



## **ALDRIDGE TRANSPORTATION CONSULTANTS, LLC**

*Advanced Transportation Planning and Traffic Engineering*

John M.W. Aldridge, P.E.  
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Highlands Ranch, CO 80126  
303-703-9112

January 25, 2023

Ted Swan  
Were Malcomb  
900 S. Broadway, #320  
Denver, CO 80209

RE: Transportation Impact Study - Revised  
SEC Smith Road and Picadilly Road., Aurora, CO

Dear Mr. Swan:

Aldridge Transportation Consultants (ATC) is pleased to present this traffic impact study for the proposed Prologis on the southeast corner of Smith Road and Picadilly Road in Aurora.

ATC is professional service firm specializing in traffic engineering and transportation planning. ATC's principal, John M.W. Aldridge is a Colorado licensed professional engineer. In the past 20 years, ATC has prepared over 1,000 traffic impact studies, designed over 100 traffic signals, and has provided expert witness testimony on engineering design and access issues on multi-million-dollar interchange and highway projects in Kansas and Colorado.

We acknowledge that City of Aurora's review of this study is only for general performance with submittal requirements, current design criteria, and standard engineering principles and practice.

ATC appreciates the opportunity to be of service. Please call if you have any questions. We can be reached at 303-703-9112.



Respectfully submitted,  
**Aldridge Transportation Consultants, LLC**

John M.W. Aldridge, P.E.  
Principal



## INTRODUCTION

This Traffic Impact Study examines the potential impact on traffic caused by the development of an industrial complex featuring over 1,000,000 square feet of warehousing. The Prologis complex is located on southeast corner of Picadilly Road and Smith Road in Aurora. Figure 1 shows the location of the site, preliminary site plan, and the surrounding streets and intersections. The graphic shows the present and future alignment (red dashed line) of Picadilly St. including the extension of 19<sup>th</sup> Ave. that will connect to Picadilly St.

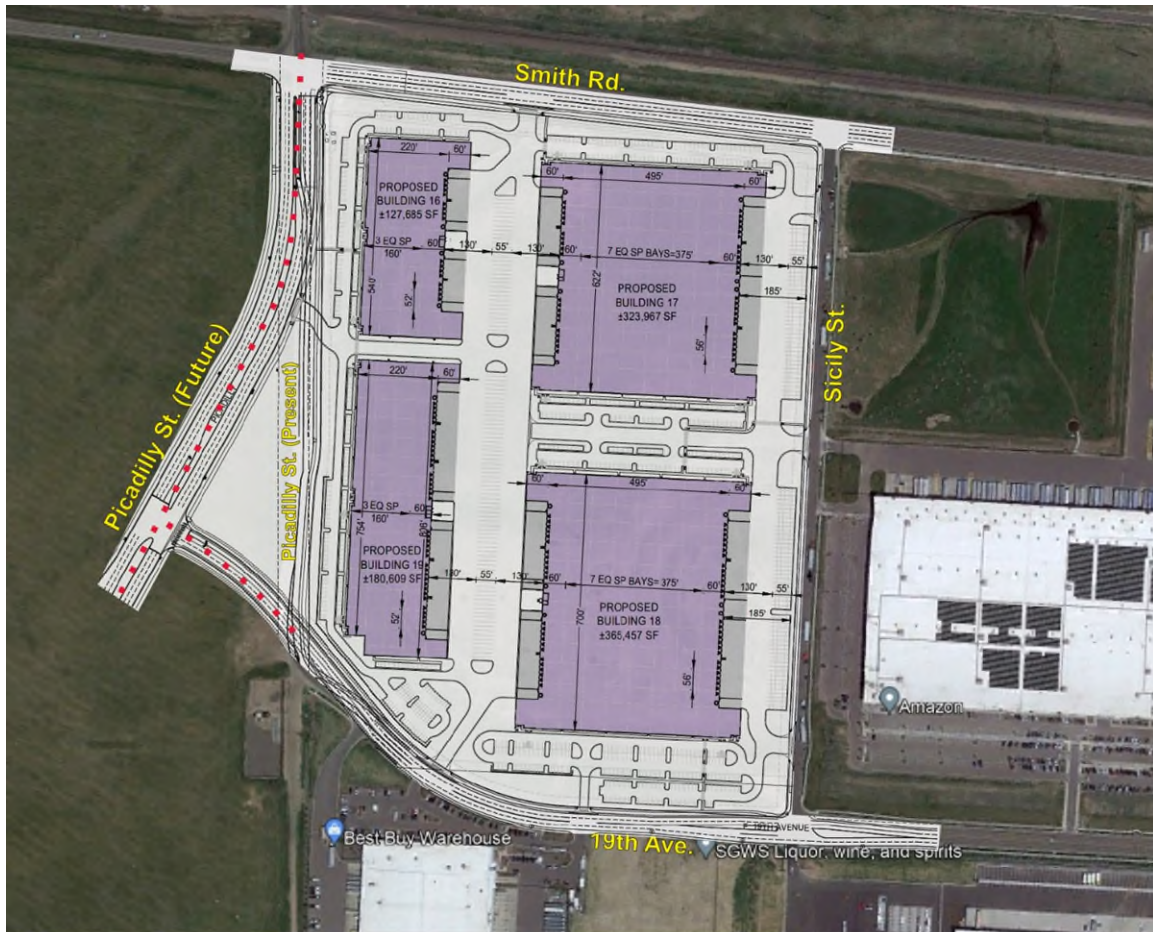


Figure 1 Site Location and Surrounding Area

## EXISTING CONDITIONS

**Smith Road** is a 2-4-lane undivided Arterial and carries approximately 4,000 ADT on the west leg and 2,000 ADT on the east leg assuming that the PM peak hour is 10 percent of the daily volume. The posted speed limit is 40 mph on the west leg and 45 mph on the east leg.

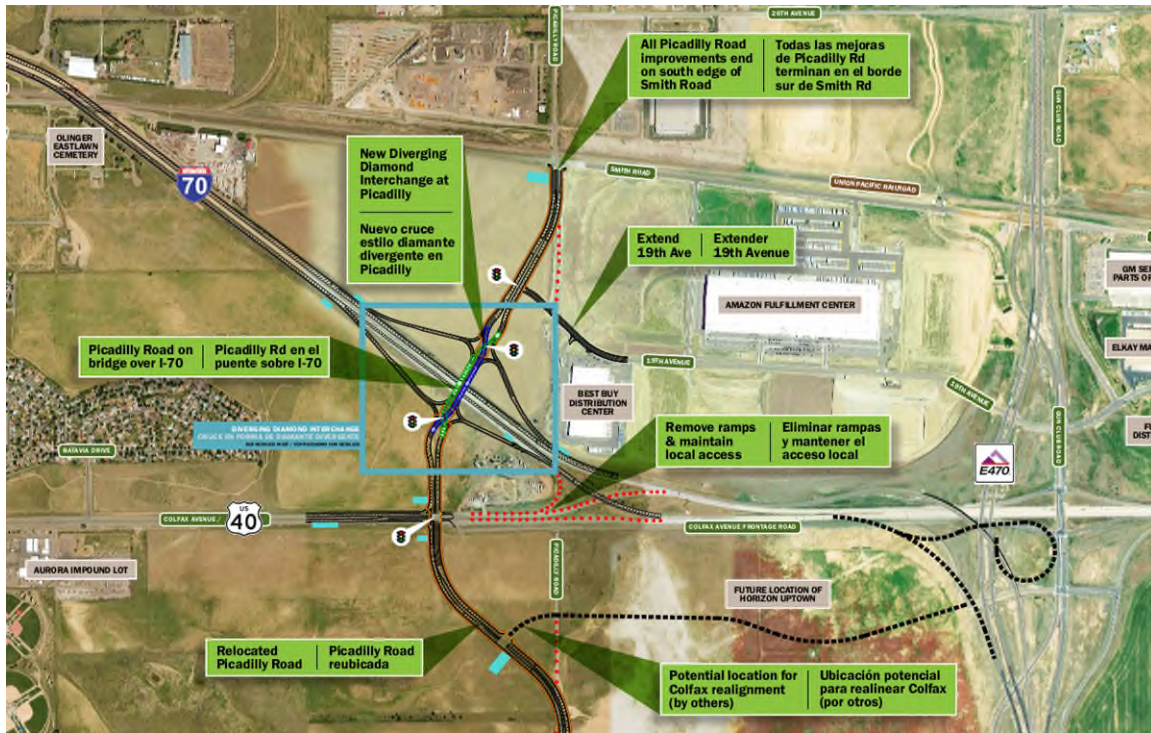
**Picadilly Road** is a 2-lane industrial local road. The ADT is 3,500 assuming that the PM peak hour is 10 percent of the daily volume. It is posted at 30 mph.



**19<sup>th</sup> Ave.** is a 4-lane industrial Collector roadway. It serves as the primary route to/from the E-470 interchange and connection to I-70. The ADT in this section is the same as Picadilly Road at 3,500. It is posted at 30 mph. The street features bikes lanes and detached sidewalks on both sides.

**Sicily St.** is a 2-lane service road. It carries less than 500 ADT (30 vph in the AM peak hour and 47 vph in the PM peak hour). It is primarily used for parking trailers on both sides of the road.

**Picadilly Interchange with I-70** is a soon to be constructed new interchange project that has been approved by the City, FHWA, and the Colorado Transportation Commission. It will reroute Picadilly Road away from its current alignment and decommission the Colfax/I-70 interchange. The current alignment of Picadilly Road south of Smith Road will be removed. 19<sup>th</sup> Ave. will be extended and connect with the realigned Picadilly Road. The proposed west access to the project on the present Picadilly Road alignment will be revised to right in/right out. Figure 2 shows the revised preferred alternative.







### ACCESS LOCATIONS

In the short term and prior to the construction of the interchange, there will be seven access locations. One on Smith Road between Picadilly and Sicily, one on Picadilly halfway between Smith Road and 19<sup>th</sup> Ave., two on 19<sup>th</sup> Ave. between Sicily and Picadilly, and three on Sicily (one at each end and one in the middle). The middle access on Sicily will align with the access to Amazon on the east side. Note that the Picadilly Road access will be full movement on the present two-lane roadway alignment. When the roadway is realigned and constructed as a six-lane roadway for the new interchange, the access will become a right in/right out only.

### LAND USE and TRIP GENERATION

The property will be developed with 1,026,000 square feet of warehousing. The trip generation rates are from the *ITE Trip Generation Manual, 11<sup>th</sup> Edition*. The following worksheet provides the ADT and AM/PM Peak Hour traffic volumes.

Trip Generation Worksheet								
ITE CODE	LAND USE	UNIT	QUANTITY	ADT	AM		PM	
					IN	OUT	IN	OUT
150	Warehousing	KSF	1000	1.71	0.13	0.04	0.05	0.13
				1710	130	40	50	130
Total Trips Assigned to Driveways				1710	130	40	50	130

### TRAFFIC DISTRIBUTION & ASSIGNMENT

The distribution of the site generated traffic at each access and at the intersection is shown in the following Figure 2. The 5-year and 20-year total traffic assignments are shown on the Synchro graphics in the appendix. Note that the number 5 in assignments are nominal for a conservative analysis and not counted in the trip total.



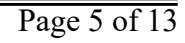


Figure 3 5-year AM & PM Trip Assignment

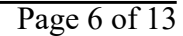


Figure 4 20-year AM and PM Trip Assignment

The Synchro graphics in the appendix show the assigned volumes for the 5-year and 20-year design horizons (background and total). The Synchro graphics also provide details on the intersection geometry, traffic control, and auxiliary lanes.

## FUTURE TRAFFIC VOLUMES

The DRCOG Focus Model Assigned Volumes for 2020 and 2050 shows an annual growth rate of 1.023. The growth rate equates to a 5-year growth factor of 1.12 and a 20-year growth factor of 1.58. The current alignment of Picadilly Road was not included in the DRCOG 2020 model. In the 2050 model with the interchange in place, the new alignment of Picadilly Road is forecast to carry over 50,000 ADT. Note that the DRCOG assigned volumes are used only for the growth factor calculations.

The **Northeast Aurora Transportation Study Refresh** (NEATS) October 2018 was reviewed for existing and forecast 2040 volumes. However, it does not provide any useful information for this



study. It reports an existing ADT on the north leg of Picadilly Road of 2,400 ADT and a future volume on 36,000 ADT on the south leg of Picadilly Road.

The **I-70/Picadilly Road System Feasibility Analysis**, May 2020, on the other hand is a comprehensive analysis of the future development of the area and analysis of alternatives including no action and the revised preferred alternative. It also provides a comprehensive inventory of 2040 forecast traffic volumes on the surrounding streets including Smith Road and 19<sup>th</sup> Ave. The forecast 2040 volume on Smith Road with the revised preferred alternative is 13,200 ADT and on 19<sup>th</sup> Ave. it is 5,100 ADT. Picadilly Road in the analysis is forecast to carry 30,900 ADT. Also note that the Feasibility Analysis assumes that the existing intersection of Picadilly Road and Smith Road will be improved significantly and signalized. It also assumes that the 19<sup>th</sup> Ave./Picadilly Road intersection will be signalized.

The 2040 AM and PM peak hour projections in the feasibility analysis were incorporated in this study for subsequent analysis of the intersection and access level of service and geometric configuration.

#### PEAK HOUR INTERSECTION LEVEL OF SERVICE

ATC uses Synchro v.10 for operations analyses. The Synchro methodology is based on the 6<sup>th</sup> Edition of the Highway Capacity Manual (HCM). The table summarizes the AM and PM peak hour LOS for the Existing, 5-year Background and Total, and 20-year Background and Total.. LOS is a letter rating from A to F. LOS A indicates free-flow traffic conditions and no delay at intersections. LOS F is heavy traffic congestion with significant delay. LOS is provided for the overall operations at signalized intersections. LOS D is generally the benchmark for acceptable signalized intersection operations during the weekday peak hours. The critical movement, not the overall, indicates the LOS rating for unsignalized intersections, which is generally a left turn out from the minor street approach. Caution must be used when evaluating the LOS at unsignalized intersections particularly when LOS F is shown. In case of LOS, the HCM suggests that other evaluation methods should be considered such as the volume over capacity ratio and the 95<sup>th</sup> percentile queue length to make the most effective traffic control decision. LOS F at unsignalized intersections is typically normal during the weekday peak hours. Synchro graphics and reports for each timeframe are provided in the appendix. The following table presents the overall LOS for the signalized intersections and critical movement LOS for the unsignalized intersections. Details for the unsignalized intersections on the approach and movement operational characteristics including Capacity (veh/h) HCM Lane V/C ratios, HCM Control Delay (s), and 95<sup>th</sup> Percentile are provided in the Synchro reports in the appendix. Similarly, details for the signalized intersection on approach and movement LOS, and signal timing for each phase are provided in the Synchro reports in the appendix.





Unsignalized LOS Summary Critical Movement LOS/Control Delay											
Intersection	Critical Movement	Existing		5-Year Background		5-year Total		20-year Background		20-year Total	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Picadilly/Smith	SBL NBL	C/17.9	C/20.3	C/21.6	D/25.7	C/21.6	E/35.3	Signal	Signal	Signal	Signal
Smith/North Access	NBL					B/11.0	A/9.0			C/21.7	C/19.7
Picadilly West Access	WBL					A/9.6	A/9.3			C/17.3*	C/17.8*
19th/Southeast Access	EBL					A/7.5	B/10.9			B/10.9	B/13.2
Smith/Sicily	NBL					B/10.9	A/9.8	D/25.3	C/19.3	C/18.8	C/16.8
19th/Sicily	SBL					B/11.1	B/11.8	B/12.0	B/11.2	B/13.0	B/13.4
Sicily/Central Access	EBL					A/8.8	A/7.4			A/8.8	A/8.8
19th/Southwest Access	SBL					A/9.9	B/10.4			B/10.7	B/10.9
Sicily/North Access	EBL					A/8.8	A/7.4			A/8.9	A/8.9
Sicily/South Access	EBL					A/8.8	A/7.4			A/8.9	A/8.9
Signalized LOS Summary Overall LOS/Control Delay											
Picadilly/Smith	Overall							C/30.5	C/27.4	C/30.5	C/29.3
Picadilly/19th	Overall							B/12.0	B/11.8	B/12.0	B/12.3

\*Revised as RI/RO

The following tables present the delay and LOS data by the approach and individual movements at the signalized intersections in the 20-year scenario. Note that the signals are fully actuated and as such the phase splits and LOS characteristics are highly variable and dependent on arrival volumes, optimization programming, reference phases, and signal offsets.

#### Picadilly/Smith - Delay and LOS by Approach and Movement

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
AM Peak Hour												
Total Delay	51.2	34.9	11.7	50.9	33.8	13.3	51.3	33.1	5.0	59.9	25.8	4.0
LOS	D	C	B	D	C	B	D	C	A	E	C	A
Approach Delay	30.4				33.6				28.6		30.6	
Approach LOS	C				C				C		C	
PM Peak Hour												
Total Delay	46.5	34.9	13.0	45.2	33.8	12.1	51.4	33.9	4.8	52.7	25.6	3.2
LOS	D	C	B	D	C	B	D	C	A	D	C	A
Approach Delay	27.4				30.4				29.8		28.7	
Approach LOS	C				C				C		C	

**Picadilly/19<sup>th</sup> - Delay and LOS by Approach and Movement**

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
<b>AM Peak Hour</b>						
Total Delay	43.0	9.4	13.4	2.6	42.8	6.1
LOS	D	A	B	A	D	A
Approach Delay	36.8		11.6			7.9
Approach LOS	D		B			A

**PM Peak Hour**

Total Delay	43.3	9.0	13.8	2.6	42.5	6.4
LOS	D	A	B	A	D	A
Approach Delay	36.7		11.9			8.0
Approach LOS	D		B			A

Presently the intersection of Picadilly Road and Smith Road operates at LOS C/C in the AM and PM peak hours, respectively. In the 5-year Background and Total conditions it will continue to operate at LOS C/C. These are acceptable levels of service. In the 20-year Total condition with signalization the intersection will operate at LOS C/C, again acceptable.

The north access on Smith Road will operate at LOS B/A in the 5-year Total condition and LOS C/B in the 20-year Total condition.

The west access on Picadilly will operate at LOS A/A in the 5-year Total condition. The west access will be converted to right in/right out in the 20-year condition when Picadilly Road is realigned and operate at LOS C/C.

The southeast and southwest accesses on 19<sup>th</sup> Ave. will operate at LOS A/B in the 5-year Total condition and in the 20-year conditions LOS B/B.

The signalized intersection of Picadilly Road and 19<sup>th</sup> Ave. in the 20-year Total condition will operate at LOS A/A.

The three accesses on Sicily St. will operate at LOS A/A in all conditions.

**TRAFFIC SIGNAL WARRANT ANALYSIS**

A traffic signal warrant analysis was conducted for the short-term scenario at the existing Picadilly/Smith intersection. Note that the I-70/Picadilly Road System Feasibility Analysis has determined that traffic signal control will be warranted at the Picadilly/Smith and Picadilly/19<sup>th</sup> Ave. intersections based on the projected high volumes on Picadilly, Smith, and 19<sup>th</sup> Ave. in the 2040 scenario.

The short-term signal warrant analysis at Picadilly/Smith shows that a traffic signal warrant is not satisfied. The warrant analysis summary is presented below. The traffic signal warrant worksheet is provided in the appendix.



Warrant Evaluation Summary	Warrant Met:
<b>Warrant 1: Eight - Hour Vehicular Volume</b>	<b>No</b>
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
<b>Warrant 2: Four-Hour Volume</b>	<b>No</b>
<b>Warrant 3: Peak Hour Volume</b>	<b>No</b>
<b>Warrant 4: Pedestrian Volume</b>	<b>N/A</b>
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
<b>Warrant 5: School Crossing</b>	<b>N/A</b>
<b>Warrant 6: Coordinated Signal System</b>	<b>N/A</b>
<b>Warrant 7: Crash Experience</b>	<b>N/A</b>
<b>Warrant 8: Roadway Network</b>	<b>Yes</b>
<b>Warrant 9: Intersection Near a Grade Crossing</b>	<b>N/A</b>

### QUEUING ANALYSIS

A review of the 95<sup>th</sup> percentile queue length at each of the unsignalized intersections and access locations reveals no queue length measured in vehicles exceeds one vehicle length. At the signalized intersections no queues exceed capacity at the Picadilly Road/19<sup>th</sup> Ave. intersection. The Synchro Queuing and Blocking reports are attached for reference. The table below presents a summary of the turn bay storage and 95<sup>th</sup>ile queue length.

Signalized Intersection 95th%ile Queuing Summary						
Intersection	Analysis Period	Length in Feet	EBL	WBL	NBL	SBL
<b><u>Picdillay/Smith</u></b>		Storage	200	200	200	300
	20-year AM BKG	95th%ile Queue	160	196	170	284
	20-year PM BKG	95th%ile Queue	128	158	170	226
	20-year AM TOTAL	95th%ile Queue	160	196	170	284
	20-year PM TOTAL	95th%ile Queue	126	169	180	243
Intersection	Analysis Period	Length in Feet		WBL	NBR	SBL
<b><u>Picdillay/19th Ave.</u></b>		Storage		200	50	100
	20-year AM BKG	95th%ile Queue		176	41	78
	20-year PM BKG	95th%ile Queue		176	41	70
	20-year AM TOTAL	95th%ile Queue		176	41	78
	20-year PM TOTAL	95th%ile Queue		184	42	73





### AUXILIARY TURN LANES

COA uses the CDOT State Highway Access Code standards for the determination of auxiliary turn lanes at the access locations. In this case, assuming an NR-B classification on Smith Road and 19<sup>th</sup> Ave, the threshold for a right turn lane is 50 vph and 25 vph for a left turn lane. The required lanes consist of taper length and storage requirements for a roadway posted at 40 mph. The taper ratio is 12:1 or rounded to 150 feet. The storage length is 100 feet on the Smith Road right turn deceleration lanes. Acceleration lanes are not required. None of the accesses meet the SHAC threshold for auxiliary turn lanes.

At Picadilly Road/Smith Road intersection, assuming NR-A categorization, the northbound left turn lane requires a 435-foot deceleration lane (13.5:1 bay taper included) plus and an additional 200 feet for storage – a total of 635 feet. The southbound left turn requires a 435-foot deceleration lane (13.5:1 bay taper included) plus and an additional 300 feet for storage – a total of 735 feet. The eastbound and westbound left turn lanes will consist of a bay taper of 10:1 and 200 feet of storage – each totaling approximately 310-320 feet. Right turn lanes on the northbound and southbound approaches should be 435 feet including a 13.5:1 bay taper. The eastbound and westbound right turn lanes should be the same as the left turn lanes, 10:1 bay taper and 200 feet of storage.

At the 19<sup>th</sup> Ave./Picadilly Road intersection, the southbound left turn lane requires a deceleration lane of 435 feet inclusive of a 13.5:1 bay taper and 100 feet of storage for at total of 535 feet. The westbound left turn lane should consist of a 10:1 bay taper and 200 feet for storage – a total of 310-320 feet. The westbound right turn lane is continuous and a forced right turn (no eastbound approach). The northbound right turn lane should be 435 feet inclusive of a 13.5:1 bay taper.

### PEDESTRIAN CONNECTIVITY

Presently there are detached sidewalks on the Picadilly St. frontage. The site plan shows that new detached sidewalks will be constructed on the frontages of Smith Road, Sicily St., and 19<sup>th</sup> Ave. These will provide connectivity to the sidewalks on the adjacent properties.

### MITIGATION

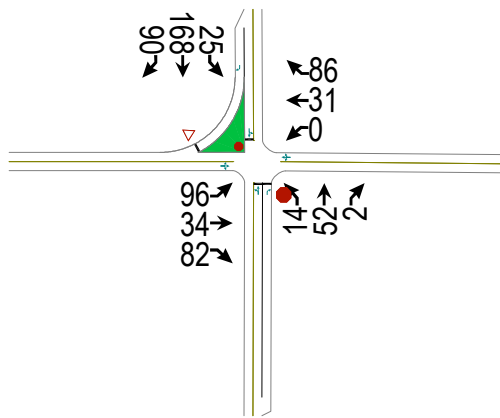
The I-70/Picadilly Interchange project has been awarded a \$25 million-dollar federal grant to help construct the \$56 million-dollar new interchange. The I-70/Picadilly Interchange project will construct a new interchange on Interstate 70 in Aurora to facilitate much-needed north-south connectivity on Picadilly Road where it intersects with the I-70 corridor. This project will unlock a roadway network that can connect people and commerce to Denver International Airport and the adjacent Colorado Aerotropolis, a developing world-class residential, commercial, and industrial community expected to create 74,000 jobs in the area by 2040. Construction is expected to commence within the next year and coincide with the construction of this subject project.

### RECOMMENDATIONS

Based on the analysis, traffic from the site can be absorbed by the adjacent streets and intersections and not cause a safety or operational problem assuming the roadway and intersection improvement are deployed per the I-70/Picadilly Road System Feasibility Analysis as presented in Figure 2. The proposed access locations are the best engineering fit for the parcel's configuration and accessibility to the streets.

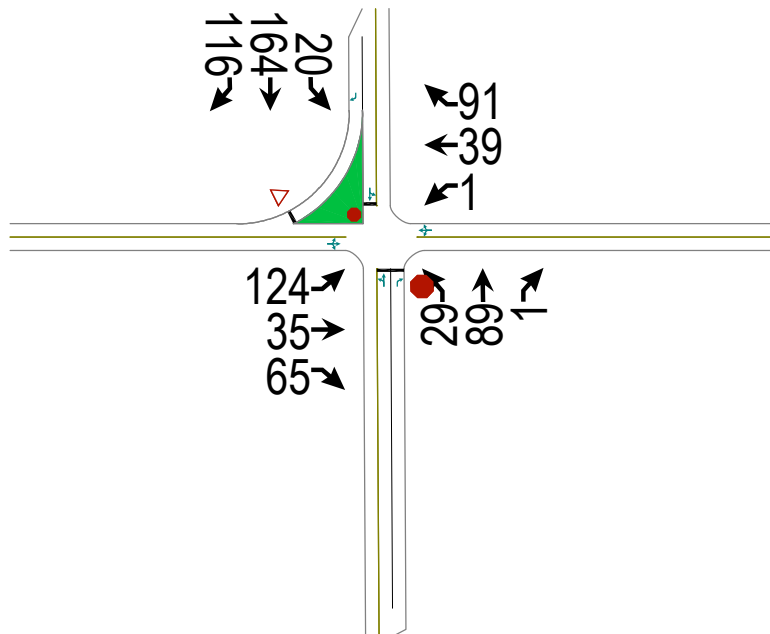


## APPENDIX

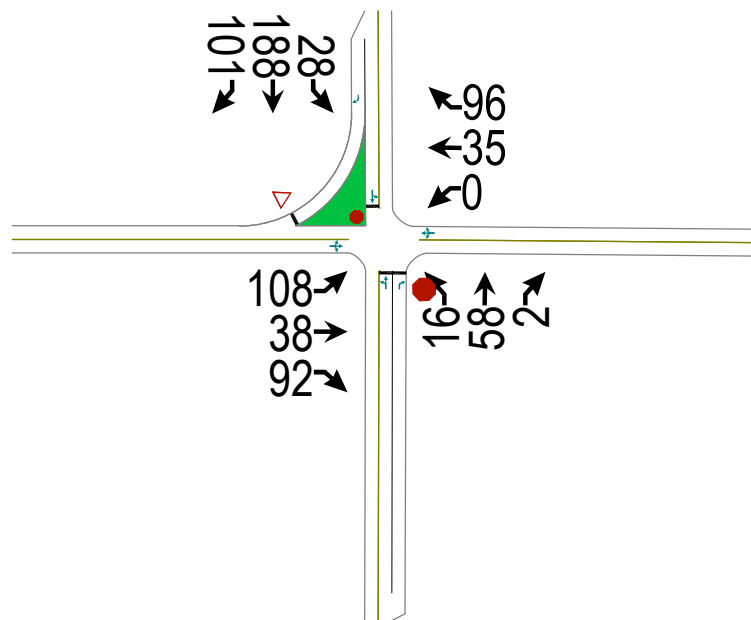




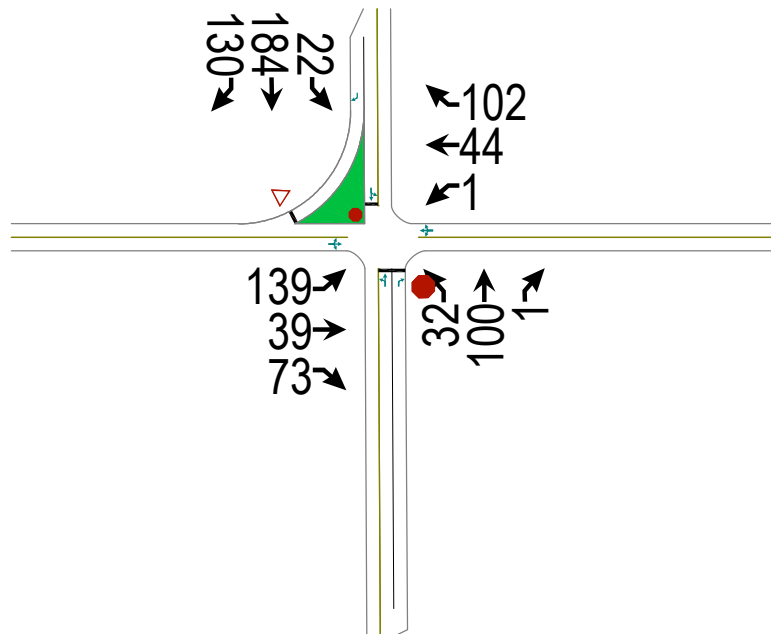
Intersection												
Int Delay, s/veh	8.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	96	34	82	0	31	86	14	52	2	25	168	90
Future Vol, veh/h	96	34	82	0	31	86	14	52	2	25	168	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	900	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	104	37	89	0	34	93	15	57	2	27	183	98
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	127	0	0	126	0	0	462	417	82	400	415	81
Stage 1	-	-	-	-	-	-	290	290	-	81	81	-
Stage 2	-	-	-	-	-	-	172	127	-	319	334	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1459	-	-	1460	-	-	510	527	978	560	528	979
Stage 1	-	-	-	-	-	-	718	672	-	927	828	-
Stage 2	-	-	-	-	-	-	830	791	-	693	643	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1459	-	-	1460	-	-	308	486	978	479	487	979
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	486	-	479	487	-
Stage 1	-	-	-	-	-	-	663	620	-	856	828	-
Stage 2	-	-	-	-	-	-	582	791	-	580	593	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.5			0			14.8			15.1		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	433		978	1459	-	-	1460	-	-	486	979	
HCM Lane V/C Ratio	0.166		0.002	0.072	-	-	-	-	-	0.432	0.1	
HCM Control Delay (s)	15		8.7	7.7	0	-	0	-	-	17.9	9.1	
HCM Lane LOS	C		A	A	A	-	A	-	-	C	A	
HCM 95th %tile Q(veh)	0.6		0	0.2	-	-	0	-	-	2.1	0.3	



Intersection												
Int Delay, s/veh	10.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	124	35	65	1	39	91	29	89	1	20	164	116
Future Vol, veh/h	124	35	65	1	39	91	29	89	1	20	164	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	900	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	135	38	71	1	42	99	32	97	1	22	178	126
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	141	0	0	109	0	0	527	487	74	487	473	92
Stage 1	-	-	-	-	-	-	344	344	-	94	94	-
Stage 2	-	-	-	-	-	-	183	143	-	393	379	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1442	-	-	1481	-	-	462	481	988	491	490	965
Stage 1	-	-	-	-	-	-	671	637	-	913	817	-
Stage 2	-	-	-	-	-	-	819	779	-	632	615	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1442	-	-	1481	-	-	255	432	988	376	441	965
Mov Cap-2 Maneuver	-	-	-	-	-	-	255	432	-	376	441	-
Stage 1	-	-	-	-	-	-	604	573	-	822	816	-
Stage 2	-	-	-	-	-	-	556	778	-	472	554	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.3			0.1			19.8			16		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	369	988	1442	-	-	1481	-	-	433	965		
HCM Lane V/C Ratio	0.348	0.001	0.093	-	-	0.001	-	-	0.462	0.131		
HCM Control Delay (s)	19.9	8.6	7.8	0	-	7.4	0	-	20.3	9.3		
HCM Lane LOS	C	A	A	A	-	A	A	-	C	A		
HCM 95th %tile Q(veh)	1.5	0	0.3	-	-	0	-	-	2.4	0.4		

