover
Opening Year	Total	24.44	32.83	18.34	30.06	25.74	27.86
	F+I	10.69	14.86	7.74	9.03	7.79	8.40
Design Year	Total	36.73	51.12	26.99	56.04	51.39	53.62
	F+I	16.38	23.27	11.64	15.76	14.59	15.31

The values shown in **Table 7** are entered into the FDOT ICE Tool for the safety life cycle economic analysis. The economic comparison will be to the traffic signal or Alternative 1. Some observations are the PDLT/MUT will be the best safety performing intersection having the fewest predicted total and F&I crashes. The Quadrant Roadway (QR) would be poorest preforming alternative from a safety perspective to include the traffic signal alternative.

STAGE 2 ICE RESULTS

The planning level cost estimates that were provided by FDOT for each of the intersection control types assessed during the Stage 2 ICE were compared to the safety and delay costs to provide an overall benefit cost analysis. The cost estimates were developed based on the planning level concept drawings completed by others, provided in **Appendix A**.

The future delay and safety costs to society were calculated using the ICE Tool, as displayed in **Table 8**. The lower the cost to society, generally the better the intersection alternative.

Using the Traffic Signal alternative as the base case for benefit-cost comparison, **Table 9** provides the benefit result calculated using the ICE tool. Costs in red highlight a negative benefit.

Detailed results from the ICE Tool are presented in **Appendix F.**

Table 8: ICE Cost Results

Cost	Alternative 1 Traffic Signal	Alternative 2 Quadrant Roadway	Alternative 3 PDLT/MUT	Alternative 4 CTO (center)	Alternative 5 CTO (south)	Alternative 6 Flyover
Planning, Construction & Right of Way Costs	$13,616,000	$22,707,000	$21,455,000	$34,156,000	$34,756,000	$31,756,000
Post-Opening Costs	$98,229	$338,457	$238,276	$225,638	$225,638	$225,638
Auto Passenger Delay	$198,310,143	$244,232,638	$210,453,874	$168,452,281	$167,934,941	$161,580,169
Truck Delay	$49,013,845	$60,239,540	$51,937,988	$41,576,658	$41,447,393	$39,879,221
Safety	$60,989,323	$85,520,568	$43,858,764	$56,322,576	$50,238,892	$53,458,627
Total cost	$322,027,539	$413,038,202	$327,943,901	$300,733,153	$294,602,864	$286,899,655

Table 9: ICE Benefit Results

Benefit Category	Alternative 2 Quadrant Roadway	Alternative 3 PDLT/MUT	Alternative 4 CTO (center)	Alternative 5 CTO (south)	Alternative 6 Flyover
Auto Passenger Delay	$(45,922,495)	$(12,143,731)	$29,857,861	$30,375,202	$36,729,974
Truck Delay	$(11,225,695)	$(2,924,143)	$7,437,188	$7,566,452	$9,134,624
Safety	$(24,531,245)	$17,130,559	$4,666,746	$10,750,431	$7,530,695
Net Present Value of Benefits	$(81,679,434)	$2,062,686	$41,961,795	$48,692,085	$53,395,294
Net Present Value of Costs	$9,331,228	$7,979,048	$20,667,409	$21,267,409	$18,267,409
Net Present Value of Improvement	$(91,010,663)	$(5,916,362)	$21,294,386	$27,424,676	$35,127,885
Benefit-Cost (B/C) Ratio	Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.	0.26	2.03	2.29	2.92
Delay B/C	Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.	Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.	1.80	1.78	2.51
Safety B/C	Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.	2.15	0.23	0.51	0.41

Several key results for each intersection include:

- Alternative 1 – Traffic Signal
  - This was the base condition.
- Alternative 2 – Quadrant Roadway
  - Overall B/C is worse than Alternative 1.
- Alternative 3 – PDLT/MUT
  - Overall B/C is less than 1.0.
  - Has the highest safety B/C.
- Alternative 4 – CTO (center)
  - Has the third highest overall B/C.
- Alternative 5 – CTO (south)
  - Has the second highest overall B/C.
  - Performs better than Alternative 4 – CTO (center).
- Alternative 6 – Flyover
  - Has the highest overall B/C and delay B/C.

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RECOMMENDED INTERSECTION ALTERNATIVES

Based on the results presented in this memorandum and discussions held with Osceola County, the following alternatives are recommended at the study intersection:

1. Alternative 6 – Flyover is the best overall alternative with an overall B/C of 2.92.
2. Alternative 4 or 5 – The CTO alternatives have the second and third best operations and safety performance.

Alternatives 2 and 3 have similar operational issues on SR 31. The PDLT crossover intersection on SR 31 and the SR 31 and quadrant roadway intersection have the high volume left turn movements through this signalized intersection and the delay in the design year is significant. Therefore, these alternatives will have delay issues in the design year.

However, the best operating at grade intersection in the opening year is Alternative 1 - the traffic signal. Alternative 1’s traffic operation degrades as traffic builds to have the worst operation in the design year. It is recommended the PD&E Study consider a phased construction at this location where Phase 1 is Alternative 1- the standard signalized intersection. In about 10 years or 2035, the signal will start to have both operational and safety issues and at that time a Phase 2 improvement should be considered being Alternative 6 - the flyover.

Stage 1 and Stage 2 ICE Forms are presented in **Appendix G**.

APPENDIX A – CONCEPTUAL DESIGN

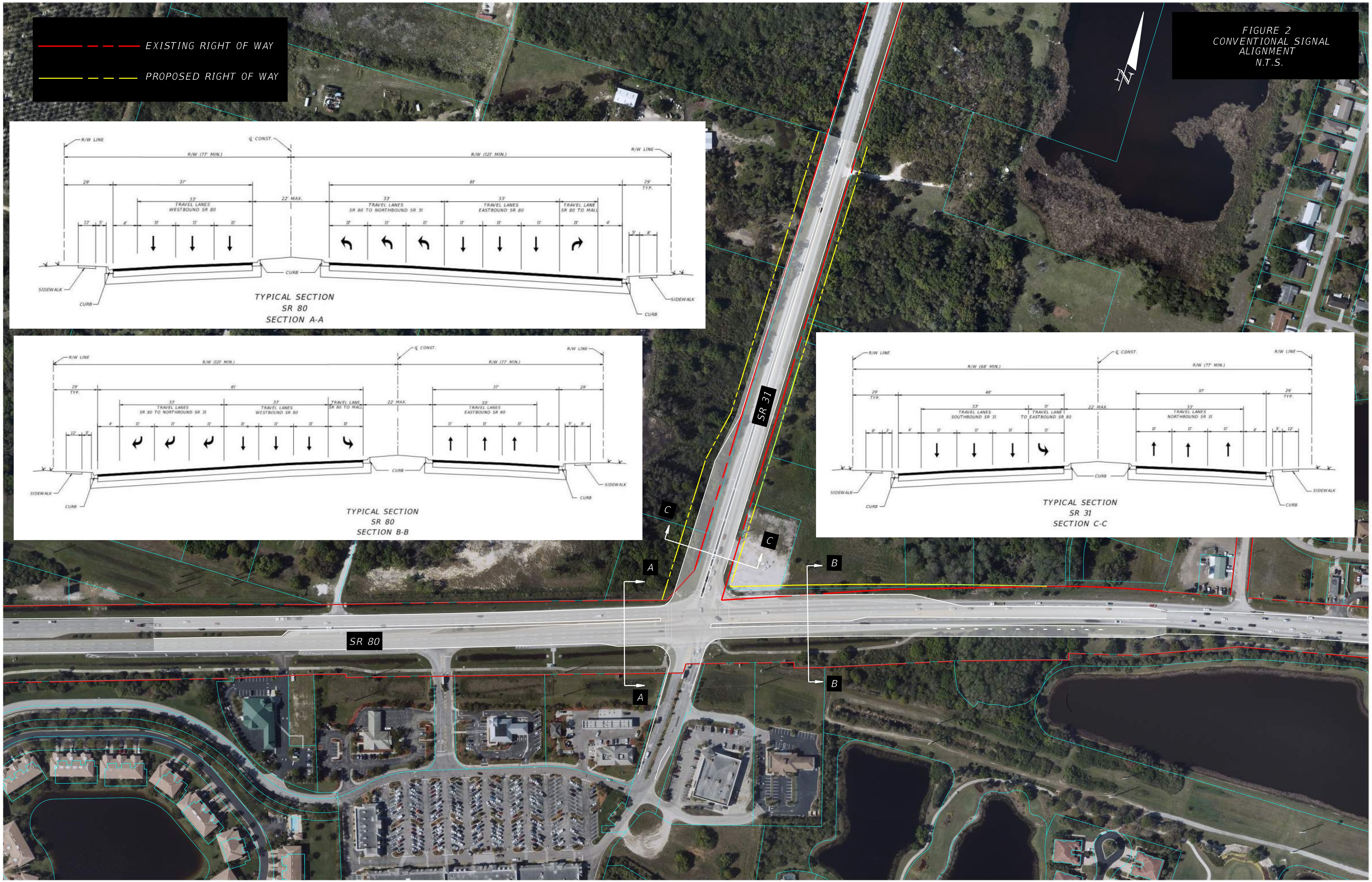
Contained in this Appendix –

- Alternative 1 - Traffic Signal
- Alternative 2 - Quadrant Roadway
- Alternative 3 - PDLT/MUT
- Alternative 4 - CTO (center)
- Alternative 5 - CTO (south)
- Alternative 6 - Flyover

Concept Drawings Completed By Others

ALTERNATIVE 1 - TRAFFIC SIGNAL

FIGURE 2
CONVENTIONAL SIGNAL
ALIGNMENT
N.T.S.



ALTERNATIVE 2 - QUADRANT ROADWAY

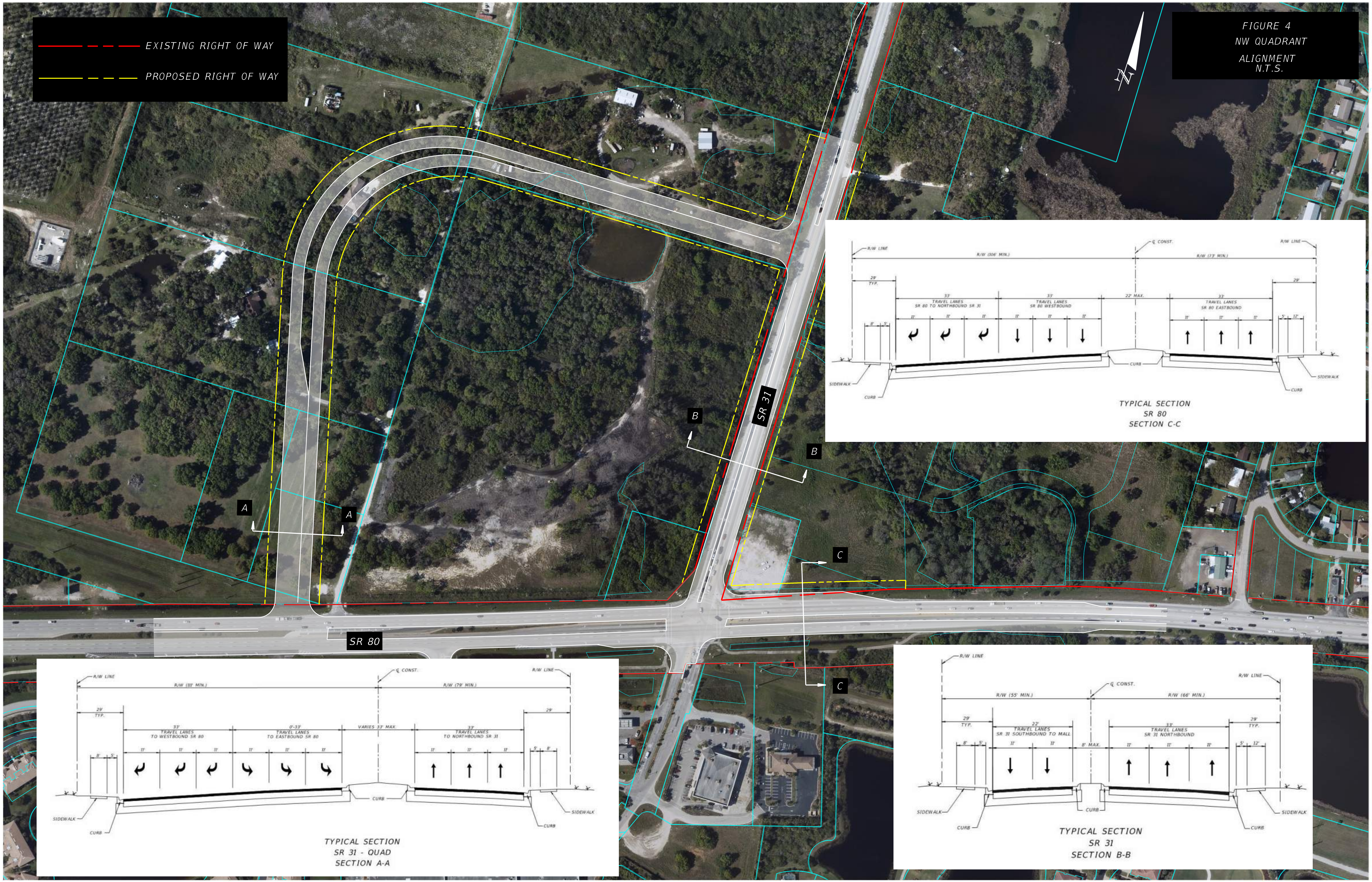
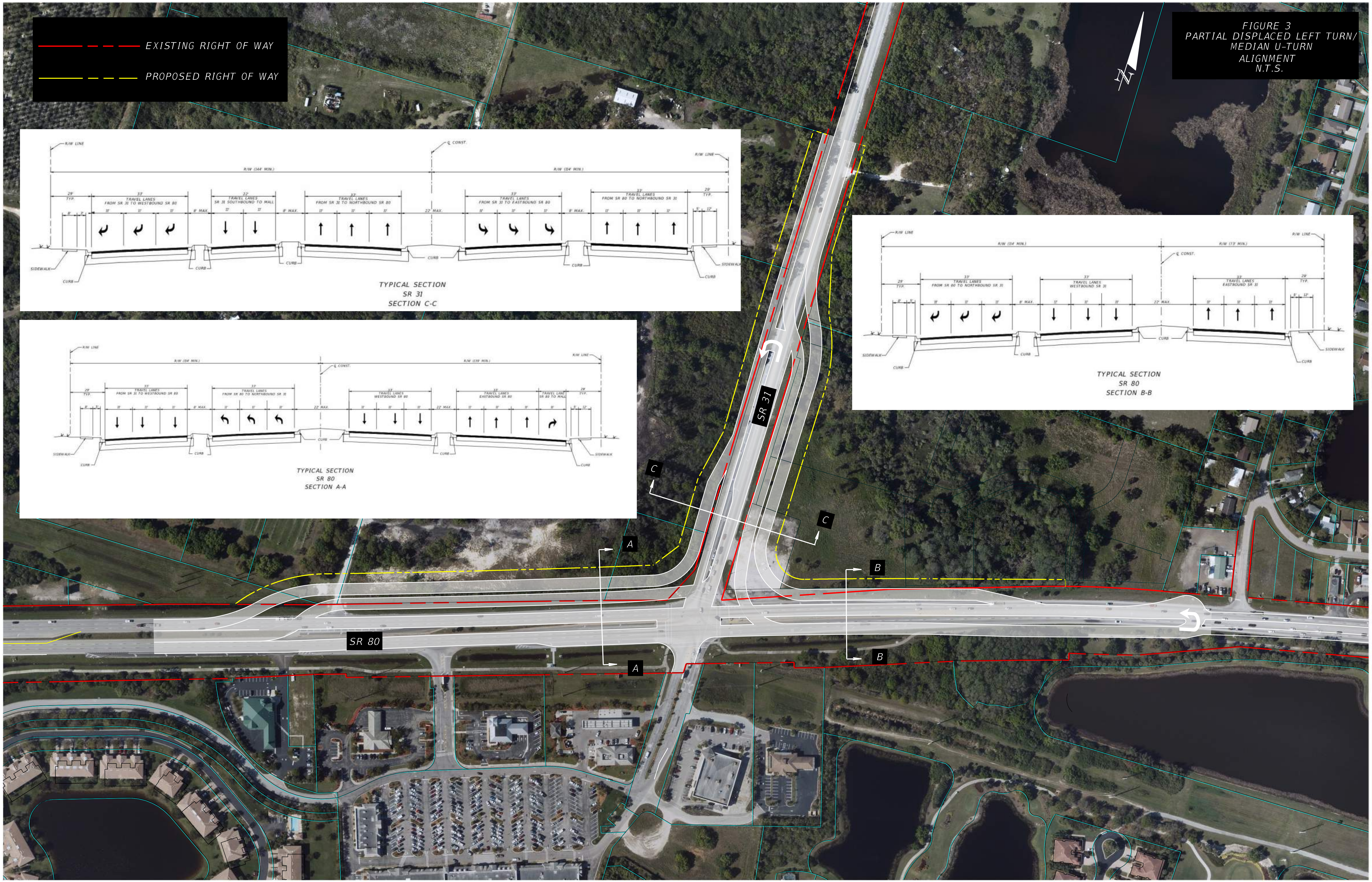


FIGURE 4
NW QUADRANT
ALIGNMENT
N.T.S.

ALTERNATIVE 3 - PDLT/MUT

FIGURE 3
PARTIAL DISPLACED LEFT TURN/
MEDIAN U-TURN
ALIGNMENT
N.T.S.



ALTERNATIVE 4 - CTO (CENTER)

NOTES:
1. No bike lanes or keyholes provide in this concept
2. 8' Sidewalk
   - West side of SR 31
   - North Side of SR 80
3. 12' Shared Use Path
   - East side of SR 31
   - South side of SR 80
4. SR 80 Median Width
   - 22' Median Width From Sta 495+00 to Sta 495+96
   - 78' Median Width from Sta 508+08 to Sta 519+50
5. SR 31 Median Width
   - 22' Median Width From Sta 182+12 to Sta 196+45
   - 6' Traffic Separator from Sta 205+65 to Sta 212+61
6. Westbound Travel Lanes
   - Third thru lane develop at Sta 523+57 and drops into right-turn lane to SR 31
   - Only two westbound thru lanes in the intersection
   - Third westbound thru lane develops as free-flow southbound right-turn lane

RK&K Partial CTO ALT 2
February 5, 2022

ALTERNATIVE 5 - CTO (SOUTH)

RK&K Partial CT0 Alt 1
February 5, 2022

NOTES:
1. No bike lanes or keyholes provide in this concept
2. 8' Sidewalk
   - West side of SR 31
   - North Side of SR 80
3. 12' Shared Use Path
   - East side of SR 31
   - South side of SR 80
4. SR 80 Median Width
   - 22' Median Width From Sta 500+00 to Sta 508+40
   - 18' Median Width from Sta 512+29 to Sta 522+47
   - 22' Median Width From Sta 528+21 to Sta 532+10
5. SR 31 Median Width
   - 22' Median Width From Sta 182+12 to Sta 196+45
   - 6' Traffic Separator from Sta 205+65 to Sta 212+61
6. Westbound Travel Lanes
   - Third thru lane develop at Sta 523+57 and drops into right-turn lane to SR 31
   - Only two westbound thru lanes in the intersection
   - Third westbound thru lane develops as free-flow southbound right-turn lane

ALTERNATIVE 6 - FLYOVER

NOTES:
1. No bike lanes or keyholes provide in this concept
2. 8’ Sidewalk
  - West side of SR 31
  - North Side of SR 80
3. 12’ Shared Use Path
  - East side of SR 31
  - South side of SR 80
4. SR 80 Median Width
  - 22’ Median Width From Sta 495+00 to 495+96
  - 78’ Median Width from Sta 508+08 to Sta 510+78
  - 22’ Median Width From Sta 518+89 to Sta 532+10
5. SR 31 Median Width
  - 22’ Median Width From Sta 182+12 to Sta 197+31
  - 110' Median Width From Sta 208+96 to Sta 212+61
6. Westbound Travel Lanes
  - Third thru lane develop at Sta 523+57 and drops into right-turn lane to SR 31
  - Only two westbound thru lanes in the intersection
  - Third westbound thru lane develops as free-flow southbound right-turn lane

RK&K Partial CT0 ALT 3
February 7, 2022

Design Speed = 25 mph
Radius = 286 ft
Stopping sighth distance (SSD)
requires 4.5 ft shoulder
(SSD for 30 mph = 11.5 ft shoulder)

Design Speed = 25 mph
Radius = 350 ft
Stopping sighth distance (SSD)
requires 2.6 ft shoulder
(SSD for 30 mph = 8.2 ft shoulder)

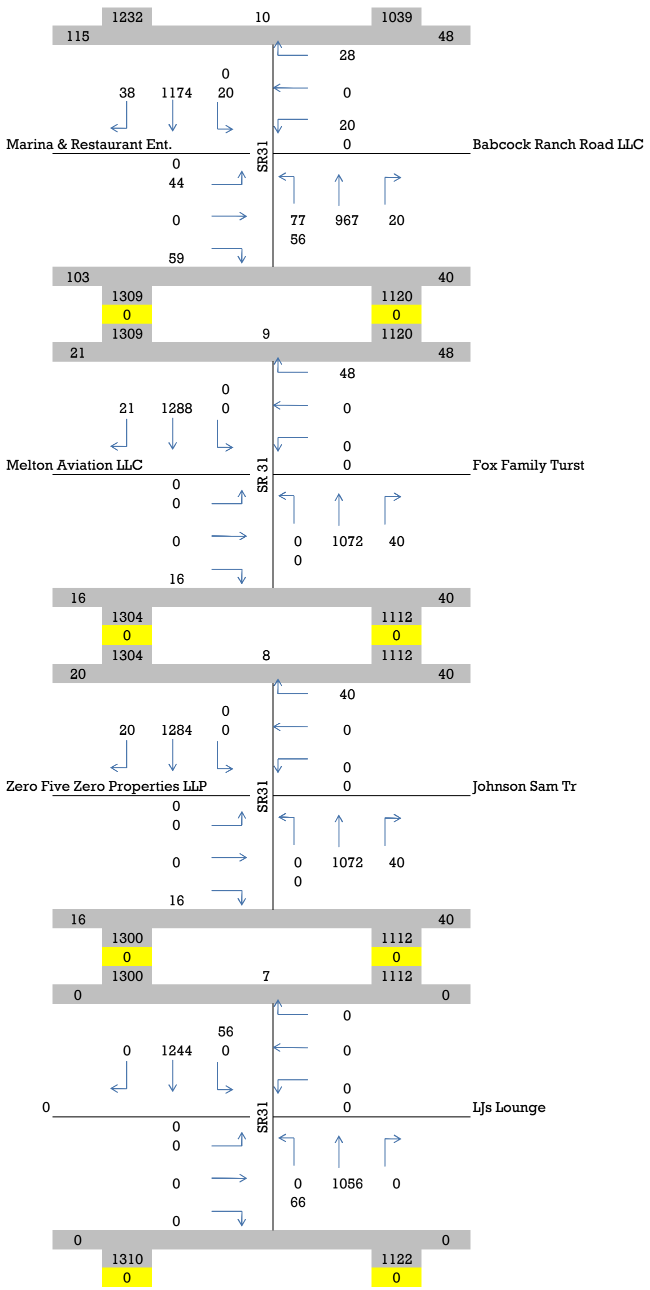
APPENDIX B – TURNING VOLUME COUNTS

Contained in this Appendix –

- Alternative 1 - Traffic Signal
- Alternative 2 - Quadrant Roadway
- Alternative 3 - PDLT/MUT
- Alternative 4 - CTO (center)
- Alternative 5 - CTO (south)
- Alternative 6 - Flyover

ALTERNATIVE 1 - TRAFFIC SIGNAL

Opening Year (2025) AM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1174
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Marina & Restaurant Ent.
SR31
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Babcock Ranch Road LLC
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77
967
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56
59
103
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1309
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Melton Aviation LLC
SR 31
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Fox Family Turst
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1072
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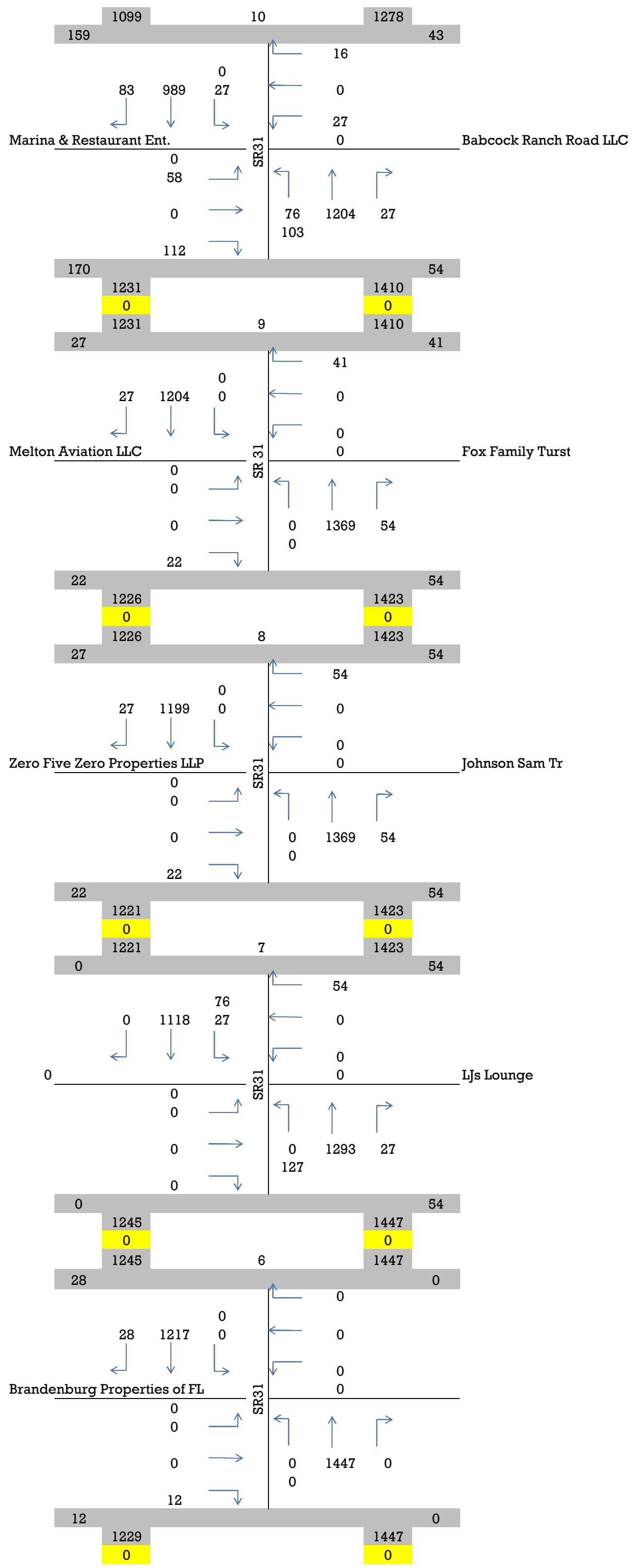
CONVENTIONAL SIGNAL ALTERNATIVE
OPENING YEAR (2025)
DDHVs - AM

Opening Year (2025) PM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SR 31
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Fox Family Turst
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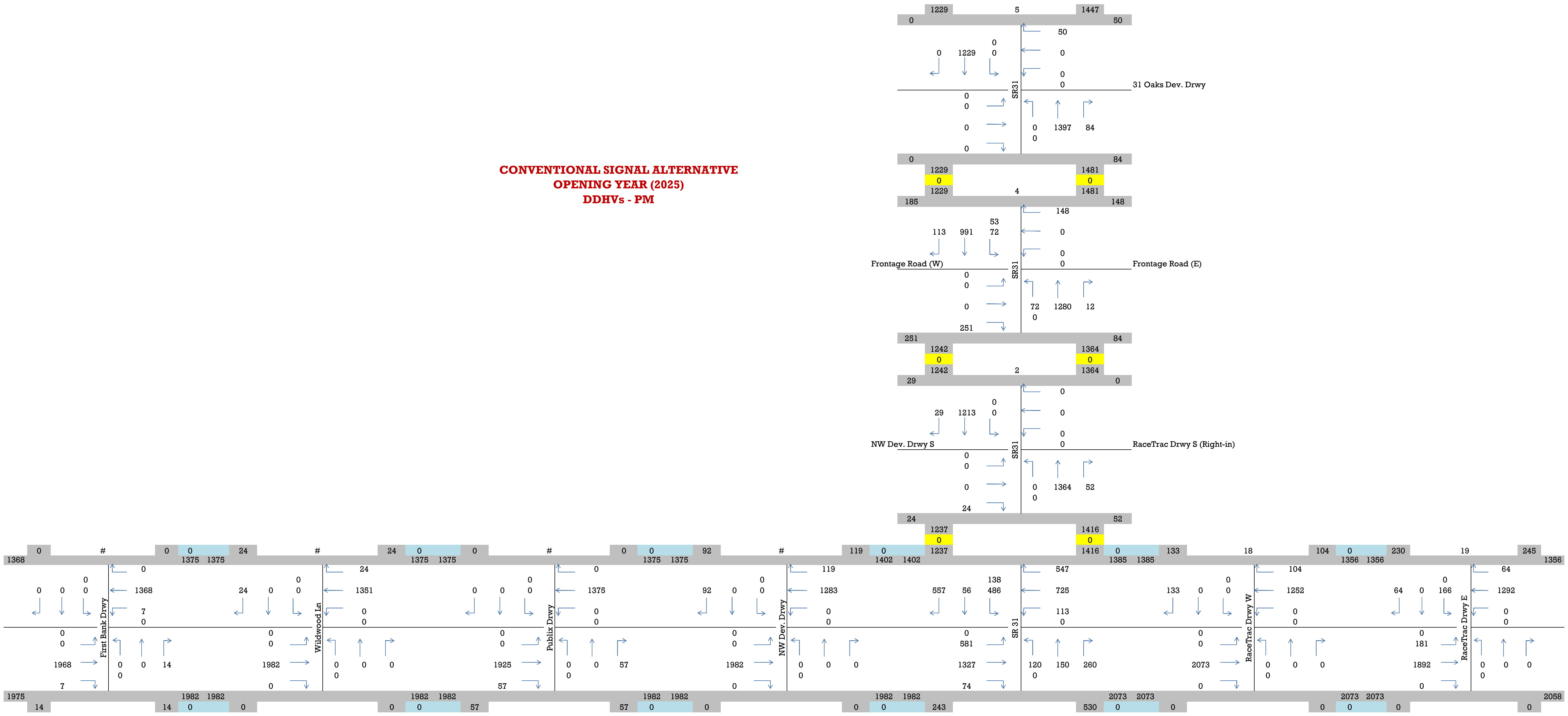
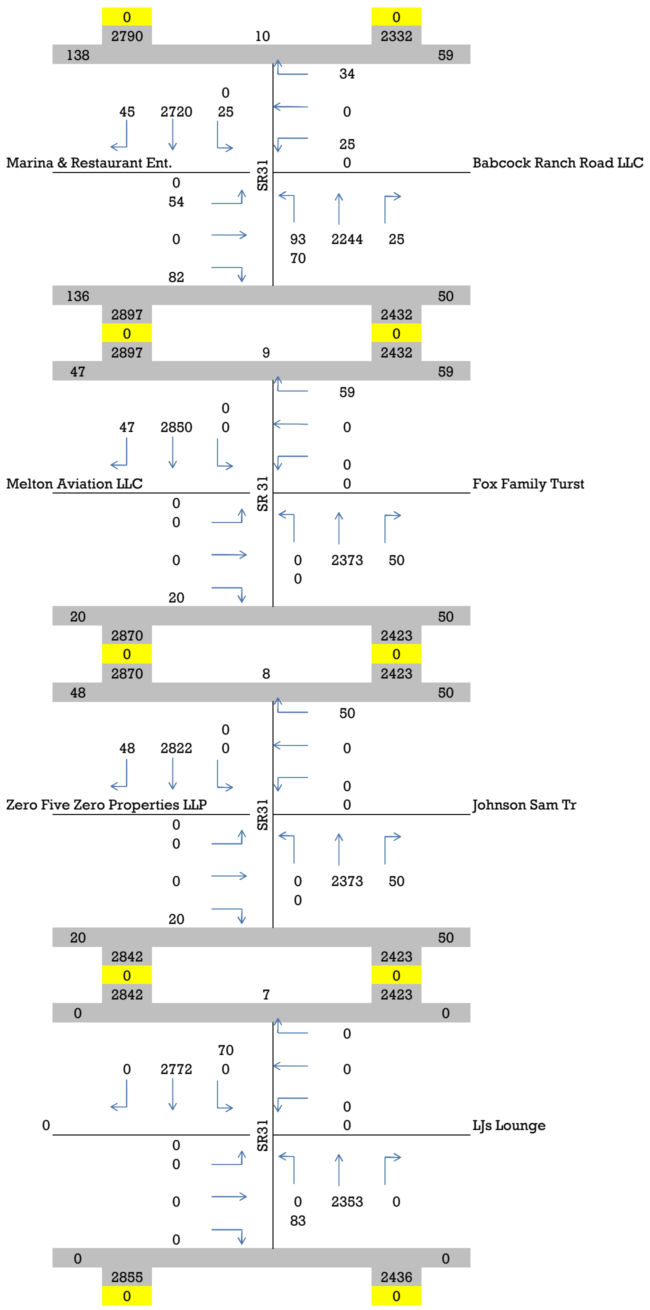
CONVENTIONAL SIGNAL ALTERNATIVE
OPENING YEAR (2025)
DDHVs - PM



Design Year (2045) AM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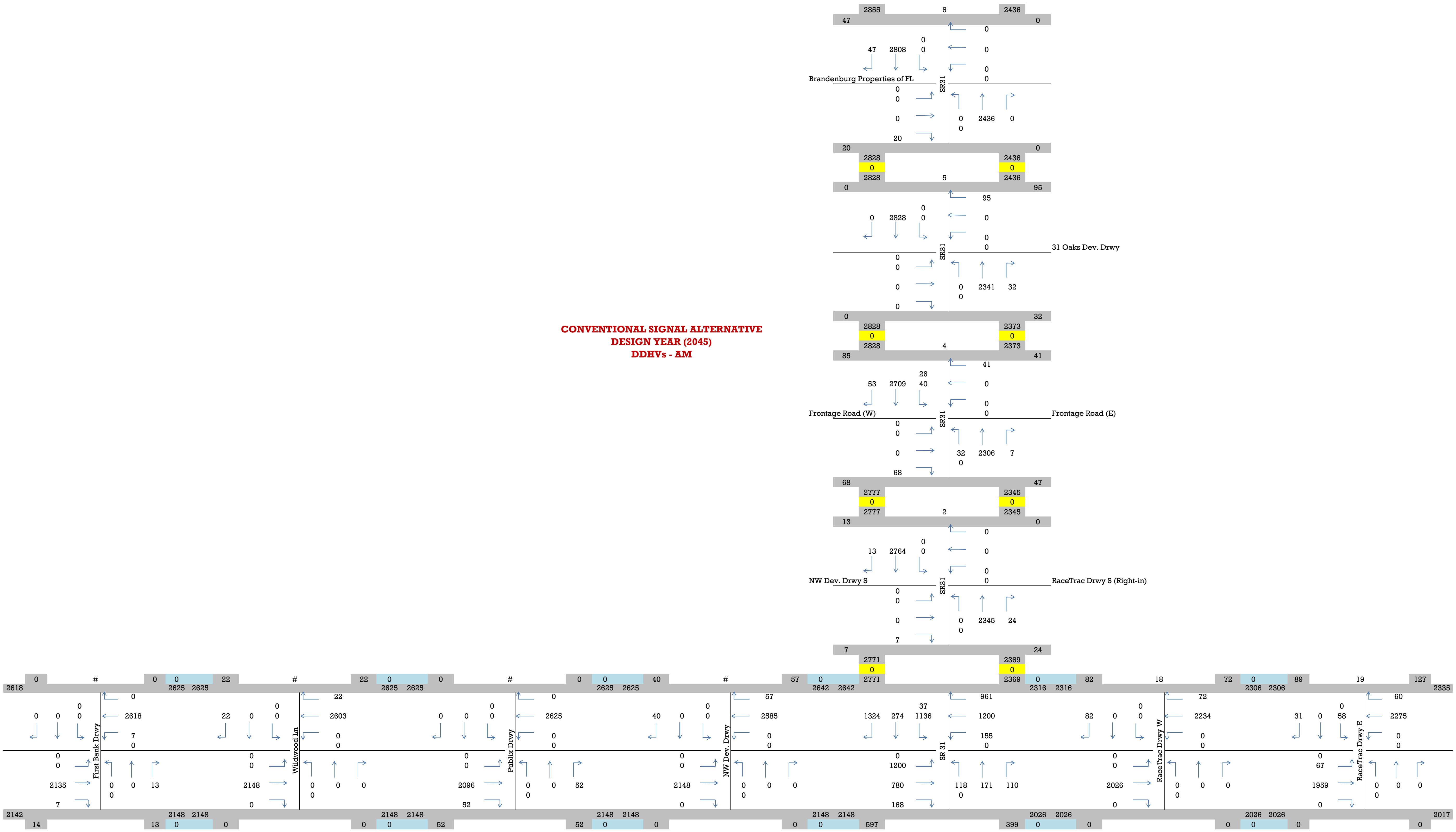
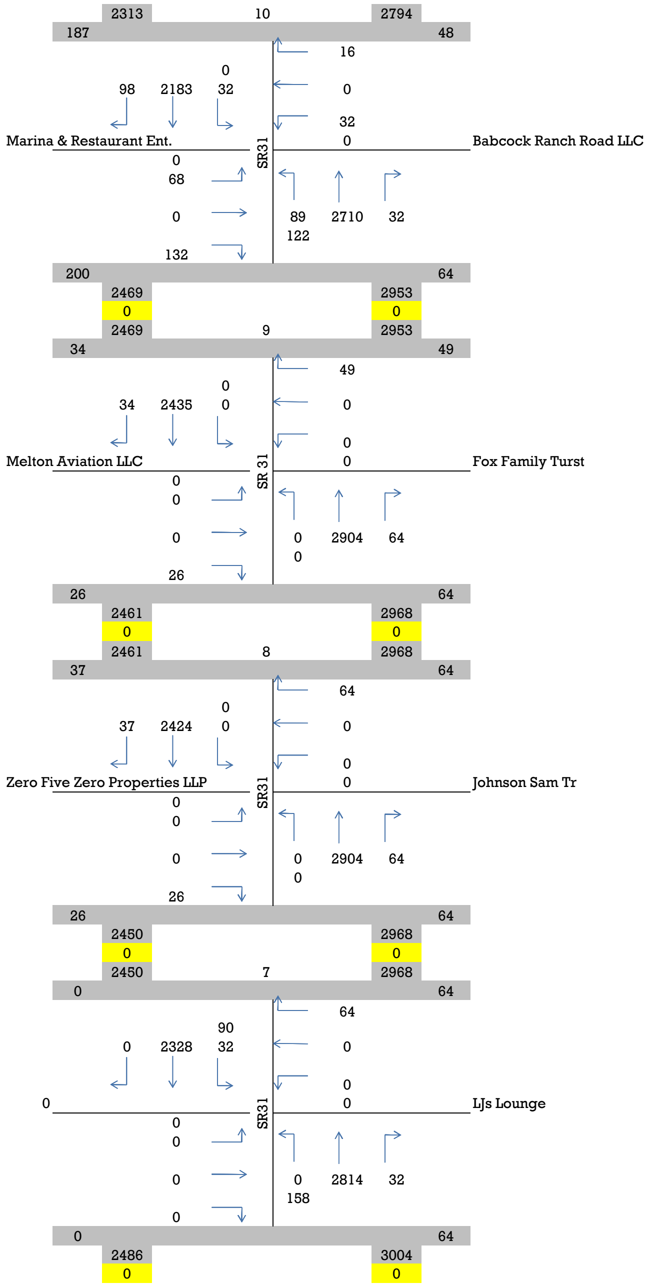
CONVENTIONAL SIGNAL ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - AM



Design Year (2045) PM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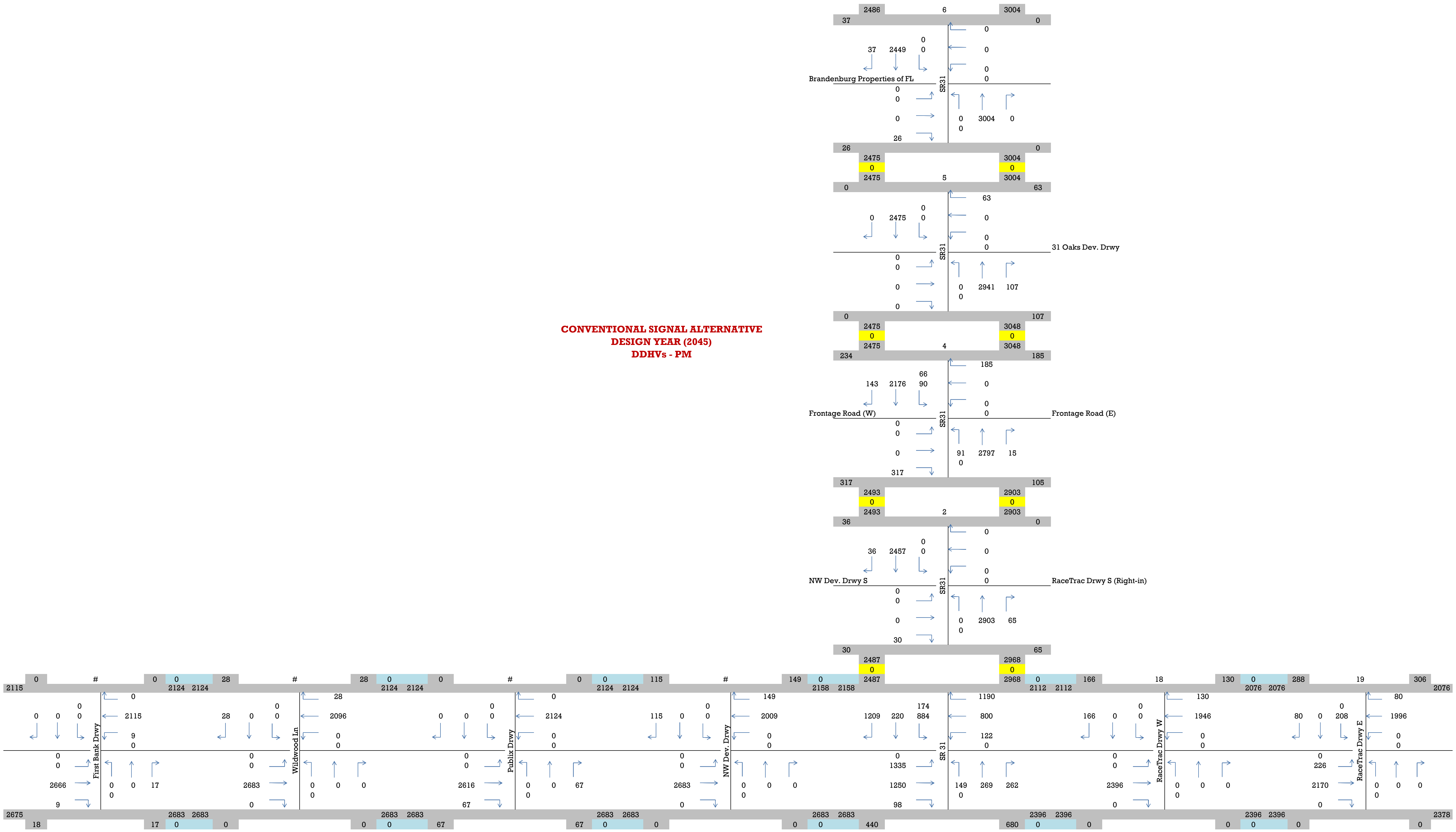
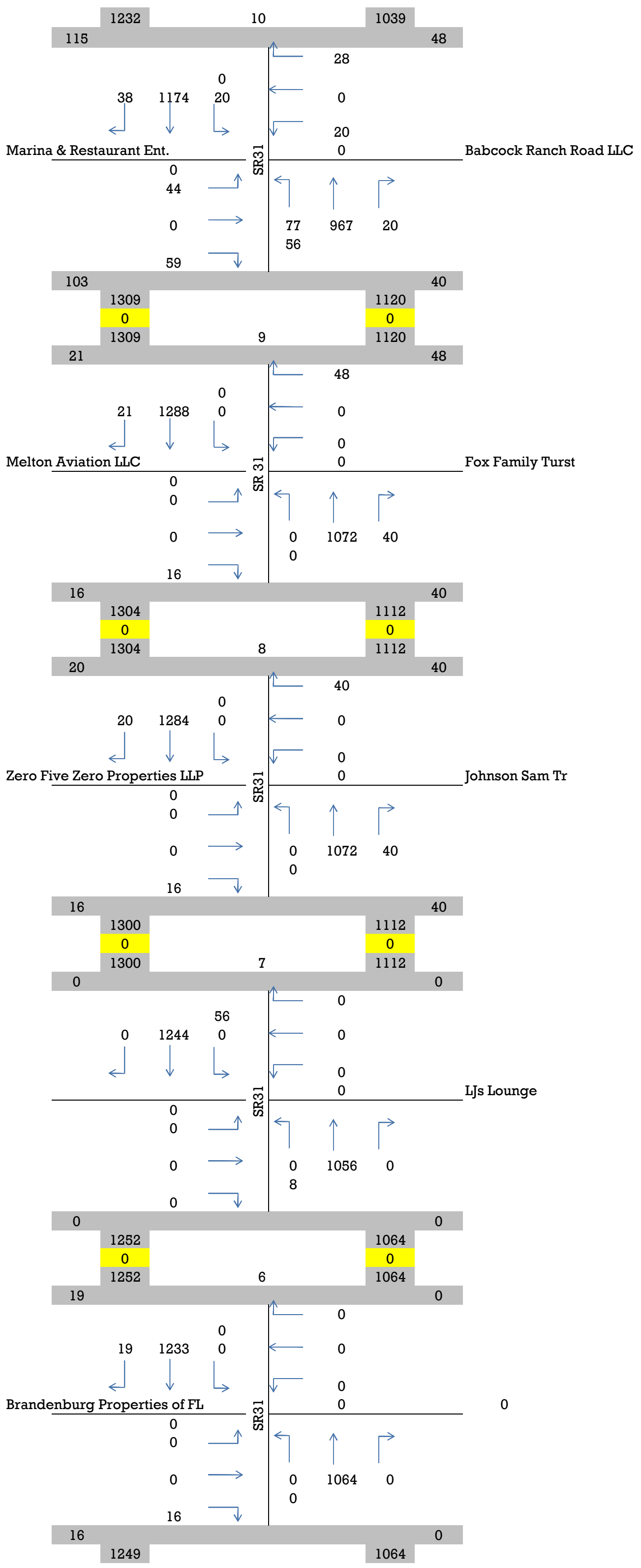
CONVENTIONAL SIGNAL ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - PM



ALTERNATIVE 2 - QUADRANT ROADWAY

Opening Year (2025) AM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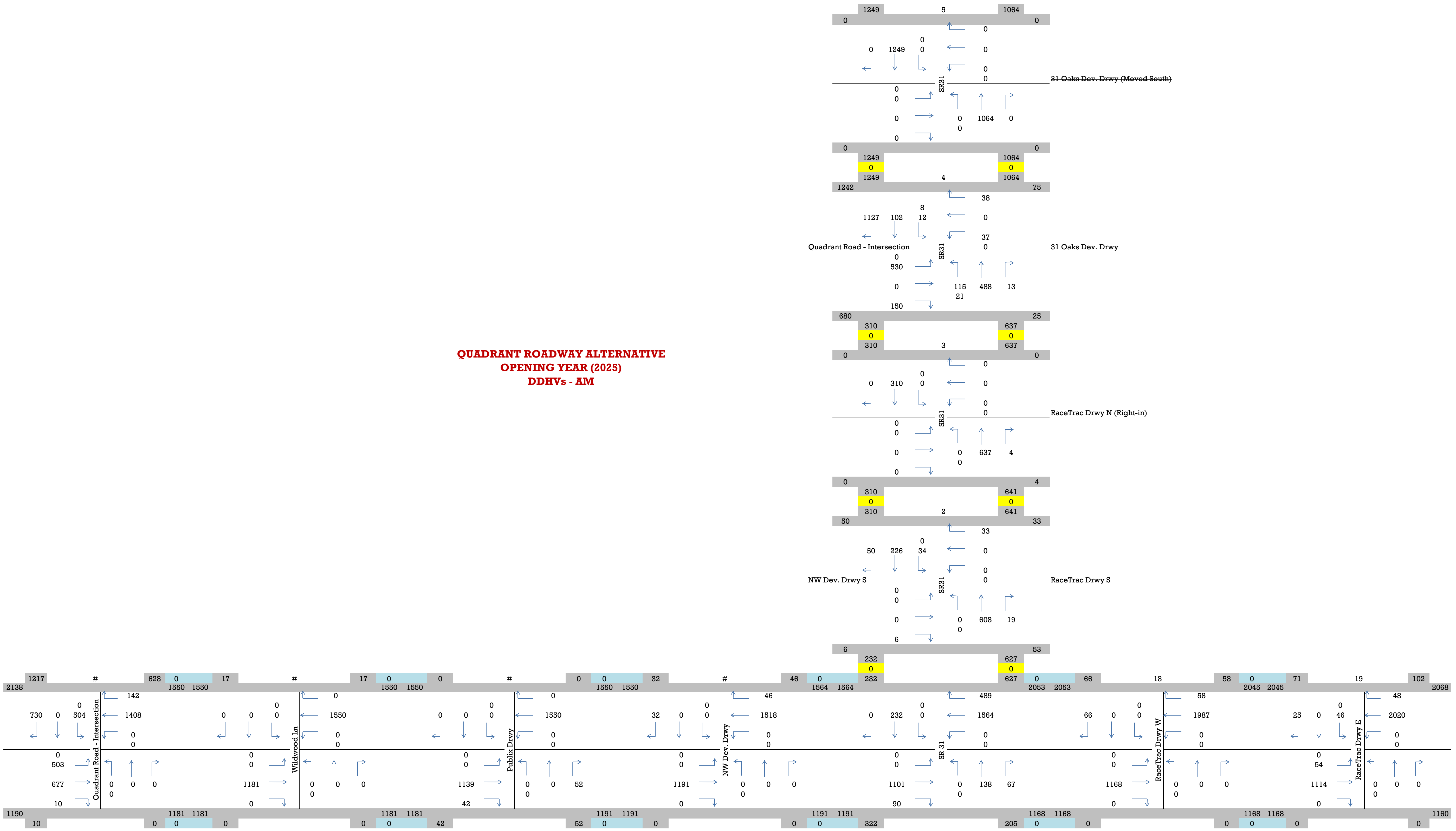
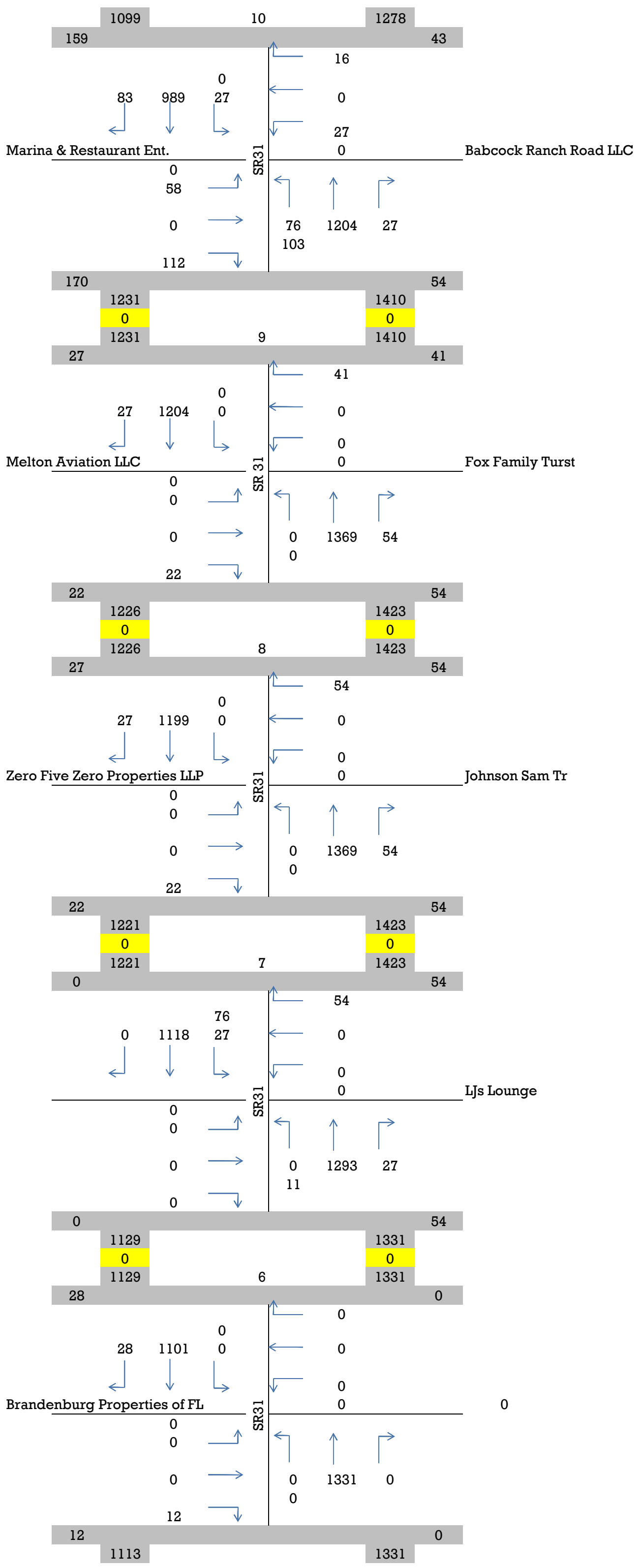
QUADRANT ROADWAY ALTERNATIVE
OPENING YEAR (2025)
DDHVs - AM



Opening Year (2025) PM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Brandenburg Properties of FL
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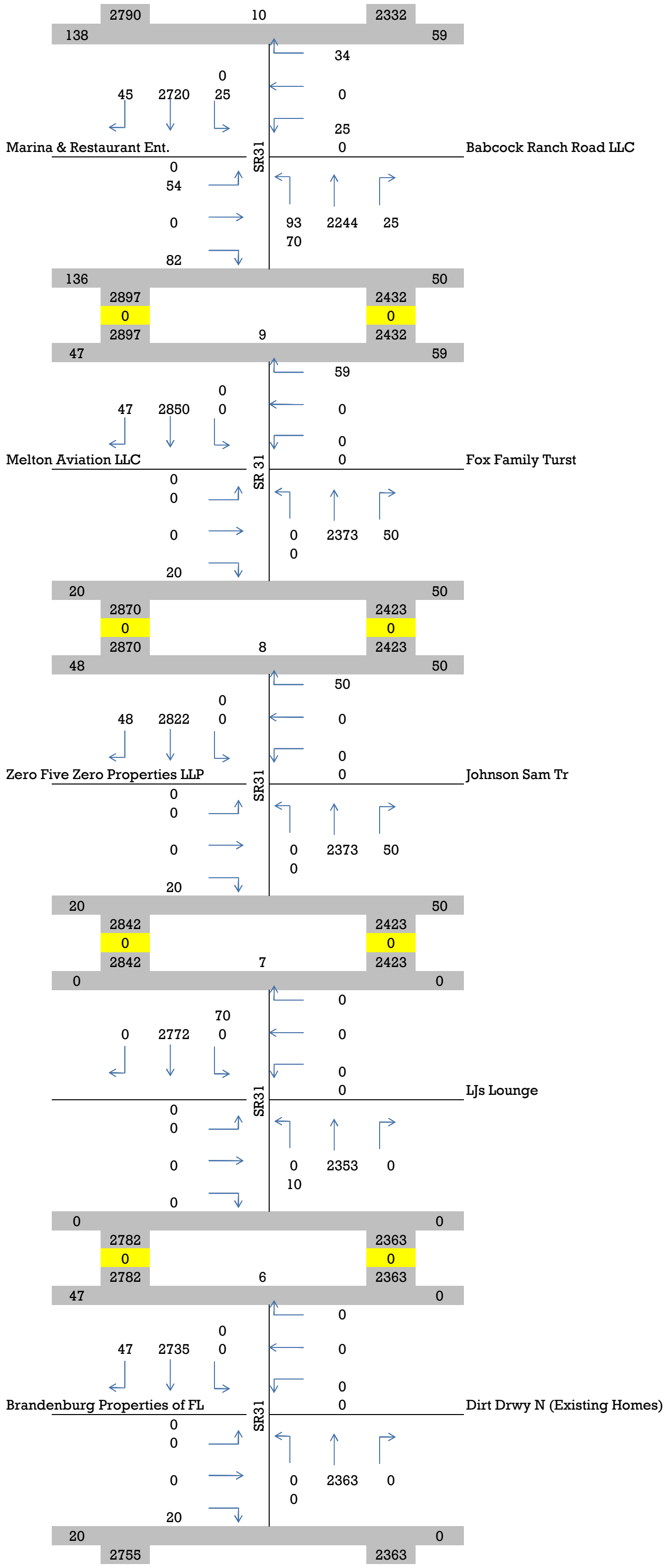
QUADRANT ROADWAY ALTERNATIVE
OPENING YEAR (2025)
DDHVs - PM

Design Year (2045) AM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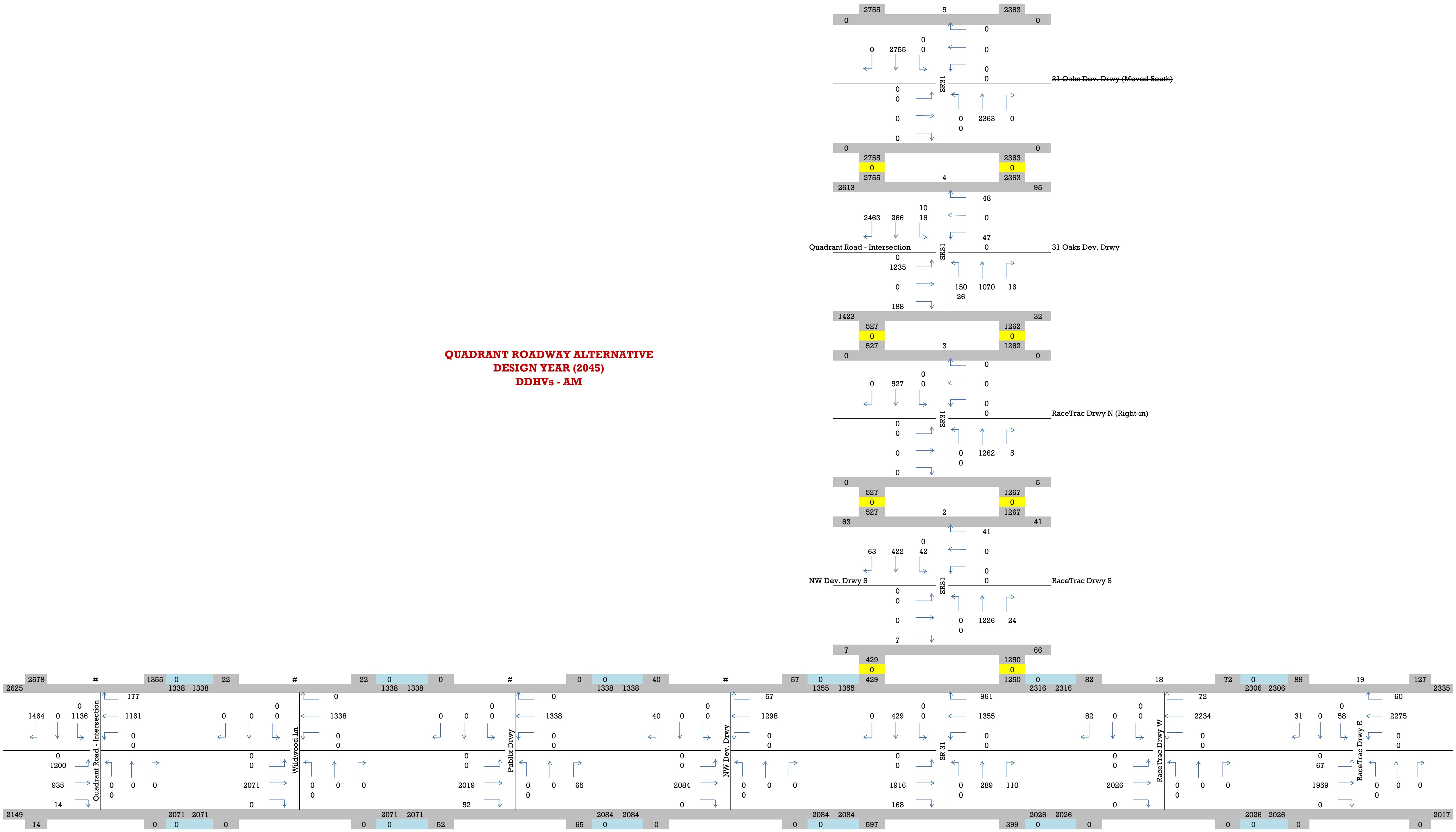
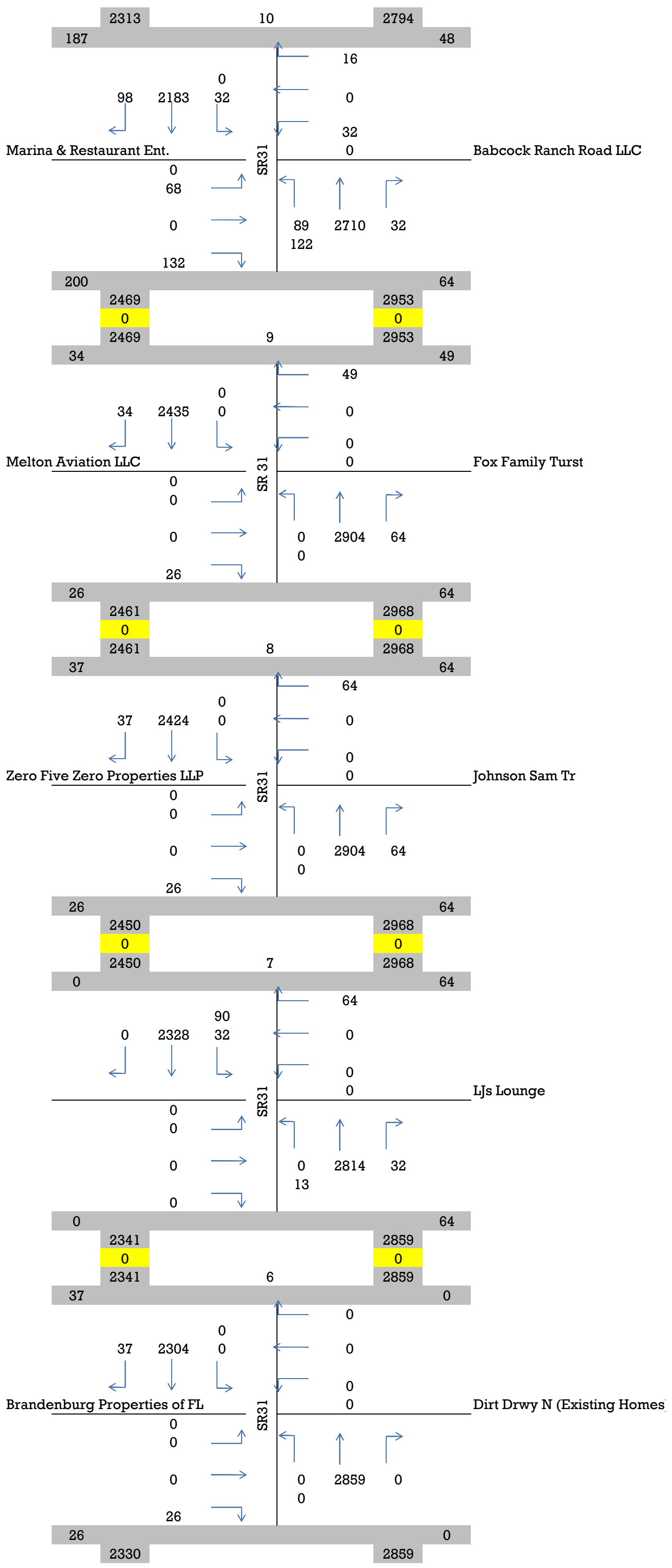
QUADRANT ROADWAY ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - AM



Design Year (2045) PM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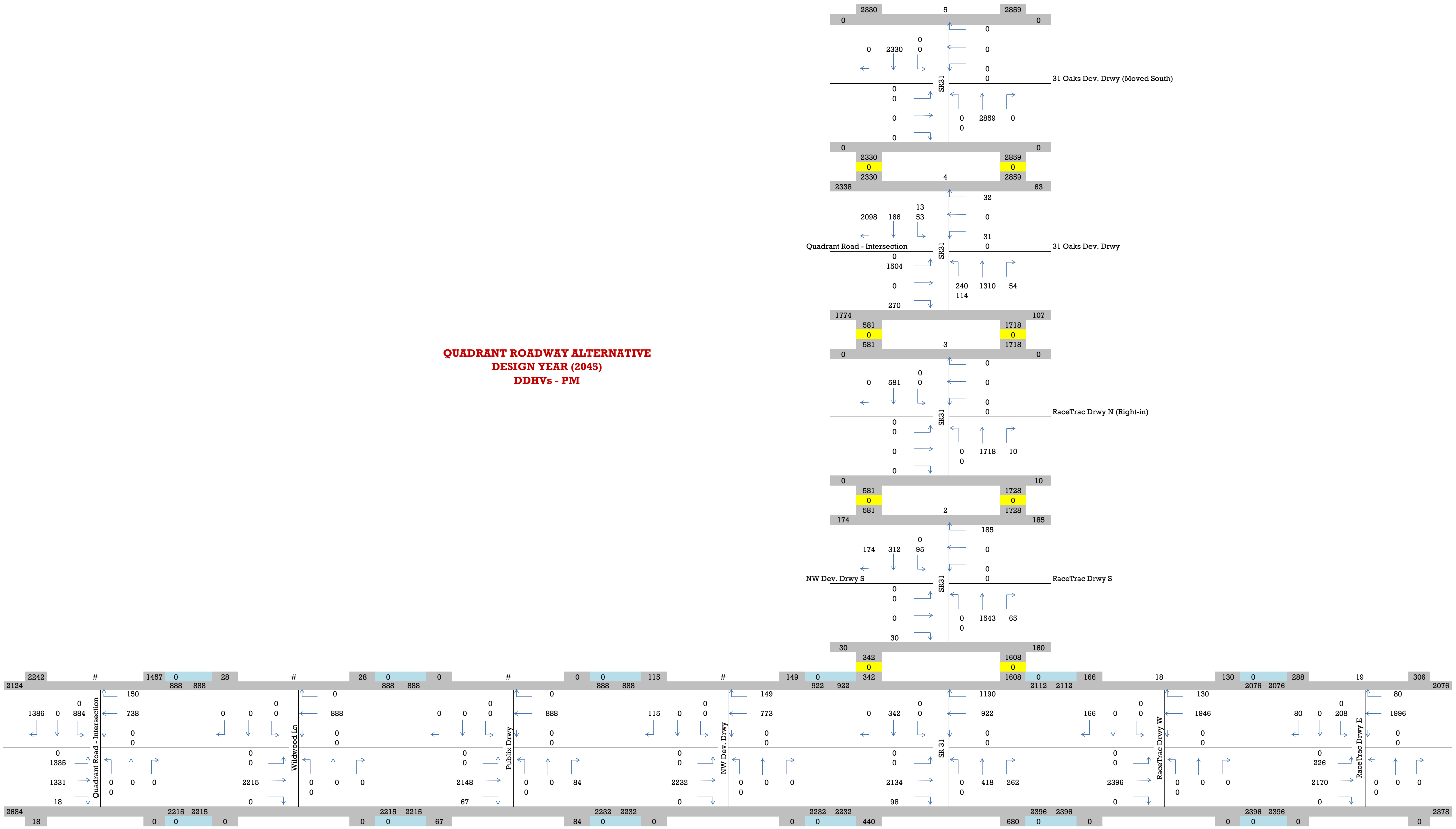
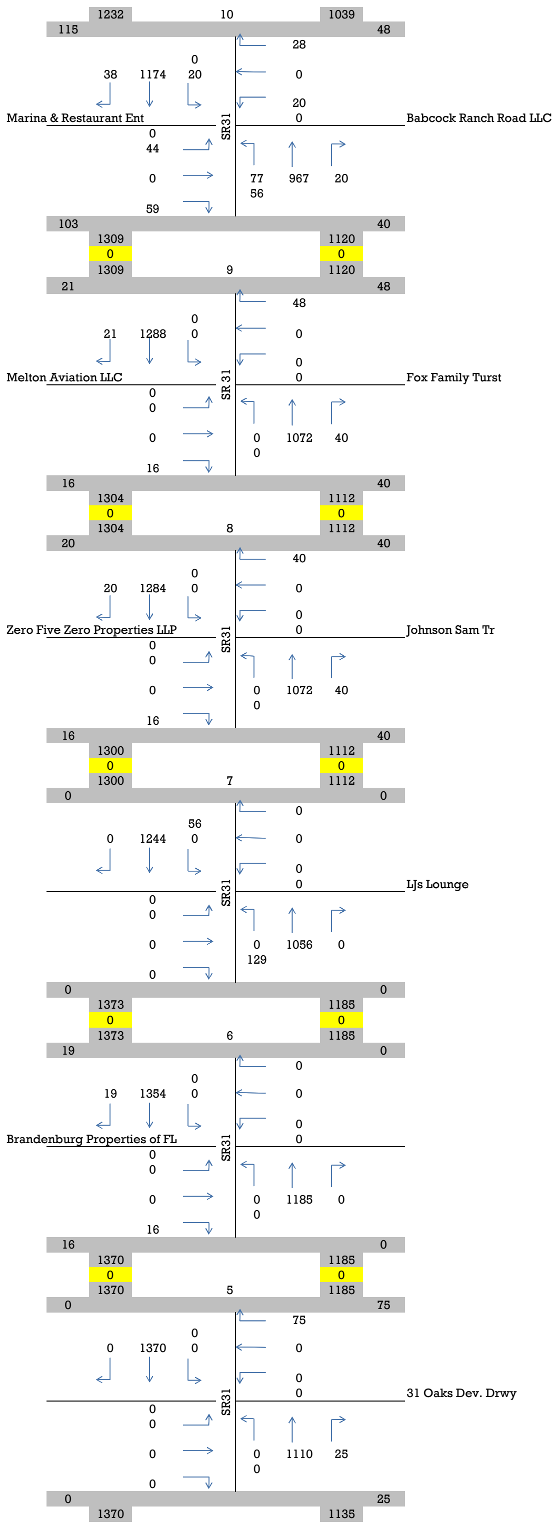
QUADRANT ROADWAY ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - PM