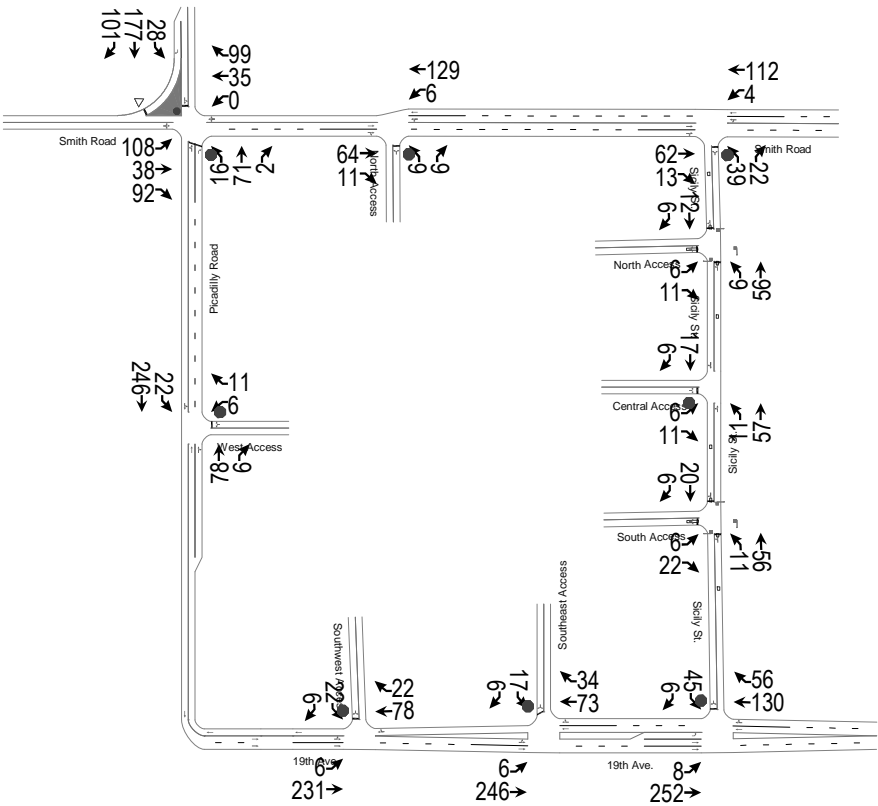


Intersection												
Int Delay, s/veh	10.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	96	34	82	0	31	86	14	52	2	25	168	90
Future Vol, veh/h	96	34	82	0	31	86	14	52	2	25	168	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	900	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	117	41	100	0	38	105	17	63	2	30	205	110
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	143	0	0	141	0	0	518	468	91	449	466	91
Stage 1	-	-	-	-	-	-	325	325	-	91	91	-
Stage 2	-	-	-	-	-	-	193	143	-	358	375	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1440	-	-	1442	-	-	468	493	967	520	494	967
Stage 1	-	-	-	-	-	-	687	649	-	916	820	-
Stage 2	-	-	-	-	-	-	809	779	-	660	617	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1440	-	-	1442	-	-	250	449	967	432	450	967
Mov Cap-2 Maneuver	-	-	-	-	-	-	250	449	-	432	450	-
Stage 1	-	-	-	-	-	-	626	591	-	834	820	-
Stage 2	-	-	-	-	-	-	538	779	-	536	562	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.5			0			16.6			17.7		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	384	967	1440	-	-	1442	-	-	448	967		
HCM Lane V/C Ratio	0.209	0.003	0.081	-	-	-	-	-	0.524	0.113		
HCM Control Delay (s)	16.8	8.7	7.7	0	-	0	-	-	21.6	9.2		
HCM Lane LOS	C	A	A	A	-	A	-	-	C	A		
HCM 95th %tile Q(veh)	0.8	0	0.3	-	-	0	-	-	3	0.4		





Intersection												
Int Delay, s/veh	12.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	124	35	65	1	39	91	29	89	1	20	164	116
Future Vol, veh/h	124	35	65	1	39	91	29	89	1	20	164	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	900	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	151	43	79	1	47	111	35	108	1	24	200	141
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	158	0	0	122	0	0	590	545	83	544	529	103
Stage 1	-	-	-	-	-	-	385	385	-	105	105	-
Stage 2	-	-	-	-	-	-	205	160	-	439	424	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1422	-	-	1465	-	-	419	446	976	450	455	952
Stage 1	-	-	-	-	-	-	638	611	-	901	808	-
Stage 2	-	-	-	-	-	-	797	766	-	597	587	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1422	-	-	1465	-	-	200	394	976	324	402	952
Mov Cap-2 Maneuver	-	-	-	-	-	-	200	394	-	324	402	-
Stage 1	-	-	-	-	-	-	565	541	-	797	807	-
Stage 2	-	-	-	-	-	-	510	765	-	422	519	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.3			0.1			25.2			19.4		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	318 976		1422	-	-	1465	-	-	392	952		
HCM Lane V/C Ratio	0.452 0.001		0.106	-	-	0.001	-	-	0.571	0.148		
HCM Control Delay (s)	25.3 8.7		7.8	0	-	7.5	0	-	25.7	9.4		
HCM Lane LOS	D A		A A	A	-	A A	A	-	D A			
HCM 95th %tile Q(veh)	2.2 0		0.4	-	-	0	-	-	3.4	0.5		



Prologis  
3: Picadilly Road & Smith Road

5-year AM TOTAL

12/08/2022

Intersection												
Int Delay, s/veh	10.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	96	34	82	0	31	88	14	63	2	25	158	90
Future Vol, veh/h	96	34	82	0	31	88	14	63	2	25	158	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8	8	8	8	8	8	8
Mvmt Flow	117	41	100	0	38	107	17	77	2	30	192	110
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	145	0	0	141	0	0	513	470	91	457	467	92
Stage 1	-	-	-	-	-	-	325	325	-	92	92	-
Stage 2	-	-	-	-	-	-	188	145	-	365	375	-
Critical Hdwy	4.18	-	-	4.18	-	-	7.18	6.58	6.28	7.18	6.58	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.18	5.58	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.18	5.58	-
Follow-up Hdwy	2.272	-	-	2.272	-	-	3.572	4.072	3.372	3.572	4.072	3.372
Pot Cap-1 Maneuver	1401	-	-	1406	-	-	462	483	950	504	485	949
Stage 1	-	-	-	-	-	-	675	638	-	900	807	-
Stage 2	-	-	-	-	-	-	800	766	-	642	607	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1401	-	-	1406	-	-	251	439	950	406	440	949
Mov Cap-2 Maneuver	-	-	-	-	-	-	251	439	-	406	440	-
Stage 1	-	-	-	-	-	-	613	579	-	817	807	-
Stage 2	-	-	-	-	-	-	539	766	-	504	551	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.5			0			17.1			17.5		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	386		950	1401	-	-	1406	-	-	435	949	
HCM Lane V/C Ratio	0.243		0.003	0.083	-	-	-	-	-	0.512	0.115	
HCM Control Delay (s)	17.3		8.8	7.8	0	-	0	-	-	21.6	9.3	
HCM Lane LOS	C		A	A	A	-	A	-	-	C	A	
HCM 95th %tile Q(veh)	0.9		0	0.3	-	-	0	-	-	2.8	0.4	

Prologis  
6: North Access

5-year AM TOTAL

12/08/2022

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Vol, veh/h	57	10	5	115	5	5
Future Vol, veh/h	57	10	5	115	5	5
Conflicting Peds, #/hr	0	0	150	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	69	12	6	140	6	6
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	231	0	307	191
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	82	-
Critical Hdwy	-	-	4.26	-	6.96	7.06
Critical Hdwy Stg 1	-	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	-	5.96	-
Follow-up Hdwy	-	-	2.28	-	3.58	3.38
Pot Cap-1 Maneuver	-	-	1291	-	645	800
Stage 1	-	-	-	-	773	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1107	-	550	686
Mov Cap-2 Maneuver	-	-	-	-	550	-
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	909	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		11	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	611	-	-	1107	-	
HCM Lane V/C Ratio	0.02	-	-	0.005	-	
HCM Control Delay (s)	11	-	-	8.3	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Prologis  
8: West Access & Picadilly Road

5-year AM TOTAL

12/08/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↑
Traffic Vol, veh/h	5	10	70	5	20	220
Future Vol, veh/h	5	10	70	5	20	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	6	12	85	6	24	268
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	404	46	0	0	91	0
Stage 1	88	-	-	-	-	-
Stage 2	316	-	-	-	-	-
Critical Hdwy	6.72	7.02	-	-	4.22	-
Critical Hdwy Stg 1	5.92	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.576	3.376	-	-	2.276	-
Pot Cap-1 Maneuver	575	996	-	-	1463	-
Stage 1	910	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	564	996	-	-	1463	-
Mov Cap-2 Maneuver	564	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	709	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.6	0		0.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 793		1463	-	
HCM Lane V/C Ratio	-	- 0.023		0.017	-	
HCM Control Delay (s)	-	- 9.6		7.5	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.1		0.1	-	

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↕↕	
Traffic Vol, veh/h	5	220	65	30	15	5
Future Vol, veh/h	5	220	65	30	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	6	268	79	37	18	6





Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	116	0	0	244	58
Stage 1	-	-	-	98	-
Stage 2	-	-	-	146	-
Critical Hdwy	4.26	-	-	6.96	7.06
Critical Hdwy Stg 1	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	5.96	-
Follow-up Hdwy	2.28	-	-	3.58	3.38
Pot Cap-1 Maneuver	1428	-	-	707	977
Stage 1	-	-	-	897	-
Stage 2	-	-	-	848	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1428	-	-	703	977
Mov Cap-2 Maneuver	-	-	-	703	-
Stage 1	-	-	-	893	-
Stage 2	-	-	-	848	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1428	-	-	-	756
HCM Lane V/C Ratio	0.004	-	-	-	0.032
HCM Control Delay (s)	7.5	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1






Intersection						
Int Delay, s/veh	2.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱			↰↑↑	↰↰	
Traffic Vol, veh/h	55	12	4	100	35	20
Future Vol, veh/h	55	12	4	100	35	20
Conflicting Peds, #/hr	0	0	100	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	67	15	5	122	43	24
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	182	0	246	141
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	71	-
Critical Hdwy	-	-	4.26	-	6.96	7.06
Critical Hdwy Stg 1	-	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	-	5.96	-
Follow-up Hdwy	-	-	2.28	-	3.58	3.38
Pot Cap-1 Maneuver	-	-	1348	-	705	862
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	926	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1220	-	635	780
Mov Cap-2 Maneuver	-	-	-	-	635	-
Stage 1	-	-	-	-	742	-
Stage 2	-	-	-	-	922	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		10.9	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	681	-	-	1220	-	
HCM Lane V/C Ratio	0.098	-	-	0.004	-	
HCM Control Delay (s)	10.9	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	225	116	50	40	5
Future Vol, veh/h	7	225	116	50	40	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	9	274	141	61	49	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	202	0	0	327	101
Stage 1	-	-	-	172	-
Stage 2	-	-	-	155	-
Critical Hdwy	4.26	-	-	6.96	7.06
Critical Hdwy Stg 1	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	5.96	-
Follow-up Hdwy	2.28	-	-	3.58	3.38
Pot Cap-1 Maneuver	1324	-	-	626	916
Stage 1	-	-	-	823	-
Stage 2	-	-	-	839	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1324	-	-	622	916
Mov Cap-2 Maneuver	-	-	-	622	-
Stage 1	-	-	-	817	-
Stage 2	-	-	-	839	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.1
HCM LOS			B






Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1324	-	-	-	645
HCM Lane V/C Ratio	0.006	-	-	-	0.085
HCM Control Delay (s)	7.7	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

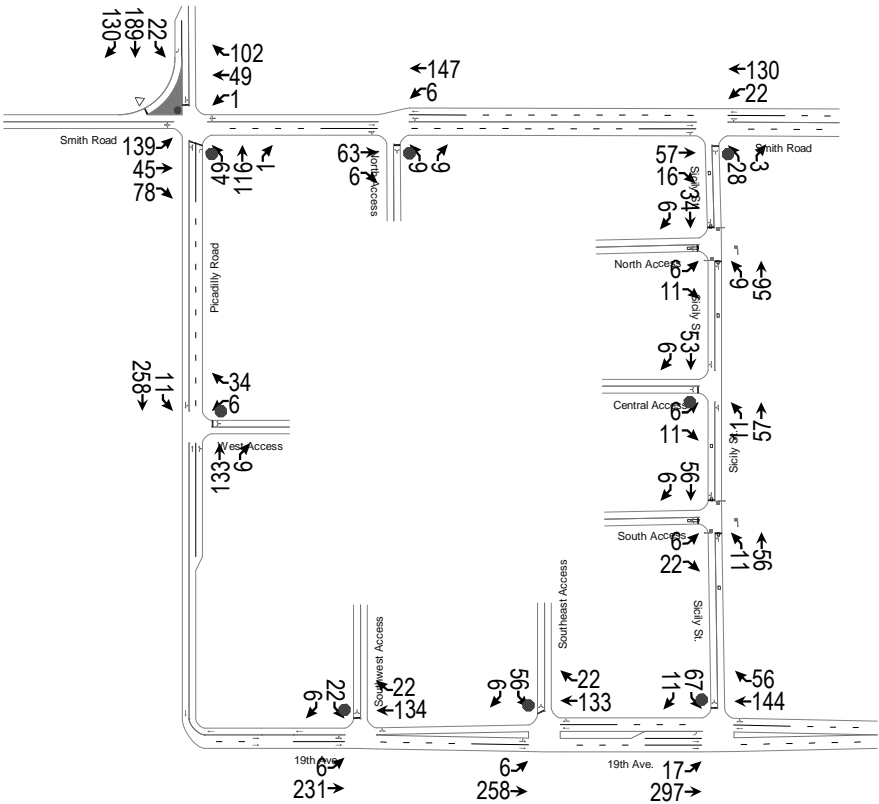
Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	10	10	51	15	5
Future Vol, veh/h	5	10	10	51	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	6	12	12	62	18	6

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	107	21	24	0	-	0
Stage 1	21	-	-	-	-	-
Stage 2	86	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.18	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.272	-	-	-
Pot Cap-1 Maneuver	876	1039	1553	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	922	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	869	1039	1553	-	-	-
Mov Cap-2 Maneuver	869	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	922	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1553	-	975	-	-
HCM Lane V/C Ratio	0.008	-	0.019	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		 			 	
Traffic Vol, veh/h	5	206	70	20	20	5
Future Vol, veh/h	5	206	70	20	20	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	6	251	85	24	24	6
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	109	0	-	0	235	97
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	138	-
Critical Hdwy	4.22	-	-	-	6.72	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.92	-
Follow-up Hdwy	2.276	-	-	-	3.576	3.376
Pot Cap-1 Maneuver	1441	-	-	-	728	941
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	859	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1441	-	-	-	724	941
Mov Cap-2 Maneuver	-	-	-	-	724	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	859	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		9.9		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1441	-	-	-	-	759
HCM Lane V/C Ratio	0.004	-	-	-	-	0.04
HCM Control Delay (s)	7.5	0	-	-	-	9.9
HCM Lane LOS	A	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1



Prologis  
3: Picadilly Road & Smith Road

5-year PM TOTAL

12/08/2022

Intersection												
Int Delay, s/veh	15.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	124	40	70	1	44	91	44	104	1	20	169	116
Future Vol, veh/h	124	40	70	1	44	91	44	104	1	20	169	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	151	49	85	1	54	111	54	127	1	24	206	141
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	165	0	0	134	0	0	609	561	92	570	548	110
Stage 1	-	-	-	-	-	-	394	394	-	112	112	-
Stage 2	-	-	-	-	-	-	215	167	-	458	436	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1413	-	-	1451	-	-	407	436	965	432	444	943
Stage 1	-	-	-	-	-	-	631	605	-	893	803	-
Stage 2	-	-	-	-	-	-	787	760	-	583	580	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1413	-	-	1451	-	-	186	385	965	294	392	943
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	385	-	294	392	-
Stage 1	-	-	-	-	-	-	557	534	-	789	802	-
Stage 2	-	-	-	-	-	-	497	759	-	392	512	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.2			0.1			35.1			21		
HCM LOS							E			C		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	292	965	1413	-	-	1451	-	-	379	943		
HCM Lane V/C Ratio	0.617	0.001	0.107	-	-	0.001	-	-	0.607	0.15		
HCM Control Delay (s)	35.3	8.7	7.9	0	-	7.5	0	-	28.1	9.5		
HCM Lane LOS	E	A	A	A	-	A	A	-	D	A		
HCM 95th %tile Q(veh)	3.8	0	0.4	-	-	0	-	-	3.8	0.5		



Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Vol, veh/h	56	5	5	131	5	5
Future Vol, veh/h	56	5	5	131	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	6	6	159	6	6

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	74	0	163
Stage 1	-	-	-	-	71
Stage 2	-	-	-	-	92
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1524	-	812
Stage 1	-	-	-	-	943
Stage 2	-	-	-	-	921
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1524	-	809
Mov Cap-2 Maneuver	-	-	-	-	809
Stage 1	-	-	-	-	943
Stage 2	-	-	-	-	917

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	905	-	-	1524	-
HCM Lane V/C Ratio	0.013	-	-	0.004	-
HCM Control Delay (s)	9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Prologis  
8: West Access & Picadilly Road

5-year PM TOTAL

12/08/2022

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↔
Traffic Vol, veh/h	5	30	119	5	10	230
Future Vol, veh/h	5	30	119	5	10	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	37	145	6	12	280
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	452	76	0	0	151	0
Stage 1	148	-	-	-	-	-
Stage 2	304	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	551	970	-	-	1429	-
Stage 1	865	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	545	970	-	-	1429	-
Mov Cap-2 Maneuver	545	-	-	-	-	-
Stage 1	865	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.3	0		0.3		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	873	1429	-	
HCM Lane V/C Ratio	-	-	0.049	0.009	-	
HCM Control Delay (s)	-	-	9.3	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↕↕	
Traffic Vol, veh/h	5	230	119	20	50	5
Future Vol, veh/h	5	230	119	20	50	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	280	145	24	61	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	169	0	0	309	85
Stage 1	-	-	-	157	-
Stage 2	-	-	-	152	-
Critical Hdwy	4.14	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	3.52	3.32
Pot Cap-1 Maneuver	1406	-	-	659	957
Stage 1	-	-	-	855	-
Stage 2	-	-	-	860	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1406	-	-	656	957
Mov Cap-2 Maneuver	-	-	-	656	-
Stage 1	-	-	-	851	-
Stage 2	-	-	-	860	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.9
HCM LOS			B





Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1406	-	-	-	675
HCM Lane V/C Ratio	0.004	-	-	-	0.099
HCM Control Delay (s)	7.6	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Vol, veh/h	51	14	20	116	25	3
Future Vol, veh/h	51	14	20	116	25	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	62	17	24	141	30	4

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	79	0	190
Stage 1	-	-	-	-	71
Stage 2	-	-	-	-	119
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1517	-	781
Stage 1	-	-	-	-	943
Stage 2	-	-	-	-	893
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1517	-	768
Mov Cap-2 Maneuver	-	-	-	-	768
Stage 1	-	-	-	-	943
Stage 2	-	-	-	-	878

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	789	-	-	1517	-
HCM Lane V/C Ratio	0.043	-	-	0.016	-
HCM Control Delay (s)	9.8	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	265	129	50	60	10
Future Vol, veh/h	15	265	129	50	60	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	323	157	61	73	12

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	218	0	0	386	109
Stage 1	-	-	-	188	-
Stage 2	-	-	-	198	-
Critical Hdwy	4.14	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	3.52	3.32
Pot Cap-1 Maneuver	1349	-	-	590	924
Stage 1	-	-	-	825	-
Stage 2	-	-	-	816	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1349	-	-	582	924
Mov Cap-2 Maneuver	-	-	-	582	-
Stage 1	-	-	-	814	-
Stage 2	-	-	-	816	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1349	-	-	-	614
HCM Lane V/C Ratio	0.014	-	-	-	0.139
HCM Control Delay (s)	7.7	-	-	-	11.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	5	10	10	51	47	5
Future Vol, veh/h	5	10	10	51	47	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	6	12	12	62	57	6

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	146	60	63	0	-	0
Stage 1	60	-	-	-	-	-
Stage 2	86	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.18	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.272	-	-	-
Pot Cap-1 Maneuver	832	989	1502	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	922	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	825	989	1502	-	-	-
Mov Cap-2 Maneuver	825	-	-	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	922	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1502	-	928	-	-
HCM Lane V/C Ratio	0.008	-	0.02	-	-
HCM Control Delay (s)	7.4	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

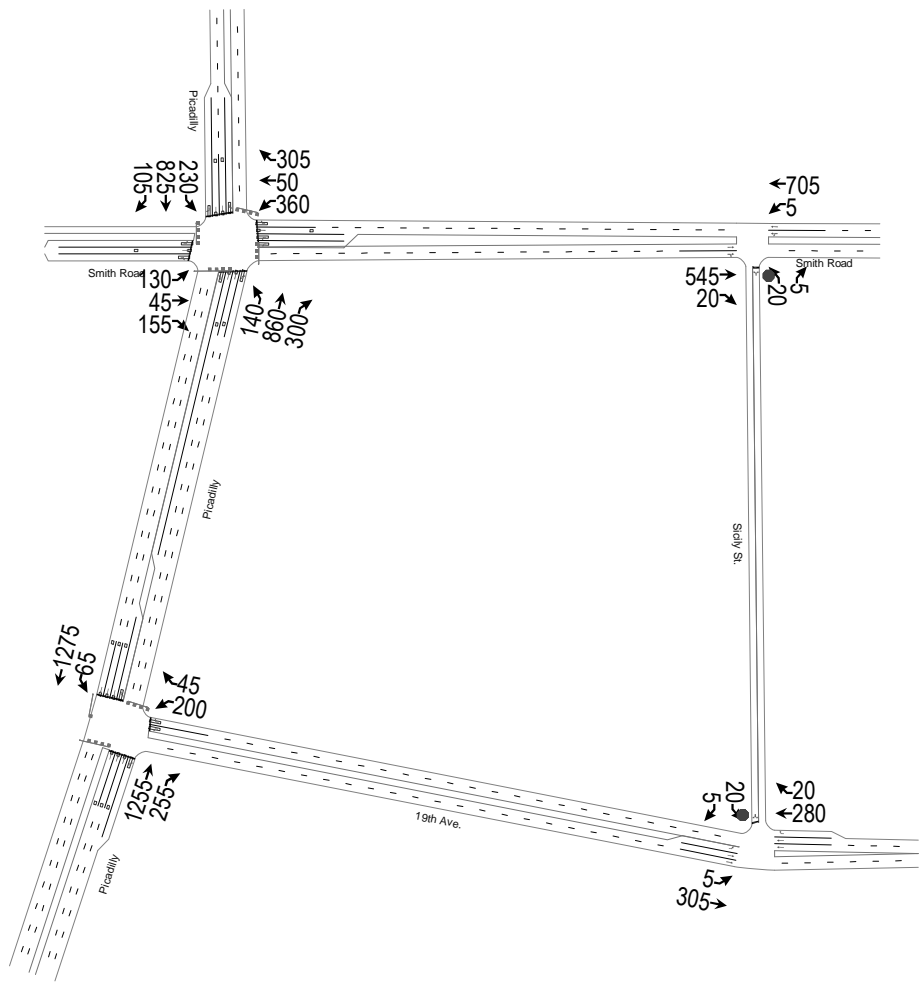


Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↔	↔		↔↔	
Traffic Vol, veh/h	5	206	120	20	20	5
Future Vol, veh/h	5	206	120	20	20	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	6	251	146	24	24	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	170	0	0	296	158
Stage 1	-	-	-	158	-
Stage 2	-	-	-	138	-
Critical Hdwy	4.22	-	-	6.72	6.32
Critical Hdwy Stg 1	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	5.92	-
Follow-up Hdwy	2.276	-	-	3.576	3.376
Pot Cap-1 Maneuver	1367	-	-	669	869
Stage 1	-	-	-	854	-
Stage 2	-	-	-	859	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1367	-	-	666	869
Mov Cap-2 Maneuver	-	-	-	666	-
Stage 1	-	-	-	850	-
Stage 2	-	-	-	859	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.4
HCM LOS			B

























Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1367	-	-	-	699
HCM Lane V/C Ratio	0.004	-	-	-	0.044
HCM Control Delay (s)	7.6	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Prologis  
3: Smith Road & Picadilly

20-year AM BKG

12/08/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	45	155	360	50	305	140	860	300	230	825	105
Future Volume (vph)	130	45	155	360	50	305	140	860	300	230	825	105
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	15.7	22.5	22.5	16.4	23.2	23.2	16.3	32.1	32.1	19.0	34.8	34.8
Total Split (%)	17.4%	25.0%	25.0%	18.2%	25.8%	25.8%	18.1%	35.7%	35.7%	21.1%	38.7%	38.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	10.4	9.4	9.4	11.9	11.0	11.0	10.9	27.7	27.7	14.5	31.3	31.3
Actuated g/C Ratio	0.13	0.12	0.12	0.15	0.13	0.13	0.13	0.34	0.34	0.18	0.38	0.38
v/c Ratio	0.67	0.24	0.52	0.82	0.23	0.70	0.68	0.82	0.45	0.84	0.70	0.18
Control Delay	51.2	34.9	11.7	50.9	33.8	13.3	51.3	33.1	5.0	59.9	25.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	34.9	11.7	50.9	33.8	13.3	51.3	33.1	5.0	59.9	25.8	4.0
LOS	D	C	B	D	C	B	D	C	A	E	C	A
Approach Delay		30.4			33.6			28.6			30.6	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 81.5

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 30.5









Intersection LOS: C

Intersection Capacity Utilization 64.7%

ICU Level of Service C

Analysis Period (min) 15













Splits and Phases: 3: Smith Road & Picadilly

			
Ø1	Ø2	Ø3	Ø4
19 s	32.1 s	16.4 s	22.5 s
			
Ø5	Ø6	Ø7	Ø8
16.3 s	34.8 s	15.7 s	23.2 s

Prologis  
3: Smith Road & Picadilly

20-year AM BKG

12/08/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	141	49	168	391	54	332	152	935	326	250	897	114
v/c Ratio	0.67	0.24	0.52	0.82	0.23	0.70	0.68	0.82	0.45	0.84	0.70	0.18
Control Delay	51.2	34.9	11.7	50.9	33.8	13.3	51.3	33.1	5.0	59.9	25.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	34.9	11.7	50.9	33.8	13.3	51.3	33.1	5.0	59.9	25.8	4.0
Queue Length 50th (ft)	67	23	0	98	25	6	72	218	0	121	193	0
Queue Length 95th (ft)	#160	54	52	#196	57	81	#170	#383	59	#284	313	30
Internal Link Dist (ft)		246			846			796			326	
Turn Bay Length (ft)	500		500	150			500			200		200
Base Capacity (vph)	230	389	461	474	404	588	242	1134	722	297	1281	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.13	0.36	0.82	0.13	0.56	0.63	0.82	0.45	0.84	0.70	0.18

























Intersection Summary

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

Prologis  
3: Smith Road & Picadilly

20-year AM BKG

12/08/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	45	155	360	50	305	140	860	300	230	825	105
Future Volume (veh/h)	130	45	155	360	50	305	140	860	300	230	825	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	141	49	168	391	54	332	152	935	326	250	897	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	8	8	8
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	172	319	270	447	380	322	184	1065	475	280	1257	561
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
Prop Arrive On Green	0.10	0.18	0.18	0.14	0.21	0.21	0.11	0.31	0.31	0.17	0.37	0.37
Unsig. Movement Delay												
Ln Grp Delay, s/veh	56.1	30.6	36.3	54.6	28.2	93.0	56.1	38.7	34.1	63.7	27.1	19.6
Ln Grp LOS	E	C	D	D	C	F	E	D	C	E	C	B
Approach Vol, veh/h	358			777			1413			1261		
Approach Delay, s/veh	43.3			69.2			39.5			33.6		
Approach LOS	D			E			D			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0				
Phs Duration (G+Y+Rc), s	19.0	32.1	16.4	20.2	14.0	37.1	13.4	23.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green (Gmax), s	14.5	27.6	11.9	18.0	11.8	30.3	11.2	18.7				
Max Allow Headway (MAH), s	3.8	5.0	3.8	4.3	3.8	5.1	3.8	4.2				
Max Q Clear (g_c+I1), s	14.7	24.9	12.2	11.0	9.7	21.9	9.1	20.7				
Green Ext Time (g_e), s	0.0	1.8	0.0	0.4	0.1	4.2	0.1	0.0				
Prob of Phs Call (p_c)	1.00	1.00	1.00	1.00	0.98	1.00	0.97	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	0.19	1.00	0.00	1.00	1.00				
Left-Turn Movement Data												
Assigned Mvmt	1	3	5	7								
Mvmt Sat Flow, veh/h	1697	3291	1697	1697								
Through Movement Data												
Assigned Mvmt	2	4	6	8								
Mvmt Sat Flow, veh/h	3385	1781	3385	1781								
Right-Turn Movement Data												
Assigned Mvmt	12	14	16	18								
Mvmt Sat Flow, veh/h	1510	1510	1510	1510								
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)				

Prologis  
3: Smith Road & Picadilly

20-year AM BKG

12/08/2022

Lanes in Grp	1	0	2	0	1	0	1	0
Grp Vol (v), veh/h	250	0	391	0	152	0	141	0
Grp Sat Flow (s), veh/h/ln	1697	0	1646	0	1697	0	1697	0
Q Serve Time (g_s), s	12.7	0.0	10.2	0.0	7.7	0.0	7.1	0.0
Cycle Q Clear Time (g_c), s	12.7	0.0	10.2	0.0	7.7	0.0	7.1	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	280	0	447	0	184	0	172	0
V/C Ratio (X)	0.89	0.00	0.88	0.00	0.82	0.00	0.82	0.00
Avail Cap (c_a), veh/h	280	0	447	0	228	0	217	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	35.8	0.0	37.2	0.0	38.3	0.0	38.6	0.0
Incr Delay (d2), s/veh	27.8	0.0	17.4	0.0	17.8	0.0	17.5	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	63.7	0.0	54.6	0.0	56.1	0.0	56.1	0.0
1st-Term Q (Q1), veh/ln	5.1	0.0	4.0	0.0	3.1	0.0	2.9	0.0
2nd-Term Q (Q2), veh/ln	2.2	0.0	1.1	0.0	0.9	0.0	0.8	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	7.3	0.0	5.1	0.0	4.1	0.0	3.8	0.0
%ile Storage Ratio (RQ%)	0.97	0.00	0.91	0.00	0.22	0.00	0.20	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T		T		T		T	
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	935	0	49	0	897	0	54
Grp Sat Flow (s), veh/h/ln	0	1692	0	1781	0	1692	0	1781
Q Serve Time (g_s), s	0.0	22.9	0.0	2.0	0.0	19.9	0.0	2.2
Cycle Q Clear Time (g_c), s	0.0	22.9	0.0	2.0	0.0	19.9	0.0	2.2
Lane Grp Cap (c), veh/h	0	1065	0	319	0	1257	0	380
V/C Ratio (X)	0.00	0.88	0.00	0.15	0.00	0.71	0.00	0.14
Avail Cap (c_a), veh/h	0	1065	0	366	0	1257	0	380
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	28.5	0.0	30.4	0.0	23.6	0.0	28.0
Incr Delay (d2), s/veh	0.0	10.2	0.0	0.2	0.0	3.5	0.0	0.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	38.7	0.0	30.6	0.0	27.1	0.0	28.2
1st-Term Q (Q1), veh/ln	0.0	8.9	0.0	0.9	0.0	7.6	0.0	0.9
2nd-Term Q (Q2), veh/ln	0.0	1.5	0.0	0.0	0.0	0.6	0.0	0.0

Prologis  
3: Smith Road & Picadilly

20-year AM BKG

12/08/2022













3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	10.4	0.0	0.9	0.0	8.2	0.0	0.9
%ile Storage Ratio (RQ%)	0.00	0.36	0.00	0.09	0.00	0.62	0.00	0.03
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	R		R		R		R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	326	0	168	0	114	0	332
Grp Sat Flow (s), veh/h/ln	0	1510	0	1510	0	1510	0	1510
Q Serve Time (g_s), s	0.0	16.6	0.0	9.0	0.0	4.5	0.0	18.7
Cycle Q Clear Time (g_c), s	0.0	16.6	0.0	9.0	0.0	4.5	0.0	18.7
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	475	0	270	0	561	0	322
V/C Ratio (X)	0.00	0.69	0.00	0.62	0.00	0.20	0.00	1.03
Avail Cap (c_a), veh/h	0	475	0	310	0	561	0	322
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	26.3	0.0	33.3	0.0	18.7	0.0	34.5
Incr Delay (d2), s/veh	0.0	7.9	0.0	3.0	0.0	0.8	0.0	58.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	34.1	0.0	36.3	0.0	19.6	0.0	93.0
1st-Term Q (Q1), veh/ln	0.0	5.7	0.0	3.2	0.0	1.5	0.0	6.7
2nd-Term Q (Q2), veh/ln	0.0	1.0	0.0	0.2	0.0	0.1	0.0	5.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	6.8	0.0	3.5	0.0	1.7	0.0	11.9
%ile Storage Ratio (RQ%)	0.00	0.24	0.00	0.18	0.00	0.22	0.00	0.38
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary





HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	200	45	1255	255	65	1275
Future Volume (vph)	200	45	1255	255	65	1275
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	28.0	28.0	46.0	46.0	16.0	62.0
Total Split (%)	31.1%	31.1%	51.1%	51.1%	17.8%	68.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	16.1	16.1	48.7	48.7	8.7	60.0
Actuated g/C Ratio	0.19	0.19	0.57	0.57	0.10	0.70
v/c Ratio	0.69	0.15	0.50	0.28	0.42	0.41
Control Delay	43.0	9.4	13.4	2.6	42.8	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	9.4	13.4	2.6	42.8	6.1
LOS	D	A	B	A	D	A
Approach Delay	36.8		11.6			7.9
Approach LOS	D		B			A







#### Intersection Summary













Cycle Length: 90	
Actuated Cycle Length: 85.2	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 50.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Picadilly

 Ø1	 Ø2	
16 s	46 s	
 Ø6		 Ø8
62 s		28 s



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	217	49	1364	277	71	1386
v/c Ratio	0.69	0.15	0.50	0.28	0.42	0.41
Control Delay	43.0	9.4	13.4	2.6	42.8	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	9.4	13.4	2.6	42.8	6.1
Queue Length 50th (ft)	105	0	155	0	35	93
Queue Length 95th (ft)	176	27	249	41	78	157
Internal Link Dist (ft)	1073		382			796
Turn Bay Length (ft)				150	150	
Base Capacity (vph)	461	448	2746	973	226	3385
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.11	0.50	0.28	0.31	0.41
Intersection Summary						

									
Movement	WBL	WBR	NBT	NBR	SBL	SBT			
Lane Configurations									
Traffic Volume (veh/h)	200	45	1255	255	65	1275			
Future Volume (veh/h)	200	45	1255	255	65	1275			
Number	3	18	2	12	1	6			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00	1.00		1.00	1.00				
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No		No			No			
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781			
Adj Flow Rate, veh/h	217	49	1364	277	71	1386			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	8	8	8	8	8	8			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	265	236	3011	935	90	3547			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.16	0.16	0.62	0.62	0.05	0.73			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	38.3	29.4	8.4	7.8	50.7	4.4			
Ln Grp LOS	D	C	A	A	D	A			
Approach Vol, veh/h	266		1641			1457			
Approach Delay, s/veh	36.7		8.3			6.6			
Approach LOS	D		A			A			
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		2.0	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		8.7	53.3	16.8			62.0		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		11.5	41.5	23.5			57.5		
Max Allow Headway (MAH), s		3.8	5.1	3.9			5.3		
Max Q Clear (g_c+I1), s		5.3	13.7	11.8			10.5		
Green Ext Time (g_e), s		0.1	13.5	0.6			14.8		
Prob of Phs Call (p_c)		0.79	1.00	1.00			1.00		
Prob of Max Out (p_x)		0.06	0.00	0.01			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1697	0	1697					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			5024	0			5024		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1510	1510			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Prot)		L					

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	71	0	217	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1697	0	1697	0	0	0	0	0
Q Serve Time (g_s), s	3.3	0.0	9.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.3	0.0	9.8	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1697	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	48.8	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	90	0	265	0	0	0	0	0
V/C Ratio (X)	0.79	0.00	0.82	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	248	0	506	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	36.9	0.0	32.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	13.8	0.0	6.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	50.7	0.0	38.3	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.3	0.0	3.9	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.3	0.0	0.5	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	1.7	0.0	4.3	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.30	0.00	0.11	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	3	0	0	0	3	0	0
Grp Vol (v), veh/h	0	1364	0	0	0	1386	0	0
Grp Sat Flow (s), veh/h/ln	0	1621	0	0	0	1621	0	0
Q Serve Time (g_s), s	0.0	11.7	0.0	0.0	0.0	8.5	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	11.7	0.0	0.0	0.0	8.5	0.0	0.0
Lane Grp Cap (c), veh/h	0	3011	0	0	0	3547	0	0
V/C Ratio (X)	0.00	0.45	0.00	0.00	0.00	0.39	0.00	0.00
Avail Cap (c_a), veh/h	0	3011	0	0	0	3547	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.9	0.0	0.0	0.0	4.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.4	0.0	0.0	0.0	4.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	3.4	0.0	0.0	0.0	2.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

Prologis  
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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	3.6	0.0	0.0	0.0	2.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.23	0.00	0.00	0.00	0.07	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	277	49	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1510	1510	0	0	0	0	0
Q Serve Time (g_s), s	0.0	6.7	2.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	6.7	2.2	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	935	236	0	0	0	0	0
V/C Ratio (X)	0.00	0.30	0.21	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	935	450	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.0	29.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.8	29.4	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.9	0.8	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	2.1	0.8	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.37	0.02	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Intersection







Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Vol, veh/h	545	20	5	705	20	5
Future Vol, veh/h	545	20	5	705	20	5
Conflicting Peds, #/hr	0	0	100	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	592	22	5	766	22	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	714
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.26
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.28
Pot Cap-1 Maneuver	-	-	843
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	763
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	25.3
HCM LOS			D

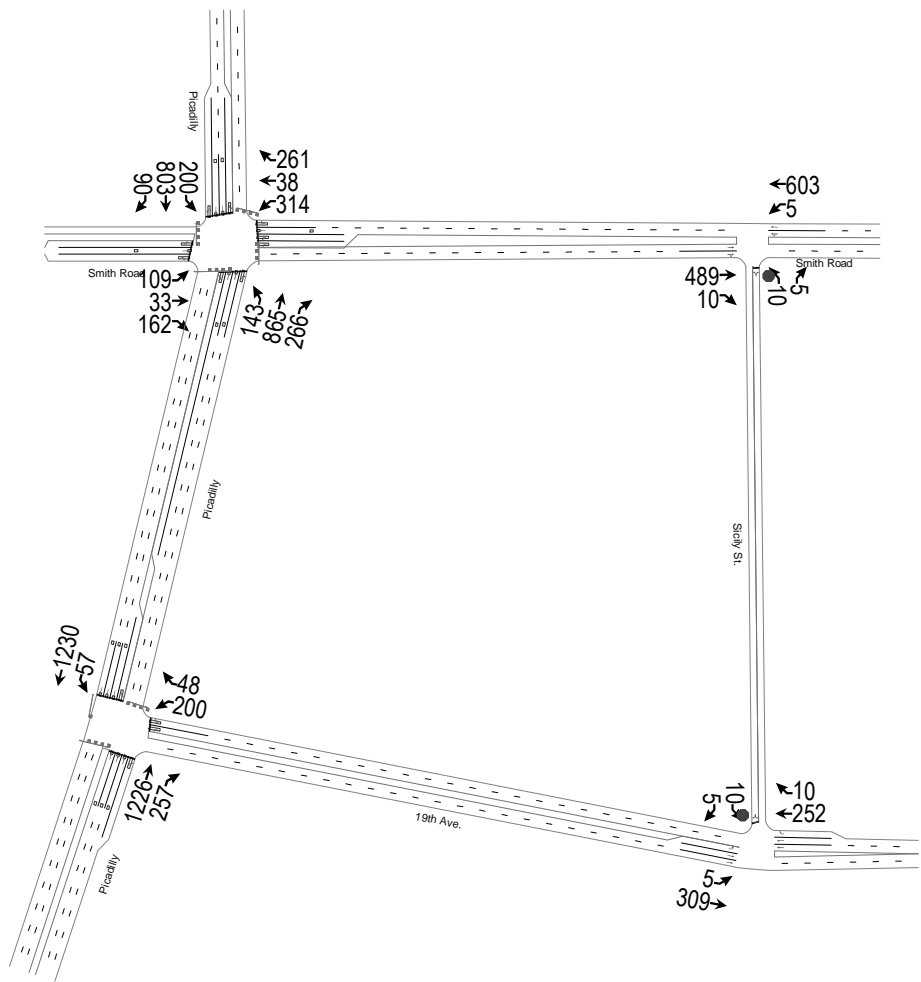
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	204	-	-	763	-
HCM Lane V/C Ratio	0.133	-	-	0.007	-
HCM Control Delay (s)	25.3	-	-	9.8	0.1
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	305	280	20	20	5
Future Vol, veh/h	5	305	280	20	20	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	332	304	22	22	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	326	0	0 480 152
Stage 1	-	-	- 304 -
Stage 2	-	-	- 176 -
Critical Hdwy	4.26	-	- 6.96 7.06
Critical Hdwy Stg 1	-	-	- 5.96 -
Critical Hdwy Stg 2	-	-	- 5.96 -
Follow-up Hdwy	2.28	-	- 3.58 3.38
Pot Cap-1 Maneuver	1188	-	- 500 848
Stage 1	-	-	- 704 -
Stage 2	-	-	- 819 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1188	-	- 498 848
Mov Cap-2 Maneuver	-	-	- 498 -
Stage 1	-	-	- 701 -
Stage 2	-	-	- 819 -

























Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1188	-	-	-	543
HCM Lane V/C Ratio	0.005	-	-	-	0.05
HCM Control Delay (s)	8	-	-	-	12
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Prologis  
3: Smith Road & Picadilly

20-yearly PM BKG  
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	35	170	330	40	275	150	910	280	210	845	95
Future Volume (vph)	115	35	170	330	40	275	150	910	280	210	845	95
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	14.9	22.5	22.5	16.0	23.6	23.6	15.9	32.5	32.5	19.0	35.6	35.6
Total Split (%)	16.6%	25.0%	25.0%	17.8%	26.2%	26.2%	17.7%	36.1%	36.1%	21.1%	39.6%	39.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	9.5	8.1	8.1	11.3	12.4	12.4	10.7	28.3	28.3	13.7	31.2	31.2
Actuated g/C Ratio	0.12	0.10	0.10	0.14	0.16	0.16	0.13	0.36	0.36	0.17	0.39	0.39
v/c Ratio	0.60	0.20	0.57	0.74	0.15	0.60	0.69	0.79	0.40	0.76	0.66	0.15
Control Delay	47.4	35.1	13.2	44.7	32.8	10.2	50.7	29.9	4.6	50.3	23.5	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	35.1	13.2	44.7	32.8	10.2	50.7	29.9	4.6	50.3	23.5	2.7
LOS	D	D	B	D	C	B	D	C	A	D	C	A
Approach Delay		27.9			29.3			26.9			26.7	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 79.4

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 27.4









Intersection LOS: C

Intersection Capacity Utilization 61.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Smith Road & Picadilly













			
Ø1	Ø2	Ø3	Ø4
19 s	32.5 s	16 s	22.5 s
			
Ø5	Ø6	Ø7	Ø8
15.9 s	35.6 s	14.9 s	23.6 s



Prologis  
3: Smith Road & Picadilly

20-yearly PM BKG

12/08/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	119	36	176	341	41	284	155	940	289	217	873	98
v/c Ratio	0.60	0.20	0.57	0.74	0.15	0.60	0.69	0.79	0.40	0.76	0.66	0.15
Control Delay	47.4	35.1	13.2	44.7	32.8	10.2	50.7	29.9	4.6	50.3	23.5	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	35.1	13.2	44.7	32.8	10.2	50.7	29.9	4.6	50.3	23.5	2.7
Queue Length 50th (ft)	56	17	0	84	19	0	73	215	0	101	181	0
Queue Length 95th (ft)	#128	43	54	#158	47	67	#170	#362	53	#226	284	20
Internal Link Dist (ft)		246			846			796			326	
Turn Bay Length (ft)	500		500	150			500			200		200
Base Capacity (vph)	219	400	475	471	429	579	240	1191	718	306	1314	664
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.09	0.37	0.72	0.10	0.49	0.65	0.79	0.40	0.71	0.66	0.15

























Intersection Summary

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

Prologis  
3: Smith Road & Picadilly

20-year PM BKG

12/08/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	35	170	330	40	275	150	910	280	210	845	95
Future Volume (veh/h)	115	35	170	330	40	275	150	910	280	210	845	95
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	119	36	176	341	41	284	155	940	289	217	873	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	8	8	8
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	149	304	258	417	374	317	189	1139	508	253	1269	566
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
Prop Arrive On Green	0.09	0.17	0.17	0.13	0.21	0.21	0.11	0.34	0.34	0.15	0.37	0.37
Unsig. Movement Delay												
Ln Grp Delay, s/veh	50.4	29.4	36.4	45.8	26.7	55.3	53.5	32.2	27.2	53.6	25.0	18.1
Ln Grp LOS	D	C	D	D	C	E	D	C	C	D	C	B
Approach Vol, veh/h	331			666			1384			1188		
Approach Delay, s/veh	40.7			48.7			33.5			29.6		
Approach LOS	D			D			C			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0				
Phs Duration (G+Y+Rc), s	16.9	32.5	15.0	18.7	13.7	35.7	11.8	22.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green (Gmax), s	14.5	28.0	11.5	18.0	11.4	31.1	10.4	19.1				
Max Allow Headway (MAH), s	3.8	5.0	3.8	4.3	3.8	5.1	3.8	4.2				
Max Q Clear (g_c+I1), s	12.4	23.2	10.4	11.1	9.4	20.1	7.7	17.2				
Green Ext Time (g_e), s	0.1	3.0	0.2	0.4	0.1	4.8	0.1	0.2				
Prob of Phs Call (p_c)	0.99	1.00	1.00	1.00	0.97	1.00	0.94	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	0.18	1.00	0.00	1.00	1.00				
Left-Turn Movement Data												
Assigned Mvmt	1	3	5	7								
Mvmt Sat Flow, veh/h	1697	3291	1697	1697								
Through Movement Data												
Assigned Mvmt	2	4	6	8								
Mvmt Sat Flow, veh/h	3385	1781	3385	1781								
Right-Turn Movement Data												
Assigned Mvmt	12	14	16	18								
Mvmt Sat Flow, veh/h	1510	1510	1510	1510								
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)				

Prologis  
3: Smith Road & Picadilly

20-year PM BKG

12/08/2022

Lanes in Grp	1	0	2	0	1	0	1	0
Grp Vol (v), veh/h	217	0	341	0	155	0	119	0
Grp Sat Flow (s), veh/h/ln	1697	0	1646	0	1697	0	1697	0
Q Serve Time (g_s), s	10.4	0.0	8.4	0.0	7.4	0.0	5.7	0.0
Cycle Q Clear Time (g_c), s	10.4	0.0	8.4	0.0	7.4	0.0	5.7	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	253	0	417	0	189	0	149	0
V/C Ratio (X)	0.86	0.00	0.82	0.00	0.82	0.00	0.80	0.00
Avail Cap (c_a), veh/h	296	0	455	0	232	0	212	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	34.5	0.0	35.4	0.0	36.2	0.0	37.2	0.0
Incr Delay (d2), s/veh	19.0	0.0	10.4	0.0	17.3	0.0	13.2	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	53.6	0.0	45.8	0.0	53.5	0.0	50.4	0.0
1st-Term Q (Q1), veh/ln	4.2	0.0	3.3	0.0	3.0	0.0	2.3	0.0
2nd-Term Q (Q2), veh/ln	1.3	0.0	0.6	0.0	0.9	0.0	0.5	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	5.5	0.0	3.9	0.0	3.9	0.0	2.9	0.0
%ile Storage Ratio (RQ%)	0.73	0.00	0.69	0.00	0.21	0.00	0.15	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T		T		T		T	
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	940	0	36	0	873	0	41
Grp Sat Flow (s), veh/h/ln	0	1692	0	1781	0	1692	0	1781
Q Serve Time (g_s), s	0.0	21.2	0.0	1.4	0.0	18.1	0.0	1.5
Cycle Q Clear Time (g_c), s	0.0	21.2	0.0	1.4	0.0	18.1	0.0	1.5
Lane Grp Cap (c), veh/h	0	1139	0	304	0	1269	0	374
V/C Ratio (X)	0.00	0.83	0.00	0.12	0.00	0.69	0.00	0.11
Avail Cap (c_a), veh/h	0	1139	0	385	0	1269	0	409
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	25.3	0.0	29.2	0.0	21.9	0.0	26.6
Incr Delay (d2), s/veh	0.0	6.9	0.0	0.2	0.0	3.1	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	32.2	0.0	29.4	0.0	25.0	0.0	26.7
1st-Term Q (Q1), veh/ln	0.0	8.1	0.0	0.6	0.0	6.8	0.0	0.6
2nd-Term Q (Q2), veh/ln	0.0	1.1	0.0	0.0	0.0	0.5	0.0	0.0

Prologis  
3: Smith Road & Picadilly

20-yearly PM BKG

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	9.2	0.0	0.6	0.0	7.3	0.0	0.7
%ile Storage Ratio (RQ%)	0.00	0.32	0.00	0.06	0.00	0.55	0.00	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	R		R		R		R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	289	0	176	0	98	0	284
Grp Sat Flow (s), veh/h/ln	0	1510	0	1510	0	1510	0	1510
Q Serve Time (g_s), s	0.0	13.1	0.0	9.1	0.0	3.6	0.0	15.2
Cycle Q Clear Time (g_c), s	0.0	13.1	0.0	9.1	0.0	3.6	0.0	15.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	508	0	258	0	566	0	317
V/C Ratio (X)	0.00	0.57	0.00	0.68	0.00	0.17	0.00	0.90
Avail Cap (c_a), veh/h	0	508	0	327	0	566	0	347
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	22.6	0.0	32.4	0.0	17.4	0.0	32.0
Incr Delay (d2), s/veh	0.0	4.6	0.0	4.0	0.0	0.7	0.0	23.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	27.2	0.0	36.4	0.0	18.1	0.0	55.3
1st-Term Q (Q1), veh/ln	0.0	4.4	0.0	3.2	0.0	1.2	0.0	5.4
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.3	0.0	0.1	0.0	2.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	5.1	0.0	3.5	0.0	1.3	0.0	7.4
%ile Storage Ratio (RQ%)	0.00	0.18	0.00	0.19	0.00	0.17	0.00	0.23
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	210	50	1290	270	60	1295
Future Volume (vph)	210	50	1290	270	60	1295
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	28.0	28.0	46.0	46.0	16.0	62.0
Total Split (%)	31.1%	31.1%	51.1%	51.1%	17.8%	68.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	16.2	16.2	49.0	49.0	8.5	60.1
Actuated g/C Ratio	0.19	0.19	0.57	0.57	0.10	0.70
v/c Ratio	0.69	0.16	0.48	0.29	0.38	0.39
Control Delay	43.1	9.2	13.1	2.6	41.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	9.2	13.1	2.6	41.8	6.0
LOS	D	A	B	A	D	A
Approach Delay	36.5		11.3			7.6
Approach LOS	D		B			A

#### Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 85.3

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 11.8

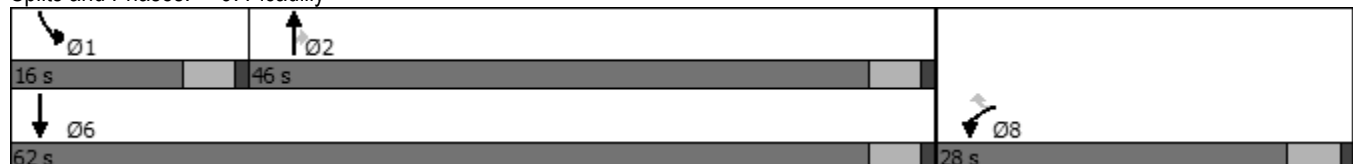
Intersection LOS: B







Intersection Capacity Utilization 50.1%













ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: Picadilly



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	217	52	1332	279	62	1337
v/c Ratio	0.69	0.16	0.48	0.29	0.38	0.39
Control Delay	43.1	9.2	13.1	2.6	41.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	9.2	13.1	2.6	41.8	6.0
Queue Length 50th (ft)	105	0	148	0	30	88
Queue Length 95th (ft)	176	27	241	41	70	150
Internal Link Dist (ft)	1073		382			796
Turn Bay Length (ft)				150	150	
Base Capacity (vph)	461	450	2761	978	225	3385
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.12	0.48	0.29	0.28	0.39
Intersection Summary						

									
Movement	WBL	WBR	NBT	NBR	SBL	SBT			
Lane Configurations									
Traffic Volume (veh/h)	210	50	1290	270	60	1295			
Future Volume (veh/h)	210	50	1290	270	60	1295			
Number	3	18	2	12	1	6			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00	1.00		1.00	1.00				
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No		No			No			
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781			
Adj Flow Rate, veh/h	217	52	1332	279	62	1337			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	8	8	8	8	8	8			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	266	236	3040	944	80	3547			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.16	0.16	0.63	0.63	0.05	0.73			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	38.3	29.5	8.1	7.6	51.8	4.3			
Ln Grp LOS	D	C	A	A	D	A			
Approach Vol, veh/h	269		1611			1399			
Approach Delay, s/veh	36.6		8.0			6.4			
Approach LOS	D		A			A			
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		2.0	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		8.2	53.8	16.8			62.0		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		11.5	41.5	23.5			57.5		
Max Allow Headway (MAH), s		3.8	5.1	3.9			5.3		
Max Q Clear (g_c+I1), s		4.8	13.1	11.8			10.1		
Green Ext Time (g_e), s		0.1	13.3	0.6			14.0		
Prob of Phs Call (p_c)		0.74	1.00	1.00			1.00		
Prob of Max Out (p_x)		0.03	0.00	0.01			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1697	0	1697					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			5024	0			5024		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1510	1510			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Prot)		L					

Prologis  
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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	62	0	217	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1697	0	1697	0	0	0	0	0
Q Serve Time (g_s), s	2.8	0.0	9.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	2.8	0.0	9.8	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1697	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	49.3	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	80	0	266	0	0	0	0	0
V/C Ratio (X)	0.78	0.00	0.82	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	247	0	506	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	37.2	0.0	32.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	14.7	0.0	6.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	51.8	0.0	38.3	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.2	0.0	3.9	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.3	0.0	0.4	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	1.5	0.0	4.3	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.26	0.00	0.11	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	3	0	0	0	3	0	0
Grp Vol (v), veh/h	0	1332	0	0	0	1337	0	0
Grp Sat Flow (s), veh/h/ln	0	1621	0	0	0	1621	0	0
Q Serve Time (g_s), s	0.0	11.1	0.0	0.0	0.0	8.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	11.1	0.0	0.0	0.0	8.1	0.0	0.0
Lane Grp Cap (c), veh/h	0	3040	0	0	0	3547	0	0
V/C Ratio (X)	0.00	0.44	0.00	0.00	0.00	0.38	0.00	0.00
Avail Cap (c_a), veh/h	0	3040	0	0	0	3547	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.6	0.0	0.0	0.0	4.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.1	0.0	0.0	0.0	4.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	3.3	0.0	0.0	0.0	1.9	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0



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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	3.4	0.0	0.0	0.0	2.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.22	0.00	0.00	0.00	0.07	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	279	52	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1510	1510	0	0	0	0	0
Q Serve Time (g_s), s	0.0	6.7	2.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	6.7	2.4	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	944	236	0	0	0	0	0
V/C Ratio (X)	0.00	0.30	0.22	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	944	450	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	6.8	29.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.6	29.5	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.8	0.8	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	2.0	0.9	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.36	0.02	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary







HCM 6th Ctrl Delay	9.7
HCM 6th LOS	A

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Vol, veh/h	515	10	5	635	10	5
Future Vol, veh/h	515	10	5	635	10	5
Conflicting Peds, #/hr	0	0	100	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	532	10	5	656	10	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	642	0	975
Stage 1	-	-	-	-	637
Stage 2	-	-	-	-	338
Critical Hdwy	-	-	4.26	-	6.96
Critical Hdwy Stg 1	-	-	-	-	5.96
Critical Hdwy Stg 2	-	-	-	-	5.96
Follow-up Hdwy	-	-	2.28	-	3.58
Pot Cap-1 Maneuver	-	-	899	-	238
Stage 1	-	-	-	-	473
Stage 2	-	-	-	-	677
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	813	-	213
Mov Cap-2 Maneuver	-	-	-	-	213
Stage 1	-	-	-	-	428
Stage 2	-	-	-	-	670

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	19.3
HCM LOS			C

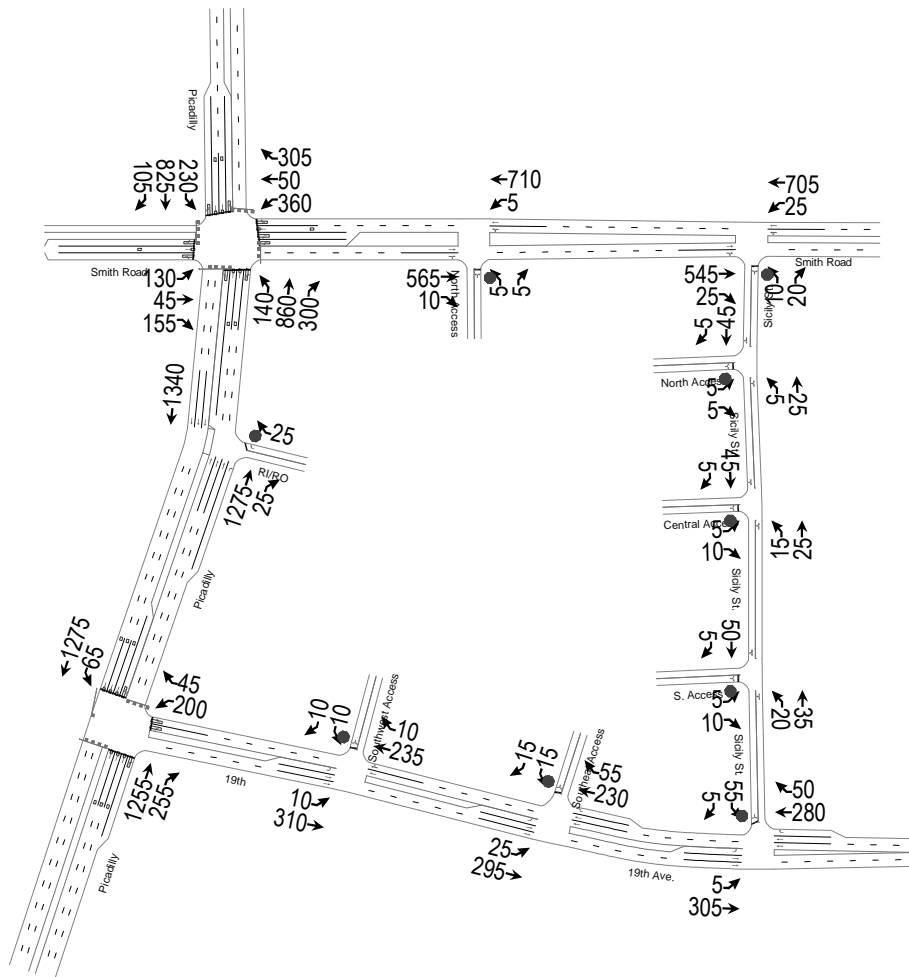
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	268	-	-	813	-
HCM Lane V/C Ratio	0.058	-	-	0.006	-
HCM Control Delay (s)	19.3	-	-	9.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	325	265	10	10	5
Future Vol, veh/h	5	325	265	10	10	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	336	274	10	10	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	284	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.26	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.28	-	-
Pot Cap-1 Maneuver	1233	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1233	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.2
HCM LOS	B		

























Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1233	-	-	-	599
HCM Lane V/C Ratio	0.004	-	-	-	0.026
HCM Control Delay (s)	7.9	-	-	-	11.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Prologis  
3: Smith Road & Picadilly

20-year AM TOTAL

12/08/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	45	155	360	50	305	140	860	300	230	825	105
Future Volume (vph)	130	45	155	360	50	305	140	860	300	230	825	105
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	15.7	22.5	22.5	16.4	23.2	23.2	16.3	32.1	32.1	19.0	34.8	34.8
Total Split (%)	17.4%	25.0%	25.0%	18.2%	25.8%	25.8%	18.1%	35.7%	35.7%	21.1%	38.7%	38.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	10.4	9.4	9.4	11.9	11.0	11.0	10.9	27.7	27.7	14.5	31.3	31.3
Actuated g/C Ratio	0.13	0.12	0.12	0.15	0.13	0.13	0.13	0.34	0.34	0.18	0.38	0.38
v/c Ratio	0.67	0.24	0.52	0.82	0.23	0.70	0.68	0.82	0.45	0.84	0.70	0.18
Control Delay	51.2	34.9	11.7	50.9	33.8	13.3	51.3	33.1	5.0	59.9	25.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	34.9	11.7	50.9	33.8	13.3	51.3	33.1	5.0	59.9	25.8	4.0
LOS	D	C	B	D	C	B	D	C	A	E	C	A
Approach Delay		30.4			33.6			28.6			30.6	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 81.5

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 30.5









Intersection LOS: C

Intersection Capacity Utilization 64.7%

ICU Level of Service C

Analysis Period (min) 15













Splits and Phases: 3: Smith Road & Picadilly

			
Ø1	Ø2	Ø3	Ø4
19 s	32.1 s	16.4 s	22.5 s
			
Ø5	Ø6	Ø7	Ø8
16.3 s	34.8 s	15.7 s	23.2 s

Prologis  
3: Smith Road & Picadilly

20-year AM TOTAL

12/08/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	141	49	168	391	54	332	152	935	326	250	897	114
v/c Ratio	0.67	0.24	0.52	0.82	0.23	0.70	0.68	0.82	0.45	0.84	0.70	0.18
Control Delay	51.2	34.9	11.7	50.9	33.8	13.3	51.3	33.1	5.0	59.9	25.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	34.9	11.7	50.9	33.8	13.3	51.3	33.1	5.0	59.9	25.8	4.0
Queue Length 50th (ft)	67	23	0	98	25	6	72	218	0	121	193	0
Queue Length 95th (ft)	#160	54	52	#196	57	81	#170	#383	59	#284	313	30
Internal Link Dist (ft)		246			356			278			326	
Turn Bay Length (ft)	500		500	150			500			200		200
Base Capacity (vph)	230	389	461	474	404	588	242	1134	722	297	1281	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.13	0.36	0.82	0.13	0.56	0.63	0.82	0.45	0.84	0.70	0.18

























Intersection Summary

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

Prologis  
3: Smith Road & Picadilly

20-year AM TOTAL

12/08/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	45	155	360	50	305	140	860	300	230	825	105
Future Volume (veh/h)	130	45	155	360	50	305	140	860	300	230	825	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	141	49	168	391	54	332	152	935	326	250	897	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	8	8	8
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	172	319	270	447	380	322	184	1065	475	280	1257	561
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
Prop Arrive On Green	0.10	0.18	0.18	0.14	0.21	0.21	0.11	0.31	0.31	0.17	0.37	0.37
Unsig. Movement Delay												
Ln Grp Delay, s/veh	56.1	30.6	36.3	54.6	28.2	93.0	56.1	38.7	34.1	63.7	27.1	19.6
Ln Grp LOS	E	C	D	D	C	F	E	D	C	E	C	B
Approach Vol, veh/h	358			777			1413			1261		
Approach Delay, s/veh	43.3			69.2			39.5			33.6		
Approach LOS	D			E			D			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0				
Phs Duration (G+Y+Rc), s	19.0	32.1	16.4	20.2	14.0	37.1	13.4	23.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green (Gmax), s	14.5	27.6	11.9	18.0	11.8	30.3	11.2	18.7				
Max Allow Headway (MAH), s	3.8	5.0	3.8	4.3	3.8	5.1	3.8	4.2				
Max Q Clear (g_c+I1), s	14.7	24.9	12.2	11.0	9.7	21.9	9.1	20.7				
Green Ext Time (g_e), s	0.0	1.8	0.0	0.4	0.1	4.2	0.1	0.0				
Prob of Phs Call (p_c)	1.00	1.00	1.00	1.00	0.98	1.00	0.97	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	0.19	1.00	0.00	1.00	1.00				
Left-Turn Movement Data												
Assigned Mvmt	1	3	5	7								
Mvmt Sat Flow, veh/h	1697	3291	1697	1697								
Through Movement Data												
Assigned Mvmt	2	4	6	8								
Mvmt Sat Flow, veh/h	3385	1781	3385	1781								
Right-Turn Movement Data												
Assigned Mvmt	12	14	16	18								
Mvmt Sat Flow, veh/h	1510	1510	1510	1510								
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)				

Prologis  
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Lanes in Grp	1	0	2	0	1	0	1	0
Grp Vol (v), veh/h	250	0	391	0	152	0	141	0
Grp Sat Flow (s), veh/h/ln	1697	0	1646	0	1697	0	1697	0
Q Serve Time (g_s), s	12.7	0.0	10.2	0.0	7.7	0.0	7.1	0.0
Cycle Q Clear Time (g_c), s	12.7	0.0	10.2	0.0	7.7	0.0	7.1	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	280	0	447	0	184	0	172	0
V/C Ratio (X)	0.89	0.00	0.88	0.00	0.82	0.00	0.82	0.00
Avail Cap (c_a), veh/h	280	0	447	0	228	0	217	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	35.8	0.0	37.2	0.0	38.3	0.0	38.6	0.0
Incr Delay (d2), s/veh	27.8	0.0	17.4	0.0	17.8	0.0	17.5	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	63.7	0.0	54.6	0.0	56.1	0.0	56.1	0.0
1st-Term Q (Q1), veh/ln	5.1	0.0	4.0	0.0	3.1	0.0	2.9	0.0
2nd-Term Q (Q2), veh/ln	2.2	0.0	1.1	0.0	0.9	0.0	0.8	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	7.3	0.0	5.1	0.0	4.1	0.0	3.8	0.0
%ile Storage Ratio (RQ%)	0.97	0.00	0.91	0.00	0.22	0.00	0.20	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T		T		T		T	
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	935	0	49	0	897	0	54
Grp Sat Flow (s), veh/h/ln	0	1692	0	1781	0	1692	0	1781
Q Serve Time (g_s), s	0.0	22.9	0.0	2.0	0.0	19.9	0.0	2.2
Cycle Q Clear Time (g_c), s	0.0	22.9	0.0	2.0	0.0	19.9	0.0	2.2
Lane Grp Cap (c), veh/h	0	1065	0	319	0	1257	0	380
V/C Ratio (X)	0.00	0.88	0.00	0.15	0.00	0.71	0.00	0.14
Avail Cap (c_a), veh/h	0	1065	0	366	0	1257	0	380
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	28.5	0.0	30.4	0.0	23.6	0.0	28.0
Incr Delay (d2), s/veh	0.0	10.2	0.0	0.2	0.0	3.5	0.0	0.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	38.7	0.0	30.6	0.0	27.1	0.0	28.2
1st-Term Q (Q1), veh/ln	0.0	8.9	0.0	0.9	0.0	7.6	0.0	0.9
2nd-Term Q (Q2), veh/ln	0.0	1.5	0.0	0.0	0.0	0.6	0.0	0.0



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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	10.4	0.0	0.9	0.0	8.2	0.0	0.9
%ile Storage Ratio (RQ%)	0.00	1.00	0.00	0.09	0.00	0.62	0.00	0.07
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0







Right Lane Group Data













Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	R		R		R		R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	326	0	168	0	114	0	332
Grp Sat Flow (s), veh/h/ln	0	1510	0	1510	0	1510	0	1510
Q Serve Time (g_s), s	0.0	16.6	0.0	9.0	0.0	4.5	0.0	18.7
Cycle Q Clear Time (g_c), s	0.0	16.6	0.0	9.0	0.0	4.5	0.0	18.7
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	475	0	270	0	561	0	322
V/C Ratio (X)	0.00	0.69	0.00	0.62	0.00	0.20	0.00	1.03
Avail Cap (c_a), veh/h	0	475	0	310	0	561	0	322
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	26.3	0.0	33.3	0.0	18.7	0.0	34.5
Incr Delay (d2), s/veh	0.0	7.9	0.0	3.0	0.0	0.8	0.0	58.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	34.1	0.0	36.3	0.0	19.6	0.0	93.0
1st-Term Q (Q1), veh/ln	0.0	5.7	0.0	3.2	0.0	1.5	0.0	6.7
2nd-Term Q (Q2), veh/ln	0.0	1.0	0.0	0.2	0.0	0.1	0.0	5.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	6.8	0.0	3.5	0.0	1.7	0.0	11.9
%ile Storage Ratio (RQ%)	0.00	0.65	0.00	0.18	0.00	0.22	0.00	0.91
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary

HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Vol, veh/h	565	10	5	710	5	5
Future Vol, veh/h	565	10	5	710	5	5
Conflicting Peds, #/hr	0	0	150	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	614	11	5	772	5	5
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	775	0	1166	463
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	396	-
Critical Hdwy	-	-	4.26	-	6.96	7.06
Critical Hdwy Stg 1	-	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	-	5.96	-
Follow-up Hdwy	-	-	2.28	-	3.58	3.38
Pot Cap-1 Maneuver	-	-	799	-	178	530
Stage 1	-	-	-	-	402	-
Stage 2	-	-	-	-	632	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	685	-	151	454
Mov Cap-2 Maneuver	-	-	-	-	151	-
Stage 1	-	-	-	-	345	-
Stage 2	-	-	-	-	624	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		21.7	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	227	-	-	685	-	
HCM Lane V/C Ratio	0.048	-	-	0.008	-	
HCM Control Delay (s)	21.7	-	-	10.3	0.1	
HCM Lane LOS	C	-	-	B	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	





Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	295	230	55	15	15
Future Vol, veh/h	25	295	230	55	15	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	27	321	250	60	16	16
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	310	0	-	0	465	125
Stage 1	-	-	-	-	250	-
Stage 2	-	-	-	-	215	-
Critical Hdwy	4.26	-	-	-	6.96	7.06
Critical Hdwy Stg 1	-	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	-	5.96	-
Follow-up Hdwy	2.28	-	-	-	3.58	3.38
Pot Cap-1 Maneuver	1205	-	-	-	511	883
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	782	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1205	-	-	-	500	883
Mov Cap-2 Maneuver	-	-	-	-	500	-
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	782	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.6	0		10.9		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1205	-	-	-	638	
HCM Lane V/C Ratio	0.023	-	-	-	0.051	
HCM Control Delay (s)	8.1	-	-	-	10.9	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	







						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	200	45	1255	255	65	1275
Future Volume (vph)	200	45	1255	255	65	1275
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	28.0	28.0	46.0	46.0	16.0	62.0
Total Split (%)	31.1%	31.1%	51.1%	51.1%	17.8%	68.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	16.1	16.1	48.7	48.7	8.7	60.0
Actuated g/C Ratio	0.19	0.19	0.57	0.57	0.10	0.70
v/c Ratio	0.69	0.15	0.50	0.28	0.42	0.41
Control Delay	43.0	9.4	13.4	2.6	42.8	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	9.4	13.4	2.6	42.8	6.1
LOS	D	A	B	A	D	A
Approach Delay	36.8		11.6			7.9
Approach LOS	D		B			A













#### Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 85.2	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 50.7%	ICU Level of Service A
Analysis Period (min) 15	

#### Splits and Phases: 9: Picadilly & 19th

 Ø1	 Ø2	
16 s	46 s	
 Ø6		 Ø8
62 s		28 s

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	217	49	1364	277	71	1386
v/c Ratio	0.69	0.15	0.50	0.28	0.42	0.41
Control Delay	43.0	9.4	13.4	2.6	42.8	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	9.4	13.4	2.6	42.8	6.1
Queue Length 50th (ft)	105	0	155	0	35	93
Queue Length 95th (ft)	176	27	249	41	78	157
Internal Link Dist (ft)	340		382			444
Turn Bay Length (ft)				150	150	
Base Capacity (vph)	461	448	2746	973	226	3385
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.11	0.50	0.28	0.31	0.41
Intersection Summary						

									
Movement	WBL	WBR	NBT	NBR	SBL	SBT			
Lane Configurations									
Traffic Volume (veh/h)	200	45	1255	255	65	1275			
Future Volume (veh/h)	200	45	1255	255	65	1275			
Number	3	18	2	12	1	6			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00	1.00		1.00	1.00				
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No		No			No			
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781			
Adj Flow Rate, veh/h	217	49	1364	277	71	1386			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	8	8	8	8	8	8			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	265	236	3011	935	90	3547			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.16	0.16	0.62	0.62	0.05	0.73			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	38.3	29.4	8.4	7.8	50.7	4.4			
Ln Grp LOS	D	C	A	A	D	A			
Approach Vol, veh/h	266		1641			1457			
Approach Delay, s/veh	36.7		8.3			6.6			
Approach LOS	D		A			A			
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		1	2	8			6		
Case No		2.0	7.0	9.0			4.0		
Phs Duration (G+Y+Rc), s		8.7	53.3	16.8			62.0		
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5		
Max Green (Gmax), s		11.5	41.5	23.5			57.5		
Max Allow Headway (MAH), s		3.8	5.1	3.9			5.3		
Max Q Clear (g_c+I1), s		5.3	13.7	11.8			10.5		
Green Ext Time (g_e), s		0.1	13.5	0.6			14.8		
Prob of Phs Call (p_c)		0.79	1.00	1.00			1.00		
Prob of Max Out (p_x)		0.06	0.00	0.01			0.00		
Left-Turn Movement Data									
Assigned Mvmt		1	5	3					
Mvmt Sat Flow, veh/h		1697	0	1697					
Through Movement Data									
Assigned Mvmt			2	8			6		
Mvmt Sat Flow, veh/h			5024	0			5024		
Right-Turn Movement Data									
Assigned Mvmt			12	18			16		
Mvmt Sat Flow, veh/h			1510	1510			0		
Left Lane Group Data									
Assigned Mvmt		1	5	3	0	0	0	0	0
Lane Assignment		L (Prot)		L					

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	71	0	217	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1697	0	1697	0	0	0	0	0
Q Serve Time (g_s), s	3.3	0.0	9.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.3	0.0	9.8	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1697	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	48.8	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	90	0	265	0	0	0	0	0
V/C Ratio (X)	0.79	0.00	0.82	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	248	0	506	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	36.9	0.0	32.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	13.8	0.0	6.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	50.7	0.0	38.3	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.3	0.0	3.9	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.3	0.0	0.5	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	1.7	0.0	4.3	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.30	0.00	0.35	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	3	0	0	0	3	0	0
Grp Vol (v), veh/h	0	1364	0	0	0	1386	0	0
Grp Sat Flow (s), veh/h/ln	0	1621	0	0	0	1621	0	0
Q Serve Time (g_s), s	0.0	11.7	0.0	0.0	0.0	8.5	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	11.7	0.0	0.0	0.0	8.5	0.0	0.0
Lane Grp Cap (c), veh/h	0	3011	0	0	0	3547	0	0
V/C Ratio (X)	0.00	0.45	0.00	0.00	0.00	0.39	0.00	0.00
Avail Cap (c_a), veh/h	0	3011	0	0	0	3547	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.9	0.0	0.0	0.0	4.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.4	0.0	0.0	0.0	4.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	3.4	0.0	0.0	0.0	2.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	3.6	0.0	0.0	0.0	2.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.23	0.00	0.00	0.00	0.12	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	277	49	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1510	1510	0	0	0	0	0
Q Serve Time (g_s), s	0.0	6.7	2.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	6.7	2.2	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	935	236	0	0	0	0	0
V/C Ratio (X)	0.00	0.30	0.21	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	935	450	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.0	29.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.8	29.4	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.9	0.8	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	2.1	0.8	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.37	0.07	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A



Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑	↗		↑↑↑
Traffic Vol, veh/h	0	25	1275	25	0	1340
Future Vol, veh/h	0	25	1275	25	0	1340
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	0	27	1386	27	0	1457

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	693	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.26	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.98	-
Pot Cap-1 Maneuver	0	320	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	320	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.3	0	0
HCM LOS	C		







Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	320
HCM Lane V/C Ratio	-	-	0.085
HCM Control Delay (s)	-	-	17.3
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.3

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Vol, veh/h	545	25	25	705	10	20
Future Vol, veh/h	545	25	25	705	10	20
Conflicting Peds, #/hr	0	0	100	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	592	27	27	766	11	22

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	719	0	1143
Stage 1	-	-	-	-	706
Stage 2	-	-	-	-	437
Critical Hdwy	-	-	4.26	-	6.96
Critical Hdwy Stg 1	-	-	-	-	5.96
Critical Hdwy Stg 2	-	-	-	-	5.96
Follow-up Hdwy	-	-	2.28	-	3.58
Pot Cap-1 Maneuver	-	-	839	-	185
Stage 1	-	-	-	-	435
Stage 2	-	-	-	-	601
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	759	-	157
Mov Cap-2 Maneuver	-	-	-	-	157
Stage 1	-	-	-	-	394
Stage 2	-	-	-	-	564

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	18.8
HCM LOS			C





Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	293	-	-	759	-
HCM Lane V/C Ratio	0.111	-	-	0.036	-
HCM Control Delay (s)	18.8	-	-	9.9	0.3
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	305	280	50	55	5
Future Vol, veh/h	5	305	280	50	55	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	332	304	54	60	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	358	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.26	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.28	-	-
Pot Cap-1 Maneuver	1155	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1155	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13
HCM LOS	B		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1155	-	-	-	516
HCM Lane V/C Ratio	0.005	-	-	-	0.126
HCM Control Delay (s)	8.1	-	-	-	13
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	310	235	10	10	10
Future Vol, veh/h	10	310	235	10	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	11	337	255	11	11	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	266	0	0	452	133
Stage 1	-	-	-	261	-
Stage 2	-	-	-	191	-
Critical Hdwy	4.26	-	-	6.96	7.06
Critical Hdwy Stg 1	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	5.96	-
Follow-up Hdwy	2.28	-	-	3.58	3.38
Pot Cap-1 Maneuver	1252	-	-	521	873
Stage 1	-	-	-	741	-
Stage 2	-	-	-	805	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1252	-	-	516	873
Mov Cap-2 Maneuver	-	-	-	516	-
Stage 1	-	-	-	734	-
Stage 2	-	-	-	805	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1252	-	-	-	649
HCM Lane V/C Ratio	0.009	-	-	-	0.033
HCM Control Delay (s)	7.9	-	-	-	10.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1




Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	5	10	20	35	50	5
Future Vol, veh/h	5	10	20	35	50	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	11	22	38	54	5

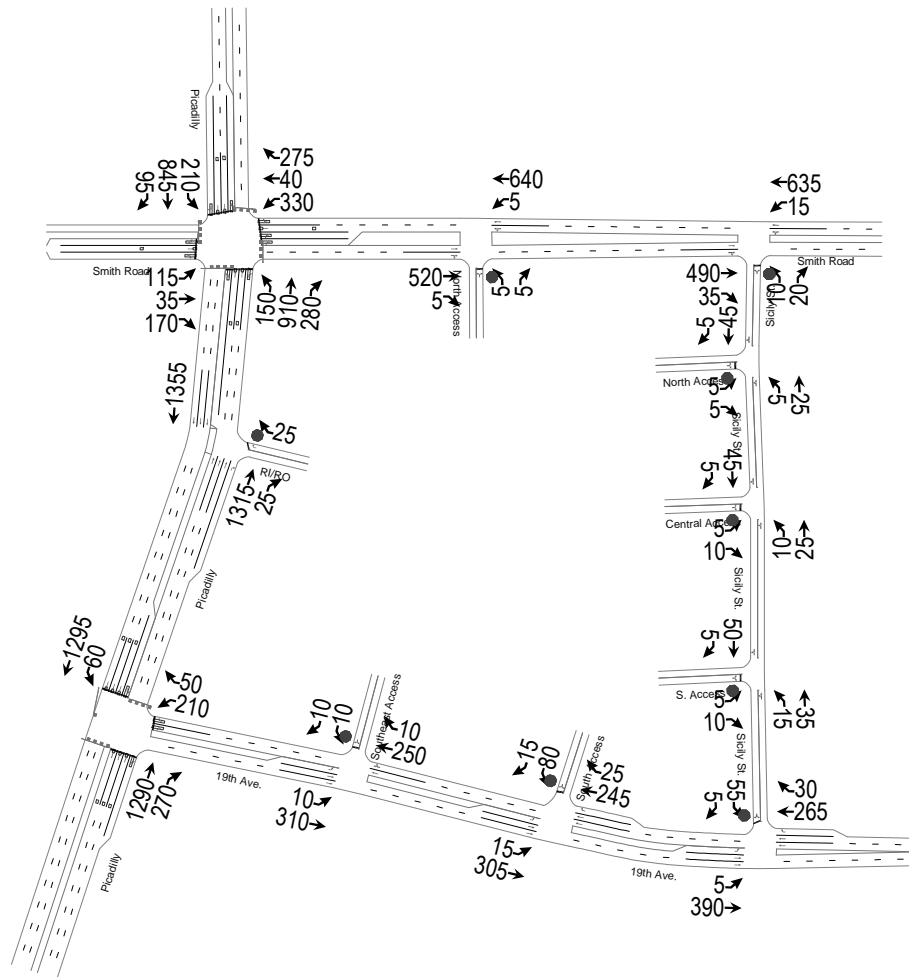
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	139	57	59	0	-	0
Stage 1	57	-	-	-	-	-
Stage 2	82	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.18	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.272	-	-	-
Pot Cap-1 Maneuver	840	993	1507	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	926	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	827	993	1507	-	-	-
Mov Cap-2 Maneuver	827	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	926	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1507	-	931	-	-
HCM Lane V/C Ratio	0.014	-	0.018	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	5	10	15	25	45	5
Future Vol, veh/h	5	10	15	25	45	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	11	16	27	49	5
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	111	52	54	0	-	0
Stage 1	52	-	-	-	-	-
Stage 2	59	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.18	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.272	-	-	-
Pot Cap-1 Maneuver	872	999	1514	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	948	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	862	999	1514	-	-	-
Mov Cap-2 Maneuver	862	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	948	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	2.8		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1514	-	949	-	-	
HCM Lane V/C Ratio	0.011	-	0.017	-	-	
HCM Control Delay (s)	7.4	0	8.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	5	25	45	5
Future Vol, veh/h	5	5	5	25	45	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	5	5	27	49	5
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	89	52	54	0	-	0
Stage 1	52	-	-	-	-	-
Stage 2	37	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.18	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.272	-	-	-
Pot Cap-1 Maneuver	897	999	1514	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	894	999	1514	-	-	-
Mov Cap-2 Maneuver	894	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	1.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1514	-	944	-	-	
HCM Lane V/C Ratio	0.004	-	0.012	-	-	
HCM Control Delay (s)	7.4	0	8.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	





























Prologis  
3: Smith Road & Picadilly

20-year PM TOTAL

12/08/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	35	170	330	40	275	150	910	280	210	845	95
Future Volume (vph)	115	35	170	330	40	275	150	910	280	210	845	95
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	15.7	22.5	22.5	16.4	23.2	23.2	16.3	32.1	32.1	19.0	34.8	34.8
Total Split (%)	17.4%	25.0%	25.0%	18.2%	25.8%	25.8%	18.1%	35.7%	35.7%	21.1%	38.7%	38.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	10.0	8.4	8.4	11.7	10.1	10.1	11.1	27.7	27.7	13.9	30.5	30.5
Actuated g/C Ratio	0.13	0.11	0.11	0.15	0.13	0.13	0.14	0.35	0.35	0.17	0.38	0.38
v/c Ratio	0.60	0.21	0.57	0.76	0.19	0.66	0.70	0.85	0.42	0.78	0.72	0.16
Control Delay	46.5	34.9	13.0	45.2	33.8	12.1	51.4	33.9	4.8	52.7	25.6	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	34.9	13.0	45.2	33.8	12.1	51.4	33.9	4.8	52.7	25.6	3.2
LOS	D	C	B	D	C	B	D	C	A	D	C	A
Approach Delay		27.4			30.4			29.8			28.7	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 79.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 29.3









Intersection LOS: C

Intersection Capacity Utilization 64.1%

ICU Level of Service C













Analysis Period (min) 15

Splits and Phases: 3: Smith Road & Picadilly

			
Ø1	Ø2	Ø3	Ø4
19 s	32.1 s	16.4 s	22.5 s
			
Ø5	Ø6	Ø7	Ø8
16.3 s	34.8 s	15.7 s	23.2 s

Prologis  
3: Smith Road & Picadilly

20-year PM TOTAL  
12/08/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	125	38	185	359	43	299	163	989	304	228	918	103
v/c Ratio	0.60	0.21	0.57	0.76	0.19	0.66	0.70	0.85	0.42	0.78	0.72	0.16
Control Delay	46.5	34.9	13.0	45.2	33.8	12.1	51.4	33.9	4.8	52.7	25.6	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	34.9	13.0	45.2	33.8	12.1	51.4	33.9	4.8	52.7	25.6	3.2
Queue Length 50th (ft)	58	18	0	88	20	0	77	233	0	108	197	0
Queue Length 95th (ft)	#126	45	55	#169	49	68	#180	#404	56	#243	312	23
Internal Link Dist (ft)		246			356			278			326	
Turn Bay Length (ft)	500		500	150			500			200		200
Base Capacity (vph)	235	398	481	485	413	580	248	1161	717	304	1279	650
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.10	0.38	0.74	0.10	0.52	0.66	0.85	0.42	0.75	0.72	0.16

























Intersection Summary

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

Prologis  
3: Smith Road & Picadilly

20-year PM TOTAL

12/08/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	35	170	330	40	275	150	910	280	210	845	95
Future Volume (veh/h)	115	35	170	330	40	275	150	910	280	210	845	95
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	125	38	185	359	43	299	163	989	304	228	918	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	8	8	8
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	155	316	268	432	387	328	197	1098	490	263	1231	549
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
Prop Arrive On Green	0.09	0.18	0.18	0.13	0.22	0.22	0.12	0.32	0.32	0.16	0.36	0.36
Unsig. Movement Delay												
Ln Grp Delay, s/veh	50.7	29.6	37.7	47.6	26.8	60.5	55.4	39.2	30.1	56.9	27.8	19.2
Ln Grp LOS	D	C	D	D	C	E	E	D	C	E	C	B
Approach Vol, veh/h	348			701			1456			1249		
Approach Delay, s/veh	41.5			51.8			39.1			32.4		
Approach LOS	D			D			D			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0				
Phs Duration (G+Y+Rc), s	17.7	32.1	15.7	19.6	14.4	35.4	12.3	23.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green (Gmax), s	14.5	27.6	11.9	18.0	11.8	30.3	11.2	18.7				
Max Allow Headway (MAH), s	3.8	5.0	3.8	4.3	3.8	5.1	3.8	4.2				
Max Q Clear (g_c+I1), s	13.2	25.7	11.0	11.8	10.0	22.1	8.1	18.4				
Green Ext Time (g_e), s	0.1	1.3	0.1	0.4	0.1	4.1	0.1	0.0				
Prob of Phs Call (p_c)	1.00	1.00	1.00	1.00	0.98	1.00	0.95	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	0.29	1.00	0.00	1.00	1.00				
Left-Turn Movement Data												
Assigned Mvmt	1	3	5	7								
Mvmt Sat Flow, veh/h	1697	3291	1697	1697								
Through Movement Data												
Assigned Mvmt	2	4	6	8								
Mvmt Sat Flow, veh/h	3385	1781	3385	1781								
Right-Turn Movement Data												
Assigned Mvmt	12	14	16	18								
Mvmt Sat Flow, veh/h	1510	1510	1510	1510								
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)	L (Prot)				

Prologis  
3: Smith Road & Picadilly

20-year PM TOTAL

12/08/2022

Lanes in Grp	1	0	2	0	1	0	1	0
Grp Vol (v), veh/h	228	0	359	0	163	0	125	0
Grp Sat Flow (s), veh/h/ln	1697	0	1646	0	1697	0	1697	0
Q Serve Time (g_s), s	11.2	0.0	9.0	0.0	8.0	0.0	6.1	0.0
Cycle Q Clear Time (g_c), s	11.2	0.0	9.0	0.0	8.0	0.0	6.1	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	263	0	432	0	197	0	155	0
V/C Ratio (X)	0.87	0.00	0.83	0.00	0.83	0.00	0.80	0.00
Avail Cap (c_a), veh/h	289	0	460	0	235	0	223	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	35.1	0.0	36.0	0.0	36.8	0.0	37.9	0.0
Incr Delay (d2), s/veh	21.8	0.0	11.6	0.0	18.6	0.0	12.8	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	56.9	0.0	47.6	0.0	55.4	0.0	50.7	0.0
1st-Term Q (Q1), veh/ln	4.5	0.0	3.6	0.0	3.2	0.0	2.5	0.0
2nd-Term Q (Q2), veh/ln	1.6	0.0	0.7	0.0	1.0	0.0	0.6	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	6.1	0.0	4.2	0.0	4.3	0.0	3.1	0.0
%ile Storage Ratio (RQ%)	0.81	0.00	0.75	0.00	0.23	0.00	0.16	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T		T		T		T	
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	989	0	38	0	918	0	43
Grp Sat Flow (s), veh/h/ln	0	1692	0	1781	0	1692	0	1781
Q Serve Time (g_s), s	0.0	23.7	0.0	1.5	0.0	20.1	0.0	1.6
Cycle Q Clear Time (g_c), s	0.0	23.7	0.0	1.5	0.0	20.1	0.0	1.6
Lane Grp Cap (c), veh/h	0	1098	0	316	0	1231	0	387
V/C Ratio (X)	0.00	0.90	0.00	0.12	0.00	0.75	0.00	0.11
Avail Cap (c_a), veh/h	0	1098	0	377	0	1231	0	392
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	27.4	0.0	29.4	0.0	23.6	0.0	26.7
Incr Delay (d2), s/veh	0.0	11.8	0.0	0.2	0.0	4.1	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	39.2	0.0	29.6	0.0	27.8	0.0	26.8
1st-Term Q (Q1), veh/ln	0.0	9.1	0.0	0.6	0.0	7.7	0.0	0.7
2nd-Term Q (Q2), veh/ln	0.0	1.8	0.0	0.0	0.0	0.7	0.0	0.0

Prologis  
3: Smith Road & Picadilly

20-year PM TOTAL

12/08/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	10.9	0.0	0.7	0.0	8.4	0.0	0.7
%ile Storage Ratio (RQ%)	0.00	1.05	0.00	0.07	0.00	0.63	0.00	0.05
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	R		R		R		R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	304	0	185	0	103	0	299
Grp Sat Flow (s), veh/h/ln	0	1510	0	1510	0	1510	0	1510
Q Serve Time (g_s), s	0.0	14.5	0.0	9.8	0.0	4.0	0.0	16.4
Cycle Q Clear Time (g_c), s	0.0	14.5	0.0	9.8	0.0	4.0	0.0	16.4
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	490	0	268	0	549	0	328
V/C Ratio (X)	0.00	0.62	0.00	0.69	0.00	0.19	0.00	0.91
Avail Cap (c_a), veh/h	0	490	0	319	0	549	0	332
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	24.3	0.0	32.8	0.0	18.5	0.0	32.5
Incr Delay (d2), s/veh	0.0	5.8	0.0	4.9	0.0	0.8	0.0	28.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	30.1	0.0	37.7	0.0	19.2	0.0	60.5
1st-Term Q (Q1), veh/ln	0.0	5.0	0.0	3.5	0.0	1.3	0.0	5.8
2nd-Term Q (Q2), veh/ln	0.0	0.8	0.0	0.4	0.0	0.1	0.0	2.6
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	5.8	0.0	3.9	0.0	1.5	0.0	8.4
%ile Storage Ratio (RQ%)	0.00	0.55	0.00	0.21	0.00	0.19	0.00	0.64
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary







HCM 6th Ctrl Delay	39.5
HCM 6th LOS	D

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑	
Traffic Vol, veh/h	520	5	5	640	5	5
Future Vol, veh/h	520	5	5	640	5	5
Conflicting Peds, #/hr	0	0	150	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	565	5	5	696	5	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	720	0	1076
Stage 1	-	-	-	-	718
Stage 2	-	-	-	-	358
Critical Hdwy	-	-	4.26	-	6.96
Critical Hdwy Stg 1	-	-	-	-	5.96
Critical Hdwy Stg 2	-	-	-	-	5.96
Follow-up Hdwy	-	-	2.28	-	3.58
Pot Cap-1 Maneuver	-	-	839	-	205
Stage 1	-	-	-	-	429
Stage 2	-	-	-	-	661
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	719	-	174
Mov Cap-2 Maneuver	-	-	-	-	174
Stage 1	-	-	-	-	368
Stage 2	-	-	-	-	654

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	19.7
HCM LOS			C












Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	255	-	-	719	-
HCM Lane V/C Ratio	0.043	-	-	0.008	-
HCM Control Delay (s)	19.7	-	-	10	0.1
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	305	245	25	80	15
Future Vol, veh/h	15	305	245	25	80	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	16	332	266	27	87	16

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	293	0	0	464	133
Stage 1	-	-	-	266	-
Stage 2	-	-	-	198	-
Critical Hdwy	4.26	-	-	6.96	7.06
Critical Hdwy Stg 1	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	5.96	-
Follow-up Hdwy	2.28	-	-	3.58	3.38
Pot Cap-1 Maneuver	1223	-	-	512	873
Stage 1	-	-	-	737	-
Stage 2	-	-	-	798	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1223	-	-	505	873
Mov Cap-2 Maneuver	-	-	-	505	-
Stage 1	-	-	-	727	-
Stage 2	-	-	-	798	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1223	-	-	-	541
HCM Lane V/C Ratio	0.013	-	-	-	0.191
HCM Control Delay (s)	8	-	-	-	13.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	210	50	1290	270	60	1295
Future Volume (vph)	210	50	1290	270	60	1295
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	28.0	28.0	46.0	46.0	16.0	62.0
Total Split (%)	31.1%	31.1%	51.1%	51.1%	17.8%	68.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	16.7	16.7	48.7	48.7	8.5	59.8
Actuated g/C Ratio	0.20	0.20	0.57	0.57	0.10	0.70
v/c Ratio	0.70	0.16	0.51	0.30	0.39	0.42
Control Delay	43.3	9.0	13.8	2.6	42.5	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.3	9.0	13.8	2.6	42.5	6.4
LOS	D	A	B	A	D	A
Approach Delay	36.7		11.9			8.0
Approach LOS	D		B			A

#### Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 85.5

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 12.3

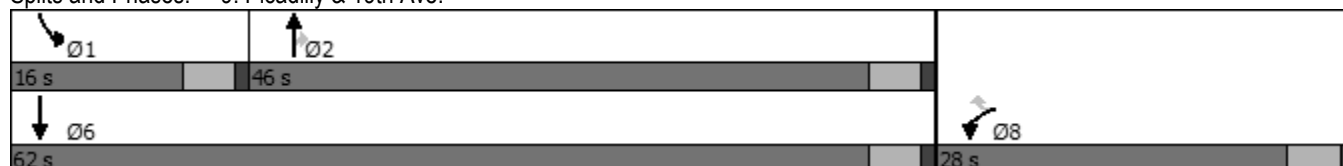
Intersection LOS: B

Intersection Capacity Utilization 52.0%







ICU Level of Service A

















Analysis Period (min) 15

Splits and Phases: 9: Picadilly & 19th Ave.