ALTERNATIVE 3 - PDLT/MUT

Opening Year (2025) AM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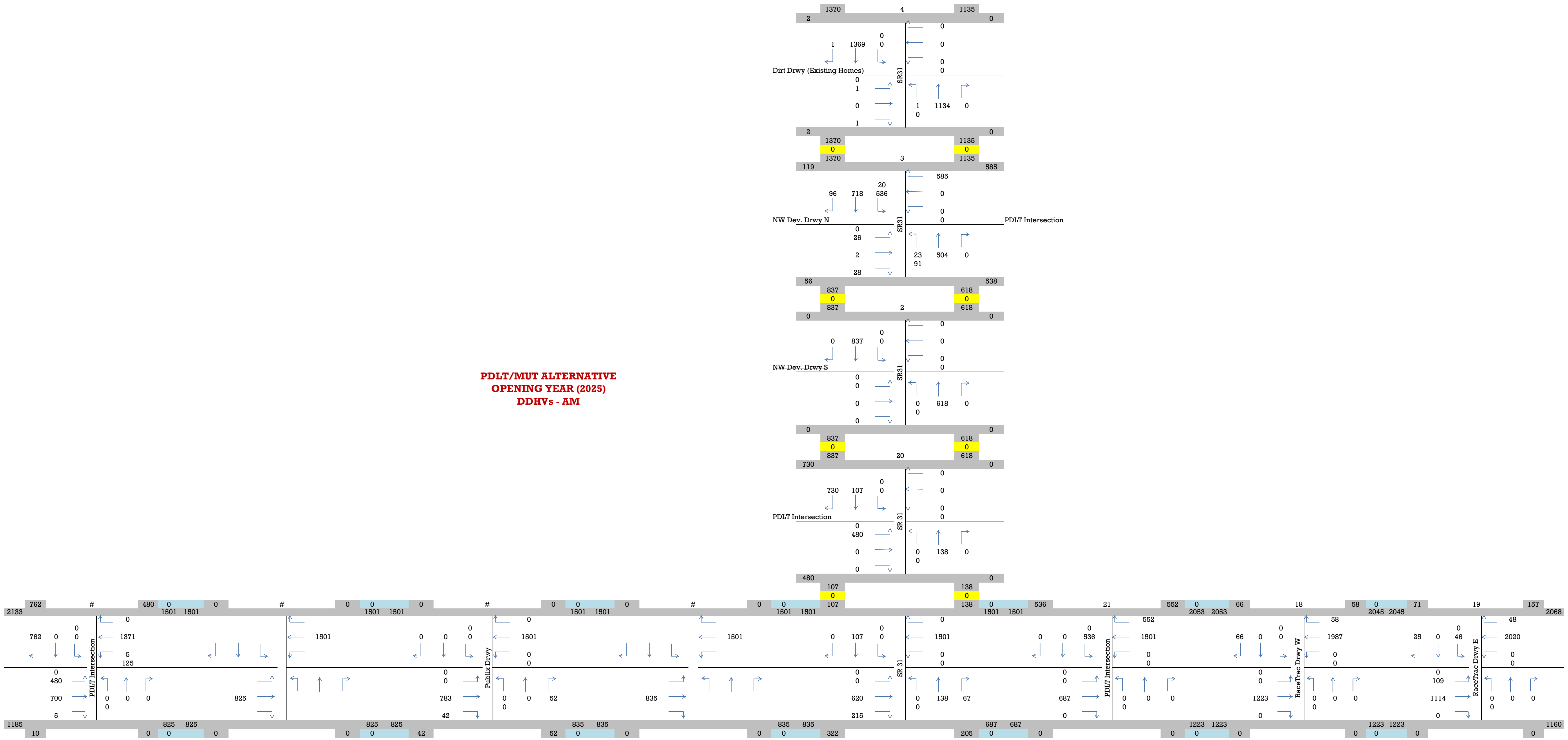
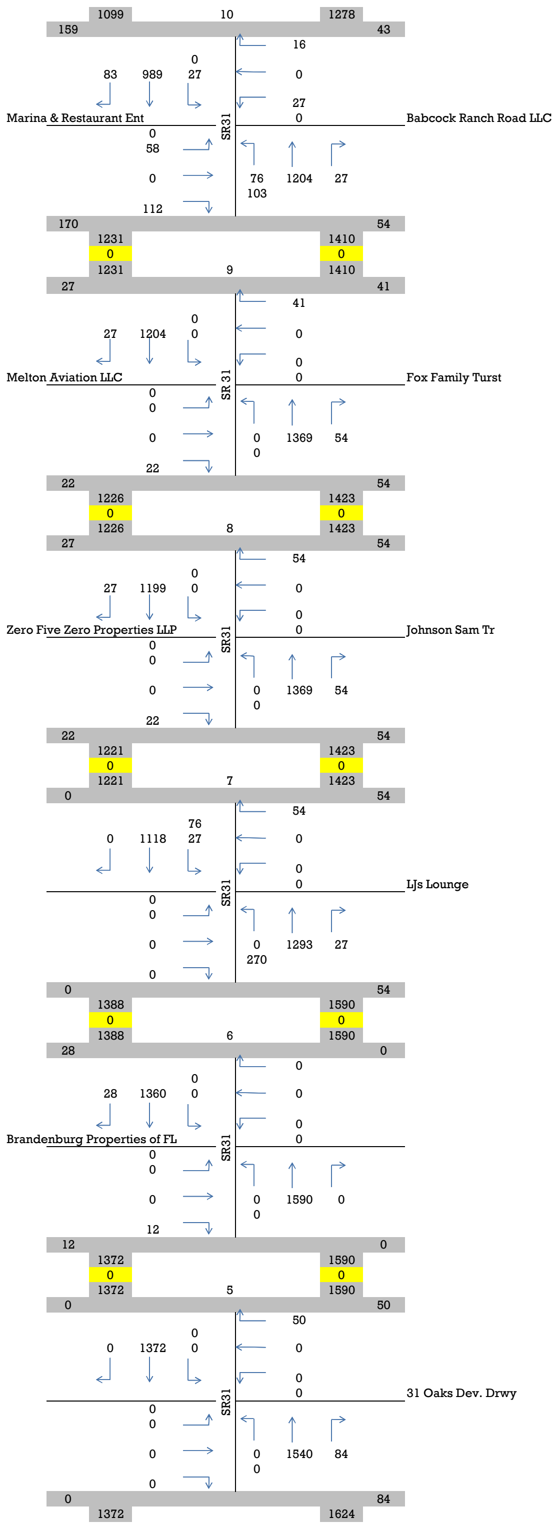
PDLT/MUT ALTERNATIVE
OPENING YEAR (2025)
DDHVs - AM



Opening Year (2025) PM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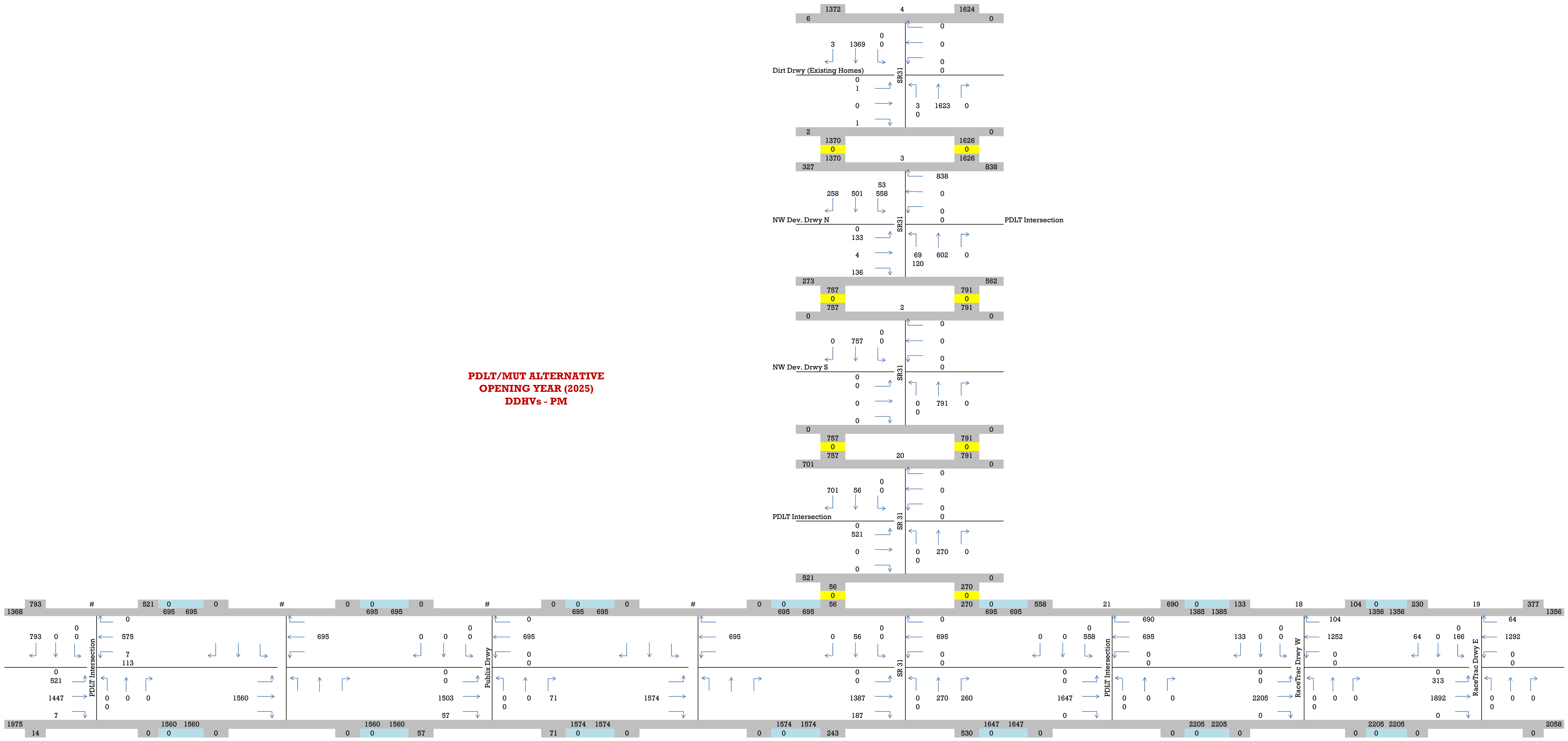
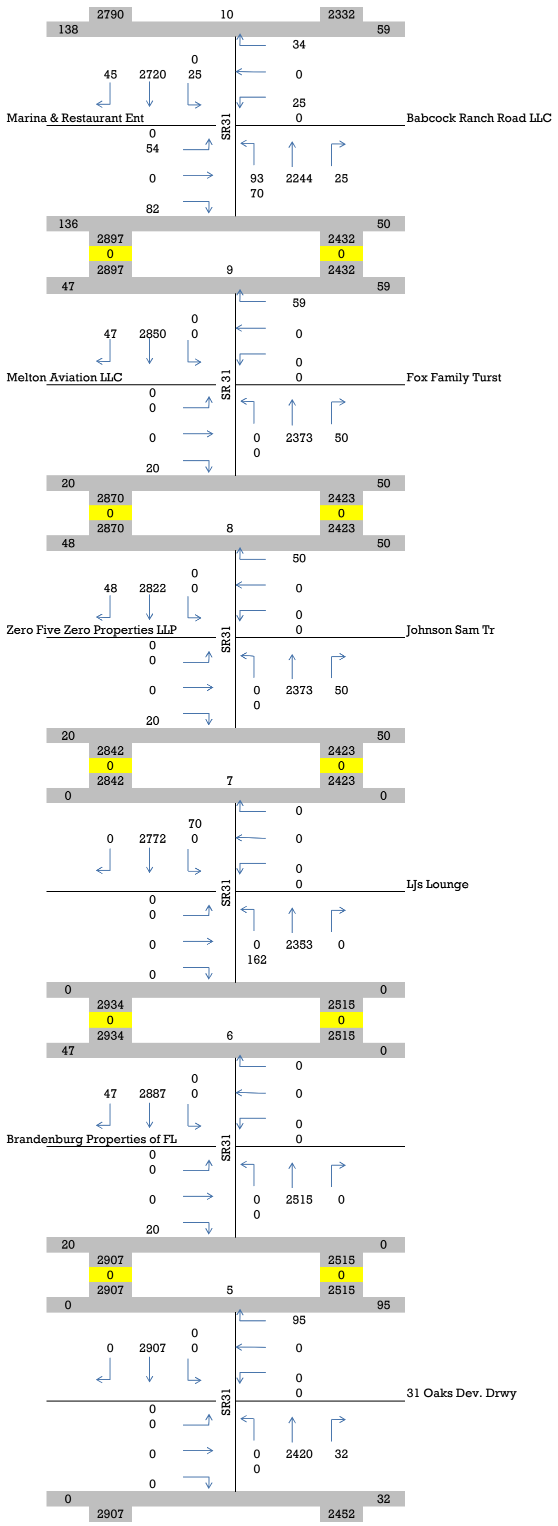
PDLT/MUT ALTERNATIVE
OPENING YEAR (2025)
DDHVs - PM



Design Year (2045) AM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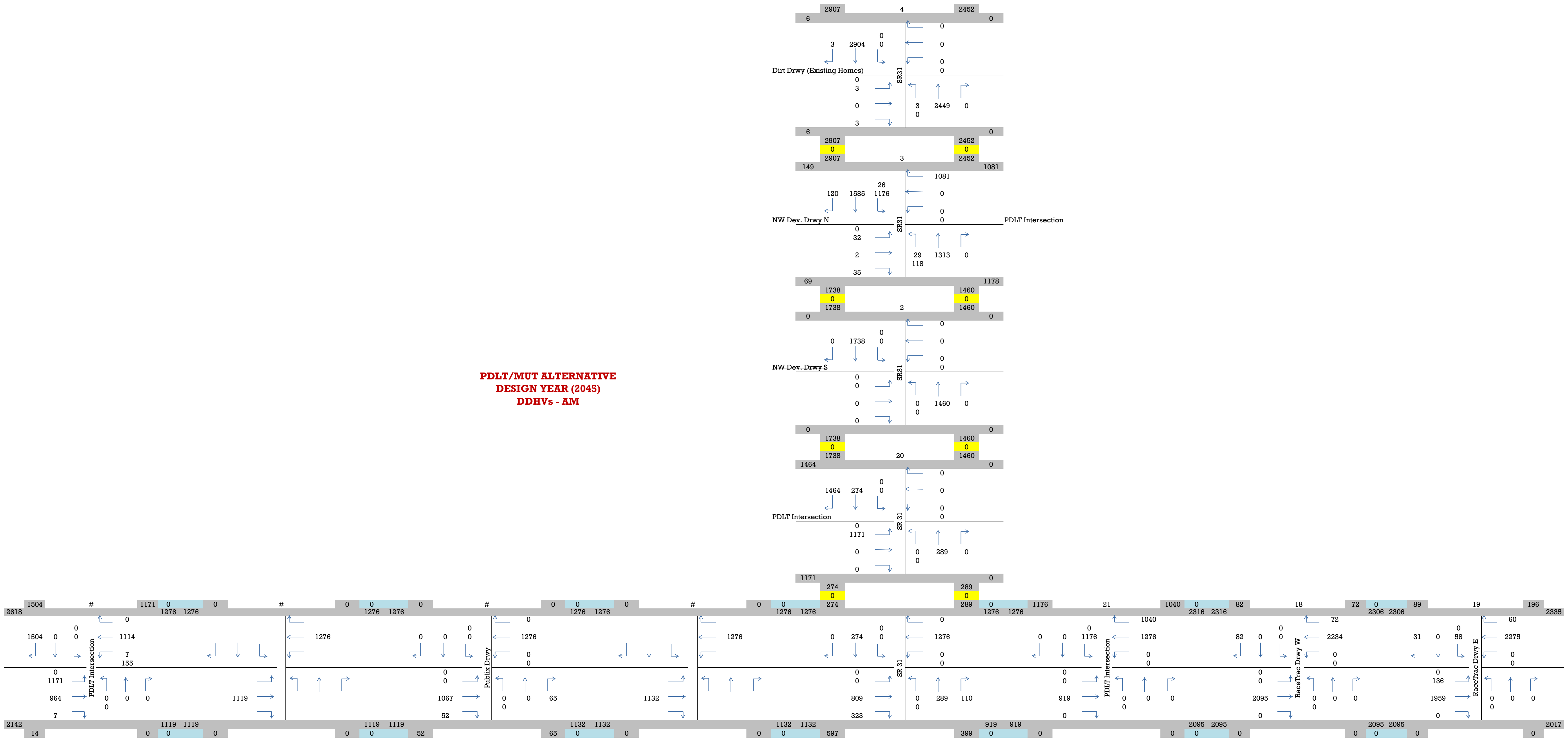
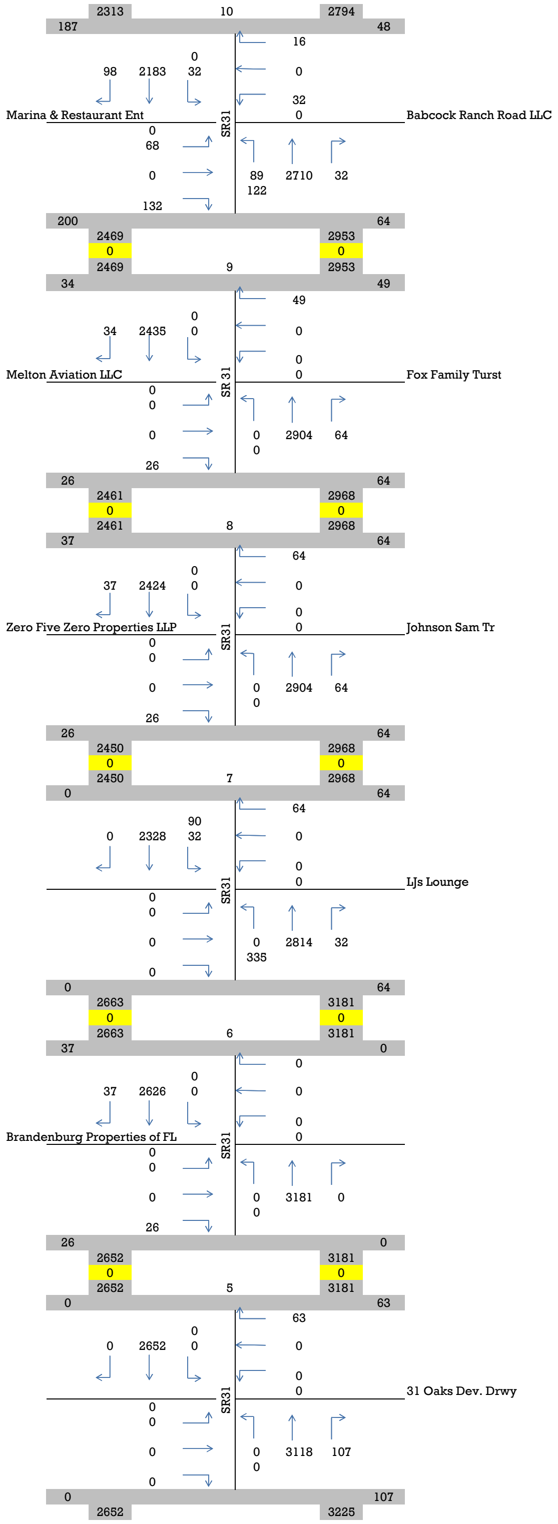
PDLT/MUT ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - AM



Design Year (2045) PM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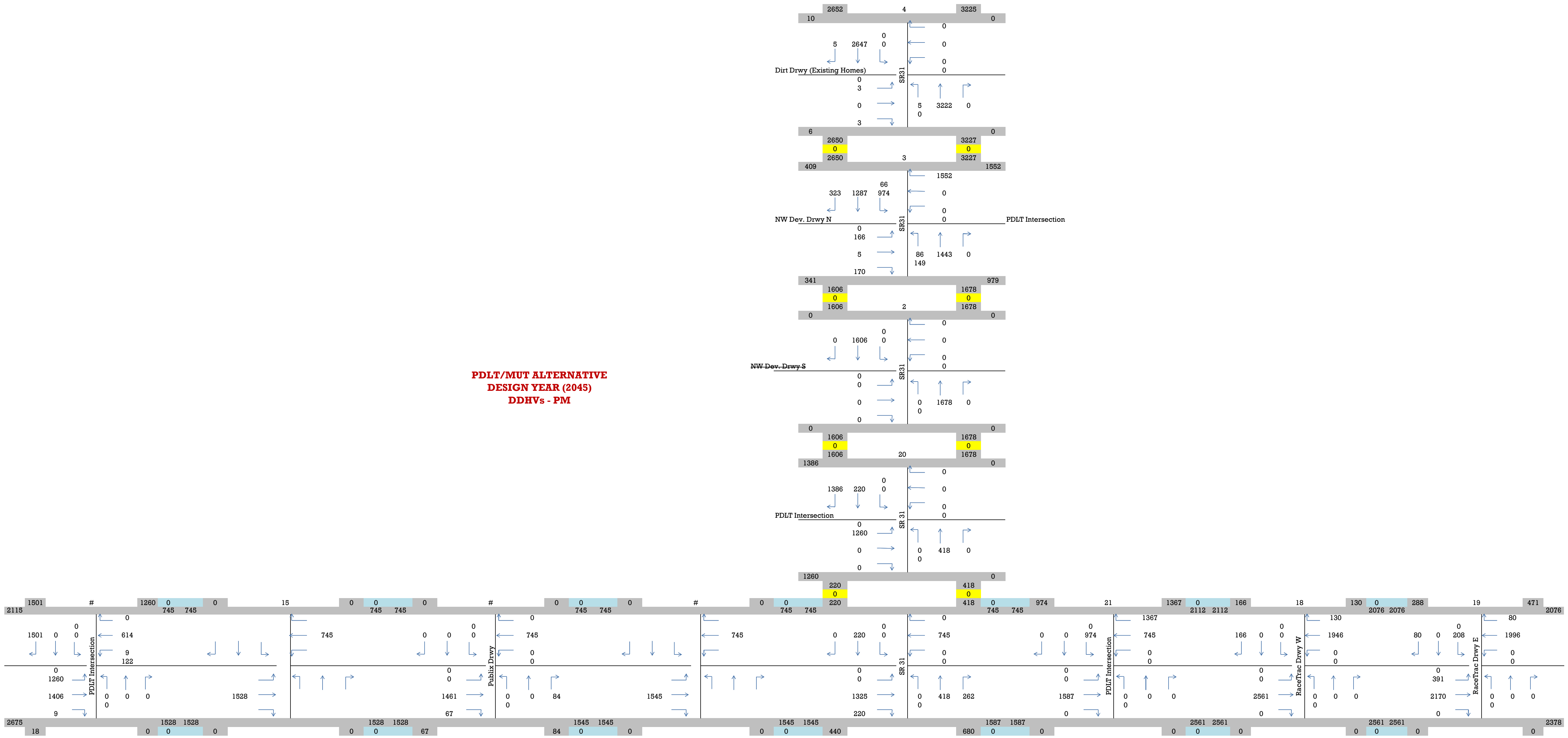
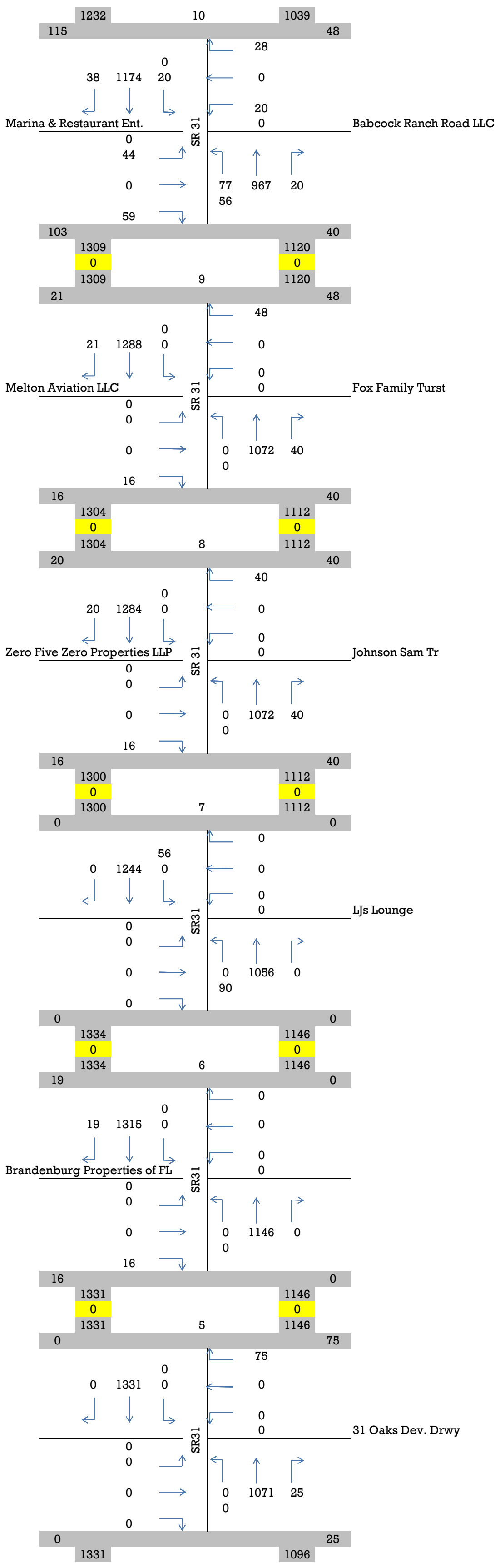
PDLT/MUT ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - PM



ALTERNATIVE 4 - CTO (CENTER)

Opening Year (2025) AM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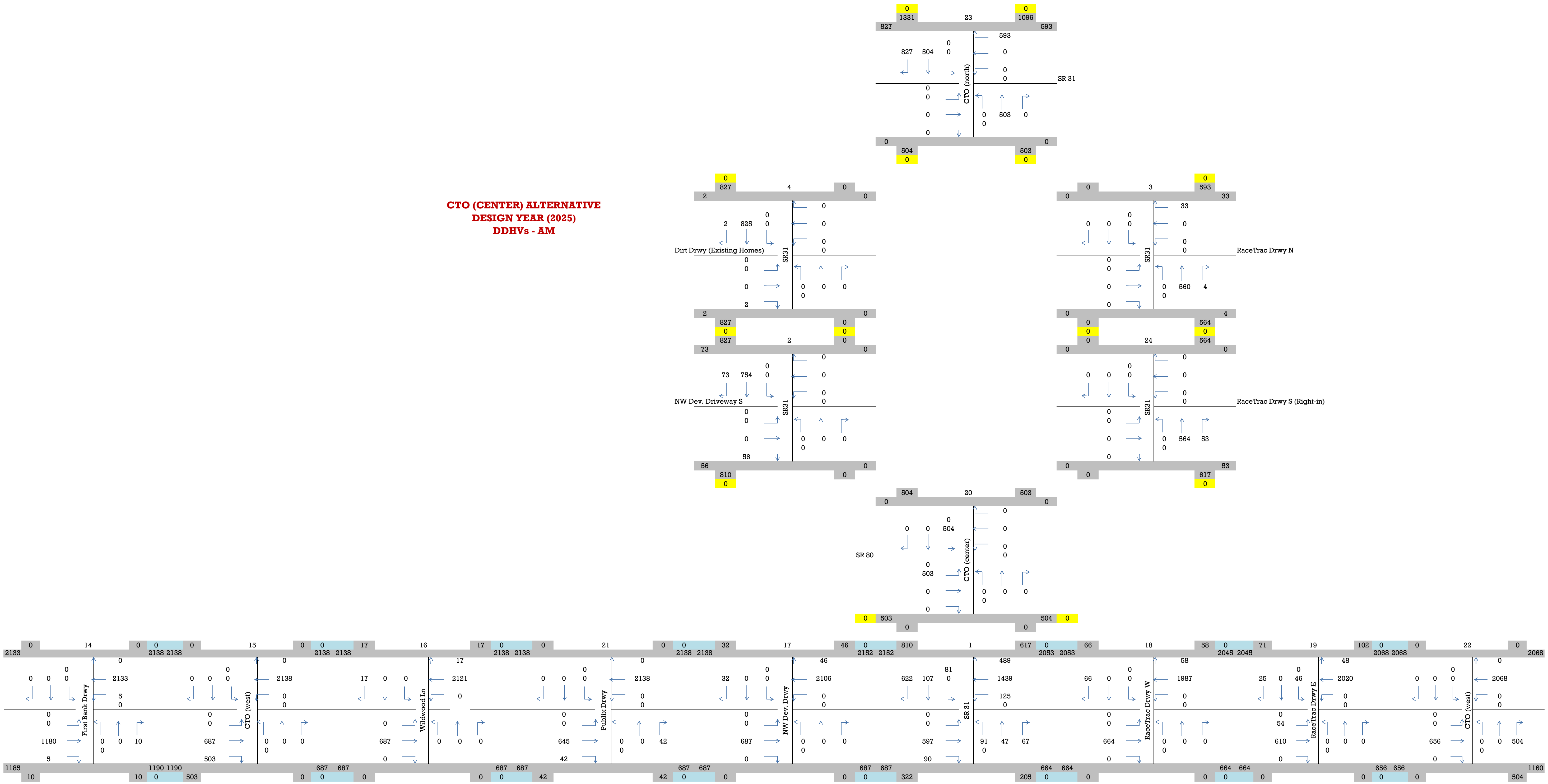
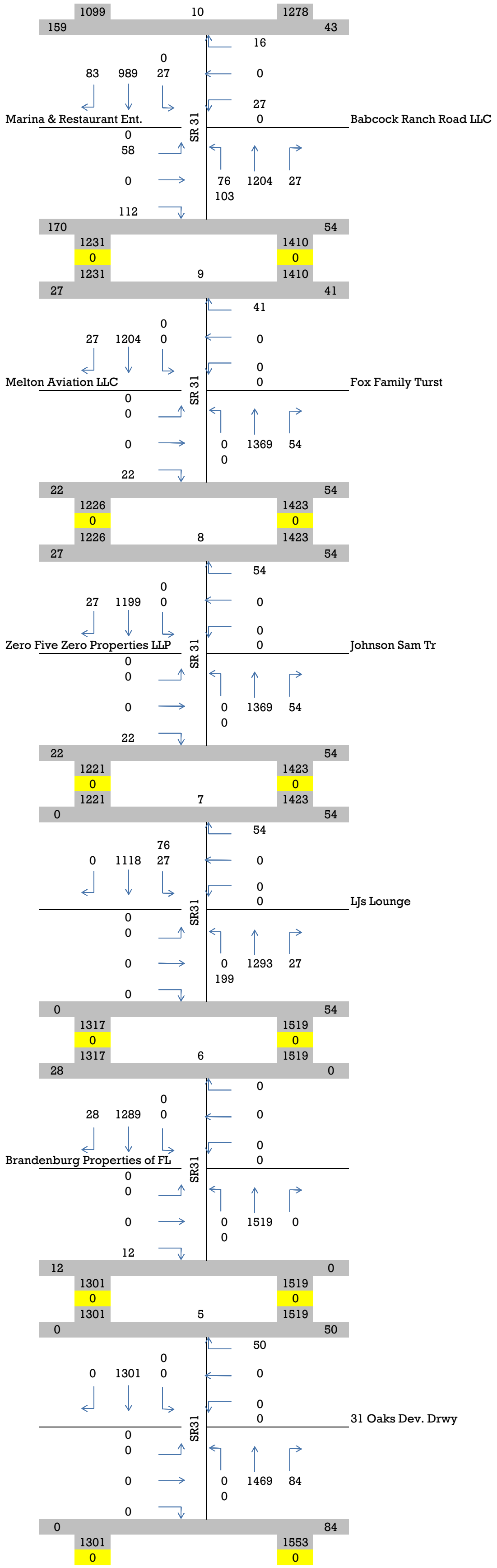
CTO (CENTER) ALTERNATIVE
DESIGN YEAR (2025)
DDHVs - AM



Opening Year (2025) PM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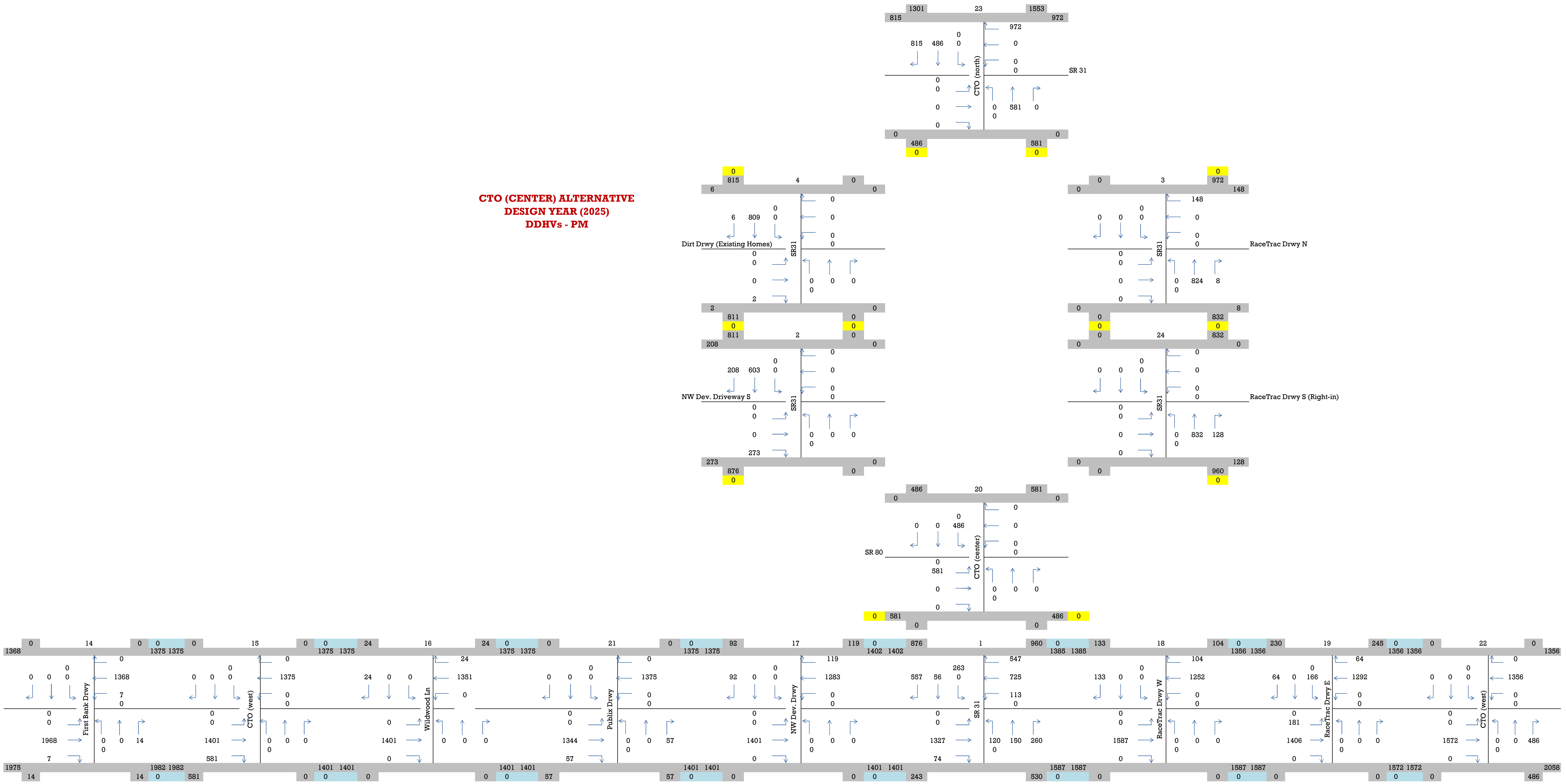
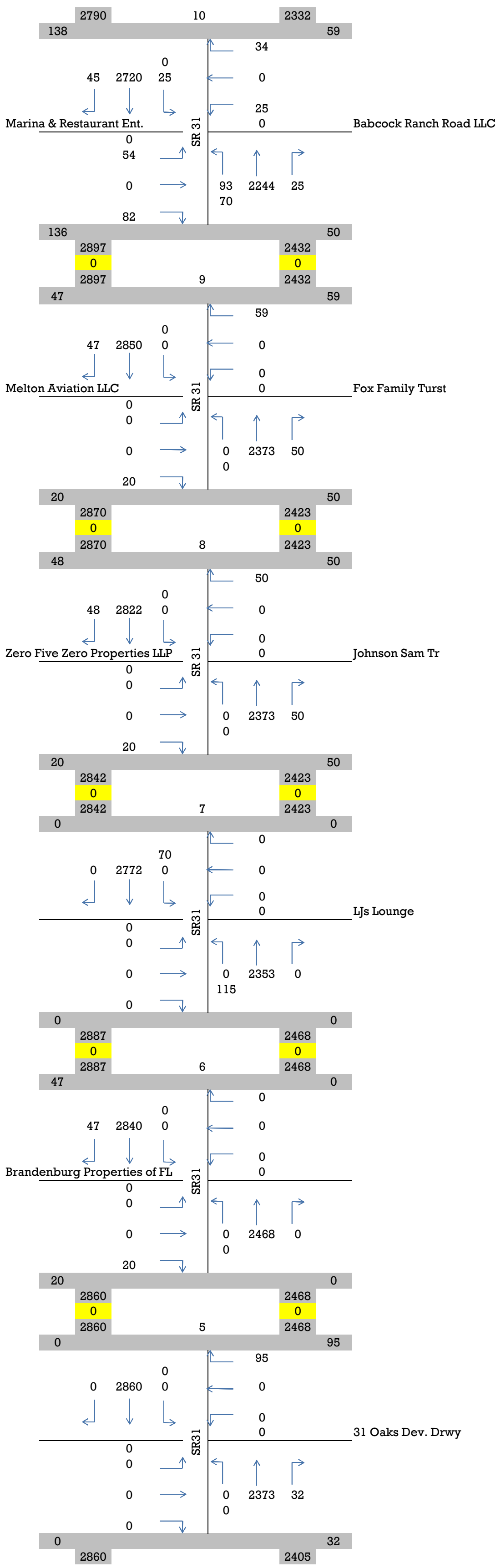
CTO (CENTER) ALTERNATIVE
DESIGN YEAR (2025)
DDHVs - PM



Design Year (2045) AM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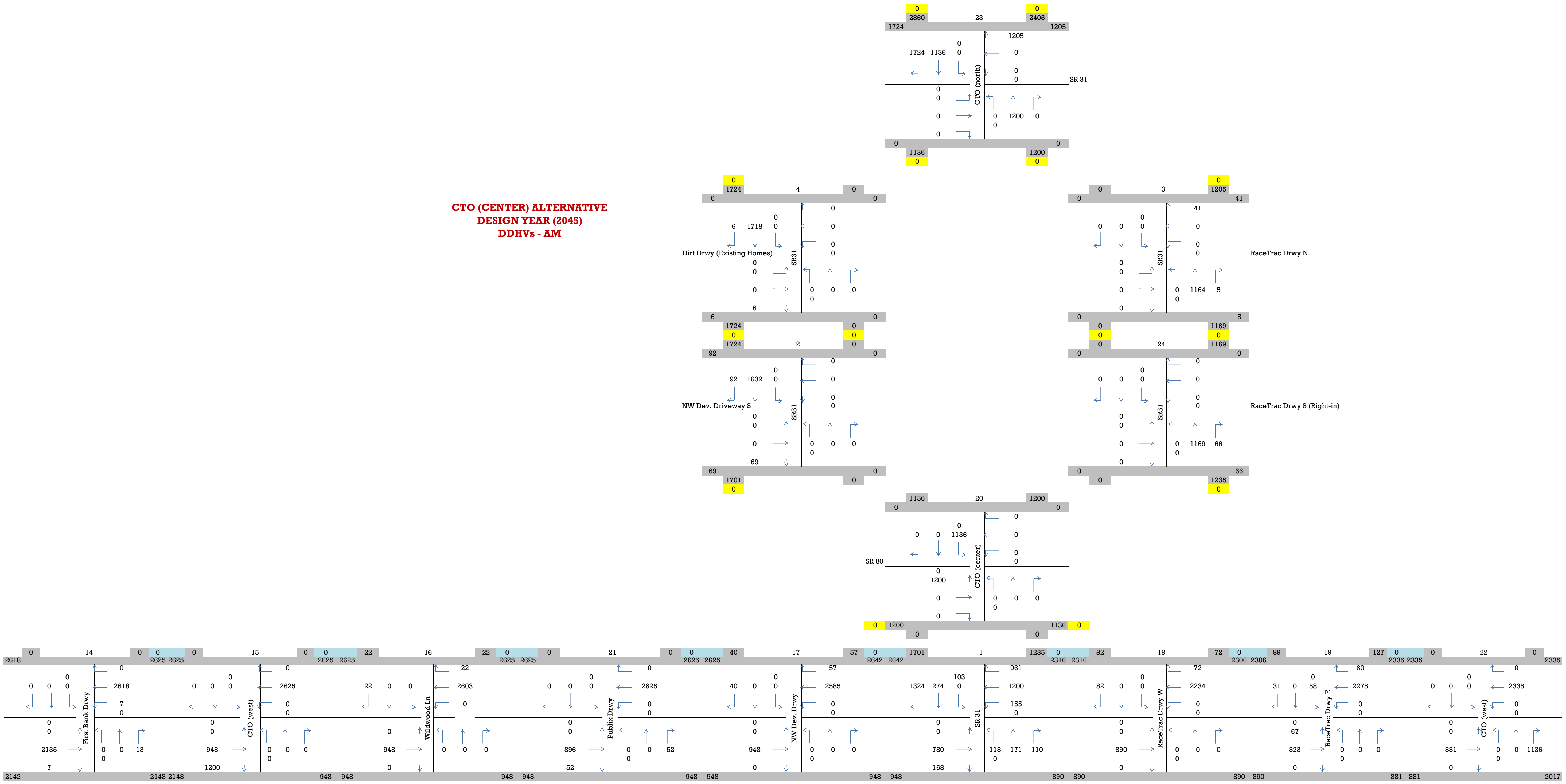
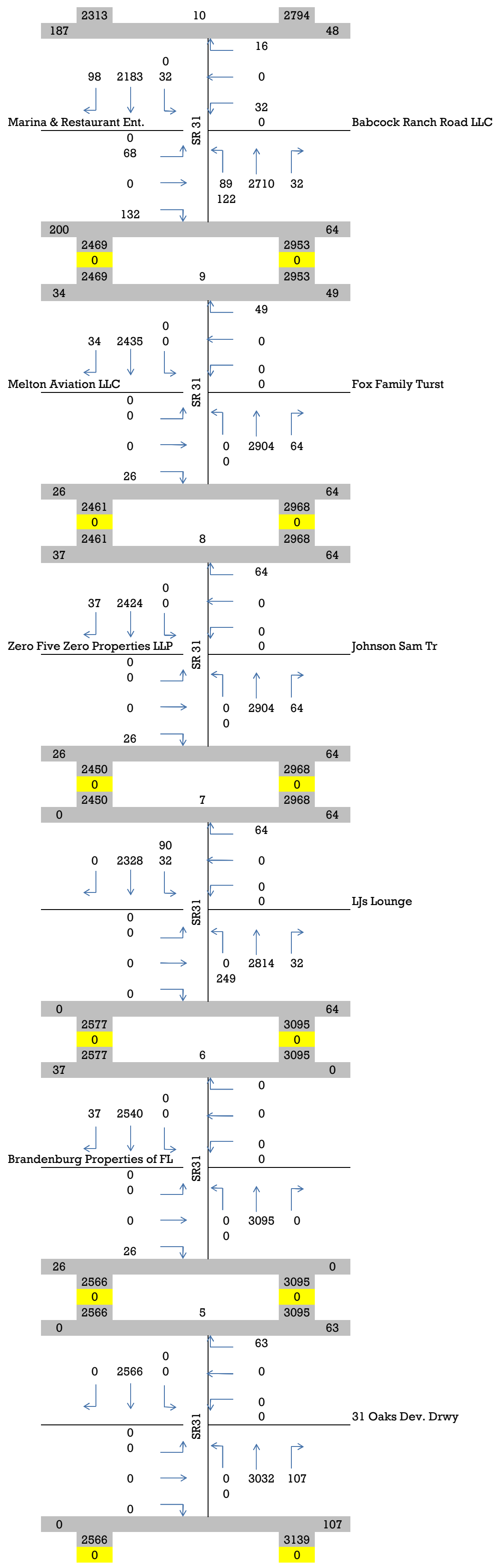
CTO (CENTER) ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - AM



Design Year (2045) PM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Brandenburg Properties of FL
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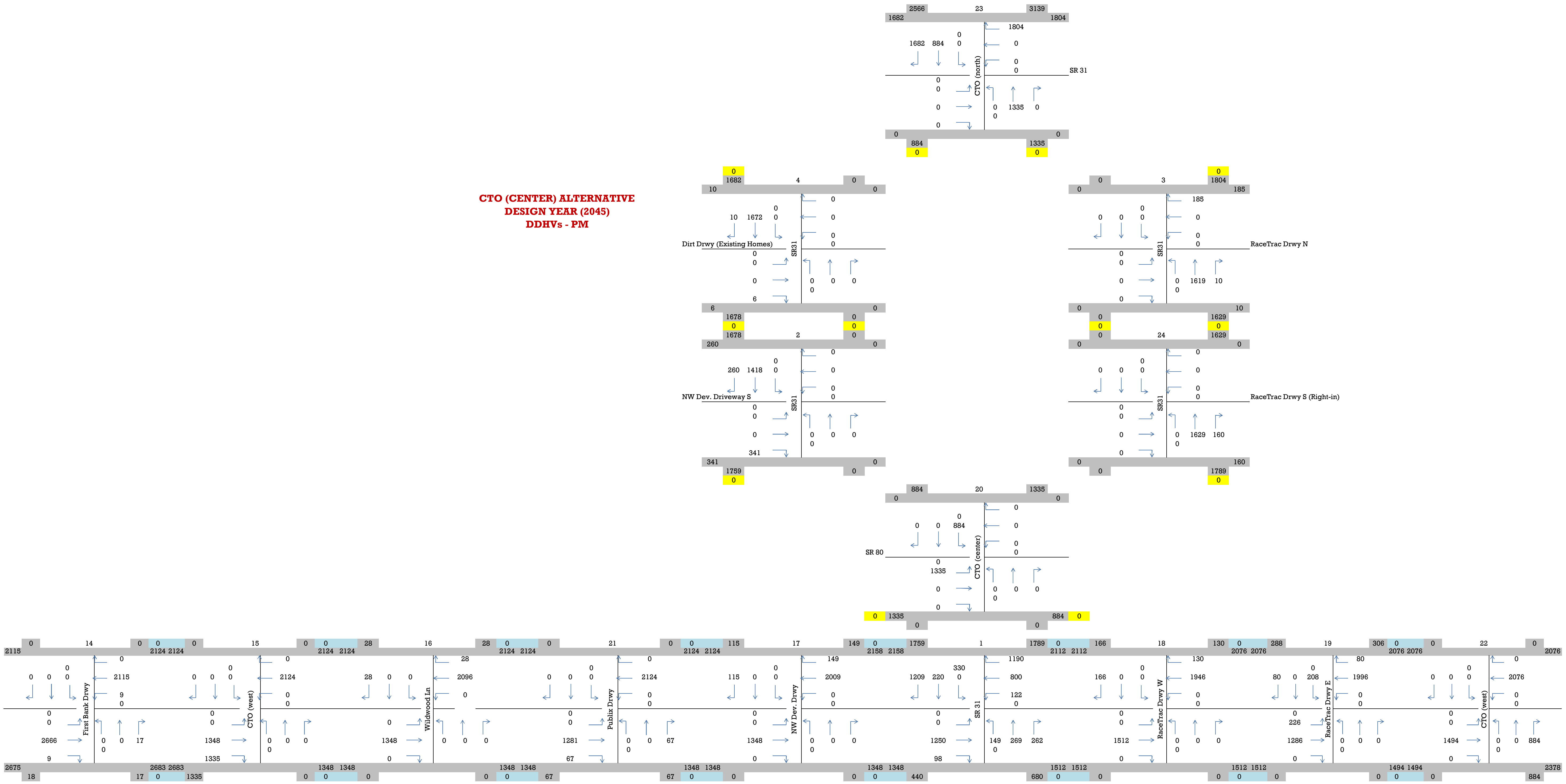
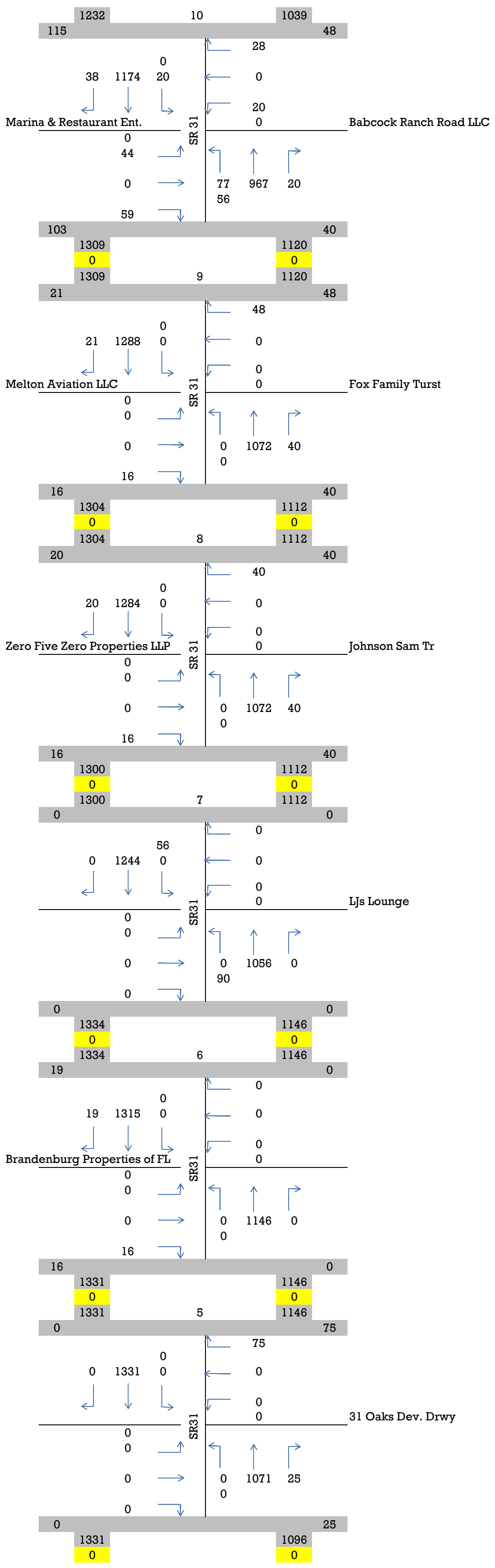
CTO (CENTER) ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - PM



ALTERNATIVE 5 - CTO (SOUTH)

Opening Year (2025) AM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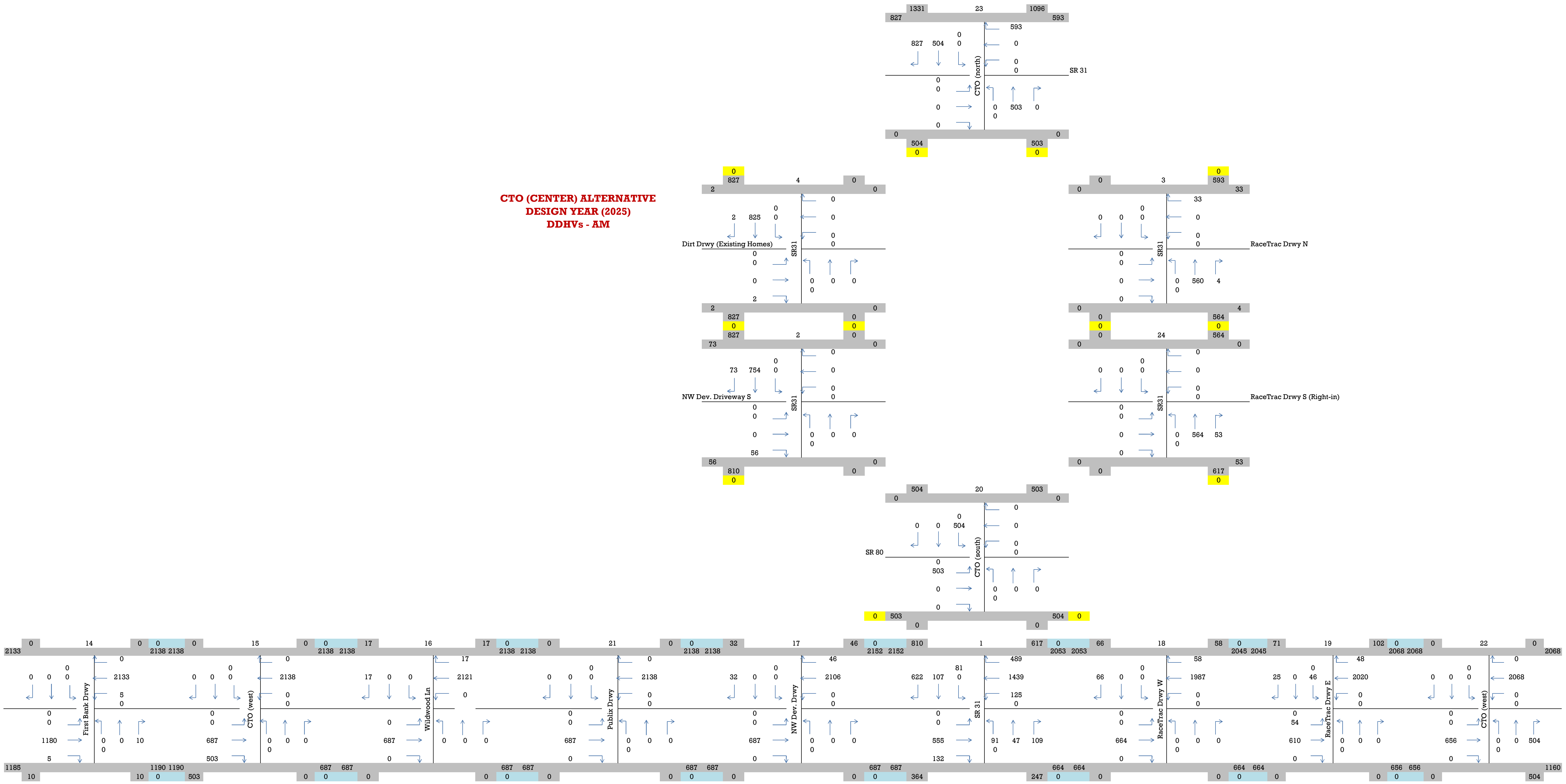
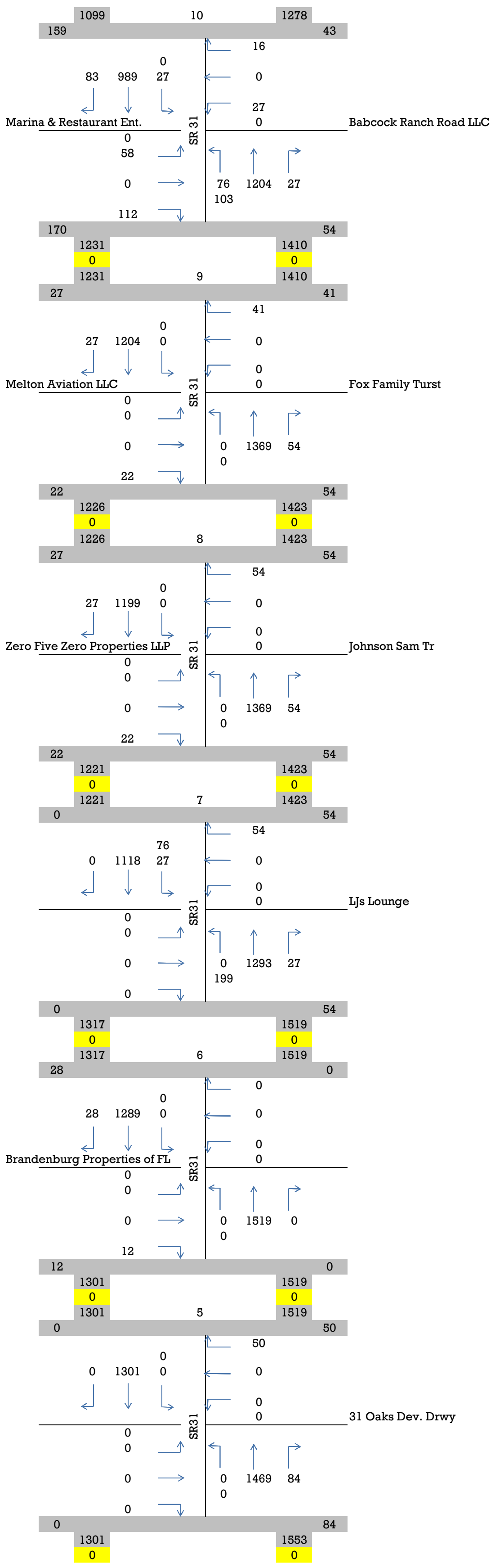
CTO (CENTER) ALTERNATIVE
DESIGN YEAR (2025)
DDHVs - AM



Opening Year (2025) PM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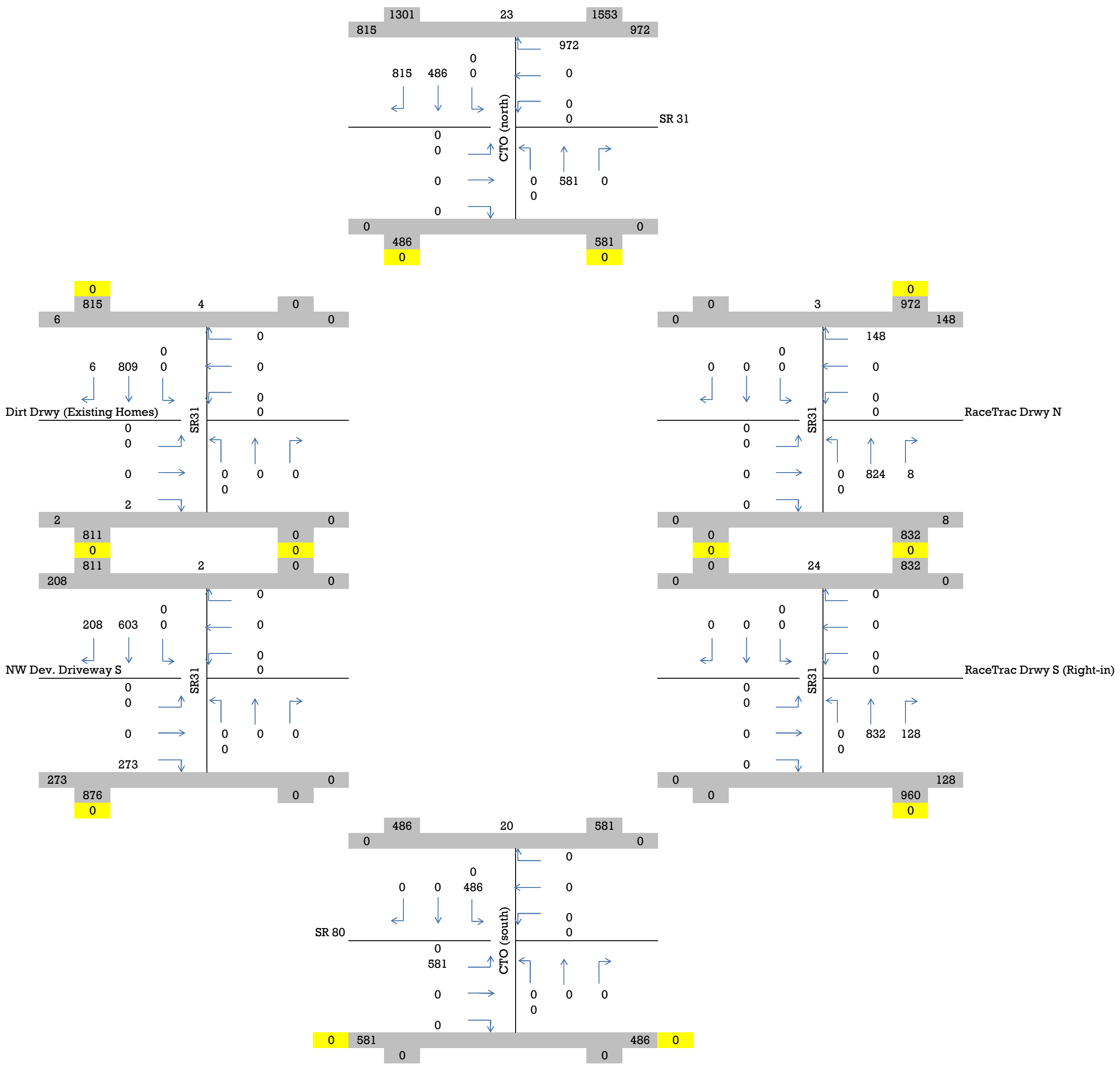
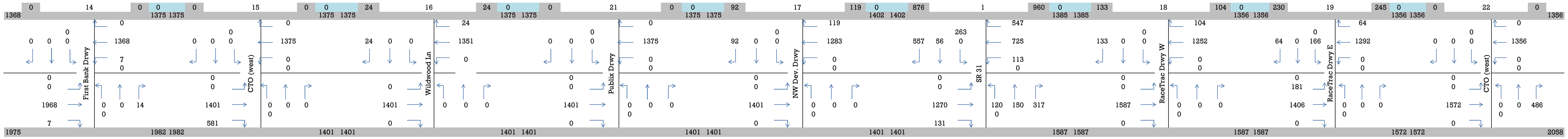
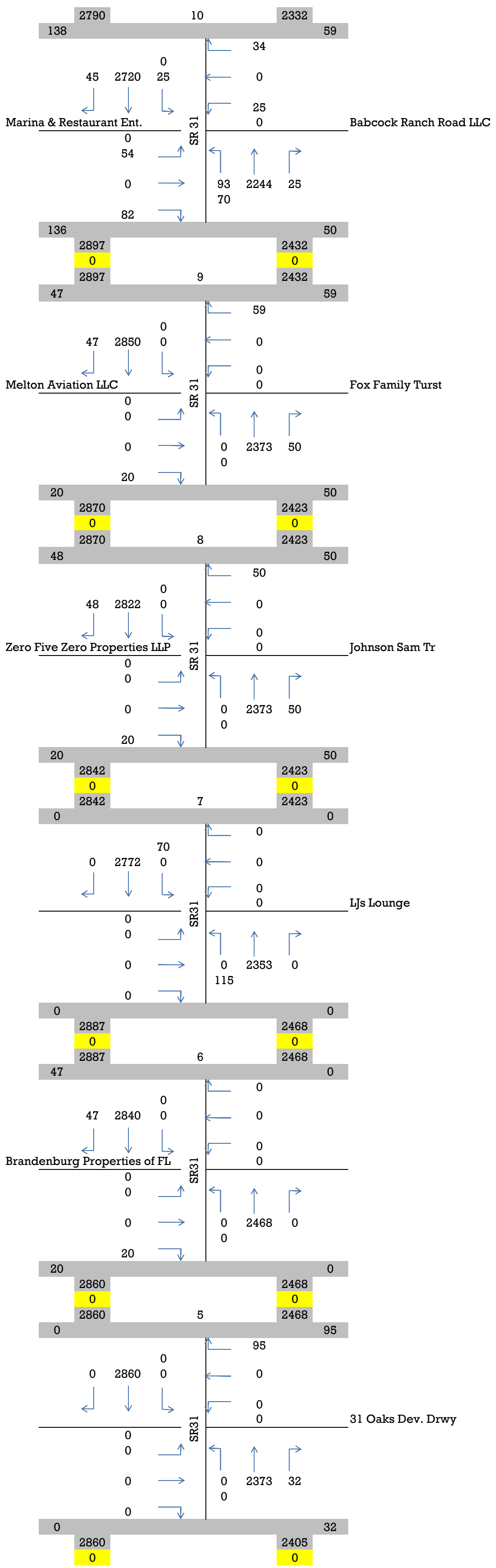
CTO (CENTER) ALTERNATIVE
DESIGN YEAR (2025)
DDHVs - PM