						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	228	54	1402	293	65	1408
v/c Ratio	0.70	0.16	0.51	0.30	0.39	0.42
Control Delay	43.3	9.0	13.8	2.6	42.5	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.3	9.0	13.8	2.6	42.5	6.4
Queue Length 50th (ft)	111	0	163	0	32	98
Queue Length 95th (ft)	184	28	262	42	73	164
Internal Link Dist (ft)	340		382			444
Turn Bay Length (ft)				150	150	
Base Capacity (vph)	460	450	2733	977	225	3358
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.12	0.51	0.30	0.29	0.42
Intersection Summary						

										
Movement	WBL	WBR	NBT	NBR	SBL	SBT				
Lane Configurations			  			  				
Traffic Volume (veh/h)	210	50	1290	270	60	1295				
Future Volume (veh/h)	210	50	1290	270	60	1295				
Number	3	18	2	12	1	6				
Initial Q, veh	0	0	0	0	0	0				
Ped-Bike Adj (A_pbT)	1.00	1.00		1.00	1.00					
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				
Work Zone On Approach	No		No			No				
Lanes Open During Work Zone										
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781				
Adj Flow Rate, veh/h	228	54	1402	293	65	1408				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				
Percent Heavy Veh, %	8	8	8	8	8	8				
Opposing Right Turn Influence	Yes				Yes					
Cap, veh/h	276	246	3008	934	82	3520				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				
Prop Arrive On Green	0.16	0.16	0.62	0.62	0.05	0.72				
Unsig. Movement Delay										
Ln Grp Delay, s/veh	38.3	29.3	8.6	8.0	52.6	4.6				
Ln Grp LOS	D	C	A	A	D	A				
Approach Vol, veh/h	282		1695			1473				
Approach Delay, s/veh	36.6		8.5			6.7				
Approach LOS	D		A			A				
Timer:		1	2	3	4	5	6	7	8	
Assigned Phs		1	2	8			6			
Case No		2.0	7.0	9.0			4.0			
Phs Duration (G+Y+Rc), s		8.4	53.6	17.4			62.0			
Change Period (Y+Rc), s		4.5	4.5	4.5			4.5			
Max Green (Gmax), s		11.5	41.5	23.5			57.5			
Max Allow Headway (MAH), s		3.8	5.1	3.9			5.3			
Max Q Clear (g_c+I1), s		5.0	14.3	12.3			10.9			
Green Ext Time (g_e), s		0.1	13.8	0.6			15.1			
Prob of Phs Call (p_c)		0.76	1.00	1.00			1.00			
Prob of Max Out (p_x)		0.04	0.00	0.01			0.00			
Left-Turn Movement Data										
Assigned Mvmt		1	5	3						
Mvmt Sat Flow, veh/h		1697	0	1697						
Through Movement Data										
Assigned Mvmt			2	8			6			
Mvmt Sat Flow, veh/h			5024	0			5024			
Right-Turn Movement Data										
Assigned Mvmt			12	18			16			
Mvmt Sat Flow, veh/h			1510	1510			0			
Left Lane Group Data										
Assigned Mvmt		1	5	3	0	0	0	0	0	
Lane Assignment		L (Prot)		L						

Prologis  
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20-year PM TOTAL

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Lanes in Grp	1	0	1	0	0	0	0	0
Grp Vol (v), veh/h	65	0	228	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1697	0	1697	0	0	0	0	0
Q Serve Time (g_s), s	3.0	0.0	10.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.0	0.0	10.3	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1697	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	49.1	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	82	0	276	0	0	0	0	0
V/C Ratio (X)	0.79	0.00	0.82	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	246	0	502	0	0	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	37.4	0.0	32.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	15.2	0.0	6.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	52.6	0.0	38.3	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.2	0.0	4.1	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.3	0.0	0.5	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	1.6	0.0	4.6	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.28	0.00	0.37	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment	T			T				
Lanes in Grp	0	3	0	0	0	3	0	0
Grp Vol (v), veh/h	0	1402	0	0	0	1408	0	0
Grp Sat Flow (s), veh/h/ln	0	1621	0	0	0	1621	0	0
Q Serve Time (g_s), s	0.0	12.3	0.0	0.0	0.0	8.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	12.3	0.0	0.0	0.0	8.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	3008	0	0	0	3520	0	0
V/C Ratio (X)	0.00	0.47	0.00	0.00	0.00	0.40	0.00	0.00
Avail Cap (c_a), veh/h	0	3008	0	0	0	3520	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	8.1	0.0	0.0	0.0	4.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.6	0.0	0.0	0.0	4.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	3.6	0.0	0.0	0.0	2.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	3.8	0.0	0.0	0.0	2.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.24	0.00	0.00	0.00	0.13	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	293	54	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1510	1510	0	0	0	0	0
Q Serve Time (g_s), s	0.0	7.3	2.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	7.3	2.5	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	934	246	0	0	0	0	0
V/C Ratio (X)	0.00	0.31	0.22	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	934	447	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.2	28.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.0	29.3	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	2.0	0.9	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	2.2	0.9	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.40	0.07	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B







Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑	↗		↑↑↑
Traffic Vol, veh/h	0	25	1315	25	0	1355
Future Vol, veh/h	0	25	1315	25	0	1355
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	0	27	1429	27	0	1473
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	715	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.26	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.98	-	-	-	-
Pot Cap-1 Maneuver	0	309	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	309	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	17.8	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	- 309		-		
HCM Lane V/C Ratio	-	- 0.088		-		
HCM Control Delay (s)	-	- 17.8		-		
HCM Lane LOS	-	- C		-		
HCM 95th %tile Q(veh)	-	- 0.3		-		





Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Vol, veh/h	490	35	15	635	10	20
Future Vol, veh/h	490	35	15	635	10	20
Conflicting Peds, #/hr	0	0	100	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	533	38	16	690	11	22

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	671	0	1029
Stage 1	-	-	-	-	652
Stage 2	-	-	-	-	377
Critical Hdwy	-	-	4.26	-	6.96
Critical Hdwy Stg 1	-	-	-	-	5.96
Critical Hdwy Stg 2	-	-	-	-	5.96
Follow-up Hdwy	-	-	2.28	-	3.58
Pot Cap-1 Maneuver	-	-	876	-	220
Stage 1	-	-	-	-	464
Stage 2	-	-	-	-	646
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	793	-	193
Mov Cap-2 Maneuver	-	-	-	-	193
Stage 1	-	-	-	-	420
Stage 2	-	-	-	-	625

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	16.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	337	-	-	793	-
HCM Lane V/C Ratio	0.097	-	-	0.021	-
HCM Control Delay (s)	16.8	-	-	9.6	0.2
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	390	265	30	55	5
Future Vol, veh/h	5	390	265	30	55	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	424	288	33	60	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	321	0	-	0	510	144
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	222	-
Critical Hdwy	4.26	-	-	-	6.96	7.06
Critical Hdwy Stg 1	-	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	-	5.96	-
Follow-up Hdwy	2.28	-	-	-	3.58	3.38
Pot Cap-1 Maneuver	1193	-	-	-	478	859
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	776	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1193	-	-	-	476	859
Mov Cap-2 Maneuver	-	-	-	-	476	-
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	776	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		13.4		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1193	-	-	-	494	
HCM Lane V/C Ratio	0.005	-	-	-	0.132	
HCM Control Delay (s)	8	-	-	-	13.4	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.5	

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	310	250	10	10	10
Future Vol, veh/h	10	310	250	10	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	11	337	272	11	11	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	283	0	0	469	142
Stage 1	-	-	-	278	-
Stage 2	-	-	-	191	-
Critical Hdwy	4.26	-	-	6.96	7.06
Critical Hdwy Stg 1	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	5.96	-
Follow-up Hdwy	2.28	-	-	3.58	3.38
Pot Cap-1 Maneuver	1234	-	-	508	861
Stage 1	-	-	-	726	-
Stage 2	-	-	-	805	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1234	-	-	503	861
Mov Cap-2 Maneuver	-	-	-	503	-
Stage 1	-	-	-	719	-
Stage 2	-	-	-	805	-




Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1234	-	-	-	635
HCM Lane V/C Ratio	0.009	-	-	-	0.034
HCM Control Delay (s)	7.9	-	-	-	10.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Intersection

Int Delay, s/veh 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	10	15	35	50	5
Future Vol, veh/h	5	10	15	35	50	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	11	16	38	54	5

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	127	57	59
Stage 1	57	-	-
Stage 2	70	-	-
Critical Hdwy	6.48	6.28	4.18
Critical Hdwy Stg 1	5.48	-	-
Critical Hdwy Stg 2	5.48	-	-
Follow-up Hdwy	3.572	3.372	2.272
Pot Cap-1 Maneuver	853	993	1507
Stage 1	950	-	-
Stage 2	938	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	844	993	1507
Mov Cap-2 Maneuver	844	-	-
Stage 1	940	-	-
Stage 2	938	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	2.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1507	-	938	-	-
HCM Lane V/C Ratio	0.011	-	0.017	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	
Traffic Vol, veh/h	5	10	10	25	45	5
Future Vol, veh/h	5	10	10	25	45	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	11	11	27	49	5
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	101	52	54	0	-	0
Stage 1	52	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.18	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.272	-	-	-
Pot Cap-1 Maneuver	883	999	1514	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	877	999	1514	-	-	-
Mov Cap-2 Maneuver	877	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.8	2.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1514	-	955	-	-	
HCM Lane V/C Ratio	0.007	-	0.017	-	-	
HCM Control Delay (s)	7.4	0	8.8	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	5	5	5	25	45	5
Future Vol, veh/h	5	5	5	25	45	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	5	5	5	27	49	5
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	89	52	54	0	-	0
Stage 1	52	-	-	-	-	-
Stage 2	37	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.18	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.272	-	-	-
Pot Cap-1 Maneuver	897	999	1514	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	894	999	1514	-	-	-
Mov Cap-2 Maneuver	894	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	1.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1514	-	944	-	-	
HCM Lane V/C Ratio	0.004	-	0.012	-	-	
HCM Control Delay (s)	7.4	0	8.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	



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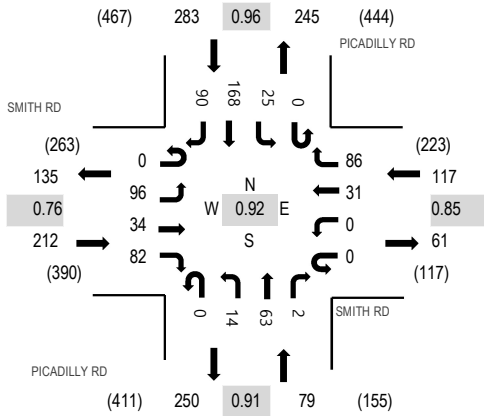
**Location:** 5 PICADILLY RD & SMITH RD AM

**Date:** Thursday, January 13, 2022

**Peak Hour:** 07:00 AM - 08:00 AM

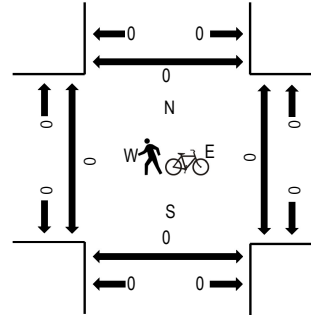
**Peak 15-Minutes:** 07:15 AM - 07:30 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	SMITH RD Eastbound				SMITH RD Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	30	15	25	0	0	6	18	0	6	9	0	0	8	44	21	182	691	0	0	0	0
7:15 AM	0	21	8	31	0	0	7	25	0	3	18	0	0	6	44	24	187	662	0	0	0	0
7:30 AM	0	21	2	17	0	0	6	18	0	4	19	1	0	5	41	20	154	609	0	0	0	0
7:45 AM	0	24	9	9	0	0	12	25	0	1	17	1	0	6	39	25	168	567	0	0	0	0
8:00 AM	0	18	6	8	0	0	16	23	0	5	18	0	0	4	41	14	153	544	0	0	0	0
8:15 AM	0	19	8	9	0	0	10	12	0	6	18	1	0	3	26	22	134		0	0	0	0
8:30 AM	0	22	3	12	0	0	9	14	0	5	8	0	0	6	18	15	112		0	0	0	0
8:45 AM	0	26	20	27	0	0	8	14	0	8	7	0	0	5	20	10	145		0	0	0	0
Count Total	0	181	71	138	0	0	74	149	0	38	114	3	0	43	273	151	1,235		0	0	0	0
Peak Hour	0	96	34	82	0	0	31	86	0	14	63	2	0	25	168	90	691		0	0	0	0



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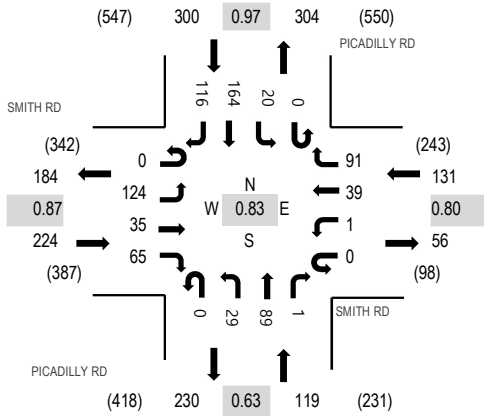
**Location:** 5 PICADILLY RD & SMITH RD PM

**Date:** Thursday, January 13, 2022

**Peak Hour:** 04:45 PM - 05:45 PM

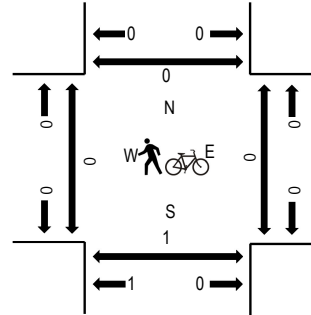
**Peak 15-Minutes:** 05:30 PM - 05:45 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	SMITH RD Eastbound				SMITH RD Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	18	5	6	0	0	8	20	0	17	18	0	0	5	37	29	163	646	0	0	0	0
4:15 PM	0	34	3	11	0	0	6	20	0	5	14	0	0	3	36	12	144	654	0	0	0	0
4:30 PM	0	23	6	4	0	0	16	19	0	11	16	0	0	3	38	24	160	701	0	0	0	0
4:45 PM	0	26	11	4	0	0	9	27	0	7	23	0	0	5	40	27	179	774	0	0	0	0
5:00 PM	0	32	5	16	0	0	8	15	0	3	17	0	0	8	44	23	171	762	0	0	0	0
5:15 PM	0	41	4	17	0	0	8	23	0	4	17	0	0	4	42	31	191		0	0	0	0
5:30 PM	0	25	15	28	0	1	14	26	0	15	32	1	0	3	38	35	233		0	0	1	0
5:45 PM	0	23	10	20	0	0	6	17	0	7	24	0	0	7	36	17	167		0	0	0	0
Count Total	0	222	59	106	0	1	75	167	0	69	161	1	0	38	311	198	1,408		0	0	1	0
Peak Hour	0	124	35	65	0	1	39	91	0	29	89	1	0	20	164	116	774		0	0	1	0



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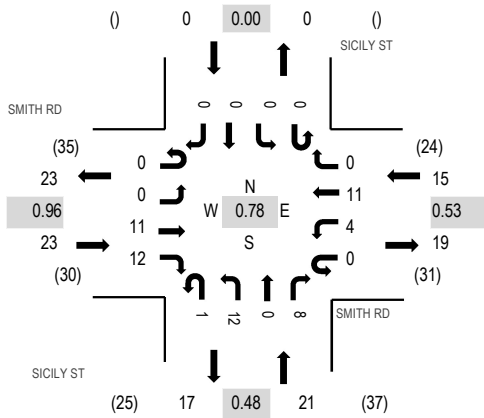
**Location:** 1 SICILY ST & SMITH RD AM

**Date:** Thursday, September 1, 2022

**Peak Hour:** 07:00 AM - 08:00 AM

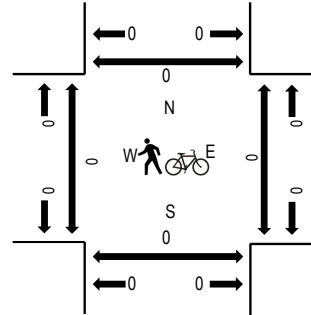
**Peak 15-Minutes:** 07:15 AM - 07:30 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	SMITH RD Eastbound				SMITH RD Westbound				SICILY ST Northbound				SICILY ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	1	5	0	0	3	0	0	3	0	1	0	0	0	0	13	59	0	0	0	0
7:15 AM	0	0	3	3	0	1	1	0	1	4	0	6	0	0	0	0	19	52	0	0	0	0
7:30 AM	0	0	3	3	0	0	2	0	0	5	0	1	0	0	0	0	14	41	0	0	0	0
7:45 AM	0	0	4	1	0	3	5	0	0	0	0	0	0	0	0	0	13	38	0	0	0	0
8:00 AM	0	0	0	2	0	1	1	0	1	1	0	0	0	0	0	0	6	32	0	0	0	0
8:15 AM	0	0	0	1	0	0	4	0	0	1	0	2	0	0	0	0	8		0	0	0	0
8:30 AM	0	0	0	1	0	1	2	0	0	2	0	5	0	0	0	0	11		0	0	0	0
8:45 AM	0	0	2	1	0	0	0	0	0	1	0	3	0	0	0	0	7		0	0	0	0
Count Total	0	0	13	17	0	6	18	0	2	17	0	18	0	0	0	0	91		0	0	0	0
Peak Hour	0	0	11	12	0	4	11	0	1	12	0	8	0	0	0	0	59		0	0	0	0



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www.alltrafficdata.net

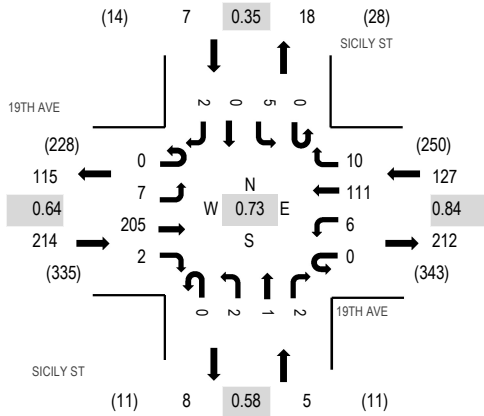
**Location:** 2 SICILY ST & 19TH AVE AM

**Date:** Thursday, September 1, 2022

**Peak Hour:** 07:00 AM - 08:00 AM

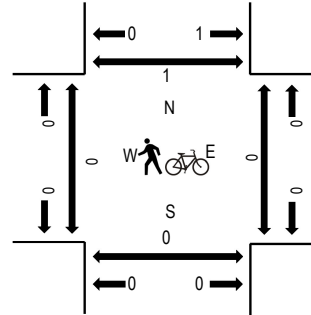
**Peak 15-Minutes:** 07:00 AM - 07:15 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	19TH AVE Eastbound				19TH AVE Westbound				SICILY ST Northbound				SICILY ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	82	1	0	2	27	4	0	0	0	0	0	5	0	0	121	353	0	0	0	0
7:15 AM	0	6	47	0	0	2	29	2	0	0	0	0	0	0	0	0	86	308	0	0	0	0
7:30 AM	0	1	40	1	0	2	34	2	0	1	1	1	0	0	0	0	83	278	0	0	0	0
7:45 AM	0	0	36	0	0	0	21	2	0	1	0	1	0	0	0	2	63	259	0	0	0	0
8:00 AM	1	1	39	0	0	0	30	1	0	0	0	1	0	3	0	0	76	257	0	0	0	0
8:15 AM	0	0	26	0	1	1	24	2	0	0	0	1	0	1	0	0	56		0	0	0	0
8:30 AM	1	0	26	0	0	2	30	2	0	0	0	2	0	1	0	0	64		0	0	0	0
8:45 AM	0	0	27	0	0	0	26	4	0	0	0	2	0	1	0	1	61		0	0	0	0
Count Total	2	8	323	2	1	9	221	19	0	2	1	8	0	11	0	3	610		0	0	0	0
Peak Hour	0	7	205	2	0	6	111	10	0	2	1	2	0	5	0	2	353		0	0	0	0



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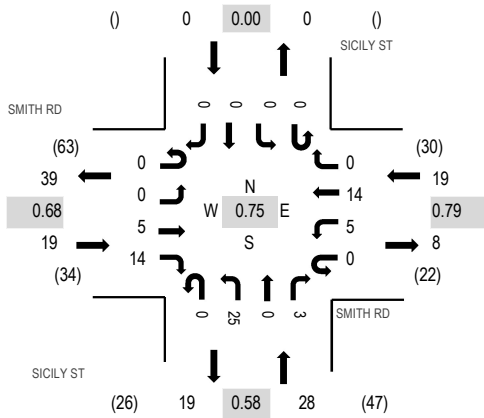
**Location:** 1 SICILY ST & SMITH RD PM

**Date:** Thursday, September 1, 2022

**Peak Hour:** 05:00 PM - 06:00 PM

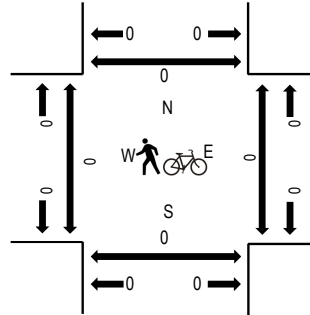
**Peak 15-Minutes:** 05:30 PM - 05:45 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	SMITH RD Eastbound				SMITH RD Westbound				SICILY ST Northbound				SICILY ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	3	1	0	0	4	0	1	2	0	1	0	0	0	0	12	45	0	0	0	0
4:15 PM	0	0	3	1	0	2	4	0	0	1	0	1	0	0	0	0	12	41	0	0	0	0
4:30 PM	1	0	2	1	0	0	0	0	0	9	0	1	0	0	0	0	14	49	0	0	0	0
4:45 PM	0	0	3	0	0	1	0	0	0	3	0	0	0	0	0	0	7	57	0	0	0	0
5:00 PM	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	0	8	66	0	0	0	0
5:15 PM	0	0	2	5	0	1	5	0	0	7	0	0	0	0	0	0	20		0	0	0	0
5:30 PM	0	0	0	5	0	1	4	0	0	11	0	1	0	0	0	0	22		0	0	0	0
5:45 PM	0	0	3	4	0	1	3	0	0	3	0	2	0	0	0	0	16		0	0	0	0
Count Total	1	0	16	17	0	8	22	0	1	40	0	6	0	0	0	0	111		0	0	0	0
Peak Hour	0	0	5	14	0	5	14	0	0	25	0	3	0	0	0	0	66		0	0	0	0





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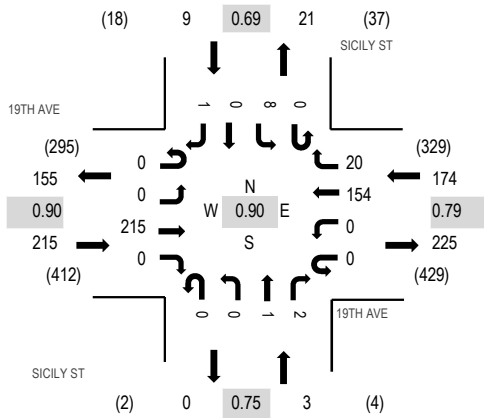
**Location:** 2 SICILY ST & 19TH AVE PM

**Date:** Thursday, September 1, 2022

**Peak Hour:** 04:30 PM - 05:30 PM

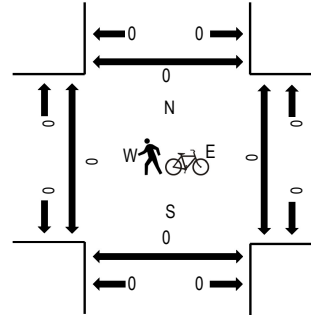
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	19TH AVE Eastbound				19TH AVE Westbound				SICILY ST Northbound				SICILY ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	50	0	0	1	32	4	0	0	0	0	0	2	0	0	89	371	0	0	0	0
4:15 PM	0	0	41	0	0	0	35	3	0	1	0	0	0	3	0	0	83	372	0	0	0	0
4:30 PM	0	0	51	0	0	0	46	9	0	0	0	1	0	2	0	0	109	401	0	0	0	0
4:45 PM	0	0	46	0	0	0	40	4	0	0	0	0	0	0	0	0	90	392	0	0	0	0
5:00 PM	0	0	56	0	0	0	26	3	0	0	0	1	0	3	0	1	90	392	0	0	0	0
5:15 PM	0	0	62	0	0	0	42	4	0	0	1	0	0	3	0	0	112		0	0	0	0
5:30 PM	0	1	48	1	0	0	45	5	0	0	0	0	0	0	0	0	100		0	0	0	0
5:45 PM	0	0	56	0	0	0	27	3	0	0	0	0	0	4	0	0	90		0	0	0	0
Count Total	0	1	410	1	0	1	293	35	0	1	1	2	0	17	0	1	763		0	0	0	0
Peak Hour	0	0	215	0	0	0	154	20	0	0	1	2	0	8	0	1	401		0	0	0	0

# Traffic Signal Warrant Summary Worksheet

**100%**

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: Picadilly Road and Smith Road

County:

Town: Aurora

Major Street: Picadilly

Minor Street: Smith

Critical Approach Speed: 35 mph

Critical Approach Speed: 35 mph

Lanes: 1 lane

Lanes: 1 lane

% Right Turns Included

In built-up area of isolated community of < 10,000 population? No

From North (SB) 50%

Total number of approaches at intersection? 4 or more

From East (WB) 50%

If it is a "T" intersection, inflate minor threshold to 150%? No

From South (NB) 50%

Manually set volume level? 100%

From West (EB) 50%

**Analysis based on PROJECTED volume data.**

Forecast Year	Within 5 Years of Construction?	Time (HH:MM)			
		From	AM / PM	To	AM / PM
2027	yes	6	AM	10	PM

Warrant Evaluation Summary	Warrant Met:
<b>Warrant 1: Eight - Hour Vehicular Volume</b>	<b>No</b>
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
<b>Warrant 2: Four-Hour Volume</b>	<b>No</b>
<b>Warrant 3: Peak Hour Volume</b>	<b>No</b>
<b>Warrant 4: Pedestrian Volume</b>	<b>N/A</b>
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
<b>Warrant 5: School Crossing</b>	<b>N/A</b>
<b>Warrant 6: Coordinated Signal System</b>	<b>N/A</b>
<b>Warrant 7: Crash Experience</b>	<b>N/A</b>
<b>Warrant 8: Roadway Network</b>	<b>Yes</b>
<b>Warrant 9: Intersection Near a Grade Crossing</b>	<b>N/A</b>

**Warrant Analysis Conducted By:**

Name: John Aldridge

Agency: Aldridge Transportation Consultants

Date: 1/25/2023

## Warrant 1: Eight - Hour Vehicular Volume

100%

Warrant Evaluated? Yes

Warrant Satisfied? No

Manually Set To: No

Condition A :		
Min. Veh. Volume		
Volume Level	100%	80%
Major Rd. Req	500	400
Minor Rd. Req	150	120
Number of Hours	0	2

Satisfied? No

Condition B:		
Interruption of Continuous Traffic		
Volume Level	100%	80%
Major Rd. Req	750	600
Minor Rd. Req	75	60
Number of Hours	0	1

Satisfied? No

Condition C:		
Combination of A & B at 80%		

Satisfied? No

6:00 AM		Enter Start Time (Military Time) (HH:MM)			Total
Time Period	From	To	Major Road: Both App. (VPH)	Minor Road: High App. (VPH)	
1	6:00	7:00	214	60	274
2	7:00	8:00	441	122	563
3	8:00	9:00	519	130	649
4	9:00	10:00	366	80	446
5	10:00	11:00	314	57	371
6	11:00	12:00	377	72	449
7	12:00	13:00	405	56	461
8	13:00	14:00	325	50	375
9	14:00	15:00	377	61	438
10	15:00	16:00	366	47	413
11	16:00	17:00	500	66	566
12	17:00	18:00	636	62	698
13	18:00	19:00	594	72	666
14	19:00	20:00	366	36	402
15	20:00	21:00	291	36	327
16	21:00	22:00	197	15	212

## Warrant 2: Four-Hour Volume

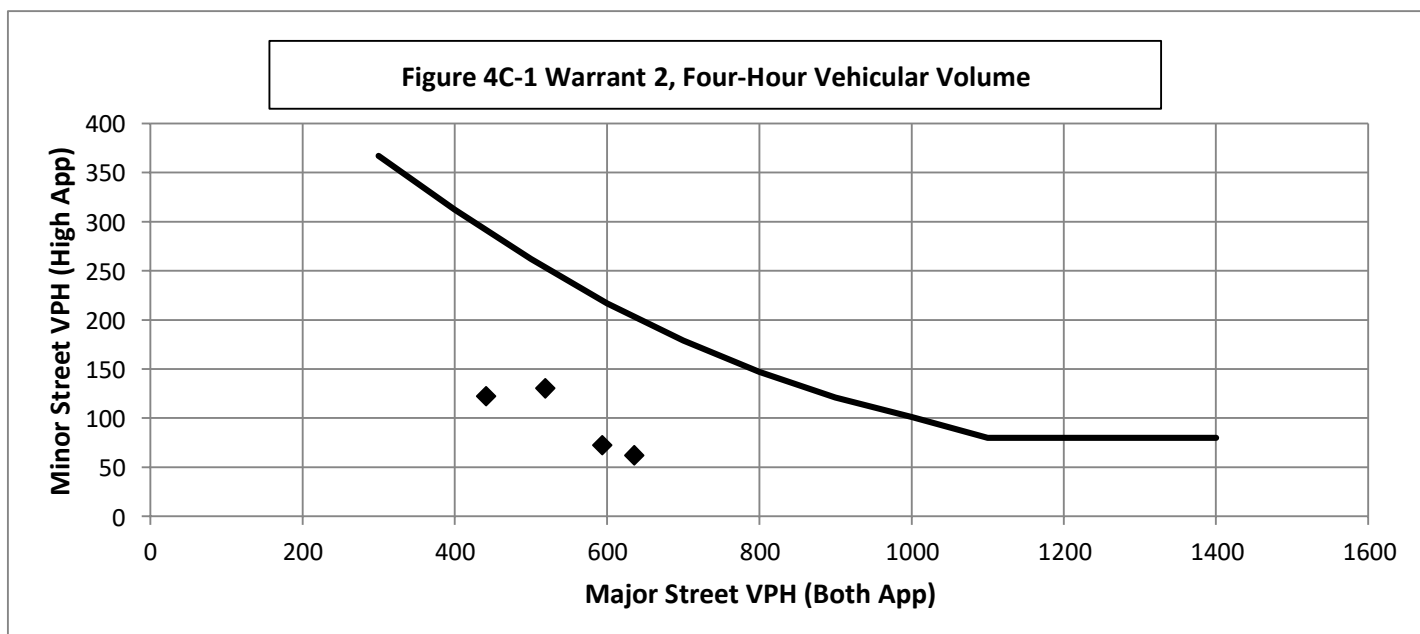
100%

Warrant Evaluated? Yes

Warrant Satisfied? No

Manually Set To: No

Hour Start	8:00	17:00	18:00	7:00
Major Road Vol.	519	636	594	441
Minor Road Vol.	130	62	72	122



## Warrant 3: Peak Hour Volume

100%

Warrant Evaluated? Yes

Warrant Satisfied? No

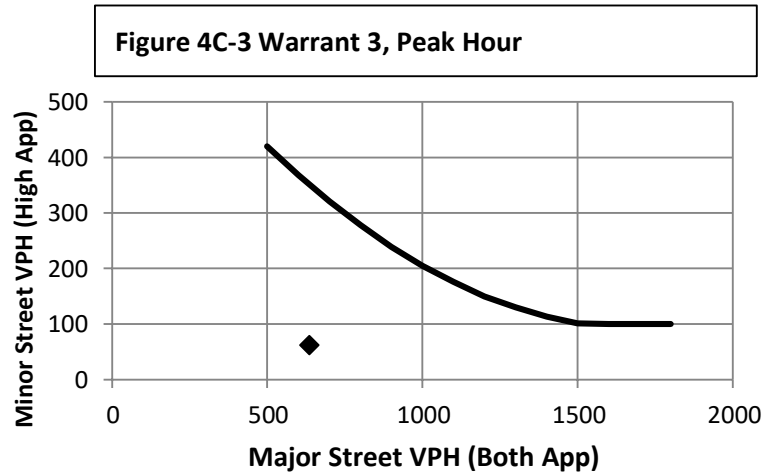
Manually Set To: No

Condition justifying use of warrant:

Criteria		Met?
Delay on Minor Approach	4	No
Volume on Minor Approach	100	
Total Entering Volume (veh/h)	800	

Manually Set Peak Hour? No

Peak Hour	Major Road Vol. (Both App.)	Minor Road Vol. (High App.)
17:00	636	62



## Warrant 4: Pedestrian Volume

100%

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:

### Criterion A: Four Hour

Hour (Start)	Pedestrian Volume	Major Road Vol.
0:00	0	#N/A
0:00	0	#N/A
0:00	0	#N/A
0:00	0	#N/A

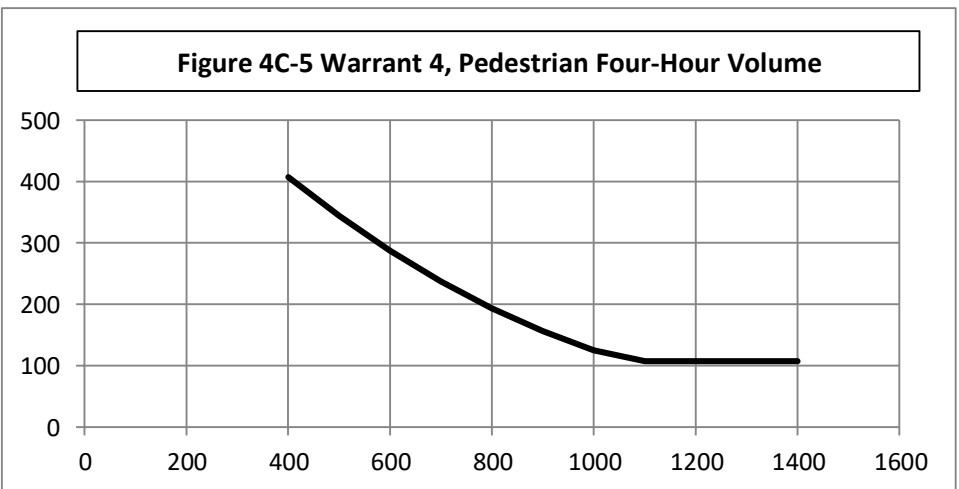
Manually Set Major Rd Vol?

No

Avg. walk speed less than 3.5 ft/s?

No

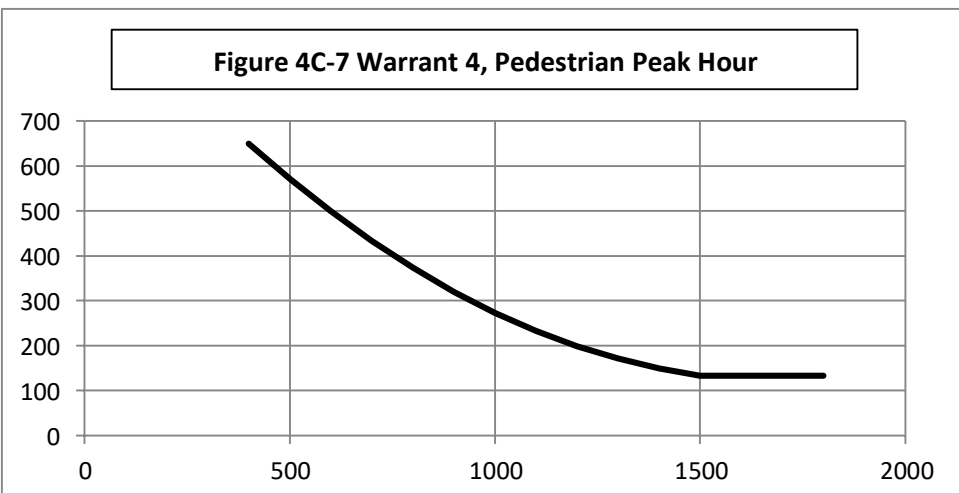
Criterion A Satisfied?