Design Year (2045) AM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Babcock Ranch Road LLC
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Melton Aviation LLC
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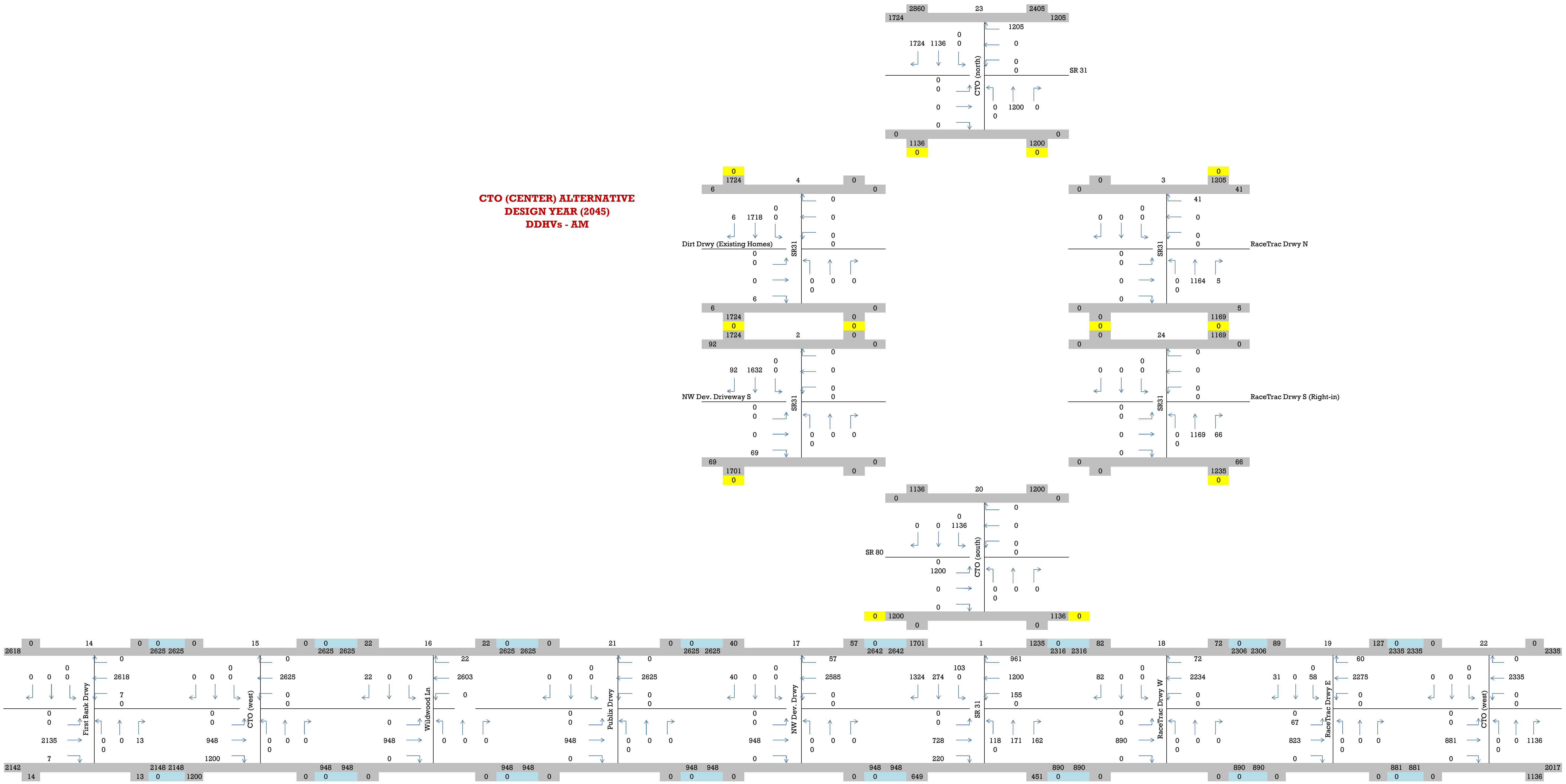
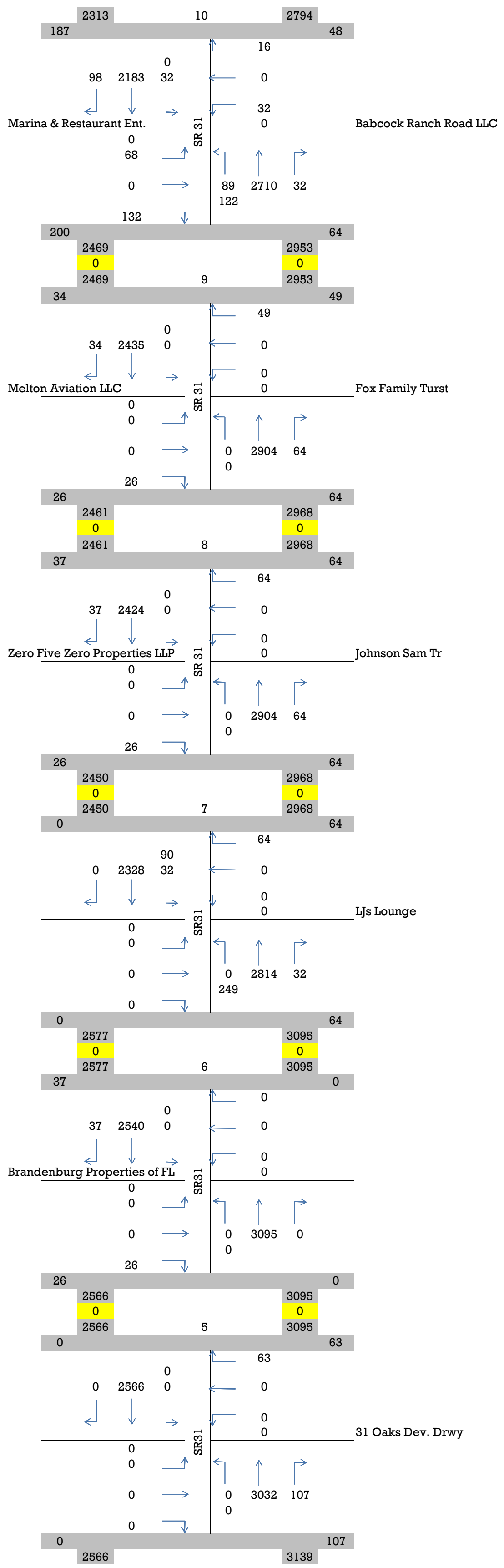
CTO (CENTER) ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - AM



Design Year (2045) PM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SR 31
Babcock Ranch Road LLC
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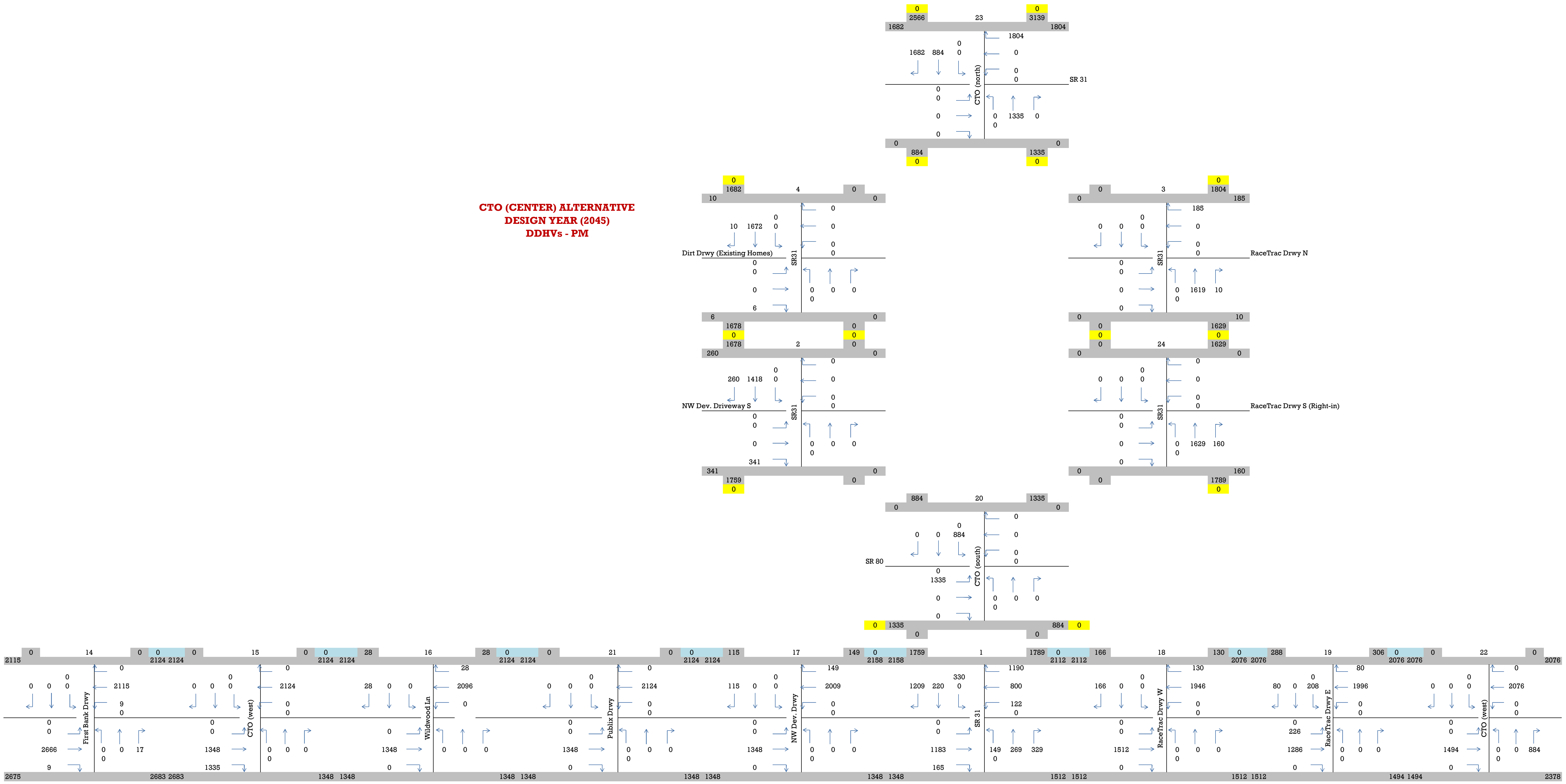
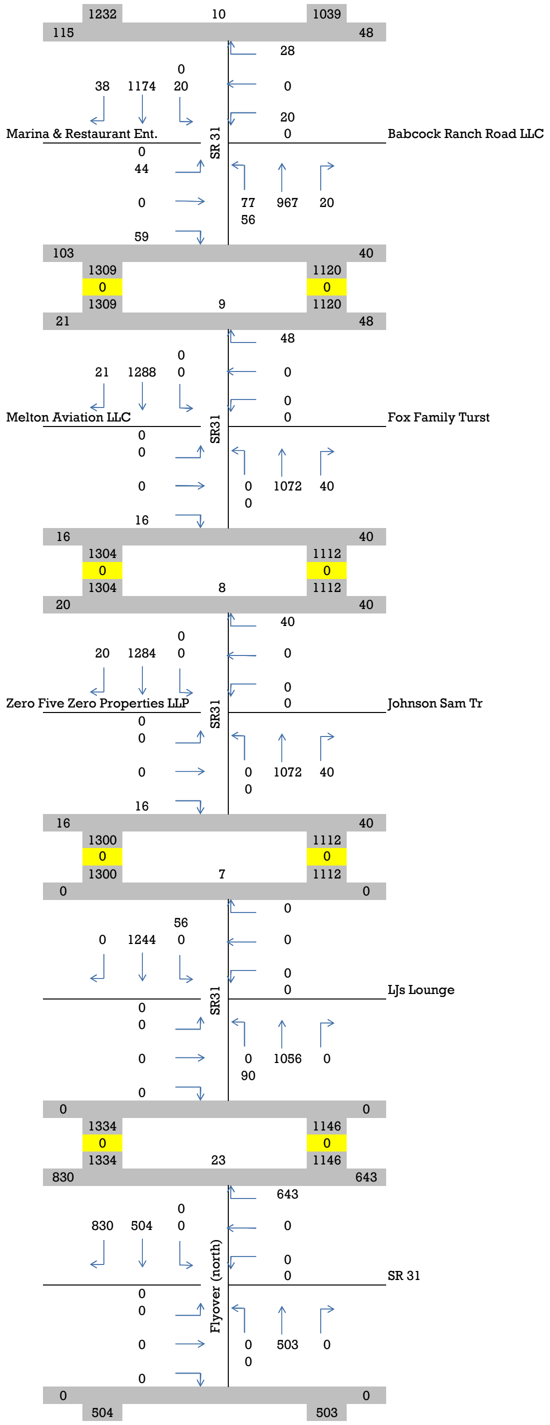
CTO (CENTER) ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - PM



ALTERNATIVE 6 - FLYOVER

Opening Year (2025) AM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Melton Aviation LLC
SR31
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Fox Family Turst
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Zero Five Zero Properties LLP
SR31
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Johnson Sam Tr
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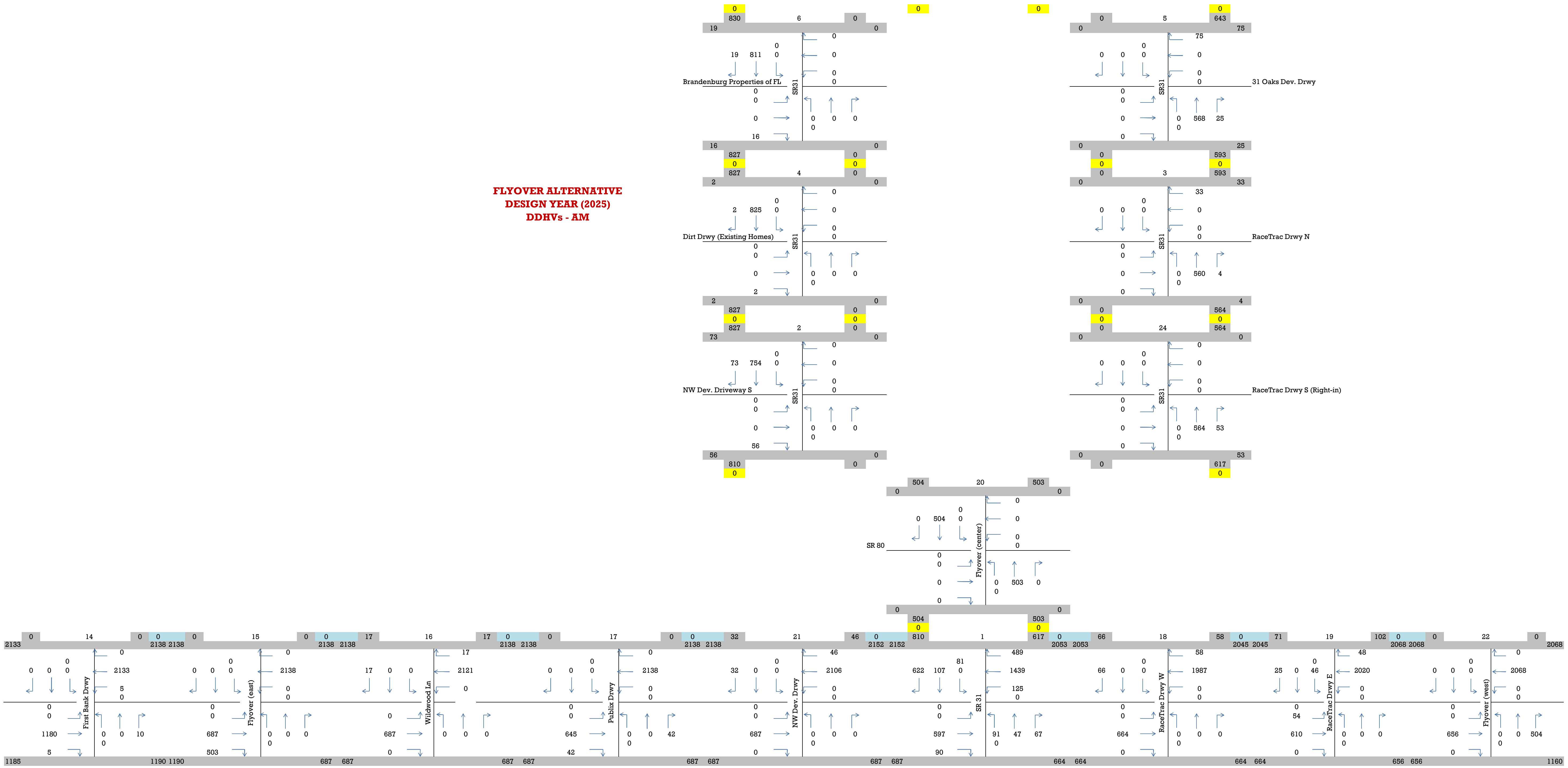
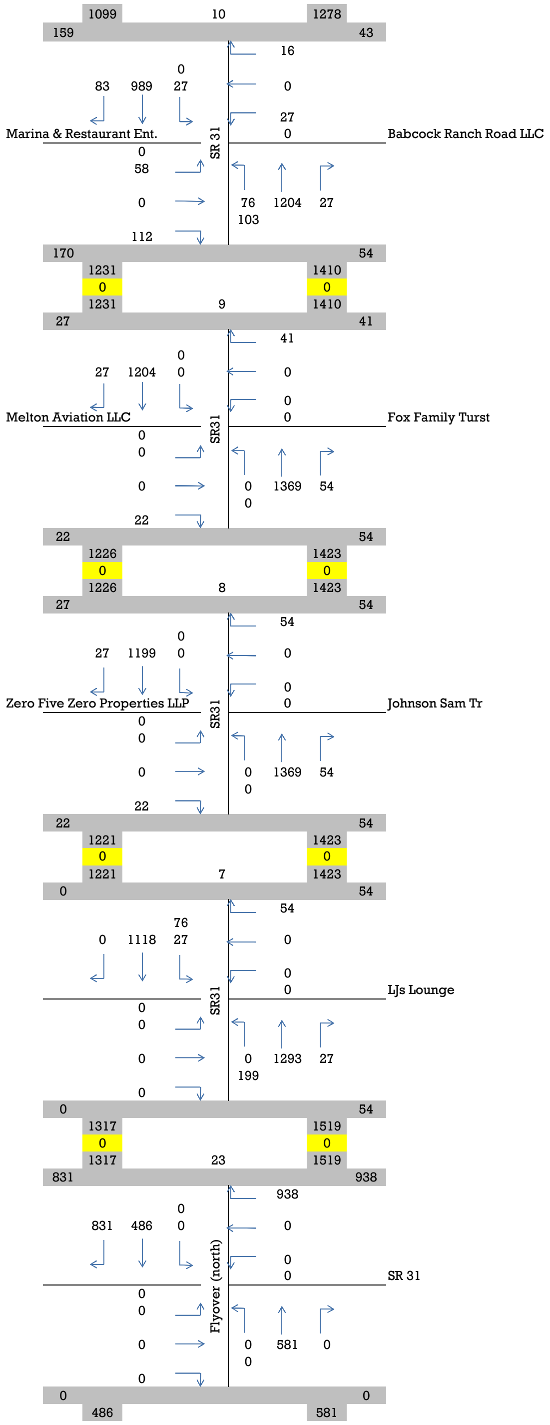
FLYOVER ALTERNATIVE
DESIGN YEAR (2025)
DDHVs - AM



Opening Year (2025) PM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Melton Aviation LLC
SR31
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Zero Five Zero Properties LLP
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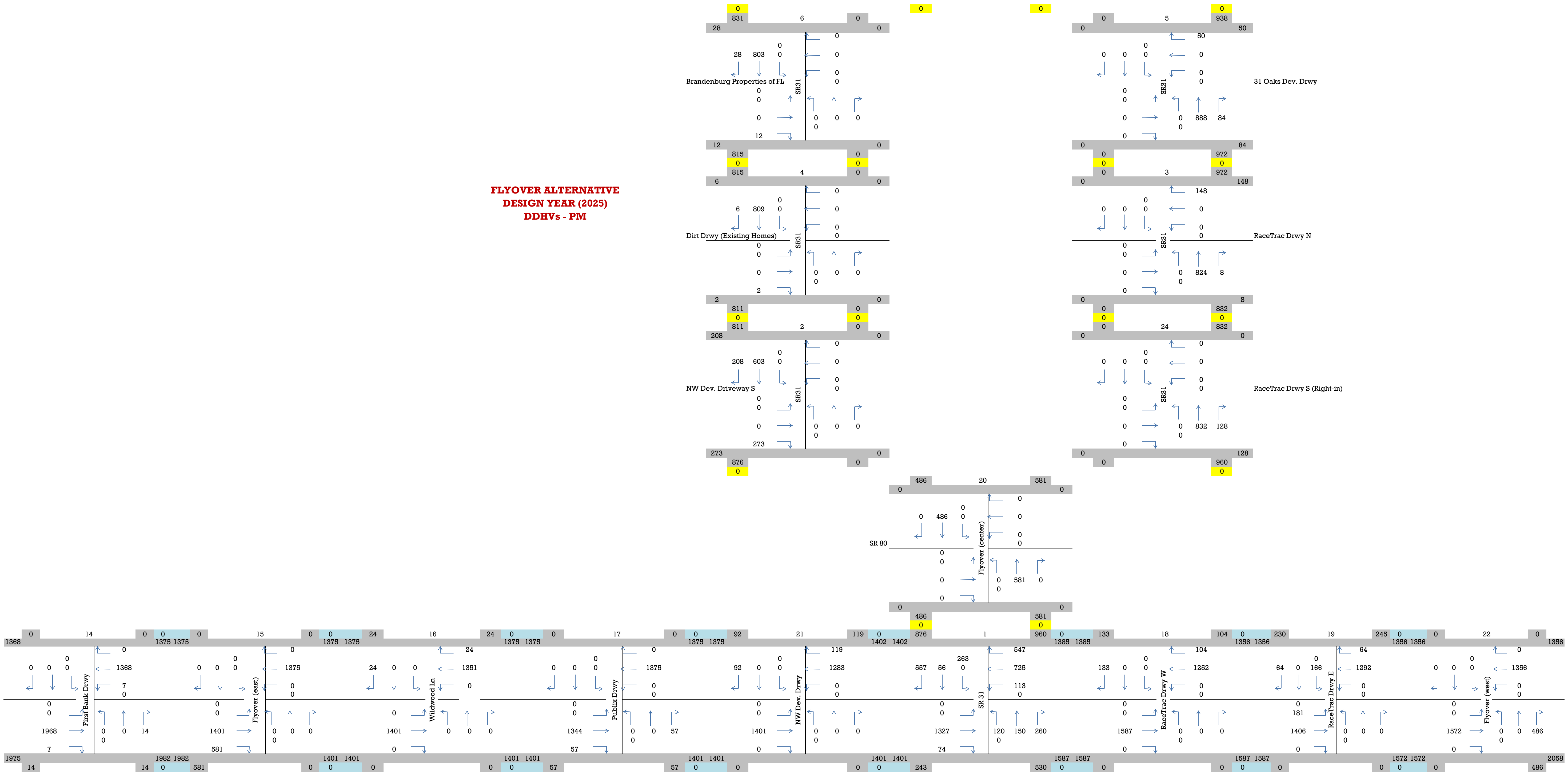
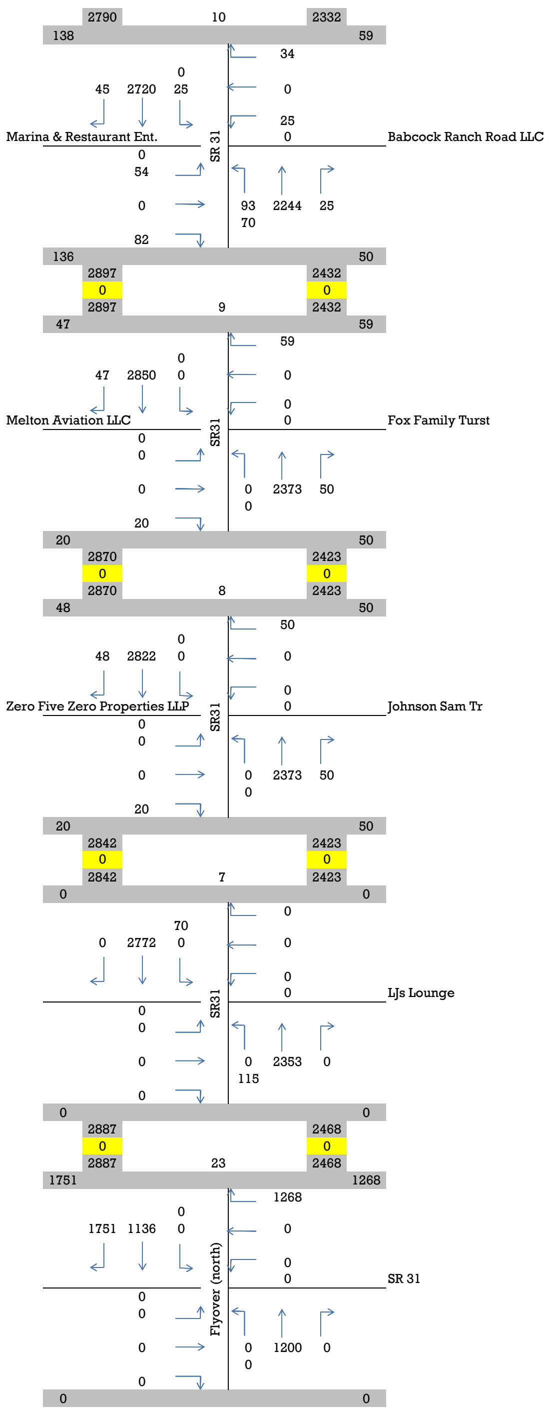
FLYOVER ALTERNATIVE
DESIGN YEAR (2025)
DDHVs - PM



Design Year (2045) AM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Fox Family Turst
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Zero Five Zero Properties LLP
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SR31
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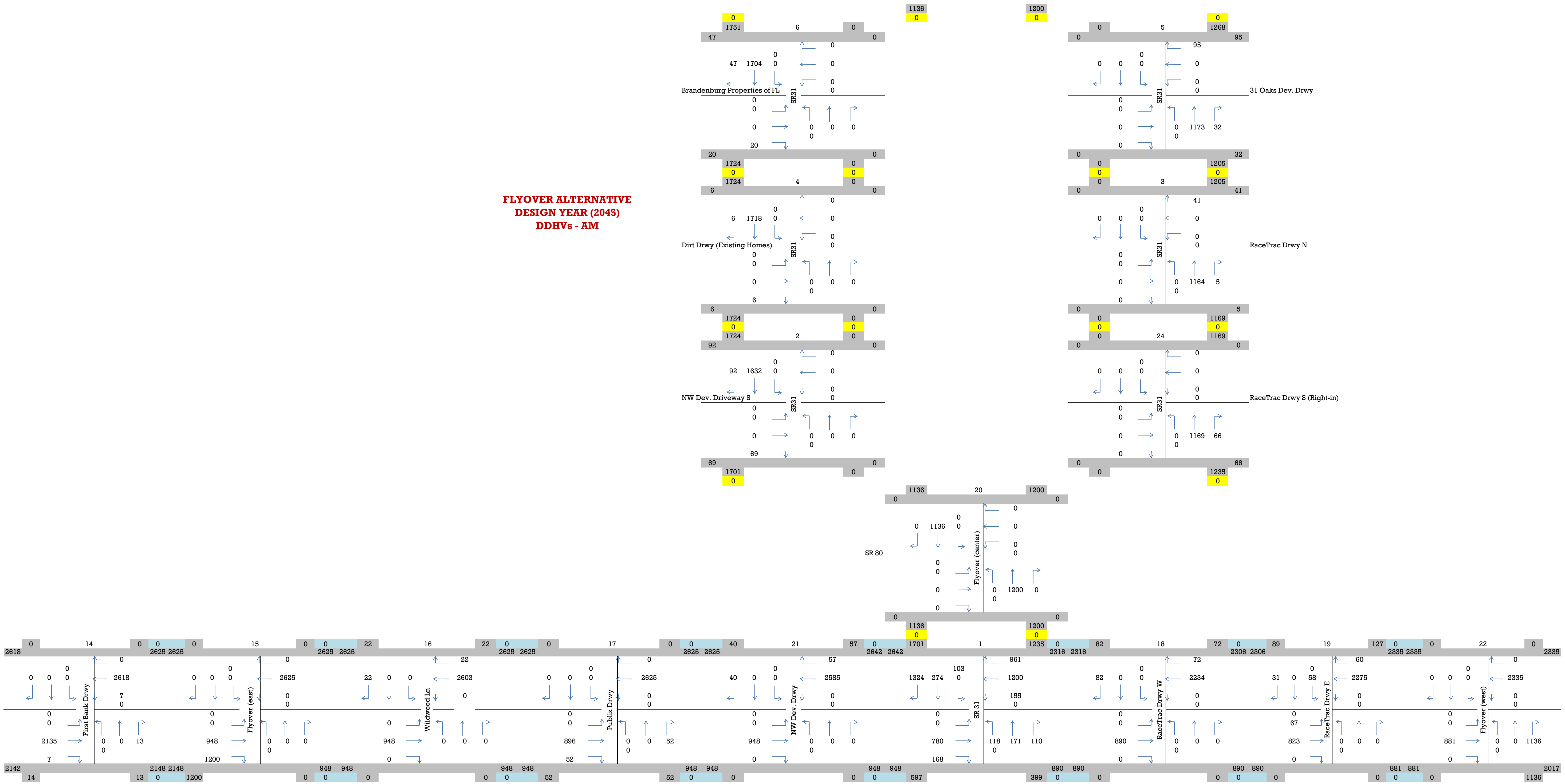
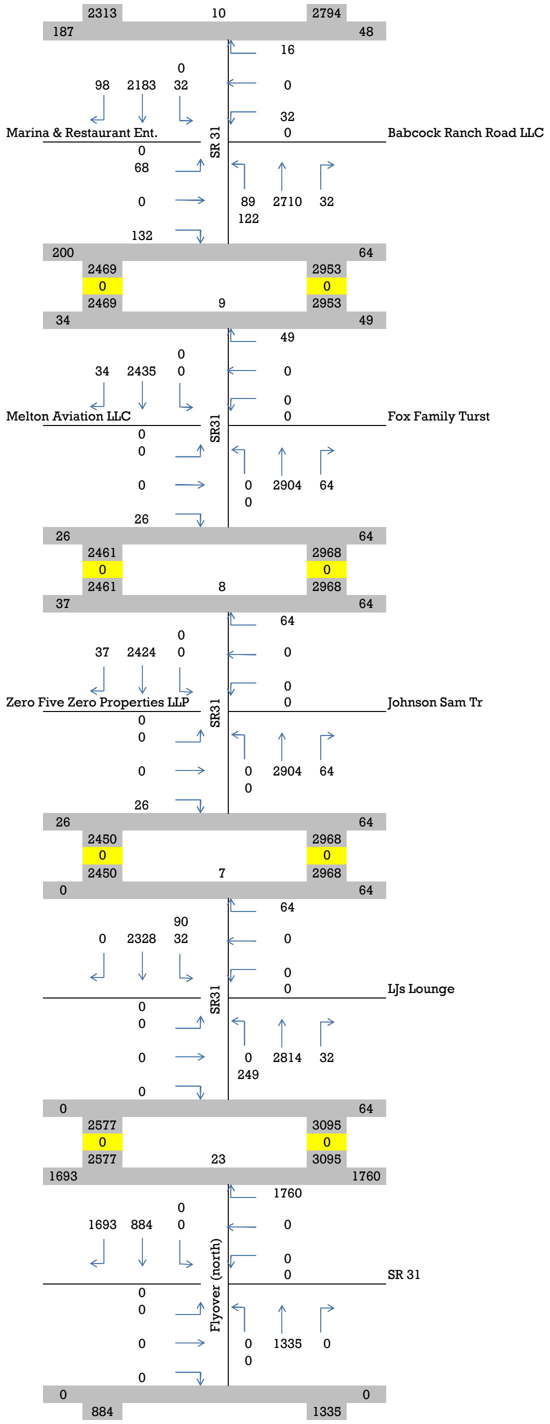
FLYOVER ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - AM



Design Year (2045) PM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Flyover (north)
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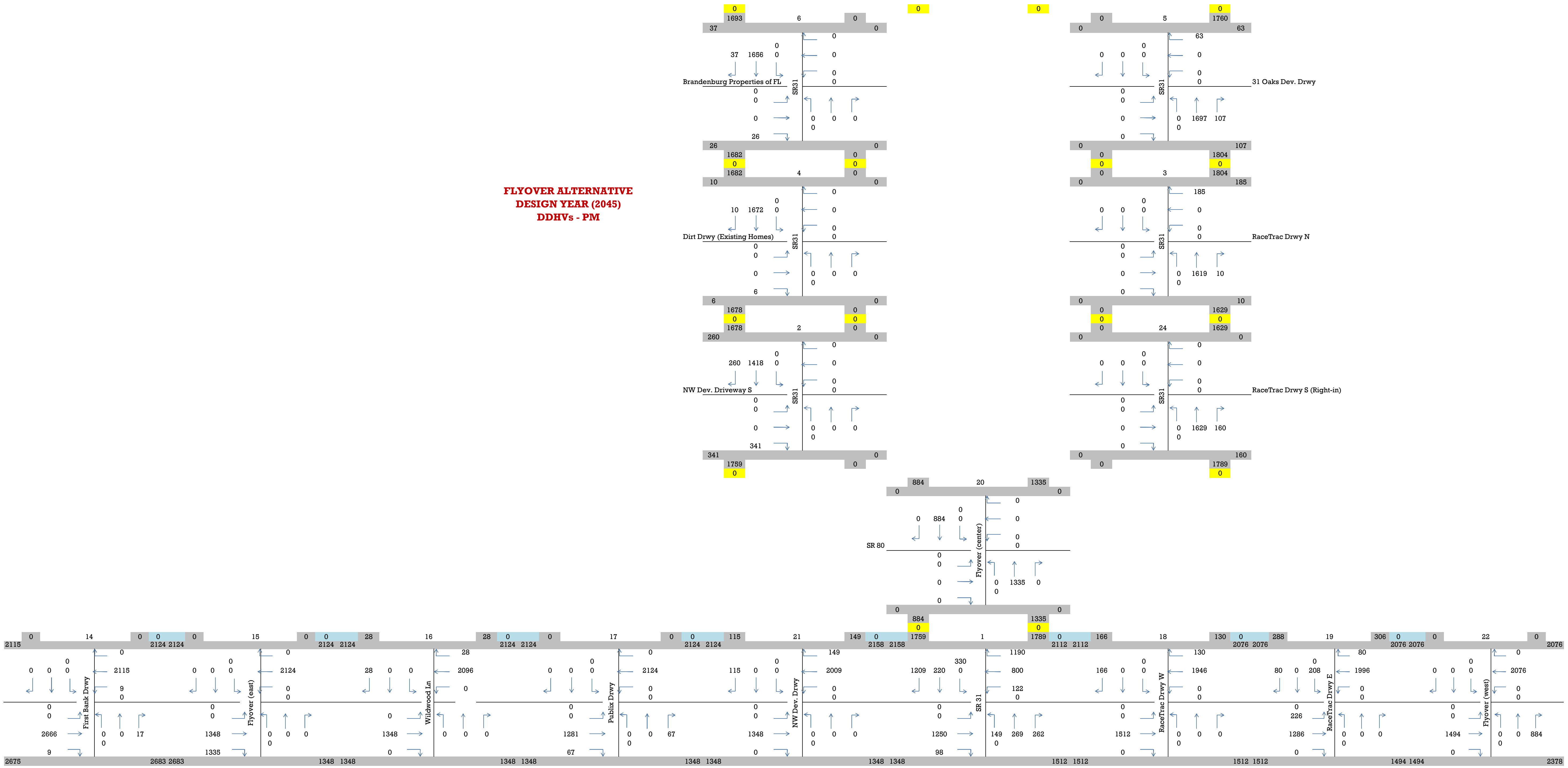
FLYOVER ALTERNATIVE
DESIGN YEAR (2045)
DDHVs - PM



APPENDIX C – 2025 & 2045 AADTs

Contained in this Appendix –

- 2025 AADTs
    - Alternative 1 - Traffic Signal
    - Alternative 2 - Quadrant Roadway
    - Alternative 3 - PDLT/MUT
    - Alternative 4 - CTO (center)
    - Alternative 5 - CTO (south)
    - Alternative 6 - Flyover

- 2045 AADTs
    - Alternative 1 - Traffic Signal
    - Alternative 2 - Quadrant Roadway
    - Alternative 3 - PDLT/MUT
    - Alternative 4 - CTO (center)
    - Alternative 5 - CTO (south)
    - Alternative 6 - Flyover

2025 AADTs

ALTERNATIVE 1 - TRAFFIC SIGNAL

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	First Bank Drwy	0	300	38,600	39,100
	Wildwood Ln	550	0	39,100	39,100
	Publix Drwy	0	1,300	39,100	39,100
	NW Dev. Drwy	2,300	0	39,100	39,100
	SR 31	26,500	8,200	39,100	38,600
	RaceTrac Drwy W	2,600	0	38,600	38,100
	RaceTrac Drwy E	5,300	0	38,100	38,100

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 31	26,500	8,200	39,100	38,600
	NW Dev. Drwy S/ RaceTrac Drwy S (Right-in)	26,000	26,500	600	600
	Frontage Road (NW Dev & RaceTrac Dev)	27,000	26,000	4,800	2,600
	31 Oaks Dev Drwy	26,500	27,000	0	1,500
	Brandenburg Properties of FL	27,000	26,500	450	0
	LJs Lounge	26,500	27,000	0	1,200
	Zero Five Zero Properties LLP/ Johnson Sam Tr	26,500	26,500	550	1,200
	Melton Aviation LLC/ Fox Family Trust	26,500	26,500	550	1,100
	Marina & Restaurant Ent	23,500	26,500	3,700	1,100
	SR 78	25,500	23,500	14,600	0

ALTERNATIVE 2 - QUADRANT ROADWAY

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	Quadrant Road - Intersection	20,500	150	37,500	30,000
	Wildwood Ln	550	0	30,000	30,000
	Publix Drwy	0	1,400	30,000	30,000
	NW Dev. Drwy	2,300	0	30,000	30,500
	SR 31	11,000	8,600	30,500	38,500
	RaceTrac Drwy W	2,600	0	38,500	38,000
	RaceTrac Drwy E	5,300	0	38,000	38,000

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 80	11,000	8,600	30,500	38,500
	NW Dev. Drwy S/ RaceTrac Drwy S	14,000	11,000	1,800	3,100
	RaceTrac Drwy N	14,000	14,000	0	100
	Quadrant Road - Intersection	27,000	14,000	24,500	1,500
	~~31 Oaks Dev Drwy~~	~~27,000~~	~~27,000~~	~~0~~	~~0~~
	Brandenburg Properties of FL	27,500	27,000	450	0
	LJs Lounge	29,500	27,500	0	1,200
	Zero Five Zero Properties LLP/ Johnson Sam Tr	29,500	29,500	550	1,200
	Melton Aviation LLC/ Fox Family Trust	29,500	29,500	550	1,100
	Marina & Restaurant Ent	26,500	29,500	3,700	1,100
	SR 78	28,500	26,500	14,600	0

ALTERNATIVE 3 - PDLT/MUT

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	PDLT Intersection (SR 80 - West)	14,500	150	37,000	25,000
	SR 31	3,600	8,600	25,000	26,000
	PDLT Intersection (SR 80 - East)	14,000	0	26,000	40,000
	RaceTrac Drwy W	2,600	0	40,000	39,500
	RaceTrac Drwy E	6,700	0	39,500	38,000

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 80	3,600	8,600	25,000	26,000
	PDLT Intersection (SR 31 - South)	17,000	3,600	13,500	0
	~~NW Dev. Drwy S~~	~~17,000~~	~~17,000~~	~~0~~	~~0~~
	NW Dev. Drwy N/ PDLT Intersection (SR 31 - North)	33,500	17,000	6,700	15,500
	Dirt Drwy (Existing Homes)	33,500	33,500	100	0
	31 Oaks Dev Drwy	33,000	33,500	0	1,500
	Brandenburg Properties of FL	33,000	33,000	450	0
	LJs Lounge	29,500	33,000	0	1,200
	Zero Five Zero Properties LLP/ Johnson Sam Tr	29,500	29,500	550	1,200
	Melton Aviation LLC/ Fox Family Trust	29,500	29,500	550	1,100
	Marina & Restaurant Ent	26,500	29,500	3,700	1,100
	SR 78	28,500	26,500	14,600	0

ALTERNATIVE 4 - CTO (CENTER)

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	First Bank Drwy	0	300	37,000	37,500
	Wildwood Ln	550	0	31,000	31,000
	Publix Drwy	0	12,500	31,000	31,000
	NW Dev. Drwy	2,300	0	31,000	31,000
	SR 31	20,500	8,600	31,000	33,000
	RaceTrac Drwy W	2,600	0	33,000	32,500
	RaceTrac Drwy E	5,300	0	32,500	32,500

Roadway	Cross-Street	Directional 2025 AADT (Adjusted)			
		West Leg (EB)	West Leg (WB)	East Leg (EB)	East Leg (WB)
SR 80	First Bank Drwy	22,000	15,000	22,000	15,500
	Wildwood Ln	15,500	15,500	15,500	15,500
	Publix Drwy	15,500	15,500	15,500	15,500
	NW Dev. Drwy	15,500	15,500	15,500	15,500
	SR 31	15,500	15,500	17,500	15,500
	RaceTrac Drwy W	17,500	15,500	17,500	15,000
	RaceTrac Drwy E	17,500	15,000	17,500	15,000

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 80	20,500	8,600	31,000	33,000
	NW Dev. Drwy S	18,500	20,500	5,300	0
	RaceTrac Drwy N	20,000	18,500	0	1,700
	Existing Homes Drwy	20,000	18,500	90	0
	31 Oaks Dev Drwy	31,500	31,500	0	1,500
	Brandenburg Properties of FL	31,500	31,500	450	0
	LJs Lounge	29,500	31,500	0	1,200
	Zero Five Zero Properties LLP/ Joh	29,500	29,500	550	1,200
	Melton Aviation LLC/ Fox Family T	29,500	29,500	550	1,100
	Marina & Restaurant Ent	26,500	29,500	3,700	1,100
	SR 78	28,500	26,500	28,600	0
	Race Trac Drwy S	9,200	10,500	0	1,400

Roadway	Cross-Street	Directional 2025 AADT (Adjusted)			
		South Leg (NB)	South Leg (SB)	North Leg (NB)	North Leg (SB)
SR 31	SR 80	5,900	2,700	10,500	9,700
	NW Dev. Drwy S	10,500	9,700	9,200	9,000
	RaceTrac Drwy N	9,200	9,000	11,000	9,100
	Existing Homes Drwy	9,200	9,000	11,000	9,100
	31 Oaks Dev Drwy	17,500	14,500	17,000	14,500
	Brandenburg Properties of FL	17,000	14,500	17,000	14,500
	LJs Lounge	0	0	0	0
	Zero Five Zero Properties LLP/ Joh	0	0	0	0
	Melton Aviation LLC/ Fox Family T	0	0	0	0
	Marina & Restaurant Ent	0	0	0	0
	SR 78	0	0	28,600	0
	Race Trac Drwy S	0	0	0	0

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
CTO	CTO (center)	12,000	0	6,500	5,400
	CTO (west)	0	6,500	37,500	31,000
	CTO (east)	0	5,400	32,500	38,000
	CTO (north)	31,500	12,000	9,100	11,000

Roadway	Cross-Street	2025 AADT (Adjusted)
CTO	Entering Flyover EBL Ramp	6,500
	Existing Flyover NB Ramp	6,500
	Entering Flyover SB Ramp	5,400
	Existing Flyover SBL Ramp	5,400

No.	Roadway	Cross-Street	PM TMVs (incom	2025 AADT (usin	2025 AADT
	SR80	EB (West Leg)	1,401	15,567	15,500
		WB (West Leg)	1,402	15,578	15,500
		EB (East Leg)	1,587	17,633	17,500
		WB (East Leg)	1,385	15,389	15,500
		NB (North Leg)	960	10,667	10,500
		SB (North Leg)	876	9,733	9,700

ALTERNATIVE 5 - CTO (SOUTH)

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	First Bank Drwy	0	300	37,000	37,500
	Wildwood Ln	550	0	31,000	31,000
	Publix Drwy	0	12,000	31,000	31,000
	NW Dev. Drwy	2,300	0	31,000	31,000
	SR 31	20,500	9,900	31,000	33,000
	RaceTrac Drwy W	2,600	0	33,000	32,500
	RaceTrac Drwy E	5,300	0	32,500	32,500

Roadway	Cross-Street	Directional 2025 AADT (Adjusted)			
		West Leg (EB)	West Leg (WB)	East Leg (EB)	East Leg (WB)
SR 80	First Bank Drwy	22,000	15,000	22,000	15,500
	Wildwood Ln	15,500	15,500	15,500	15,500
	Publix Drwy	15,500	15,500	15,500	15,500
	NW Dev. Drwy	15,500	15,500	15,500	15,500
	SR 31	15,500	15,500	17,500	15,500
	RaceTrac Drwy W	17,500	15,500	17,500	15,000
	RaceTrac Drwy E	17,500	15,000	17,500	15,000

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 80	20,500	9,900	31,000	33,000
	NW Dev. Drwy S	18,500	20,500	5,300	0
	RaceTrac Drwy N	20,000	18,500	0	1,700
	Existing Homes Drwy	20,000	18,500	90	0
	31 Oaks Dev Drwy	31,500	31,500	0	1,500
	Brandenburg Properties of FL	31,500	31,500	450	0
	LJs Lounge	29,500	31,500	0	1,200
	Zero Five Zero Properties LLP/ Joh	29,500	29,500	550	1,200
	Melton Aviation LLC/ Fox Family T	29,500	29,500	550	1,100
	Marina & Restaurant Ent	26,500	29,500	3,700	1,100
	SR 78	28,500	26,500	28,600	0
	Race Trac Drwy S	9,200	10,500	0	1,400

Roadway	Cross-Street	Directional 2025 AADT (Adjusted)			
		South Leg (NB)	South Leg (SB)	North Leg (NB)	North Leg (SB)
SR 31	SR 80	6,500	3,300	10,500	9,700
	NW Dev. Drwy S	10,500	9,700	9,200	9,000
	RaceTrac Drwy N	9,200	9,000	11,000	9,100
	Existing Homes Drwy	9,200	9,000	11,000	9,100
	31 Oaks Dev Drwy	17,500	14,500	17,000	14,500
	Brandenburg Properties of FL	17,000	14,500	17,000	14,500
	LJs Lounge	0	0	0	0
	Zero Five Zero Properties LLP/ Joh	0	0	0	0
	Melton Aviation LLC/ Fox Family T	0	0	0	0
	Marina & Restaurant Ent	0	0	0	0
	SR 78	0	0	28,600	0
	Race Trac Drwy S	0	0	0	0

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
CTO	CTO (center)	12,000	0	6,500	5,400
	CTO (west)	0	6,500	37,500	31,000
	CTO (east)	0	5,400	32,500	38,000
	CTO (north)	31,500	12,000	9,100	11,000

Roadway	Cross-Street	2025 AADT (Adjusted)
CTO	Entering Flyover EBL Ramp	6,500
	Existing Flyover NB Ramp	6,500
	Entering Flyover SB Ramp	5,400
	Existing Flyover SBL Ramp	5,400

ALTERNATIVE 6 - FLYOVER

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	First Bank Drwy	0	300	37,000	37,500
	Wildwood Ln	550	0	31,000	31,000
	Publix Drwy	0	12,500	31,000	31,000
	NW Dev. Drwy	2,300	0	31,000	31,000
	SR 31	20,500	8,600	31,000	33,000
	RaceTrac Drwy W	2,600	0	33,000	32,500
	RaceTrac Drwy E	5,300	0	32,500	32,500

Roadway	Cross-Street	Directional 2025 AADT (Adjusted)			
		West Leg (EB)	West Leg (WB)	East Leg (EB)	East Leg (WB)
SR 80	First Bank Drwy	22,000	15,000	22,000	15,500
	Wildwood Ln	15,500	15,500	15,500	15,500
	Publix Drwy	15,500	15,500	15,500	15,500
	NW Dev. Drwy	15,500	15,500	15,500	15,500
	SR 31	15,500	15,500	17,500	15,500
	RaceTrac Drwy W	17,500	15,500	17,500	15,000
	RaceTrac Drwy E	17,500	15,000	17,500	15,000

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 80	20,500	8,600	31,000	33,000
	NW Dev. Drwy S	18,500	20,500	5,300	0
	RaceTrac Drwy N	20,000	18,500	0	1,700
	Existing Homes Drwy	20,000	18,500	90	0
	31 Oaks Dev Drwy	19,500	20,000	0	1,500
	Brandenburg Properties of FL	19,500	20,000	450	0
	LJs Lounge	29,500	31,500	0	1,200
	Zero Five Zero Properties LLP/ Joh	29,500	29,500	550	1,200
	Melton Aviation LLC/ Fox Family T	29,500	29,500	550	1,100
	Marina & Restaurant Ent	26,500	29,500	3,700	1,100
	SR 78	28,500	26,500	28,600	0
	Race Trac Drwy S	9,200	10,500	0	1,400

Roadway	Cross-Street	Directional 2025 AADT (Adjusted)			
		South Leg (NB)	South Leg (SB)	North Leg (NB)	North Leg (SB)
SR 31	SR 80	5,900	2,700	10,500	9,700
	NW Dev. Drwy S	10,500	9,700	9,200	9,000
	RaceTrac Drwy N	9,200	9,000	11,000	9,100
	Existing Homes Drwy	9,200	9,000	11,000	9,100
	31 Oaks Dev Drwy	11,000	9,100	10,500	9,200
	Brandenburg Properties of FL	11,000	9,100	10,500	9,200
	LJs Lounge	0	0	0	0
	Zero Five Zero Properties LLP/ Joh	0	0	0	0
	Melton Aviation LLC/ Fox Family T	0	0	0	0
	Marina & Restaurant Ent	0	0	0	0
	SR 78	0	0	28,600	0
	Race Trac Drwy S	0	0	0	0

Roadway	Cross-Street	2025 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
Flyover	Flyover (center)	12,000	12,000	0	0
	Flyover (west)	0	6,500	37,500	31,000
	Flyover (east)	0	5,400	32,500	38,000
	Flyover (north)	31,500	12,000	9,200	10,500

Roadway	Cross-Street	2025 AADT (Adjusted)
Flyover	Entering Flyover EBL Ramp	6,500
	Existing Flyover NB Ramp	6,500
	Entering Flyover SB Ramp	5,400
	Existing Flyover SBL Ramp	5,400

2045 AADTs

ALTERNATIVE 1 - TRAFFIC SIGNAL

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	First Bank Drwy	0	400	52,400	52,900
	Wildwood Ln	600	0	52,900	52,900
	Publix Drwy	0	1,500	52,900	52,900
	NW Dev. Drwy	2,900	0	52,900	53,400
	SR 31	56,800	11,000	53,400	48,800
	RaceTrac Drwy W	3,300	0	48,800	48,300
	RaceTrac Drwy E	6,600	0	48,300	48,300

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 31	56,800	11,000	53,400	48,800
	NW Dev. Drwy S/ RaceTrac Drwy S (Right-in)	56,300	56,800	750	700
	Frontage Road (NW Dev & RaceTrac Dev)	57,800	56,300	6,100	3,200
	31 Oaks Dev Drwy	57,300	57,800	0	1,900
	Brandenburg Properties of FL	57,300	57,300	700	0
	LJs Lounge	56,300	57,300	0	1,400
	Zero Five Zero Properties LLP/ Johnson Sam Tr	56,800	56,300	700	1,400
	Melton Aviation LLC/ Fox Family Trust	56,300	56,800	650	1,300
	Marina & Restaurant Ent	52,800	56,300	4,300	1,200
	SR 78	61,800	52,800	28,600	0

ALTERNATIVE 2 - QUADRANT ROADWAY

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	Quadrant Road - Intersection	41,000	200	53,500	34,500
	Wildwood Ln	600	0	34,500	34,500
	Publix Drwy	0	1,700	34,500	34,500
	NW Dev. Drwy	2,900	0	34,500	35,000
	SR 31	21,500	12,500	35,000	50,000
	RaceTrac Drwy W	3,300	0	50,000	49,500
	RaceTrac Drwy E	6,600	0	49,500	49,500

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 80	21,500	12,500	35,000	50,000
	NW Dev. Drwy S/ RaceTrac Drwy S	25,500	21,500	2,300	3,800
	RaceTrac Drwy N	25,500	25,500	0	100
	Quadrant Road - Intersection/ 31 Oaks Dev Drwy	57,500	25,500	45,500	1,900
	~~31 Oaks Dev Drwy~~	~~57,500~~	~~57,500~~	~~0~~	~~0~~
	Brandenburg Properties of FL	58,000	57,500	700	0
	LJs Lounge	60,000	58,000	0	1,400
	Zero Five Zero Properties LLP/ Johnson Sam Tr	60,500	60,000	700	1,400
	Melton Aviation LLC/ Fox Family Trust	60,000	60,500	650	1,300
	Marina & Restaurant Ent	56,500	60,000	4,300	1,200
	SR 78	65,500	56,500	28,600	0

ALTERNATIVE 3 - PDLT/MUT

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	PDLT Intersection (SR 80 - West)	30,500	200	53,000	25,500
	SR 31	7,100	12,500	25,500	26,000
	PDLT Intersection (SR 80 - East)	26,000	0	26,000	52,000
	RaceTrac Drwy W	3,300	0	52,000	51,500
	RaceTrac Drwy E	8,400	0	51,500	49,500

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 80	7,100	12,500	25,500	26,000
	PDLT Intersection (SR 31 - South)	36,500	7,100	29,500	0
	~~NW Dev. Drwy S~~	~~36,500~~	~~36,500~~	~~0~~	~~0~~
	NW Dev. Drwy N/ PDLT Intersection (SR 31 - North)	65,500	36,500	8,300	28,000
	Dirt Drwy (Existing Homes)	65,500	65,500	200	0
	31 Oaks Dev Drwy	65,000	65,500	0	1,900
	Brandenburg Properties of FL	65,000	65,000	700	0
	LJs Lounge	60,000	65,000	0	1,400
	Zero Five Zero Properties LLP/ Johnson Sam Tr	60,500	60,000	700	1,400
	Melton Aviation LLC/ Fox Family Trust	60,000	60,500	650	1,300
	Marina & Restaurant Ent	56,500	60,000	4,300	1,200
	SR 78	65,500	56,500	28,600	0

ALTERNATIVE 4 - CTO (CENTER)

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	First Bank Drwy	0	400	53,000	53,500
	Wildwood Ln	600	0	38,500	38,500
	Publix Drwy	0	19,000	38,500	38,500
	NW Dev. Drwy	2,900	0	38,500	39,000
	SR 31	39,500	12,500	39,000	40,500
	RaceTrac Drwy W	3,300	0	40,500	40,000
	RaceTrac Drwy E	6,600	0	40,000	39,500

Roadway	Cross-Street	Directional 2045 AADT (Adjusted)			
		West Leg (EB)	West Leg (WB)	East Leg (EB)	East Leg (WB)
SR 80	First Bank Drwy	29,500	23,500	30,000	23,500
	Wildwood Ln	15,000	23,500	15,000	23,500
	Publix Drwy	15,000	23,500	15,000	23,500
	NW Dev. Drwy	15,000	23,500	15,000	24,000
	SR 31	15,000	24,000	17,000	23,500
	RaceTrac Drwy W	17,000	23,500	17,000	23,000
	RaceTrac Drwy E	17,000	23,000	16,500	23,000

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 80	39,500	12,500	39,000	40,500
	NW Dev. Drwy S	36,500	39,500	6,700	0
	RaceTrac Drwy N	38,500	36,500	0	2,200
	Existing Homes Drwy	38,500	36,500	200	0
	31 Oaks Dev Drwy	63,000	63,500	0	1,900
	Brandenburg Properties of FL	63,000	63,000	700	0
	LJs Lounge	60,000	63,000	0	1,400
	Zero Five Zero Properties LLP/ Joh	60,500	60,000	700	1,400
	Melton Aviation LLC/ Fox Family T	60,000	60,500	650	1,300
	Marina & Restaurant Ent	56,500	60,000	4,300	1,200
	SR 78	65,500	56,500	28,600	0
	Race Trac Drwy S	18,000	20,000	0	1,800

Roadway	Cross-Street	Directional 2045 AADT (Adjusted)			
		South Leg (NB)	South Leg (SB)	North Leg (NB)	North Leg (SB)
SR 31	SR 80	7,600	4,900	20,000	19,500
	NW Dev. Drwy S	20,000	19,500	18,000	18,500
	RaceTrac Drwy N	18,000	18,500	20,000	18,500
	Existing Homes Drwy	18,000	18,500	20,000	18,500
	31 Oaks Dev Drwy	35,000	28,500	34,500	28,500
	Brandenburg Properties of FL	34,500	28,500	34,500	28,500
	LJs Lounge	0	0	0	0
	Zero Five Zero Properties LLP/ Joh	0	0	0	0
	Melton Aviation LLC/ Fox Family T	0	0	0	0
	Marina & Restaurant Ent	0	0	0	0
	SR 78	0	0	28,600	0
	Race Trac Drwy S	0	0	0	0

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
CTO	CTO (center)	24,500	0	15,000	9,800
	CTO (west)	0	15,000	53,500	38,500
	CTO (east)	0	9,800	39,500	49,500
	CTO (north)	63,500	24,500	18,500	20,000

Roadway	Cross-Street	2045 AADT (Adjusted)
CTO	Entering Flyover EBL Ramp	15,000
	Existing Flyover NB Ramp	15,000
	Entering Flyover SB Ramp	9,800
	Existing Flyover SBL Ramp	9,800

No.	Roadway	Cross-Street	PM TMVs	2045 AADT	2045 AADT
	SR80	EB (West Leg)	1,348	14,978	15,000
		WB (West Leg)	2,158	23,978	24,000
		EB (East Leg)	1,512	16,800	17,000
		WB (East Leg)	2,112	23,467	23,500
		NB (North Leg)	1,789	19,878	20,000
		SB (North Leg)	1,759	19,544	19,500

ALTERNATIVE 5 - CTO (SOUTH)

		2045 AADT (Adjusted)			
Roadway	**Cross-Street**	**North Leg**	**South Leg**	**West Leg**	**East Leg**
SR 80	First Bank Drwy	0	400	53,000	53,500
	Wildwood Ln	600	0	38,500	38,500
	Publix Drwy	0	18,000	38,500	38,500
	NW Dev. Drwy	2,900	0	38,500	39,000
	SR 31	39,500	14,000	39,000	40,500
	RaceTrac Drwy W	3,300	0	40,500	40,000
	RaceTrac Drwy E	6,600	0	40,000	39,500

		Directional 2045 AADT (Adjusted)			
Roadway	**Cross-Street**	**West Leg (EB)**	**West Leg (WB)**	**East Leg (EB)**	**East Leg (WB)**
SR 80	First Bank Drwy	29,500	23,500	30,000	23,500
	Wildwood Ln	15,000	23,500	15,000	23,500
	Publix Drwy	15,000	23,500	15,000	23,500
	NW Dev. Drwy	15,000	23,500	15,000	24,000
	SR 31	15,000	24,000	17,000	23,500
	RaceTrac Drwy W	17,000	23,500	17,000	23,000
	RaceTrac Drwy E	17,000	23,000	16,500	23,000

		2045 AADT (Adjusted)			
Roadway	**Cross-Street**	**North Leg**	**South Leg**	**West Leg**	**East Leg**
SR 31	SR 80	39,500	14,000	39,000	40,500
	NW Dev. Drwy S	36,500	39,500	6,700	0
	RaceTrac Drwy N	38,500	36,500	0	2,200
	Existing Homes Drwy	38,500	36,500	200	0
	31 Oaks Dev Drwy	63,000	63,500	0	1,900
	Brandenburg Properties of FL	63,000	63,000	700	0
	LJs Lounge	60,000	63,000	0	1,400
	Zero Five Zero Properties LLP/ Joh	60,500	60,000	700	1,400
	Melton Aviation LLC/ Fox Family T	60,000	60,500	650	1,300
	Marina & Restaurant Ent	56,500	60,000	4,300	1,200
	SR 78	65,500	56,500	28,600	0
	Race Trac Drwy S	18,000	20,000	0	1,800

		Directional 2045 AADT (Adjusted)			
Roadway	**Cross-Street**	**South Leg (NB)**	**South Leg (SB)**	**North Leg (NB)**	**North Leg (SB)**
SR 31	SR 80	8,300	5,600	20,000	19,500
	NW Dev. Drwy S	20,000	19,500	18,000	18,500
	RaceTrac Drwy N	18,000	18,500	20,000	18,500
	Existing Homes Drwy	18,000	18,500	20,000	18,500
	31 Oaks Dev Drwy	35,000	28,500	34,500	28,500
	Brandenburg Properties of FL	34,500	28,500	34,500	28,500
	LJs Lounge	0	0	0	0
	Zero Five Zero Properties LLP/ Joh	0	0	0	0
	Melton Aviation LLC/ Fox Family T	0	0	0	0
	Marina & Restaurant Ent	0	0	0	0
	SR 78	0	0	28,600	0
	Race Trac Drwy S	0	0	0	0

		2045 AADT (Adjusted)			
Roadway	**Cross-Street**	**North Leg**	**South Leg**	**West Leg**	**East Leg**
CTO	CTO (center)	24,500	0	15,000	9,800
	CTO (west)	0	15,000	53,500	38,500
	CTO (east)	0	9,800	39,500	49,500
	CTO (north)	63,500	24,500	18,500	20,000

Roadway	**Cross-Street**	**2045 AADT (Adjusted)**
CTO	Entering Flyover EBL Ramp	15,000
	Existing Flyover NB Ramp	15,000
	Entering Flyover SB Ramp	9,800
	Existing Flyover SBL Ramp	9,800

No.	**Roadway**	**Cross-Street**	**PM TMVs**	**2045 AADT**	**2045 AADT**
	SR80	EB (West Leg)	1,348	14,978	15,000
		WB (West Leg)	2,158	23,978	24,000
		EB (East Leg)	1,512	16,800	17,000
		WB (East Leg)	2,112	23,467	23,500
		NB (North Leg)	1,789	19,878	20,000
		SB (North Leg)	1,759	19,544	19,500

ALTERNATIVE 6 - FLYOVER

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 80	First Bank Drwy	0	400	53,000	53,500
	Wildwood Ln	600	0	38,500	38,500
	Publix Drwy	0	19,000	38,500	38,500
	NW Dev. Drwy	2,900	0	38,500	39,000
	SR 31	39,500	12,500	39,000	40,500
	RaceTrac Drwy W	3,300	0	40,500	40,000
	RaceTrac Drwy E	6,600	0	40,000	39,500

Roadway	Cross-Street	Directional 2045 AADT (Adjusted)			
		West Leg (EB)	West Leg (WB)	East Leg (EB)	East Leg (WB)
SR 80	First Bank Drwy	29,500	23,500	30,000	23,500
	Wildwood Ln	15,000	23,500	15,000	23,500
	Publix Drwy	15,000	23,500	15,000	23,500
	NW Dev. Drwy	15,000	23,500	15,000	24,000
	SR 31	15,000	24,000	17,000	23,500
	RaceTrac Drwy W	17,000	23,500	17,000	23,000
	RaceTrac Drwy E	17,000	23,000	16,500	23,000

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
SR 31	SR 80	39,500	12,500	39,000	40,500
	NW Dev. Drwy S	36,500	39,500	6,700	0
	RaceTrac Drwy N	38,500	36,500	0	2,200
	Existing Homes Drwy	38,500	36,500	200	0
	31 Oaks Dev Drwy	38,500	38,500	0	1,900
	Brandenburg Properties of FL	38,500	38,500	700	0
	LJs Lounge	60,000	63,000	0	1,400
	Zero Five Zero Properties LLP/ Joh	60,500	60,000	700	1,400
	Melton Aviation LLC/ Fox Family T	60,000	60,500	650	1,300
	Marina & Restaurant Ent	56,500	60,000	4,300	1,200
	SR 78	65,500	56,500	28,600	0
	Race Trac Drwy S	18,000	20,000	0	1,800

Roadway	Cross-Street	Directional 2045 AADT (Adjusted)			
		South Leg (NB)	South Leg (SB)	North Leg (NB)	North Leg (SB)
SR 31	SR 80	7,600	4,900	20,000	19,500
	NW Dev. Drwy S	20,000	19,500	18,000	18,500
	RaceTrac Drwy N	18,000	18,500	20,000	18,500
	Existing Homes Drwy	18,000	18,500	20,000	18,500
	31 Oaks Dev Drwy	20,000	18,500	19,500	19,000
	Brandenburg Properties of FL	20,000	18,500	19,500	19,000
	LJs Lounge	0	0	0	0
	Zero Five Zero Properties LLP/ Joh	0	0	0	0
	Melton Aviation LLC/ Fox Family T	0	0	0	0
	Marina & Restaurant Ent	0	0	0	0
	SR 78	0	0	28,600	0
	Race Trac Drwy S	0	0	0	0

Roadway	Cross-Street	2045 AADT (Adjusted)			
		North Leg	South Leg	West Leg	East Leg
Flyover	Flyover (center)	24,500	24,500	0	0
	Flyover (west)	0	15,000	53,500	38,500
	Flyover (east)	0	9,800	39,500	49,500
	Flyover (north)	63,000	24,500	19,000	19,500

Roadway	Cross-Street	2045 AADT (Adjusted)
Flyover	Entering Flyover EBL Ramp	15,000
	Existing Flyover NB Ramp	15,000
	Entering Flyover SB Ramp	9,800
	Existing Flyover SBL Ramp	9,800

No.	Roadway	Cross-Street	PM TMVs	2045 AADT	2045 AADT
	SR80	EB (West Leg)	1,348	14,978	15,000
		WB (West Leg)	2,158	23,978	24,000
		EB (East Leg)	1,512	16,800	17,000
		WB (East Leg)	2,112	23,467	23,500
		NB (North Leg)	1,789	19,878	20,000
		SB (North Leg)	1,759	19,544	19,500

APPENDIX D – SYNCHRO REPORTS

Contained in this Appendix –

- Operational Analysis Summary
- Alternative 1 - Traffic Signal
    - Opening Year (2025) AM
    - Opening Year (2025) PM
    - Design Year (2045) AM
    - Design Year (2045) PM

- Alternative 2 - Quadrant Roadway
    - Opening Year (2025) AM
    - Opening Year (2025) PM
    - Design Year (2045) AM
    - Design Year (2045) PM

- Alternative 3 - PDLT/MUT
    - Opening Year (2025) AM
    - Opening Year (2025) PM
    - Design Year (2045) AM
    - Design Year (2045) PM

- Alternative 4 - CTO (center)
    - Opening Year (2025) AM
    - Opening Year (2025) PM
    - Design Year (2045) AM
    - Design Year (2045) PM

- Alternative 5 - CTO (south)
    - Opening Year (2025) AM
    - Opening Year (2025) PM
    - Design Year (2045) AM
    - Design Year (2045) PM

- Alternative 6 - Flyover
    - Opening Year (2025) AM
    - Opening Year (2025) PM
    - Design Year (2045) AM
    - Design Year (2045) PM

OPERATIONAL ANALYSIS SUMMARY

					Alternative 1 Signal	Alternative 2 QR	Alternative 3 PDLT/MUT	Alternative 4 CTO (Center)	Alternative 5 CTO (South)	Alternative 6 Flyover
Intersection Delay										
SBL	SBL Delay at SR80 & 31	Opening Year	AM	Intersection Delay	41.9	-	-	-	-	-
			PM	Intersection Delay	42	-	-	-	-	-
		Design Year	AM	Intersection Delay	72.2	-	-	-	-	-
			PM	Intersection Delay	55.1	-	-	-	-	-
	SBR Delay at SR31 & Quad Road	Opening Year	AM	Intersection Delay	-	0.9	-	-	-	-
			PM	Intersection Delay	-	1.5	-	-	-	-
		Design Year	AM	Intersection Delay	-	15.5	-	-	-	-
			PM	Intersection Delay	-	13	-	-	-	-
	SBL Delay at SR31 & PDLT	Opening Year	AM	Intersection Delay	-	-	33.1	-	-	-
			PM	Intersection Delay	-	-	37.1	-	-	-
		Design Year	AM	Intersection Delay	-	-	28.4	-	-	-
			PM	Intersection Delay	-	-	29.3	-	-	-
	SBL Delay at SR80 & Quad Road/PDLT	Opening Year	AM	Intersection Delay	-	41.3	13.9	-	-	-
			PM	Intersection Delay	-	24.9	47	-	-	-
		Design Year	AM	Intersection Delay	-	63.6	13	-	-	-
			PM	Intersection Delay	-	37.6	21.9	-	-	-
	EBT Delay at SR80 & 31	Opening Year	AM	Intersection Delay	-	0.2	-	-	-	-
			PM	Intersection Delay	-	10.6	-	-	-	-
		Design Year	AM	Intersection Delay	-	0.6	-	-	-	-
			PM	Intersection Delay	-	13.2	-	-	-	-
	SBL Delay at CTO/Flyover	Opening Year	AM	Intersection Delay	-	-	-	32.9	32.9	7
			PM	Intersection Delay	-	-	-	33.5	33.5	8.4
		Design Year	AM	Intersection Delay	-	-	-	32	32	23
			PM	Intersection Delay	-	-	-	31.4	31.4	23.9
SBR	SBR Delay at SR80 & 31	Opening Year	AM	Intersection Delay	13	-	-	0	0	0
			PM	Intersection Delay	6.6	-	-	0	0	0
		Design Year	AM	Intersection Delay	16.6	-	-	0	0	0
			PM	Intersection Delay	9.7	-	-	0	0	0
	SBT Delay at SR31 & PDLT	Opening Year	AM	Intersection Delay	-	-	12.2	-	-	-
			PM	Intersection Delay	-	-	10.7	-	-	-
		Design Year	AM	Intersection Delay	-	-	19.3	-	-	-
			PM	Intersection Delay	-	-	17.4	-	-	-
	SBR Delay at SR31 & Quad Road/PDLT	Opening Year	AM	Intersection Delay	-	0.9	0.5	-	-	-
			PM	Intersection Delay	-	1.5	0.2	-	-	-
		Design Year	AM	Intersection Delay	-	15.5	2.3	-	-	-
			PM	Intersection Delay	-	13	0.9	-	-	-
	SBR Delay at SR80 & Quad Road/PDLT	Opening Year	AM	Intersection Delay	-	31.4	24.3	-	-	-
			PM	Intersection Delay	-	14.6	11.1	-	-	-
		Design Year	AM	Intersection Delay	-	37.4	34.1	-	-	-
			PM	Intersection Delay	-	15.7	21.5	-	-	-
EBL	EBL Delay at SR80 & 31	Opening Year	AM	Intersection Delay	43.8	-	-	-	-	-
			PM	Intersection Delay	36.7	-	-	-	-	-
		Design Year	AM	Intersection Delay	227.2	-	-	-	-	-
			PM	Intersection Delay	330.3	-	-	-	-	-
	EBL Delay at SR80 & Quad Road/PDLT	Opening Year	AM	Intersection Delay	-	66.3	15.8	-	-	-
			PM	Intersection Delay	-	37.5	5.5	-	-	-
		Design Year	AM	Intersection Delay	-	68	12.2	-	-	-
			PM	Intersection Delay	-	43	7.4	-	-	-
	EBL Delay at SR31 & Quad Road/PDLT	Opening Year	AM	Intersection Delay	-	34.9	13.8	-	-	-
			PM	Intersection Delay	-	14.1	7.4	-	-	-
		Design Year	AM	Intersection Delay	-	53.6	20.2	-	-	-
			PM	Intersection Delay	-	48.1	25.1	-	-	-
	NBT Delay at SR31 & PDLT	Opening Year	AM	Intersection Delay	-	-	6.2	-	-	-
			PM	Intersection Delay	-	-	28.8	-	-	-
		Design Year	AM	Intersection Delay	-	-	29.8	-	-	-
			PM	Intersection Delay	-	-	87.6	-	-	-
	EBL Delay at CTO/Flyover	Opening Year	AM	Intersection Delay	-	-	-	8.2	8.2	26.3
			PM	Intersection Delay	-	-	-	8.1	8.1	20.3
		Design Year	AM	Intersection Delay	-	-	-	31.2	31.2	26.8
			PM	Intersection Delay	-	-	-	23.9	23.9	23
EBT	EBT Delay at SR80 & 31	Opening Year	AM	Intersection Delay	21.3	0.2	7.8	17.2	16.8	17.2
			PM	Intersection Delay	33.1	10.6	7.1	18.6	16.6	18.6
		Design Year	AM	Intersection Delay	43	0.6	27.9	19.7	19.1	19.7
			PM	Intersection Delay	58.2	13.2	18.5	17.9	16	17.9
	EBT Delay at SR80 & Quad Road/PDLT	Opening Year	AM	Intersection Delay	-	25.5	3.7	-	-	-
			PM	Intersection Delay	-	22.8	4.1	-	-	-
		Design Year	AM	Intersection Delay	-	15.4	4.4	-	-	-
			PM	Intersection Delay	-	11.8	4.3	-	-	-
WBT	WBT Delay at SR80 & 31	Opening Year	AM	Intersection Delay	41.5	4.4	0.2	18.6	18.5	18.6
			PM	Intersection Delay	43.7	7.5	0.1	9.2	8.4	9.2
		Design Year	AM	Intersection Delay	139.1	7.5	0.1	15.4	15.3	15.4
			PM	Intersection Delay	103	8.2	0.1	9.5	8.7	9.5
	WBT Delay at SR80 & Quad Road/PDLT	Opening Year	AM	Intersection Delay	-	80.3	23.5	-	-	-
			PM	Intersection Delay	-	39	63.1	-	-	-
		Design Year	AM	Intersection Delay	-	53.5	42.3	-	-	-
			PM	Intersection Delay	-	40.1	75.8	-	-	-
	WBT Delay at SR80/PDLT (east)	Opening Year	AM	Intersection Delay	-	-	10.3	-	-	-
			PM	Intersection Delay	-	-	8.4	-	-	-
		Design Year	AM	Intersection Delay	-	-	21.5	-	-	-
			PM	Intersection Delay	-	-	16.8	-	-	-
WBR	WBR Delay at SR80 & 31	Opening Year	AM	Intersection Delay	4.1	3.3	-	16	15.9	16
			PM	Intersection Delay	7.8	7.4	-	12.9	11.8	12.9
		Design Year	AM	Intersection Delay	9.9	7.7	-	107.1	106.1	107.1
			PM	Intersection Delay	15.5	11	-	105.6	95.6	105.6
	NBT Delay at SR31 & Quad Road	Opening Year	AM	Intersection Delay	-	19.6	-	-	-	-
			PM	Intersection Delay	-	22.4	-	-	-	-
		Design Year	AM	Intersection Delay	-	20.8	-	-	-	-
			PM	Intersection Delay	-	37.5	-	-	-	-
	WBR Delay at SR80 & PDLT	Opening Year	AM	Intersection Delay	-	-	0.2	-	-	-
			PM	Intersection Delay	-	-	0.3	-	-	-
		Design Year	AM	Intersection Delay	-	-	0.5	-	-	-
			PM	Intersection Delay	-	-	0.8	-	-	-
	WBR Delay at SR31 & PDLT	Opening Year	AM	Intersection Delay	-	-	38.3	-	-	-
			PM	Intersection Delay	-	-	47.4	-	-	-
		Design Year	AM	Intersection Delay	-	-	34.3	-	-	-
			PM	Intersection Delay	-	-	78.7	-	-	-

Travel Time

SBL	SR 31 - North Limit to SR80 & 31 - SB	Opening Year/ Design Year	AM/PM	Distance	0.39	-	-	-	-	-
				Posted Speed	45	-	-	-	-	-
				Travel Time	31.5	-	-	-	-	-
	SR 31 - North Limit to SR31 & Quad Road/PDLT - SB	Opening Year/ Design Year	AM/PM	Distance	-	0.18	0.23	-	-	-
				Posted Speed	-	45	45	-	-	-
				Travel Time	-	14.4	18.2	-	-	-
	Quad Road - SR31 & Quad Road to SR80 & Quad Road - SB/WB	Opening Year/ Design Year	AM/PM	Distance	-	0.44	-	-	-	-
				Posted Speed	-	35	-	-	-	-
				Travel Time	-	45.4	-	-	-	-
	PDLT - SR31 & PDLT to SR80 & PDLT - SB	Opening Year/ Design Year	AM/PM	Distance	-	-	0.17	-	-	-
				Posted Speed	-	-	30	-	-	-
				Travel Time	-	-	20.7	-	-	-
	SR 80 - SR80 & PDLT to East Limit - EB	Opening Year/ Design Year	AM/PM	Distance	-	-	0.40	-	-	-
				Posted Speed	-	-	45	-	-	-
				Travel Time	-	-	31.8	-	-	-
	SR 80 - SR80 & Quad Road to SR31 & 80 - EB	Opening Year/ Design Year	AM/PM	Distance	-	0.20	-	-	-	-
				Posted Speed	-	45	-	-	-	-
				Travel Time	-	16.3	-	-	-	-
	SR 80 - SR80 & 31 to East Limit - EB	Opening Year/ Design Year	AM/PM	Distance	0.43	0.43	-	-	-	-
				Posted Speed	45	45	-	-	-	-
				Travel Time	34.2	34.2	-	-	-	-
	SR 31 - North Limit to SR31 & CTO/Flyover Gore - SB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	0.15	0.15	0.15
				Posted Speed	-	-	-	45	45	40
				Travel Time	-	-	-	11.8	11.8	13.3
	CTO/Flyover - SR31 & CTO/Flyover Gore to CTO/Flyover Center - SB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	0.25	0.26	0.03
				Posted Speed	-	-	-	30	30	40
				Travel Time	-	-	-	29.5	30.7	3.0
	Flyover - Flyover Center to Flyover Turn - SB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	-	-	0.15
				Posted Speed	-	-	-	-	-	40
				Travel Time	-	-	-	-	-	13.3
	Flyover - Flyover Turn - SB/EB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	-	-	0.11
				Posted Speed	-	-	-	-	-	25
				Travel Time	-	-	-	-	-	15.1
	Flyover - Flyover Turn to SR 80 & Flyover Gore - EB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	-	-	0.16
				Posted Speed	-	-	-	-	-	40
				Travel Time	-	-	-	-	-	14.1
	CTO - CTO Center to SR80 & CTO Gore - EB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	0.24	0.25	-
				Posted Speed	-	-	-	30	30	-
				Travel Time	-	-	-	29.1	30.5	-
	SR 80 - SR80 & CTO/Flyover Gore to East Limit - EB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	0.19	0.17	0.20
				Posted Speed	-	-	-	45	45	40
				Travel Time	-	-	-	14.8	13.9	17.6
SBR	SR 31 - North Limit to SR80 & 31 - SB	Opening Year/ Design Year	AM/PM	Distance	0.39	-	-	0.39	0.39	0.39
				Posted Speed	45	-	-	45	45	45
				Travel Time	31.5	-	-	31.5	31.5	31.5
	SR 31 - SR80 & 31 to West Limit - WB	Opening Year/ Design Year	AM/PM	Distance	0.37	-	-	0.37	0.37	0.37
				Posted Speed	45	-	-	45	45	45
				Travel Time	29.9	-	-	29.9	29.9	29.9
	SR 31 - North Limit to SR31 & Quad Road/PDLT - SB	Opening Year/ Design Year	AM/PM	Distance	-	0.18	0.23	-	-	-
				Posted Speed	-	45	45	-	-	-
				Travel Time	-	14.4	18.2	-	-	-
	SR 31 - SR31 & PDLT to SR31 & PDLT - SB	Opening Year/ Design Year	AM/PM	Distance	-	-	0.14	-	-	-
				Posted Speed	-	-	45	-	-	-
				Travel Time	-	-	11.0	-	-	-
	Quad Road/PDLT - SR31 & Quad Road/PDLT to SR80 & Quad Road/PDLT - SB/WB	Opening Year/ Design Year	AM/PM	Distance	-	0.44	0.25	-	-	-
				Posted Speed	-	35	30	-	-	-
				Travel Time	-	45.4	30.6	-	-	-
	SR 80 - SR80 & Quad Road/PDLT to West Limit - WB	Opening Year/ Design Year	AM/PM	Distance	-	0.17	0.14	-	-	-
				Posted Speed	-	45	45	-	-	-
				Travel Time	-	13.6	11.4	-	-	-
EBL	SR 80 - West Limit to SR80 & 31 - EB	Opening Year/ Design Year	AM/PM	Distance	0.37	-	-	-	-	-
				Posted Speed	45	-	-	-	-	-
				Travel Time	29.9	-	-	-	-	-
	SR 31 - SR80 & 31 to North Limit - NB	Opening Year/ Design Year	AM/PM	Distance	0.39	-	-	-	-	-
				Posted Speed	45	-	-	-	-	-
				Travel Time	31.5	-	-	-	-	-
	SR 80 - West Limit to SR80 & Quad Road/PDLT - EB	Opening Year/ Design Year	AM/PM	Distance	-	0.17	0.14	-	-	-
				Posted Speed	-	45	45	-	-	-
				Travel Time	-	13.6	11.4	-	-	-
	Quad Road/PDLT - SR80 & Quad Road/PDLT to SR31 & Quad Road/PDLT - NB/EB	Opening Year/ Design Year	AM/PM	Distance	-	0.44	0.25	-	-	-
				Posted Speed	-	35	30	-	-	-
				Travel Time	-	45.4	30.6	-	-	-
	SR 31 - SR31 & PDLT to SR31 & PDLT - NB	Opening Year/ Design Year	AM/PM	Distance	-	-	0.14	-	-	-
				Posted Speed	-	-	45	-	-	-
				Travel Time	-	-	11.0	-	-	-
	SR 31 - SR31 & Quad Road/PDLT to North Limit - NB	Opening Year/ Design Year	AM/PM	Distance	-	0.18	0.23	-	-	-
				Posted Speed	-	45	45	-	-	-
				Travel Time	-	14.4	18.2	-	-	-
	SR 80 - West Limit to SR80 & CTO/Flyover Gore - EB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	0.14	0.16	0.14
				Posted Speed	-	-	-	45	45	40
				Travel Time	-	-	-	11.0	13.1	12.4
	CTO - SR80 & CTO Gore to CTO Center - EB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	0.24	0.21	-
				Posted Speed	-	-	-	30	30	-
				Travel Time	-	-	-	28.4	25.0	-
	Flyover - Flyover Gore to Flyover Turn - SB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	-	-	0.20
				Posted Speed	-	-	-	-	-	40
				Travel Time	-	-	-	-	-	17.6
	Flyover - Flyover Turn - SB/EB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	-	-	0.07
				Posted Speed	-	-	-	-	-	25
				Travel Time	-	-	-	-	-	10.0
	Flyover - Flyover Turn to Flyover Center - NB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	-	-	0.17
				Posted Speed	-	-	-	-	-	40
				Travel Time	-	-	-	-	-	15.5
	CTO/Flyover - CTO/Flyover Center to SR31 & CTO/Flyover Gore - NB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	0.27	0.28	0.04
				Posted Speed	-	-	-	30	30	40
				Travel Time	-	-	-	33.0	34.1	3.2
	SR 31 - SR31 & CTO/Flyover Gore to North Limit - NB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	0.12	0.12	0.14
				Posted Speed	-	-	-	45	45	40
				Travel Time	-	-	-	9.5	9.5	13.0
EBT	SR 80 - West Limit to SR80 & 31 - EB	Opening Year/ Design Year	AM/PM	Distance	0.37	-	-	0.37	0.37	0.37
				Posted Speed	45	-	-	45	45	45
				Travel Time	29.9	-	-	29.9	29.9	29.9
	SR80 - SR80 & 31 to East Limit - EB	Opening Year/ Design Year	AM/PM	Distance	0.43	0.43	0.43	0.43	0.43	0.43
				Posted Speed	45	45	45	45	45	45
				Travel Time	34.2	34.2	34.2	34.2	34.2	34.2
	SR 80 - West Limit to SR80 & Quad Road/PDLT - EB	Opening Year/ Design Year	AM/PM	Distance	-	0.17	0.14	-	-	-
				Posted Speed	-	45	45	-	-	-
				Travel Time	-	13.6	11.4	-	-	-
	SR80 - SR80 & Quad Road/PDLT to SR80 & 31 - EB	Opening Year/ Design Year	AM/PM	Distance	-	0.20	0.23	-	-	-
				Posted Speed	-	45	45	-	-	-
				Travel Time	-	16.3	18.6	-	-	-
WBT	SR 80 - East Limit to SR80 & 31 - WB	Opening Year/ Design Year	AM/PM	Distance	0.43	0.43	-	0.43	0.43	0.43
				Posted Speed	45	45	-	45	45	45
				Travel Time	34.2	34.2	-	34.2	34.2	34.2
	SR80 - SR80 & 31 to West Limit - WB	Opening Year/ Design Year	AM/PM	Distance	0.37	-	-	0.37	0.37	0.37
				Posted Speed	45	-	-	45	45	45
				Travel Time	29.9	-	-	29.9	29.9	29.9
	SR80 - East Limit to SR80 & PDLT (east) - WB	Opening Year/ Design Year	AM/PM	Distance	-	-	0.43	-	-	-
				Posted Speed	-	-	45	-	-	-
				Travel Time	-	-	34.2	-	-	-
	SR80 - SR80 & 31 to SR80 & Quad Road/PDLT - WB	Opening Year/ Design Year	AM/PM	Distance	-	0.20	0.23	-	-	-
				Posted Speed	-	45	45	-	-	-
				Travel Time	-	16.3	18.6	-	-	-
	SR80 - SR80 & Quad Road/PDLT to West Limit - WB	Opening Year/ Design Year	AM/PM	Distance	-	0.17	0.14	-	-	-
				Posted Speed	-	45	45	-	-	-
				Travel Time	-	13.6	11.4	-	-	-

WBR	SR 80 - East Limit to SR80 & 31 - WB	Opening Year/ Design Year	AM/PM	Distance	0.43	0.43	-	0.43	0.43	0.43
				Posted Speed	45	45	-	45	45	45
				Travel Time	34.2	34.2	-	34.2	34.2	34.2
	SR31 - SR80 & 31 to North Limit - NB	Opening Year/ Design Year	AM/PM	Distance	0.39	-	-	0.39	0.39	0.39
				Posted Speed	45	-	-	45	45	45
				Travel Time	31.5	-	-	31.5	31.5	31.5
	SR31 - East Limit to SR80 & PDLT - WB	Opening Year/ Design Year	AM/PM	Distance	-	-	0.40	-	-	-
				Posted Speed	-	-	45	-	-	-
				Travel Time	-	-	31.8	-	-	-
	SR31 - SR80 & 31 to SR31 & Quad Road - NB	Opening Year/ Design Year	AM/PM	Distance	-	0.21	0.17	-	-	-
				Posted Speed	-	45	30	-	-	-
				Travel Time	-	17.1	20.7	-	-	-
	PDLT - SR80 & PDLT to SR31 & PDLT - NB	Opening Year/ Design Year	AM/PM	Distance	-	-	-	-	-	-
				Posted Speed	-	-	-	-	-	-
				Travel Time	-	-	-	-	-	-
	SR31 - SR31 & Quad Road/PDLT to North Limit - NB	Opening Year/ Design Year	AM/PM	Distance	-	0.18	0.23	-	-	-
				Posted Speed	-	45	45	-	-	-
				Travel Time	-	14.4	18.2	-	-	-

Turning Movement Volume

SBL	Opening Year	AM	Incoming TMV	504	437	536	504	504	504
			Outgoing TMV	-	713	536	-	-	-
			Average TMV	504	575	536	504	504	504
		PM	Incoming TMV	486	471	558	486	486	486
			Outgoing TMV	-	486	558	-	-	-
			Average TMV	486	479	558	486	486	486
	Design Year	AM	Incoming TMV	1136	1085	1176	1136	1136	1136
			Outgoing TMV	-	1136	1176	-	-	-
			Average TMV	1136	1111	1176	1136	1136	1136
		PM	Incoming TMV	884	827	974	884	884	884
			Outgoing TMV	-	884	974	-	-	-
			Average TMV	884	856	974	884	884	884
SBR	Opening Year	AM	Incoming TMV	622	467	730	706	706	708
			Outgoing TMV	-	504	762	622	622	622
			Average TMV	622	486	746	664	664	665
		PM	Incoming TMV	557	656	701	741	741	755
			Outgoing TMV	-	677	793	557	557	557
			Average TMV	557	667	747	649	649	656
	Design Year	AM	Incoming TMV	1324	1378	1464	1428	1428	1451
			Outgoing TMV	-	1442	1504	1324	1324	1324
			Average TMV	1324	1410	1484	1376	1376	1388
		PM	Incoming TMV	1209	1271	1386	1423	1423	1432
			Outgoing TMV	-	1358	1501	1209	1209	1209
			Average TMV	1209	1315	1444	1316	1316	1321
EBL	Opening Year	AM	Incoming TMV	503	503	480	503	503	503
			Outgoing TMV	-	530	480	-	-	-
			Average TMV	503	517	480	503	503	503
		PM	Incoming TMV	581	581	521	581	581	581
			Outgoing TMV	-	715	521	-	-	-
			Average TMV	581	648	521	581	581	581
	Design Year	AM	Incoming TMV	1200	1200	1171	1200	1200	1200
			Outgoing TMV	-	1235	1171	-	-	-
			Average TMV	1200	1218	1171	1200	1200	1200
		PM	Incoming TMV	1335	1335	1260	1335	1335	1335
			Outgoing TMV	-	1504	1260	-	-	-
			Average TMV	1335	1420	1260	1335	1335	1335
EBT	Opening Year	AM	Incoming TMV	597	677	520	597	555	597
			Outgoing TMV	-	631	620	590	548	590
			Average TMV	597	654	570	594	552	594
		PM	Incoming TMV	1327	1387	1275	1327	1270	1327
			Outgoing TMV	-	1343	1387	1314	1258	1314
			Average TMV	1327	1365	1331	1321	1264	1321
	Design Year	AM	Incoming TMV	780	935	689	780	728	780
			Outgoing TMV	-	865	809	772	721	772
			Average TMV	780	900	749	776	725	776
		PM	Incoming TMV	1250	1331	1206	1250	1183	1250
			Outgoing TMV	-	1282	1325	1235	1169	1235
			Average TMV	1250	1307	1266	1243	1176	1243
WBT	Opening Year	AM	Incoming TMV	1439	1564	1501	1439	1439	1439
			Outgoing TMV	-	1425	1371	1430	1430	1430
			Average TMV	1439	1495	1436	1435	1435	1435
		PM	Incoming TMV	725	838	695	725	725	725
			Outgoing TMV	-	698	575	713	713	713
			Average TMV	725	768	635	719	719	719
	Design Year	AM	Incoming TMV	1200	1355	1276	1200	1200	1200
			Outgoing TMV	-	1183	1114	1192	1192	1192
			Average TMV	1200	1269	1195	1196	1196	1196
		PM	Incoming TMV	800	922	745	800	800	800
			Outgoing TMV	-	766	614	787	787	787
			Average TMV	800	844	680	794	794	794
WBR	Opening Year	AM	Incoming TMV	489	489	552	489	489	489
			Outgoing TMV	-	-	585	593	593	593
			Average TMV	489	489	569	547	547	547
		PM	Incoming TMV	547	547	690	547	547	547
			Outgoing TMV	-	-	838	972	972	972
			Average TMV	547	547	764	760	760	760
	Design Year	AM	Incoming TMV	961	961	1040	961	961	961
			Outgoing TMV	-	-	1081	1205	1205	1205
			Average TMV	961	961	1061	1083	1083	1083
		PM	Incoming TMV	1190	1190	1367	1190	1190	1190
			Outgoing TMV	-	-	1552	1804	1804	1804
			Average TMV	1190	1190	1460	1497	1497	1497

Total Delay and Travel Time

SBL	Opening Year	AM	Intersection Delay	41.9	42.4	47	32.9	32.9	7
			Travel Time	65.8	110.3	70.7	85.3	86.9	76.3
			Total Delay and Travel Time	107.7	152.7	117.7	118.2	119.8	83.3
		PM	Intersection Delay	42	37	84.1	33.5	33.5	8.4
			Travel Time	65.8	110.3	70.7	85.3	86.9	76.3
			Total Delay and Travel Time	107.8	147.3	154.8	118.8	120.4	84.7
	Design Year	AM	Intersection Delay	72.2	79.7	41.4	32	32	23
			Travel Time	65.8	110.3	70.7	85.3	86.9	76.3
			Total Delay and Travel Time	138.0	190.0	112.1	117.3	118.9	99.3
		PM	Intersection Delay	55.1	63.8	51.2	31.4	31.4	23.9
			Travel Time	65.8	110.3	70.7	85.3	86.9	76.3
			Total Delay and Travel Time	120.9	174.1	121.9	116.7	118.3	100.2
SBR	Opening Year	AM	Intersection Delay	13	32.3	37	0	0	0
			Travel Time	61.4	73.4	71.1	61.4	61.4	61.4
			Total Delay and Travel Time	74.4	105.7	108.1	61.4	61.4	61.4
		PM	Intersection Delay	6.6	16.1	22	0	0	0
			Travel Time	61.4	73.4	71.1	61.4	61.4	61.4
			Total Delay and Travel Time	68.0	89.5	93.1	61.4	61.4	61.4
	Design Year	AM	Intersection Delay	16.6	52.9	55.7	0	0	0
			Travel Time	61.4	73.4	71.1	61.4	61.4	61.4
			Total Delay and Travel Time	78.0	126.3	126.8	61.4	61.4	61.4
		PM	Intersection Delay	9.7	28.7	39.8	0	0	0
			Travel Time	61.4	73.4	71.1	61.4	61.4	61.4
			Total Delay and Travel Time	71.1	102.1	110.9	61.4	61.4	61.4
EBL	Opening Year	AM	Intersection Delay	43.8	101.2	35.8	8.2	8.2	26.3
			Travel Time	61.4	73.4	71.1	81.9	81.7	71.5
			Total Delay and Travel Time	105.2	174.6	106.9	90.1	89.9	97.8
		PM	Intersection Delay	36.7	51.6	41.7	8.1	8.1	20.3
			Travel Time	61.4	73.4	71.1	81.9	81.7	71.5
			Total Delay and Travel Time	98.1	125.0	112.8	90.0	89.8	91.8
	Design Year	AM	Intersection Delay	227.2	121.6	62.2	31.2	31.2	26.8
			Travel Time	61.4	73.4	71.1	81.9	81.7	71.5
			Total Delay and Travel Time	288.6	195.0	133.3	113.1	112.9	98.3
		PM	Intersection Delay	330.3	91.1	120.1	23.9	23.9	23
			Travel Time	61.4	73.4	71.1	81.9	81.7	71.5
			Total Delay and Travel Time	391.7	164.5	191.2	105.8	105.6	94.5
EBT	Opening Year	AM	Intersection Delay	21.3	25.7	11.5	17.2	16.8	17.2
			Travel Time	64.2	64.2	64.2	64.2	64.2	64.2
			Total Delay and Travel Time	85.5	89.9	75.7	81.4	81.0	81.4
		PM	Intersection Delay	33.1	33.4	11.2	18.6	16.6	18.6
			Travel Time	64.2	64.2	64.2	64.2	64.2	64.2
			Total Delay and Travel Time	97.3	97.6	75.4	82.8	80.8	82.8
	Design Year	AM	Intersection Delay	43	16	32.3	19.7	19.1	19.7
			Travel Time	64.2	64.2	64.2	64.2	64.2	64.2
			Total Delay and Travel Time	107.2	80.2	96.5	83.9	83.3	83.9
		PM	Intersection Delay	58.2	25	22.8	17.9	16	17.9
			Travel Time	64.2	64.2	64.2	64.2	64.2	64.2
			Total Delay and Travel Time	122.4	89.2	87.0	82.1	80.2	82.1
WBT	Opening Year	AM	Intersection Delay	41.5	84.7	34	18.6	18.5	18.6
			Travel Time	64.2	64.2	64.2	64.2	64.2	64.2
			Total Delay and Travel Time	105.7	148.9	98.2	82.8	82.7	82.8
		PM	Intersection Delay	43.7	46.5	71.6	9.2	8.4	9.2
			Travel Time	64.2	64.2	64.2	64.2	64.2	64.2
			Total Delay and Travel Time	107.9	110.7	135.8	73.4	72.6	73.4
	Design Year	AM	Intersection Delay	139.1	61	63.9	15.4	15.3	15.4
			Travel Time	64.2	64.2	64.2	64.2	64.2	64.2
			Total Delay and Travel Time	203.3	125.2	128.1	79.6	79.5	79.6
		PM	Intersection Delay	103	48.3	92.7	9.5	8.7	9.5
			Travel Time	64.2	64.2	64.2	64.2	64.2	64.2
			Total Delay and Travel Time	167.2	112.5	156.9	73.7	72.9	73.7
WBR	Opening Year	AM	Intersection Delay	4.1	22.9	38.5	16	15.9	16
			Travel Time	65.8	65.8	70.7	65.8	65.8	65.8
			Total Delay and Travel Time	69.9	88.7	109.2	81.8	81.7	81.8
		PM	Intersection Delay	7.8	29.8	47.7	12.9	11.8	12.9
			Travel Time	65.8	65.8	70.7	65.8	65.8	65.8
			Total Delay and Travel Time	73.6	95.6	118.4	78.7	77.6	78.7
	Design Year	AM	Intersection Delay	9.9	28.5	34.8	107.1	106.1	107.1
			Travel Time	65.8	65.8	70.7	65.8	65.8	65.8
			Total Delay and Travel Time	75.7	94.3	105.5	172.9	171.9	172.9
		PM	Intersection Delay	15.5	48.5	79.5	105.6	95.6	105.6
			Travel Time	65.8	65.8	70.7	65.8	65.8	65.8
			Total Delay and Travel Time	81.3	114.3	150.2	171.4	161.4	171.4

Average Delay and Travel Time per Vehicle

		Alternative 1 Signal	Alternative 2 QR	Alternative 3 PDLT/MUT	Alternative 4 CTO (Center)	Alternative 5 CTO (South)	Alternative 6 Flyover
Opening Year	AM	94.1	131.4	101.7	84.2	84.3	80.9
	PM	93.5	107.7	107.9	82.3	81.6	78.9
Design Year	AM	152.5	138.1	119.0	103.6	103.7	97.9
	PM	164.8	124.7	134.9	105.0	102.8	100.8

ALTERNATIVE 1 - TRAFFIC SIGNAL

Opening Year (2025) AM

HCM 6th Signalized Intersection Summary
1: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↑	↱	↰	↑↑↑	↱↱↱	↰	↑	↱	↰↰↰	↑	↱↱↱
Traffic Volume (veh/h)	503	597	90	125	1439	489	91	47	67	533	107	622
Future Volume (veh/h)	503	597	90	125	1439	489	91	47	67	533	107	622
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1870	1870	1781	1781	1870	1870	1870	1693	1870	1693
Adj Flow Rate, veh/h	529	628	39	132	1515	515	96	49	-41	561	113	655
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	8	2	2	8	8	2	2	2	14	2	14
Cap, veh/h	688	1942	751	164	1647	1752	133	128	255	774	313	1017
Arrive On Green	0.14	0.40	0.40	0.09	0.34	0.34	0.07	0.07	0.00	0.17	0.17	0.17
Sat Flow, veh/h	4784	4863	1585	1781	4863	3442	1781	1870	1585	4546	1870	3270
Grp Volume(v), veh/h	529	628	39	132	1515	515	96	49	-41	561	113	655
Grp Sat Flow(s),veh/h/ln	1595	1621	1585	1781	1621	1147	1781	1870	1585	1515	1870	1090
Q Serve(g_s), s	10.8	9.1	1.4	7.4	30.5	2.4	5.4	2.6	0.0	11.9	5.5	3.5
Cycle Q Clear(g_c), s	10.8	9.1	1.4	7.4	30.5	2.4	5.4	2.6	0.0	11.9	5.5	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	688	1942	751	164	1647	1752	133	128	255	774	313	1017
V/C Ratio(X)	0.77	0.32	0.05	0.81	0.92	0.29	0.72	0.38	-0.16	0.72	0.36	0.64
Avail Cap(c_a), veh/h	1408	2181	829	330	1651	1755	612	642	690	1927	793	1856
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	21.1	14.5	45.4	32.4	3.9	46.1	45.4	0.0	40.0	37.6	12.0
Incr Delay (d2), s/veh	1.8	0.2	0.1	8.9	9.1	0.2	7.2	1.9	0.0	1.9	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	3.3	0.5	3.6	12.5	0.8	2.7	1.3	0.0	4.4	2.5	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	21.3	14.5	54.3	41.5	4.1	53.3	47.2	0.0	41.9	38.6	13.0
LnGrp LOS	D	C	B	D	D	A	D	D	A	D	D	B
Approach Vol, veh/h		1196			2162			104			1329	
Approach Delay, s/veh		31.1			33.4			71.4			27.4	
Approach LOS		C			C			E			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.1	41.9	24.2	13.8	15.9	48.1	14.1	23.8
Change Period (Y+Rc), s	7.4	* 7.4	6.8	* 6.8	6.5	7.4	6.5	6.8
Max Green Setting (Gmax), s	30.0	* 35	43.2	* 35	18.9	45.7	35.0	43.2
Max Q Clear Time (g_c+I1), s	12.8	32.5	13.9	4.6	9.4	11.1	7.4	7.5
Green Ext Time (p_c), s	1.8	2.0	3.4	0.2	0.2	8.8	0.2	5.7

Intersection Summary			
HCM 6th Ctrl Delay			32.0
HCM 6th LOS			C

Notes

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

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

Opening Year (2025) PM

HCM 6th Signalized Intersection Summary
1: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↑	↱	↰	↑↑↑	↱↱↱	↰	↑	↱	↰↰↰	↑	↱↱↱
Traffic Volume (veh/h)	581	1327	74	113	725	547	120	150	260	624	56	557
Future Volume (veh/h)	581	1327	74	113	725	547	120	150	260	624	56	557
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1870	1870	1781	1781	1870	1870	1870	1693	1870	1693
Adj Flow Rate, veh/h	612	1397	23	119	763	576	126	158	162	657	59	586
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	8	2	2	8	8	2	2	2	14	2	14
Cap, veh/h	1087	1755	717	127	996	1369	162	214	294	877	410	1460
Arrive On Green	0.23	0.36	0.36	0.07	0.20	0.20	0.09	0.11	0.11	0.19	0.22	0.22
Sat Flow, veh/h	4784	4863	1585	1781	4863	3442	1781	1870	1585	4546	1870	3270
Grp Volume(v), veh/h	612	1397	23	119	763	576	126	158	162	657	59	586
Grp Sat Flow(s),veh/h/ln	1595	1621	1585	1781	1621	1147	1781	1870	1585	1515	1870	1090
Q Serve(g_s), s	12.0	27.2	0.4	7.0	15.6	3.8	7.3	8.6	3.1	14.4	2.7	3.5
Cycle Q Clear(g_c), s	12.0	27.2	0.4	7.0	15.6	3.8	7.3	8.6	3.1	14.4	2.7	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1087	1755	717	127	996	1369	162	214	294	877	410	1460
V/C Ratio(X)	0.56	0.80	0.03	0.94	0.77	0.42	0.78	0.74	0.55	0.75	0.14	0.40
Avail Cap(c_a), veh/h	1142	1857	750	127	1041	1401	574	602	623	1765	726	2013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	30.2	5.2	48.8	39.6	7.3	46.9	45.2	14.8	40.2	33.2	6.4
Incr Delay (d2), s/veh	0.6	2.8	0.0	61.7	4.1	0.4	7.7	4.9	1.6	1.9	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	10.4	0.2	5.2	6.3	1.2	3.6	4.3	1.8	5.3	1.2	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	33.1	5.3	110.5	43.7	7.8	54.6	50.1	16.4	42.0	33.5	6.6
LnGrp LOS	D	C	A	F	D	A	D	D	B	D	C	A
Approach Vol, veh/h		2032			1458			446			1302	
Approach Delay, s/veh		33.9			34.9			39.1			25.7	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.5	29.0	27.2	18.9	14.0	45.5	16.1	29.9
Change Period (Y+Rc), s	6.5	7.4	6.8	* 6.8	6.5	7.4	6.5	6.8
Max Green Setting (Gmax), s	25.2	22.6	41.0	* 34	7.5	40.3	34.0	41.0
Max Q Clear Time (g_c+I1), s	14.0	17.6	16.4	10.6	9.0	29.2	9.3	5.5
Green Ext Time (p_c), s	1.8	4.0	4.0	1.5	0.0	8.9	0.3	4.6

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

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

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

Design Year (2045) AM

HCM 6th Signalized Intersection Summary
1: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↑	↱	↰	↑↑↑	↱↱↱	↰	↑	↱	↰↰↰	↑	↱↱↱
Traffic Volume (veh/h)	1200	780	168	155	1200	961	118	171	110	1173	274	1324
Future Volume (veh/h)	1200	780	168	155	1200	961	118	171	110	1173	274	1324
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1870	1870	1781	1781	1870	1870	1870	1693	1870	1693
Adj Flow Rate, veh/h	1263	821	121	163	1263	1012	124	180	4	1235	288	1394
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	8	2	2	8	8	2	2	2	14	2	14
Cap, veh/h	934	1568	644	185	1095	1743	149	212	345	1278	585	1662
Arrive On Green	0.20	0.32	0.32	0.10	0.23	0.23	0.08	0.11	0.11	0.28	0.31	0.31
Sat Flow, veh/h	4784	4863	1585	1781	4863	3442	1781	1870	1585	4546	1870	3270
Grp Volume(v), veh/h	1263	821	121	163	1263	1012	124	180	4	1235	288	1394
Grp Sat Flow(s),veh/h/ln	1595	1621	1585	1781	1621	1147	1781	1870	1585	1515	1870	1090
Q Serve(g_s), s	30.0	21.1	7.5	13.9	34.6	10.1	10.5	14.5	0.3	41.2	19.2	15.6
Cycle Q Clear(g_c), s	30.0	21.1	7.5	13.9	34.6	10.1	10.5	14.5	0.3	41.2	19.2	15.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	934	1568	644	185	1095	1743	149	212	345	1278	585	1662
V/C Ratio(X)	1.35	0.52	0.19	0.88	1.15	0.58	0.83	0.85	0.01	0.97	0.49	0.84
Avail Cap(c_a), veh/h	934	1568	644	219	1095	1743	406	426	526	1278	585	1662
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.8	42.4	29.3	67.9	59.5	9.2	69.3	66.8	47.2	54.5	42.9	12.5
Incr Delay (d2), s/veh	165.4	0.6	0.3	28.2	79.6	0.8	11.3	9.0	0.0	17.7	0.9	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.2	8.4	0.1	7.7	22.0	3.4	5.3	7.5	0.1	17.4	8.9	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	227.2	43.0	29.6	96.1	139.1	9.9	80.6	75.8	47.2	72.2	43.8	16.6
LnGrp LOS	F	D	C	F	F	A	F	E	D	E	D	B
Approach Vol, veh/h		2205			2438			308			2917	
Approach Delay, s/veh		147.8			82.6			77.4			42.8	
Approach LOS		F			F			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	37.4	42.0	50.0	24.2	22.5	56.9	19.3	54.9
Change Period (Y+Rc), s	7.4	* 7.4	6.8	* 6.8	6.5	7.4	6.5	6.8
Max Green Setting (Gmax), s	30.0	* 35	43.2	* 35	18.9	45.7	35.0	43.2
Max Q Clear Time (g_c+I1), s	32.0	36.6	43.2	16.5	15.9	23.1	12.5	21.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.9	0.1	10.4	0.3	12.5

Intersection Summary	
HCM 6th Ctrl Delay	85.9
HCM 6th LOS	F

Notes

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

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

Design Year (2045) PM

HCM 6th Signalized Intersection Summary
1: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↑	↱	↰	↑↑↑	↱↱↱	↰	↑	↱	↰↰↰	↑	↱↱↱
Traffic Volume (veh/h)	1335	1250	98	122	800	1190	149	269	262	1058	220	1209
Future Volume (veh/h)	1335	1250	98	122	800	1190	149	269	262	1058	220	1209
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1870	1870	1781	1781	1870	1870	1870	1693	1870	1693
Adj Flow Rate, veh/h	1405	1316	48	128	842	1253	157	283	164	1114	232	1273
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	8	2	2	8	8	2	2	2	14	2	14
Cap, veh/h	879	1419	628	101	802	1517	185	327	367	1254	652	1742
Arrive On Green	0.18	0.29	0.29	0.06	0.16	0.16	0.10	0.17	0.17	0.28	0.35	0.35
Sat Flow, veh/h	4784	4863	1585	1781	4863	3442	1781	1870	1585	4546	1870	3270
Grp Volume(v), veh/h	1405	1316	48	128	842	1253	157	283	164	1114	232	1273
Grp Sat Flow(s),veh/h/ln	1595	1621	1585	1781	1621	1147	1781	1870	1585	1515	1870	1090
Q Serve(g_s), s	25.2	36.0	1.7	7.8	22.6	17.6	11.9	20.2	5.1	32.2	12.6	13.2
Cycle Q Clear(g_c), s	25.2	36.0	1.7	7.8	22.6	17.6	11.9	20.2	5.1	32.2	12.6	13.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	879	1419	628	101	802	1517	185	327	367	1254	652	1742
V/C Ratio(X)	1.60	0.93	0.08	1.27	1.05	0.83	0.85	0.86	0.45	0.89	0.36	0.73
Avail Cap(c_a), veh/h	879	1430	631	101	802	1517	442	464	483	1359	652	1742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	47.1	12.0	64.7	57.2	11.2	60.3	55.0	17.2	47.6	33.2	8.0
Incr Delay (d2), s/veh	274.3	11.0	0.1	176.6	45.8	4.3	10.1	11.5	0.9	7.5	0.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.2	15.5	0.8	8.4	12.4	4.1	5.9	10.6	2.3	12.7	5.7	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	330.3	58.2	12.1	241.3	103.0	15.5	70.4	66.5	18.1	55.1	33.6	9.7
LnGrp LOS	F	E	B	F	F	B	E	E	B	E	C	A
Approach Vol, veh/h		2769			2223			604			2619	
Approach Delay, s/veh		195.4			61.7			54.4			31.1	
Approach LOS		F			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.7	30.0	44.6	30.8	14.3	47.4	20.8	54.6
Change Period (Y+Rc), s	6.5	7.4	6.8	* 6.8	6.5	7.4	6.5	6.8
Max Green Setting (Gmax), s	25.2	22.6	41.0	* 34	7.5	40.3	34.0	41.0
Max Q Clear Time (g_c+I1), s	27.2	24.6	34.2	22.2	9.8	38.0	13.9	15.2
Green Ext Time (p_c), s	0.0	0.0	3.6	1.8	0.0	2.0	0.4	12.0

Intersection Summary	
HCM 6th Ctrl Delay	96.5
HCM 6th LOS	F

Notes

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

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

ALTERNATIVE 2 - QUADRANT ROADWAY

Opening Year (2025) AM

Lanes, Volumes, Timings
4: State Road (S.R.) 31 & Quad road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰		↱		✥		↰	↑↑↱		↰	↑↑	↱↱↱
Traffic Volume (vph)	530	0	150	37	0	38	136	488	13	20	102	1127
Future Volume (vph)	530	0	150	37	0	38	136	488	13	20	102	1127
Satd. Flow (prot)	4713	0	1583	0	1694	0	1770	5065	0	1770	3539	3230
Flt Permitted	0.950				0.976		0.950			0.950		
Satd. Flow (perm)	4713	0	1583	0	1694	0	1770	5065	0	1770	3539	3230
Satd. Flow (RTOR)			158		142			3				1186
Lane Group Flow (vph)	558	0	158	0	79	0	143	528	0	21	107	1186
Turn Type	Prot		Perm	Split	NA		Prot	NA		Prot	NA	pt+ov
Protected Phases	4			8	8		5	2		1	6	6 4
Permitted Phases			4									
Detector Phase	4		4	8	8		5	2		1	6	6 4
Switch Phase												
Minimum Initial (s)	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0		24.0	22.5	22.5		11.0	24.0		9.5	24.0	
Total Split (s)	45.0		45.0	22.5	22.5		21.0	71.5		11.0	61.5	
Total Split (%)	30.0%		30.0%	15.0%	15.0%		14.0%	47.7%		7.3%	41.0%	
Yellow Time (s)	4.0		4.0	3.5	3.5		4.0	4.0		3.5	4.0	
All-Red Time (s)	2.0		2.0	1.0	1.0		2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0		0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0		6.0		4.5		6.0	6.0		4.5	6.0	
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None		None	None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	29.6		29.6		5.5		18.1	90.7		7.3	74.3	103.9
Actuated g/C Ratio	0.20		0.20		0.04		0.12	0.60		0.05	0.50	0.69
v/c Ratio	0.60		0.36		0.40		0.67	0.17		0.24	0.06	0.46
Control Delay	34.9		15.0		5.9		84.9	19.6		74.8	22.2	0.9
Queue Delay	0.0		0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.9		15.0		5.9		84.9	19.6		74.8	22.2	0.9
LOS	C		B		A		F	B		E	C	A
Approach Delay		30.5			5.9			33.5			3.8	
Approach LOS		C			A			C			A	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

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

Natural Cycle: 85

Control Type: Actuated-Coordinated

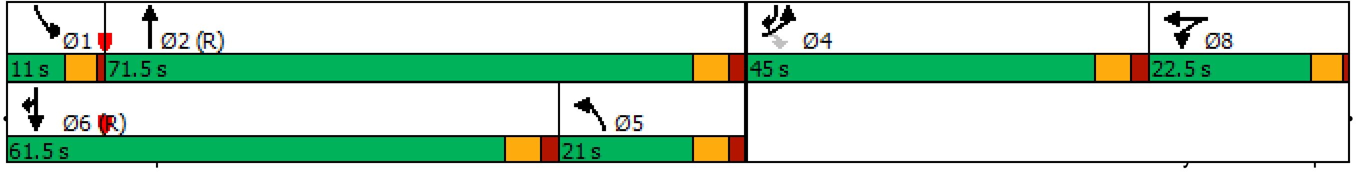
Maximum v/c Ratio: 0.67

Intersection Signal Delay: 17.9 Intersection LOS: B

Intersection Capacity Utilization 51.9% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: State Road (S.R.) 31 & Quad road



HCM 6th Signalized Intersection Summary
1: State Road (S.R.) 31 & State Road (S.R.) 80

08/08/2022

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱↱↱		↑↑	↱		↑↑	
Traffic Volume (veh/h)	0	1101	90	0	1564	489	0	138	67	0	232	0
Future Volume (veh/h)	0	1101	90	0	1564	489	0	138	67	0	232	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1781	1870	0	1781	1781	0	1870	1870	0	1870	0
Adj Flow Rate, veh/h	0	1159	86	0	1646	515	0	145	52	0	244	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	0	8	8	0	2	2	0	2	0
Cap, veh/h	0	3944	1286	0	3944	2792	0	335	149	0	335	0
Arrive On Green	0.00	1.00	1.00	0.00	0.81	0.81	0.00	0.09	0.09	0.00	0.13	0.00
Sat Flow, veh/h	0	5024	1585	0	5024	3442	0	3647	1585	0	3741	0
Grp Volume(v), veh/h	0	1159	86	0	1646	515	0	145	52	0	244	0
Grp Sat Flow(s),veh/h/ln	0	1621	1585	0	1621	1147	0	1777	1585	0	1777	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	14.5	5.0	0.0	5.8	4.6	0.0	9.9	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	14.5	5.0	0.0	5.8	4.6	0.0	9.9	0.0
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	3944	1286	0	3944	2792	0	335	149	0	335	0
V/C Ratio(X)	0.00	0.29	0.07	0.00	0.42	0.18	0.00	0.43	0.35	0.00	0.73	0.00
Avail Cap(c_a), veh/h	0	3944	1286	0	3944	2792	0	1599	713	0	1592	0
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	4.0	3.1	0.0	64.1	63.6	0.0	63.7	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	0.3	0.1	0.0	0.9	1.4	0.0	4.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	3.7	0.9	0.0	2.7	1.9	0.0	4.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	0.1	0.0	4.4	3.3	0.0	65.0	65.0	0.0	68.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	E	E	A	E	A
Approach Vol, veh/h		1245			2161			197			244	
Approach Delay, s/veh		0.2			4.1			65.0			68.0	
Approach LOS		A			A			E			E	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	129.1	20.9	129.1	20.9
Change Period (Y+Rc), s	7.4	* 6.8	7.4	6.8
Max Green Setting (Gmax), s	68.6	* 68	68.6	67.2
Max Q Clear Time (g_c+I1), s	16.5	7.8	2.0	11.9
Green Ext Time (p_c), s	40.6	1.2	23.9	2.2

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
14: Quad Road & State Road (S.R.) 80

08/08/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↱			↑↑↑	↱				↰↰↰		↱↱↱
Traffic Volume (veh/h)	503	677	10	0	1408	142	0	0	0	504	0	730
Future Volume (veh/h)	503	677	10	0	1408	142	0	0	0	504	0	730
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1781	1870	0	1781	1870				1693	0	1693
Adj Flow Rate, veh/h	529	713	10	0	1482	140				531	0	761
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	8	2	0	8	2				14	0	14
Cap, veh/h	647	2284	32	0	1427	465				2082	0	1919
Arrive On Green	0.13	0.46	0.46	0.00	0.39	0.39				0.15	0.00	0.15
Sat Flow, veh/h	5023	4942	69	0	5024	1585				4546	0	3270
Grp Volume(v), veh/h	529	467	256	0	1482	140				531	0	761
Grp Sat Flow(s),veh/h/ln	1674	1621	1769	0	1621	1585				1515	0	1090
Q Serve(g_s), s	15.4	13.6	13.6	0.0	44.0	9.2				15.5	0.0	11.2
Cycle Q Clear(g_c), s	15.4	13.6	13.6	0.0	44.0	9.2				15.5	0.0	11.2
Prop In Lane	1.00		0.04	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	647	1498	817	0	1427	465				2082	0	1919
V/C Ratio(X)	0.82	0.31	0.31	0.00	1.04	0.30				0.26	0.00	0.40
Avail Cap(c_a), veh/h	1407	1989	1085	0	1427	465				2082	0	1919
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.33	1.33				0.33	1.00	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00				0.88	0.00	0.88
Uniform Delay (d), s/veh	63.6	25.4	25.4	0.0	45.7	35.1				41.1	0.0	30.8
Incr Delay (d2), s/veh	2.6	0.1	0.2	0.0	34.6	0.4				0.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	5.2	5.7	0.0	20.7	3.4				6.4	0.0	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.3	25.5	25.6	0.0	80.3	35.5				41.3	0.0	31.4
LnGrp LOS	E	C	C	A	F	D				D	A	C
Approach Vol, veh/h		1252			1622						1292	
Approach Delay, s/veh		42.7			76.4						35.5	
Approach LOS		D			E						D	

Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				75.3		74.7	25.3	50.0				
Change Period (Y+Rc), s				6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s				92.0		46.0	42.0	44.0				
Max Q Clear Time (g_c+I1), s				15.6		17.5	17.4	46.0				
Green Ext Time (p_c), s				4.8		6.3	1.9	0.0				

Intersection Summary			
HCM 6th Ctrl Delay			53.6
HCM 6th LOS			D

Opening Year (2025) PM

Lanes, Volumes, Timings
4: State Road (S.R.) 31 & Quad road

08/08/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰		↱		✥		↰	↑↑↱		↰	↑↑	↱↱↱
Traffic Volume (vph)	715	0	230	25	0	25	283	580	42	53	14	1046
Future Volume (vph)	715	0	230	25	0	25	283	580	42	53	14	1046
Satd. Flow (prot)	4713	0	1583	0	1694	0	1770	5034	0	1770	3539	3230
Flt Permitted	0.950				0.976		0.950			0.950		
Satd. Flow (perm)	4713	0	1583	0	1694	0	1770	5034	0	1770	3539	3230
Satd. Flow (RTOR)			242		236			12				1101
Lane Group Flow (vph)	753	0	242	0	52	0	298	655	0	56	15	1101
Turn Type	Prot		Perm	Split	NA		Prot	NA		Prot	NA	pt+ov
Protected Phases	4			8	8		5	2		1	6	6 4
Permitted Phases			4									
Detector Phase	4		4	8	8		5	2		1	6	6 4
Switch Phase												
Minimum Initial (s)	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0		24.0	22.5	22.5		11.0	24.0		9.5	24.0	
Total Split (s)	35.0		35.0	16.0	16.0		19.0	27.4		11.6	20.0	
Total Split (%)	38.9%		38.9%	17.8%	17.8%		21.1%	30.4%		12.9%	22.2%	
Yellow Time (s)	4.0		4.0	3.5	3.5		4.0	4.0		3.5	4.0	
All-Red Time (s)	2.0		2.0	1.0	1.0		2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0		0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0		6.0		4.5		6.0	6.0		4.5	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None		None	None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	25.8		25.8		5.5		23.4	35.4		8.3	16.8	48.6
Actuated g/C Ratio	0.29		0.29		0.06		0.26	0.39		0.09	0.19	0.54
v/c Ratio	0.56		0.39		0.16		0.65	0.33		0.35	0.02	0.49
Control Delay	14.1		1.9		1.1		39.2	22.4		43.4	33.2	1.5
Queue Delay	0.0		0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	14.1		1.9		1.1		39.2	22.4		43.4	33.2	1.5
LOS	B		A		A		D	C		D	C	A
Approach Delay		11.2			1.1			27.7			3.9	
Approach LOS		B			A			C			A	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 65 (72%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 85

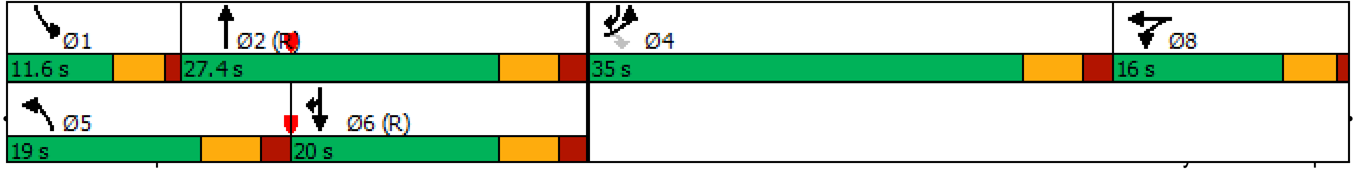
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 13.3	Intersection LOS: B
Intersection Capacity Utilization 58.0%	ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: State Road (S.R.) 31 & Quad road



HCM 6th Signalized Intersection Summary

1: State Road (S.R.) 31 & State Road (S.R.) 80

08/08/2022

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱↱↱		↑↑	↱		↑↑	
Traffic Volume (veh/h)	0	1813	74	0	838	547	0	270	260	0	169	0
Future Volume (veh/h)	0	1813	74	0	838	547	0	270	260	0	169	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1781	1870	0	1781	1781	0	1870	1870	0	1870	0
Adj Flow Rate, veh/h	0	1908	67	0	882	576	0	284	256	0	178	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	0	8	8	0	2	2	0	2	0
Cap, veh/h	0	3188	1039	0	3188	2257	0	719	321	0	719	0
Arrive On Green	0.00	0.66	0.66	0.00	0.66	0.66	0.00	0.20	0.20	0.00	0.20	0.00
Sat Flow, veh/h	0	5024	1585	0	5024	3442	0	3647	1585	0	3741	0
Grp Volume(v), veh/h	0	1908	67	0	882	576	0	284	256	0	178	0
Grp Sat Flow(s),veh/h/ln	0	1621	1585	0	1621	1147	0	1777	1585	0	1777	0
Q Serve(g_s), s	0.0	22.2	1.5	0.0	7.6	6.9	0.0	6.9	15.4	0.0	4.2	0.0
Cycle Q Clear(g_c), s	0.0	22.2	1.5	0.0	7.6	6.9	0.0	6.9	15.4	0.0	4.2	0.0
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	3188	1039	0	3188	2257	0	719	321	0	719	0
V/C Ratio(X)	0.00	0.60	0.06	0.00	0.28	0.26	0.00	0.39	0.80	0.00	0.25	0.00
Avail Cap(c_a), veh/h	0	3188	1039	0	3188	2257	0	1468	655	0	1457	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	9.8	6.2	0.0	7.2	7.1	0.0	34.6	37.9	0.0	33.5	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.1	0.0	0.2	0.3	0.0	0.4	4.6	0.0	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.6	0.5	0.0	2.2	1.4	0.0	3.0	6.4	0.0	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.6	6.3	0.0	7.5	7.4	0.0	34.9	42.5	0.0	33.7	0.0
LnGrp LOS	A	B	A	A	A	A	A	C	D	A	C	A
Approach Vol, veh/h		1975			1458			540			178	
Approach Delay, s/veh		10.5			7.4			38.5			33.7	
Approach LOS		B			A			D			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		73.0		27.0		73.0		27.0				
Change Period (Y+Rc), s		7.4		* 6.8		7.4		6.8				
Max Green Setting (Gmax), s		44.8		* 41		44.8		41.0				
Max Q Clear Time (g_c+I1), s		9.6		17.4		24.2		6.2				
Green Ext Time (p_c), s		19.9		2.9		18.2		1.5				

Intersection Summary		
HCM 6th Ctrl Delay		14.0
HCM 6th LOS		B

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↱			↑↑↑	↱				↰↰↰		↱↱↱
Traffic Volume (veh/h)	581	1387	14	0	674	137	0	0	0	486	0	701
Future Volume (veh/h)	581	1387	14	0	674	137	0	0	0	486	0	701
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1781	1870	0	1781	1870				1693	0	1693
Adj Flow Rate, veh/h	612	1460	14	0	709	131				512	0	732
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	8	2	0	8	2				14	0	14
Cap, veh/h	811	2044	20	0	892	291				2069	0	2017
Arrive On Green	0.16	0.41	0.41	0.00	0.18	0.18				0.15	0.00	0.15
Sat Flow, veh/h	5023	4967	48	0	5024	1585				4546	0	3270
Grp Volume(v), veh/h	612	953	521	0	709	131				512	0	732
Grp Sat Flow(s),veh/h/ln	1674	1621	1773	0	1621	1585				1515	0	1090
Q Serve(g_s), s	10.5	22.1	22.1	0.0	12.5	6.6				8.9	0.0	13.0
Cycle Q Clear(g_c), s	10.5	22.1	22.1	0.0	12.5	6.6				8.9	0.0	13.0
Prop In Lane	1.00		0.03	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	811	1334	729	0	892	291				2069	0	2017
V/C Ratio(X)	0.76	0.71	0.71	0.00	0.80	0.45				0.25	0.00	0.36
Avail Cap(c_a), veh/h	1563	1909	1044	0	1027	335				2069	0	2017
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				0.33	1.00	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00				0.85	0.00	0.85
Uniform Delay (d), s/veh	36.0	22.1	22.1	0.0	35.1	32.7				24.6	0.0	14.2
Incr Delay (d2), s/veh	1.5	0.7	1.3	0.0	3.9	1.1				0.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	7.7	8.5	0.0	5.0	2.5				3.5	0.0	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	22.8	23.4	0.0	39.0	33.8				24.9	0.0	14.6
LnGrp LOS	D	C	C	A	D	C				C	A	B
Approach Vol, veh/h		2086			840						1244	
Approach Delay, s/veh		27.3			38.2						18.9	
Approach LOS		C			D						B	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				43.0		47.0	20.5	22.5				
Change Period (Y+Rc), s				6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s				53.0		25.0	28.0	19.0				
Max Q Clear Time (g_c+I1), s				24.1		15.0	12.5	14.5				
Green Ext Time (p_c), s				11.2		4.1	2.1	2.0				
Intersection Summary												
HCM 6th Ctrl Delay			27.0									
HCM 6th LOS			C									

Design Year (2045) AM

Lanes, Volumes, Timings
4: State Road (S.R.) 31 & Quad road

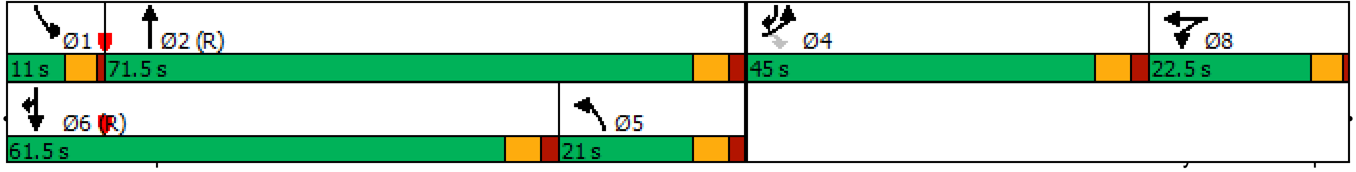
08/08/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰		↱		✥		↰	↑↑↱		↰	↑↑	↱↱↱
Traffic Volume (vph)	1235	0	188	47	0	48	176	1070	16	26	266	2463
Future Volume (vph)	1235	0	188	47	0	48	176	1070	16	26	266	2463
Satd. Flow (prot)	4713	0	1583	0	1693	0	1770	5075	0	1770	3539	3230
Flt Permitted	0.950				0.976		0.950			0.950		
Satd. Flow (perm)	4713	0	1583	0	1693	0	1770	5075	0	1770	3539	3230
Satd. Flow (RTOR)			153		142			2				1454
Lane Group Flow (vph)	1300	0	198	0	100	0	185	1143	0	27	280	2593
Turn Type	Prot		Perm	Split	NA		Prot	NA		Prot	NA	pt+ov
Protected Phases	4			8	8		5	2		1	6	6 4
Permitted Phases			4									
Detector Phase	4		4	8	8		5	2		1	6	6 4
Switch Phase												
Minimum Initial (s)	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0		24.0	22.5	22.5		11.0	24.0		9.5	24.0	
Total Split (s)	45.0		45.0	22.5	22.5		21.0	71.5		11.0	61.5	
Total Split (%)	30.0%		30.0%	15.0%	15.0%		14.0%	47.7%		7.3%	41.0%	
Yellow Time (s)	4.0		4.0	3.5	3.5		4.0	4.0		3.5	4.0	
All-Red Time (s)	2.0		2.0	1.0	1.0		2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0		0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0		6.0		4.5		6.0	6.0		4.5	6.0	
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None		None	None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	39.0		39.0		5.9		15.0	80.5		7.8	67.6	106.6
Actuated g/C Ratio	0.26		0.26		0.04		0.10	0.54		0.05	0.45	0.71
v/c Ratio	1.06		0.38		0.50		1.05	0.42		0.30	0.18	0.95
Control Delay	53.6		1.5		11.3		136.8	20.8		76.0	25.0	15.5
Queue Delay	0.0		0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	53.6		1.5		11.3		136.8	20.8		76.0	25.0	15.5
LOS	D		A		B		F	C		E	C	B
Approach Delay		46.7			11.3			36.9			17.0	
Approach LOS		D			B			D			B	

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 96 (64%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 86.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 4: State Road (S.R.) 31 & Quad road



HCM 6th Signalized Intersection Summary

1: State Road (S.R.) 31 & State Road (S.R.) 80

08/08/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗↗↗		↑↑	↗		↑↑	
Traffic Volume (veh/h)	0	1916	168	0	1355	961	0	289	110	0	429	0
Future Volume (veh/h)	0	1916	168	0	1355	961	0	289	110	0	429	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1781	1870	0	1781	1781	0	1870	1870	0	1870	0
Adj Flow Rate, veh/h	0	2017	168	0	1426	1012	0	304	97	0	452	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	0	8	8	0	2	2	0	2	0
Cap, veh/h	0	3595	1172	0	3595	2545	0	590	263	0	590	0
Arrive On Green	0.00	1.00	1.00	0.00	0.74	0.74	0.00	0.17	0.17	0.00	0.11	0.00
Sat Flow, veh/h	0	5024	1585	0	5024	3442	0	3647	1585	0	3741	0
Grp Volume(v), veh/h	0	2017	168	0	1426	1012	0	304	97	0	452	0
Grp Sat Flow(s),veh/h/ln	0	1621	1585	0	1621	1147	0	1777	1585	0	1777	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	16.2	16.3	0.0	11.7	8.2	0.0	18.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	16.2	16.3	0.0	11.7	8.2	0.0	18.5	0.0
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	3595	1172	0	3595	2545	0	590	263	0	590	0
V/C Ratio(X)	0.00	0.56	0.14	0.00	0.40	0.40	0.00	0.52	0.37	0.00	0.77	0.00
Avail Cap(c_a), veh/h	0	3595	1172	0	3595	2545	0	1599	713	0	1592	0
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	7.2	7.2	0.0	57.0	55.6	0.0	63.8	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.3	0.0	0.3	0.5	0.0	0.7	0.9	0.0	3.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.1	0.0	5.0	3.6	0.0	5.4	3.4	0.0	8.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.3	0.0	7.5	7.7	0.0	57.7	56.4	0.0	66.8	0.0
LnGrp LOS	A	A	A	A	A	A	A	E	E	A	E	A
Approach Vol, veh/h		2185			2438			401			452	
Approach Delay, s/veh		0.6			7.6			57.4			66.8	
Approach LOS		A			A			E			E	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	118.3	31.7	118.3	31.7
Change Period (Y+Rc), s	7.4	* 6.8	7.4	6.8
Max Green Setting (Gmax), s	68.6	* 68	68.6	67.2
Max Q Clear Time (g_c+I1), s	18.3	13.7	2.0	20.5
Green Ext Time (p_c), s	41.7	2.6	52.4	4.4

Intersection Summary	
HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
14: Quad Road & State Road (S.R.) 80

08/08/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↱			↑↑↑	↱				↰↰↰		↱↱↱
Traffic Volume (veh/h)	1200	935	14	0	1161	177	0	0	0	1136	0	1464
Future Volume (veh/h)	1200	935	14	0	1161	177	0	0	0	1136	0	1464
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1781	1781	1870	0	1781	1870				1693	0	1693
Adj Flow Rate, veh/h	1263	984	14	0	1222	177				1196	0	1534
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	8	8	2	0	8	2				14	0	14
Cap, veh/h	1325	2941	42	0	1353	441				1477	0	1968
Arrive On Green	0.28	0.60	0.60	0.00	0.37	0.37				0.11	0.00	0.11
Sat Flow, veh/h	4784	4941	70	0	5024	1585				4546	0	3270
Grp Volume(v), veh/h	1263	646	352	0	1222	177				1196	0	1534
Grp Sat Flow(s),veh/h/ln	1595	1621	1769	0	1621	1585				1515	0	1090
Q Serve(g_s), s	38.9	15.1	15.1	0.0	35.7	12.4				38.6	0.0	25.2
Cycle Q Clear(g_c), s	38.9	15.1	15.1	0.0	35.7	12.4				38.6	0.0	25.2
Prop In Lane	1.00		0.04	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	1325	1930	1053	0	1353	441				1477	0	1968
V/C Ratio(X)	0.95	0.33	0.33	0.00	0.90	0.40				0.81	0.00	0.78
Avail Cap(c_a), veh/h	1340	1989	1085	0	1427	465				1477	0	1968
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.33	1.33				0.33	1.00	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00				0.22	0.00	0.22
Uniform Delay (d), s/veh	53.3	15.3	15.4	0.0	45.3	38.0				62.4	0.0	36.7
Incr Delay (d2), s/veh	14.8	0.1	0.2	0.0	8.1	0.6				1.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.0	5.4	5.9	0.0	14.2	4.6				16.0	0.0	27.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	15.4	15.5	0.0	53.5	38.6				63.6	0.0	37.4
LnGrp LOS	E	B	B	A	D	D				E	A	D
Approach Vol, veh/h		2261			1399						2730	
Approach Delay, s/veh		44.8			51.6						48.9	
Approach LOS		D			D						D	

Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				95.3		54.7	47.6	47.7				
Change Period (Y+Rc), s				6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s				92.0		46.0	42.0	44.0				
Max Q Clear Time (g_c+I1), s				17.1		40.6	40.9	37.7				
Green Ext Time (p_c), s				7.3		4.6	0.7	4.1				