### Criterion B: Peak Hour

Peak Hour	Pedestrian Vol.	Major Road Vol.
#N/A	#N/A	#N/A

Criterion B Satisfied?



## Warrant 5: School Crossing

**100%**

**Warrant Evaluated?**

**Warrant Satisfied?** N/A

**Manually Set To:**

**Criteria**

Fulfilled?

1	There are a MINIMUM of 20 school children during the highest crossing hour.	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	
3	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	

## Warrant 6: Coordinated Signal System

**100%**

**Warrant Evaluated?**

**Warrant Satisfied?** N/A

**Manually Set To:**

**Criteria**

Fulfilled?

1	Signal spacing > 1000 ft	
2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	
3	On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	

## Warrant 7: Crash Experience

**100%**

**Warrant Evaluated?**

**Warrant Satisfied?** N/A

**Manually Set To:**

**Criteria**

Met?

Fulfilled?

1	Adequate trial of other remedial measures has failed to reduce crash frequency.	
	Measures Tried:	
2	Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period.	# of crashes per 12 months
3	Warrant 1, Condition A (80%)	No
	Warrant 1, Condition B (80%)	No
	Warrant 4, Criterion A (80%)	#N/A
	Warrant 4, Criterion B (80%)	#N/A

## Warrant 8: Roadway Network

**100%**

**Warrant Evaluated?** Yes

**Warrant Satisfied?** No

**Manually Set To:** Yes

**Criteria**

Met?

Fulfilled?

1	Total entering volume of at least 1,000 veh/h during typical weekday peak hour		698	No	No
	Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.		2	Yes	
2	Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.)				
	Hour				
	Volume				

**Characteristics of Major Routes - Select yes if all intersecting routes have characteristic**

Fulfilled?

1	Part of the road or highway system that serves as the principal roadway network for through traffic flow	Yes
2	Rural or suburban highway outside of, entering, or traversing a city	Yes
3	Appears as a major route on an official plan	Yes

# Warrant 9: Intersection Near a Grade Crossing

100%

Warrant Evaluated?

Warrant Satisfied? N/A

Manually Set To:

Adjustment Factors			Manually Set Peak Hour?				
Rail Traffic per Day	% High Occupancy Buses on Minor Road	% Tractor-Trailer Trucks on Minor Road	D	Peak Hour	Major Road Vol.	Minor Road Vol.	Adjusted Minor Vol.
1	0	0% to 2.5%	660	17:00	636	62	20.77

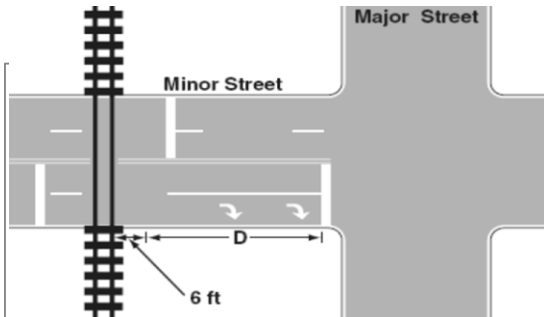
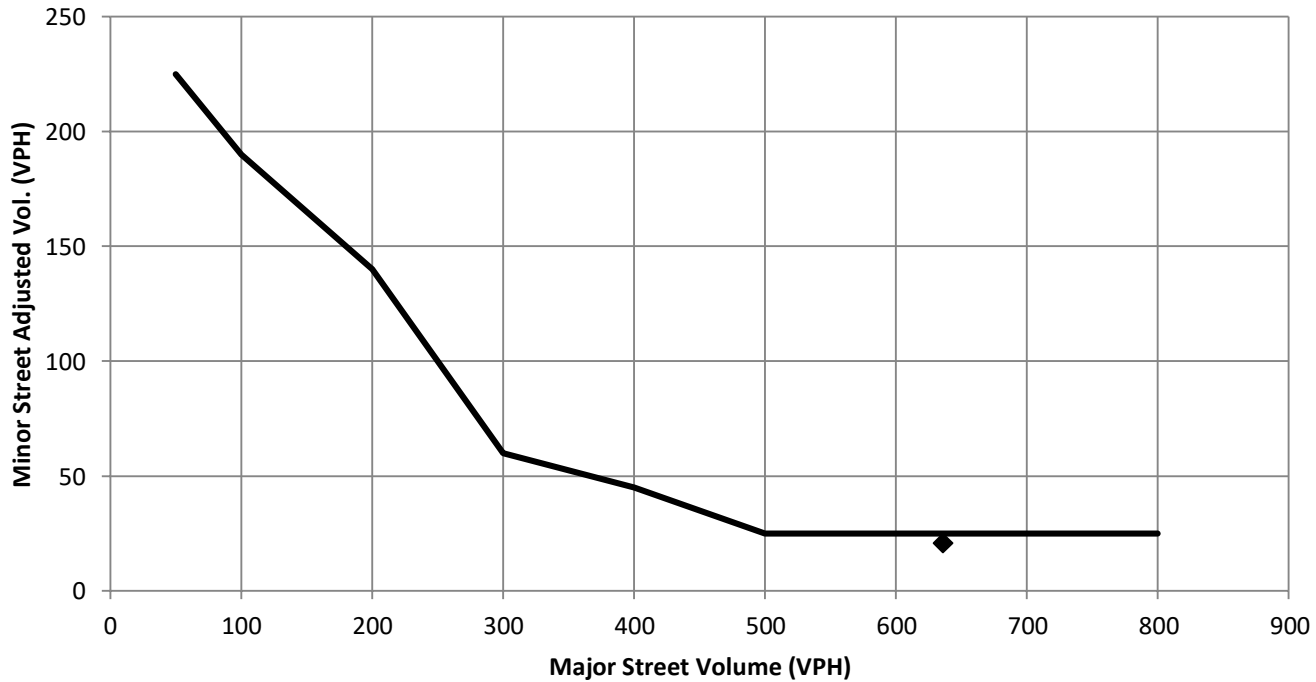


Figure 4C-9 Warrant9, Intersection Near a grade Crossing (One Approach Lane at the Track Crossing)



Conclusions/Comments:

Updated: 12/6/2017

Hourly Volume Data																						
One Hour Time Period Start Time		↓ From North (SB)					← From East (WB)					↑ From South (NB)					→ From West (EB)					Total Vehicle Volume
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM	6:00							314	6								13	113				446
	7:00							466	11								28	228				733
	8:00							311	12								29	222				574
	9:00							256	8								17	173				454
MD	10:00							208	6								12	171				397
	11:00							195	7								16	211				429
	12:00							203	6								112	220				541
	13:00							194	5								11	212				422
PM	14:00							205	6								13	259				483
	15:00							245	5								10	394				654
	16:00							345	7								14	445				811
	17:00							333	6								14	530				883
	18:00							267	7								16	414				704
	19:00							163	3								8	250				424
	20:00							110	3								8	183				304
	21:00							73	1								4	131				209
Totals		0	0	0	0	0	0	3888	99	0	3987	0	0	0	0	0	325	4156	0	0	4481	8468

Note: Copy volume data and paste into cells using paste special -> values

Note: U-Turns are counted as Left Turns in the Volume Totals

Please Select the Major Road: 

E/W

Major Road Left Turn as Minor Approach? 

No

% Right Turns Included (Default 0%)	
From North (SB)	50%
From East (WB)	50%
From South (NB)	50%
From West (EB)	50%

Major Road Volume Totals: East/West				
Right	Thru	Left	T+LT	Total
7	427	6	433	440
14	694	11	705	719
15	533	12	545	560
9	429	8	437	446
6	379	6	385	391
8	406	7	413	421
56	423	6	429	485
6	406	5	411	417
7	464	6	470	477
5	639	5	644	649
7	790	7	797	804
7	863	6	869	876
8	681	7	688	696
4	413	3	416	420
4	293	3	296	300
2	204	1	205	207
163	8044	99	8143	8306

Minor Road Highest Volume: North/South				
Right	Thru	Left	T+LT	Total
11	0	27	27	38
23	0	54	54	77
25	0	57	57	82
15	0	35	35	50
11	0	25	25	36
14	0	32	32	46
10	0	25	25	35
10	0	22	22	32
12	0	27	27	39
9	0	21	21	30
13	0	29	29	42
11	0	28	28	39
14	0	32	32	46
7	0	16	16	23
3	0	9	9	12
3	0	8	8	11
191	0	447	447	638

# System Level Feasibility Study

May 2020



HDR



## I-70/Picadilly INTERCHANGE

I-70/E-470 Interchange EA Reevaluation



# **I-70/Picadilly Interchange**

*I-70/E-470 Interchange EA Reevaluation*

## **SYSTEM LEVEL FEASIBILITY STUDY**

*Prepared for:*



*Prepared by:*



*On Behalf of:*

City of Aurora



May 2020

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## Acronyms and Abbreviations

AASHTO	American Association of State Highway Transportation Officials
ADT	Average Daily Traffic
A-line	Access Control Line
AM	morning
CDOT	Colorado Department of Transportation
CFI	Continuous Flow Interchange
CMF	Crash Modification Factors
COA	City of Aurora
CPM	Crash Prediction Module
DDI	Diverging Diamond Interchange
DIA	Denver International Airport
DRCOG	Denver Regional Council of Governments
EA	Environmental Assessment
EB	Eastbound
F+I	Fatal and Injury
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
HCS	Highway Capacity Software
HSM	Highway Safety Manual
IAR	Interchange Access Request
IHSDM	Interactive Highway Safety Design Module
LOS	Level of Service
MPO	Metropolitan Planning Organization
NB	Northbound
NCHRP	National Cooperative Highway Research Program
NEATS	Northeast Area Transportation Study
NEPA	National Environmental Policy Act

PDO	Property Damage Only
PHF	Peak Hour Factor
PM	afternoon
ROW	Right-of-Way
RTD	Regional Transportation District
RTP	Regional Transportation Plan
SB	Southbound
SPF	Safety Performance Function
SPUI	Single Point Urban Interchange
TMC	Turn Movement Count
UDOT	Utah Department of Transportation
VISSIM	a microscopic, time step, and behavior-based simulation model
vpd	vehicles per day
WB	Westbound

## 1.0 Introduction/Background

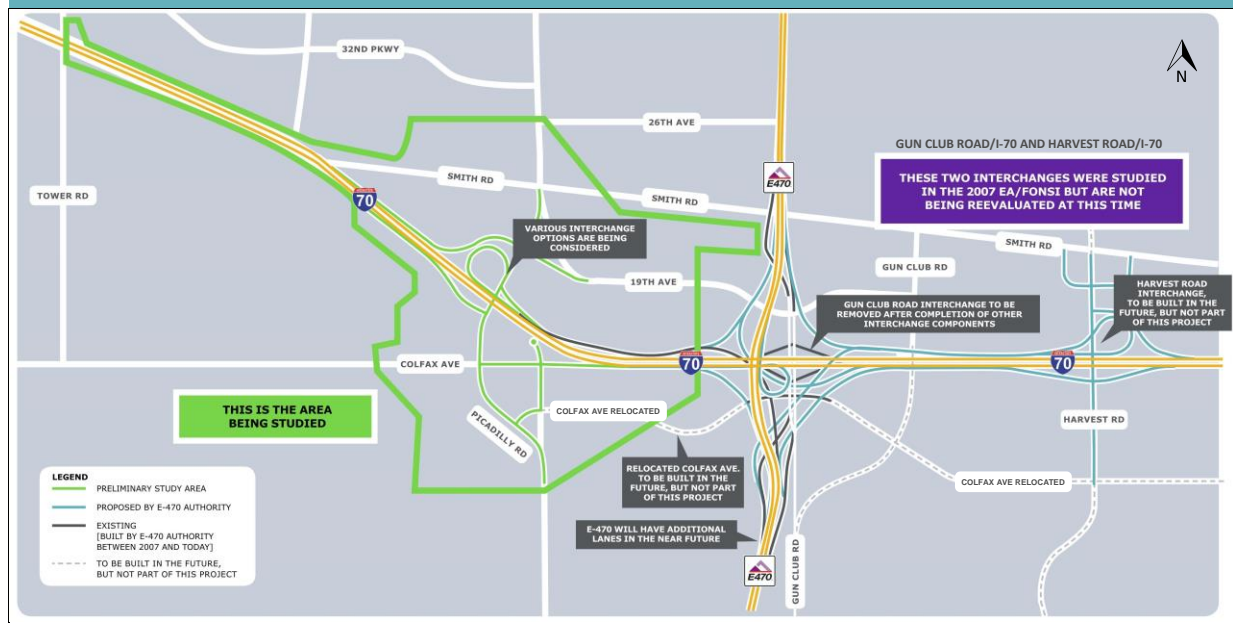
### 1.1 Project History and Location

Construction of the E-470 Toll Highway (E-470) was completed in 2003. In November 2006 the Colorado Department of Transportation (CDOT) and the Federal Highway Administration (FHWA) completed the I-70/E-470 Interchange Complex Environmental Assessment (EA; CDOT 2006). The proposed improvements included improvements at the existing I-70/E-470 interchange and new interchanges at I-70 and Picadilly Road (I-70/Picadilly Road interchange) and at I-70 and Harvest Road (Figure 1).

A Finding of No Significant Impact (FONSI) for the I-70/E-470 Interchange Complex was signed in 2007 (CDOT 2007).

The City of Aurora, in cooperation with CDOT and FHWA, is implementing the I-70/Picadilly Road interchange phase of the I-70/E-470 Interchange Complex. Figure 1 illustrates the I-70/Picadilly Road interchange phase in the context of the I-70/E-470 Interchange Complex.

**Figure 1. Study Area**



Source: HDR 2019

## 1.2 Purpose and Need for Project

A new interchange on I-70 at Picadilly Road was included as a part of the overall federal action analyzed in the I-70/E-470 Interchange Complex EA and FONSI.

The purpose for the project is the same as that documented in the I-70/E-470 Interchange Complex EA and FONSI—to link the freeway and tollway systems in an efficient and safe manner while maintaining and enhancing local access for the existing and planned roadway system and future travel demand.

The reasons for transportation improvements in the area are:

- **Improve regional mobility.** The lack of regional connectivity/mobility hinders mobility and accessibility. The lack of regional connectivity to and from I-70 and north/south across I-70 on a regional arterial results in significant out-of-direction travel and excessive vehicle miles traveled. Currently, customers, employees, and deliveries seeking to reach employment centers along Picadilly Road must travel 1 mile east to the Gun Club Road interchange or 2 miles west to the Tower Road interchange. Connecting Picadilly Road between Smith Road and Colfax Avenue addresses a 3.4-mile gap between arterial road crossings of I-70. Maintaining coherent regional access to existing and developing regional scale activity centers within the interchange area is urgently needed.

Roadway deficiencies are present in the vicinity of Colfax Avenue, including an interchange at Colfax Avenue that is missing the westbound on-ramp to I-70, non-standard ramp geometry at the eastbound off-ramp to Colfax Avenue, and non-standard ramp configuration for I-70 westbound off-ramp movements.

- **Enhance access for adjacent land uses.** There is inadequate infrastructure to support planned population and employment growth. The area currently supports 10,000 jobs and over 18 million square feet of warehouse and industrial land use. The Aerotropolis Visioning (CDOT, 2016) study projected a possible addition of 74,000 jobs in the area by 2040. The continued development of Prologis holdings, expansion of the Majestic Commercenter, Horizon Uptown Activity Center, and Aurora Highlands are collectively providing millions of square feet of industrial space and tens of thousands of households. The Porteos mixed-use development (16 million square feet) is planned in this area, as is the 4.5 million square foot Stafford Logistics Center. Horizon Uptown Development is developing a town center/mixed-use area just east of Picadilly and south of I-70, and the recently completed Gaylord Rockies Resort and Conference Center has generated 2,500 permanent jobs. Additionally, the associated Highpoint Development and Painted Prairie Development are now in the planning and development stages.



These land use and development projects, combined with general traffic in the area, are anticipated to result in double the existing traffic volumes within 15 years.

### 1.3 Regional Planning Context

An interchange at Picadilly Road has been included on transportation and land use plans for over a decade. Discussion of the interchange has been included in the following recently completed and adopted documents:

- E-470/I-70 Environmental Assessment and Finding of No Significant Impact, 2006–2007.
- Denver Regional Council of Governments (DRCOG) 2040 Metro Vision Regional Transportation Plan, 2017.
- City of Aurora Comprehensive Plan, 2003.
- City of Aurora Comprehensive Plan, 2009.
- City of Aurora Comprehensive Plan, Aurora Places, 2018.
- Colorado Department of Transportation Aerotropolis Visioning Study, 2016.
- Arapahoe County 2035 Transportation Plan, 2010.
- Adams County Transportation Plan, 2012.
- City of Aurora Northeast Area Transportation Study (NEATS), 2003.
- City of Aurora Northeast Area Transportation Study (NEATS), 2007.
- City of Aurora Northeast Area Transportation Study (NEATS) Refresh, 2018.
- City of Aurora’s Street Construction Priority Program for the Area South of DIA, 2015.

### 1.4 Preferred Alternative

The Preferred Alternative documented in the 2007 EA is illustrated in Figure 2.

Figure 2. EA Preferred Alternative



Source: CDOT 2007

## 1.5 Definition of Proposed Action

A screening process was conducted during the I-70/Picadilly Interchange EA Reevaluation (CDOT, 2019). The screening is documented in the Alternatives Development Report and considered interchange configurations that include partial cloverleaf, conventional diamond interchange, diverging diamond interchange (DDI), single point urban interchange (SPUI), and continuous flow interchange (CFI). The screening identified a diverging diamond interchange as illustrated in Figure 36 under Chapter 5.0 of this document. In this DDI, northbound vehicles cross to the west side of the bridge over I-70 and southbound vehicles cross to the east side of the bridge so vehicles have unimpeded and free-flow movement between Picadilly Road and I-70 freeway on-ramps. Vehicles on Picadilly Road are guided using median dividers to direct them through free-flow movements of the interchange. Vehicles crossing at the structure would be temporarily directed onto the left-hand side of the road where they would be directed either onto I-70 or can continue along Picadilly Road. The location of stopped and queuing traffic differs from the preferred alternative commensurate with the revised location of ramp terminal intersections resulting from the revised DDI configuration.

Pedestrians cross at the islands at the ramp terminals into the barrier-protected median of the interchange bridge and cross back to the islands and the sidewalks on the north and south sides of the bridge. Cyclists can ride on bike lanes located to the right of traffic which span the interchange. Signalized intersections are located at Colfax Avenue, 19th Avenue, Smith Road, and both ramp terminals of the DDI.

## 1.6 Study Area Definition

The study area for this System Level Feasibility Study is defined as the I-70 corridor from the Gun Club Road interchange on the east to the Tower Road interchange on the west, and Picadilly Road from Smith Road on the north to 11th Avenue on the south. The following major roadways and key intersections are included in the analysis:

### Roads/Highways

- I-70
- E-470, including ramps to/from I-70
- Picadilly Road
- Colfax Avenue (I-70 Business, US 40)
- Gun Club Road
- Tower Road
- Smith Road

## Intersections

- Ramp terminals at I-70 and Tower Road
- Ramp terminals at I-70 and Gun Club Road
- Ramp terminals at I-70 and Colfax Avenue
- Ramp terminals at I-70 and Picadilly Road (proposed)
- Picadilly Road and Smith Road
- Picadilly Road and 19th Avenue
- Picadilly Road and Colfax Avenue

## 1.7 Study Process

In order to preserve the integrity of the state highway system, CDOT has implemented Policy Directive 1601. The 1601 directive provides consistent guidelines and policy points for reviewing and evaluating requests for new interchanges and major improvements to existing interchanges on state highways.

Steps within the 1601 process require the preparation of the System Level Feasibility Study and the associated National Environmental Policy Act (NEPA) documentation to evaluate project impacts on the surrounding environment, and an Intergovernmental Agreement for funding and maintenance of this interchange.

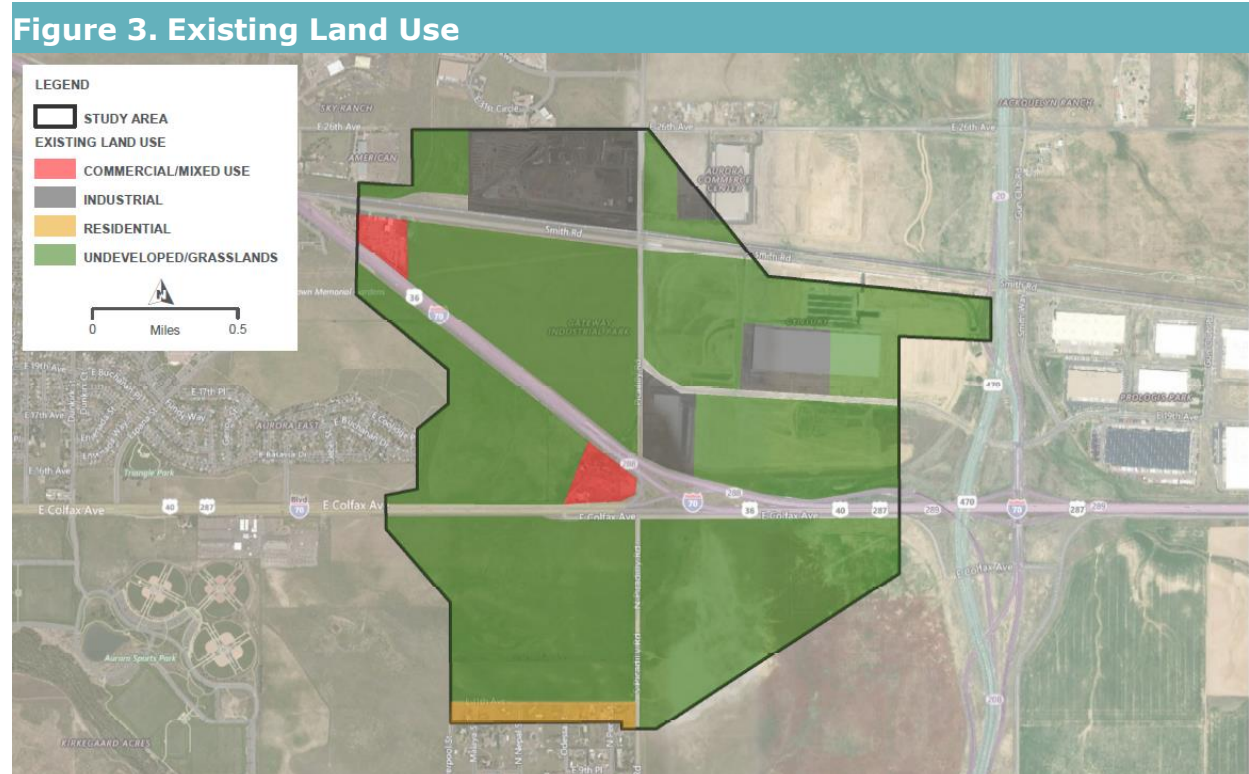
This System Level Feasibility Study includes:

- System level analysis, traffic and other impacts
- Environmental overview
- Project level refinements
- Revised preferred alternative concept
- Preliminary funding package

## 2.0 Existing Conditions

### 2.1 Existing Land Use

The study area is located on the periphery of the Greater Denver Region, within the city of Aurora. As shown in Figure 3, the current land use in and around the study area is primarily undeveloped grassland with small pockets of industrial, commercial, and residential uses.



Source: HDR

### 2.2 Existing Roadway Network

I-70 flows approximately east-west through the study area, providing regional mobility and access to the Denver Metro area. Direct ramp connections are provided between I-70 and Colfax Avenue, a four-lane east-west arterial, at the proposed Picadilly Road interchange location. Existing diamond interchanges are located on I-70 at Tower Road, and at the E-470/I-70/Gun Club Road Frontage area, 2 miles west and 1.2 mile east of the proposed Picadilly Road interchange, respectively. Tower Road forms a generally four-lane north-south major arterial route, while E-470 is a four-lane controlled-access tolled beltway that provides regional access and allows travelers to bypass the metro area's core. One direct connection exists between E-470 and I-70 for northbound to westbound travelers. All other movements must be completed using the E-470 Frontage (Gun Club Road) interchange.



Picadilly Road in its existing form is a north-south, two-lane, undivided arterial between E. 64th Avenue to the north and E. 6th Avenue to the south. Picadilly Road is split into two segments by I-70 where the north segment terminates at E. 19th Avenue, and the south segment terminates at Colfax Avenue. The existing network is depicted in Figure 4.

## 2.3 Existing Traffic Volumes

Average daily traffic (ADT) counts for the study area were collected in May 2018. Counts were taken in 15-minute intervals, with vehicle classification data also recorded at locations on I-70, Tower Road, Picadilly Road, and Gun Club Road. Intersection and ramp terminal turning movement counts (TMC) were collected for morning (AM; 7:00 AM–9:00 AM) and afternoon (PM; 4:00 PM–6:00 PM) peak periods. The existing traffic volumes are illustrated in Figure 5 and provided in Appendix A.

Historic traffic volumes within the study area were obtained from CDOT. Traffic volume on Colfax Avenue has shown a 30 percent growth from 7,200 vehicles per day (vpd) in 2010 to 9,500 vpd in 2018. Traffic volumes on I-70 increased approximately 40 percent from 30,000 vpd in 2010 to 42,400 vpd in 2018.

The proportion of truck traffic under existing conditions varies by location on the network. The highest proportion of truck traffic (15 percent to 20 percent) is observed on Gun Club Road north of I-70, where a number of large distribution centers are located, and a limited mix of land use currently exists. Trucks make up between 6 percent and 13 percent of traffic on I-70 dependent on peak period and direction, and between 4 percent and 7 percent of traffic on Tower Road during peak periods.

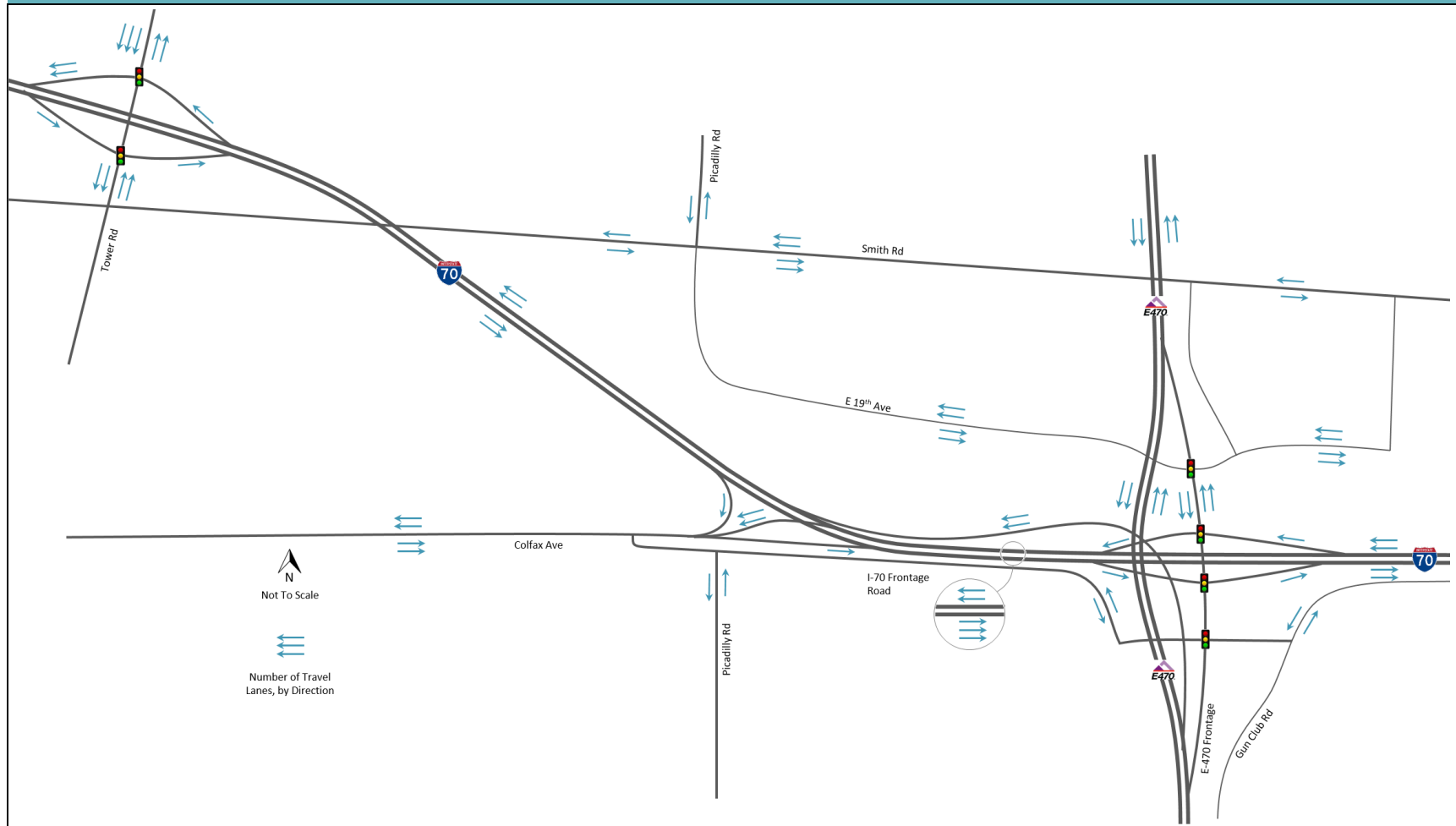
## 2.4 Existing Traffic Operations

The condition of traffic operations is expressed in terms of level of service (LOS), a qualitative measure used to describe the condition of traffic flow and delay. LOS is defined by the Highway Capacity Manual (TRB, 2016) as ranging from free-flow conditions (LOS A), to breakdown of operation where conditions are poor or volume exceeds capacity (LOS F).

Existing 2018 freeway traffic operations have been analyzed using Highway Capacity Software (HCS) Release 7.8, and intersection operations using Synchro v10.2 software.

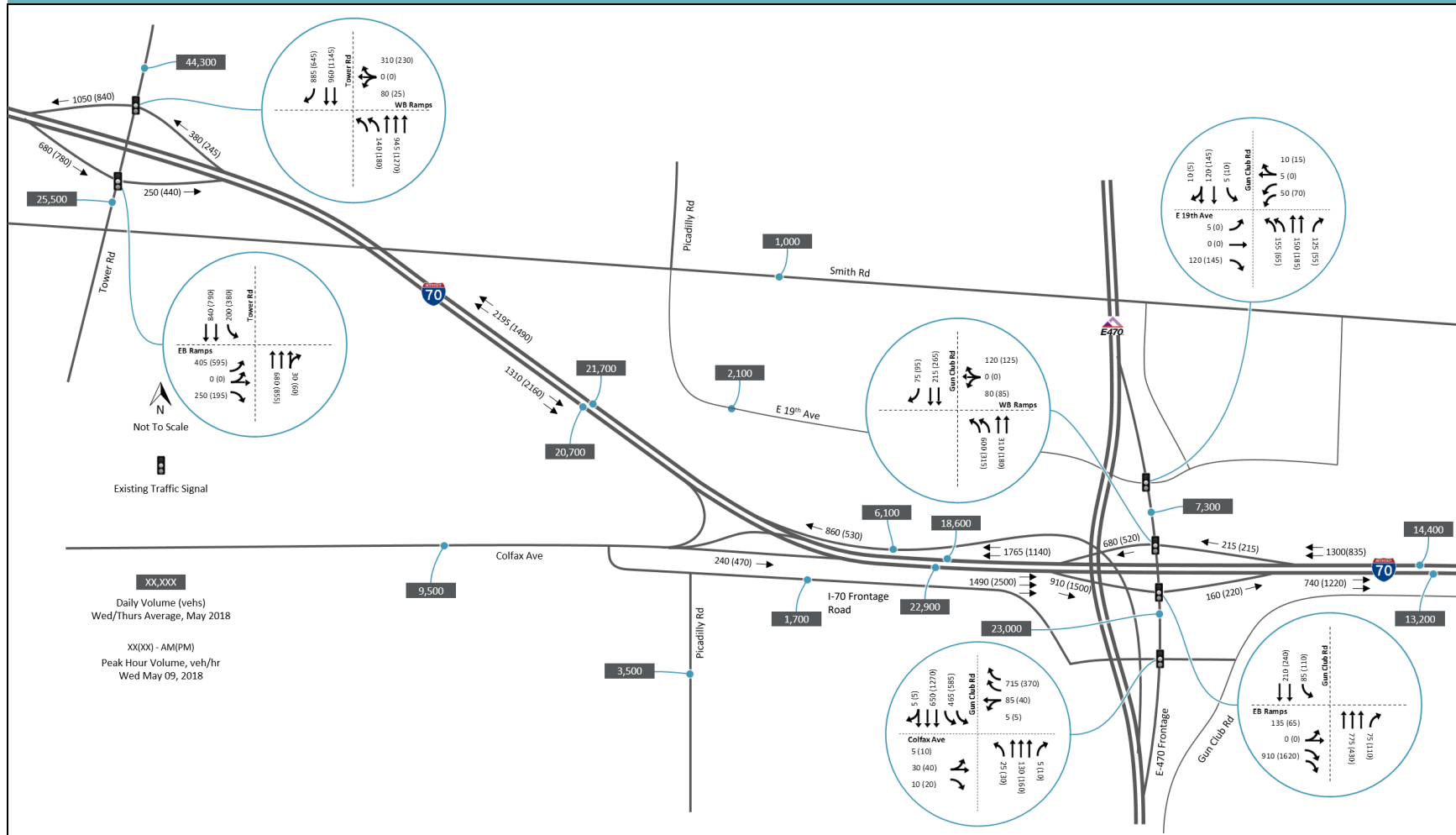
Results of the arterial intersection and mainline I-70 traffic operations analysis for existing conditions are presented in Figure 6, with complete analysis reports provided in Appendix B. The analysis shows acceptable operations on I-70, with LOS C or better under current traffic volumes. Intersection operations are also acceptable, at LOS D or better during the peak periods.