Intersection Summary	
HCM 6th Ctrl Delay	48.0
HCM 6th LOS	D

Design Year (2045) PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰		↱		✥		↰	↑↑↱		↰	↑↑	↱↱↱
Traffic Volume (vph)	1504	0	270	31	0	32	354	1310	54	66	166	2098
Future Volume (vph)	1504	0	270	31	0	32	354	1310	54	66	166	2098
Satd. Flow (prot)	4713	0	1583	0	1693	0	1770	5055	0	1770	3539	3230
Flt Permitted	0.950				0.976		0.950			0.950		
Satd. Flow (perm)	4713	0	1583	0	1693	0	1770	5055	0	1770	3539	3230
Satd. Flow (RTOR)			284		236			6				1462
Lane Group Flow (vph)	1583	0	284	0	67	0	373	1436	0	69	175	2208
Turn Type	Prot		Perm	Split	NA		Prot	NA		Prot	NA	pt+ov
Protected Phases	4			8	8		5	2		1	6	6 4
Permitted Phases			4									
Detector Phase	4		4	8	8		5	2		1	6	6 4
Switch Phase												
Minimum Initial (s)	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0		24.0	22.5	22.5		11.0	24.0		9.5	24.0	
Total Split (s)	35.0		35.0	16.0	16.0		19.0	27.4		11.6	20.0	
Total Split (%)	38.9%		38.9%	17.8%	17.8%		21.1%	30.4%		12.9%	22.2%	
Yellow Time (s)	4.0		4.0	3.5	3.5		4.0	4.0		3.5	4.0	
All-Red Time (s)	2.0		2.0	1.0	1.0		2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0		0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0		6.0		4.5		6.0	6.0		4.5	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None		None	None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	29.0		29.0		5.5		21.0	29.7		8.8	14.0	49.0
Actuated g/C Ratio	0.32		0.32		0.06		0.23	0.33		0.10	0.16	0.54
v/c Ratio	1.04		0.40		0.21		0.91	0.86		0.40	0.32	0.91
Control Delay	48.1		2.4		1.4		62.5	37.5		44.1	35.6	13.0
Queue Delay	0.0		0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	48.1		2.4		1.4		62.5	37.5		44.1	35.6	13.0
LOS	D		A		A		E	D		D	D	B
Approach Delay		41.1			1.4			42.6			15.5	
Approach LOS		D			A			D			B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 65 (72%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

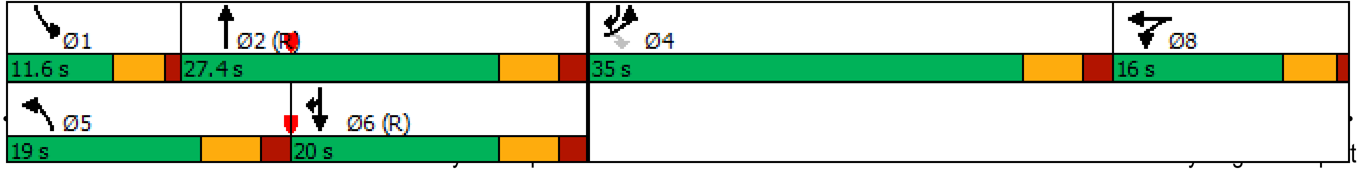
Maximum v/c Ratio: 1.04

Intersection Signal Delay: 31.0 Intersection LOS: C

Intersection Capacity Utilization 86.5% ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: State Road (S.R.) 31 & Quad road



HCM 6th Signalized Intersection Summary
1: State Road (S.R.) 31 & State Road (S.R.) 80

08/08/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱↱↱		↑↑	↱		↑↑	
Traffic Volume (veh/h)	0	2134	98	0	922	1190	0	418	262	0	342	0
Future Volume (veh/h)	0	2134	98	0	922	1190	0	418	262	0	342	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1781	1870	0	1781	1781	0	1870	1870	0	1870	0
Adj Flow Rate, veh/h	0	2246	92	0	971	1253	0	440	258	0	360	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	0	8	8	0	2	2	0	2	0
Cap, veh/h	0	3131	1021	0	3131	2216	0	761	339	0	761	0
Arrive On Green	0.00	0.64	0.64	0.00	0.64	0.64	0.00	0.21	0.21	0.00	0.21	0.00
Sat Flow, veh/h	0	5024	1585	0	5024	3442	0	3647	1585	0	3741	0
Grp Volume(v), veh/h	0	2246	92	0	971	1253	0	440	258	0	360	0
Grp Sat Flow(s),veh/h/ln	0	1621	1585	0	1621	1147	0	1777	1585	0	1777	0
Q Serve(g_s), s	0.0	30.6	2.2	0.0	8.9	20.4	0.0	11.1	15.3	0.0	8.9	0.0
Cycle Q Clear(g_c), s	0.0	30.6	2.2	0.0	8.9	20.4	0.0	11.1	15.3	0.0	8.9	0.0
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	3131	1021	0	3131	2216	0	761	339	0	761	0
V/C Ratio(X)	0.00	0.72	0.09	0.00	0.31	0.57	0.00	0.58	0.76	0.00	0.47	0.00
Avail Cap(c_a), veh/h	0	3131	1021	0	3131	2216	0	1468	655	0	1457	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	11.8	6.7	0.0	7.9	10.0	0.0	35.2	36.9	0.0	34.4	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.2	0.0	0.3	1.1	0.0	0.7	3.5	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.2	0.7	0.0	2.6	4.4	0.0	4.9	6.2	0.0	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.2	6.9	0.0	8.2	11.0	0.0	35.9	40.4	0.0	35.0	0.0
LnGrp LOS	A	B	A	A	A	B	A	D	D	A	D	A
Approach Vol, veh/h		2338			2224			698			360	
Approach Delay, s/veh		13.0			9.8			37.6			35.0	
Approach LOS		B			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		71.8		28.2		71.8		28.2				
Change Period (Y+Rc), s		7.4		* 6.8		7.4		6.8				
Max Green Setting (Gmax), s		44.8		* 41		44.8		41.0				
Max Q Clear Time (g_c+I1), s		22.4		17.3		32.6		10.9				
Green Ext Time (p_c), s		19.4		4.1		11.8		3.2				

Intersection Summary	
HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

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

HCM 6th Signalized Intersection Summary
14: Quad Road & State Road (S.R.) 80

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↱			↑↑↑	↱				↰↰↰		↱↱↱
Traffic Volume (veh/h)	1335	1331	18	0	738	150	0	0	0	884	0	1386
Future Volume (veh/h)	1335	1331	18	0	738	150	0	0	0	884	0	1386
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1781	1781	1870	0	1781	1870				1693	0	1693
Adj Flow Rate, veh/h	1405	1401	18	0	777	145				931	0	1453
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	8	8	2	0	8	2				14	0	14
Cap, veh/h	1485	2824	36	0	941	307				1346	0	1983
Arrive On Green	0.31	0.57	0.57	0.00	0.19	0.19				0.10	0.00	0.10
Sat Flow, veh/h	4784	4949	64	0	5024	1585				4546	0	3270
Grp Volume(v), veh/h	1405	918	501	0	777	145				931	0	1453
Grp Sat Flow(s),veh/h/ln	1595	1621	1770	0	1621	1585				1515	0	1090
Q Serve(g_s), s	25.8	15.3	15.3	0.0	13.8	7.3				17.8	0.0	23.6
Cycle Q Clear(g_c), s	25.8	15.3	15.3	0.0	13.8	7.3				17.8	0.0	23.6
Prop In Lane	1.00		0.04	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	1485	1850	1010	0	941	307				1346	0	1983
V/C Ratio(X)	0.95	0.50	0.50	0.00	0.83	0.47				0.69	0.00	0.73
Avail Cap(c_a), veh/h	1488	1909	1042	0	1027	335				1346	0	1983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				0.33	1.00	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00				0.33	0.00	0.33
Uniform Delay (d), s/veh	30.3	11.6	11.6	0.0	34.8	32.2				36.6	0.0	14.9
Incr Delay (d2), s/veh	12.7	0.2	0.4	0.0	5.2	1.1				1.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	4.7	5.1	0.0	5.6	2.7				7.3	0.0	18.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.0	11.8	12.0	0.0	40.1	33.3				37.6	0.0	15.7
LnGrp LOS	D	B	B	A	D	C				D	A	B
Approach Vol, veh/h		2824			922						2384	
Approach Delay, s/veh		27.4			39.0						24.3	
Approach LOS		C			D						C	
Timer - Assigned Phs				4		6	7	8				
Phs Duration (G+Y+Rc), s				57.4		32.6	33.9	23.4				
Change Period (Y+Rc), s				6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s				53.0		25.0	28.0	19.0				
Max Q Clear Time (g_c+I1), s				17.3		25.6	27.8	15.8				
Green Ext Time (p_c), s				11.4		0.0	0.1	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			27.9									
HCM 6th LOS			C									

ALTERNATIVE 3 - PDLT/MUT

Opening Year (2025) AM

Lanes, Volumes, Timings
1: State Road (S.R.) 31 & State Road (S.R.) 80

07/25/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑			↑↑	↱		↑	
Traffic Volume (vph)	0	620	215	0	1501	0	0	138	67	0	107	0
Future Volume (vph)	0	620	215	0	1501	0	0	138	67	0	107	0
Satd. Flow (prot)	0	4803	1583	0	4803	0	0	3539	1583	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	4803	1583	0	4803	0	0	3539	1583	0	1863	0
Satd. Flow (RTOR)			226						122			
Lane Group Flow (vph)	0	653	226	0	1580	0	0	145	71	0	113	0
Turn Type		NA	Perm		NA			NA	Free		NA	
Protected Phases		6!			Free!			4!			Free!	
Permitted Phases			6						Free			
Detector Phase		6	6					4				
Switch Phase												
Minimum Initial (s)		20.0	20.0					7.0				
Minimum Split (s)		47.4	47.4					40.5				
Total Split (s)		52.0	52.0					48.0				
Total Split (%)		52.0%	52.0%					48.0%				
Yellow Time (s)		5.4	5.4					4.0				
All-Red Time (s)		2.0	2.0					2.5				
Lost Time Adjust (s)		0.0	0.0					0.0				
Total Lost Time (s)		7.4	7.4					6.5				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Min	C-Min					None				
Act Effct Green (s)		65.1	65.1		100.0			21.0	100.0		100.0	
Actuated g/C Ratio		0.65	0.65		1.00			0.21	1.00		1.00	
v/c Ratio		0.21	0.20		0.33			0.19	0.04		0.06	
Control Delay		7.8	1.7		0.2			31.9	0.1		0.1	
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	
Total Delay		7.8	1.7		0.2			31.9	0.1		0.1	
LOS		A	A		A			C	A		A	
Approach Delay		6.2			0.2			21.4			0.1	
Approach LOS		A			A			C			A	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 44 (44%), Referenced to phase 2:EBWB and 6:, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

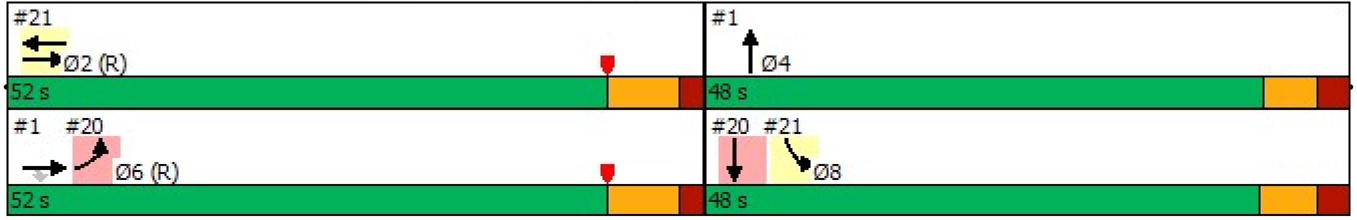
Intersection Signal Delay: 3.7 Intersection LOS: A

Intersection Capacity Utilization 43.6% ICU Level of Service A

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 1: State Road (S.R.) 31 & State Road (S.R.) 80



3: State Road (S.R.) 31 & PDLT intersect

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱			↱↱↱	↰	↑↑↑		↰↰↰	↑↑↑	
Traffic Volume (vph)	26	2	28	0	0	585	114	504	0	556	718	96
Future Volume (vph)	26	2	28	0	0	585	114	504	0	556	718	96
Satd. Flow (prot)	1770	1863	1583	0	0	3409	1770	4550	0	4465	4524	0
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	0	0	3409	1770	4550	0	4465	4524	0
Satd. Flow (RTOR)			164								34	
Lane Group Flow (vph)	27	2	29	0	0	616	120	531	0	585	857	0
Turn Type	Perm	NA	Perm			Over	Prot	NA		Prot	NA	
Protected Phases		4				1	5	2		1	6	
Permitted Phases	4		4									
Detector Phase	4	4	4			1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0			5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5			11.0	9.5	24.0		11.0	24.0	
Total Split (s)	18.0	18.0	18.0			40.0	26.0	42.0		40.0	56.0	
Total Split (%)	18.0%	18.0%	18.0%			40.0%	26.0%	42.0%		40.0%	56.0%	
Yellow Time (s)	3.5	3.5	3.5			4.0	3.5	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0			2.0	1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0			0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5			6.0	4.5	6.0		6.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None			None	None	C-Min		None	C-Min	
Act Effct Green (s)	7.1	7.1	7.1			25.4	23.5	55.1		25.4	62.0	
Actuated g/C Ratio	0.07	0.07	0.07			0.25	0.24	0.55		0.25	0.62	
v/c Ratio	0.22	0.02	0.11			0.71	0.29	0.21		0.52	0.30	
Control Delay	47.3	42.5	0.9			38.3	15.3	6.2		33.1	12.2	
Queue Delay	0.0	0.0	0.0			0.0	0.0	0.0		0.0	0.0	
Total Delay	47.3	42.5	0.9			38.3	15.3	6.2		33.1	12.2	
LOS	D	D	A			D	B	A		C	B	
Approach Delay		23.9			38.3			7.9			20.7	
Approach LOS		C			D			A			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 65

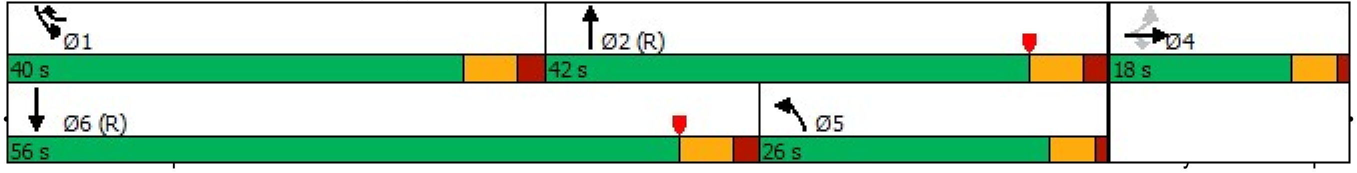
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 21.7	Intersection LOS: C
Intersection Capacity Utilization 41.3%	ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: State Road (S.R.) 31 & PDLT intersect



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↱		↰	↑↑↑							↱↱↱
Traffic Volume (vph)	480	700	5	130	1371	0	0	0	0	0	0	762
Future Volume (vph)	480	700	5	130	1371	0	0	0	0	0	0	762
Satd. Flow (prot)	4713	4800	0	1770	4803	0	0	0	0	0	0	3230
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	4713	4800	0	1770	4803	0	0	0	0	0	0	3230
Satd. Flow (RTOR)		2										
Lane Group Flow (vph)	505	742	0	137	1443	0	0	0	0	0	0	802
Turn Type	Prot	NA		Prot	NA							Over
Protected Phases	7	4		3	8							7
Permitted Phases												
Detector Phase	7	4		3	8							7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0							5.0
Minimum Split (s)	11.0	24.0		9.5	24.0							11.0
Total Split (s)	64.0	77.7		22.3	36.0							64.0
Total Split (%)	64.0%	77.7%		22.3%	36.0%							64.0%
Yellow Time (s)	4.0	4.0		3.5	4.0							4.0
All-Red Time (s)	2.0	2.0		1.0	2.0							2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0							0.0
Total Lost Time (s)	6.0	6.0		4.5	6.0							6.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Recall Mode	C-Min	C-Min		None	None							C-Min
Act Effct Green (s)	48.0	76.5		13.0	40.0							48.0
Actuated g/C Ratio	0.48	0.76		0.13	0.40							0.48
v/c Ratio	0.22	0.20		0.60	0.75							0.52
Control Delay	15.8	3.7		68.7	23.5							24.3
Queue Delay	0.0	0.0		0.0	0.0							0.0
Total Delay	15.8	3.7		68.7	23.5							24.3
LOS	B	A		E	C							C
Approach Delay		8.6			27.4						24.3	
Approach LOS		A			C						C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow, Master Intersection

Natural Cycle: 45

Control Type: Actuated-Coordinated

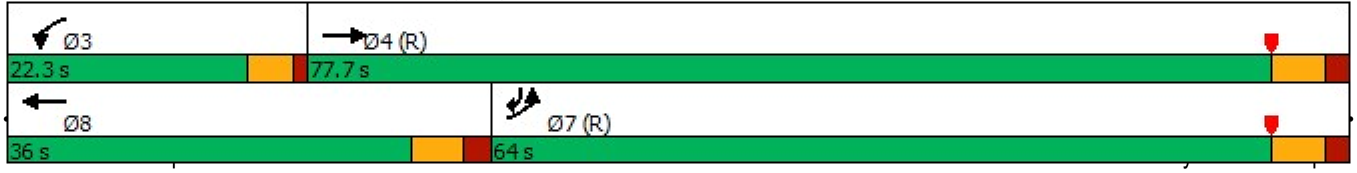
Maximum v/c Ratio: 0.75

Intersection Signal Delay: 20.2 Intersection LOS: C

Intersection Capacity Utilization 54.3% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 14: PDLT & State Road (S.R.) 80



Lanes, Volumes, Timings
20: State Road (S.R.) 31 & PDLT intersect

07/25/2022

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø4
Lane Configurations	↰↰↰			↑↑	↑	↱↱↱		
Traffic Volume (vph)	480	0	0	138	107	730		
Future Volume (vph)	480	0	0	138	107	730		
Satd. Flow (prot)	4713	0	0	3167	1863	3230		
Flt Permitted	0.950							
Satd. Flow (perm)	4713	0	0	3167	1863	3230		
Satd. Flow (RTOR)						768		
Lane Group Flow (vph)	505	0	0	145	113	768		
Turn Type	Prot			NA	NA	Free		
Protected Phases	6!			Free!	8		2	4
Permitted Phases						Free		
Detector Phase	6				8			
Switch Phase								
Minimum Initial (s)	20.0				8.0		20.0	7.0
Minimum Split (s)	47.4				47.8		35.4	40.5
Total Split (s)	52.0				48.0		52.0	48.0
Total Split (%)	52.0%				48.0%		52%	48%
Yellow Time (s)	5.4				4.3		5.4	4.0
All-Red Time (s)	2.0				2.5		2.0	2.5
Lost Time Adjust (s)	0.0				0.0			
Total Lost Time (s)	7.4				6.8			
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min				None		C-Min	None
Act Effct Green (s)	65.1			100.0	20.7	100.0		
Actuated g/C Ratio	0.65			1.00	0.21	1.00		
v/c Ratio	0.16			0.05	0.29	0.24		
Control Delay	13.8			0.2	22.5	0.5		
Queue Delay	0.0			0.0	0.0	0.0		
Total Delay	13.8			0.2	22.5	0.5		
LOS	B			A	C	A		
Approach Delay	13.8			0.2	3.3			
Approach LOS	B			A	A			

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 44 (44%), Referenced to phase 2:EBWB and 6:, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

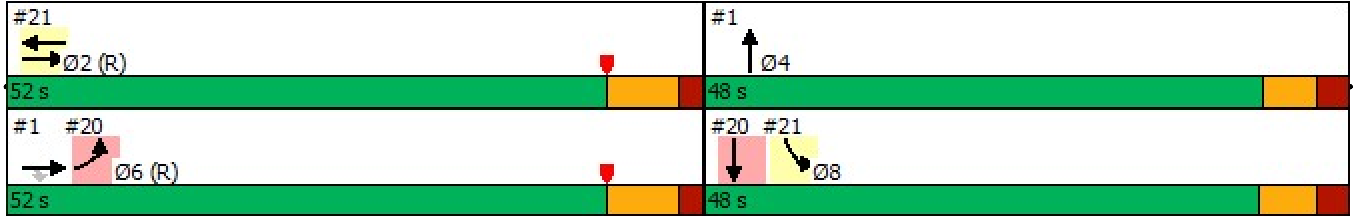
Intersection Signal Delay: 6.5 Intersection LOS: A

Intersection Capacity Utilization 35.2% ICU Level of Service A

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 20: State Road (S.R.) 31 & PDLT intersect



Lanes, Volumes, Timings

21: PDLT Intersect & Race Trac Drwy A

07/25/2022

	↗	→	←	↖	↘	↙		
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4	Ø6
Lane Configurations		↑↑↑↑	↑↑↑	↱↱	↰↰↰			
Traffic Volume (vph)	0	687	1501	552	536	0		
Future Volume (vph)	0	687	1501	552	536	0		
Satd. Flow (prot)	0	6052	4803	2632	4465	0		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6052	4803	2632	4465	0		
Satd. Flow (RTOR)				581				
Lane Group Flow (vph)	0	723	1580	581	564	0		
Turn Type		NA	NA	Free	Prot			
Protected Phases		2	2		8		4	6
Permitted Phases				Free				
Detector Phase		2	2		8			
Switch Phase								
Minimum Initial (s)		20.0	20.0		8.0		7.0	20.0
Minimum Split (s)		35.4	35.4		47.8		40.5	47.4
Total Split (s)		52.0	52.0		48.0		48.0	52.0
Total Split (%)		52.0%	52.0%		48.0%		48%	52%
Yellow Time (s)		5.4	5.4		4.3		4.0	5.4
All-Red Time (s)		2.0	2.0		2.5		2.5	2.0
Lost Time Adjust (s)		0.0	0.0		0.0			
Total Lost Time (s)		7.4	7.4		6.8			
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode		C-Min	C-Min		None		None	C-Min
Act Effct Green (s)		65.1	65.1	100.0	20.7			
Actuated g/C Ratio		0.65	0.65	1.00	0.21			
v/c Ratio		0.18	0.51	0.22	0.61			
Control Delay		1.6	10.3	0.2	13.9			
Queue Delay		0.2	0.0	0.0	0.0			
Total Delay		1.8	10.3	0.2	13.9			
LOS		A	B	A	B			
Approach Delay		1.8	7.6		13.9			
Approach LOS		A	A		B			

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 44 (44%), Referenced to phase 2:EBWB and 6:, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

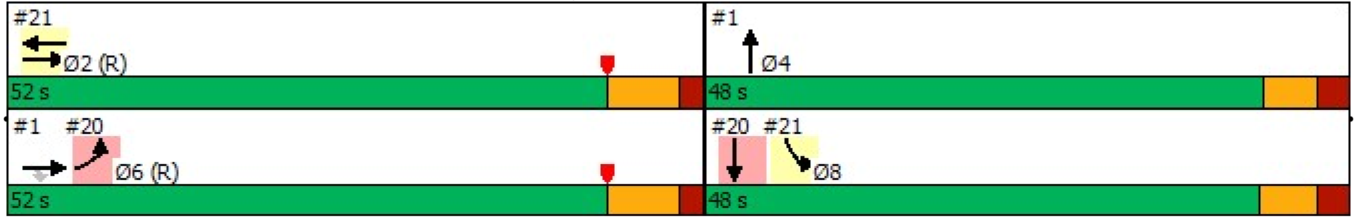
Maximum v/c Ratio: 0.61

Intersection Signal Delay: 7.4 Intersection LOS: A

Intersection Capacity Utilization 51.0% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 21: PDLT Intersect & Race Trac Drwy A



Opening Year (2025) PM

Lanes, Volumes, Timings
1: State Road (S.R.) 31 & State Road (S.R.) 80

07/26/2022

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑			↑↑	↱		↑	
Traffic Volume (vph)	0	1387	187	0	695	0	0	270	260	0	56	0
Future Volume (vph)	0	1387	187	0	695	0	0	270	260	0	56	0
Satd. Flow (prot)	0	4803	1583	0	4803	0	0	3539	1583	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	4803	1583	0	4803	0	0	3539	1583	0	1863	0
Satd. Flow (RTOR)			197						274			
Lane Group Flow (vph)	0	1460	197	0	732	0	0	284	274	0	59	0
Turn Type		NA	Perm		NA			NA	Free		NA	
Protected Phases		6!			Free!			4!			Free!	
Permitted Phases			6						Free			
Detector Phase		6	6					4				
Switch Phase												
Minimum Initial (s)		20.0	20.0					7.0				
Minimum Split (s)		47.4	47.4					40.5				
Total Split (s)		83.0	83.0					57.0				
Total Split (%)		59.3%	59.3%					40.7%				
Yellow Time (s)		5.4	5.4					4.0				
All-Red Time (s)		2.0	2.0					2.5				
Lost Time Adjust (s)		0.0	0.0					0.0				
Total Lost Time (s)		7.4	7.4					6.5				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Min	C-Min					None				
Act Effct Green (s)		97.0	97.0		140.0			29.1	140.0		140.0	
Actuated g/C Ratio		0.69	0.69		1.00			0.21	1.00		1.00	
v/c Ratio		0.44	0.17		0.15			0.39	0.17		0.03	
Control Delay		7.1	0.8		0.1			48.5	0.2		0.1	
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	
Total Delay		7.1	0.8		0.1			48.5	0.2		0.1	
LOS		A	A		A			D	A		A	
Approach Delay		6.4			0.1			24.8			0.1	
Approach LOS		A			A			C			A	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 65 (46%), Referenced to phase 2:EBWB and 6:, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

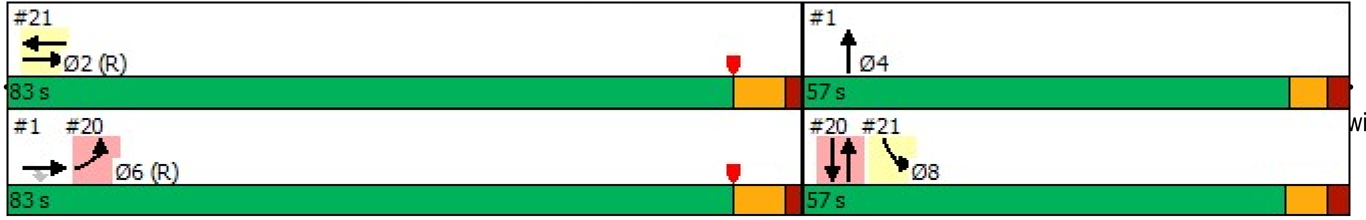
Maximum v/c Ratio: 0.64

Intersection Signal Delay: 8.1	Intersection LOS: A
Intersection Capacity Utilization 45.8%	ICU Level of Service A

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 1: State Road (S.R.) 31 & State Road (S.R.) 80



with MUT

Lanes, Volumes, Timings
3: State Road (S.R.) 31 & PDLT intersect

07/26/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱			↱↱↱	↰	↑↑↑		↰↰↰	↑↑↑	
Traffic Volume (vph)	133	4	136	0	0	838	189	602	0	611	501	258
Future Volume (vph)	133	4	136	0	0	838	189	602	0	611	501	258
Satd. Flow (prot)	1770	1863	1583	0	0	3409	1770	4550	0	4465	4478	0
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	0	0	3409	1770	4550	0	4465	4478	0
Satd. Flow (RTOR)			143								154	
Lane Group Flow (vph)	140	4	143	0	0	882	199	634	0	643	799	0
Turn Type	Perm	NA	Perm			Over	Prot	NA		Prot	NA	
Protected Phases		4				1	5	2		1	6	
Permitted Phases	4		4									
Detector Phase	4	4	4			1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0			5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5			11.0	9.5	24.0		11.0	24.0	
Total Split (s)	19.0	19.0	19.0			69.0	35.5	52.0		69.0	85.5	
Total Split (%)	13.6%	13.6%	13.6%			49.3%	25.4%	37.1%		49.3%	61.1%	
Yellow Time (s)	3.5	3.5	3.5			4.0	3.5	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0			2.0	1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0			0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5			6.0	4.5	6.0		6.0	6.0	
Lead/Lag						Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None			None	None	C-Min		None	C-Min	
Act Effct Green (s)	16.8	16.8	16.8			46.1	21.0	60.6		46.1	87.2	
Actuated g/C Ratio	0.12	0.12	0.12			0.33	0.15	0.43		0.33	0.62	
v/c Ratio	0.66	0.02	0.45			0.79	0.75	0.32		0.44	0.28	
Control Delay	73.3	51.5	12.8			47.4	66.1	28.8		37.1	10.7	
Queue Delay	0.0	0.0	0.0			0.0	0.0	0.0		0.0	0.0	
Total Delay	73.3	51.5	12.8			47.4	66.1	28.8		37.1	10.7	
LOS	E	D	B			D	E	C		D	B	
Approach Delay		42.8			47.4			37.7			22.5	
Approach LOS		D			D			D			C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

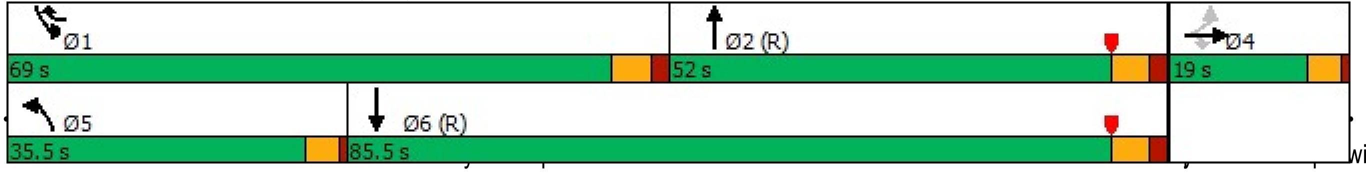
Maximum v/c Ratio: 0.79

Intersection Signal Delay: 34.3 Intersection LOS: C

Intersection Capacity Utilization 52.3% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: State Road (S.R.) 31 & PDLT intersect



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↱		↰	↑↑↑							↱↱↱
Traffic Volume (vph)	521	1447	7	120	575	0	0	0	0	0	0	793
Future Volume (vph)	521	1447	7	120	575	0	0	0	0	0	0	793
Satd. Flow (prot)	4713	4799	0	1770	4803	0	0	0	0	0	0	3610
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	4713	4799	0	1770	4803	0	0	0	0	0	0	3610
Satd. Flow (RTOR)		1										
Lane Group Flow (vph)	548	1530	0	126	605	0	0	0	0	0	0	835
Turn Type	Prot	NA		Prot	NA							Over
Protected Phases	7	4		3	8							7
Permitted Phases												
Detector Phase	7	4		3	8							7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0							5.0
Minimum Split (s)	11.0	24.0		9.5	24.0							11.0
Total Split (s)	101.0	109.0		31.0	39.0							101.0
Total Split (%)	72.1%	77.9%		22.1%	27.9%							72.1%
Yellow Time (s)	4.0	4.0		3.5	4.0							4.0
All-Red Time (s)	2.0	2.0		1.0	2.0							2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0							0.0
Total Lost Time (s)	6.0	6.0		4.5	6.0							6.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Recall Mode	C-Min	C-Min		None	None							C-Min
Act Effct Green (s)	104.4	114.2		15.3	23.6							104.4
Actuated g/C Ratio	0.75	0.82		0.11	0.17							0.75
v/c Ratio	0.16	0.39		0.65	0.75							0.31
Control Delay	5.5	4.1		71.9	63.1							11.1
Queue Delay	0.0	0.0		0.0	0.0							0.0
Total Delay	5.5	4.1		71.9	63.1							11.1
LOS	A	A		E	E							B
Approach Delay		4.4			64.7						11.1	
Approach LOS		A			E						B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow, Master Intersection

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 18.0 Intersection LOS: B

Intersection Capacity Utilization 43.5% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 14: PDLT & State Road (S.R.) 80

20: State Road (S.R.) 31 & PDLT intersect

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø4
Lane Configurations	↰↰↰			↑↑	↑	↱↱↱		
Traffic Volume (vph)	521	0	0	270	56	701		
Future Volume (vph)	521	0	0	270	56	701		
Satd. Flow (prot)	4713	0	0	3539	1863	3230		
Flt Permitted	0.950							
Satd. Flow (perm)	4713	0	0	3539	1863	3230		
Satd. Flow (RTOR)						738		
Lane Group Flow (vph)	548	0	0	284	59	738		
Turn Type	Prot			NA	NA	Free		
Protected Phases	6			8	8		2	4
Permitted Phases						Free		
Detector Phase	6			8	8			
Switch Phase								
Minimum Initial (s)	20.0			8.0	8.0		20.0	7.0
Minimum Split (s)	47.4			47.8	47.8		35.4	40.5
Total Split (s)	83.0			57.0	57.0		83.0	57.0
Total Split (%)	59.3%			40.7%	40.7%		59%	41%
Yellow Time (s)	5.4			4.3	4.3		5.4	4.0
All-Red Time (s)	2.0			2.5	2.5		2.0	2.5
Lost Time Adjust (s)	0.0			0.0	0.0			
Total Lost Time (s)	7.4			6.8	6.8			
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min			None	None		C-Min	None
Act Effct Green (s)	97.0			28.8	28.8	140.0		
Actuated g/C Ratio	0.69			0.21	0.21	1.00		
v/c Ratio	0.17			0.39	0.15	0.23		
Control Delay	7.4			3.5	38.0	0.2		
Queue Delay	0.0			0.1	0.0	0.0		
Total Delay	7.4			3.6	38.0	0.2		
LOS	A			A	D	A		
Approach Delay	7.4			3.6	3.0			
Approach LOS	A			A	A			

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 65 (46%), Referenced to phase 2:EBWB and 6:, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

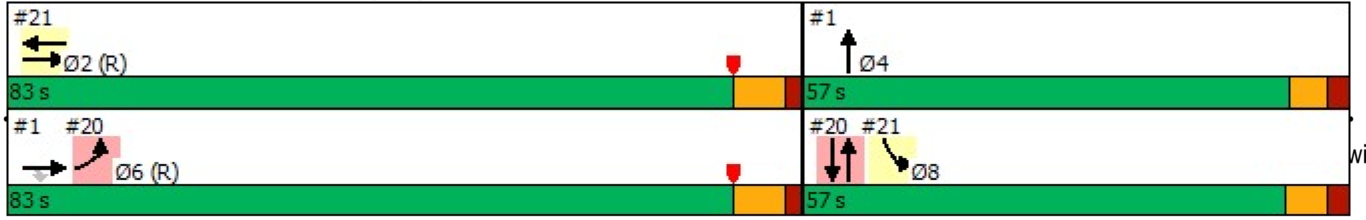
Maximum v/c Ratio: 0.64

Intersection Signal Delay: 4.5 Intersection LOS: A

Intersection Capacity Utilization 36.0% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 20: State Road (S.R.) 31 & PDLT intersect



with MUT

21: PDLT Intersect & Race Trac Drwy A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4	Ø6
Lane Configurations		↑↑↑↑	↑↑↑	↱↱	↰↰↰			
Traffic Volume (vph)	0	1647	695	690	558	0		
Future Volume (vph)	0	1647	695	690	558	0		
Satd. Flow (prot)	0	6052	4803	2632	4465	0		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6052	4803	2632	4465	0		
Satd. Flow (RTOR)				726				
Lane Group Flow (vph)	0	1734	732	726	587	0		
Turn Type		NA	NA	Free	Prot			
Protected Phases		2	2		8		4	6
Permitted Phases				Free				
Detector Phase		2	2		8			
Switch Phase								
Minimum Initial (s)		20.0	20.0		8.0		7.0	20.0
Minimum Split (s)		35.4	35.4		47.8		40.5	47.4
Total Split (s)		83.0	83.0		57.0		57.0	83.0
Total Split (%)		59.3%	59.3%		40.7%		41%	59%
Yellow Time (s)		5.4	5.4		4.3		4.0	5.4
All-Red Time (s)		2.0	2.0		2.5		2.5	2.0
Lost Time Adjust (s)		0.0	0.0		0.0			
Total Lost Time (s)		7.4	7.4		6.8			
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode		C-Min	C-Min		None		None	C-Min
Act Effct Green (s)		97.0	97.0	140.0	28.8			
Actuated g/C Ratio		0.69	0.69	1.00	0.21			
v/c Ratio		0.41	0.22	0.28	0.64			
Control Delay		2.2	8.4	0.3	47.0			
Queue Delay		0.1	0.0	0.0	0.0			
Total Delay		2.2	8.4	0.3	47.0			
LOS		A	A	A	D			
Approach Delay		2.2	4.4		47.0			
Approach LOS		A	A		D			

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 65 (46%), Referenced to phase 2:EBWB and 6:, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

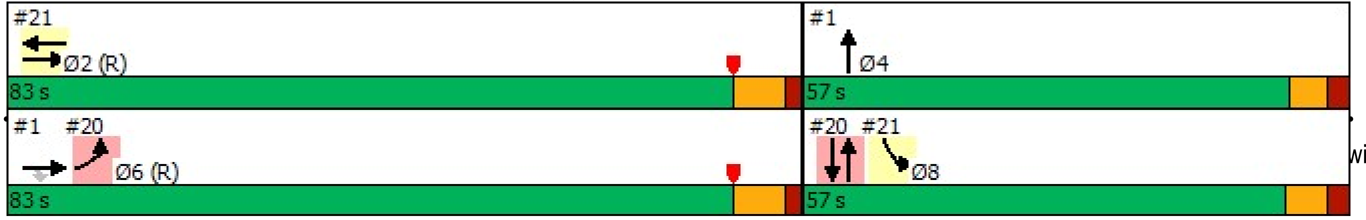
Maximum v/c Ratio: 0.64

Intersection Signal Delay: 10.0 Intersection LOS: B

Intersection Capacity Utilization 46.3% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 21: PDLT Intersect & Race Trac Drwy A



with MUT

Design Year (2045) AM

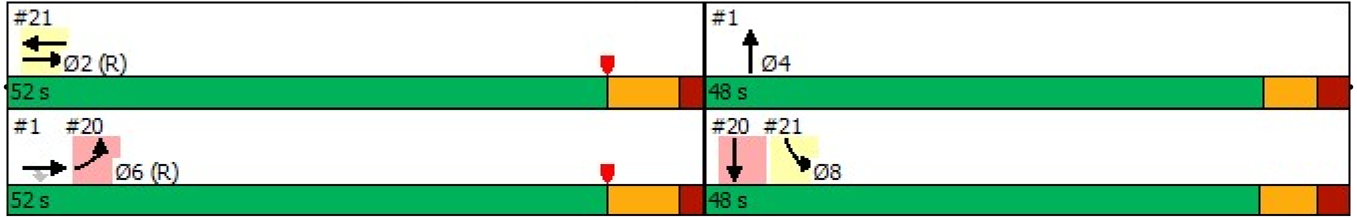
Lanes, Volumes, Timings
1: State Road (S.R.) 31 & State Road (S.R.) 80

07/26/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑			↑↑	↱		↑	
Traffic Volume (vph)	0	809	323	0	1276	0	0	289	110	0	274	0
Future Volume (vph)	0	809	323	0	1276	0	0	289	110	0	274	0
Satd. Flow (prot)	0	4803	1583	0	4803	0	0	3539	1583	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	4803	1583	0	4803	0	0	3539	1583	0	1863	0
Satd. Flow (RTOR)			340						122			
Lane Group Flow (vph)	0	852	340	0	1343	0	0	304	116	0	288	0
Turn Type		NA	Perm		NA			NA	Free		NA	
Protected Phases		6!			Free!			4!			Free!	
Permitted Phases			6						Free			
Detector Phase		6	6					4				
Switch Phase												
Minimum Initial (s)		20.0	20.0					7.0				
Minimum Split (s)		47.4	47.4					40.5				
Total Split (s)		52.0	52.0					48.0				
Total Split (%)		52.0%	52.0%					48.0%				
Yellow Time (s)		5.4	5.4					4.0				
All-Red Time (s)		2.0	2.0					2.5				
Lost Time Adjust (s)		0.0	0.0					0.0				
Total Lost Time (s)		7.4	7.4					6.5				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Min	C-Min					None				
Act Effct Green (s)		46.8	46.8		100.0			39.3	100.0		100.0	
Actuated g/C Ratio		0.47	0.47		1.00			0.39	1.00		1.00	
v/c Ratio		0.38	0.37		0.28			0.22	0.07		0.15	
Control Delay		27.9	12.0		0.1			20.2	0.1		0.2	
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	
Total Delay		27.9	12.0		0.1			20.2	0.1		0.2	
LOS		C	B		A			C	A		A	
Approach Delay		23.3			0.1			14.6			0.2	
Approach LOS		C			A			B			A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 44 (44%), Referenced to phase 2:EBWB and 6:, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 10.5	Intersection LOS: B
Intersection Capacity Utilization 45.7%	ICU Level of Service A
Analysis Period (min) 15	
! Phase conflict between lane groups.	

Splits and Phases: 1: State Road (S.R.) 31 & State Road (S.R.) 80



	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱			↱↱↱	↰	↑↑↑		↰↰↰	↑↑↑	
Traffic Volume (vph)	32	2	35	0	0	1081	147	1313	0	1202	1585	120
Future Volume (vph)	32	2	35	0	0	1081	147	1313	0	1202	1585	120
Satd. Flow (prot)	1770	1863	1583	0	0	3409	1770	4550	0	4465	4533	0
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	0	0	3409	1770	4550	0	4465	4533	0
Satd. Flow (RTOR)			164								17	
Lane Group Flow (vph)	34	2	37	0	0	1138	155	1382	0	1265	1794	0
Turn Type	Perm	NA	Perm			Over	Prot	NA		Prot	NA	
Protected Phases		4				1	5	2		1	6	
Permitted Phases	4		4									
Detector Phase	4	4	4			1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0			5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5			11.0	9.5	24.0		11.0	24.0	
Total Split (s)	18.0	18.0	18.0			40.0	26.0	42.0		40.0	56.0	
Total Split (%)	18.0%	18.0%	18.0%			40.0%	26.0%	42.0%		40.0%	56.0%	
Yellow Time (s)	3.5	3.5	3.5			4.0	3.5	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0			2.0	1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0			0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5			6.0	4.5	6.0		6.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None			None	None	C-Min		None	C-Min	
Act Effct Green (s)	7.4	7.4	7.4			39.7	25.2	38.4		39.7	54.4	
Actuated g/C Ratio	0.07	0.07	0.07			0.40	0.25	0.38		0.40	0.54	
v/c Ratio	0.26	0.01	0.14			0.84	0.35	0.79		0.71	0.73	
Control Delay	47.9	41.5	1.1			34.3	31.8	29.8		28.4	19.3	
Queue Delay	0.0	0.0	0.0			0.0	0.0	0.0		0.0	0.0	
Total Delay	47.9	41.5	1.1			34.3	31.8	29.8		28.4	19.3	
LOS	D	D	A			C	C	C		C	B	
Approach Delay		24.0			34.3			30.0			23.1	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

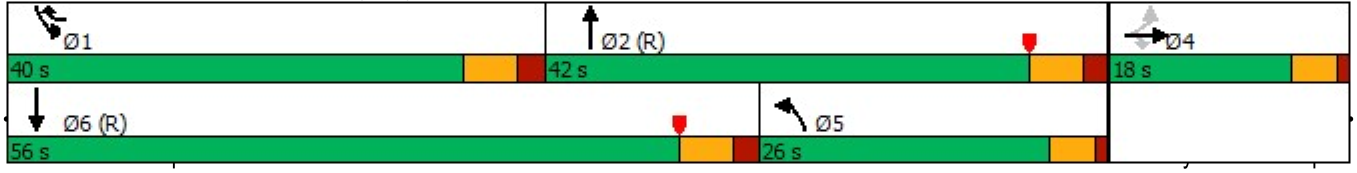
Maximum v/c Ratio: 0.84

Intersection Signal Delay: 27.1 Intersection LOS: C

Intersection Capacity Utilization 68.5% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: State Road (S.R.) 31 & PDLT intersect



14: PDLT & State Road (S.R.) 80

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰↰	↑↑↱		↰	↑↑↑							↱↱↱
Traffic Volume (vph)	1171	964	7	162	1114	0	0	0	0	0	0	1504
Future Volume (vph)	1171	964	7	162	1114	0	0	0	0	0	0	1504
Satd. Flow (prot)	4713	4800	0	1770	4803	0	0	0	0	0	0	3230
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	4713	4800	0	1770	4803	0	0	0	0	0	0	3230
Satd. Flow (RTOR)		2										
Lane Group Flow (vph)	1233	1022	0	171	1173	0	0	0	0	0	0	1583
Turn Type	Prot	NA		Prot	NA							Over
Protected Phases	7	4		3	8							7
Permitted Phases												
Detector Phase	7	4		3	8							7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0							5.0
Minimum Split (s)	11.0	24.0		9.5	24.0							11.0
Total Split (s)	64.0	77.7		22.3	36.0							64.0
Total Split (%)	64.0%	77.7%		22.3%	36.0%							64.0%
Yellow Time (s)	4.0	4.0		3.5	4.0							4.0
All-Red Time (s)	2.0	2.0		1.0	2.0							2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0							0.0
Total Lost Time (s)	6.0	6.0		4.5	6.0							6.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Recall Mode	C-Min	C-Min		None	None							C-Min
Act Effct Green (s)	59.0	75.2		14.3	29.0							59.0
Actuated g/C Ratio	0.59	0.75		0.14	0.29							0.59
v/c Ratio	0.44	0.28		0.68	0.84							0.83
Control Delay	12.2	4.4		82.8	42.3							34.1
Queue Delay	0.0	0.0		0.0	0.0							0.0
Total Delay	12.2	4.4		82.8	42.3							34.1
LOS	B	A		F	D							C
Approach Delay		8.7			47.5						34.1	
Approach LOS		A			D						C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow, Master Intersection

Natural Cycle: 60

Control Type: Actuated-Coordinated

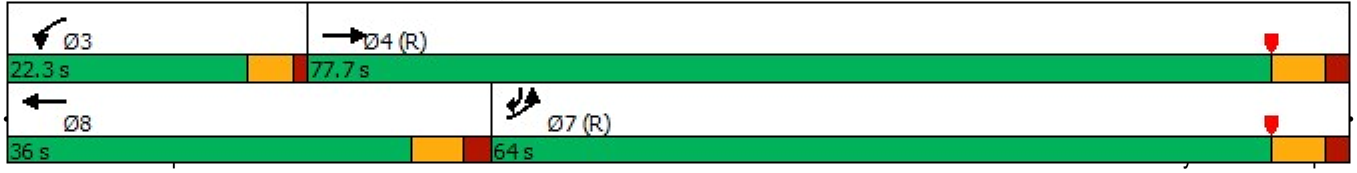
Maximum v/c Ratio: 0.84

Intersection Signal Delay: 26.5 Intersection LOS: C

Intersection Capacity Utilization 66.6% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 14: PDLT & State Road (S.R.) 80



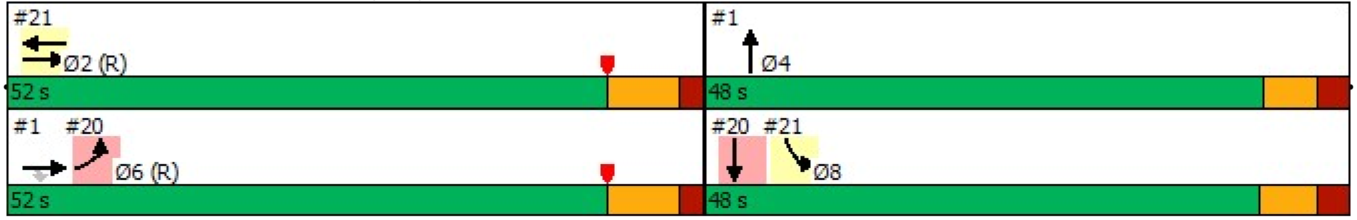
Lanes, Volumes, Timings
20: State Road (S.R.) 31 & PDLT intersect

07/26/2022

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø4
Lane Configurations	↰↰↰			↑↑	↑	↱↱↱		
Traffic Volume (vph)	1171	0	0	289	274	1464		
Future Volume (vph)	1171	0	0	289	274	1464		
Satd. Flow (prot)	4713	0	0	3167	1863	3230		
Flt Permitted	0.950							
Satd. Flow (perm)	4713	0	0	3167	1863	3230		
Satd. Flow (RTOR)						1541		
Lane Group Flow (vph)	1233	0	0	304	288	1541		
Turn Type	Prot			NA	NA	Free		
Protected Phases	6!			Free!	8		2	4
Permitted Phases						Free		
Detector Phase	6				8			
Switch Phase								
Minimum Initial (s)	20.0				8.0		20.0	7.0
Minimum Split (s)	47.4				47.8		35.4	40.5
Total Split (s)	52.0				48.0		52.0	48.0
Total Split (%)	52.0%				48.0%		52%	48%
Yellow Time (s)	5.4				4.3		5.4	4.0
All-Red Time (s)	2.0				2.5		2.0	2.5
Lost Time Adjust (s)	0.0				0.0			
Total Lost Time (s)	7.4				6.8			
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min				None		C-Min	None
Act Effct Green (s)	46.8			100.0	39.0	100.0		
Actuated g/C Ratio	0.47			1.00	0.39	1.00		
v/c Ratio	0.56			0.10	0.40	0.48		
Control Delay	20.2			0.3	13.2	2.3		
Queue Delay	0.0			0.0	0.0	0.0		
Total Delay	20.2			0.3	13.2	2.3		
LOS	C			A	B	A		
Approach Delay	20.2			0.3	4.0			
Approach LOS	C			A	A			

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 44 (44%), Referenced to phase 2:EBWB and 6:, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 9.6	Intersection LOS: A
Intersection Capacity Utilization 48.5%	ICU Level of Service A
Analysis Period (min) 15	
! Phase conflict between lane groups.	

Splits and Phases: 20: State Road (S.R.) 31 & PDLT intersect



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4	Ø6
Lane Configurations		↑↑↑↑	↑↑↑	↱↱	↰↰↰			
Traffic Volume (vph)	0	919	1276	1040	1176	0		
Future Volume (vph)	0	919	1276	1040	1176	0		
Satd. Flow (prot)	0	6052	4803	2632	4465	0		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6052	4803	2632	4465	0		
Satd. Flow (RTOR)				1095				
Lane Group Flow (vph)	0	967	1343	1095	1238	0		
Turn Type		NA	NA	Free	Prot			
Protected Phases		2	2		8		4	6
Permitted Phases				Free				
Detector Phase		2	2		8			
Switch Phase								
Minimum Initial (s)		20.0	20.0		8.0		7.0	20.0
Minimum Split (s)		35.4	35.4		47.8		40.5	47.4
Total Split (s)		52.0	52.0		48.0		48.0	52.0
Total Split (%)		52.0%	52.0%		48.0%		48%	52%
Yellow Time (s)		5.4	5.4		4.3		4.0	5.4
All-Red Time (s)		2.0	2.0		2.5		2.5	2.0
Lost Time Adjust (s)		0.0	0.0		0.0			
Total Lost Time (s)		7.4	7.4		6.8			
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode		C-Min	C-Min		None		None	C-Min
Act Effct Green (s)		46.8	46.8	100.0	39.0			
Actuated g/C Ratio		0.47	0.47	1.00	0.39			
v/c Ratio		0.34	0.60	0.42	0.71			
Control Delay		3.4	21.5	0.5	13.0			
Queue Delay		0.1	0.0	0.0	0.0			
Total Delay		3.5	21.5	0.5	13.0			
LOS		A	C	A	B			
Approach Delay		3.5	12.0		13.0			
Approach LOS		A	B		B			

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 44 (44%), Referenced to phase 2:EBWB and 6:, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

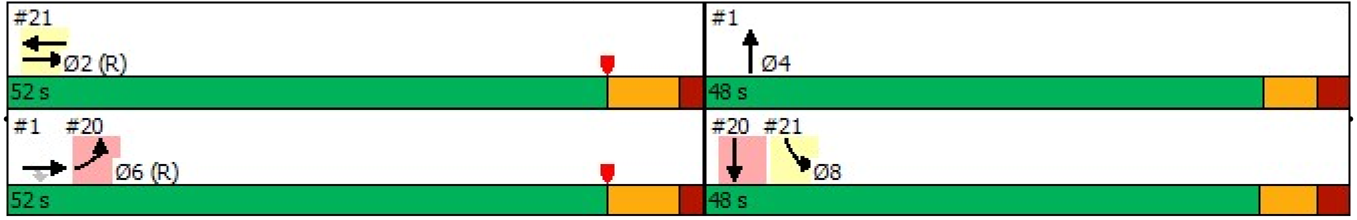
Maximum v/c Ratio: 0.71

Intersection Signal Delay: 10.5 Intersection LOS: B

Intersection Capacity Utilization 58.9% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 21: PDLT Intersect & Race Trac Drwy A



Design Year (2045) PM

Lanes, Volumes, Timings
1: State Road (S.R.) 31 & State Road (S.R.) 80

07/25/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑			↑↑	↱		↑	
Traffic Volume (vph)	0	1325	220	0	745	0	0	418	262	0	220	0
Future Volume (vph)	0	1325	220	0	745	0	0	418	262	0	220	0
Satd. Flow (prot)	0	4803	1583	0	4803	0	0	3539	1583	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	4803	1583	0	4803	0	0	3539	1583	0	1863	0
Satd. Flow (RTOR)			232						276			
Lane Group Flow (vph)	0	1395	232	0	784	0	0	440	276	0	232	0
Turn Type		NA	Perm		NA			NA	Free		NA	
Protected Phases		6!			Free!			4!			Free!	
Permitted Phases			6						Free			
Detector Phase		6	6					4				
Switch Phase												
Minimum Initial (s)		20.0	20.0					7.0				
Minimum Split (s)		47.4	47.4					40.5				
Total Split (s)		83.0	83.0					57.0				
Total Split (%)		59.3%	59.3%					40.7%				
Yellow Time (s)		5.4	5.4					4.0				
All-Red Time (s)		2.0	2.0					2.5				
Lost Time Adjust (s)		0.0	0.0					0.0				
Total Lost Time (s)		7.4	7.4					6.5				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Min	C-Min					None				
Act Effct Green (s)		78.7	78.7		140.0			47.4	140.0		140.0	
Actuated g/C Ratio		0.56	0.56		1.00			0.34	1.00		1.00	
v/c Ratio		0.52	0.23		0.16			0.37	0.17		0.12	
Control Delay		18.5	2.5		0.1			35.4	0.2		0.1	
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	
Total Delay		18.5	2.5		0.1			35.4	0.2		0.1	
LOS		B	A		A			D	A		A	
Approach Delay		16.2			0.1			21.9			0.1	
Approach LOS		B			A			C			A	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 65 (46%), Referenced to phase 2:EBWB and 6:, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

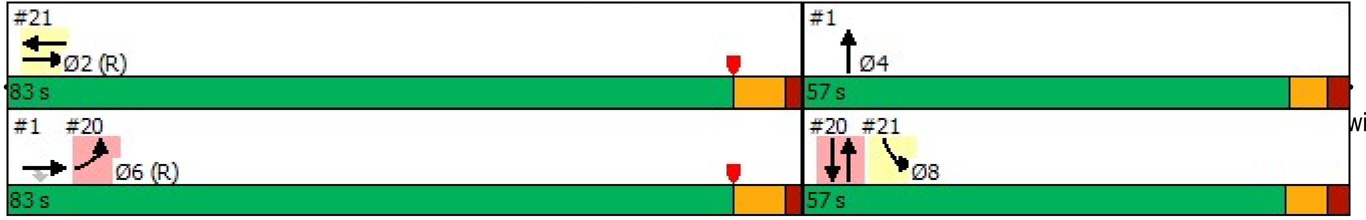
Intersection Signal Delay: 12.6 Intersection LOS: B

Intersection Capacity Utilization 48.7% ICU Level of Service A

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 1: State Road (S.R.) 31 & State Road (S.R.) 80



with MUT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱			↱↱↱	↰	↑↑↑		↰↰↰	↑↑↑	
Traffic Volume (vph)	166	5	170	0	0	1552	235	1443	0	1040	1287	323
Future Volume (vph)	166	5	170	0	0	1552	235	1443	0	1040	1287	323
Satd. Flow (prot)	1770	1863	1583	0	0	3409	1770	4550	0	4465	4509	0
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	0	0	3409	1770	4550	0	4465	4509	0
Satd. Flow (RTOR)			179								72	
Lane Group Flow (vph)	175	5	179	0	0	1634	247	1519	0	1095	1695	0
Turn Type	Perm	NA	Perm			Over	Prot	NA		Prot	NA	
Protected Phases		4				1	5	2		1	6	
Permitted Phases	4		4									
Detector Phase	4	4	4			1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0			5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5			11.0	9.5	24.0		11.0	24.0	
Total Split (s)	19.0	19.0	19.0			69.0	35.5	52.0		69.0	85.5	
Total Split (%)	13.6%	13.6%	13.6%			49.3%	25.4%	37.1%		49.3%	61.1%	
Yellow Time (s)	3.5	3.5	3.5			4.0	3.5	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0			2.0	1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0			0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5			6.0	4.5	6.0		6.0	6.0	
Lead/Lag						Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None			None	None	C-Min		None	C-Min	
Act Effct Green (s)	14.5	14.5	14.5			63.0	24.4	46.0		63.0	86.1	
Actuated g/C Ratio	0.10	0.10	0.10			0.45	0.17	0.33		0.45	0.62	
v/c Ratio	0.96	0.03	0.55			1.07	0.80	1.02		0.55	0.61	
Control Delay	117.7	57.0	14.8			78.7	66.4	87.6		29.3	17.4	
Queue Delay	0.0	0.0	0.0			0.0	0.0	0.0		0.0	0.0	
Total Delay	117.7	57.0	14.8			78.7	66.4	87.6		29.3	17.4	
LOS	F	E	B			E	E	F		C	B	
Approach Delay		65.5			78.7			84.6			22.1	
Approach LOS		E			E			F			C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

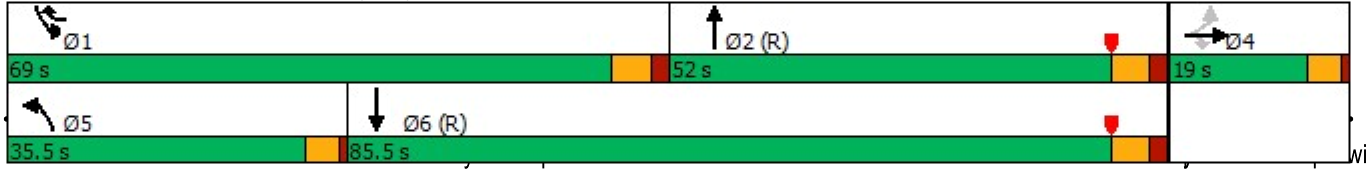
Maximum v/c Ratio: 1.07

Intersection Signal Delay: 55.5 Intersection LOS: E

Intersection Capacity Utilization 87.0% ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: State Road (S.R.) 31 & PDLT intersect



Lanes, Volumes, Timings
14: PDLT & State Road (S.R.) 80

07/25/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1260	1406	9	131	614	0	0	0	0	0	0	1501
Future Volume (vph)	1260	1406	9	131	614	0	0	0	0	0	0	1501
Satd. Flow (prot)	4713	4800	0	1770	4803	0	0	0	0	0	0	3610
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	4713	4800	0	1770	4803	0	0	0	0	0	0	3610
Satd. Flow (RTOR)		2										
Lane Group Flow (vph)	1326	1489	0	138	646	0	0	0	0	0	0	1580
Turn Type	Prot	NA		Prot	NA							Over
Protected Phases	7	4		3	8							7
Permitted Phases												
Detector Phase	7	4		3	8							7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0							5.0
Minimum Split (s)	11.0	24.0		9.5	24.0							11.0
Total Split (s)	101.0	109.0		31.0	39.0							101.0
Total Split (%)	72.1%	77.9%		22.1%	27.9%							72.1%
Yellow Time (s)	4.0	4.0		3.5	4.0							4.0
All-Red Time (s)	2.0	2.0		1.0	2.0							2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0							0.0
Total Lost Time (s)	6.0	6.0		4.5	6.0							6.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Recall Mode	C-Min	C-Min		None	None							C-Min
Act Effct Green (s)	103.1	113.3		16.2	24.9							103.1
Actuated g/C Ratio	0.74	0.81		0.12	0.18							0.74
v/c Ratio	0.38	0.38		0.68	0.76							0.59
Control Delay	7.4	4.3		90.7	75.8							21.5
Queue Delay	0.0	0.0		0.0	0.0							0.0
Total Delay	7.4	4.3		90.7	75.8							21.5
LOS	A	A		F	E							C
Approach Delay		5.8			78.4						21.5	
Approach LOS		A			E						C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow, Master Intersection

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 21.6 Intersection LOS: C

Intersection Capacity Utilization 56.9% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 14: PDLT & State Road (S.R.) 80

Lanes, Volumes, Timings

20: State Road (S.R.) 31 & PDLT intersect 07/25/2022

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø4
Lane Configurations	↰↰↰			↑↑	↑	↱↱↱		
Traffic Volume (vph)	1260	0	0	418	220	1386		
Future Volume (vph)	1260	0	0	418	220	1386		
Satd. Flow (prot)	4713	0	0	3539	1863	3230		
Flt Permitted	0.950							
Satd. Flow (perm)	4713	0	0	3539	1863	3230		
Satd. Flow (RTOR)						1459		
Lane Group Flow (vph)	1326	0	0	440	232	1459		
Turn Type	Prot			NA	NA	Free		
Protected Phases	6			8	8		2	4
Permitted Phases						Free		
Detector Phase	6			8	8			
Switch Phase								
Minimum Initial (s)	20.0			8.0	8.0		20.0	7.0
Minimum Split (s)	47.4			47.8	47.8		35.4	40.5
Total Split (s)	83.0			57.0	57.0		83.0	57.0
Total Split (%)	59.3%			40.7%	40.7%		59%	41%
Yellow Time (s)	5.4			4.3	4.3		5.4	4.0
All-Red Time (s)	2.0			2.5	2.5		2.0	2.5
Lost Time Adjust (s)	0.0			0.0	0.0			
Total Lost Time (s)	7.4			6.8	6.8			
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min			None	None		C-Min	None
Act Effct Green (s)	78.7			47.1	47.1	140.0		
Actuated g/C Ratio	0.56			0.34	0.34	1.00		
v/c Ratio	0.50			0.37	0.37	0.45		
Control Delay	25.1			2.5	24.5	0.9		
Queue Delay	0.0			0.3	0.0	0.0		
Total Delay	25.1			2.8	24.5	0.9		
LOS	C			A	C	A		
Approach Delay	25.1			2.8	4.1			
Approach LOS	C			A	A			

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 65 (46%), Referenced to phase 2:EBWB and 6:, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

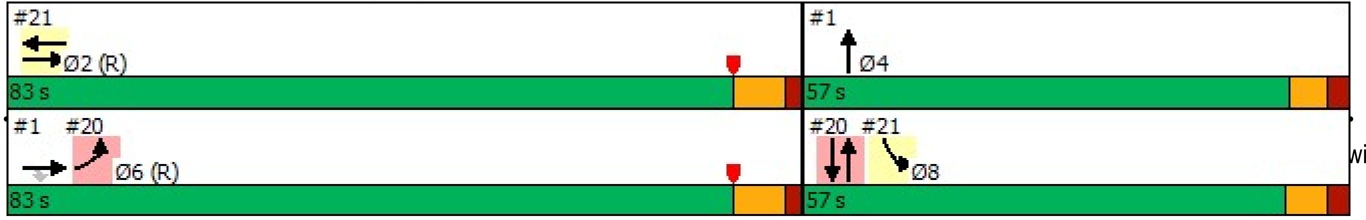
Maximum v/c Ratio: 0.68

Intersection Signal Delay: 12.0 Intersection LOS: B

Intersection Capacity Utilization 47.4% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 20: State Road (S.R.) 31 & PDLT intersect



with MUT

Lanes, Volumes, Timings
21: PDLT Intersect & Race Trac Drwy A

07/25/2022

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4	Ø6
Lane Configurations								
Traffic Volume (vph)	0	1587	745	1367	974	0		
Future Volume (vph)	0	1587	745	1367	974	0		
Satd. Flow (prot)	0	6052	4803	2632	4465	0		
Flt Permitted					0.950			
Satd. Flow (perm)	0	6052	4803	2632	4465	0		
Satd. Flow (RTOR)				1439				
Lane Group Flow (vph)	0	1671	784	1439	1025	0		
Turn Type		NA	NA	Free	Prot			
Protected Phases		2	2		8		4	6
Permitted Phases				Free				
Detector Phase		2	2		8			
Switch Phase								
Minimum Initial (s)		20.0	20.0		8.0		7.0	20.0
Minimum Split (s)		35.4	35.4		47.8		40.5	47.4
Total Split (s)		83.0	83.0		57.0		57.0	83.0
Total Split (%)		59.3%	59.3%		40.7%		41%	59%
Yellow Time (s)		5.4	5.4		4.3		4.0	5.4
All-Red Time (s)		2.0	2.0		2.5		2.5	2.0
Lost Time Adjust (s)		0.0	0.0		0.0			
Total Lost Time (s)		7.4	7.4		6.8			
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode		C-Min	C-Min		None		None	C-Min
Act Effct Green (s)		78.7	78.7	140.0	47.1			
Actuated g/C Ratio		0.56	0.56	1.00	0.34			
v/c Ratio		0.49	0.29	0.55	0.68			
Control Delay		4.1	16.8	0.8	21.9			
Queue Delay		0.1	0.0	0.0	0.0			
Total Delay		4.2	16.8	0.8	21.9			
LOS		A	B	A	C			
Approach Delay		4.2	6.5		21.9			
Approach LOS		A	A		C			

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 65 (46%), Referenced to phase 2:EBWB and 6:, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

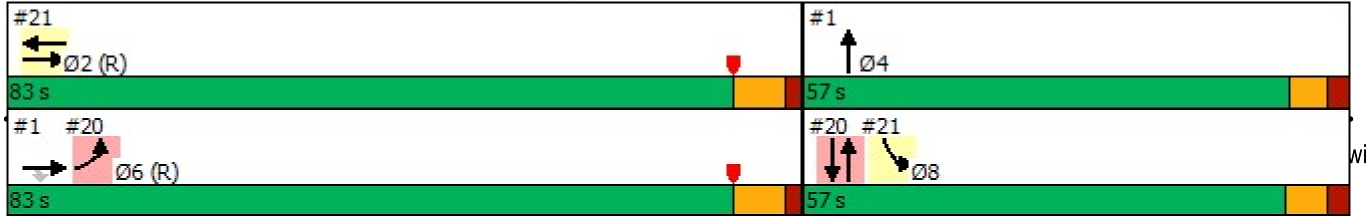
Maximum v/c Ratio: 0.68

Intersection Signal Delay: 8.9 Intersection LOS: A

Intersection Capacity Utilization 53.4% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 21: PDLT Intersect & Race Trac Drwy A



with MUT

ALTERNATIVE 4 - CTO (CENTER)

Opening Year (2025) AM

20: CTO Center & State Road (S.R.) 31

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰				↰↰	
Traffic Volume (vph)	503	0	0	0	504	0
Future Volume (vph)	503	0	0	0	504	0
Satd. Flow (prot)	3328	0	0	0	3152	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3328	0	0	0	3152	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	529	0	0	0	531	0
Turn Type	Prot				Prot	
Protected Phases	5				7	
Permitted Phases						
Detector Phase	5				7	
Switch Phase						
Minimum Initial (s)	5.0				5.0	
Minimum Split (s)	11.0				11.0	
Total Split (s)	39.0				41.0	
Total Split (%)	48.8%				51.3%	
Yellow Time (s)	4.0				4.0	
All-Red Time (s)	2.0				2.0	
Lost Time Adjust (s)	0.0				0.0	
Total Lost Time (s)	6.0				6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min				Min	
Act Effct Green (s)	48.9				19.1	
Actuated g/C Ratio	0.61				0.24	
v/c Ratio	0.26				0.71	
Control Delay	8.2				32.9	
Queue Delay	0.0				0.0	
Total Delay	8.2				32.9	
LOS	A				C	
Approach Delay		8.2			32.9	
Approach LOS		A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 5:EBL, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

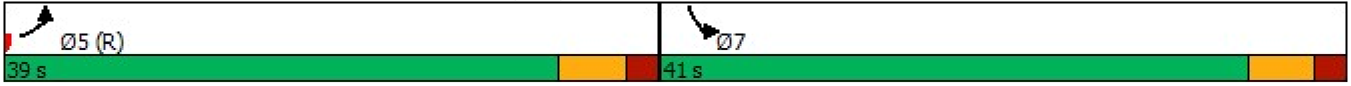
Maximum v/c Ratio: 0.71

Intersection Signal Delay: 20.6 Intersection LOS: C

Intersection Capacity Utilization 56.0% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: CTO Center & State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	597	90	125	1439	489	91	47	67	0	107	622
Future Volume (veh/h)	0	597	90	125	1439	489	91	47	67	0	107	622
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	628	0	132	1515	515	96	49	-45	0	113	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	1571		450	1945	868	123	653	553	0	427	
Arrive On Green	0.00	0.45	0.00	0.06	0.56	0.56	0.07	0.34	0.00	0.00	0.22	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	628	0	132	1515	515	96	49	-45	0	113	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	10.9	0.0	3.3	30.6	19.7	4.7	1.6	0.0	0.0	4.4	0.0
Cycle Q Clear(g_c), s	0.0	10.9	0.0	3.3	30.6	19.7	4.7	1.6	0.0	0.0	4.4	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	1571		450	1945	868	123	653	553	0	427	
V/C Ratio(X)	0.00	0.40		0.29	0.78	0.59	0.78	0.08	-0.08	0.00	0.26	
Avail Cap(c_a), veh/h	0	1571		546	1945	868	158	653	553	0	427	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	16.5	0.0	11.7	15.5	13.0	41.3	20.1	0.0	0.0	28.9	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.4	3.2	3.0	16.8	0.2	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.0	0.0	1.2	10.8	6.4	2.7	0.7	0.0	0.0	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.2	0.0	12.1	18.6	16.0	58.1	20.3	0.0	0.0	30.4	0.0
LnGrp LOS	A	B		B	B	B	E	C	A	A	C	
Approach Vol, veh/h		628	A		2162			100			113	A
Approach Delay, s/veh		17.2			17.6			65.8			30.4	
Approach LOS		B			B			E			C	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	9.7	45.2	10.6	24.5		54.9		35.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s	9.9	36.0	7.8	18.3		50.4		30.6				
Max Q Clear Time (g_c+I1), s	5.3	12.9	6.7	6.4		32.6		3.6				
Green Ext Time (p_c), s	0.1	4.0	0.0	0.3		11.8		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			19.6
HCM 6th LOS			B

Notes

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

Opening Year (2025) PM

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰				↰↰	
Traffic Volume (vph)	581	0	0	0	486	0
Future Volume (vph)	581	0	0	0	486	0
Satd. Flow (prot)	3328	0	0	0	3152	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3328	0	0	0	3152	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	612	0	0	0	512	0
Turn Type	Prot				Prot	
Protected Phases	5				7	
Permitted Phases						
Detector Phase	5				7	
Switch Phase						
Minimum Initial (s)	5.0				5.0	
Minimum Split (s)	11.0				11.0	
Total Split (s)	43.0				37.0	
Total Split (%)	53.8%				46.3%	
Yellow Time (s)	4.0				4.0	
All-Red Time (s)	2.0				2.0	
Lost Time Adjust (s)	0.0				0.0	
Total Lost Time (s)	6.0				6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min				Min	
Act Effct Green (s)	49.6				18.4	
Actuated g/C Ratio	0.62				0.23	
v/c Ratio	0.30				0.71	
Control Delay	8.1				33.5	
Queue Delay	0.0				0.0	
Total Delay	8.1				33.5	
LOS	A				C	
Approach Delay		8.1			33.5	
Approach LOS		A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 5:EBL, Start of Green

Natural Cycle: 40

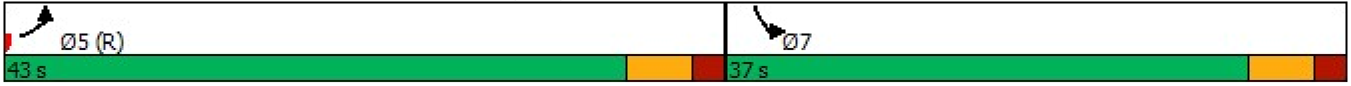
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 19.7	Intersection LOS: B
Intersection Capacity Utilization 81.0%	ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 20: CTO Center & State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	1327	74	113	725	547	120	150	260	0	56	557
Future Volume (veh/h)	0	1327	74	113	725	547	120	150	260	0	56	557
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	1397	0	119	763	576	126	158	149	0	59	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	2190		262	2420	1079	148	467	396	0	254	
Arrive On Green	0.00	0.63	0.00	0.04	0.70	0.70	0.08	0.24	0.24	0.00	0.13	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	1397	0	119	763	576	126	158	149	0	59	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	37.3	0.0	3.3	12.8	26.9	10.2	10.2	11.4	0.0	4.1	0.0
Cycle Q Clear(g_c), s	0.0	37.3	0.0	3.3	12.8	26.9	10.2	10.2	11.4	0.0	4.1	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2190		262	2420	1079	148	467	396	0	254	
V/C Ratio(X)	0.00	0.64		0.45	0.32	0.53	0.85	0.34	0.38	0.00	0.23	
Avail Cap(c_a), veh/h	0	2190		341	2420	1079	162	467	396	0	254	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	17.1	0.0	15.7	8.8	11.0	68.0	46.8	47.3	0.0	58.3	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.0	1.2	0.3	1.9	30.7	2.0	2.7	0.0	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.1	0.0	1.5	4.9	9.5	6.1	5.2	5.0	0.0	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.6	0.0	16.9	9.2	12.9	98.7	48.7	50.0	0.0	60.4	0.0
LnGrp LOS	A	B		B	A	B	F	D	D	A	E	
Approach Vol, veh/h		1397	A		1458			433			59	A
Approach Delay, s/veh		18.6			11.3			63.7			60.4	
Approach LOS		B			B			E			E	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	9.9	99.1	16.7	24.3		109.0		41.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	11.9	88.1	13.3	18.7		104.5		36.5
Max Q Clear Time (g_c+I1), s	5.3	39.3	12.2	6.1		28.9		13.4
Green Ext Time (p_c), s	0.1	16.1	0.0	0.1		10.3		1.3

Intersection Summary	
HCM 6th Ctrl Delay	22.0
HCM 6th LOS	C

Notes

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

Design Year (2045) AM

Lanes, Volumes, Timings
20: CTO Center & State Road (S.R.) 31

07/25/2022

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰				↰↰	
Traffic Volume (vph)	1200	0	0	0	1136	0
Future Volume (vph)	1200	0	0	0	1136	0
Satd. Flow (prot)	3328	0	0	0	3152	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3328	0	0	0	3152	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	1263	0	0	0	1196	0
Turn Type	Prot				Prot	
Protected Phases	5				7	
Permitted Phases						
Detector Phase	5				7	
Switch Phase						
Minimum Initial (s)	5.0				5.0	
Minimum Split (s)	11.0				11.0	
Total Split (s)	39.0				41.0	
Total Split (%)	48.8%				51.3%	
Yellow Time (s)	4.0				4.0	
All-Red Time (s)	2.0				2.0	
Lost Time Adjust (s)	0.0				0.0	
Total Lost Time (s)	6.0				6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min				Min	
Act Effct Green (s)	34.2				33.8	
Actuated g/C Ratio	0.43				0.42	
v/c Ratio	0.89				0.90	
Control Delay	31.2				32.0	
Queue Delay	0.0				0.0	
Total Delay	31.2				32.0	
LOS	C				C	
Approach Delay		31.2			32.0	
Approach LOS		C			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 5:EBL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

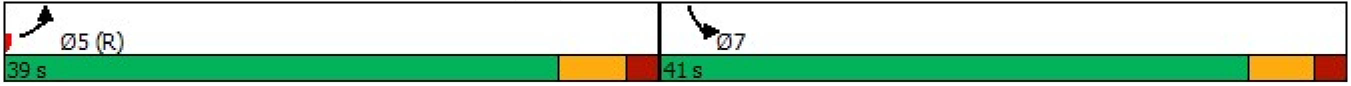
Maximum v/c Ratio: 0.90

Intersection Signal Delay: 31.6 Intersection LOS: C

Intersection Capacity Utilization 111.7% ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 20: CTO Center & State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	780	168	155	1200	961	118	171	110	0	274	1324
Future Volume (veh/h)	0	780	168	155	1200	961	118	171	110	0	274	1324
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	821	0	163	1263	1012	124	180	0	0	288	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	1534		384	1945	868	155	653	553	0	394	
Arrive On Green	0.00	0.44	0.00	0.07	0.56	0.56	0.08	0.34	0.00	0.00	0.21	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	821	0	163	1263	1012	124	180	0	0	288	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	15.6	0.0	4.1	22.6	50.4	6.0	6.1	0.0	0.0	12.6	0.0
Cycle Q Clear(g_c), s	0.0	15.6	0.0	4.1	22.6	50.4	6.0	6.1	0.0	0.0	12.6	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	1534		384	1945	868	155	653	553	0	394	
V/C Ratio(X)	0.00	0.54		0.42	0.65	1.17	0.80	0.28	0.00	0.00	0.73	
Avail Cap(c_a), veh/h	0	1534		460	1945	868	158	653	553	0	394	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	18.4	0.0	13.1	13.7	19.8	40.4	21.6	0.0	0.0	33.4	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.0	0.7	1.7	87.3	24.1	1.0	0.0	0.0	11.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.9	0.0	1.5	7.8	35.7	3.7	2.9	0.0	0.0	6.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.7	0.0	13.8	15.4	107.1	64.5	22.7	0.0	0.0	44.8	0.0
LnGrp LOS	A	B		B	B	F	E	C	A	A	D	
Approach Vol, veh/h		821	A		2438			304			288	A
Approach Delay, s/veh		19.7			53.4			39.8			44.8	
Approach LOS		B			D			D			D	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	10.6	44.3	12.1	23.0		54.9		35.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	9.9	36.0	7.8	18.3		50.4		30.6
Max Q Clear Time (g_c+I1), s	6.1	17.6	8.0	14.6		52.4		8.1
Green Ext Time (p_c), s	0.1	5.0	0.0	0.5		0.0		1.0

Intersection Summary	
HCM 6th Ctrl Delay	44.5
HCM 6th LOS	D

Notes

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

Design Year (2045) PM

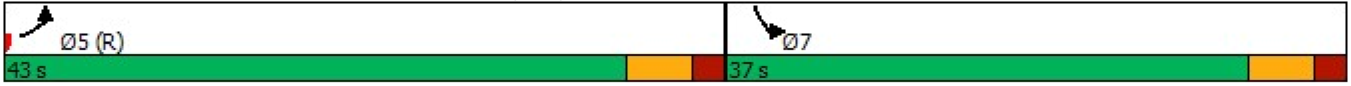
Lanes, Volumes, Timings
20: CTO Center & State Road (S.R.) 31

07/25/2022

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰				↰↰	
Traffic Volume (vph)	1335	0	0	0	884	0
Future Volume (vph)	1335	0	0	0	884	0
Satd. Flow (prot)	3328	0	0	0	3152	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3328	0	0	0	3152	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	1405	0	0	0	931	0
Turn Type	Prot				Prot	
Protected Phases	5				7	
Permitted Phases						
Detector Phase	5				7	
Switch Phase						
Minimum Initial (s)	5.0				5.0	
Minimum Split (s)	11.0				11.0	
Total Split (s)	43.0				37.0	
Total Split (%)	53.8%				46.3%	
Yellow Time (s)	4.0				4.0	
All-Red Time (s)	2.0				2.0	
Lost Time Adjust (s)	0.0				0.0	
Total Lost Time (s)	6.0				6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min				Min	
Act Effct Green (s)	39.9				28.1	
Actuated g/C Ratio	0.50				0.35	
v/c Ratio	0.85				0.84	
Control Delay	23.9				31.4	
Queue Delay	0.0				0.0	
Total Delay	23.9				31.4	
LOS	C				C	
Approach Delay		23.9			31.4	
Approach LOS		C			C	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 5:EBL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 26.9	Intersection LOS: C
Intersection Capacity Utilization 151.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 20: CTO Center & State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	1250	98	122	800	1190	149	269	262	0	220	1209
Future Volume (veh/h)	0	1250	98	122	800	1190	149	269	262	0	220	1209
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	1316	0	128	842	1253	157	283	151	0	232	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	2183		286	2420	1079	162	467	396	0	239	
Arrive On Green	0.00	0.63	0.00	0.04	0.70	0.70	0.09	0.24	0.24	0.00	0.12	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	1316	0	128	842	1253	157	283	151	0	232	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	34.0	0.0	3.6	14.6	104.5	12.8	19.6	11.6	0.0	18.1	0.0
Cycle Q Clear(g_c), s	0.0	34.0	0.0	3.6	14.6	104.5	12.8	19.6	11.6	0.0	18.1	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2183		286	2420	1079	162	467	396	0	239	
V/C Ratio(X)	0.00	0.60		0.45	0.35	1.16	0.97	0.61	0.38	0.00	0.97	
Avail Cap(c_a), veh/h	0	2183		361	2420	1079	162	467	396	0	239	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	16.7	0.0	14.5	9.1	22.8	68.1	50.4	47.3	0.0	65.4	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.0	1.1	0.4	82.9	61.1	5.7	2.8	0.0	50.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.7	0.0	1.5	5.5	59.5	8.8	10.2	5.1	0.0	12.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.9	0.0	15.6	9.5	105.6	129.3	56.1	50.1	0.0	116.2	0.0
LnGrp LOS	A	B		B	A	F	F	E	D	A	F	
Approach Vol, veh/h		1316	A		2223			591			232	A
Approach Delay, s/veh		17.9			64.0			74.0			116.2	
Approach LOS		B			E			E			F	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	10.2	98.8	17.8	23.2		109.0		41.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	11.9	88.1	13.3	18.7		104.5		36.5
Max Q Clear Time (g_c+I1), s	5.6	36.0	14.8	20.1		106.5		21.6
Green Ext Time (p_c), s	0.1	14.7	0.0	0.0		0.0		1.9

Intersection Summary			
HCM 6th Ctrl Delay			54.2
HCM 6th LOS			D

Notes

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

ALTERNATIVE 5 - CTO (SOUTH)

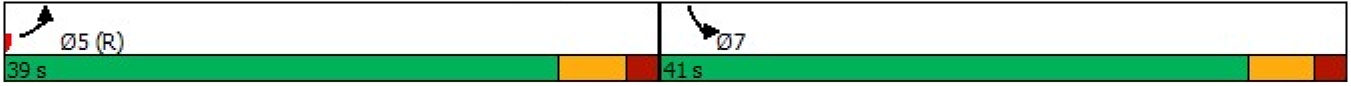
Opening Year (2025) AM

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	503	0	0	0	504	0
Future Volume (vph)	503	0	0	0	504	0
Satd. Flow (prot)	3328	0	0	0	3152	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3328	0	0	0	3152	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	529	0	0	0	531	0
Turn Type	Prot				Prot	
Protected Phases	5				7	
Permitted Phases						
Detector Phase	5				7	
Switch Phase						
Minimum Initial (s)	5.0				5.0	
Minimum Split (s)	11.0				11.0	
Total Split (s)	39.0				41.0	
Total Split (%)	48.8%				51.3%	
Yellow Time (s)	4.0				4.0	
All-Red Time (s)	2.0				2.0	
Lost Time Adjust (s)	0.0				0.0	
Total Lost Time (s)	6.0				6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min				Min	
Act Effct Green (s)	48.9				19.1	
Actuated g/C Ratio	0.61				0.24	
v/c Ratio	0.26				0.71	
Control Delay	8.2				32.9	
Queue Delay	0.0				0.0	
Total Delay	8.2				32.9	
LOS	A				C	
Approach Delay		8.2			32.9	
Approach LOS		A			C	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 5:EBL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 20.6 Intersection LOS: C
Intersection Capacity Utilization 56.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 20: CTO Center & State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	555	132	125	1439	489	91	47	109	0	107	622
Future Volume (veh/h)	0	555	132	125	1439	489	91	47	109	0	107	622
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	584	0	132	1515	515	96	49	-1	0	113	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	1575		470	1949	869	123	651	551	0	425	
Arrive On Green	0.00	0.45	0.00	0.06	0.56	0.56	0.07	0.34	0.00	0.00	0.22	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	584	0	132	1515	515	96	49	-1	0	113	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	9.9	0.0	3.3	30.6	19.7	4.7	1.6	0.0	0.0	4.4	0.0
Cycle Q Clear(g_c), s	0.0	9.9	0.0	3.3	30.6	19.7	4.7	1.6	0.0	0.0	4.4	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	1575		470	1949	869	123	651	551	0	425	
V/C Ratio(X)	0.00	0.37		0.28	0.78	0.59	0.78	0.08	0.00	0.00	0.27	
Avail Cap(c_a), veh/h	0	1575		564	1949	869	150	651	551	0	425	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	16.2	0.0	11.5	15.4	13.0	41.3	20.2	0.0	0.0	29.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.3	3.1	3.0	18.8	0.2	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.7	0.0	1.2	10.8	6.4	2.7	0.7	0.0	0.0	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.8	0.0	11.8	18.5	15.9	60.2	20.4	0.0	0.0	30.5	0.0
LnGrp LOS	A	B		B	B	B	E	C	A	A	C	
Approach Vol, veh/h		584	A		2162			144			113	A
Approach Delay, s/veh		16.8			17.5			47.1			30.5	
Approach LOS		B			B			D			C	
Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	9.7	45.3	10.6	24.4		55.0		35.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s	9.8	36.2	7.4	18.6		50.5		30.5				
Max Q Clear Time (g_c+I1), s	5.3	11.9	6.7	6.4		32.6		3.6				
Green Ext Time (p_c), s	0.1	3.7	0.0	0.3		11.8		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			19.3									
HCM 6th LOS			B									

Notes

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

Opening Year (2025) PM

Lanes, Volumes, Timings
20: CTO Center & State Road (S.R.) 31

07/25/2022

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰				↰↰	
Traffic Volume (vph)	581	0	0	0	486	0
Future Volume (vph)	581	0	0	0	486	0
Satd. Flow (prot)	3328	0	0	0	3152	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3328	0	0	0	3152	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	612	0	0	0	512	0
Turn Type	Prot				Prot	
Protected Phases	5				7	
Permitted Phases						
Detector Phase	5				7	
Switch Phase						
Minimum Initial (s)	5.0				5.0	
Minimum Split (s)	11.0				11.0	
Total Split (s)	43.0				37.0	
Total Split (%)	53.8%				46.3%	
Yellow Time (s)	4.0				4.0	
All-Red Time (s)	2.0				2.0	
Lost Time Adjust (s)	0.0				0.0	
Total Lost Time (s)	6.0				6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min				Min	
Act Effct Green (s)	49.6				18.4	
Actuated g/C Ratio	0.62				0.23	
v/c Ratio	0.30				0.71	
Control Delay	8.1				33.5	
Queue Delay	0.0				0.0	
Total Delay	8.1				33.5	
LOS	A				C	
Approach Delay		8.1			33.5	
Approach LOS		A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 5:EBL, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

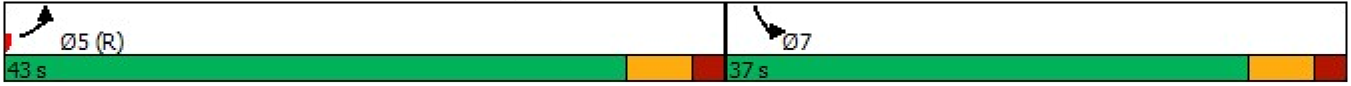
Maximum v/c Ratio: 0.71

Intersection Signal Delay: 19.7 Intersection LOS: B

Intersection Capacity Utilization 81.0% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 20: CTO Center & State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	1270	131	113	725	547	120	150	317	0	56	557
Future Volume (veh/h)	0	1270	131	113	725	547	120	150	317	0	56	557
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	1337	0	119	763	576	126	158	209	0	59	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	2238		286	2466	1100	137	442	374	0	241	
Arrive On Green	0.00	0.64	0.00	0.04	0.71	0.71	0.07	0.23	0.23	0.00	0.13	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	1337	0	119	763	576	126	158	209	0	59	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	33.4	0.0	3.2	12.2	25.7	10.3	10.4	17.0	0.0	4.2	0.0
Cycle Q Clear(g_c), s	0.0	33.4	0.0	3.2	12.2	25.7	10.3	10.4	17.0	0.0	4.2	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2238		286	2466	1100	137	442	374	0	241	
V/C Ratio(X)	0.00	0.60		0.42	0.31	0.52	0.92	0.36	0.56	0.00	0.25	
Avail Cap(c_a), veh/h	0	2238		409	2466	1100	137	442	374	0	241	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	15.4	0.0	13.4	8.1	10.0	69.0	48.5	51.0	0.0	59.2	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.0	1.0	0.3	1.8	54.2	2.3	5.9	0.0	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.3	0.0	1.3	4.6	9.0	6.9	5.3	7.6	0.0	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.6	0.0	14.4	8.4	11.8	123.2	50.7	56.9	0.0	61.6	0.0
LnGrp LOS	A	B		B	A	B	F	D	E	A	E	
Approach Vol, veh/h		1337	A		1458			493			59	A
Approach Delay, s/veh		16.6			10.2			71.9			61.6	
Approach LOS		B			B			E			E	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	9.9	101.1	15.7	23.3		111.0		39.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	15.5	86.5	11.2	18.8		106.5		34.5
Max Q Clear Time (g_c+I1), s	5.2	35.4	12.3	6.2		27.7		19.0
Green Ext Time (p_c), s	0.2	15.1	0.0	0.1		10.3		1.4

Intersection Summary	
HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

Notes

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

Design Year (2045) AM

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰				↰↰	
Traffic Volume (vph)	1200	0	0	0	1136	0
Future Volume (vph)	1200	0	0	0	1136	0
Satd. Flow (prot)	3328	0	0	0	3152	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3328	0	0	0	3152	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	1263	0	0	0	1196	0
Turn Type	Prot				Prot	
Protected Phases	5				7	
Permitted Phases						
Detector Phase	5				7	
Switch Phase						
Minimum Initial (s)	5.0				5.0	
Minimum Split (s)	11.0				11.0	
Total Split (s)	39.0				41.0	
Total Split (%)	48.8%				51.3%	
Yellow Time (s)	4.0				4.0	
All-Red Time (s)	2.0				2.0	
Lost Time Adjust (s)	0.0				0.0	
Total Lost Time (s)	6.0				6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min				Min	
Act Effct Green (s)	34.2				33.8	
Actuated g/C Ratio	0.43				0.42	
v/c Ratio	0.89				0.90	
Control Delay	31.2				32.0	
Queue Delay	0.0				0.0	
Total Delay	31.2				32.0	
LOS	C				C	
Approach Delay		31.2			32.0	
Approach LOS		C			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 5:EBL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

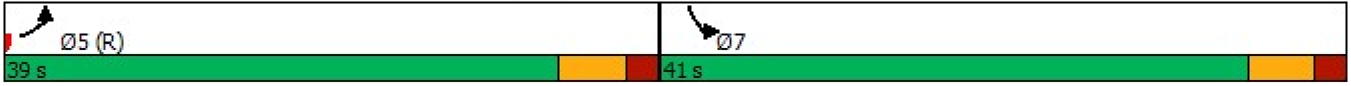
Maximum v/c Ratio: 0.90

Intersection Signal Delay: 31.6 Intersection LOS: C

Intersection Capacity Utilization 111.7% ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 20: CTO Center & State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	728	220	155	1200	961	118	171	162	0	274	1324
Future Volume (veh/h)	0	728	220	155	1200	961	118	171	162	0	274	1324
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	766	0	163	1263	1012	124	180	55	0	288	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	1539		405	1949	869	150	651	551	0	397	
Arrive On Green	0.00	0.44	0.00	0.07	0.56	0.56	0.08	0.34	0.34	0.00	0.21	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	766	0	163	1263	1012	124	180	55	0	288	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	14.2	0.0	4.1	22.6	50.5	6.0	6.2	2.1	0.0	12.6	0.0
Cycle Q Clear(g_c), s	0.0	14.2	0.0	4.1	22.6	50.5	6.0	6.2	2.1	0.0	12.6	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	1539		405	1949	869	150	651	551	0	397	
V/C Ratio(X)	0.00	0.50		0.40	0.65	1.16	0.82	0.28	0.10	0.00	0.73	
Avail Cap(c_a), veh/h	0	1539		479	1949	869	150	651	551	0	397	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	17.9	0.0	12.7	13.6	19.8	40.7	21.7	20.4	0.0	33.3	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.0	0.6	1.7	86.4	29.7	1.1	0.4	0.0	11.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.3	0.0	1.5	7.8	35.5	3.9	2.9	0.8	0.0	6.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.1	0.0	13.3	15.3	106.1	70.4	22.8	20.7	0.0	44.4	0.0
LnGrp LOS	A	B		B	B	F	E	C	C	A	D	
Approach Vol, veh/h		766	A		2438			359			288	A
Approach Delay, s/veh		19.1			52.9			38.9			44.4	
Approach LOS		B			D			D			D	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	10.6	44.4	11.9	23.1		55.0		35.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s	9.8	36.2	7.4	18.6		50.5		30.5				
Max Q Clear Time (g_c+I1), s	6.1	16.2	8.0	14.6		52.5		8.2				
Green Ext Time (p_c), s	0.1	4.8	0.0	0.5		0.0		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	44.2
HCM 6th LOS	D

Notes

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

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

Design Year (2045) PM

Lanes, Volumes, Timings
20: CTO Center & State Road (S.R.) 31

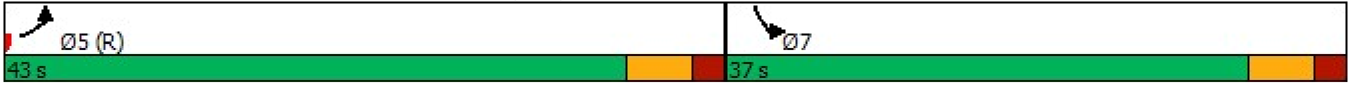
07/25/2022

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰				↰↰	
Traffic Volume (vph)	1335	0	0	0	884	0
Future Volume (vph)	1335	0	0	0	884	0
Satd. Flow (prot)	3328	0	0	0	3152	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3328	0	0	0	3152	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	1405	0	0	0	931	0
Turn Type	Prot				Prot	
Protected Phases	5				7	
Permitted Phases						
Detector Phase	5				7	
Switch Phase						
Minimum Initial (s)	5.0				5.0	
Minimum Split (s)	11.0				11.0	
Total Split (s)	43.0				37.0	
Total Split (%)	53.8%				46.3%	
Yellow Time (s)	4.0				4.0	
All-Red Time (s)	2.0				2.0	
Lost Time Adjust (s)	0.0				0.0	
Total Lost Time (s)	6.0				6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min				Min	
Act Effct Green (s)	39.9				28.1	
Actuated g/C Ratio	0.50				0.35	
v/c Ratio	0.85				0.84	
Control Delay	23.9				31.4	
Queue Delay	0.0				0.0	
Total Delay	23.9				31.4	
LOS	C				C	
Approach Delay		23.9			31.4	
Approach LOS		C			C	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 5:EBL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 26.9 Intersection LOS: C
Intersection Capacity Utilization 151.5% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 20: CTO Center & State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	1183	165	122	800	1190	149	269	329	0	220	1209
Future Volume (veh/h)	0	1183	165	122	800	1190	149	269	329	0	220	1209
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	1245	0	128	842	1253	157	283	221	0	232	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	2232		314	2466	1100	137	442	374	0	241	
Arrive On Green	0.00	0.64	0.00	0.04	0.71	0.71	0.07	0.23	0.23	0.00	0.13	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	1245	0	128	842	1253	157	283	221	0	232	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	30.0	0.0	3.5	13.9	106.5	11.2	20.0	18.2	0.0	18.0	0.0
Cycle Q Clear(g_c), s	0.0	30.0	0.0	3.5	13.9	106.5	11.2	20.0	18.2	0.0	18.0	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2232		314	2466	1100	137	442	374	0	241	
V/C Ratio(X)	0.00	0.56		0.41	0.34	1.14	1.15	0.64	0.59	0.00	0.96	
Avail Cap(c_a), veh/h	0	2232		435	2466	1100	137	442	374	0	241	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	14.9	0.0	12.4	8.3	21.8	69.4	52.2	51.5	0.0	65.3	0.0
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.8	0.4	73.9	123.0	7.0	6.7	0.0	49.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.0	0.0	1.4	5.2	57.4	9.9	10.5	8.2	0.0	12.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.0	0.0	13.2	8.7	95.6	192.4	59.1	58.2	0.0	114.8	0.0
LnGrp LOS	A	B		B	A	F	F	E	E	A	F	
Approach Vol, veh/h		1245	A		2223			661			232	A
Approach Delay, s/veh		16.0			58.0			90.5			114.8	
Approach LOS		B			E			F			F	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	10.1	100.9	15.7	23.3		111.0		39.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	15.5	86.5	11.2	18.8		106.5		34.5
Max Q Clear Time (g_c+I1), s	5.5	32.0	13.2	20.0		108.5		22.0
Green Ext Time (p_c), s	0.2	13.5	0.0	0.0		0.0		2.0

Intersection Summary			
HCM 6th Ctrl Delay			53.9
HCM 6th LOS			D

Notes

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

ALTERNATIVE 6 - FLYOVER

Opening Year (2025) AM

Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations		↑↑	↑↑			
Traffic Volume (vph)	0	503	504	0	0	0
Future Volume (vph)	0	503	504	0	0	0
Satd. Flow (prot)	0	3431	3250	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3431	3250	0	0	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	0	529	531	0	0	0
Turn Type		NA	NA			
Protected Phases		2	6			
Permitted Phases						
Total Split (s)		34.4	35.6			
Total Lost Time (s)		4.5	4.5			
Act Effct Green (s)		17.3	43.7			
Actuated g/C Ratio		0.25	0.62			
v/c Ratio		0.62	0.26			
Control Delay		26.3	7.0			
Queue Delay		0.0	0.0			
Total Delay		26.3	7.0			
LOS		C	A			
Approach Delay		26.3	7.0			
Approach LOS		C	A			

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 6:SBT, Start of Green

Control Type: Actuated-Coordinated

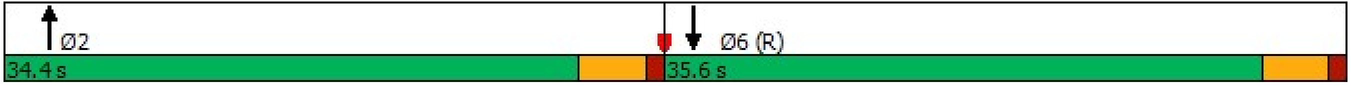
Maximum v/c Ratio: 0.62

Intersection Signal Delay: 16.6 Intersection LOS: B

Intersection Capacity Utilization 59.0% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	597	90	125	1439	489	91	47	67	0	107	622
Future Volume (veh/h)	0	597	90	125	1439	489	91	47	67	0	107	622
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	628	0	132	1515	515	96	49	-45	0	113	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	1571		450	1945	868	123	653	553	0	427	
Arrive On Green	0.00	0.45	0.00	0.06	0.56	0.56	0.07	0.34	0.00	0.00	0.22	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	628	0	132	1515	515	96	49	-45	0	113	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	10.9	0.0	3.3	30.6	19.7	4.7	1.6	0.0	0.0	4.4	0.0
Cycle Q Clear(g_c), s	0.0	10.9	0.0	3.3	30.6	19.7	4.7	1.6	0.0	0.0	4.4	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	1571		450	1945	868	123	653	553	0	427	
V/C Ratio(X)	0.00	0.40		0.29	0.78	0.59	0.78	0.08	-0.08	0.00	0.26	
Avail Cap(c_a), veh/h	0	1571		545	1945	868	158	653	553	0	427	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	16.5	0.0	11.7	15.5	13.0	41.3	20.1	0.0	0.0	28.9	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.4	3.2	3.0	16.8	0.2	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.3	0.0	1.3	11.7	7.0	2.6	0.7	0.0	0.0	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.2	0.0	12.1	18.6	16.0	58.1	20.3	0.0	0.0	30.4	0.0
LnGrp LOS	A	B		B	B	B	E	C	A	A	C	
Approach Vol, veh/h		628	A		2162			100			113	A
Approach Delay, s/veh		17.2			17.6			65.8			30.4	
Approach LOS		B			B			E			C	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	9.7	45.2	10.6	24.5		54.9		35.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	9.9	36.0	7.8	18.3		50.4		30.6
Max Q Clear Time (g_c+I1), s	5.3	12.9	6.7	6.4		32.6		3.6
Green Ext Time (p_c), s	0.1	4.5	0.0	0.4		12.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

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

Opening Year (2025) PM

Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations		↑↑	↑↑			
Traffic Volume (vph)	0	581	486	0	0	0
Future Volume (vph)	0	581	486	0	0	0
Satd. Flow (prot)	0	3431	3250	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3431	3250	0	0	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	0	612	512	0	0	0
Turn Type		NA	NA			
Protected Phases		2	6			
Permitted Phases						
Total Split (s)		34.0	26.0			
Total Lost Time (s)		4.5	4.5			
Act Effct Green (s)		17.6	33.4			
Actuated g/C Ratio		0.29	0.56			
v/c Ratio		0.61	0.28			
Control Delay		20.3	8.4			
Queue Delay		0.0	0.0			
Total Delay		20.3	8.4			
LOS		C	A			
Approach Delay		20.3	8.4			
Approach LOS		C	A			

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 6:SBT, Start of Green

Control Type: Actuated-Coordinated

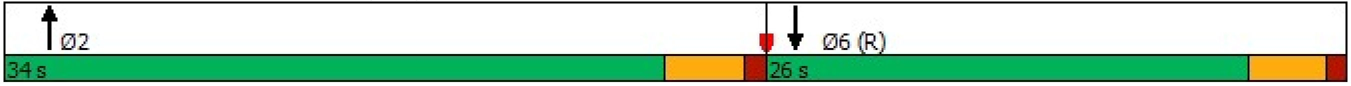
Maximum v/c Ratio: 0.61

Intersection Signal Delay: 14.9 Intersection LOS: B

Intersection Capacity Utilization 78.9% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 20: State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	1327	74	113	725	547	120	150	260	0	56	557
Future Volume (veh/h)	0	1327	74	113	725	547	120	150	260	0	56	557
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	1397	0	119	763	576	126	158	149	0	59	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	2190		262	2420	1079	148	467	396	0	254	
Arrive On Green	0.00	0.63	0.00	0.04	0.70	0.70	0.08	0.24	0.24	0.00	0.13	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	1397	0	119	763	576	126	158	149	0	59	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	37.3	0.0	3.3	12.8	26.9	10.2	10.2	11.4	0.0	4.1	0.0
Cycle Q Clear(g_c), s	0.0	37.3	0.0	3.3	12.8	26.9	10.2	10.2	11.4	0.0	4.1	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2190		262	2420	1079	148	467	396	0	254	
V/C Ratio(X)	0.00	0.64		0.45	0.32	0.53	0.85	0.34	0.38	0.00	0.23	
Avail Cap(c_a), veh/h	0	2190		341	2420	1079	162	467	396	0	254	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	17.1	0.0	15.7	8.8	11.0	68.0	46.8	47.3	0.0	58.3	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.0	1.2	0.3	1.9	30.7	2.0	2.7	0.0	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.3	0.0	1.4	4.6	8.9	6.1	5.2	5.0	0.0	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.6	0.0	16.9	9.2	12.9	98.7	48.7	50.0	0.0	60.4	0.0
LnGrp LOS	A	B		B	A	B	F	D	D	A	E	
Approach Vol, veh/h		1397	A		1458			433			59	A
Approach Delay, s/veh		18.6			11.3			63.7			60.4	
Approach LOS		B			B			E			E	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	9.9	99.1	16.7	24.3		109.0		41.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	11.9	88.1	13.3	18.7		104.5		36.5
Max Q Clear Time (g_c+I1), s	5.3	39.3	12.2	6.1		28.9		13.4
Green Ext Time (p_c), s	0.1	13.8	0.0	0.1		9.0		1.4

Intersection Summary	
HCM 6th Ctrl Delay	22.0
HCM 6th LOS	C

Notes

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

Design Year (2045) AM

Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations		↑↑	↑↑			
Traffic Volume (vph)	0	1200	1136	0	0	0
Future Volume (vph)	0	1200	1136	0	0	0
Satd. Flow (prot)	0	3431	3250	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3431	3250	0	0	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	0	1263	1196	0	0	0
Turn Type		NA	NA			
Protected Phases		2	6			
Permitted Phases						
Total Split (s)		34.4	35.6			
Total Lost Time (s)		4.5	4.5			
Act Effct Green (s)		29.6	31.4			
Actuated g/C Ratio		0.42	0.45			
v/c Ratio		0.87	0.82			
Control Delay		26.8	23.0			
Queue Delay		0.0	0.0			
Total Delay		26.8	23.0			
LOS		C	C			
Approach Delay		26.8	23.0			
Approach LOS		C	C			

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 6:SBT, Start of Green

Control Type: Actuated-Coordinated

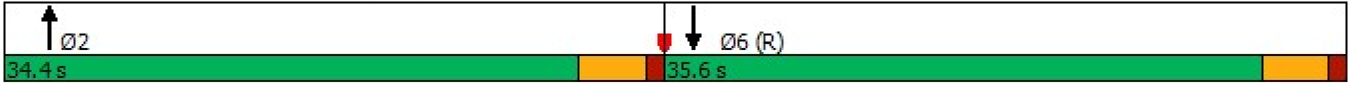
Maximum v/c Ratio: 0.87

Intersection Signal Delay: 25.0 Intersection LOS: C

Intersection Capacity Utilization 115.5% ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 20: State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	780	168	155	1200	961	118	171	110	0	274	1324
Future Volume (veh/h)	0	780	168	155	1200	961	118	171	110	0	274	1324
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	821	0	163	1263	1012	124	180	0	0	288	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	1534		384	1945	868	155	653	553	0	394	
Arrive On Green	0.00	0.44	0.00	0.07	0.56	0.56	0.08	0.34	0.00	0.00	0.21	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	821	0	163	1263	1012	124	180	0	0	288	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	15.6	0.0	4.1	22.6	50.4	6.0	6.1	0.0	0.0	12.6	0.0
Cycle Q Clear(g_c), s	0.0	15.6	0.0	4.1	22.6	50.4	6.0	6.1	0.0	0.0	12.6	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	1534		384	1945	868	155	653	553	0	394	
V/C Ratio(X)	0.00	0.54		0.42	0.65	1.17	0.80	0.28	0.00	0.00	0.73	
Avail Cap(c_a), veh/h	0	1534		460	1945	868	158	653	553	0	394	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	18.4	0.0	13.1	13.7	19.8	40.4	21.6	0.0	0.0	33.4	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.0	0.7	1.7	87.3	24.1	1.0	0.0	0.0	11.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.2	0.0	1.6	8.5	37.0	3.7	2.9	0.0	0.0	7.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.7	0.0	13.8	15.4	107.1	64.5	22.7	0.0	0.0	44.8	0.0
LnGrp LOS	A	B		B	B	F	E	C	A	A	D	
Approach Vol, veh/h		821	A		2438			304			288	A
Approach Delay, s/veh		19.7			53.4			39.8			44.8	
Approach LOS		B			D			D			D	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	10.7	44.2	12.1	23.0		54.9		35.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	9.9	36.0	7.8	18.3		50.4		30.6
Max Q Clear Time (g_c+I1), s	6.1	17.6	8.0	14.6		52.4		8.1
Green Ext Time (p_c), s	0.1	5.6	0.0	0.5		0.0		0.9

Intersection Summary	
HCM 6th Ctrl Delay	44.5
HCM 6th LOS	D

Notes

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

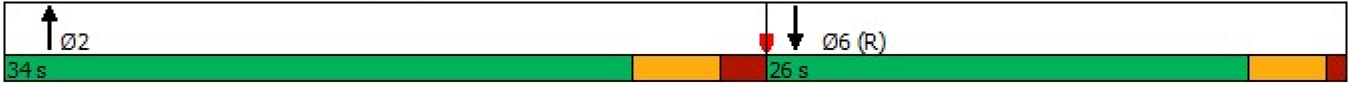
Design Year (2045) PM

Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations		↑↑	↑↑			
Traffic Volume (vph)	0	1335	884	0	0	0
Future Volume (vph)	0	1335	884	0	0	0
Satd. Flow (prot)	0	3431	3250	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	3431	3250	0	0	0
Satd. Flow (RTOR)						
Lane Group Flow (vph)	0	1405	931	0	0	0
Turn Type		NA	NA			
Protected Phases		2	6			
Permitted Phases						
Total Split (s)		34.0	26.0			
Total Lost Time (s)		6.0	4.5			
Act Effct Green (s)		27.9	21.6			
Actuated g/C Ratio		0.46	0.36			
v/c Ratio		0.88	0.80			
Control Delay		23.0	23.9			
Queue Delay		0.0	0.0			
Total Delay		23.0	23.9			
LOS		C	C			
Approach Delay		23.0	23.9			
Approach LOS		C	C			

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 148.8% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 20: State Road (S.R.) 31



HCM 6th Signalized Intersection Summary
25: State Road (S.R.) 31 & State Road (S.R.) 80

07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑	↱	↰	↑	↱		↑	↱
Traffic Volume (veh/h)	0	1250	98	122	800	1190	149	269	262	0	220	1209
Future Volume (veh/h)	0	1250	98	122	800	1190	149	269	262	0	220	1209
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1828	1920	1920	1828	1828	1920	1920	1920	0	1920	1737
Adj Flow Rate, veh/h	0	1316	0	128	842	1253	157	283	151	0	232	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	8	2	2	8	8	2	2	2	0	2	14
Cap, veh/h	0	2183		286	2420	1079	162	467	396	0	239	
Arrive On Green	0.00	0.63	0.00	0.04	0.70	0.70	0.09	0.24	0.24	0.00	0.12	0.00
Sat Flow, veh/h	0	3565	1627	1828	3474	1549	1828	1920	1627	0	1920	1472
Grp Volume(v), veh/h	0	1316	0	128	842	1253	157	283	151	0	232	0
Grp Sat Flow(s),veh/h/ln	0	1737	1627	1828	1737	1549	1828	1920	1627	0	1920	1472
Q Serve(g_s), s	0.0	34.0	0.0	3.6	14.6	104.5	12.8	19.6	11.6	0.0	18.1	0.0
Cycle Q Clear(g_c), s	0.0	34.0	0.0	3.6	14.6	104.5	12.8	19.6	11.6	0.0	18.1	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2183		286	2420	1079	162	467	396	0	239	
V/C Ratio(X)	0.00	0.60		0.45	0.35	1.16	0.97	0.61	0.38	0.00	0.97	
Avail Cap(c_a), veh/h	0	2183		361	2420	1079	162	467	396	0	239	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	16.7	0.0	14.5	9.1	22.8	68.1	50.4	47.3	0.0	65.4	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.0	1.1	0.4	82.9	61.1	5.7	2.8	0.0	50.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.0	0.0	1.4	5.2	57.1	8.8	10.3	5.1	0.0	12.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.9	0.0	15.6	9.5	105.6	129.3	56.1	50.1	0.0	116.2	0.0
LnGrp LOS	A	B		B	A	F	F	E	D	A	F	
Approach Vol, veh/h		1316	A		2223			591			232	A
Approach Delay, s/veh		17.9			64.0			74.0			116.2	
Approach LOS		B			E			E			F	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	10.2	98.8	17.8	23.2		109.0		41.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s	11.9	88.1	13.3	18.7		104.5		36.5				
Max Q Clear Time (g_c+I1), s	5.6	36.0	14.8	20.1		106.5		21.6				
Green Ext Time (p_c), s	0.1	12.6	0.0	0.0		0.0		2.0				

Intersection Summary			
HCM 6th Ctrl Delay			54.2
HCM 6th LOS			D

Notes

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

APPENDIX E – SAFETY ANALYSIS FILES

Contained in this Appendix –

- Alternative 1 – Traffic Signal
    - SPICE
    - NCHRP 17-38
    - NCHRP 17-58
- Alternative 2 – Quadrant Roadway
    - SPICE
    - NCHRP 17-38
    - NCHRP 17-58
- Alternative 3 – PDLT/MUT
    - SPICE
    - NCHRP 17-38
    - NCHRP 17-58
- Alternative 4 – CTO (center)
    - SPICE
    - NCHRP 17-58
    - ISATe
- Alternative 5 – CTO (south)
    - SPICE
    - NCHRP 17-38
    - NCHRP 17-58
    - ISATe
- Alternative 6 – Flyover
    - SPICE
    - NCHRP 17-38
    - NCHRP 17-58
    - ISATe

Predicted Crash Summary

			Alternative 1 Signal	**Alternative 2 QR**	**Alternative 3 PDLT/MUT**	**Alternative 4 CTO (Center)**	**Alternative 5 CTO (South)**	**Alternative 6 Flyover**
SR 80 at SR 31 Intersection (At-Grade)	Opening Year	Total	8.36	5.11	7.27	10.38	10.38	10.38
		F+I	4.48	3.36	3.54	2.26	2.26	2.26
		SSI	46	-	48	-	-	-
	Design Year	Total	11.34	6.93	9.86	26.5	26.5	26.13
		F+I	6.15	4.62	4.86	5.59	5.59	5.49
		SSI	12	-	14	-	-	-
SR 80 at QR Intersection	Opening Year	Total	-	4.23	-	-	-	-
		F+I	-	2.25	-	-	-	-
		SSI	-	54	-	-	-	-
	Design Year	Total	-	5.72	-	-	-	-
		F+I	-	3.14	-	-	-	-
		SSI	-	24	-	-	-	-
SR 31 at QR Intersection 5D	Opening Year	Total		5.65				
		F+I		1.85				
		SSI		78				
	Design Year	Total		12.15				
		F+I		4.12				
		SSI		42				
SR 31 at QR Intersection 6D	Opening Year	Total		5.83				
		F+I		3.06				
		SSI		61				
	Design Year	Total		8.75				
		F+I		4.74				
		SSI		14				
SR 31 at QR Intersection Average	Opening Year	Total	-	5.74	-	-	-	-
		F+I	-	2.46	-	-	-	-
		SSI	-	69.5	-	-	-	-
	Design Year	Total	-	10.45	-	-	-	-
		F+I	-	4.43	-	-	-	-
		SSI	-	28	-	-	-	-
SR 80 at SR 31 (Grade-Separated)	Opening Year	F+I	-	-	-	0.405	0.405	-
		PDO	-	-	-	1.027	1.027	-
		Ped F+I	-	-	-	0.003	0.003	-
		Bike F+I	-	-	-	0.017	0.017	-
	Design Year	F+I	-	-	-	0.587	0.587	-
		PDO	-	-	-	1.749	1.749	-
		Ped F+I	-	-	-	0.004	0.004	-
		Bike F+I	-	-	-	0.028	0.028	-
SR 31 Crossover	Opening Year	F+I	-	-	-	-	-	0.405
		PDO	-	-	-	-	-	1.027
		Ped F+I	-	-	-	-	-	0.003
		Bike F+I	-	-	-	-	-	0.017
	Design Year	F+I	-	-	-	-	-	0.587
		PDO	-	-	-	-	-	1.749
		Ped F+I	-	-	-	-	-	0.004
		Bike F+I	-	-	-	-	-	0.028
Segment 1	Opening Year	MV F+I	1.819	0.697	0.547	0.273	0.625	0.273
		MV PDO	2.843	1.098	0.863	0.432	0.987	0.432
		SV F+I	0.239	0.114	0.093	0.047	0.106	0.047
		SV PDO	0.301	0.144	0.118	0.059	0.135	0.059
		Ped F+I	0.078	0.031	0.024	0.012	0.028	0.012
		Bike F+I	0.042	0.016	0.013	0.006	0.015	0.006
	Design Year	MV F+I	2.677	1.083	0.854	0.427	0.976	0.427
		MV PDO	3.957	1.6	1.264	0.632	1.444	0.632
		SV F+I	0.275	0.134	0.11	0.055	0.126	0.055
		SV PDO	0.344	0.168	0.137	0.069	0.157	0.069
		Ped F+I	0.109	0.045	0.035	0.018	0.041	0.018
		Bike F+I	0.058	0.024	0.019	0.009	0.022	0.009
Segment 2 - 4 lanes	Opening Year	MV F+I					0.315	
		MV PDO					0.84	
		SV F+I					0.029	
		SV PDO					0.128	
		Ped F+I					0.025	
		Bike F+I					0.007	
	Design Year	MV F+I					0.423	
		MV PDO					1.149	
		SV F+I					0.033	
		SV PDO					0.142	
		Ped F+I					0.033	
		Bike F+I					0.009	
Segment 2 - 6 lanes	Opening Year	MV F+I					0.799	
		MV PDO					1.302	
		SV F+I					0.129	
		SV PDO					0.164	
		Ped F+I					0.036	
		Bike F+I					0.019	
	Design Year	MV F+I					1.062	
		MV PDO					1.66	
		SV F+I					0.143	
		SV PDO					0.181	
		Ped F+I					0.046	

			Alternative 1 Signal	Alternative 2 QR	Alternative 3 PDLT/MUT	Alternative 4 CTO (Center)	Alternative 5 CTO (South)	Alternative 6 Flyover
		Bike F+I					0.024	
Segment 2 Average	Opening Year	MV F+I	1.304	0.873	1.277	0.498	0.557	0.498
		MV PDO	2.043	1.428	1.987	1.231	1.071	1.231
		SV F+I	0.204	0.121	0.193	0.07	0.079	0.07
		SV PDO	0.257	0.154	0.244	0.142	0.146	0.142
		Ped F+I	0.057	0.039	0.056	0.035	0.0305	0.035
		Bike F+I	0.03	0.021	0.03	0.031	0.013	0.031
	Design Year	MV F+I	1.744	1.036	1.768	0.478	0.7425	0.478
		MV PDO	2.619	1.652	2.625	1.191	1.4045	1.191
		SV F+I	0.227	0.129	0.218	0.069	0.088	0.069
		SV PDO	0.284	0.163	0.273	0.14	0.1615	0.14
		Ped F+I	0.073	0.045	0.073	0.034	0.0395	0.034
		Bike F+I	0.039	0.024	0.039	0.03	0.0165	0.03
Segment 3	Opening Year	MV F+I	0.572	1.300	0.571	0.493	0.388	0.493
		MV PDO	1.589	2.037	1.584	1.219	1.042	1.219
		SV F+I	0.061	0.203	0.061	0.104	0.036	0.104
		SV PDO	0.233	0.257	0.232	0.141	0.157	0.141
		Ped F+I	0.056	0.057	0.056	0.033	0.031	0.033
		Bike F+I	0.029	0.030	0.029	0.023	0.008	0.023
	Design Year	MV F+I	0.749	1.797	0.771	0.856	0.504	0.856
		MV PDO	2.102	2.687	2.164	1.904	1.382	1.904
		SV F+I	0.066	0.229	0.066	0.125	0.041	0.125
		SV PDO	0.268	0.287	0.272	0.17	0.172	0.17
		Ped F+I	0.073	0.075	0.075	0.052	0.04	0.052
		Bike F+I	0.038	0.04	0.039	0.037	0.01	0.037
Segment 4	Opening Year	MV F+I	1.380	0.571	1.026	0.55	0.21	0.358
		MV PDO	2.306	1.584	1.649	1.319	0.341	0.961
		SV F+I	0.238	0.106	0.155	0.077	0.037	0.033
		SV PDO	0.303	0.263	0.196	0.156	0.047	0.145
		Ped F+I	0.063	0.056	0.045	0.038	0.01	0.028
		Bike F+I	0.034	0.029	0.024	0.034	0.005	0.007
	Design Year	MV F+I	3.547	0.771	2.357	0.53	0.496	0.465
		MV PDO	5.168	2.164	3.358	1.281	0.712	1.274
		SV F+I	0.337	0.23	0.211	0.076	0.051	0.037
		SV PDO	0.421	0.604	0.262	0.154	0.063	0.158
		Ped F+I	0.142	0.075	0.093	0.037	0.02	0.037
		Bike F+I	0.076	0.039	0.049	0.033	0.011	0.01
Segment 5 - 4 lanes	Opening Year	MV F+I		0.119				
		MV PDO		0.297				
		SV F+I		0.018				
		SV PDO		0.093				
		Ped F+I		0.01				
		Bike F+I		0.003				
	Design Year	MV F+I		0.256				
		MV PDO		0.669				
		SV F+I		0.026				
		SV PDO		0.12				
		Ped F+I		0.02				
		Bike F+I		0.005				
Segment 5 - 6 lanes	Opening Year	MV F+I		0.324				
		MV PDO		0.609				
		SV F+I		0.095				
		SV PDO		0.123				
		Ped F+I		0.017				
		Bike F+I		0.009				
	Design Year	MV F+I		0.681				
		MV PDO		1.149				
		SV F+I		0.125				
		SV PDO		0.159				
		Ped F+I		0.032				
		Bike F+I		0.017				
Segment 5 Average	Opening Year	MV F+I	-	0.2215	-	0.529	0.298	0.242
		MV PDO	-	0.453	-	1.308	0.823	0.393
		SV F+I	-	0.0565	-	0.073	0.063	0.043
		SV PDO	-	0.108	-	0.148	0.126	0.055
		Ped F+I	-	0.0135	-	0.037	0.024	0.011
		Bike F+I	-	0.006	-	0.033	0.021	0.006
	Design Year	MV F+I	-	0.4685	-	0.894	0.718	0.572
		MV PDO	-	0.909	-	2.000	1.678	0.82
		SV F+I	-	0.0755	-	0.087	0.084	0.06
		SV PDO	-	0.1395	-	0.177	0.171	0.074
		Ped F+I	-	0.026	-	0.057	0.048	0.023
		Bike F+I	-	0.011	-	0.051	0.042	0.012
Segment 6	Opening Year	MV F+I	-	0.519	-	0.21	0.186	0.195
		MV PDO	-	0.867	-	0.341	0.505	0.538
		SV F+I	-	0.11	-	0.037	0.039	0.04
		SV PDO	-	0.14	-	0.047	0.078	0.081
		Ped F+I	-	0.025	-	0.01	0.015	0.015
		Bike F+I	-	0.013	-	0.005	0.013	0.014
	Design Year	MV F+I	-	1.325	-	0.496	0.419	0.469
		MV PDO	-	1.933	-	0.712	0.974	1.097

			Alternative 1 Signal	Alternative 2 QR	Alternative 3 PDLT/MUT	Alternative 4 CTO (Center)	Alternative 5 CTO (South)	Alternative 6 Flyover
		SV F+I	-	0.155	-	0.051	0.051	0.054
		SV PDO	-	0.194	-	0.063	0.103	0.109
		Ped F+I	-	0.054	-	0.02	0.028	0.031
		Bike F+I	-	0.029	-	0.011	0.025	0.028
Segment 7	Opening Year	MV F+I	-	1.226	-	0.298	-	0.198
		MV PDO	-	2.085	-	0.823	-	0.538
		SV F+I	-	0.256	-	0.063	-	0.041
		SV PDO	-	0.328	-	0.126	-	0.084
		Ped F+I	-	0.058	-	0.024	-	0.015
		Bike F+I	-	0.031	-	0.021	-	0.014
	Design Year	MV F+I	-	2.642	-	0.718	-	0.446
		MV PDO	-	4.019	-	1.678	-	1.037
		SV F+I	-	0.341	-	0.084	-	0.054
		SV PDO	-	0.428	-	0.171	-	0.11
		Ped F+I	-	0.111	-	0.048	-	0.03
		Bike F+I	-	0.059	-	0.042	-	0.026
Segment 8	Opening Year	MV F+I	-	-	-	0.186	-	0.016
		MV PDO	-	-	-	0.505	-	0.05
		SV F+I	-	-	-	0.039	-	0.006
		SV PDO	-	-	-	0.078	-	0.012
		Ped F+I	-	-	-	0.015	-	0.001
		Bike F+I	-	-	-	0.013	-	0.001
	Design Year	MV F+I	-	-	-	0.419	-	0.033
		MV PDO	-	-	-	0.974	-	0.091
		SV F+I	-	-	-	0.051	-	0.008
		SV PDO	-	-	-	0.103	-	0.015
		Ped F+I	-	-	-	0.028	-	0.003
		Bike F+I	-	-	-	0.025	-	0.002
Segment 9	Opening Year	MV F+I	-	-	-	-	-	0.013
		MV PDO	-	-	-	-	-	0.04
		SV F+I	-	-	-	-	-	0.004
		SV PDO	-	-	-	-	-	0.009
		Ped F+I	-	-	-	-	-	0.001
		Bike F+I	-	-	-	-	-	0.001
	Design Year	MV F+I	-	-	-	-	-	0.038
		MV PDO	-	-	-	-	-	0.094
		SV F+I	-	-	-	-	-	0.006
		SV PDO	-	-	-	-	-	0.012
		Ped F+I	-	-	-	-	-	0.003
		Bike F+I	-	-	-	-	-	0.002
Ramp 1-1	Opening Year	MV F+I	-	-	-	0.067	0.09	0.067
		MV PDO	-	-	-	0.089	0.13	0.089
		SV F+I	-	-	-	0.132	0.146	0.132
		SV PDO	-	-	-	0.185	0.223	0.185
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.09	0.149	0.09
		MV PDO	-	-	-	0.132	0.252	0.132
		SV F+I	-	-	-	0.152	0.184	0.152
		SV PDO	-	-	-	0.224	0.305	0.224
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 1-2	Opening Year	MV F+I	-	-	-	0.004	0.002	0.004
		MV PDO	-	-	-	0.01	0.005	0.01
		SV F+I	-	-	-	0.103	0.052	0.103
		SV PDO	-	-	-	0.096	0.049	0.096
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.011	0.006	0.011
		MV PDO	-	-	-	0.028	0.014	0.028
		SV F+I	-	-	-	0.188	0.094	0.188
		SV PDO	-	-	-	0.17	0.086	0.17
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 1-3	Opening Year	MV F+I	-	-	-	0.013	0.014	0.01
		MV PDO	-	-	-	0.048	0.051	0.035
		SV F+I	-	-	-	0.203	0.214	0.148
		SV PDO	-	-	-	0.276	0.295	0.203
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.038	0.04	0.027

			Alternative 1 Signal	Alternative 2 QR	Alternative 3 PDLT/MUT	Alternative 4 CTO (Center)	Alternative 5 CTO (South)	Alternative 6 Flyover
		MV PDO	-	-	-	0.136	0.145	0.1
		SV F+I	-	-	-	0.037	0.39	0.27
		SV PDO	-	-	-	0.492	0.525	0.361
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 1-4	Opening Year	MV F+I	-	-	-	-	-	0.009
		MV PDO	-	-	-	-	-	0.03
		SV F+I	-	-	-	-	-	0.196
		SV PDO	-	-	-	-	-	0.298
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	-	-	0.025
		MV PDO	-	-	-	-	-	0.085
		SV F+I	-	-	-	-	-	0.357
		SV PDO	-	-	-	-	-	0.529
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 1-5	Opening Year	MV F+I	-	-	-	-	-	0.078
		MV PDO	-	-	-	-	-	0.167
		SV F+I	-	-	-	-	-	0.278
		SV PDO	-	-	-	-	-	0.475
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	-	-	0.219
		MV PDO	-	-	-	-	-	0.478
		SV F+I	-	-	-	-	-	0.508
		SV PDO	-	-	-	-	-	0.845
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 2-1	Opening Year	MV F+I	-	-	-	0.04	0.04	0.042
		MV PDO	-	-	-	0.085	0.085	0.046
		SV F+I	-	-	-	0.105	0.105	0.098
		SV PDO	-	-	-	0.158	0.158	0.13
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.073	0.073	0.106
		MV PDO	-	-	-	0.179	0.179	0.155
		SV F+I	-	-	-	0.161	0.161	0.15
		SV PDO	-	-	-	0.239	0.239	0.231
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 2-2	Opening Year	MV F+I	-	-	-	0.027	0.03	0.013
		MV PDO	-	-	-	0.035	0.041	0.04
		SV F+I	-	-	-	0.121	0.135	0.288
		SV PDO	-	-	-	0.111	0.128	0.441
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.051	0.057	0.024
		MV PDO	-	-	-	0.074	0.086	0.085
		SV F+I	-	-	-	0.186	0.207	0.442
		SV PDO	-	-	-	0.167	0.193	0.666
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 2-3	Opening Year	MV F+I	-	-	-	0.09	0.089	0.012
		MV PDO	-	-	-	0.142	0.139	0.035
		SV F+I	-	-	-	0.15	0.141	0.323
		SV PDO	-	-	-	0.238	0.232	0.519
		Ramp Ent F+I	-	-	-	0.408	0.222	-
		Ramp Ent PDO	-	-	-	0.994	0.428	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.119	0.117	0.022
		MV PDO	-	-	-	0.204	0.2	0.073

			Alternative 1 Signal	Alternative 2 QR	Alternative 3 PDLT/MUT	Alternative 4 CTO (Center)	Alternative 5 CTO (South)	Alternative 6 Flyover
		SV F+I	-	-	-	0.171	0.16	0.496
		SV PDO	-	-	-	0.283	0.276	0.782
		Ramp Ent F+I	-	-	-	0.577	0.314	-
		Ramp Ent PDO	-	-	-	1.259	0.543	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 2-4	Opening Year	MV F+I	-	-	-	-	-	0.02
		MV PDO	-	-	-	-	-	0.042
		SV F+I	-	-	-	-	-	0.052
		SV PDO	-	-	-	-	-	0.079
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	-	-	0.037
		MV PDO	-	-	-	-	-	0.089
		SV F+I	-	-	-	-	-	0.08
		SV PDO	-	-	-	-	-	0.119
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 2-5	Opening Year	MV F+I	-	-	-	-	-	0.024
		MV PDO	-	-	-	-	-	0.03
		SV F+I	-	-	-	-	-	0.105
		SV PDO	-	-	-	-	-	0.094
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	-	-	0.044
		MV PDO	-	-	-	-	-	0.063
		SV F+I	-	-	-	-	-	0.162
		SV PDO	-	-	-	-	-	0.141
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 2-6	Opening Year	MV F+I	-	-	-	-	-	0.098
		MV PDO	-	-	-	-	-	0.154
		SV F+I	-	-	-	-	-	0.157
		SV PDO	-	-	-	-	-	0.258
		Ramp Ent F+I	-	-	-	-	-	0.242
		Ramp Ent PDO	-	-	-	-	-	0.469
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	-	-	0.129
		MV PDO	-	-	-	-	-	0.221
		SV F+I	-	-	-	-	-	0.178
		SV PDO	-	-	-	-	-	0.306
		Ramp Ent F+I	-	-	-	-	-	0.343
		Ramp Ent PDO	-	-	-	-	-	0.595
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 3-1	Opening Year	MV F+I	-	-	-	0.047	0.047	0.031
		MV PDO	-	-	-	0.051	0.051	0.044
		SV F+I	-	-	-	0.111	0.111	0.106
		SV PDO	-	-	-	0.146	0.146	0.092
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.118	0.118	0.079
		MV PDO	-	-	-	0.172	0.172	0.093
		SV F+I	-	-	-	0.169	0.169	0.162
		SV PDO	-	-	-	0.259	0.259	0.14
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 3-2	Opening Year	MV F+I	-	-	-	0.004	0.003	0.006
		MV PDO	-	-	-	0.008	0.007	0.014
		SV F+I	-	-	-	0.098	0.081	0.142
		SV PDO	-	-	-	0.092	0.079	0.111
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.007	0.006	0.018
		MV PDO	-	-	-	0.018	0.015	0.034
		SV F+I	-	-	-	0.15	0.125	0.238

			Alternative 1 Signal	Alternative 2 QR	Alternative 3 PDLT/MUT	Alternative 4 CTO (Center)	Alternative 5 CTO (South)	Alternative 6 Flyover
		SV PDO	-	-	-	0.138	0.118	0.183
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 3-3	Opening Year	MV F+I	-	-	-	0.013	0.015	-
		MV PDO	-	-	-	0.043	0.05	-
		SV F+I	-	-	-	0.199	0.24	-
		SV PDO	-	-	-	0.276	0.322	-
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.023	0.028	-
		MV PDO	-	-	-	0.09	0.105	-
		SV F+I	-	-	-	0.306	0.369	-
		SV PDO	-	-	-	0.416	0.486	-
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 4-1	Opening Year	MV F+I	-	-	-	0.094	0.094	-
		MV PDO	-	-	-	0.215	0.215	-
		SV F+I	-	-	-	0.24	0.24	-
		SV PDO	-	-	-	0.362	0.362	-
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.265	0.265	-
		MV PDO	-	-	-	0.615	0.615	-
		SV F+I	-	-	-	0.437	0.437	-
		SV PDO	-	-	-	0.645	0.645	-
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
Ramp 5-1	Opening Year	MV F+I	-	-	-	0.035	0.035	-
		MV PDO	-	-	-	0.049	0.049	-
		SV F+I	-	-	-	0.119	0.119	-
		SV PDO	-	-	-	0.104	0.104	-
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-
	Design Year	MV F+I	-	-	-	0.089	0.089	-
		MV PDO	-	-	-	0.105	0.105	-
		SV F+I	-	-	-	0.183	0.183	-
		SV PDO	-	-	-	0.157	0.157	-
		Ramp Ent F+I	-	-	-	-	-	-
		Ramp Ent PDO	-	-	-	-	-	-
		Ramp Ext F+I	-	-	-	-	-	-
		Ramp Ext PDO	-	-	-	-	-	-

		Alternative 1 Signal	Alternative 2 QR	Alternative 3 PDLT/MUT	Alternative 4 CTO (Center)	Alternative 5 CTO (South)	Alternative 6 Flyover
Opening Year	Total	24.44	32.83	18.34	30.06	25.74	27.86
	F+I	10.69	14.86	7.74	9.03	7.79	8.40
Design Year	Total	36.73	51.12	26.99	56.04	51.39	53.62
	F+I	16.38	23.27	11.64	15.76	14.59	15.31

Alternative 1 – Traffic Signal

SPICE

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 31 from SR 80 to SR 78 PD&E Study	**Intersection Type**	At-Grade Intersections
Intersection:	SR 80 at SR 31	**Opening Year**	2025
Agency:	FDOT D1	**Design Year**	2045
Project Reference:	441942-1	**Facility Type**	On Urban and Suburban Arterial
City:	Fort Myers	**Number of Legs**	4-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	5/18/2022	**# of Major Street Lanes (both directions)**	6 or more
Analyst:	RMM	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Traffic Signal	Total	8.36	11.34	208.31	1	Yes	Uncalibrated SPF	46	12	1
	Fatal & Injury	4.48	6.15	112.42						

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- Segment 3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2025

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, 5T)		--	5T
Length of segment, L (mi)		--	0.13
AADT (veh/day)	$AADT_{MAX}$ = 53,800 (veh/day)	--	38,100
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft.) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	3
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft.) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	2.5	0.13	19.5
Fatal and injury (FI)	0.7	0.13	5.5
Property damage only (PDO)	1.8	0.13	14.0

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- Segment 3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, 5T)		--	5T
Length of segment, L (mi)		--	0.13
AADT (veh/day)	$AADT_{MAX}$ = 53,800 (veh/day)	--	48,300
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft.) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	3
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft.) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	3.3	0.13	25.4
Fatal and injury (FI)	0.9	0.13	7.1
Property damage only (PDO)	2.4	0.13	18.2

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- Segment 1
- Segment 2
- Segment 4

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	13.237
VP+VB:	0.304
F+I:	5.487
PDO:	8.054
Total:	13.541

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2025	6D	SR 80	1.819	2.843	0.239	0.301	0.078	0.042		
🟥 2	2025	6D	SR 80	1.304	2.043	0.204	0.257	0.057	0.030		
🟥 4	2025	6D	SR 31	1.380	2.306	0.238	0.303	0.063	0.034		
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Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO

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- Segment 1
- Segment 2
- Segment 4