**Figure 4. Existing Roadway Network**



Source: HDR

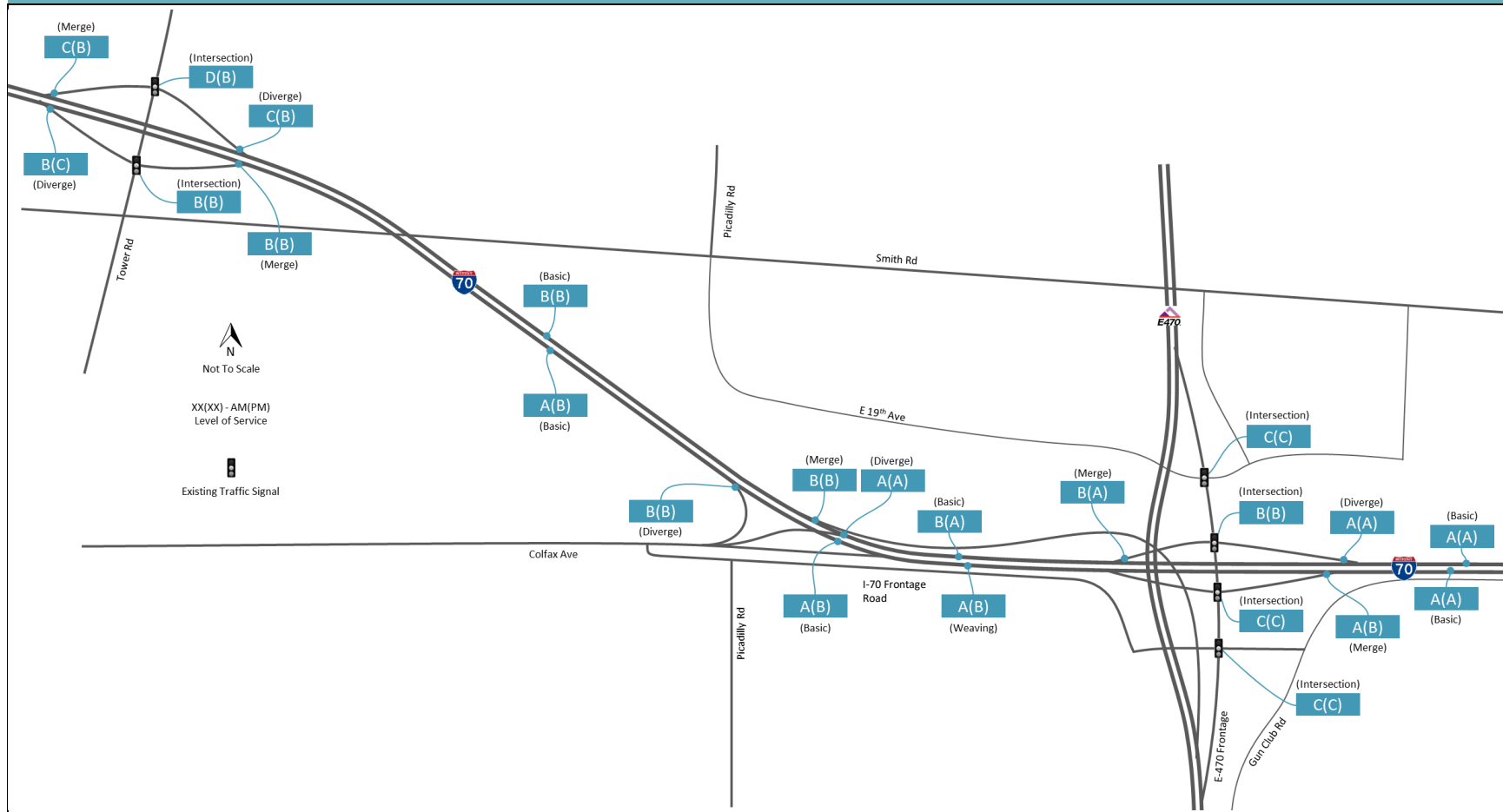
**Figure 5. Existing Daily and Peak Hour Traffic Volumes**



Source: HDR



**Figure 6. Existing Peak Hour Traffic Level of Service**



Source: HDR

## 2.5 Crash History

Limited traffic crash data for a 3-year period (2000–2002) was provided in the 2007 I-70/E-470 Interchange Complex Interstate Access Request (IAR). The data appears to only include interchange crashes; and shows annual rates of 0.75, 0.85, and 1.51 crashes per million vehicle miles at I-70 and Tower Road, I-70 and Colfax Avenue, and I-70 and E-470, respectively.

Recent crash data was obtained from CDOT and City of Aurora for I-70, Colfax Avenue, and Picadilly Road corridors. The extent of data collection includes a 4.7-mile segment of I-70 including the Tower Road, Colfax Avenue, and E-470 interchange ramps; a 1.9-mile segment of Colfax Avenue west of Picadilly Road; a 1-mile segment of Picadilly Road south of the I-70 Frontage, and a 2-mile Picadilly Road segment north of 19th Avenue. Data obtained for the I-70 and Colfax Avenue corridors covers the 5-year period from July 2012 to July 2017, which includes pavement and bridge replacement on I-70 between Tower Road and Colfax Avenue in 2014 and 2015. Data for the Picadilly Road corridor covers the 5-year period from July 2012 to July 2017. General trends by facility type are discussed below.

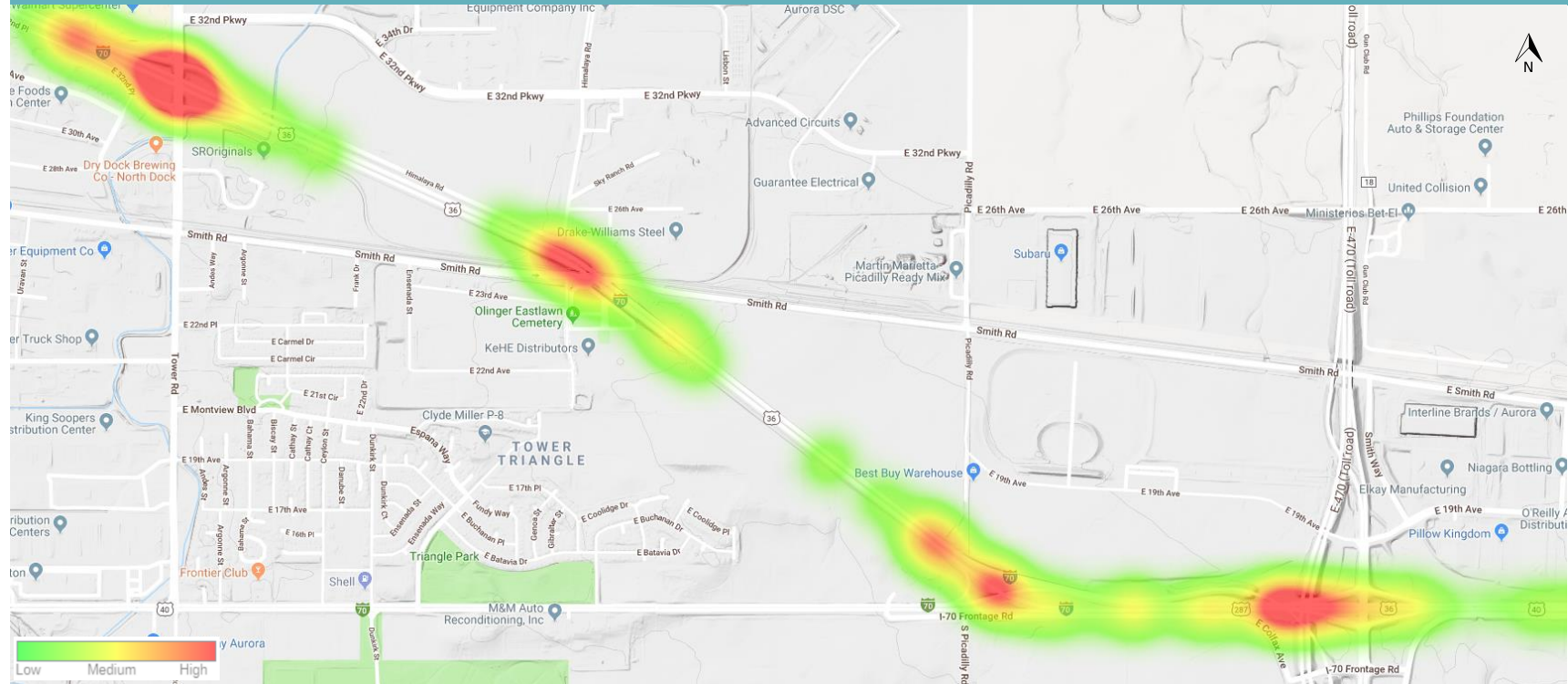
### I-70

I-70 had a total of 379 mainline, ramp, and ramp terminal crashes, resulting in a total crash rate of 1.34 crashes per million vehicle miles. This exceeds the average crash rate for Colorado Interstates of 1.05 (CDOT, 2012). The heat map in Figure 7 shows the distribution of freeway and ramp crashes along the I-70 corridor between (and including) Tower Road and E-470.

The data presented in Figure 7 shows crash clusters at the Tower Road, Colfax Avenue, and E-470 west ramp locations, as well as at the bridges over Smith Road and the Union Pacific Railroad. The bridge reconstruction occurred during 2014 and 2015, and included a significant work zone with lane reductions in both directions between Tower Road and Colfax Avenue. As shown in Figure 8, the number of recorded crashes peaks during the 2014–2015 construction period.

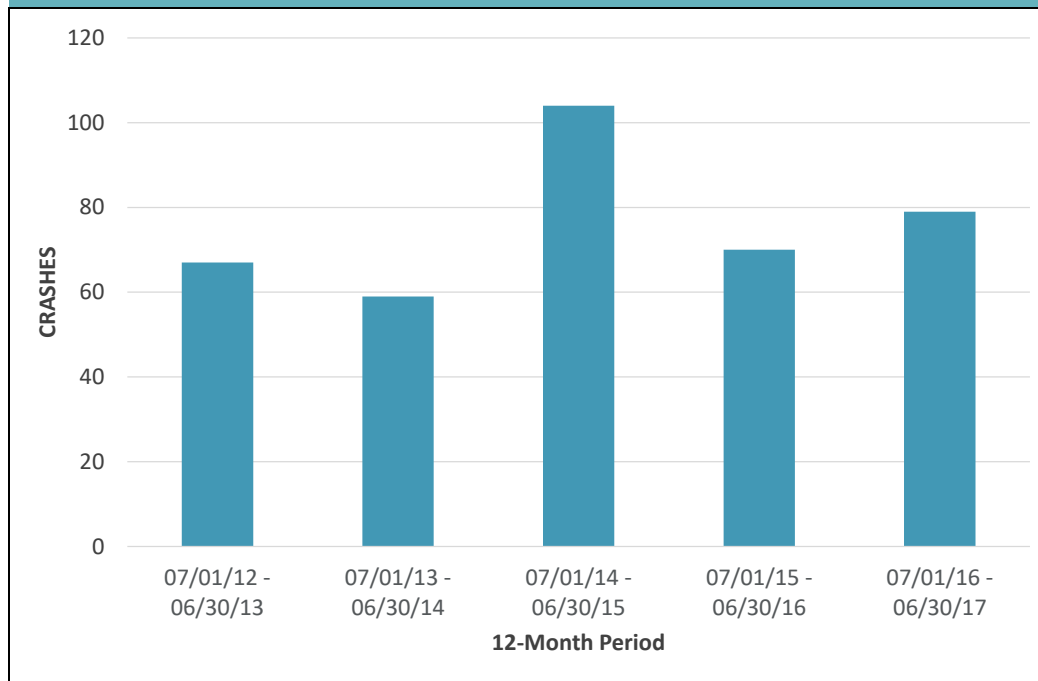
As illustrated in Figure 9, of the 379 recorded crashes 14 percent occurred on an interchange ramp and 31 percent were classified as at-intersection (ramp terminal) or intersection-related. One fatal crash occurred at the westbound ramp to Gun Club Road, and 32 percent of interchange ramp crashes were classified as either injury or fatal. 34 percent of at-intersection or intersection related crashes were classified injury, no fatal crashes occurred at these locations.

**Figure 7. I-70 Crash Location Heat Map (July 2012-July 2017)**



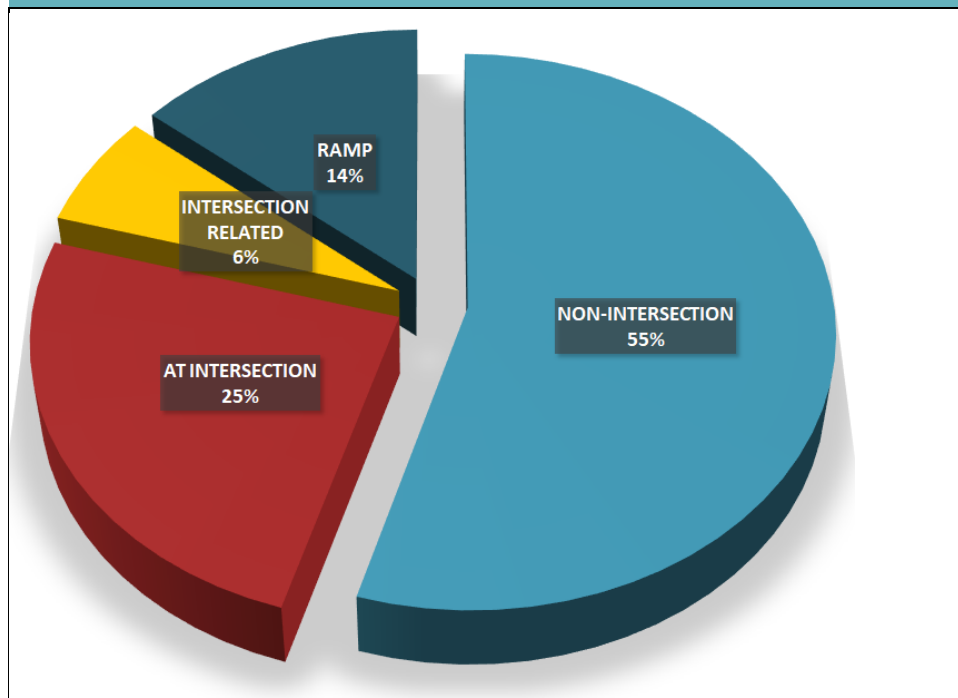
Source: HDR

**Figure 8. I-70 Crashes by 12-Month Period**



Source: HDR

**Figure 9. I-70 Crash Location Type (July 2012-July 2017)**



Source: HDR

One-third of total recorded crashes resulted in injury or death. Three crashes were classified as fatal, two of which were motorcyclists (one involving a single vehicle at excess speed, one resulting from a multi-vehicle rear-end collision), and the third a single-vehicle crash due to a distracted driver in wet conditions. Two of the fatal crashes were located within the vicinity of the I-70/Colfax Avenue interchange (between milepost 288 and milepost 288.7), and one fatal crash occurred on I-70 westbound at the Gun Club Road on-ramp as noted above. A total of 49 crashes occurred at or near the I-70/Colfax Avenue interchange, 47 percent in the eastbound direction and 53 percent in the westbound direction. There are no clear crash trends associated with the left side exit ramp at this location.

A summary of crash types is presented in Figure 10, with rear-end crashes most represented at 32 percent, followed by fixed object (typically loss of control) at 23 percent, and sideswipe at 19 percent. These crash types are typical of interstate and ramp terminal facilities.

### Colfax Avenue

Colfax Avenue saw a total of 54 crashes, resulting in a crash rate of 2.57 crashes per million vehicle miles. This exceeds the average crash rate for Colorado Other Freeways and Expressways of 1.62 (CDOT 2012). Of the 54 crashes, 43 percent resulted in injury; no fatal crashes were recorded.

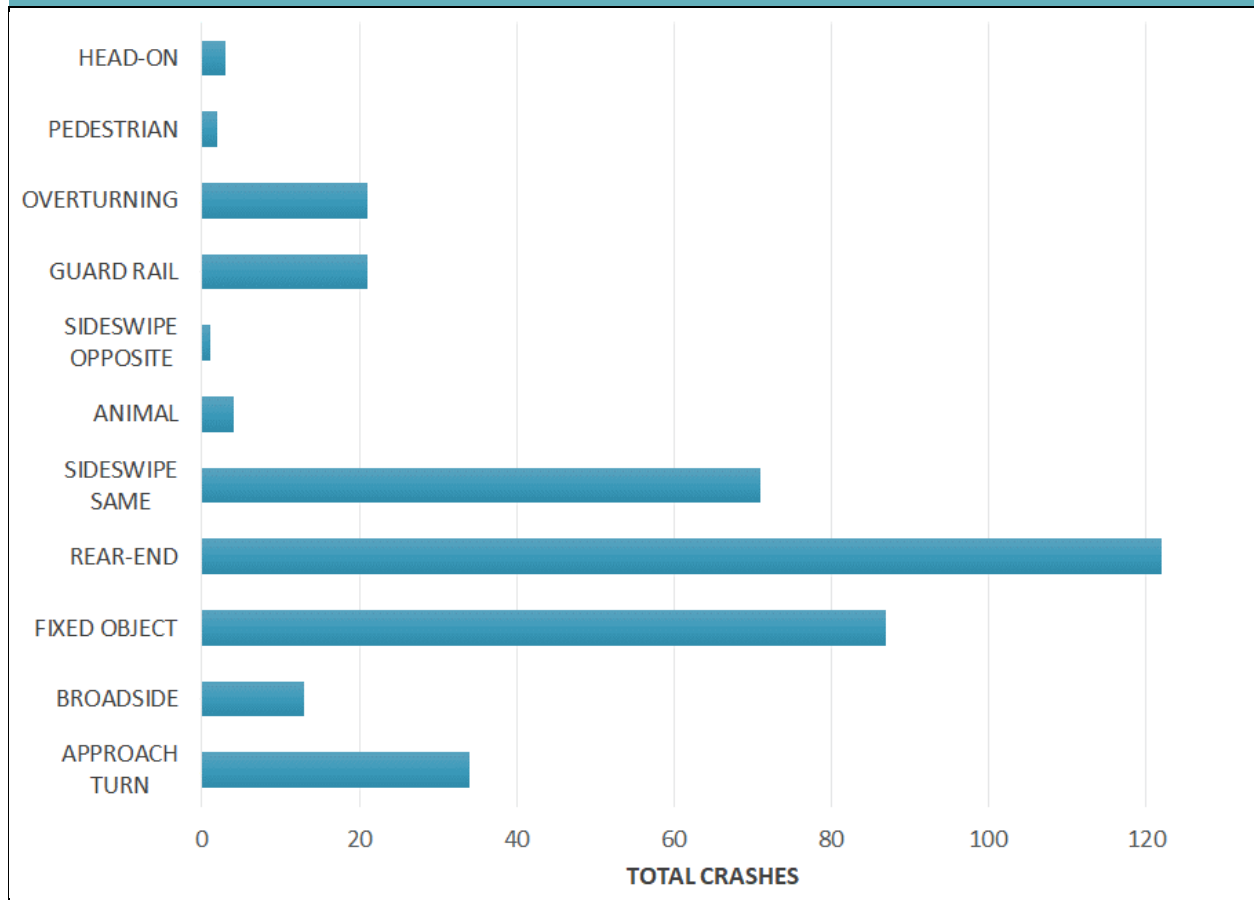
Approach turn, rear-end, overturning, fixed object (defined as permanent or semi-permanent structures such as tree, barrier, sign, boulder, wall, embankment), and broadside crash types are most represented, and are typical of a congested, high-speed facility with intersections. Over 50 percent of the recorded Colfax Avenue crashes occurred at intersections, as illustrated by the heat map in Figure 11.

### Picadilly Road

On Picadilly Road, a total of 14 crashes occurred over the 5-year period from July 2012 to July 2017, with the following breakdown:

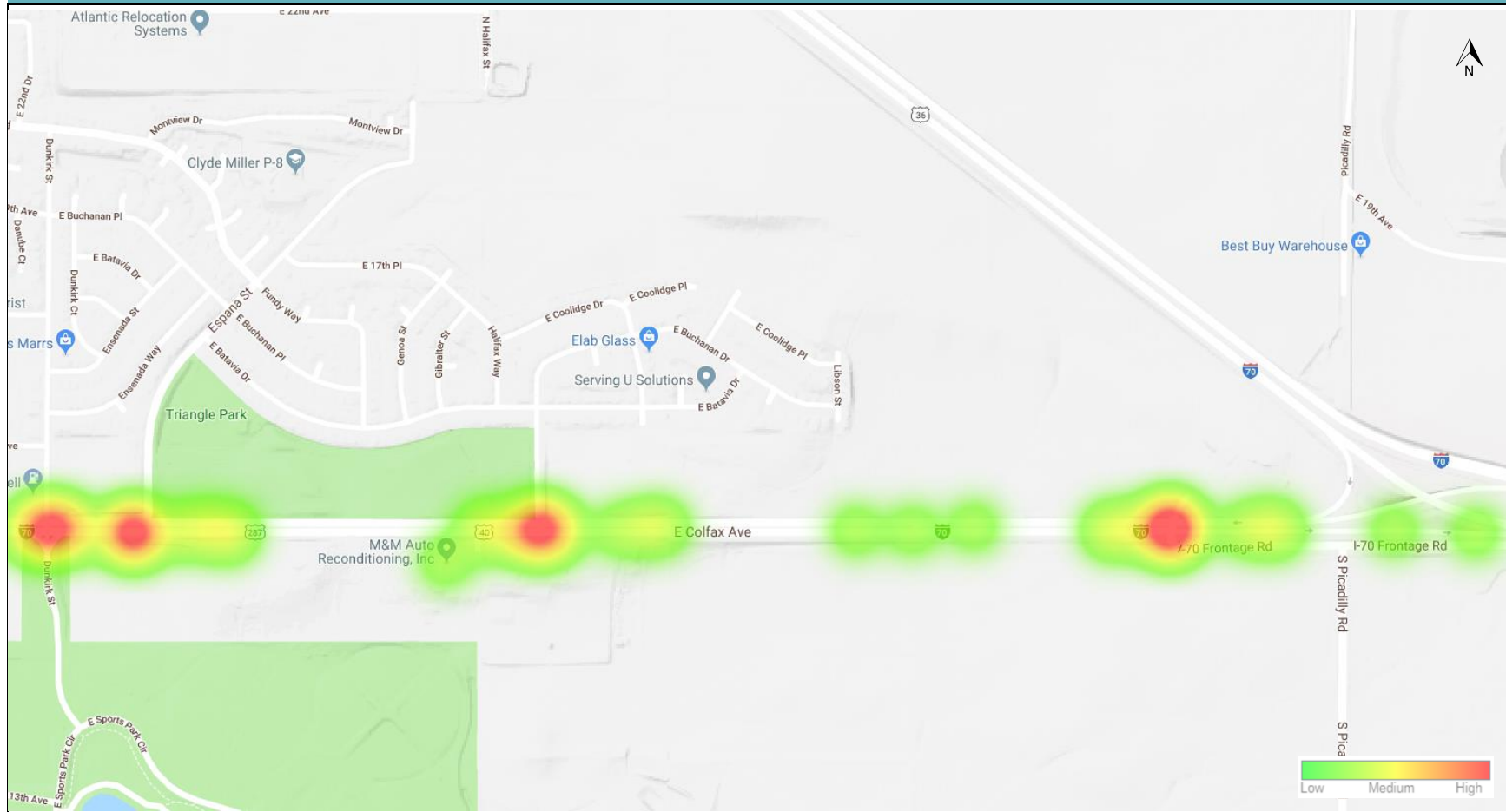
- 50 percent of crashes resulted in injury, no fatal crashes were recorded.
- 50 percent of crashes were classified as at-intersection or intersection related.
- 43 percent (6 of 14) were single vehicle crashes (i.e., loss of control).
- 43 percent (6 of 14) occurred at or near the Picadilly Road intersection with 6th Avenue. Three crashes occurred at or near the Picadilly Road intersection with 11th Avenue.

**Figure 10. I-70 Crash Type (July 2012-July 2017)**



Source: HDR

**Figure 11. Colfax Avenue Crash Location Heat Map (July 2012-July 2017)**



Source: HDR

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## 3.0 Future Conditions

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### 3.1 Future Land Use

Figure 12 shows the complete conversion of the undeveloped land to industrial, commercial, and mixed uses in the future. This area of Aurora has experienced significant growth and interest in further development. The Aerotropolis Visioning Study has keyed this location for significant development because of its proximity to Denver International Airport (CDOT, 2016). The City of Aurora's Comprehensive Plan, Aurora Places (City of Aurora, 2018) identifies city goals for Aurora as developing job growth, being a preferred business address, and to have an efficient plan of growth. The future land use in the study area supports and will lead to realizing these goals.

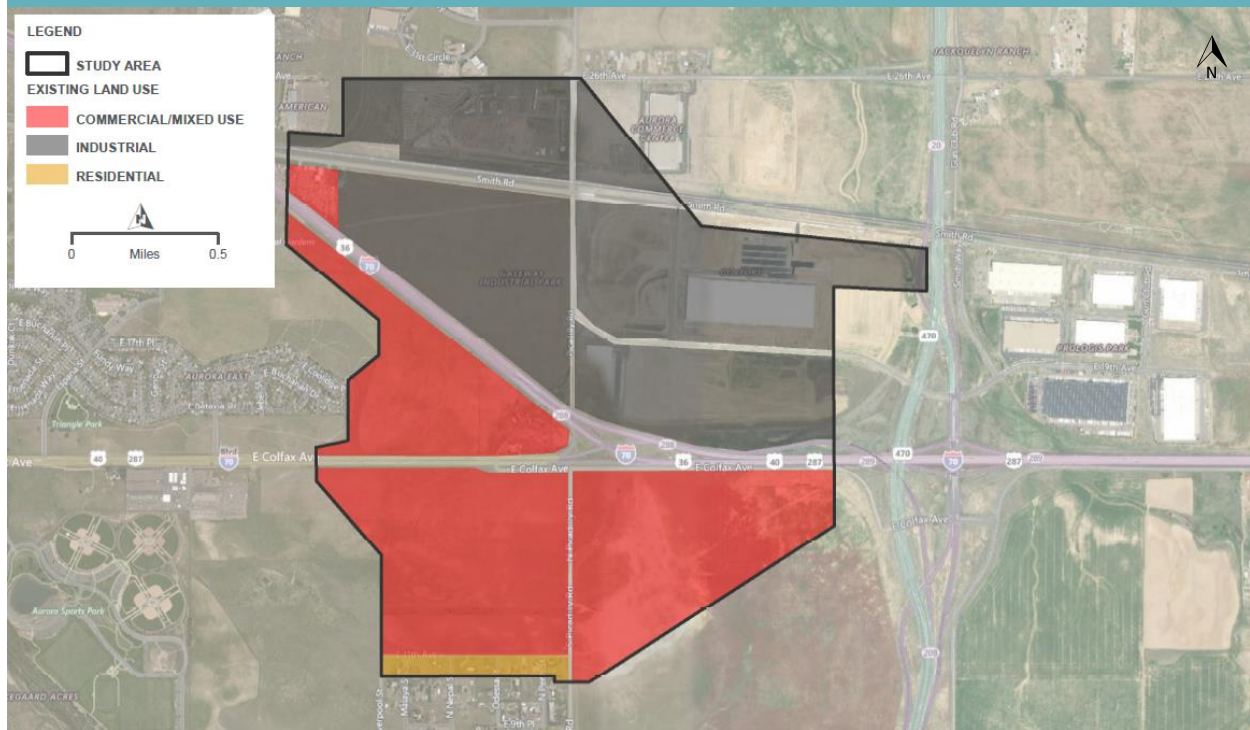
The projected future land use is consistent with the current zoning of the study area. The study area is located within the E-470 Zone District which allows for a range of uses within the zoning code and community zoned districts. Other small subsets of zoning within the study area include heavy industrial, planned development and highway service (City of Aurora, 2017).

Since 2006 a substantial industrial use complex has been developed north of I-70. In addition, there are definitive plans for the land use south of I-70. The Aerotropolis Visioning Study projected a possible addition of 74,000 jobs in the area by 2040 (CDOT, 2016). The continued development of the Prologis Holdings business park, expansion of the Majestic Commercenter, and construction of the Horizon Uptown Activity Center, the 4.5 million square foot Stafford Logistics Center, and Aurora Highlands would collectively provide millions of square feet of industrial, retail, and office space, and tens of thousands of homes, as shown in Figure 13.

The Stafford Logistic Center industrial development is proposed to be located at the southwest corner of the Colfax Ave/Picadilly Road intersection. The site is planned to comprise 4.4 million square feet of industrial park and 160,000 square feet of mixed retail, and will add approximately 20,000 daily trips at full build-out. The full build-out of this development is included in the DRCOG Focus model land use dataset and traffic forecasting for 2040, and therefore 2040 trips are included in this system level analysis. This site has been identified by CDOT as one of a number of possible developments that may trigger future ramp braiding at Picadilly Road and E-470 interchanges. The braided ramp option is illustrated in Figure 14, and the proposed Picadilly Road interchange refinement would not preclude this potential future construction by others.