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	30.219
VP+VB:	0.698
F+I:	13.993
PDO:	16.923
Total:	30.917

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2045	6D	SR 80	2.677	3.957	0.275	0.344	0.109	0.058		
🟥 2	2045	6D	SR 80	1.744	2.619	0.227	0.284	0.073	0.039		
🟥 4	2045	6D	SR 31	3.547	5.168	0.337	0.421	0.142	0.076		
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Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO

Alternative 2 – Quadrant Roadway

SPICE

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 31 from SR 80 to SR 78 PD&E Study	**Intersection Type**	At-Grade Intersections
Intersection:	SR 80 at SR 31	**Opening Year**	2025
Agency:	FDOT D1	**Design Year**	2045
Project Reference:	441942-1	**Facility Type**	On Urban and Suburban Arterial
City:	Fort Myers	**Number of Legs**	4-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	5/18/2022	**# of Major Street Lanes (both directions)**	6 or more
Analyst:	RMM	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Traffic Signal	Total	8.36	11.34	208.31	2	Yes	Uncalibrated SPF	29	3	1
	Fatal & Injury	4.48	6.15	112.42						
Quadrant Roadway	Total	5.11	6.93	127.40	1	N/A	CMF	--	--	--
	Fatal & Injury	3.36	4.62	84.44						

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 31 from SR 80 to SR 78 PD&E Study	**Intersection Type**	At-Grade Intersections
Intersection:	SR 80 at SR 31	**Opening Year**	2025
Agency:	FDOT D1	**Design Year**	2045
Project Reference:	441942-1	**Facility Type**	On Urban and Suburban Arterial
City:	Fort Myers	**Number of Legs**	3-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	5/18/2022	**# of Major Street Lanes (both directions)**	6 or more
Analyst:	RMM	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	**Crash Type**	**Opening Year**	**Design Year**	**Total Project Life Cycle**	**Crash Prediction Rank**	**AADT Within SPF Prediction Range?**	**Source of Prediction**	**SSI Score**		
								Open Year	**Design Year**	**Rank**
Traffic Signal	Total	4.23	5.72	104.86	1	No	Uncalibrated SPF	54	24	1
	Fatal & Injury	2.25	3.14	56.78						

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 31 from SR 80 to SR 78 PD&E Study	**Intersection Type**	At-Grade Intersections
Intersection:	SR 31 at QR	**Opening Year**	2025
Agency:	FDOT D1	**Design Year**	2045
Project Reference:	441942-1	**Facility Type**	On Urban and Suburban Arterial
City:	Fort Myers	**Number of Legs**	4-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	5/18/2022	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	RMM	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Traffic Signal	Total	5.65	12.15	185.11	1	No	Calibrated SPF	78	42	1
	Fatal & Injury	1.85	4.12	61.94						

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 31 from SR 80 to SR 78 PD&E Study	**Intersection Type**	At-Grade Intersections
Intersection:	SR 31 at QR	**Opening Year**	2025
Agency:	FDOT D1	**Design Year**	2045
Project Reference:	441942-1	**Facility Type**	On Urban and Suburban Arterial
City:	Fort Myers	**Number of Legs**	4-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	5/18/2022	**# of Major Street Lanes (both directions)**	6 or more
Analyst:	RMM	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	**Crash Type**	**Opening Year**	**Design Year**	**Total Project Life Cycle**	**Crash Prediction Rank**	**AADT Within SPF Prediction Range?**	**Source of Prediction**	**SSI Score**		
								Open Year	**Design Year**	**Rank**
Traffic Signal	Total	5.83	8.75	154.44	1	Yes	Uncalibrated SPF	61	14	1
	Fatal & Injury	3.06	4.74	82.68						

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- Segment 4
- Segment 5

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		**Location Information**	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2025

Input Data		**Base Conditions**	**Site Conditions**
Roadway type (2U, 3T, 4U, 4D, 5T)		--	5T
Length of segment, L (mi)		--	0.13
AADT (veh/day)	AADT_{MAX} = 53,800 (veh/day)	--	38,000
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft.) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	3
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft.) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{\text{predicted rs}}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	2.5	0.13	19.5
Fatal and injury (FI)	0.7	0.13	5.5
Property damage only (PDO)	1.8	0.13	14.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 31/Bacock Ranch Rd
Agency or Company	KAI	Roadway Section	
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2025

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.21
AADT (veh/day)	AADT$_{MAX}$ = 66,000 (veh/day)	--	14,000
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	1
Minor commercial driveways (number)		--	2
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, N$_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.5	0.21	2.6
Fatal and injury (FI)	0.1	0.21	0.7
Property damage only (PDO)	0.4	0.21	1.9

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- Segment 4
- Segment 5

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		**Location Information**	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2045

Input Data		**Base Conditions**	**Site Conditions**
Roadway type (2U, 3T, 4U, 4D, 5T)		--	5T
Length of segment, L (mi)		--	0.13
AADT (veh/day)	AADT_{MAX} = 53,800 (veh/day)	--	49,500
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft.) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	3
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft.) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	3.4	0.13	26.1
Fatal and injury (FI)	1.0	0.13	7.3
Property damage only (PDO)	2.4	0.13	18.7

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 31/Bacock Ranch Rd
Agency or Company	KAI	Roadway Section	
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.21
AADT (veh/day)	AADT$_{MAX}$ = 66,000 (veh/day)	--	25,500
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	1
Minor commercial driveways (number)		--	2
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, N $_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.1	0.21	5.2
Fatal and injury (FI)	0.3	0.21	1.5
Property damage only (PDO)	0.8	0.21	3.8

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- Segment 1
- Segment 2
- Segment 3
- Segment 5
- Segment 6
- Segment 7

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	15.107
VP+VB:	0.347
F+I:	6.185
PDO:	9.269
Total:	15.454

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2025	6D	SR 80	0.697	1.098	0.114	0.144	0.031	0.016		
🟥 2	2025	6D	SR 80	0.873	1.428	0.121	0.154	0.039	0.021		
🟥 3	2025	6D	SR 80	1.300	2.037	0.203	0.257	0.057	0.030		
🟥 5	2025	6D	SR 31	0.324	0.609	0.095	0.123	0.017	0.009		
🟥 6	2025	6D	SR 31	0.519	0.867	0.110	0.140	0.025	0.013		
🟥 7	2025	6D	QR	1.226	2.085	0.256	0.328	0.058	0.031		
🟥											
🟥											
🟥											
🟥											
🟥											
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🟥											
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🟥											

Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO
🟥									

2045 NCHRP 17-58

- Segment 1
- Segment 2
- Segment 3
- Segment 5
- Segment 6
- Segment 7

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	24.116
VP+VB:	0.555
F+I:	10.232
PDO:	14.439
Total:	24.671

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information					Predicted crash frequency, crashes / year						Site-specific obse	
					Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
	Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥	1	2045	6D	SR 80	1.083	1.600	0.134	0.168	0.045	0.024		
🟥	2	2045	6D	SR 80	1.036	1.652	0.129	0.163	0.045	0.024		
🟥	3	2045	6D	SR 80	1.797	2.687	0.229	0.287	0.075	0.040		
🟥	5	2045	6D	SR 31	0.681	1.149	0.125	0.159	0.032	0.017		
🟥	6	2045	6D	SR 31	1.325	1.933	0.155	0.194	0.054	0.029		
🟥	7	2045	6D	QR	2.642	4.019	0.341	0.428	0.111	0.059		
🟥												
🟥												
🟥												
🟥												
🟥												
🟥												
🟥												
🟥												
🟥												

Intersection Site Information					Predicted crash frequency, crashes / year				Site-specific obse	
					Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
	Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO
🟥										

Alternative 3 – PDLT/MUT

SPICE

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 31 from SR 80 to SR 78 PD&E Study	**Intersection Type**	At-Grade Intersections
Intersection:	SR 80 at SR 31	**Opening Year**	2025
Agency:	FDOT D1	**Design Year**	2045
Project Reference:	441942-1	**Facility Type**	On Urban and Suburban Arterial
City:	Fort Myers	**Number of Legs**	4-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	5/18/2022	**# of Major Street Lanes (both directions)**	6 or more
Analyst:	RMM	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Traffic Signal	Total	8.36	11.34	208.31	2	Yes	Uncalibrated SPF	47	13	2
	Fatal & Injury	4.48	6.15	112.42						
Displaced Left Turn (DLT)	Total	7.27	9.86	181.23	1	N/A	CMF	48	14	1
	Fatal & Injury	3.54	4.86	88.81						

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- Segment 3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2025

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, 5T)		--	5T
Length of segment, L (mi)		--	0.13
AADT (veh/day)	$AADT_{MAX}$ = 53,800 (veh/day)	--	38,000
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft.) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	3
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft.) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	2.5	0.13	19.5
Fatal and injury (FI)	0.7	0.13	5.5
Property damage only (PDO)	1.8	0.13	14.0

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- Segment 3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, 5T)		--	5T
Length of segment, L (mi)		--	0.13
AADT (veh/day)	$AADT_{MAX}$ = 53,800 (veh/day)	--	49,500
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft.) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	3
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft.) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	3.4	0.13	26.1
Fatal and injury (FI)	1.0	0.13	7.3
Property damage only (PDO)	2.4	0.13	18.7

2025 NCHRP 17-58

- Segment 1
- Segment 2
- Segment 4

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	8.349
VP+VB:	0.192
F+I:	3.483
PDO:	5.058
Total:	8.541

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2025	6D	SR 80	0.547	0.863	0.093	0.118	0.024	0.013		
🟥 2	2025	6D	SR 80	1.277	1.987	0.193	0.244	0.056	0.030		
🟥 4	2025	6D	SR 80	1.026	1.649	0.155	0.196	0.045	0.024		
🟥											
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Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO
🟥									

2045 NCHRP 17-58

- Segment 1
- Segment 2
- Segment 4

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	13.435
VP+VB:	0.309
F+I:	5.826
PDO:	7.918
Total:	13.744

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2045	6D	SR 80	0.854	1.264	0.110	0.137	0.035	0.019		
🟥 2	2045	6D	SR 80	1.768	2.625	0.218	0.273	0.073	0.039		
🟥 4	2045	6D	SR 80	2.357	3.358	0.211	0.262	0.093	0.049		
🟥											
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Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO
🟥									

Alternative 4 – CTO (center)

SPICE

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 31 from SR 80 to SR 78 PD&E Study	**Intersection Type**	Ramp Terminal Intersections
Intersection:	SR 80 at SR 31	**Opening Year**	2025
Agency:	FDOT D1	**Design Year**	2045
Project Reference:	441942-1	**Area Type**	Urban
City:	Fort Myers		
State:	FL		
Date:	5/18/2022		
Analyst:	RMM		

Crash Prediction Summary

Control Strategy	**Crash Type**	**Opening Year**	**Design Year**	**Total Project Life Cycle**	**Rank**	**AADT Within range?**	**SSI Score**		
							Open	**Design**	**Rank**
Single-Point Diamond	Total	10.38	26.50	376.88	1	Yes	#####	#####	--
	Fatal & Injury	2.26	5.59	80.42					

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- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- Segment 7
- Segment 8

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	13.057
VP+VB:	0.390
F+I:	4.343
PDO:	9.104
Total:	13.447

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2025	6D	SR 80	0.273	0.432	0.047	0.059	0.012	0.006		
🟥 2	2025	2O	SR 80	0.498	1.231	0.070	0.142	0.035	0.031		
🟥 3	2025	3O	SR 80	0.493	1.219	0.104	0.141	0.033	0.023		
🟥 4	2025	2O	SR 80	0.550	1.319	0.077	0.156	0.038	0.034		
🟥 5	2025	2O	SR 80	0.529	1.308	0.073	0.148	0.037	0.033		
🟥 6	2025	6D	SR 31	0.210	0.341	0.037	0.047	0.010	0.005		
🟥 7	2025	2O	SR 31	0.298	0.823	0.063	0.126	0.024	0.021		
🟥 8	2025	2O	SR 31	0.186	0.505	0.039	0.078	0.015	0.013		
🟥											
🟥											
🟥											
🟥											
🟥											
🟥											
🟥											

Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2025	4SG	One-way	0.405	1.027	0.003	0.017		

2045 NCHRP 17-58

- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- Segment 7
- Segment 8

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	19.173
VP+VB:	0.561
F+I:	6.566
PDO:	13.168
Total:	19.734

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2045	6D	SR 80	0.427	0.632	0.055	0.069	0.018	0.009		
🟥 2	2045	2O	SR 80	0.478	1.191	0.069	0.140	0.034	0.030		
🟥 3	2045	3O	SR 80	0.856	1.904	0.125	0.170	0.052	0.037		
🟥 4	2045	2O	SR 80	0.530	1.281	0.076	0.154	0.037	0.033		
🟥 5	2045	2O	SR 80	0.894	2.000	0.087	0.177	0.057	0.051		
🟥 6	2045	6D	SR 31	0.496	0.712	0.051	0.063	0.020	0.011		
🟥 7	2045	2O	SR 31	0.718	1.678	0.084	0.171	0.048	0.042		
🟥 8	2045	2O	SR 31	0.419	0.974	0.051	0.103	0.028	0.025		
🟥											
🟥											
🟥											
🟥											
🟥											
🟥											
🟥											

Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2045	4SG	One-way	0.587	1.749	0.004	0.028		

2025 ISATe

- Ramp 1
- Ramp 2
- Ramp 3
- Ramp 4
- Ramp 5

Output Worksheet for Freeway Segments

MV = multiple-vehicle model
SV = single-vehicle model
ENR = ramp entrance model
EXR = ramp exit model

	Applicable Models (*y*)				Segment 1	Segment 2	Segment 3
					Study Period	**Study Period**	**Study Period**
Crash Modification Factors							
Fatal-and-Injury Crash CMFs							
Horizontal curve ($CMF_{1,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width ($CMF_{2,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width ($CMF_{8,fs,ac,sv,fi}$):		SV			1.382	1.382	1.382
Inside shoulder width ($CMF_{3,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.035	1.035	1.035
Median width ($CMF_{4,w,ac,y,fi}$):	MV		ENR	EXR	1.082	1.082	1.115
		SV			0.974	0.974	0.964
Median barrier ($CMF_{5,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip ($CMF_{9,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Outside clearance ($CMF_{10,fs,ac,sv,fi}$):		SV			1.005	1.005	1.005
Outside barrier ($CMF_{11,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Lane change ($CMF_{7,fs,ac,mv,fi}$):	MV						
			Year:	2025	1.190	1.120	1.369
				2026			
				2027			
				2028			
				2029			
				2030			
				2031			
				2032			
				2033			
				2034			
				2035			
				2036			
				2037			
				2038			
				2039			
				2040			
				2041			
				2042			
				2043			
				2044			
				2045			
				2046			
				2047			
				2048			
Ramp entrance ($CMF_{12,sc,nEN,at,fi}$):			ENR				
			Year:	2025	1.000	2.990	1.000
				2026			
				2027			
				2028			
				2029			

				2030			
				2031			
				2032			
				2033			
				2034			
				2035			
				2036			
				2037			
				2038			
				2039			
				2040			
				2041			
				2042			
				2043			
				2044			
				2045			
				2046			
				2047			
				2048			
Ramp exit ($CMF_{13,sc,nEX,at,fi}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Property-Damage-Only Crash CMFs							
Horizontal curve ($CMF_{1,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width ($CMF_{2,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width ($CMF_{8,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Inside shoulder width ($CMF_{3,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.031	1.031	1.031
Median width ($CMF_{4,w,ac,y,pdo}$):	MV		ENR	EXR	1.079	1.079	1.110
		SV			1.078	1.078	1.110
Median barrier ($CMF_{5,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip ($CMF_{9,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside clearance ($CMF_{10,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside barrier ($CMF_{11,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Lane change ($CMF_{7,fs,ac,mv,pdo}$):	MV						
			Year:	2025	1.180	1.112	1.350
				2026			
				2027			
				2028			
				2029			
				2030			
				2031			
				2032			
				2033			
				2034			
				2035			
				2036			
				2037			
				2038			
				2039			

				2040			
				2041			
				2042			
				2043			
				2044			
				2045			
				2046			
				2047			
				2048			
Ramp entrance ($CMF_{12,sc,nEN,at,pdo}$):			ENR		1.000	2.603	1.000
Ramp exit ($CMF_{13,sc,nEX,at,pdo}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000

Predicted Average Crash Frequency

Fatal-and-Injury Crash Frequency

Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,fi}$):				
Observed crash count ($N^*_{o,fs,n,mv,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{e,fs,n,mv,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,mv,fi}$), crashes/yr:	2025	0.067	0.090	0.047
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
	2036			
	2037			
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	2041			
	2042			
	2043			
	2044			
	2045			
	2046			
	2047			
	2048			

Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,fi}$):				
Observed crash count ($N^*_{o,fs,n,sv,fi}$), crashes:				
Reference year (r):				

Predicted average crash freq. for reference year ($N_{p,fs,n,sv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,fi}$), crashes/yr:	2025	0.132	0.150	0.111
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
	2036			
	2037			
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	2040			
	2041			
	2042			
	2043			
	2044			
	2045			
	2046			
	2047			
	2048			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,fi}$):				
Observed crash count ($N^*_{o,sc,EN,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,fi}$), crashes/yr:	2025	0.000	0.408	0.000
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
	2036			
	2037			
	2038			
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	2041			
	2042			
	2043			
	2044			
	2045			
	2046			
	2047			
	2048			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,fi}$):				
Observed crash count ($N^*_{o,sc,EX,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EX,at,fi}$), crashes/yr:	2025	0.000	0.000	0.000
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
	2036			
	2037			
	2038			
	2039			
	2040			
	2041			
	2042			
	2043			
	2044			
	2045			
	2046			
	2047			
	2048			
Property-Damage-Only Crash Frequency				
Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,mv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,mv,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,mv,pdo}$), crashes/yr:	2025	0.089	0.142	0.051
	2026			
	2027			

	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
	2036			
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	2045			
	2046			
	2047			
	2048			

Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,sv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,sv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,pdo}$), crashes/yr:	2025	0.185	0.238	0.146
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
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	2044			
	2045			
	2046			
	2047			

	2048			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EN,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,pdo}$), crashes/yr:	2025	0.000	0.994	0.000
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
	2036			
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	2045			
	2046			
	2047			
	2048			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EX,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EX,at,pdo}$), crashes/yr:	2025	0.000	0.000	0.000
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
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Crash Severity Distribution (during Study Period)				
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.004	0.014	0.003
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.010	0.034	0.008
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.070	0.229	0.055
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.114	0.372	0.090
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.199	0.649	0.157
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.275	1.374	0.197
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.474	2.023	0.354

Intermediate Results

Proportion of segment length with curve 1 ($P_{c,1}$):			
Proportion of segment length with curve 2 ($P_{c,2}$):			
Proportion of segment length with curve 3 ($P_{c,3}$):			
Distance from edge of inside shoulder to barrier face (W_{icb}), ft:	999.000	999.000	999.000
Proportion of segment length with barrier in the median (P_{ib}):	0.000	0.000	0.000
Proportion of segment length with rumble strips on outside shoulders (P_{or}):	0.000	0.000	0.000
Proportion of segment length with rumble strips on inside shoulders (P_{ir}):	0.000	0.000	0.000
Distance from edge of outside shoulder to barrier face (W_{ocb}), ft:	999.000	999.000	999.000
Proportion of segment length with barrier on the roadside (P_{ob}):	0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in increasing dir. ($P_{wevB,inc}$):	0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in decreasing dir. ($P_{wevB,dec}$):	0.000	0.000	0.000

Output Worksheet for Ramp Segments

MV = multiple-vehicle model
SV = single-vehicle model

			Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8
	Applicable Models		**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**
Crash Modification Factors										
Fatal-and-Injury Crash CMFs										
Horizontal curve (CMF$_{1,w,x,y,fi}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane width (CMF$_{2, w,x,y,fi}$):	MV	SV	0.955	1.096	1.096	0.955	0.955	1.096	1.096	1.096
Right shoulder width (CMF$_{3,w,x,y,fi}$):	MV	SV	1.241	1.000	1.000	1.241	1.241	1.000	1.000	1.382
Left shoulder width (CMF$_{4,w,x,y,fi}$):	MV	SV	1.114	1.000	1.000	1.114	1.114	1.000	1.000	1.114
Right side barrier (CMF$_{5,w,x,y,fi}$):	MV	SV	1.138	1.323	1.323	1.176	1.081	1.323	1.224	1.000
Left side barrier (CMF$_{6,w,x,y,fi}$):	MV	SV	1.323	1.323	1.323	1.323	1.323	1.323	1.323	1.000
Weaving section (CMF$_{9,cds,ac,at,fi}$):	MV	SV								
	Year:	2025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2026								
		2027								
		2028								
		2029								
		2030								
		2031								
		2032								
		2033								
		2034								
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		2048								
Ramp speed-change lane (CMF$_{8,w,x,mv,fi}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop (CMF$_{7,w,x,y,fi}$):	MV	SV	1.000	0.986	1.000	1.142	1.000	0.976	1.000	1.000
Property-Damage-Only Crash CMFs										
Horizontal curve (CMF$_{1,w,x,y,pdo}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane width (CMF$_{2, w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Right shoulder width (CMF$_{3,w,x,y,pdo}$):	MV	SV	1.109	1.000	1.000	1.109	1.109	1.000	1.000	1.168
Left shoulder width (CMF$_{4,w,x,y,pdo}$):	MV	SV	1.053	1.000	1.000	1.053	1.053	1.000	1.000	1.053
Right side barrier (CMF$_{5,w,x,y,pdo}$):	MV	SV	1.126	1.293	1.293	1.160	1.073	1.293	1.203	1.000
Left side barrier (CMF$_{6,w,x,y,pdo}$):	MV	SV	1.293	1.293	1.293	1.293	1.293	1.293	1.293	1.000
Weaving section (CMF$_{9,cds,ac,at,pdo}$):	MV	SV								
	Year:	2025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2026								
		2027								
		2028								
		2029								
		2030								
		2031								
		2032								
		2033								
		2034								
		2035								
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		2048								

Ramp speed-change lane ($CMF_{8,w,x,mv,pdo}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Predicted Average Crash Frequency										
Fatal-and-Injury Crash Frequency										
Multiple-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,mv,fi}$):										
Observed crash count ($N^*_{o,w,x,mv,fi}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,mv,fi,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,mv,fi,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,fi,r}$), crashes/yr:										
Predicted average crash frequency		2025	0.004	0.013	0.040	0.027	0.004	0.013	0.094	0.035
($N_{p,w,x,mv,fi}$), crashes/yr:		2026								
		2027								
		2028								
		2029								
		2030								
		2031								
		2032								
		2033								
		2034								
		2035								
		2036								
		2037								
		2038								
		2039								
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		2043								
		2044								
		2045								
		2046								
		2047								
		2048								
Single-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,sv,fi}$):										
Observed crash count ($N^*_{o,w,x,sv,fi}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,sv,fi,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,sv,fi,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,fi,r}$), crashes/yr:										
Predicted average crash frequency		2025	0.103	0.203	0.105	0.121	0.098	0.199	0.240	0.119
($N_{p,w,x,sv,fi}$), crashes/yr:		2026								
		2027								
		2028								
		2029								
		2030								
		2031								
		2032								
		2033								
		2034								
		2035								
		2036								
		2037								
		2038								
		2039								
		2040								
		2041								
		2042								
		2043								
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		2045								
		2046								
		2047								
		2048								
Property-Damage-Only Crash Frequency										
Multiple-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,mv,pdo}$):										
Observed crash count ($N^*_{o,w,x,mv,pdo}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,mv,pdo,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,mv,pdo,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,pdo,r}$), crashes/yr:										
Predicted average crash frequency		2025	0.010	0.048	0.085	0.035	0.008	0.043	0.215	0.049
($N_{p,w,x,mv,pdo}$), crashes/yr:		2026								
		2027								
		2028								

	2029								
	2030								
	2031								
	2032								
	2033								
	2034								
	2035								
	2036								
	2037								
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	2042								
	2043								
	2044								
	2045								
	2046								
	2047								
	2048								
Single-Vehicle Crash Analysis	**Year**								
Overdispersion parameter ($k_{w,x,sv,pdo}$):									
Observed crash count ($N^*_{o,w,x,sv,pdo}$), crashes:									
Reference year (r):									
Predicted average crash freq. for reference year ($N_{p,w,x,sv,pdo,r}$), crashes/yr:									
Equivalent years associated with crash count ($C_{b,w,x,sv,pdo,r}$), yr:									
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,pdo,r}$), crashes/yr:									
Predicted average crash frequency ($N_{p,w,x,sv,pdo}$), crashes/yr:	2025	0.096	0.276	0.158	0.111	0.092	0.276	0.362	0.104
	2026								
	2027								
	2028								
	2029								
	2030								
	2031								
	2032								
	2033								
	2034								
	2035								
	2036								
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	2042								
	2043								
	2044								
	2045								
	2046								
	2047								
	2048								
Crash Severity Distribution (during Study Period)									
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.003	0.005	0.002	0.003	0.003	0.005	0.005	0.003
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.008	0.014	0.006	0.008	0.008	0.014	0.016	0.010
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.036	0.051	0.035	0.051	0.035	0.050	0.084	0.063
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.060	0.147	0.101	0.087	0.056	0.144	0.229	0.077
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.107	0.217	0.144	0.149	0.102	0.212	0.334	0.153
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.105	0.324	0.243	0.146	0.100	0.318	0.577	0.153
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.213	0.541	0.387	0.295	0.202	0.530	0.911	0.307

Intermediate Results							
Friction-limited curve speed for curve 1 ($v_{max,1}$), ft/s:							
Curve entry speed for curve 1 ($v_{ent,1}$), ft/s:							
Curve exit speed for curve 1 ($v_{ext,1}$), ft/s:							
Proportion of segment length with curve 1 ($P_{c,1}$):							
Friction-limited curve speed for curve 2 ($v_{max,2}$), ft/s:							
Curve entry speed for curve 2 ($v_{ent,2}$), ft/s:							
Curve exit speed for curve 2 ($v_{ext,2}$), ft/s:							
Proportion of segment length with curve 2 ($P_{c,2}$):							
Friction-limited curve speed for curve 3 ($v_{max,3}$), ft/s:							
Curve entry speed for curve 3 ($v_{ent,3}$), ft/s:							
Curve exit speed for curve 3 ($v_{ext,3}$), ft/s:							
Proportion of segment length with curve 3 ($P_{c,3}$):							
Friction-limited curve speed for curve 4 ($v_{max,4}$), ft/s:							
Curve entry speed for curve 4 ($v_{ent,4}$), ft/s:							
Curve exit speed for curve 4 ($v_{ext,4}$), ft/s:							

Proportion of segment length with curve 4 ($P_{c,4}$):								
Friction-limited curve speed for curve 5 ($v_{max,5}$), ft/s:								
Curve entry speed for curve 5 ($v_{ent,5}$), ft/s:								
Curve exit speed for curve 5 ($v_{ext,5}$), ft/s:								
Proportion of segment length with curve 5 ($P_{c,5}$):								
Distance from edge of right shoulder to barrier face (W_{rcb}), ft:	0.750	0.750	0.750	0.750	0.750	0.750	0.750	999.000
Proportion of segment length with barrier on the right side (P_{rb}):	0.429	1.000	1.000	0.545	0.250	1.000	0.692	0.000
Distance from edge of left shoulder to barrier face (W_{lcb}), ft:	0.750	0.750	0.750	0.750	0.750	0.750	0.750	999.000
Proportion of segment length with barrier on the left side (P_{lb}):	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000
Proportion of segment length within a weaving section (P_{wev}):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to speed-change lane of another ramp (P_{en-ex}):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to taper of lane add or drop. (P_{tpr}):	0.000	0.067	0.000	0.545	0.000	0.118	0.000	0.000

2045 ISATe

- Ramp 1
- Ramp 2
- Ramp 3
- Ramp 4
- Ramp 5

Output Worksheet for Freeway Segments							
MV = multiple-vehicle model	ENR = ramp entrance model				Segment 1	Segment 2	Segment 3
SV = single-vehicle model	EXR = ramp exit model				**Study Period**	**Study Period**	**Study Period**
	Applicable Models (*y*)						
Crash Modification Factors							
Fatal-and-Injury Crash CMFs							
Horizontal curve ($CMF_{1,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width ($CMF_{2,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width ($CMF_{8,fs,ac,sv,fi}$):		SV			1.382	1.382	1.382
Inside shoulder width ($CMF_{3,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.035	1.035	1.035
Median width ($CMF_{4,w,ac,y,fi}$):	MV		ENR	EXR	1.082	1.082	1.115
		SV			0.974	0.974	0.964
Median barrier ($CMF_{5,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip ($CMF_{9,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Outside clearance ($CMF_{10,fs,ac,sv,fi}$):		SV			1.005	1.005	1.005
Outside barrier ($CMF_{11,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Lane change ($CMF_{7,fs,ac,mv,fi}$):	MV						
			Year:	2045	1.151	1.102	1.304
				2046			
				2047			
				2048			
				2049			
				2050			
				2051			
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				2066			
				2067			
				2068			
Ramp entrance ($CMF_{12,sc,nEN,at,fi}$):			ENR				
			Year:	2045	1.000	3.365	1.000
				2046			
				2047			
				2048			
				2049			

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				2067			
				2068			
Ramp exit ($CMF_{13,sc,nEX,at,fi}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Property-Damage-Only Crash CMFs							
Horizontal curve ($CMF_{1,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width ($CMF_{2,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width ($CMF_{8,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Inside shoulder width ($CMF_{3,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.031	1.031	1.031
Median width ($CMF_{4,w,ac,y,pdo}$):	MV		ENR	EXR	1.079	1.079	1.110
		SV			1.078	1.078	1.110
Median barrier ($CMF_{5,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip ($CMF_{9,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside clearance ($CMF_{10,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside barrier ($CMF_{11,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Lane change ($CMF_{7,fs,ac,mv,pdo}$):	MV						
			Year:	2045	1.142	1.095	1.287
				2046			
				2047			
				2048			
				2049			
				2050			
				2051			
				2052			
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				2067			
				2068			
Ramp entrance ($CMF_{12,sc,nEN,at,pdo}$):			ENR		1.000	2.603	1.000
Ramp exit ($CMF_{13,sc,nEX,at,pdo}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000

Predicted Average Crash Frequency

Fatal-and-Injury Crash Frequency

Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,fi}$):				
Observed crash count ($N^*_{o,fs,n,mv,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{e,fs,n,mv,fi,r}$), crashes/yr:				
Predicted average crash frequency	2045	0.090	0.119	0.118
($N_{p,fs,n,mv,fi}$), crashes/yr:	2046			
	2047			
	2048			
	2049			
	2050			
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	2053			
	2054			
	2055			
	2056			
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	2068			
Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,fi}$):				
Observed crash count ($N^*_{o,fs,n,sv,fi}$), crashes:				
Reference year (r):				

Predicted average crash freq. for reference year ($N_{p,fs,n,sv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,fi}$), crashes/yr:	2045	0.152	0.171	0.169
	2046			
	2047			
	2048			
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	2053			
	2054			
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	2066			
	2067			
	2068			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,fi}$):				
Observed crash count ($N^*_{o,sc,EN,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,fi}$), crashes/yr:	2045	0.000	0.577	0.000
	2046			
	2047			
	2048			
	2049			
	2050			
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	2066			
	2067			
	2068			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,fi}$):				
Observed crash count ($N^*_{o,sc,EX,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,fi,r}$), crashes/yr:				
Predicted average crash frequency	2045	0.000	0.000	0.000
($N_{p,sc,EX,at,fi}$), crashes/yr:	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
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	2067			
	2068			
Property-Damage-Only Crash Frequency				
Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,mv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,mv,pdo,r}$), crashes/yr:				
Predicted average crash frequency	2045	0.132	0.204	0.172
($N_{p,fs,n,mv,pdo}$), crashes/yr:	2046			
	2047			

	2048			
	2049			
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Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,sv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,sv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,pdo}$), crashes/yr:	2045	0.224	0.283	0.259
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	2068			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EN,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,pdo}$), crashes/yr:	2045	0.000	1.259	0.000
	2046			
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	2068			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EX,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EX,at,pdo}$), crashes/yr:	2045	0.000	0.000	0.000
	2046			
	2047			
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	2049			
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	2067			
	2068			
Crash Severity Distribution (during Study Period)				
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.005	0.018	0.006
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.013	0.045	0.015
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.085	0.306	0.101
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.138	0.497	0.164
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.241	0.867	0.286
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.356	1.747	0.431
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.597	2.614	0.718
Intermediate Results				
Proportion of segment length with curve 1 ($P_{c,1}$):				
Proportion of segment length with curve 2 ($P_{c,2}$):				
Proportion of segment length with curve 3 ($P_{c,3}$):				
Distance from edge of inside shoulder to barrier face (W_{icb}), ft:		999.000	999.000	999.000
Proportion of segment length with barrier in the median (P_{ib}):		0.000	0.000	0.000
Proportion of segment length with rumble strips on outside shoulders (P_{or}):		0.000	0.000	0.000
Proportion of segment length with rumble strips on inside shoulders (P_{ir}):		0.000	0.000	0.000
Distance from edge of outside shoulder to barrier face (W_{ocb}), ft:		999.000	999.000	999.000
Proportion of segment length with barrier on the roadside (P_{ob}):		0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in increasing dir. ($P_{wevB,inc}$):		0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in decreasing dir. ($P_{wevB,dec}$):		0.000	0.000	0.000

Output Worksheet for Ramp Segments

MV = multiple-vehicle model
SV = single-vehicle model

			Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8
	Applicable Models		**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**
Crash Modification Factors										
Fatal-and-Injury Crash CMFs										
Horizontal curve ($CMF_{1,w,x,y,fi}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane width ($CMF_{2, w,x,y,fi}$):	MV	SV	0.955	1.096	1.096	0.955	0.955	1.096	1.096	1.096
Right shoulder width ($CMF_{3,w,x,y,fi}$):	MV	SV	1.241	1.000	1.000	1.241	1.241	1.000	1.000	1.382
Left shoulder width ($CMF_{4,w,x,y,fi}$):	MV	SV	1.114	1.000	1.000	1.114	1.114	1.000	1.000	1.114
Right side barrier ($CMF_{5,w,x,y,fi}$):	MV	SV	1.138	1.323	1.323	1.176	1.081	1.323	1.224	1.000
Left side barrier ($CMF_{6,w,x,y,fi}$):	MV	SV	1.323	1.323	1.323	1.323	1.323	1.323	1.323	1.000
Weaving section ($CMF_{9,cds,ac,at,fi}$):	MV	SV								
	Year:	2045	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2046								
		2047								
		2048								
		2049								
		2050								
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Ramp speed-change lane ($CMF_{8,w,x,mv,fi}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,fi}$):	MV	SV	1.000	0.986	1.000	1.142	1.000	0.976	1.000	1.000
Property-Damage-Only Crash CMFs										
Horizontal curve ($CMF_{1,w,x,y,pdo}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane width ($CMF_{2, w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Right shoulder width ($CMF_{3,w,x,y,pdo}$):	MV	SV	1.109	1.000	1.000	1.109	1.109	1.000	1.000	1.168
Left shoulder width ($CMF_{4,w,x,y,pdo}$):	MV	SV	1.053	1.000	1.000	1.053	1.053	1.000	1.000	1.053
Right side barrier ($CMF_{5,w,x,y,pdo}$):	MV	SV	1.126	1.293	1.293	1.160	1.073	1.293	1.203	1.000
Left side barrier ($CMF_{6,w,x,y,pdo}$):	MV	SV	1.293	1.293	1.293	1.293	1.293	1.293	1.293	1.000
Weaving section ($CMF_{9,cds,ac,at,pdo}$):	MV	SV								
	Year:	2045	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2046								
		2047								
		2048								
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		2050								
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Ramp speed-change lane ($CMF_{8,w,x,mv,pdo}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Predicted Average Crash Frequency										
Fatal-and-Injury Crash Frequency										
Multiple-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,mv,fi}$):										
Observed crash count ($N^*_{o,w,x,mv,fi}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,mv,fi,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,mv,fi,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,fi,r}$), crashes/yr:										
Predicted average crash frequency		2045	0.011	0.038	0.073	0.051	0.007	0.023	0.265	0.089
($N_{p,w,x,mv,fi}$), crashes/yr:		2046								
		2047								
		2048								
		2049								
		2050								
		2051								
		2052								
		2053								
		2054								
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		2066								
		2067								
		2068								
Single-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,sv,fi}$):										
Observed crash count ($N^*_{o,w,x,sv,fi}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,sv,fi,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,sv,fi,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,fi,r}$), crashes/yr:										
Predicted average crash frequency		2045	0.188	0.370	0.161	0.186	0.150	0.306	0.437	0.183
($N_{p,w,x,sv,fi}$), crashes/yr:		2046								
		2047								
		2048								
		2049								
		2050								
		2051								
		2052								
		2053								
		2054								
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		2066								
		2067								
		2068								
Property-Damage-Only Crash Frequency										
Multiple-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,mv,pdo}$):										
Observed crash count ($N^*_{o,w,x,mv,pdo}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,mv,pdo,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,mv,pdo,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,pdo,r}$), crashes/yr:										
Predicted average crash frequency		2045	0.028	0.136	0.179	0.074	0.018	0.090	0.615	0.105

($N_{p,w,x,mv,pdo}$), crashes/yr:	2046								
	2047								
	2048								
	2049								
	2050								
	2051								
	2052								
	2053								
	2054								
	2055								
	2056								
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	2063								
	2064								
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	2066								
	2067								
	2068								
Single-Vehicle Crash Analysis	**Year**								
Overdispersion parameter ($k_{w,x,sv,pdo}$):									
Observed crash count ($N^*_{o,w,x,sv,pdo}$), crashes:									
Reference year (r):									
Predicted average crash freq. for reference year ($N_{p,w,x,sv,pdo,r}$), crashes/yr:									
Equivalent years associated with crash count ($C_{b,w,x,sv,pdo,r}$), yr:									
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,pdo,r}$), crashes/yr:									
Predicted average crash frequency	2045	0.170	0.492	0.239	0.167	0.138	0.416	0.645	0.157
($N_{p,w,x,sv,pdo}$), crashes/yr:	2046								
	2047								
	2048								
	2049								
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	2054								
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	2064								
	2065								
	2066								
	2067								
	2068								
Crash Severity Distribution (during Study Period)									
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.005	0.009	0.003	0.004	0.004	0.007	0.011	0.006
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.016	0.027	0.010	0.012	0.013	0.022	0.033	0.018
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.067	0.095	0.056	0.082	0.054	0.077	0.177	0.112
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.111	0.277	0.164	0.139	0.086	0.224	0.481	0.136
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.199	0.408	0.234	0.237	0.157	0.329	0.702	0.271
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.198	0.628	0.417	0.242	0.156	0.506	1.260	0.262
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.397	1.036	0.651	0.478	0.313	0.835	1.961	0.533
Intermediate Results									
Friction-limited curve speed for curve 1 ($v_{max,1}$), ft/s:									
Curve entry speed for curve 1 ($v_{ent,1}$), ft/s:									
Curve exit speed for curve 1 ($v_{ext,1}$), ft/s:									
Proportion of segment length with curve 1 ($P_{c,1}$):									
Friction-limited curve speed for curve 2 ($v_{max,2}$), ft/s:									
Curve entry speed for curve 2 ($v_{ent,2}$), ft/s:									
Curve exit speed for curve 2 ($v_{ext,2}$), ft/s:									
Proportion of segment length with curve 2 ($P_{c,2}$):									
Friction-limited curve speed for curve 3 ($v_{max,3}$), ft/s:									

Curve entry speed for curve 3 ($v_{ent,3}$), ft/s:								
Curve exit speed for curve 3 ($v_{ext,3}$), ft/s:								
Proportion of segment length with curve 3 ($P_{c,3}$):								
Friction-limited curve speed for curve 4 ($v_{max,4}$), ft/s:								
Curve entry speed for curve 4 ($v_{ent,4}$), ft/s:								
Curve exit speed for curve 4 ($v_{ext,4}$), ft/s:								
Proportion of segment length with curve 4 ($P_{c,4}$):								
Friction-limited curve speed for curve 5 ($v_{max,5}$), ft/s:								
Curve entry speed for curve 5 ($v_{ent,5}$), ft/s:								
Curve exit speed for curve 5 ($v_{ext,5}$), ft/s:								
Proportion of segment length with curve 5 ($P_{c,5}$):								
Distance from edge of right shoulder to barrier face (W_{rcb}), ft:	0.750	0.750	0.750	0.750	0.750	0.750	0.750	999.000
Proportion of segment length with barrier on the right side (P_{rb}):	0.429	1.000	1.000	0.545	0.250	1.000	0.692	0.000
Distance from edge of left shoulder to barrier face (W_{lcb}), ft:	0.750	0.750	0.750	0.750	0.750	0.750	0.750	999.000
Proportion of segment length with barrier on the left side (P_{lb}):	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000
Proportion of segment length within a weaving section (P_{wev}):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to speed-change lane of another ramp (P_{en-ex}):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to taper of lane add or drop. (P_{tpr}):	0.000	0.067	0.000	0.545	0.000	0.118	0.000	0.000

Alternative 5 – CTO (south)

SPICE

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 31 from SR 80 to SR 78 PD&E Study	**Intersection Type**	Ramp Terminal Intersections
Intersection:	SR 80 at SR 31	**Opening Year**	2025
Agency:	FDOT D1	**Design Year**	2045
Project Reference:	441942-1	**Area Type**	Urban
City:	Fort Myers		
State:	FL		
Date:	5/18/2022		
Analyst:	RMM		

Crash Prediction Summary

Control Strategy	**Crash Type**	**Opening Year**	**Design Year**	**Total Project Life Cycle**	**Rank**	**AADT Within range?**	**SSI Score**		
							Open	**Design**	**Rank**
Single-Point Diamond	Total	10.85	26.90	386.46	1	Yes	#####	#####	--
	Fatal & Injury	2.35	5.62	81.69					

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- Segment 2
- Segment 3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2025

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, 5T)		--	4D
Length of segment, L (mi)		--	0.21
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	31,000
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft.) - for divided only		15	20
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	1
Minor commercial driveways (number)		--	1
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft.) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{\text{predicted rs}}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.3	0.21	6.4
Fatal and injury (FI)	0.4	0.21	1.8
Property damage only (PDO)	1.0	0.21	4.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2025

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.25
AADT (veh/day)	AADT$_{MAX}$ = 66,000 (veh/day)	--	33,000
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	2
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, N $_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.7	0.25	6.6
Fatal and injury (FI)	0.5	0.25	1.8
Property damage only (PDO)	1.2	0.25	4.8

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- Segment 2
- Segment 3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, 5T)		--	4D
Length of segment, L (mi)		--	0.21
AADT (veh/day)	AADT_{MAX} = 66,000 (veh/day)	--	39,000
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft.) - for divided only		15	20
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	1
Minor commercial driveways (number)		--	1
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft.) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{\text{predicted rs}}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.8	0.21	8.5
Fatal and injury (FI)	0.5	0.21	2.4
Property damage only (PDO)	1.3	0.21	6.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.25
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	40,500
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	2
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	2.1	0.25	8.6
Fatal and injury (FI)	0.6	0.25	2.4
Property damage only (PDO)	1.6	0.25	6.2

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- Segment 1
- Segment 2
- Segment 4
- Segment 5
- Segment 6

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	8.432
VP+VB:	0.204
F+I:	3.101
PDO:	5.535
Total:	8.636

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2025	6D	SR 80	0.625	0.987	0.106	0.135	0.028	0.015		
🟥 2	2025	6D	SR 80	0.799	1.302	0.129	0.164	0.036	0.019		
🟥 4	2025	6D	SR 80	0.210	0.341	0.037	0.047	0.010	0.005		
🟥 5	2025	2O	SR 80	0.298	0.823	0.063	0.126	0.024	0.021		
🟥 6	2025	2O	SR 80	0.186	0.505	0.039	0.078	0.015	0.013		
🟥											
🟥											
🟥											
🟥											
🟥											
🟥											
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🟥											

Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2025	4SG	One-way	0.405	1.027	0.003	0.017		

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- Segment 1
- Segment 2
- Segment 4
- Segment 5
- Segment 6

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	13.606
VP+VB:	0.337
F+I:	5.050
PDO:	8.893
Total:	13.943

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2045	6D	SR 80	0.976	1.444	0.126	0.157	0.041	0.022		
🟥 2	2045	6D	SR 80	1.062	1.660	0.143	0.181	0.046	0.024		
🟥 4	2045	6D	SR 80	0.496	0.712	0.051	0.063	0.020	0.011		
🟥 5	2045	2O	SR 80	0.718	1.678	0.084	0.171	0.048	0.042		
🟥 6	2045	2O	SR 80	0.419	0.974	0.051	0.103	0.028	0.025		
🟥											
🟥											
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Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2045	4SG	One-way	0.587	1.749	0.004	0.028		

2025 ISATe

- Ramp 1
- Ramp 2
- Ramp 3
- Ramp 4
- Ramp 5

Output Worksheet for Freeway Segments

MV = multiple-vehicle model
SV = single-vehicle model
ENR = ramp entrance model
EXR = ramp exit model

	Applicable Models (*y*)				Segment 1 **Study Period**	Segment 2 **Study Period**	Segment 3 **Study Period**
Crash Modification Factors							
Fatal-and-Injury Crash CMFs							
Horizontal curve ($CMF_{1,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width ($CMF_{2,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width ($CMF_{8,fs,ac,sv,fi}$):		SV			1.382	1.382	1.382
Inside shoulder width ($CMF_{3,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.035	1.035	1.035
Median width ($CMF_{4,w,ac,y,fi}$):	MV		ENR	EXR	1.115	1.115	1.115
		SV			0.964	0.964	0.964
Median barrier ($CMF_{5,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip ($CMF_{9,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Outside clearance ($CMF_{10,fs,ac,sv,fi}$):		SV			1.005	1.005	1.005
Outside barrier ($CMF_{11,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Lane change ($CMF_{7,fs,ac,mv,fi}$):	MV						
			Year:	2025	1.190	1.125	1.369
				2026			
				2027			
				2028			
				2029			
				2030			
				2031			
				2032			
				2033			
				2034			
				2035			
				2036			
				2037			
				2038			
				2039			
				2040			
				2041			
				2042			
				2043			
				2044			
				2045			
				2046			
				2047			
				2048			
Ramp entrance ($CMF_{12,sc,nEN,at,fi}$):			ENR				
			Year:	2025	1.000	1.666	1.000
				2026			
				2027			
				2028			
				2029			

				2030			
				2031			
				2032			
				2033			
				2034			
				2035			
				2036			
				2037			
				2038			
				2039			
				2040			
				2041			
				2042			
				2043			
				2044			
				2045			
				2046			
				2047			
				2048			
Ramp exit ($CMF_{13,sc,nEX,at,fi}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Property-Damage-Only Crash CMFs							
Horizontal curve ($CMF_{1,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width ($CMF_{2,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width ($CMF_{8,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Inside shoulder width ($CMF_{3,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.031	1.031	1.031
Median width ($CMF_{4,w,ac,y,pdo}$):	MV		ENR	EXR	1.110	1.110	1.110
		SV			1.110	1.110	1.110
Median barrier ($CMF_{5,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip ($CMF_{9,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside clearance ($CMF_{10,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside barrier ($CMF_{11,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Lane change ($CMF_{7,fs,ac,mv,pdo}$):	MV						
			Year:	2025	1.180	1.117	1.350
				2026			
				2027			
				2028			
				2029			
				2030			
				2031			
				2032			
				2033			
				2034			
				2035			
				2036			
				2037			
				2038			
				2039			

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				2042			
				2043			
				2044			
				2045			
				2046			
				2047			
				2048			
Ramp entrance ($CMF_{12,sc,nEN,at,pdo}$):			ENR		1.000	1.150	1.000
Ramp exit ($CMF_{13,sc,nEX,at,pdo}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000

Predicted Average Crash Frequency

Fatal-and-Injury Crash Frequency

Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,fi}$):				
Observed crash count ($N^*_{o,fs,n,mv,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{e,fs,n,mv,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,mv,fi}$), crashes/yr:	2025	0.090	0.089	0.047
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
	2036			
	2037			
	2038			
	2039			
	2040			
	2041			
	2042			
	2043			
	2044			
	2045			
	2046			
	2047			
	2048			

Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,fi}$):				
Observed crash count ($N^*_{o,fs,n,sv,fi}$), crashes:				
Reference year (r):				

Predicted average crash freq. for reference year ($N_{p,fs,n,sv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,fi}$), crashes/yr:	2025	0.146	0.141	0.111
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
	2036			
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	2042			
	2043			
	2044			
	2045			
	2046			
	2047			
	2048			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,fi}$):				
Observed crash count ($N^*_{o,sc,EN,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,fi}$), crashes/yr:	2025	0.000	0.222	0.000
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
	2036			
	2037			
	2038			
	2039			
	2040			

	2041			
	2042			
	2043			
	2044			
	2045			
	2046			
	2047			
	2048			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,fi}$):				
Observed crash count ($N^*_{o,sc,EX,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,fi,r}$), crashes/yr:				
Predicted average crash frequency	2025	0.000	0.000	0.000
($N_{p,sc,EX,at,fi}$), crashes/yr:	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
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	2044			
	2045			
	2046			
	2047			
	2048			

Property-Damage-Only Crash Frequency

Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,mv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,mv,pdo,r}$), crashes/yr:				
Predicted average crash frequency	2025	0.130	0.139	0.051
($N_{p,fs,n,mv,pdo}$), crashes/yr:	2026			
	2027			

	2028			
	2029			
	2030			
	2031			
	2032			
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	2034			
	2035			
	2036			
	2037			
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	2048			
Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,sv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,sv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,pdo}$), crashes/yr:	2025	0.223	0.232	0.146
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			
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	2045			
	2046			
	2047			

	2048			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EN,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,pdo}$), crashes/yr:	2025	0.000	0.428	0.000
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
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	2045			
	2046			
	2047			
	2048			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EX,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EX,at,pdo}$), crashes/yr:	2025	0.000	0.000	0.000
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
	2035			

	2036			
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	2041			
	2042			
	2043			
	2044			
	2045			
	2046			
	2047			
	2048			
Crash Severity Distribution (during Study Period)				
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.005	0.010	0.003
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.012	0.024	0.008
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.083	0.160	0.055
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.135	0.259	0.090
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.236	0.452	0.157
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.352	0.800	0.197
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.589	1.252	0.354
Intermediate Results				
Proportion of segment length with curve 1 ($P_{c,1}$):				
Proportion of segment length with curve 2 ($P_{c,2}$):				
Proportion of segment length with curve 3 ($P_{c,3}$):				
Distance from edge of inside shoulder to barrier face (W_{icb}), ft:		999.000	999.000	999.000
Proportion of segment length with barrier in the median (P_{ib}):		0.000	0.000	0.000
Proportion of segment length with rumble strips on outside shoulders (P_{or}):		0.000	0.000	0.000
Proportion of segment length with rumble strips on inside shoulders (P_{ir}):		0.000	0.000	0.000
Distance from edge of outside shoulder to barrier face (W_{ocb}), ft:		999.000	999.000	999.000
Proportion of segment length with barrier on the roadside (P_{ob}):		0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in increasing dir. ($P_{wevB,inc}$):		0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in decreasing dir. ($P_{wevB,dec}$):		0.000	0.000	0.000

Output Worksheet for Ramp Segments

MV = multiple-vehicle model SV = single-vehicle model			Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8
	Applicable Models		**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**
Crash Modification Factors										
Fatal-and-Injury Crash CMFs										
Horizontal curve ($CMF_{1,w,x,y,fi}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane width ($CMF_{2, w,x,y,fi}$):	MV	SV	0.955	1.096	1.096	0.955	1.096	0.955	1.096	1.096
Right shoulder width ($CMF_{3,w,x,y,fi}$):	MV	SV	1.241	1.000	1.000	1.241	1.000	1.241	1.000	1.382
Left shoulder width ($CMF_{4,w,x,y,fi}$):	MV	SV	1.114	1.000	1.000	1.114	1.000	1.114	1.000	1.114
Right side barrier ($CMF_{5,w,x,y,fi}$):	MV	SV	1.323	1.323	1.323	1.323	1.081	1.323	1.224	1.000
Left side barrier ($CMF_{6,w,x,y,fi}$):	MV	SV	1.000	1.323	1.323	1.149	1.323	1.323	1.323	1.000
Weaving section ($CMF_{9,cds,ac,at,fi}$):	MV	SV								
	Year:	2025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2026								
		2027								
		2028								
		2029								
		2030								
		2031								
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Ramp speed-change lane ($CMF_{8,w,x,mv,fi}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,fi}$):	MV	SV	1.000	0.974	1.000	1.100	1.000	0.976	1.000	1.000
Property-Damage-Only Crash CMFs										
Horizontal curve ($CMF_{1,w,x,y,pdo}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane width ($CMF_{2, w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Right shoulder width ($CMF_{3,w,x,y,pdo}$):	MV	SV	1.109	1.000	1.000	1.109	1.000	1.109	1.000	1.168
Left shoulder width ($CMF_{4,w,x,y,pdo}$):	MV	SV	1.053	1.000	1.000	1.053	1.000	1.053	1.000	1.053
Right side barrier ($CMF_{5,w,x,y,pdo}$):	MV	SV	1.293	1.293	1.293	1.293	1.073	1.293	1.203	1.000
Left side barrier ($CMF_{6,w,x,y,pdo}$):	MV	SV	1.000	1.293	1.293	1.135	1.293	1.293	1.293	1.000
Weaving section ($CMF_{9,cds,ac,at,pdo}$):	MV	SV								
	Year:	2025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2026								
		2027								
		2028								
		2029								
		2030								
		2031								
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		2048								

Ramp speed-change lane ($CMF_{8,w,x,mv,pdo}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Predicted Average Crash Frequency										
Fatal-and-Injury Crash Frequency										
Multiple-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,mv,fi}$):										
Observed crash count ($N^*_{o,w,x,mv,fi}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,mv,fi,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,mv,fi,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,fi,r}$), crashes/yr:										
Predicted average crash frequency		2025	0.002	0.014	0.040	0.030	0.003	0.015	0.094	0.035
($N_{p,w,x,mv,fi}$), crashes/yr:		2026								
		2027								
		2028								
		2029								
		2030								
		2031								
		2032								
		2033								
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		2045								
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		2048								
Single-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,sv,fi}$):										
Observed crash count ($N^*_{o,w,x,sv,fi}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,sv,fi,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,sv,fi,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,fi,r}$), crashes/yr:										
Predicted average crash frequency		2025	0.052	0.214	0.105	0.135	0.081	0.240	0.240	0.119
($N_{p,w,x,sv,fi}$), crashes/yr:		2026								
		2027								
		2028								
		2029								
		2030								
		2031								
		2032								
		2033								
		2034								
		2035								
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		2046								
		2047								
		2048								
Property-Damage-Only Crash Frequency										
Multiple-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,mv,pdo}$):										
Observed crash count ($N^*_{o,w,x,mv,pdo}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,mv,pdo,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,mv,pdo,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,pdo,r}$), crashes/yr:										
Predicted average crash frequency		2025	0.005	0.051	0.085	0.041	0.007	0.050	0.215	0.049

($N_{p,w,x,mv,pdo}$), crashes/yr:	2026								
	2027								
	2028								
	2029								
	2030								
	2031								
	2032								
	2033								
	2034								
	2035								
	2036								
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	2042								
	2043								
	2044								
	2045								
	2046								
	2047								
	2048								
Single-Vehicle Crash Analysis	**Year**								
Overdispersion parameter ($k_{w,x,sv,pdo}$):									
Observed crash count ($N^*_{o,w,x,sv,pdo}$), crashes:									
Reference year (r):									
Predicted average crash freq. for reference year ($N_{p,w,x,sv,pdo,r}$), crashes/yr:									
Equivalent years associated with crash count ($C_{b,w,x,sv,pdo,r}$), yr:									
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,pdo,r}$), crashes/yr:									
Predicted average crash frequency	2025	0.049	0.295	0.158	0.128	0.079	0.322	0.362	0.104
($N_{p,w,x,sv,pdo}$), crashes/yr:	2026								
	2027								
	2028								
	2029								
	2030								
	2031								
	2032								
	2033								
	2034								
	2035								
	2036								
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	2041								
	2042								
	2043								
	2044								
	2045								
	2046								
	2047								
	2048								
Crash Severity Distribution (during Study Period)									
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.001	0.005	0.002	0.003	0.002	0.006	0.005	0.003
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.004	0.015	0.006	0.009	0.007	0.017	0.016	0.010
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.019	0.053	0.035	0.058	0.029	0.060	0.084	0.063
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.029	0.155	0.101	0.096	0.046	0.173	0.229	0.077
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.054	0.228	0.144	0.165	0.084	0.255	0.334	0.153
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.054	0.346	0.243	0.169	0.086	0.372	0.577	0.153
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.107	0.574	0.387	0.334	0.170	0.627	0.911	0.307
Intermediate Results									
Friction-limited curve speed for curve 1 ($v_{max,1}$), ft/s:									
Curve entry speed for curve 1 ($v_{ent,1}$), ft/s:									
Curve exit speed for curve 1 ($v_{ext,1}$), ft/s:									
Proportion of segment length with curve 1 ($P_{c,1}$):									
Friction-limited curve speed for curve 2 ($v_{max,2}$), ft/s:									
Curve entry speed for curve 2 ($v_{ent,2}$), ft/s:									
Curve exit speed for curve 2 ($v_{ext,2}$), ft/s:									
Proportion of segment length with curve 2 ($P_{c,2}$):									
Friction-limited curve speed for curve 3 ($v_{max,3}$), ft/s:									

Curve entry speed for curve 3 ($v_{ent,3}$), ft/s:								
Curve exit speed for curve 3 ($v_{ext,3}$), ft/s:								
Proportion of segment length with curve 3 ($P_{c,3}$):								
Friction-limited curve speed for curve 4 ($v_{max,4}$), ft/s:								
Curve entry speed for curve 4 ($v_{ent,4}$), ft/s:								
Curve exit speed for curve 4 ($v_{ext,4}$), ft/s:								
Proportion of segment length with curve 4 ($P_{c,4}$):								
Friction-limited curve speed for curve 5 ($v_{max,5}$), ft/s:								
Curve entry speed for curve 5 ($v_{ent,5}$), ft/s:								
Curve exit speed for curve 5 ($v_{ext,5}$), ft/s:								
Proportion of segment length with curve 5 ($P_{c,5}$):								
Distance from edge of right shoulder to barrier face (W_{rcb}), ft:	0.750	0.750	0.750	0.750	0.750	0.750	0.750	999.000
Proportion of segment length with barrier on the right side (P_{rb}):	1.000	1.000	1.000	1.000	0.250	1.000	0.692	0.000
Distance from edge of left shoulder to barrier face (W_{lcb}), ft:	999.000	0.750	0.750	0.750	0.750	0.750	0.750	999.000
Proportion of segment length with barrier on the left side (P_{lb}):	0.000	1.000	1.000	0.462	1.000	1.000	1.000	0.000
Proportion of segment length within a weaving section (P_{wev}):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to speed-change lane of another ramp (P_{en-ex}):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to taper of lane add or drop. (P_{tpr}):	0.000	0.125	0.000	0.385	0.000	0.118	0.000	0.000

2045 ISATe

- Ramp 1
- Ramp 2
- Ramp 3
- Ramp 4
- Ramp 5

Output Worksheet for Freeway Segments

MV = multiple-vehicle model
SV = single-vehicle model

ENR = ramp entrance model
EXR = ramp exit model

	Applicable Models (y)				Segment 1 Study Period	Segment 2 Study Period	Segment 3 Study Period
Crash Modification Factors							
Fatal-and-Injury Crash CMFs							
Horizontal curve (CMF$_{1,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width (CMF$_{2,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width (CMF$_{8,fs,ac,sv,fi}$):		SV			1.382	1.382	1.382
Inside shoulder width (CMF$_{3,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.035	1.035	1.035
Median width (CMF$_{4,w,ac,y,fi}$):	MV		ENR	EXR	1.115	1.115	1.115
		SV			0.964	0.964	0.964
Median barrier (CMF$_{5,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip (CMF$_{9,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Outside clearance (CMF$_{10,fs,ac,sv,fi}$):		SV			1.005	1.005	1.005
Outside barrier (CMF$_{11,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Lane change (CMF$_{7,fs,ac,mv,fi}$):	MV						
			Year:	2045	1.151	1.106	1.304
				2046			
				2047			
				2048			
				2049			
				2050			
				2051			
				2052			
				2053			
				2054			
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				2063			
				2064			
				2065			
				2066			
				2067			
				2068			
Ramp entrance (CMF$_{12,sc,nEN,at,fi}$):			ENR				
			Year:	2045	1.000	1.875	1.000
				2046			
				2047			
				2048			
				2049			

				2050			
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				2064			
				2065			
				2066			
				2067			
				2068			
Ramp exit ($CMF_{13,sc,nEX,at,fi}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Property-Damage-Only Crash CMFs							
Horizontal curve ($CMF_{1,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width ($CMF_{2,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width ($CMF_{8,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Inside shoulder width ($CMF_{3,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.031	1.031	1.031
Median width ($CMF_{4,w,ac,y,pdo}$):	MV		ENR	EXR	1.110	1.110	1.110
		SV			1.110	1.110	1.110
Median barrier ($CMF_{5,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip ($CMF_{9,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside clearance ($CMF_{10,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside barrier ($CMF_{11,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Lane change ($CMF_{7,fs,ac,mv,pdo}$):	MV						
			Year:	2045	1.142	1.099	1.287
				2046			
				2047			
				2048			
				2049			
				2050			
				2051			
				2052			
				2053			
				2054			
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				2056			
				2057			
				2058			
				2059			

				2060			
				2061			
				2062			
				2063			
				2064			
				2065			
				2066			
				2067			
				2068			
Ramp entrance ($CMF_{12,sc,nEN,at,pdo}$):			ENR		1.000	1.150	1.000
Ramp exit ($CMF_{13,sc,nEX,at,pdo}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000

Predicted Average Crash Frequency

Fatal-and-Injury Crash Frequency

Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,fi}$):				
Observed crash count ($N^*_{o,fs,n,mv,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{e,fs,n,mv,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,mv,fi}$), crashes/yr:	2045	0.149	0.117	0.118
	2046			
	2047			
	2048			
	2049			
	2050			
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	2066			
	2067			
	2068			

Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,fi}$):				
Observed crash count ($N^*_{o,fs,n,sv,fi}$), crashes:				
Reference year (r):				

Predicted average crash freq. for reference year ($N_{p,fs,n,sv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,fi}$), crashes/yr:	2045	0.184	0.160	0.169
	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
	2056			
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	2062			
	2063			
	2064			
	2065			
	2066			
	2067			
	2068			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,fi}$):				
Observed crash count ($N^*_{o,sc,EN,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,fi}$), crashes/yr:	2045	0.000	0.314	0.000
	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
	2056			
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	2064			
	2065			
	2066			
	2067			
	2068			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,fi}$):				
Observed crash count ($N^*_{o,sc,EX,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EX,at,fi}$), crashes/yr:	2045	0.000	0.000	0.000
	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
	2056			
	2057			
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	2060			
	2061			
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	2064			
	2065			
	2066			
	2067			
	2068			
Property-Damage-Only Crash Frequency				
Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,mv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,mv,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,mv,pdo}$), crashes/yr:	2045	0.252	0.200	0.172
	2046			
	2047			

	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
	2056			
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	2066			
	2067			
	2068			
Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,sv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,sv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,pdo,r}$), crashes/yr:				
Predicted average crash frequency	2045	0.305	0.276	0.259
($N_{p,fs,n,sv,pdo}$), crashes/yr:	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
	2056			
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	2064			
	2065			
	2066			
	2067			

	2068			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EN,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,pdo}$), crashes/yr:	2045	0.000	0.543	0.000
	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
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	2066			
	2067			
	2068			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EX,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EX,at,pdo}$), crashes/yr:	2045	0.000	0.000	0.000
	2046			
	2047			
	2048			
	2049			
	2050			
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	2052			
	2053			
	2054			
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	2067			
	2068			
Crash Severity Distribution (during Study Period)				
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.007	0.012	0.006
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.017	0.031	0.015
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.118	0.209	0.101
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.191	0.339	0.164
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.333	0.591	0.286
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.557	1.019	0.431
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.890	1.609	0.718
Intermediate Results				
Proportion of segment length with curve 1 ($P_{c,1}$):				
Proportion of segment length with curve 2 ($P_{c,2}$):				
Proportion of segment length with curve 3 ($P_{c,3}$):				
Distance from edge of inside shoulder to barrier face (W_{icb}), ft:		999.000	999.000	999.000
Proportion of segment length with barrier in the median (P_{ib}):		0.000	0.000	0.000
Proportion of segment length with rumble strips on outside shoulders (P_{or}):		0.000	0.000	0.000
Proportion of segment length with rumble strips on inside shoulders (P_{ir}):		0.000	0.000	0.000
Distance from edge of outside shoulder to barrier face (W_{ocb}), ft:		999.000	999.000	999.000
Proportion of segment length with barrier on the roadside (P_{ob}):		0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in increasing dir. ($P_{wevB,inc}$):		0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in decreasing dir. ($P_{wevB,dec}$):		0.000	0.000	0.000

Output Worksheet for Ramp Segments

MV = multiple-vehicle model
SV = single-vehicle model

			Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8
	Applicable Models		**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**	**Study Period**
Crash Modification Factors										
Fatal-and-Injury Crash CMFs										
Horizontal curve ($CMF_{1,w,x,y,fi}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane width ($CMF_{2, w,x,y,fi}$):	MV	SV	0.955	1.096	1.096	0.955	1.096	0.955	1.096	1.096
Right shoulder width ($CMF_{3,w,x,y,fi}$):	MV	SV	1.241	1.000	1.000	1.241	1.000	1.241	1.000	1.382
Left shoulder width ($CMF_{4,w,x,y,fi}$):	MV	SV	1.114	1.000	1.000	1.114	1.000	1.114	1.000	1.114
Right side barrier ($CMF_{5,w,x,y,fi}$):	MV	SV	1.323	1.323	1.323	1.323	1.081	1.323	1.224	1.000
Left side barrier ($CMF_{6,w,x,y,fi}$):	MV	SV	1.000	1.323	1.323	1.149	1.323	1.323	1.323	1.000
Weaving section ($CMF_{9,cds,ac,at,fi}$):	MV	SV								
	Year:	2045	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2046								
		2047								
		2048								
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		2050								
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Ramp speed-change lane ($CMF_{8,w,x,mv,fi}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,fi}$):	MV	SV	1.000	0.974	1.000	1.100	1.000	0.976	1.000	1.000
Property-Damage-Only Crash CMFs										
Horizontal curve ($CMF_{1,w,x,y,pdo}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane width ($CMF_{2, w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Right shoulder width ($CMF_{3,w,x,y,pdo}$):	MV	SV	1.109	1.000	1.000	1.109	1.000	1.109	1.000	1.168
Left shoulder width ($CMF_{4,w,x,y,pdo}$):	MV	SV	1.053	1.000	1.000	1.053	1.000	1.053	1.000	1.053
Right side barrier ($CMF_{5,w,x,y,pdo}$):	MV	SV	1.293	1.293	1.293	1.293	1.073	1.293	1.203	1.000
Left side barrier ($CMF_{6,w,x,y,pdo}$):	MV	SV	1.000	1.293	1.293	1.135	1.293	1.293	1.293	1.000
Weaving section ($CMF_{9,cds,ac,at,pdo}$):	MV	SV								
	Year:	2045	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2046								
		2047								
		2048								
		2049								
		2050								
		2051								
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		2067								
		2068								

Ramp speed-change lane ($CMF_{8,w,x,mv,pdo}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Predicted Average Crash Frequency										
Fatal-and-Injury Crash Frequency										
Multiple-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,mv,fi}$):										
Observed crash count ($N^*_{o,w,x,mv,fi}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,mv,fi,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,mv,fi,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,fi,r}$), crashes/yr:										
Predicted average crash frequency		2045	0.006	0.040	0.073	0.057	0.006	0.028	0.265	0.089
($N_{p,w,x,mv,fi}$), crashes/yr:		2046								
		2047								
		2048								
		2049								
		2050								
		2051								
		2052								
		2053								
		2054								
		2055								
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		2065								
		2066								
		2067								
		2068								
Single-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,sv,fi}$):										
Observed crash count ($N^*_{o,w,x,sv,fi}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,sv,fi,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,sv,fi,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,fi,r}$), crashes/yr:										
Predicted average crash frequency		2045	0.094	0.390	0.161	0.207	0.125	0.369	0.437	0.183
($N_{p,w,x,sv,fi}$), crashes/yr:		2046								
		2047								
		2048								
		2049								
		2050								
		2051								
		2052								
		2053								
		2054								
		2055								
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		2062								
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		2065								
		2066								
		2067								
		2068								
Property-Damage-Only Crash Frequency										
Multiple-Vehicle Crash Analysis		**Year**								
Overdispersion parameter ($k_{w,x,mv,pdo}$):										
Observed crash count ($N^*_{o,w,x,mv,pdo}$), crashes:										
Reference year (r):										
Predicted average crash freq. for reference year ($N_{p,w,x,mv,pdo,r}$), crashes/yr:										
Equivalent years associated with crash count ($C_{b,w,x,mv,pdo,r}$), yr:										
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,pdo,r}$), crashes/yr:										
Predicted average crash frequency		2045	0.014	0.145	0.179	0.086	0.015	0.105	0.615	0.105

($N_{p,w,x,mv,pdo}$), crashes/yr:	2046								
	2047								
	2048								
	2049								
	2050								
	2051								
	2052								
	2053								
	2054								
	2055								
	2056								
	2057								
	2058								
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	2060								
	2061								
	2062								
	2063								
	2064								
	2065								
	2066								
	2067								
	2068								
Single-Vehicle Crash Analysis	**Year**								
Overdispersion parameter ($k_{w,x,sv,pdo}$):									
Observed crash count ($N^*_{o,w,x,sv,pdo}$), crashes:									
Reference year (r):									
Predicted average crash freq. for reference year ($N_{p,w,x,sv,pdo,r}$), crashes/yr:									
Equivalent years associated with crash count ($C_{b,w,x,sv,pdo,r}$), yr:									
Expected average crash freq. for reference year given N*$_o$ ($N_{a,w,x,sv,pdo,r}$), crashes/yr:									
Predicted average crash frequency	2045	0.086	0.525	0.239	0.193	0.118	0.486	0.645	0.157
($N_{p,w,x,sv,pdo}$), crashes/yr:	2046								
	2047								
	2048								
	2049								
	2050								
	2051								
	2052								
	2053								
	2054								
	2055								
	2056								
	2057								
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	2061								
	2062								
	2063								
	2064								
	2065								
	2066								
	2067								
	2068								
Crash Severity Distribution (during Study Period)									
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.003	0.009	0.003	0.005	0.003	0.009	0.011	0.006
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.008	0.028	0.010	0.014	0.010	0.026	0.033	0.018
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.035	0.101	0.056	0.092	0.045	0.093	0.177	0.112
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.054	0.292	0.164	0.153	0.072	0.269	0.481	0.136
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.100	0.430	0.234	0.263	0.130	0.397	0.702	0.271
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.101	0.670	0.417	0.279	0.134	0.591	1.260	0.262
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.201	1.100	0.651	0.543	0.264	0.988	1.961	0.533
Intermediate Results									
Friction-limited curve speed for curve 1 ($v_{max,1}$), ft/s:									
Curve entry speed for curve 1 ($v_{ent,1}$), ft/s:									
Curve exit speed for curve 1 ($v_{ext,1}$), ft/s:									
Proportion of segment length with curve 1 ($P_{c,1}$):									
Friction-limited curve speed for curve 2 ($v_{max,2}$), ft/s:									
Curve entry speed for curve 2 ($v_{ent,2}$), ft/s:									
Curve exit speed for curve 2 ($v_{ext,2}$), ft/s:									
Proportion of segment length with curve 2 ($P_{c,2}$):									
Friction-limited curve speed for curve 3 ($v_{max,3}$), ft/s:									

Curve entry speed for curve 3 ($v_{ent,3}$), ft/s:								
Curve exit speed for curve 3 ($v_{ext,3}$), ft/s:								
Proportion of segment length with curve 3 ($P_{c,3}$):								
Friction-limited curve speed for curve 4 ($v_{max,4}$), ft/s:								
Curve entry speed for curve 4 ($v_{ent,4}$), ft/s:								
Curve exit speed for curve 4 ($v_{ext,4}$), ft/s:								
Proportion of segment length with curve 4 ($P_{c,4}$):								
Friction-limited curve speed for curve 5 ($v_{max,5}$), ft/s:								
Curve entry speed for curve 5 ($v_{ent,5}$), ft/s:								
Curve exit speed for curve 5 ($v_{ext,5}$), ft/s:								
Proportion of segment length with curve 5 ($P_{c,5}$):								
Distance from edge of right shoulder to barrier face (W_{rcb}), ft:	0.750	0.750	0.750	0.750	0.750	0.750	0.750	999.000
Proportion of segment length with barrier on the right side (P_{rb}):	1.000	1.000	1.000	1.000	0.250	1.000	0.692	0.000
Distance from edge of left shoulder to barrier face (W_{lcb}), ft:	999.000	0.750	0.750	0.750	0.750	0.750	0.750	999.000
Proportion of segment length with barrier on the left side (P_{lb}):	0.000	1.000	1.000	0.462	1.000	1.000	1.000	0.000
Proportion of segment length within a weaving section (P_{wev}):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to speed-change lane of another ramp (P_{en-ex}):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to taper of lane add or drop. (P_{tpr}):	0.000	0.125	0.000	0.385	0.000	0.118	0.000	0.000

Alternative 6 – Flyover

SPICE

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 31 from SR 80 to SR 78 PD&E Study	**Intersection Type**	Ramp Terminal Intersections
Intersection:	SR 80 at SR 31	**Opening Year**	2025
Agency:	FDOT D1	**Design Year**	2045
Project Reference:	441942-1	**Area Type**	Urban
City:	Fort Myers		
State:	FL		
Date:	5/18/2022		
Analyst:	RMM		

Crash Prediction Summary

Control Strategy	**Crash Type**	**Opening Year**	**Design Year**	**Total Project Life Cycle**	**Rank**	**AADT Within range?**	**SSI Score**		
							Open	**Design**	**Rank**
Single-Point Diamond	Total	10.38	26.13	373.47	1	Yes	#####	#####	--
	Fatal & Injury	2.26	5.49	79.47					

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- Segment 4

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2025

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, 5T)		--	4D
Length of segment, L (mi)		--	0.23
AADT (veh/day)	AADT_{MAX} = 66,000 (veh/day)	--	33,000
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft.) - for divided only		15	20
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	2
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft.) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{\text{predicted rs}}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.5	0.23	6.7
Fatal and injury (FI)	0.4	0.23	1.9
Property damage only (PDO)	1.1	0.23	4.8

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Segment 4

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments			
General Information		**Location Information**	
Analyst	RMM	Roadway	SR 80 / Palm Beach Blvd
Agency or Company	KAI	Roadway Section	12020000
Date Performed	06/06/22	Jurisdiction	
		Analysis Year	2045

Input Data		**Base Conditions**	**Site Conditions**
Roadway type (2U, 3T, 4U, 4D, 5T)		--	4D
Length of segment, L (mi)		--	0.23
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	40,500
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft.) - for divided only		15	20
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	2
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft.) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	2.0	0.23	8.6
Fatal and injury (FI)	0.5	0.23	2.4
Property damage only (PDO)	1.4	0.23	6.2

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- Segment 1
- Segment 2
- Segment 3
- Segment 5
- Segment 6
- Segment 7
- Segment 8
- Segment 9

Crash Totals Tabulation

Empirical Bayes adjustment type:
None

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	8.738
VP+VB:	0.242
F+I:	2.931
PDO:	6.049
Total:	8.980

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2025	6D	SR 80	0.273	0.432	0.047	0.059	0.012	0.006		
🟥 2	2025	2O	SR 80	0.498	1.231	0.070	0.142	0.035	0.031		
🟥 3	2025	3O	SR 80	0.493	1.219	0.104	0.141	0.033	0.023		
🟥 5	2025	6D	SR 80	0.242	0.393	0.043	0.055	0.011	0.006		
🟥 6	2025	2O	SR 31	0.195	0.538	0.040	0.081	0.015	0.014		
🟥 7	2025	2O	SR 31	0.198	0.538	0.041	0.084	0.015	0.014		
🟥 8	2025	2O	SR 31	0.016	0.050	0.006	0.012	0.001	0.001		
🟥 9	2025	2O	SR 31	0.013	0.040	0.004	0.009	0.001	0.001		
🟥											
🟥											
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Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2025	4SG	One-way	0.405	1.027	0.003	0.017		

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- Segment 1
- Segment 2
- Segment 3
- Segment 5
- Segment 6
- Segment 7
- Segment 8
- Segment 9

Crash Totals Tabulation

Empirical Bayes adjustment type:	
None	

Clear tables

Sort rows

Calculate

Facility Totals	
MV+SV:	13.651
VP+VB:	0.371
F+I:	4.708
PDO:	9.315
Total:	14.022

Project-Level Observed Crash Totals	
Crash type	F+I
Multiple-vehicle crashes on segments:	
Single-vehicle crashes on segments:	
Total-vehicle crashes at **all** intersections:	
Vehicle-pedestrian crashes at **signalized** intersections:	

Segment Site Information				Predicted crash frequency, crashes / year						Site-specific obse	
				Multiple-vehicle		Single-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Multiple-vehicle	
Number	Year	Type	Street number	F+I	PDO	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2045	6D	SR 80	0.427	0.632	0.055	0.069	0.018	0.009		
🟥 2	2045	2O	SR 80	0.478	1.191	0.069	0.140	0.034	0.030		
🟥 3	2045	3O	SR 80	0.856	1.904	0.125	0.170	0.052	0.037		
🟥 5	2045	6D	SR 80	0.572	0.820	0.060	0.074	0.023	0.012		
🟥 6	2045	2O	SR 31	0.469	1.097	0.054	0.109	0.031	0.028		
🟥 7	2045	2O	SR 31	0.446	1.037	0.054	0.110	0.030	0.026		
🟥 8	2045	2O	SR 31	0.033	0.091	0.008	0.015	0.003	0.002		
🟥 9	2045	2O	SR 31	0.038	0.094	0.006	0.012	0.003	0.002		
🟥											
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Intersection Site Information				Predicted crash frequency, crashes / year				Site-specific obse	
				Total-vehicle		Vehicle-pedestrian	Vehicle-bicycle	Total-vehicle	
Number	Year	Type	Configuration	F+I	PDO	F+I	F+I	F+I	PDO
🟥 1	2045	4SG	One-way	0.587	1.749	0.004	0.028		

2025 ISATe

- Ramp 1
- Ramp 2
- Ramp 3

Output Worksheet for Freeway Segments

MV = multiple-vehicle model
SV = single-vehicle model
ENR = ramp entrance model
EXR = ramp exit model

					Segment 1	Segment 2	Segment 3
	Applicable Models (*y*)				**Study Period**	**Study Period**	**Study Period**
Crash Modification Factors							
Fatal-and-Injury Crash CMFs							
Horizontal curve ($CMF_{1,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width ($CMF_{2,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width ($CMF_{8,fs,ac,sv,fi}$):		SV			1.382	1.382	1.382
Inside shoulder width ($CMF_{3,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.035	1.035	1.035
Median width ($CMF_{4,w,ac,y,fi}$):	MV		ENR	EXR	1.082	1.115	1.115
		SV			0.974	0.964	0.964
Median barrier ($CMF_{5,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip ($CMF_{9,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Outside clearance ($CMF_{10,fs,ac,sv,fi}$):		SV			1.005	1.005	1.005
Outside barrier ($CMF_{11,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Lane change ($CMF_{7,fs,ac,mv,fi}$):	MV						
			Year:	2025	1.190	1.389	1.116
				2026			
				2027			
				2028			
				2029			
				2030			
				2031			
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				2048			
Ramp entrance ($CMF_{12,sc,nEN,at,fi}$):			ENR				
			Year:	2025	1.000	1.000	1.637
				2026			
				2027			
				2028			
				2029			

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				2048			
Ramp exit ($CMF_{13,sc,nEX,at,fi}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Property-Damage-Only Crash CMFs							
Horizontal curve ($CMF_{1,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width ($CMF_{2,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width ($CMF_{8,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Inside shoulder width ($CMF_{3,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.031	1.031	1.031
Median width ($CMF_{4,w,ac,y,pdo}$):	MV		ENR	EXR	1.079	1.110	1.110
		SV			1.078	1.110	1.110
Median barrier ($CMF_{5,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip ($CMF_{9,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside clearance ($CMF_{10,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside barrier ($CMF_{11,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Lane change ($CMF_{7,fs,ac,mv,pdo}$):	MV						
			Year:	2025	1.180	1.370	1.107
				2026			
				2027			
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				2048			
Ramp entrance ($CMF_{12,sc,nEN,at,pdo}$):			ENR		1.000	1.000	1.134
Ramp exit ($CMF_{13,sc,nEX,at,pdo}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Predicted Average Crash Frequency							
Fatal-and-Injury Crash Frequency							
Freeway Segment Multiple-Vehicle Crash Analysis				**Year**			
Overdispersion parameter ($k_{fs,n,mv,fi}$):							
Observed crash count ($N^*_{o,fs,n,mv,fi}$), crashes:							
Reference year (r):							
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,fi,r}$), crashes/yr:							
Equivalent years associated with crash count ($C_{b,fs,n,mv,fi,r}$), yr:							
Expected average crash freq. for reference year given N^*_o ($N_{e,fs,n,mv,fi,r}$), crashes/yr:							
Predicted average crash frequency				2025	0.067	0.042	0.098
($N_{p,fs,n,mv,fi}$), crashes/yr:				2026			
				2027			
				2028			
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				2030			
				2031			
				2032			
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				2048			
Freeway Segment Single-Vehicle Crash Analysis				**Year**			
Overdispersion parameter ($k_{fs,n,sv,fi}$):							
Observed crash count ($N^*_{o,fs,n,sv,fi}$), crashes:							
Reference year (r):							

Predicted average crash freq. for reference year ($N_{p,fs,n,sv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,fi}$), crashes/yr:	2025	0.132	0.098	0.157
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	2048			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,fi}$):				
Observed crash count ($N^*_{o,sc,EN,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,fi}$), crashes/yr:	2025	0.000	0.000	0.242
	2026			
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Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,fi}$):				
Observed crash count ($N^*_{o,sc,EX,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EX,at,fi}$), crashes/yr:	2025	0.000	0.000	0.000
	2026			
	2027			
	2028			
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	2048			
Property-Damage-Only Crash Frequency				
Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,mv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,mv,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,mv,pdo}$), crashes/yr:	2025	0.089	0.046	0.154
	2026			
	2027			

	2028			
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Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,sv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,sv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,pdo}$), crashes/yr:	2025	0.185	0.130	0.258
	2026			
	2027			
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	2048			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EN,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,pdo}$), crashes/yr:	2025	0.000	0.000	0.469
	2026			
	2027			
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	2048			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EX,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EX,at,pdo}$), crashes/yr:	2025	0.000	0.000	0.000
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
	2032			
	2033			
	2034			
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	2045			
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	2047			
	2048			
Crash Severity Distribution (during Study Period)				
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.004	0.003	0.011
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.010	0.007	0.026
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.070	0.050	0.176
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.114	0.080	0.285
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.199	0.140	0.497
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.275	0.176	0.881
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.474	0.316	1.378
Intermediate Results				
Proportion of segment length with curve 1 ($P_{c,1}$):				
Proportion of segment length with curve 2 ($P_{c,2}$):				
Proportion of segment length with curve 3 ($P_{c,3}$):				
Distance from edge of inside shoulder to barrier face (W_{icb}), ft:		999.000	999.000	999.000
Proportion of segment length with barrier in the median (P_{ib}):		0.000	0.000	0.000
Proportion of segment length with rumble strips on outside shoulders (P_{or}):		0.000	0.000	0.000
Proportion of segment length with rumble strips on inside shoulders (P_{ir}):		0.000	0.000	0.000
Distance from edge of outside shoulder to barrier face (W_{ocb}), ft:		999.000	999.000	999.000
Proportion of segment length with barrier on the roadside (P_{ob}):		0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in increasing dir. ($P_{wevB,inc}$):		0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in decreasing dir. ($P_{wevB,dec}$):		0.000	0.000	0.000

Output Worksheet for Ramp Segments

MV = multiple-vehicle model SV = single-vehicle model	Applicable Models		Segment 1 Study Period	Segment 2 Study Period	Segment 3 Study Period	Segment 4 Study Period	Segment 5 Study Period	Segment 6 Study Period	Segment 7 Study Period	Segment 8 Study Period	Segment 9 Study Period	Segment 10 Study Period
Crash Modification Factors												
Fatal-and-Injury Crash CMFs												
Horizontal curve ($CMF_{1,w,x,y,fi}$):	MV		1.000	1.000	1.253	1.240	1.251	1.546	1.000	1.000	1.000	1.000
		SV	1.000	1.000	1.781	1.742	1.774	2.687	1.000	1.000	1.000	1.000
Lane width ($CMF_{2, w,x,y,fi}$):	MV	SV	0.955	1.096	1.096	1.096	1.096	1.096	1.096	0.955	1.096	1.096
Right shoulder width ($CMF_{3,w,x,y,fi}$):	MV	SV	1.241	1.000	1.000	1.000	1.000	1.000	1.000	1.241	1.382	1.382
Left shoulder width ($CMF_{4,w,x,y,fi}$):	MV	SV	1.114	1.000	1.000	1.000	1.000	1.000	1.000	1.114	1.114	1.114
Right side barrier ($CMF_{5,w,x,y,fi}$):	MV	SV	1.138	1.323	1.323	1.285	1.300	1.323	1.323	1.323	1.000	1.000
Left side barrier ($CMF_{6,w,x,y,fi}$):	MV	SV	1.323	1.323	1.323	1.285	1.300	1.323	1.323	1.215	1.000	1.000
Weaving section ($CMF_{9,cds,ac,at,fi}$):	MV	SV										
	Year:	2025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2026										
		2027										
		2028										
		2029										
		2030										
		2031										
		2032										
		2033										
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		2040										
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		2042										
		2043										
		2044										
		2045										
		2046										
		2047										
		2048										
Ramp speed-change lane ($CMF_{8,w,x,mv,fi}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,fi}$):	MV	SV	1.000	0.981	1.000	1.000	1.000	1.000	1.000	1.173	1.000	1.000
Property-Damage-Only Crash CMFs												
Horizontal curve ($CMF_{1,w,x,y,pdo}$):	MV		1.000	1.000	1.177	1.168	1.175	1.382	1.000	1.000	1.000	1.000
		SV	1.000	1.000	2.018	1.967	2.009	3.198	1.000	1.000	1.000	1.000
Lane width ($CMF_{2, w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Right shoulder width ($CMF_{3,w,x,y,pdo}$):	MV	SV	1.109	1.000	1.000	1.000	1.000	1.000	1.000	1.109	1.168	1.168
Left shoulder width ($CMF_{4,w,x,y,pdo}$):	MV	SV	1.053	1.000	1.000	1.000	1.000	1.000	1.000	1.053	1.053	1.053
Right side barrier ($CMF_{5,w,x,y,pdo}$):	MV	SV	1.126	1.293	1.293	1.259	1.273	1.293	1.293	1.293	1.000	1.000
Left side barrier ($CMF_{6,w,x,y,pdo}$):	MV	SV	1.293	1.293	1.293	1.259	1.273	1.293	1.293	1.196	1.000	1.000
Weaving section ($CMF_{9,cds,ac,at,pdo}$):	MV	SV										
	Year:	2025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2026										
		2027										
		2028										
		2029										
		2030										
		2031										
		2032										
		2033										
		2034										
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		2039										
		2040										
		2041										
		2042										
		2043										
		2044										
		2045										
		2046										
		2047										
		2048										
Ramp speed-change lane ($CMF_{8,w,x,mv,pdo}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Predicted Average Crash Frequency												
Fatal-and-Injury Crash Frequency												
Multiple-Vehicle Crash Analysis		**Year**										
Overdispersion parameter ($k_{w,x,mv,fi}$):												
Observed crash count ($N^*_{o,w,x,mv,fi}$), crashes:												

Reference year (r):											
Predicted average crash freq. for reference year ($N_{p,w,x,mv,fi,r}$), crashes/yr:											
Equivalent years associated with crash count ($C_{b,w,x,mv,fi,r}$), yr:											
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,fi,r}$), crashes/yr:											
Predicted average crash frequency ($N_{p,w,x,mv,fi}$), crashes/yr:	2025	0.004	0.010	0.009	0.078	0.013	0.012	0.020	0.024	0.031	0.006
	2026										
	2027										
	2028										
	2029										
	2030										
	2031										
	2032										
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	2034										
	2035										
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	2042										
	2043										
	2044										
	2045										
	2046										
	2047										
	2048										
Single-Vehicle Crash Analysis	**Year**										
Overdispersion parameter ($k_{w,x,sv,fi}$):											
Observed crash count ($N^*_{o,w,x,sv,fi}$), crashes:											
Reference year (r):											
Predicted average crash freq. for reference year ($N_{p,w,x,sv,fi,r}$), crashes/yr:											
Equivalent years associated with crash count ($C_{b,w,x,sv,fi,r}$), yr:											
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,fi,r}$), crashes/yr:											
Predicted average crash frequency ($N_{p,w,x,sv,fi}$), crashes/yr:	2025	0.103	0.148	0.196	0.278	0.288	0.323	0.052	0.105	0.106	0.142
	2026										
	2027										
	2028										
	2029										
	2030										
	2031										
	2032										
	2033										
	2034										
	2035										
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	2039										
	2040										
	2041										
	2042										
	2043										
	2044										
	2045										
	2046										
	2047										
	2048										
Property-Damage-Only Crash Frequency											
Multiple-Vehicle Crash Analysis	**Year**										
Overdispersion parameter ($k_{w,x,mv,pdo}$):											
Observed crash count ($N^*_{o,w,x,mv,pdo}$), crashes:											
Reference year (r):											
Predicted average crash freq. for reference year ($N_{p,w,x,mv,pdo,r}$), crashes/yr:											
Equivalent years associated with crash count ($C_{b,w,x,mv,pdo,r}$), yr:											
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,pdo,r}$), crashes/yr:											
Predicted average crash frequency ($N_{p,w,x,mv,pdo}$), crashes/yr:	2025	0.010	0.035	0.030	0.167	0.040	0.035	0.042	0.030	0.044	0.014
	2026										
	2027										
	2028										
	2029										
	2030										
	2031										
	2032										
	2033										
	2034										
	2035										
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	2043										
	2044										
	2045										
	2046										
	2047										
	2048										
Single-Vehicle Crash Analysis	**Year**										
Overdispersion parameter ($k_{w,x,sv,pdo}$):											
Observed crash count ($N^*_{o,w,x,sv,pdo}$), crashes:											
Reference year (r):											
Predicted average crash freq. for reference year ($N_{p,w,x,sv,pdo,r}$), crashes/yr:											
Equivalent years associated with crash count ($C_{b,w,x,sv,pdo,r}$), yr:											
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,pdo,r}$), crashes/yr:											
Predicted average crash frequency	2025	0.096	0.203	0.298	0.475	0.441	0.519	0.079	0.094	0.092	0.111
($N_{p,w,x,sv,pdo}$), crashes/yr:	2026										
	2027										
	2028										
	2029										
	2030										
	2031										
	2032										
	2033										
	2034										
	2035										
	2036										
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	2041										
	2042										
	2043										
	2044										
	2045										
	2046										
	2047										
	2048										
Crash Severity Distribution (during Study Period)											
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.003	0.003	0.004	0.005	0.007	0.007	0.001	0.002	0.003	0.005
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.008	0.010	0.013	0.016	0.020	0.022	0.003	0.007	0.009	0.014
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.036	0.037	0.048	0.089	0.072	0.078	0.017	0.044	0.056	0.058
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.060	0.107	0.139	0.246	0.202	0.227	0.050	0.077	0.069	0.071
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.107	0.158	0.205	0.356	0.301	0.335	0.072	0.129	0.136	0.148
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.105	0.238	0.327	0.642	0.481	0.553	0.121	0.123	0.136	0.125
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.213	0.396	0.532	0.998	0.783	0.888	0.193	0.252	0.273	0.273
Intermediate Results											
Friction-limited curve speed for curve 1 ($v_{max,1}$), ft/s:				53.2	53.2	55.4	50.1	50.1			
Curve entry speed for curve 1 ($v_{ent,1}$), ft/s:				35.8	73.5	68.1	43.0	73.5			
Curve exit speed for curve 1 ($v_{ext,1}$), ft/s:				22.0	53.2	55.4	25.0	50.1			
Proportion of segment length with curve 1 ($P_{c,1}$):				1.000		0.357	1.000				
Friction-limited curve speed for curve 2 ($v_{max,2}$), ft/s:					55.4						
Curve entry speed for curve 2 ($v_{ent,2}$), ft/s:					73.5						
Curve exit speed for curve 2 ($v_{ext,2}$), ft/s:					55.4						
Proportion of segment length with curve 2 ($P_{c,2}$):					0.294						
Friction-limited curve speed for curve 3 ($v_{max,3}$), ft/s:											
Curve entry speed for curve 3 ($v_{ent,3}$), ft/s:											
Curve exit speed for curve 3 ($v_{ext,3}$), ft/s:											
Proportion of segment length with curve 3 ($P_{c,3}$):											
Friction-limited curve speed for curve 4 ($v_{max,4}$), ft/s:											
Curve entry speed for curve 4 ($v_{ent,4}$), ft/s:											
Curve exit speed for curve 4 ($v_{ext,4}$), ft/s:											
Proportion of segment length with curve 4 ($P_{c,4}$):											
Friction-limited curve speed for curve 5 ($v_{max,5}$), ft/s:											
Curve entry speed for curve 5 ($v_{ent,5}$), ft/s:											
Curve exit speed for curve 5 ($v_{ext,5}$), ft/s:											
Proportion of segment length with curve 5 ($P_{c,5}$):											
Distance from edge of right shoulder to barrier face (W_{rcb}), ft:		0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	999.000	999.000
Proportion of segment length with barrier on the right side (P_{rb}):		0.429	1.000	1.000	0.882	0.929	1.000	1.000	1.000	0.000	0.000
Distance from edge of left shoulder to barrier face (W_{lcb}), ft:		0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	999.000	999.000
Proportion of segment length with barrier on the left side (P_{lb}):		1.000	1.000	1.000	0.882	0.929	1.000	1.000	0.667	0.000	0.000
Proportion of segment length within a weaving section (P_{wev}):		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to speed-change lane of another ramp (P_{en-ex}):		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to taper of lane add or drop. (P_{tpr}):		0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.667	0.000	0.000

2045 ISATe

- Ramp 1
- Ramp 2
- Ramp 3

Output Worksheet for Freeway Segments

MV = multiple-vehicle model
SV = single-vehicle model

ENR = ramp entrance model
EXR = ramp exit model

	Applicable Models (y)				Segment 1	Segment 2	Segment 3
					Study Period	Study Period	Study Period
Crash Modification Factors							
Fatal-and-Injury Crash CMFs							
Horizontal curve (CMF$_{1,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width (CMF$_{2,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width (CMF$_{8,fs,ac,sv,fi}$):		SV			1.382	1.382	1.382
Inside shoulder width (CMF$_{3,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.035	1.035	1.035
Median width (CMF$_{4,w,ac,y,fi}$):	MV		ENR	EXR	1.082	1.115	1.115
		SV			0.974	0.964	0.964
Median barrier (CMF$_{5,w,ac,y,fi}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip (CMF$_{9,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Outside clearance (CMF$_{10,fs,ac,sv,fi}$):		SV			1.005	1.005	1.005
Outside barrier (CMF$_{11,fs,ac,sv,fi}$):		SV			1.000	1.000	1.000
Lane change (CMF$_{7,fs,ac,mv,fi}$):	MV						
			Year:	2045	1.151	1.321	1.098
				2046			
				2047			
				2048			
				2049			
				2050			
				2051			
				2052			
				2053			
				2054			
				2055			
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				2061			
				2062			
				2063			
				2064			
				2065			
				2066			
				2067			
				2068			
Ramp entrance (CMF$_{12,sc,nEN,at,fi}$):			ENR				
			Year:	2045	1.000	1.000	1.842
				2046			
				2047			
				2048			
				2049			

				2050			
				2051			
				2052			
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				2063			
				2064			
				2065			
				2066			
				2067			
				2068			
Ramp exit ($CMF_{13,sc,nEX,at,fi}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,fi}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Property-Damage-Only Crash CMFs							
Horizontal curve ($CMF_{1,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000
Lane width ($CMF_{2,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Outside shoulder width ($CMF_{8,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Inside shoulder width ($CMF_{3,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.031	1.031	1.031
Median width ($CMF_{4,w,ac,y,pdo}$):	MV		ENR	EXR	1.079	1.110	1.110
		SV			1.078	1.110	1.110
Median barrier ($CMF_{5,w,ac,y,pdo}$):	MV	SV	ENR	EXR	1.000	1.000	1.000
Shoulder rumble strip ($CMF_{9,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside clearance ($CMF_{10,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Outside barrier ($CMF_{11,fs,ac,sv,pdo}$):		SV			1.000	1.000	1.000
Lane change ($CMF_{7,fs,ac,mv,pdo}$):	MV						
			Year:	2045	1.142	1.303	1.091
				2046			
				2047			
				2048			
				2049			
				2050			
				2051			
				2052			
				2053			
				2054			
				2055			
				2056			
				2057			
				2058			
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				2064			
				2065			
				2066			
				2067			
				2068			
Ramp entrance ($CMF_{12,sc,nEN,at,pdo}$):			ENR		1.000	1.000	1.134
Ramp exit ($CMF_{13,sc,nEX,at,pdo}$):				EXR	1.000	1.000	1.000
High volume ($CMF_{6,w,ac,y,pdo}$):	MV		ENR	EXR	1.000	1.000	1.000
		SV			1.000	1.000	1.000

Predicted Average Crash Frequency

Fatal-and-Injury Crash Frequency

Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,fi}$):				
Observed crash count ($N^*_{o,fs,n,mv,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{e,fs,n,mv,fi,r}$), crashes/yr:				
Predicted average crash frequency	2045	0.090	0.106	0.129
($N_{p,fs,n,mv,fi}$), crashes/yr:	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
	2056			
	2057			
	2058			
	2059			
	2060			
	2061			
	2062			
	2063			
	2064			
	2065			
	2066			
	2067			
	2068			

Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,fi}$):				
Observed crash count ($N^*_{o,fs,n,sv,fi}$), crashes:				
Reference year (r):				

Predicted average crash freq. for reference year ($N_{p,fs,n,sv,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,fi}$), crashes/yr:	2045	0.152	0.150	0.178
	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
	2056			
	2057			
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	2063			
	2064			
	2065			
	2066			
	2067			
	2068			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,fi}$):				
Observed crash count ($N^*_{o,sc,EN,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,fi,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,sc,EN,at,fi}$), crashes/yr:	2045	0.000	0.000	0.343
	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
	2056			
	2057			
	2058			
	2059			
	2060			

	2061			
	2062			
	2063			
	2064			
	2065			
	2066			
	2067			
	2068			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,fi}$):				
Observed crash count ($N^*_{o,sc,EX,at,fi}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,fi,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,fi,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,fi,r}$), crashes/yr:				
Predicted average crash frequency	2045	0.000	0.000	0.000
($N_{p,sc,EX,at,fi}$), crashes/yr:	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
	2056			
	2057			
	2058			
	2059			
	2060			
	2061			
	2062			
	2063			
	2064			
	2065			
	2066			
	2067			
	2068			
Property-Damage-Only Crash Frequency				
Freeway Segment Multiple-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,mv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,mv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,mv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,mv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,mv,pdo,r}$), crashes/yr:				
Predicted average crash frequency	2045	0.132	0.155	0.221
($N_{p,fs,n,mv,pdo}$), crashes/yr:	2046			
	2047			

	2048			
	2049			
	2050			
	2051			
	2052			
	2053			
	2054			
	2055			
	2056			
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	2058			
	2059			
	2060			
	2061			
	2062			
	2063			
	2064			
	2065			
	2066			
	2067			
	2068			
Freeway Segment Single-Vehicle Crash Analysis	**Year**			
Overdispersion parameter ($k_{fs,n,sv,pdo}$):				
Observed crash count ($N^*_{o,fs,n,sv,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,fs,n,sv,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,fs,n,sv,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,fs,n,sv,pdo,r}$), crashes/yr:				
Predicted average crash frequency ($N_{p,fs,n,sv,pdo}$), crashes/yr:	2045	0.224	0.231	0.306
	2046			
	2047			
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	2067			

	2068			
Ramp Entrance Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EN,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EN,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EN,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EN,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EN,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency	2045	0.000	0.000	0.595
($N_{p,sc,EN,at,pdo}$), crashes/yr:	2046			
	2047			
	2048			
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	2068			
Ramp Exit Crash Analysis	**Year**			
Overdispersion parameter ($k_{sc,EX,at,pdo}$):				
Observed crash count ($N^*_{o,sc,EX,at,pdo}$), crashes:				
Reference year (r):				
Predicted average crash freq. for reference year ($N_{p,sc,EX,at,pdo,r}$), crashes/yr:				
Equivalent years associated with crash count ($C_{b,sc,EX,at,pdo,r}$), yr:				
Expected average crash freq. for reference year given N^*_o ($N_{a,sc,EX,at,pdo,r}$), crashes/yr:				
Predicted average crash frequency	2045	0.000	0.000	0.000
($N_{p,sc,EX,at,pdo}$), crashes/yr:	2046			
	2047			
	2048			
	2049			
	2050			
	2051			
	2052			
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	2067			
	2068			
Crash Severity Distribution (during Study Period)				
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.005	0.005	0.014
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.013	0.013	0.034
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.085	0.090	0.229
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.138	0.147	0.372
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.241	0.256	0.649
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.356	0.385	1.122
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.597	0.641	1.771
Intermediate Results				
Proportion of segment length with curve 1 ($P_{c,1}$):				
Proportion of segment length with curve 2 ($P_{c,2}$):				
Proportion of segment length with curve 3 ($P_{c,3}$):				
Distance from edge of inside shoulder to barrier face (W_{icb}), ft:		999.000	999.000	999.000
Proportion of segment length with barrier in the median (P_{ib}):		0.000	0.000	0.000
Proportion of segment length with rumble strips on outside shoulders (P_{or}):		0.000	0.000	0.000
Proportion of segment length with rumble strips on inside shoulders (P_{ir}):		0.000	0.000	0.000
Distance from edge of outside shoulder to barrier face (W_{ocb}), ft:		999.000	999.000	999.000
Proportion of segment length with barrier on the roadside (P_{ob}):		0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in increasing dir. ($P_{wevB,inc}$):		0.000	0.000	0.000
Proportion of segment length with Type B weaving, travel in decreasing dir. ($P_{wevB,dec}$):		0.000	0.000	0.000

Output Worksheet for Ramp Segments

MV = multiple-vehicle model SV = single-vehicle model			Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8	Segment 9	Segment 10
	Applicable Models		Study Period	Study Period	Study Period	Study Period	Study Period	Study Period	Study Period	Study Period	Study Period	Study Period
Crash Modification Factors												
Fatal-and-Injury Crash CMFs												
Horizontal curve ($CMF_{1,w,x,y,fi}$):	MV		1.000	1.000	1.253	1.240	1.251	1.546	1.000	1.000	1.000	1.000
		SV	1.000	1.000	1.781	1.742	1.774	2.687	1.000	1.000	1.000	1.000
Lane width ($CMF_{2, w,x,y,fi}$):	MV	SV	0.955	1.096	1.096	1.096	1.096	1.096	1.096	0.955	1.096	1.096
Right shoulder width ($CMF_{3,w,x,y,fi}$):	MV	SV	1.241	1.000	1.000	1.000	1.000	1.000	1.000	1.241	1.382	1.382
Left shoulder width ($CMF_{4,w,x,y,fi}$):	MV	SV	1.114	1.000	1.000	1.000	1.000	1.000	1.000	1.114	1.114	1.114
Right side barrier ($CMF_{5,w,x,y,fi}$):	MV	SV	1.138	1.323	1.323	1.285	1.300	1.323	1.323	1.323	1.000	1.000
Left side barrier ($CMF_{6,w,x,y,fi}$):	MV	SV	1.323	1.323	1.323	1.285	1.300	1.323	1.323	1.215	1.000	1.000
Weaving section ($CMF_{9,cds,ac,at,fi}$):	MV	SV										
	Year:	2045	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2046										
		2047										
		2048										
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Ramp speed-change lane ($CMF_{8,w,x,mv,fi}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,fi}$):	MV	SV	1.000	0.981	1.000	1.000	1.000	1.000	1.000	1.173	1.000	1.000
Property-Damage-Only Crash CMFs												
Horizontal curve ($CMF_{1,w,x,y,pdo}$):	MV		1.000	1.000	1.177	1.168	1.175	1.382	1.000	1.000	1.000	1.000
		SV	1.000	1.000	2.018	1.967	2.009	3.198	1.000	1.000	1.000	1.000
Lane width ($CMF_{2, w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Right shoulder width ($CMF_{3,w,x,y,pdo}$):	MV	SV	1.109	1.000	1.000	1.000	1.000	1.000	1.000	1.109	1.168	1.168
Left shoulder width ($CMF_{4,w,x,y,pdo}$):	MV	SV	1.053	1.000	1.000	1.000	1.000	1.000	1.000	1.053	1.053	1.053
Right side barrier ($CMF_{5,w,x,y,pdo}$):	MV	SV	1.126	1.293	1.293	1.259	1.273	1.293	1.293	1.293	1.000	1.000
Left side barrier ($CMF_{6,w,x,y,pdo}$):	MV	SV	1.293	1.293	1.293	1.259	1.273	1.293	1.293	1.196	1.000	1.000
Weaving section ($CMF_{9,cds,ac,at,pdo}$):	MV	SV										
	Year:	2045	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		2046										
		2047										
		2048										
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		2068										
Ramp speed-change lane ($CMF_{8,w,x,mv,pdo}$):	MV		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane add or drop ($CMF_{7,w,x,y,pdo}$):	MV	SV	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Predicted Average Crash Frequency												
Fatal-and-Injury Crash Frequency												
Multiple-Vehicle Crash Analysis		**Year**										
Overdispersion parameter ($k_{w,x,mv,fi}$):												
Observed crash count ($N^*_{o,w,x,mv,fi}$), crashes:												

Reference year (r):											
Predicted average crash freq. for reference year ($N_{p,w,x,mv,fi,r}$), crashes/yr:											
Equivalent years associated with crash count ($C_{b,w,x,mv,fi,r}$), yr:											
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,fi,r}$), crashes/yr:											
Predicted average crash frequency ($N_{p,w,x,mv,fi}$), crashes/yr:	2045	0.011	0.027	0.025	0.219	0.024	0.022	0.037	0.044	0.079	0.018
	2046										
	2047										
	2048										
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Single-Vehicle Crash Analysis	**Year**										
Overdispersion parameter ($k_{w,x,sv,fi}$):											
Observed crash count ($N^*_{o,w,x,sv,fi}$), crashes:											
Reference year (r):											
Predicted average crash freq. for reference year ($N_{p,w,x,sv,fi,r}$), crashes/yr:											
Equivalent years associated with crash count ($C_{b,w,x,sv,fi,r}$), yr:											
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,fi,r}$), crashes/yr:											
Predicted average crash frequency ($N_{p,w,x,sv,fi}$), crashes/yr:	2045	0.188	0.270	0.357	0.508	0.442	0.496	0.080	0.162	0.162	0.238
	2046										
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	2048										
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	2068										
Property-Damage-Only Crash Frequency											
Multiple-Vehicle Crash Analysis	**Year**										
Overdispersion parameter ($k_{w,x,mv,pdo}$):											
Observed crash count ($N^*_{o,w,x,mv,pdo}$), crashes:											
Reference year (r):											
Predicted average crash freq. for reference year ($N_{p,w,x,mv,pdo,r}$), crashes/yr:											
Equivalent years associated with crash count ($C_{b,w,x,mv,pdo,r}$), yr:											
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,mv,pdo,r}$), crashes/yr:											
Predicted average crash frequency ($N_{p,w,x,mv,pdo}$), crashes/yr:	2045	0.028	0.100	0.085	0.478	0.085	0.073	0.089	0.063	0.093	0.034
	2046										
	2047										
	2048										
	2049										
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Single-Vehicle Crash Analysis	**Year**										
Overdispersion parameter ($k_{w,x,sv,pdo}$):											
Observed crash count ($N^*_{o,w,x,sv,pdo}$), crashes:											
Reference year (r):											
Predicted average crash freq. for reference year ($N_{p,w,x,sv,pdo,r}$), crashes/yr:											
Equivalent years associated with crash count ($C_{b,w,x,sv,pdo,r}$), yr:											
Expected average crash freq. for reference year given N^*_o ($N_{a,w,x,sv,pdo,r}$), crashes/yr:											
Predicted average crash frequency ($N_{p,w,x,sv,pdo}$), crashes/yr:	2045	0.170	0.361	0.529	0.845	0.666	0.782	0.119	0.141	0.140	0.183
	2046										
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	2067										
	2068										
Crash Severity Distribution (during Study Period)											
Fatal crash frequency ($N^*_{e,w,x,at,K}$), crashes:		0.005	0.006	0.008	0.011	0.010	0.011	0.002	0.003	0.005	0.008
Incapacitating injury crash freq. ($N^*_{e,w,x,at,A}$), crashes:		0.016	0.020	0.025	0.034	0.031	0.034	0.005	0.011	0.016	0.024
Non-incapacitating inj. crash freq. ($N^*_{e,w,x,at,B}$), crashes:		0.067	0.070	0.089	0.181	0.111	0.121	0.028	0.070	0.099	0.101
Possible injury crash freq. ($N^*_{e,w,x,at,C}$), crashes:		0.111	0.202	0.259	0.500	0.313	0.351	0.082	0.122	0.121	0.123
Total fatal-and-injury crash freq. ($N^*_{e,w,x,at,fi}$), crashes:		0.199	0.298	0.382	0.726	0.466	0.517	0.117	0.206	0.241	0.256
Property-damage-only crash freq. ($N^*_{e,w,x,at,pdo}$), crashes:		0.198	0.460	0.615	1.323	0.750	0.855	0.209	0.204	0.233	0.217
Total crash frequency ($N^*_{e,w,x,at,as}$), crashes:		0.397	0.758	0.997	2.049	1.216	1.373	0.326	0.410	0.474	0.473
Intermediate Results											
Friction-limited curve speed for curve 1 ($v_{max,1}$), ft/s:				53.2	53.2	55.4	50.1	50.1			
Curve entry speed for curve 1 ($v_{ent,1}$), ft/s:				35.8	73.5	68.1	43.0	73.5			
Curve exit speed for curve 1 ($v_{ext,1}$), ft/s:				22.0	53.2	55.4	25.0	50.1			
Proportion of segment length with curve 1 ($P_{c,1}$):				1.000		0.357	1.000				
Friction-limited curve speed for curve 2 ($v_{max,2}$), ft/s:					55.4						
Curve entry speed for curve 2 ($v_{ent,2}$), ft/s:					73.5						
Curve exit speed for curve 2 ($v_{ext,2}$), ft/s:					55.4						
Proportion of segment length with curve 2 ($P_{c,2}$):					0.294						
Friction-limited curve speed for curve 3 ($v_{max,3}$), ft/s:											
Curve entry speed for curve 3 ($v_{ent,3}$), ft/s:											
Curve exit speed for curve 3 ($v_{ext,3}$), ft/s:											
Proportion of segment length with curve 3 ($P_{c,3}$):											
Friction-limited curve speed for curve 4 ($v_{max,4}$), ft/s:											
Curve entry speed for curve 4 ($v_{ent,4}$), ft/s:											
Curve exit speed for curve 4 ($v_{ext,4}$), ft/s:											
Proportion of segment length with curve 4 ($P_{c,4}$):											
Friction-limited curve speed for curve 5 ($v_{max,5}$), ft/s:											
Curve entry speed for curve 5 ($v_{ent,5}$), ft/s:											
Curve exit speed for curve 5 ($v_{ext,5}$), ft/s:											
Proportion of segment length with curve 5 ($P_{c,5}$):											
Distance from edge of right shoulder to barrier face (W_{rcb}), ft:		0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	999.000	999.000
Proportion of segment length with barrier on the right side (P_{rb}):		0.429	1.000	1.000	0.882	0.929	1.000	1.000	1.000	0.000	0.000
Distance from edge of left shoulder to barrier face (W_{lcb}), ft:		0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	999.000	999.000
Proportion of segment length with barrier on the left side (P_{lb}):		1.000	1.000	1.000	0.882	0.929	1.000	1.000	0.667	0.000	0.000
Proportion of segment length within a weaving section (P_{wev}):		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to speed-change lane of another ramp (P_{en-ex}):		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Proportion of segment length adjacent to taper of lane add or drop. (P_{tpr}):		0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.667	0.000	0.000

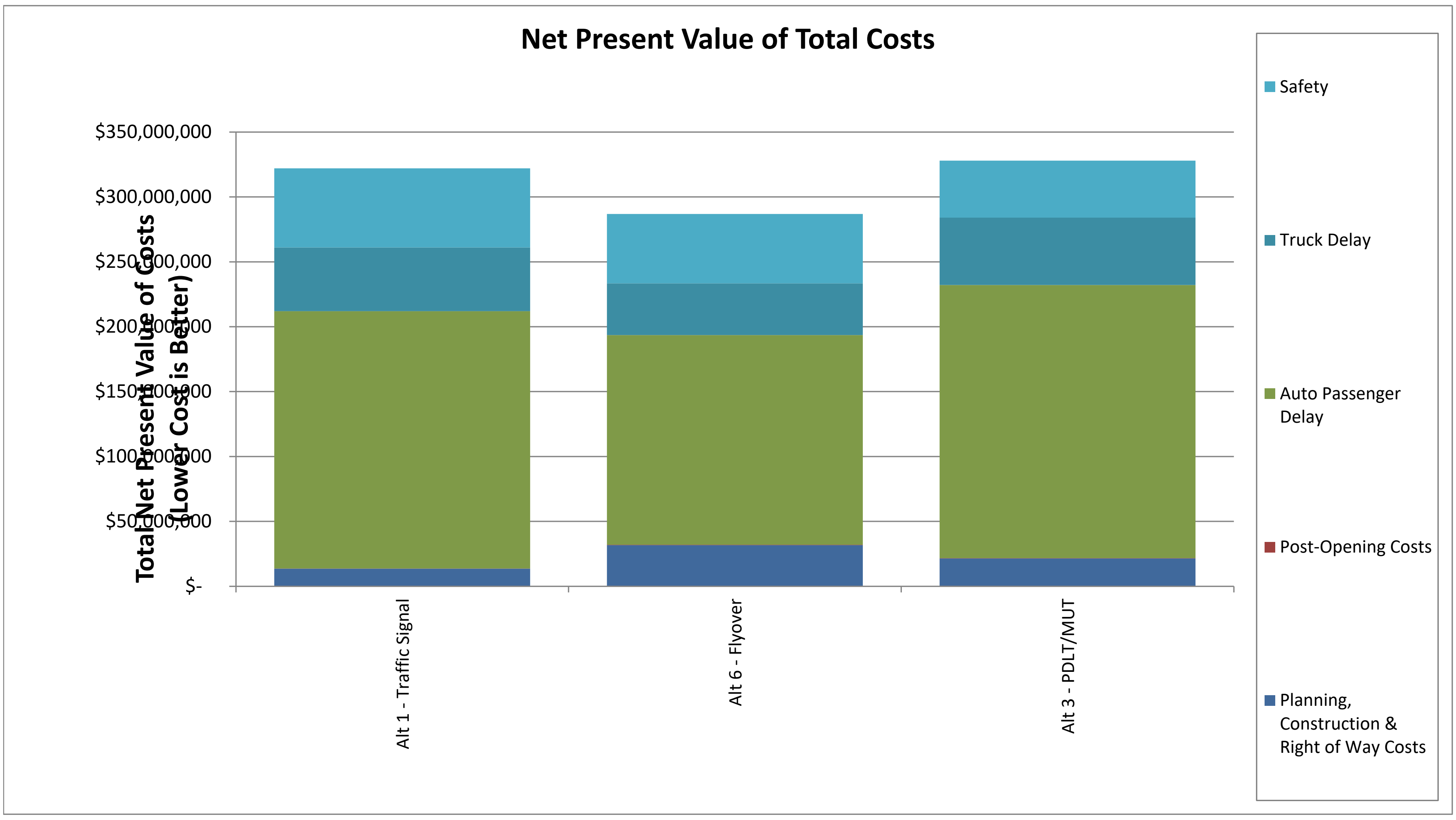
APPENDIX F – ICE STAGE 2 RESULT

Agency:	FDOT District 1
Project Name:	SR 31 from SR 80 to SR 78 PD&E Study
Project Reference:	441942-1
Intersection:	SR 80 at SR 31
City:	Fort Myers
State:	Florida
Performing Department or Organization:	Kittelson & Associates, Inc.
Date:	7/18/2022
Analyst:	FMK
Analysis Type	At-Grade Intersection

Analysis Summary

Cost Categories	Net Present Value of Costs				
	Alt 1 - Traffic Signal	Alt 6 - Flyover	Alt 3 - PDLT/MUT	Alt 2 - Quadrant Roadway	Alt 4 - CTO (center)
Planning, Construction & Right of Way Costs	$ 13,616,000	$ 31,756,000	$ 21,455,000	$ 22,707,000	$ 34,156,000
Post-Opening Costs	$ 98,229	$ 225,638	$ 238,276	$ 338,457	$ 225,638
Auto Passenger Delay	$ 198,310,143	$ 161,580,169	$ 210,453,874	$ 244,232,638	$ 168,452,281
Truck Delay	$ 49,013,845	$ 39,879,221	$ 51,937,988	$ 60,239,540	$ 41,576,658
Safety	$ 60,989,323	$ 53,458,627	$ 43,858,764	$ 85,520,568	$ 56,322,576
Total cost	**$322,027,539**	**$286,899,655**	**$327,943,901**	**$413,038,202**	**$300,733,153**

Select Base Case for Benefit-Cost Comparison: (Choose from list)	Traffic Signal				
Benefit Categories	**Net Present Value of Benefits Relative to Base Case**				
	Alt 1 - Traffic Signal	**Alt 6 - Flyover**	**Alt 3 - PDLT/MUT**	**Alt 2 - Quadrant Roadway**	**Alt 4 - CTO (center)**
Auto Passenger Delay	$ -	$ 36,729,974	$ (12,143,731)	$ (45,922,495)	$ 29,857,861
Truck Delay	$ -	$ 9,134,624	$ (2,924,143)	$ (11,225,695)	$ 7,437,188
Safety	$ -	$ 7,530,695	$ 17,130,559	$ (24,531,245)	$ 4,666,746
Net Present Value of Benefits		**$ 53,395,294**	**$ 2,062,686**	**$ (81,679,434)**	**$ 41,961,795**
Net Present Value of Costs	**$ -**	**$ 18,267,409**	**$ 7,979,048**	**$ 9,331,228**	**$ 20,667,409**
Net Present Value of Improvement		**$ 35,127,885**	**$ (5,916,362)**	**$ (91,010,663)**	**$ 21,294,386**
Benefit-Cost (B/C) Ratio		**2.92**	**0.26**	**preferred. Benefits are less than base case and cost is greater than base**	**2.03**
Delay B/C	**#DIV/0!**	**2.51**	**preferred. Benefits are less than base case and cost is greater than base**	**preferred. Benefits are less than base case and cost is greater than base**	**1.80**
Safety B/C	**#DIV/0!**	**0.41**	**2.15**	**preferred. Benefits are less than base case and cost is greater than base**	**0.23**



APPENDIX G – ICE FORMS

Contained in this Appendix –

- Stage 1 ICE Form
- Stage 2 ICE Form

STAGE 1 ICE FORM

Florida Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 1: Screening

Intersection Control Evaluation Form 750-010-003

To fulfill the requirements of Stage 1 (Screening) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval. Selections must be made in the "Intersection Type" and "Project Funding Source" cells below for the appropriate Stage 1 and Stage 2 forms to fully populate.

Project Name	SR 31 from SR 80 to SR 78 PD&E Study	FDOT Project #	428979-1-32-03		
Submitted By	Jack Freeman, PE	Agency/Company	Kittelson & Associates, Inc.	Date	8/8/2022
Email	jfreeman@kittelson.com	FDOT District	District 1	County	Lee
Project Locality (*City/Town/Village*)	Lee County, Florida				
Intersection Type	At-Grade Intersection	FDOT Context Classification	C3C - Suburban Commercial		
Project Funding Source	Federal	Project Type	Corridor Improvement Project		
Project Purpose (*What is the catalyst for this project and why is it being undertaken?*)	The intersection of SR 80 and SR 31 is part of the Project Development and Environmental (PD&E) Study being conducted on SR 31 from SR 80 to SR 78. This ICE analysis is focused on the SR 80 and SR 31 intersection. SR 31 is being widened as part of the PD&E Study, therefore the improved signalized SR 80/SR 31 intersection will be the ICE analysis base condition. The project's purpose is to provide traffic and safety analysis support to determine an ultimate intersection/interchange configuration to provide safe and efficient movement for all modes of traffic.				
Project Setting Description (*Describe the area surrounding the intersection*)	SR 80, located in Lee County, is an east-west roadway that connects US 41 in Fort Myers to SR 29 and Porl La Belle and US 27 to Miami. SR 31 is a north-south roadway that connects SR 80 to SR 70 and US 17 in Desoto County. The intersection is surrounded by commercial properties and vacant parcels with potential for development.				
Multimodal Context (*Describe the pedestrian, bicycle, and transit activity in the area and the potential for activity based on surrounding land uses and development patterns*)	There was little pedestrian or bicycle activity observed in this area. There are sidewalks present on each leg of the intersection except for SR 31 north of the intersection. There are no bicycle facilities on either SR 80 or SR 31. LeeTran provides transit service via Route 100 along SR 80 with a transit stop on the west leg approach.				

Major Street Information

Route #:	12020000	Route Name(s)	SR 80 / Palm Beach Boulevard	Milepost	8.237
Existing Control Type	Signal	Existing AADT	39,100	Design Year AADT	53,400
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)	Control Vehicle	Florida Interstate Semitrailer (WB-62FL)		
Primary Functional Classification	Urban Principal Arterial - Other			Design Speed (mph)	45
Secondary Functional Classification (if app.)				Target Speed (mph) [if app.]	45

Approach #1	Direction	Eastbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along	One side of the approach	Left-Turn	3				
	Crosswalk on Approach?	Yes	Left-Through	0	Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	3	Left	1,200	Left	1,335
	Multi-Use Path?	Yes	Left-Through-Right	0	Through	780	Through	1,250
	Scheduled Bus Service?	Yes	Through-Right	0	Right	168	Right	98
	Bus Stop on Approach?	Yes	Right-Turn	1	Daily Truck %		7.9%	
Approach #2	Direction	Westbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Both sides of the approach	Left-Turn	1				
	Crosswalk on Approach?	Yes	Left-Through	0	Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	3	Left	155	Left	122
	Multi-Use Path?	Yes	Left-Through-Right	0	Through	1,200	Through	800
	Scheduled Bus Service?	Yes	Through-Right	0	Right	961	Right	1,190
	Bus Stop on Approach?	No	Right-Turn	3	Daily Truck %		7.9%	

Minor Street Information

Route #:	12090000	Route Name(s)	SR 31 / Babcock Ranch Rd	Milepost (if app.)	0.00
Existing Control Type	Signal	Existing AADT	26,500	Design Year AADT	56,800
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)	Control Vehicle	Florida Interstate Semitrailer (WB-62FL)		
Primary Functional Classification	Urban Minor Arterial	Design Speed (mph)	45		
Secondary Functional Classification (if app.)		Target Speed (mph) [if app.]	45		

Approach #1	Direction	Southbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn	3				
	Crosswalk on Approach?	Yes	Left-Through	0	Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	1	Left	1,173	Left	1,058
	Multi-Use Path?	No	Left-Through-Right	0	Through	274	Through	220
	Scheduled Bus Service?	Yes	Through-Right	0	Right	1,324	Right	1,209
	Bus Stop on Approach?	No	Right-Turn	3	Daily Truck %		13.8%	
Approach #2	Direction	Northbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	One side of the approach	Left-Turn	1				
	Crosswalk on Approach?	Yes	Left-Through	0	Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	1	Left	118	Left	149
	Multi-Use Path?	No	Left-Through-Right	0	Through	171	Through	269
	Scheduled Bus Service?	Yes	Through-Right	0	Right	110	Right	262
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		13.8%	
Approach #3	Direction		Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:		Left-Turn	-				
	Crosswalk on Approach?		Left-Through	-	Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?		Through	-	Left	-	Left	-
	Multi-Use Path?		Left-Through-Right	-	Through	-	Through	-
	Scheduled Bus Service?		Through-Right	-	Right	-	Right	-
	Bus Stop on Approach?		Right-Turn	-	Daily Truck %		-	

Crash History (Existing Intersections Only)

Append the most recent five-years of crash data for the intersection from the CAR System. If the crash data evidences any issues relating to safety performance, discuss briefly here:

There was a total of 177 crashes during the most recent five-years (2017-2021). The highest crash type was rear-ended crash followed by sideswipe crash. There were no fatality crashes, 51 injury crashes, and 126 property damage only crashes. There were one bicycle crash and one pedestrian crash dutrin the five-year crash data.

Control Strategy Evaluation

Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.

	CAP-X Outputs			SPICE Outputs		Strategy to Be Advanced?	Justification
	V/C Ratio		Multimodal Score	Crash Prediction Rank	SSI Rank		
Control Strategy	Weekday AM Peak	Weekday PM Peak					
Two-Way Stop-Controlled	-	-	-	-	-	No	-
All-Way Stop-Controlled	-	-	-	-	-	No	-
Signalized Control	-	-	-	-	-	Yes	PD&E alternative was advanced to Stage 2
Roundabout	-	-	-	-	-	No	-
Median U-Turn	-	-	-	-	-	No	-
RCUT (Signalized)	-	-	-	-	-	No	-
RCUT (Unsignalized)	-	-	-	-	-	No	-
Jughandle				-	-	No	-
Displaced Left-Turn/MUT	-	-	-	-	-	Yes	PD&E alternative was advanced to Stage 2
Continuous Green Tee	-	-	-	-	-	No	-
Quadrant Roadway	-	-	-			Yes	PD&E alternative was advanced to Stage 2
Flyover	-	-	-	-	-	Yes	PD&E alternative was advanced to Stage 2
CTO (center)	-	-	-	-	-	Yes	PD&E alternative was advanced to Stage 2
CTO (south)	-	-	-	-	-	Yes	PD&E alternative was advanced to Stage 2

Resolution					
To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer					
Project Determination	Multiple Viable Alternatives Identified: Continue to Stage 2				
Comments					
DTOE Name		Signature		Date	
DDE Name		Signature		Date	

STAGE 2 ICE FORM

Florida Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 2: Initial Control Strategy Assessment

Intersection Control Evaluation Form 750-010-003

To fulfill the requirements of Stage 2 (Intersection Control Strategy) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

Project Name	SR 31 from SR 80 to SR 78 PD&E Study	FDOT Project #	428979-1-32-03	Date	08/08/22
Submitted By	Jack Freeman, PE	Agency/Company	Kittelson & Associates, Inc.	Email	jfreeman@kittelson.com

List all viable intersection control strategies identified in Stage 1 (Screening):

Signalized Control	Displaced Left-Turn/MUT	Quadrant Roadway
Flyover	CTO (center)	CTO (south)

Operational Analyses

Summarize the results of the peak hour analysis performed for each control strategy. Select analysis year based on guidance in the ICE procedures document. Refer to Exhibit 19-8 of the *Highway Capacity Manual, 6th Edition* (HCM6) to determine the appropriate LOS based on intersection delay (*hover over this cell for Exhibit 19-8*).

Design Vehicle	Florida Interstate Semitrailer (WB-62FL)	Control Vehicle	Florida Interstate Semitrailer (WB-62FL)

Opening Year: 2025

Control Strategy	Peak Hour	Weekday AM Peak		Peak Hour	Weekday PM Peak		Peak Hour		
	LOS	Delay (sec.)	All Queues Accommodated?	LOS	Delay (sec.)	All Queues Accommodated?	LOS	Delay (sec.)	All Queues Accommodated?
Signalized Control		94.1	Yes		93.5	Yes		-	
Displaced Left-Turn/MUT		101.7	Yes		107.9	Yes		-	
Quadrant Roadway		131.4	Yes		107.7	Yes		-	
Flyover		80.9	Yes		78.9	Yes		-	
CTO (center)		84.2	Yes		82.3	Yes		-	
CTO (south)		84.3	Yes		81.6	Yes		-	

Design Year: 2045

Control Strategy	Peak Hour	Weekday AM Peak		Peak Hour	Weekday PM Peak		Peak Hour		
	LOS	Delay (sec.)	All Queues Accommodated?	LOS	Delay (sec.)	All Queues Accommodated?	LOS	Delay (sec.)	All Queues Accommodated?
Signalized Control		152.5	No		164.8	No		-	
Displaced Left-Turn/MUT		119.0	Yes		134.9	Yes		-	
Quadrant Roadway		138.1	Yes		124.7	Yes		-	
Flyover		97.9	No		100.8	No		-	
CTO (center)		103.6	No		105.0	No		-	
CTO (south)		103.7	No		102.8	No		-	

Provide any additional discussion necessary regarding the results of the operational analysis:	The total delay was calculated by evaluating the travel time and intersection delay that a common vehicle would experience when traveling through the network using the following six critical movements: Eastbound Left, Eastbound Through, Westbound Right, Westbound Through, Southbound Right, and Southbound Left

Safety Performance

Enter the most recent five (5) years of crash data from the CAR System.

Most recent year of crash data available: 2021

Crash Type		2017	2018	2019	2020	2021	Total
Combined	Total	0	50	38	34	53	175
	Fatal/Injury	-	16	10	10	13	49
	PDO	-	34	28	24	40	126
Single-Vehicle	Total	0	0	0	0	0	0
	Fatal/Injury	-	-	-	-	-	0
	PDO	-	-	-	-	-	0
Multi-Vehicle	Total	0	0	0	0	0	0
	Fatal/Injury	-	-	-	-	-	0
	PDO	-	-	-	-	-	0
Vehicle-Pedestrian	Fatal/Injury	-	1	0	0	0	1
Vehicle-Bicycle	Fatal/Injury	-	0	1	0	0	1
Total	All	0	51	39	34	53	177

Apply the FDOT SPICE Tool to model anticipated safety performance of each control strategy. For intersection types not accommodated in the tool, manually apply crash modification factors detailed in the ICE procedures document or qualitatively describe anticipated safety impacts.

Control Strategy	Anticipated Impact on Safety Performance	Opening Year			Design Year		
		Predicted Total Crashes	Predicted Fatal+Injury Crashes	SSI Score	Predicted Total Crashes	Predicted Fatal+Injury Crashes	SSI Score
Signalized Control	The Traffic Signal ranks fifth in safety performance with the fifth lowest predicted number of F&I crashes.	24.44	10.69	-	36.73	16.38	-
Displaced Left-Turn/MUT	The DLT/MUT ranks first in safety performance with the lowest predicted number of F&I crashes.	18.34	7.74	-	26.99	11.64	-
Quadrant Roadway	The QR ranks sixth in safety performance with the highest predicted number of F&I crashes.	32.83	14.86	-	51.12	23.27	-
Flyover	The Flyover ranks third in safety performance with the third lowest predicted number of F&I crashes.	27.86	8.40	-	53.62	15.31	-
CTO (center)	The CTO (center) ranks fourth in safety performance with the fourth lowest predicted number of F&I crashes.	30.06	9.03	-	56.04	15.76	-
CTO (south)	The CTO (south) ranks second in safety performance with the second lowest predicted number of F&I crashes.	25.74	7.79	-	51.39	14.59	-

Costs and Benefit/Cost Ratios

Remaining cognizant of the current level of detail of each control strategy's conceptual design, provide a cost estimate for each. You may want to include costs for preliminary engineering, required right-of-way acquisitions, construction, and a contingency. Apply the FDOT ICE Tool to determine the delay benefit-cost ratio (B/C), safety B/C, overall B/C, and net-present value for each control strategy.

			FDOT ICE Tool Outputs			
Control Strategy	ROW Costs ($)	Construction Costs ($)	Delay B/C	Safety B/C	Overall B/C	Net Present Value
Signalized Control	$9,580,000	$11,700,000	Base Case	Base Case	Base Case	Base Case
Displaced Left-Turn/MUT	$16,275,000	$18,200,000	Not Prefered	2.15	0.26	-$5,916,362
Quadrant Roadway	$14,535,000	$19,800,000	Not Prefered	Not Prefered	Not Prefered	-$91,010,663
Flyover	$10,280,000	$29,700,000	2.51	0.41	2.92	$35,127,885
CTO (center)	$10,280,000	$32,100,000	1.80	0.23	2.03	$21,294,386
CTO (south)	$10,280,000	$32,700,000	1.78	0.51	2.29	$27,424,676

Multimodal Accommodations

Note the existing/anticipated level of pedestrian/bicyclist activity at the study intersection during the peak hours of the typical day. See ICE procedures document for activity level thresholds:

Peak Hour:	Weekday AM Peak		Weekday PM Peak				Activity Level	
	Major Street	Minor Street	Major Street	Minor Street	Major Street	Minor Street	Ped.	Bicycles
# of ped. crossings (both approaches, if app.):	-	-	-	-	-	-	Low	Low
# of cyclists (both approaches, if app.):	-	-	-	-	-	-		

Summarize the ability of each viable control strategy to accommodate the existing/anticipated level of:

Control Strategy	Pedestrians and Bicyclists	Transit Services	Freight Needs
Signalized Control	No change from Alternative 1	No change from Alternative 1	No change from Alternative 1
Displaced Left-Turn/MUT	No change from Alternative 1	No change from Alternative 1	No change from Alternative 1
Quadrant Roadway	No change from Alternative 1	No change from Alternative 1	No change from Alternative 1
Flyover	No change from Alternative 1	No change from Alternative 1	No change from Alternative 1
CTO (center)	No change from Alternative 1	No change from Alternative 1	No change from Alternative 1
CTO (south)	No change from Alternative 1	No change from Alternative 1	No change from Alternative 1

Environmental, Utility, and Right-of-Way Impacts	
Summarize any issues related to environmental, utility, or right-of-way (including relocation) impacts specific to each control strategy. Be sure to consider the NEPA requirements for each control type.	
Signalized Control	ROW impacts anticipated
Displaced Left-Turn/MUT	ROW impacts anticipated
Quadrant Roadway	ROW impacts anticipated
Flyover	ROW impacts anticipated
CTO (center)	ROW impacts anticipated
CTO (south)	ROW impacts anticipated

Public Input/Feedback (if appropriate)
Summarize any agency or public input regarding the control strategies:
Public input/feedback will be conducted as part of the PD&E Study

Control Strategy Evaluation		
Provide a brief justification as to why each of the following is either viable or not viable. If a single control strategy is recommended, select it as the only strategy to be advanced.		
Control Strategy	Strategy to be Advanced?	Justification
Signalized Control	No	-
Displaced Left-Turn/MUT	No	-
Quadrant Roadway	No	-
Flyover	Yes	The Flyover is the best overall alternative with an overall B/C of 2.92. This alternative is the highest ranked among the grade seperated alternatives.
CTO (center)	Yes	The CTO (center) alternative has the third best overall B/C of 2.03
CTO (south)	Yes	The CTO (south) alternative has the second best overall B/C of 2.29

Resolution					
To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer					
Project Determination					
Comments					
DTOE Name		Signature		Date	
DDE Name		Signature		Date	