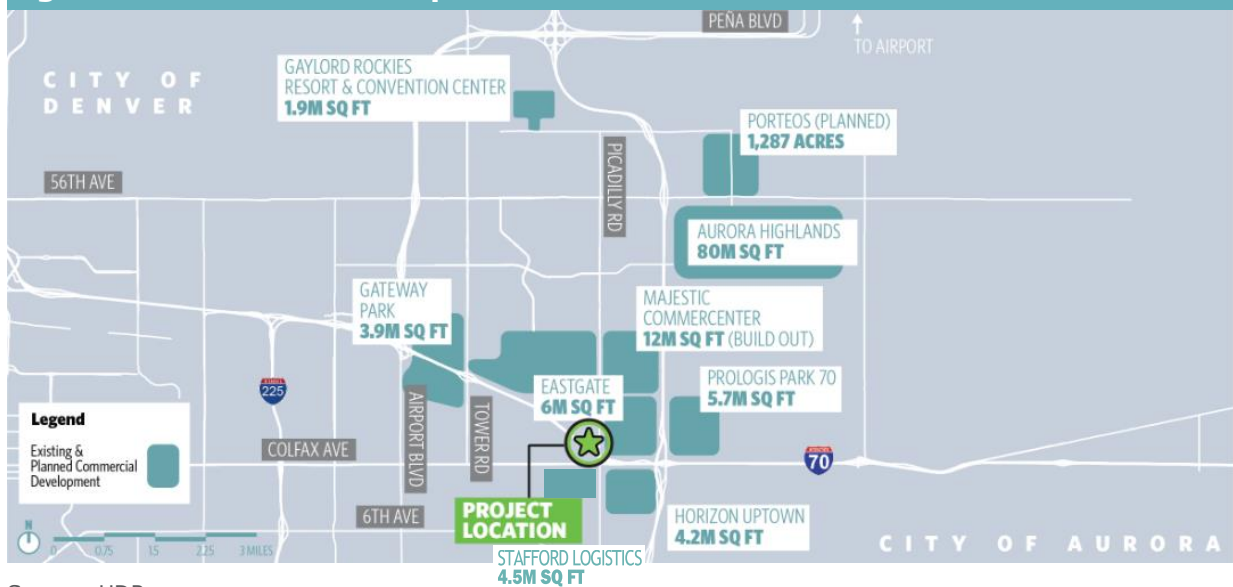


**Figure 12. Future Land Use**



Source: HDR

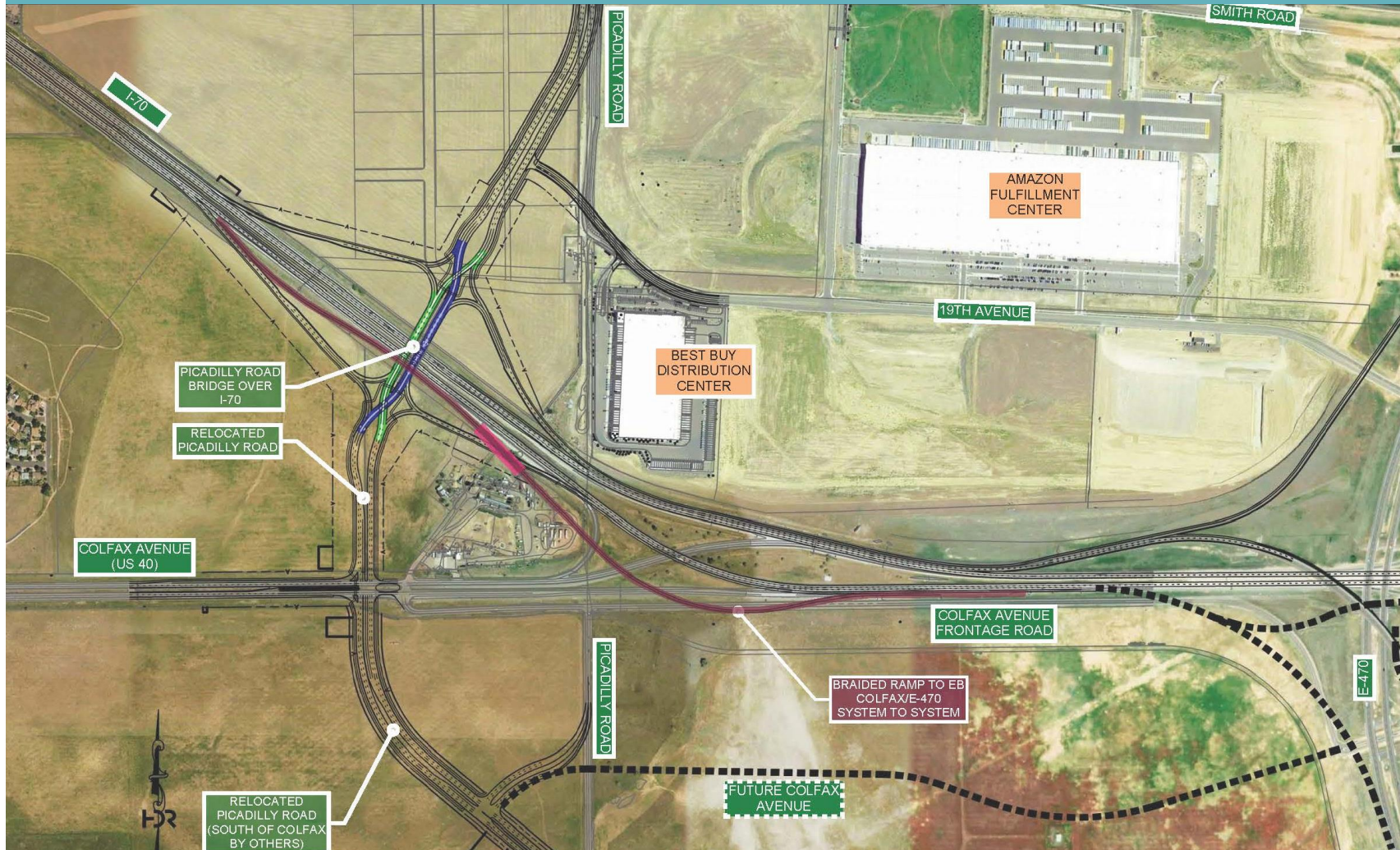
**Figure 13. Future Development**



Source: HDR



**Figure 14. Future I-70/E-470 Braided Ramp Option (No Scale)**



Source: HDR

As land use growth within the study area is the main driver for construction and improvements to infrastructure including area roadways, the City of Aurora and other local agencies are committed to ensuring the infrastructure needs are met as development occurs. These agencies utilize tools such as impact fees and developer agreements to fund and construct the needed roadway infrastructure. The City of Aurora operates on a pay-as-you-go basis for transportation improvements related to development. This means that development permit approvals are conditioned on the build out of necessary transportation infrastructure to accommodate projected trips generated by each development. Large-scale developments, like those mentioned above, are required to submit a Phasing Implementation Plan (PIP) outlining their plan to construct transportation improvements. Coordinating agencies, including Arapahoe and Adams Counties, CDOT, and FHWA, are provided opportunities to provide input into these application approval processes as they occur.

Some transportation improvements, like the Picadilly Road Interchange, are regional in nature, benefitting travelers and entities beyond a single developer or consortium of developers. For this reason, the City of Aurora and Arapahoe and Adams Counties have taken a proactive leadership role in the planning, design, and eventual construction of these improvements.

The City of Aurora NEATS study presents the local and regional roadway network plan for the area surrounding these interchanges, and includes the following language related to responsibilities of developers and agencies:

*Aurora's Model Annexation Agreement states that the developer is responsible for constructing all internal roads needed to serve the development. There are provisions for sharing the arterial road design and construction costs with adjoining property owners. There are also provisions to share the cost of roads adjacent to external property boundaries. For arterial roads, the policy is that development is responsible for one half of the designated roadway cross section. Developers are responsible for all on-site local roads (arterials, collectors and local streets) internal to a development.*

That plan also describes other strategies the City of Aurora will employ to fund the construction of necessary local and regional roadway improvements. One such agreement is already in place via the creation of the Aerotropolis Regional Transportation Authority (ARTA). ARTA oversees the budget, funding, and phasing for critical regional transportation infrastructure in the area north of I-70 and east of E-470. The following projects are being funded and phased by ARTA:

- I-70/Harvest Road Interchange. Projected completion 2024
- Harvest Road/Powhaton Road, I-70 to 56th Avenue. Initial phase to complete 2024

- The Aurora Highlands (TAH) Parkway, E-470 to Harvest Road/Powhaton Road. Initial phase to complete 2024
- 48th Avenue, E-470 to Powhaton Road. Final phase to complete 2028
- 38th Avenue, Himalaya Road to E-470. Final phase to complete 2032
- 26th Avenue, E-470 to Powhaton Road. Final phase to complete 2029

The Picadilly Road Interchange is an important piece of the regional roadway vision; the City of Aurora along with Arapahoe and Adams Counties also recognize the need for other roadway improvements, as laid out in the NEATS study, and will continue to seek similar partnerships with other entities to provide the transportation infrastructure that meets the needs of development in this area.

### 3.2 Forecasting Approach

DRCOG's activity based travel demand model, Focus 2.1, operates on the TransCAD 7.0 software platform. This model was used to forecast future travel demand within the study area. The DRCOG model reflects the planned network of the 2040 Fiscally-Constrained Regional Transportation Plan (RTP), adopted in April 2017. The DRCOG travel demand model includes planning horizon year 2040 and interim planning years 2015, 2020, and 2030. The regional model was calibrated and validated by DRCOG. The travel demand model methodology is described below.

First, the base year model includes the year 2015 roadway network and year 2020 land use. The 2015 roadway network was reviewed and updated in the study area, as necessary, to match 2018 roadway conditions per aerial maps and site visits. The 2020 land use has been utilized, rather than the 2015 land use, to account for recent developments in the area that are not reflected in the 2015 land use.

The 2040 horizon year roadway network was correspondingly updated and also reviewed to ensure all relevant, planned transportation improvements are included per the 2040 Fiscally Constrained RTP per NEPA policy, which requires the use of the adopted regional Metropolitan Planning Organization (MPO) plan. Changes to the adopted plan can be done to the travel demand model, as long as the local agency and MPO approve of the changes. Typically, the changes for a project like this are limited to fixes to errors and local roadway buildout.

Two roadway networks were developed for the 2040 horizon year comprising a No Action scenario and an Ultimate Build scenario. No land use or socioeconomic changes were made for any scenario. The adopted DRCOG socioeconomic forecasts are included in each scenario.



The 2040 No Build scenario includes all DRCOG 2040 Fiscally Constrained RTP projects in the area, except for interchange improvements associated with the I-70/E-470 Interchange Complex EA Preferred Alternative.

The 2040 Ultimate Build scenario includes the Preferred Alternative from the I-70/E-470 Interchange Complex EA in addition to all RTP improvements included in the No Action scenario. In addition to the 2040 horizon year model runs, a year 2030 interim year model run was performed to gauge growth in the area and roadway performance based upon an interim roadway condition.

Because of the complexity of real-world driver behavior and individual roadway characteristics, regional scale travel demand forecasting models such as the DRCOG Focus model cannot be expected to provide precise traffic volume forecasts throughout a detailed project scale roadway system. Post-processing adjustment is a common technique used to improve the reliability of forecasts and has been performed per the CDOT Traffic Analysis and Forecasting Guidelines (CDOT, 2018), National Cooperative Highway Research Program (NCHRP) Report 765, and industry practice. The technique uses comparisons of the base year model traffic volumes versus actual traffic counts, to provide an estimation of error associated with the model's representation of travel conditions. The model forecasts are then adjusted to account for the model errors to provide reliable forecasts. Further detail regarding post-processing adjustments is provided in Appendix A.

### 3.3 2040 No Action Alternative

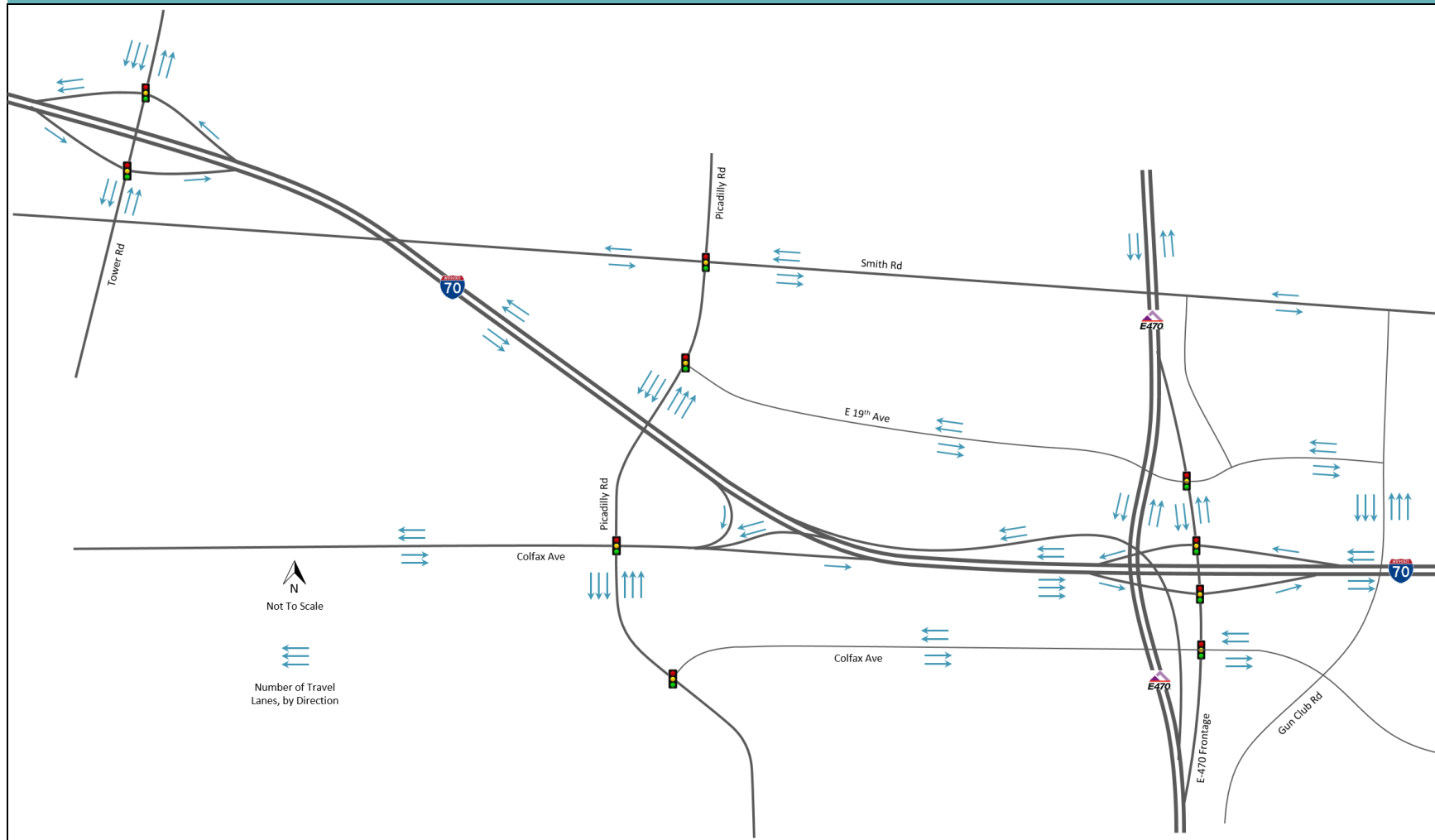
The No Action Alternative definition is consistent with the EA, and was developed with Federal Highway Administration (FHWA) input during the NEPA reevaluation process. It includes all projects in the DRCOG 2040 Regional Transportation Plan (RTP) with the exception of the EA Preferred Alternative. The No Action Alternative includes future Picadilly Road and Harvest Road connections over I-70. It does not include any I-70 ramp connections at future Picadilly Road or future Harvest Road, and does not include any change to the existing I-70/E-470 interchange ramps at Gun Club Road or I-70 ramps at Colfax Avenue. To summarize, the No Action Alternative:

- Includes future Picadilly Road as a six-lane access-controlled arterial (6th Avenue to 64th Avenue).
- Includes future Harvest Road as a six-lane access-controlled arterial (Jewell Avenue to 48th Avenue).
- Includes minor additional planned roadways in the area such as relocation of Colfax Avenue, extensions of Smith Road and 6th Avenue.

- Retains both the Colfax Avenue and Gun Club Road interchanges as existing. No additional I-70/E-470 system-to-system ramps feature in the No Action Alternative, and no existing ramp connections are removed.
- Does not include any I-70 interchange ramp connections at future Picadilly Road or future Harvest Road.

The No Action network within the study area is depicted in Figure 15.

**Figure 15. 2040 No Action Roadway Network**



Source: HDR

### 3.4 2040 No Action Traffic Volumes

Model adjustments were made to the DRCOG 2040 traffic model to reflect the agreed upon No Action network. Daily traffic volumes produced by the adjusted model were post-processed per the methodology described in Section 3.2.

Peak hour roadway link volumes were developed using the existing peak hour K-factor (proportion of daily traffic traveling during the peak hour), with minor adjustments applied based on anticipated land use changes detailed in Section 3.1. For the arterial corridors, turning movements were then developed using the NCHRP Report 765 iterative procedures, with the resultant peak hour volumes balanced for each corridor, and for the study area as a whole. Daily, AM and PM peak hour 2040 No Action traffic volumes are illustrated in Figure 16.

From existing 2018 conditions to year 2040, under the No Action Alternative, the volumes indicate a doubling of traffic on I-70 and Tower Road south of I-70, with higher growth on Colfax Avenue and the Gun Club Road/E-470 Frontage. Contributing factors to growth are forecasted increases in regional population and employment, and in particular local development and employment growth as detailed in Section 3.1. Existing 2018 and forecast 2040 No Action Alternative daily traffic volumes, and annual growth rate, are presented in Table 1.

### 3.5 2040 No Action Traffic Operations

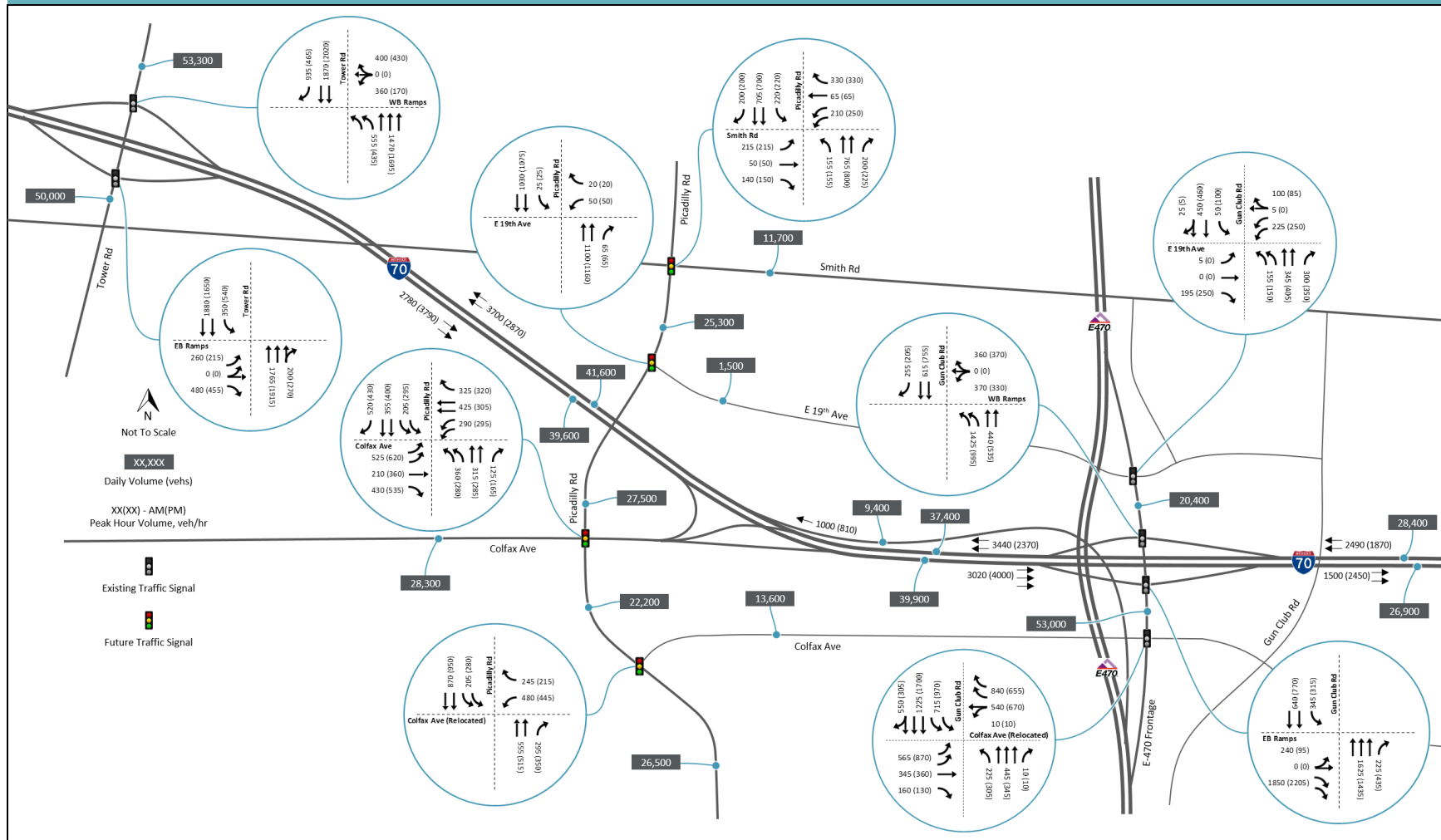
Consistent with the existing conditions analysis, 2040 No Action freeway traffic operations have been analyzed using HCS Release 7.8, and intersection operations using Synchro v10.2 software. The traffic signal timing and corridor offsets have been optimized for the 2040 No Action traffic volume. Further to the traffic volumes presented in Figure 16 and Table 1, the following demand data assumptions have been made for 2040 No Action analysis:

- 0.94 peak hour factor (PHF) on I-70.
- 0.92 PHF on arterial roadways.
- WB I-70 truck proportion: 8 percent AM peak, 10 percent PM peak, consistent with existing condition.
- EB I-70 truck proportion: 12 percent AM peak, 7 percent PM peak, consistent with existing condition.

Arterial roadway truck proportion: 8 percent both peaks. Estimated based on future planned development, and land use that introduces a substantial amount of residential and mixed use non-truck traffic to the area. The mix of planned land use in the study area is comparable to the existing Tower Road interchange area where truck proportions range between 4 percent and 7 percent on Tower Road. This truck proportion acknowledges that trips will be dispersed from the Gun Club Road area upon closure of the existing diamond interchange.



**Figure 16. 2040 No Action Daily and Peak Hour Traffic Volumes**



Source: HDR

**Table 1. Existing and 2040 No Action Traffic Volume Comparison**

Roadway Segment		Daily Traffic		% Annual Growth
		2018 Count Data	2040 No Action	
WB I-70	W of Harvest	14,400	28,400	3.1%
	E of Picadilly	22,000	41,600	2.9%
	E of Tower	22,000	41,600	2.9%
	W of Tower	30,600	50,200	2.3%
EB I-70	W of Tower	29,200	42,400	1.7%
	E of Tower	20,700	39,600	3.0%
	Btwn Colfax Ramps	19,200	33,000	2.5%
	E of E-470 / Gun Club (Diamond)	14,300	26,900	2.9%
NB E-470	S of I-70 / Gun Club Ramps	22,500	41,000	2.8%
	N of I-70 / Gun Club Ramps	17,500	27,500	2.1%
SB E-470	N of I-70 / Gun Club Ramps	16,800	29,700	2.6%
	S of I-70 / Gun Club Ramps	21,900	38,400	2.6%
Picadilly	N of Smith	3,900	29,100	9.6%
	S of Smith	2,100	25,300	12.0%
	S of 19th	-	27,500	-
	S of Original Colfax	3,500	22,200	8.8%
	S of Realigned Colfax	3,500	26,500	9.6%
Tower	N of I-70	44,300	53,300	0.8%
	S of I-70	25,500	50,000	3.1%
Gun Club	N of 19th (E-470 Ramps)	4,300	11,500	4.6%
	N of I-70	7,300	20,400	4.8%
	S of I-70	23,000	53,000	3.9%
	S of Frontage (E-470 Ramps)	9,800	22,900	3.9%
Colfax/I-70 Frontage	W of Picadilly (W of Frontage in 2018)	9,600	28,300	5.0%
	Relocated Colfax E of Picadilly	1,700	13,600	9.9%

With the projected increase in traffic volume, I-70 traffic operations degrade under the 2040 No Action scenario. Eastbound operations are most affected during the PM peak hour with the merge, diverge, and weave areas operating at LOS E or LOS F through most of the study area. The eastbound weave segment and off-ramp to Gun Club Road/E-470 Frontage are operating over capacity, resulting in average upstream vehicle speeds below 20mph. Average vehicle speeds on I-70 across the entire eastbound facility study area are below 50mph.

Although westbound I-70 traffic operations degrade LOS continues to be acceptable, with the exception of the Tower Road off-ramp diverge where freeway demand is approaching capacity during the AM peak hour. A comparison of 2018 existing and 2040 No Action I-70 level of service is provided in Table 2 and Table 3.

Existing and future No Action intersection operations are documented in Table 4, Table 5, and Appendix C. E-470 Frontage Road signalized intersections at the I-70 ramp terminals, and at Colfax Avenue, are affected by the growth in traffic volume, resulting in LOS E or LOS F operations during the peak periods. The westbound ramp terminal at Tower Road also degrades to LOS F during both peak periods under 2040 No Action conditions. I-70 off-ramp queues exceed the ramp lengths at Tower Road westbound and Gun Club Road/E-470 Frontage eastbound (see red highlight, Table 5). These queues would be expected to spill back onto mainline I-70, affecting operations and safety at these locations.

**Table 2. Existing and 2040 No Action LOS—Eastbound I-70**

Eastbound Movement	Location	Existing 2018						No Action 2040 LOS					
		AM Peak			PM Peak			AM Peak			PM Peak		
		Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS
		Freeway	Ramp		Freeway	Ramp		Freeway	Ramp		Freeway	Ramp	
Diverge	Off-Ramp to Tower	0.45	0.37	B	0.62	0.43	C	0.75	0.42	D	0.88	0.36	E
Merge	On-Ramp from Tower	0.34	0.14	B	0.53	0.23	B	0.70	0.31	C	0.92	0.44	D
Diverge	Off-Ramp to Colfax	0.32	0.04	B	0.5	0.09	B	0.69	0.19	C	0.90	0.37	F
Weave	Between Colfax and E-470 Frontage	0.51	-	A	0.75	-	B	1.12	-	F	1.21	-	F
Merge	On-Ramp from E-470 Frontage	0.18	0.09	A	0.29	0.12	B	0.37	0.32	A	0.58	0.41	B

**Table 3. Existing and 2040 No Action LOS—Westbound I-70**

Westbound Movement	Location	Existing 2018						No Action 2040 LOS					
		AM Peak			PM Peak			AM Peak			PM Peak		
		Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS
		Freeway	Ramp		Freeway	Ramp		Freeway	Ramp		Freeway	Ramp	
Diverge	Off-Ramp to E-470 Frontage	0.3	0.15	A	0.21	0.13	A	0.60	0.40	C	0.46	0.39	B
Merge	On-Ramp from E-470 Frontage	0.43	0.39	B	0.29	0.3	A	0.82	0.92	D	0.58	0.67	B
Diverge	Off-Ramp to Colfax	0.43	0.12	A	0.28	0.05	A	0.82	0.19	C	0.58	0.08	B
Merge	On-Ramp from E-470 Flyover	0.52	0.43	B	0.36	0.27	B	0.89	0.52	D	0.70	0.43	C
Diverge	Off-Ramp to Tower	0.54	0.23	C	0.39	0.15	B	0.90	0.42	E	0.71	0.33	D
Merge	On-Ramp from Tower	0.35	0.28	B	0.26	0.22	A	0.54	0.41	B	0.39	0.25	B

**Table 4. Existing and 2040 No Action LOS—Ramp Terminals/Intersections**

Intersection	Approach	Existing 2018 Intersection Operations						No Action 2040 Intersection Operations					
		AM			PM			AM			PM		
		v/c*	Delay (s)	LOS	v/c*	Delay (s)	LOS	v/c*	Delay (s)	LOS	v/c*	Delay (s)	LOS
Tower Rd / I-70 WB Ramps	Northbound	0.75	7.3	A	0.79	6.7	A	1.53	81.0	F	1.29	43.6	D
	Southbound	0.56	19.0	B	0.63	18.7	B	1.43	241.2	F	1.39	211.6	F
	Westbound	1.17	145.8	F	0.92	68.6	E	1.47	268.6	F	1.62	334.5	F
	Overall	-	<b>36.3</b>	<b>D</b>	-	<b>17.7</b>	<b>B</b>	-	<b>176.0</b>	<b>F</b>	-	<b>149.1</b>	<b>F</b>
Tower Rd / I-70 EB Ramps	Northbound	0.28	15.2	B	0.37	17.2	B	0.91	47.1	D	0.70	17.4	B
	Southbound	0.34	2.1	A	0.74	4.1	A	0.73	2.3	A	0.99	12.1	B
	Eastbound	0.84	53.4	D	0.89	54.9	D	0.82	71	E	0.77	57.4	E
	Overall	-	<b>16.0</b>	<b>B</b>	-	<b>19.9</b>	<b>B</b>	-	<b>25.1</b>	<b>C</b>	-	<b>18.1</b>	<b>B</b>
E-470 Frontage / 19th Ave	Northbound	0.70	30.6	C	0.51	27.7	C	0.68	15.8	B	0.99	35.8	D
	Southbound	0.10	9.2	A	0.11	7.8	A	0.29	12.2	B	0.24	8.2	A
	Eastbound	0.01	42.2	D	0.01	42.2	D	0.45	62.6	D	0.01	1.0	A
	Westbound	0.64	49.8	D	0.68	48.0	D	0.74	35.8	E	0.73	35.9	D
	Overall	-	<b>27.2</b>	<b>C</b>	-	<b>25.2</b>	<b>C</b>	-	<b>18.8</b>	<b>B</b>	-	<b>27.2</b>	<b>C</b>
E-470 Frontage / I-70 WB Ramps	Northbound	0.62	11.5	B	0.25	5.0	A	1.2	88.8	F	0.99	25.1	C
	Southbound	0.20	19.2	B	0.34	26.4	C	0.86	47.0	D	0.78	27.8	C
	Westbound	0.75	52.0	D	0.77	52.4	D	0.91	73.1	E	0.89	69.4	E
	Overall	-	<b>15.6</b>	<b>B</b>	-	<b>16.3</b>	<b>B</b>	-	<b>77.7</b>	<b>E</b>	-	<b>31.5</b>	<b>C</b>
E-470 Frontage / I-70 EB Ramps	Northbound	0.42	19.7	B	0.35	26.8	C	0.92	51.8	D	1.05	88.3	F
	Southbound	0.80	22.9	C	0.82	31.8	C	0.95	28.6	C	1.12	50.3	D
	Eastbound	0.91	43.8	D	0.93	40.8	D	1.56	239.3	F	1.34	189.9	F
	Overall	-	<b>27.9</b>	<b>C</b>	-	<b>34.0</b>	<b>C</b>	-	<b>88.0</b>	<b>F</b>	-	<b>100.8</b>	<b>F</b>
E-470 Frontage / Colfax Ave	Northbound	0.57	34.5	C	0.61	44.2	D	1.27	114.9	F	1.73	236.3	F
	Southbound	0.87	32.1	C	0.75	27	C	1.16	107.5	F	1.50	213.3	F
	Eastbound	0.27	39.7	D	0.51	43.2	D	1.12	132.5	F	1.11	79.5	E
	Westbound	0.55	42.6	D	0.27	40.6	D	1.12	80.6	F	1.60	338.5	F
	Overall	-	<b>33.3</b>	<b>C</b>	-	<b>29.3</b>	<b>C</b>	-	<b>106.3</b>	<b>F</b>	-	<b>201.7</b>	<b>F</b>

\*Worst performing movement on each approach

**Table 5. Existing and 2040 No Action Ramp Queue**

Ramp Intersection 95th Percentile Queues	Existing 2018 Ramp Queue (ft)		No Action 2040 Ramp Queue (ft)		Off-Ramp Length to Theoretical Gore (ft)
	AM	PM	AM	PM	
Tower Rd / I-70 WB Off-Ramp	850	400	2,075	1,700	1,300
Tower Rd / I-70 EB Off-Ramp	275	375	250	175	1,350
E-470 Frontage / I-70 WB Off-Ramp	125	125	600	525	950
E-470 Frontage / I-70 EB Off-Ramp	400	500	1,600	1,775	950

RED highlight = queue exceeds ramp length

### 3.6 2040 Revised Preferred Alternative

The Revised Preferred Alternative network is the same as the EA Preferred Alternative network, with local improvements to address regional mobility and local access per the EA as follows:

- Include future Picadilly Road, as a six-lane access-controlled arterial (6th Avenue to 64th Avenue).
- Include full movement interchange where Picadilly Road intersects I-70 (per FHWA definition: all turn movements on and off the interstate system are provided for) The DDI does not allow for off-ramp to on-ramp through movement, however U-turns on Picadilly Road may be permitted at Colfax Avenue and Smith Road to accommodate the extremely low volume of traffic that may wish to return to the interstate.
- Include future Harvest Road as a six-lane access-controlled arterial (Jewell Avenue to 48th Avenue).
- Include full movement interchange where Harvest Road intersects I-70 (per FHWA definition: all turn movements on and off the interstate system are provided for).
- Include system-to-system ramp facilities between I-70 and E-470 accommodating all movements.
- Remove the diamond interchange ramps at Gun Club Road.
- Include auxiliary lanes on I-70 between Picadilly Road and Tower Road.

At Picadilly Road, the Revised Preferred Alternative provides a DDI over I-70. The DDI concept simplifies the interaction of turn movements at interchange ramp terminals by crossing the arterial through movements at the terminals. As a result, left turn crossing conflicts are replaced with merge and diverge movements and left turn signal phases are removed from the ramp terminals.

A T-intersection is formed where 19th Avenue meets Picadilly Road, to be located 780 feet north of the revised interchange. The existing ramp connections between Colfax Avenue and I-70 are removed, and a four-leg intersection is formed at Colfax Avenue and Picadilly Road. At this location Colfax Avenue is effectively terminated to the east and the east leg of the intersection provides local property access only. Traffic moving between Colfax Avenue and I-70 would use the relocated Picadilly Road and the DDI facility. The 2040 Revised Preferred Alternative study network is illustrated in Figure 17. The segment of Picadilly Road between Colfax Avenue and I-70 shall, through devolution and dedication, become US 40 and be constructed to CDOT roadway standards.

System-to-system ramps are provided at E-470, with auxiliary lanes creating mainline weave areas eastbound (3,100-foot weave) and westbound (2,100-foot weave) on I-70 between Picadilly Road and E-470. Local access that would otherwise have occurred at the Gun Club Road interchange is now facilitated by the Picadilly Road interchange, and also the Harvest Road interchange when complete. Local traffic traveling to/from west I-70 would travel via Smith Road, 19th Avenue, or Relocated Colfax Avenue to the Picadilly Road interchange. Local traffic traveling to/from east I-70 would travel via Smith Road or Relocated Colfax Avenue to the Harvest Road interchange.

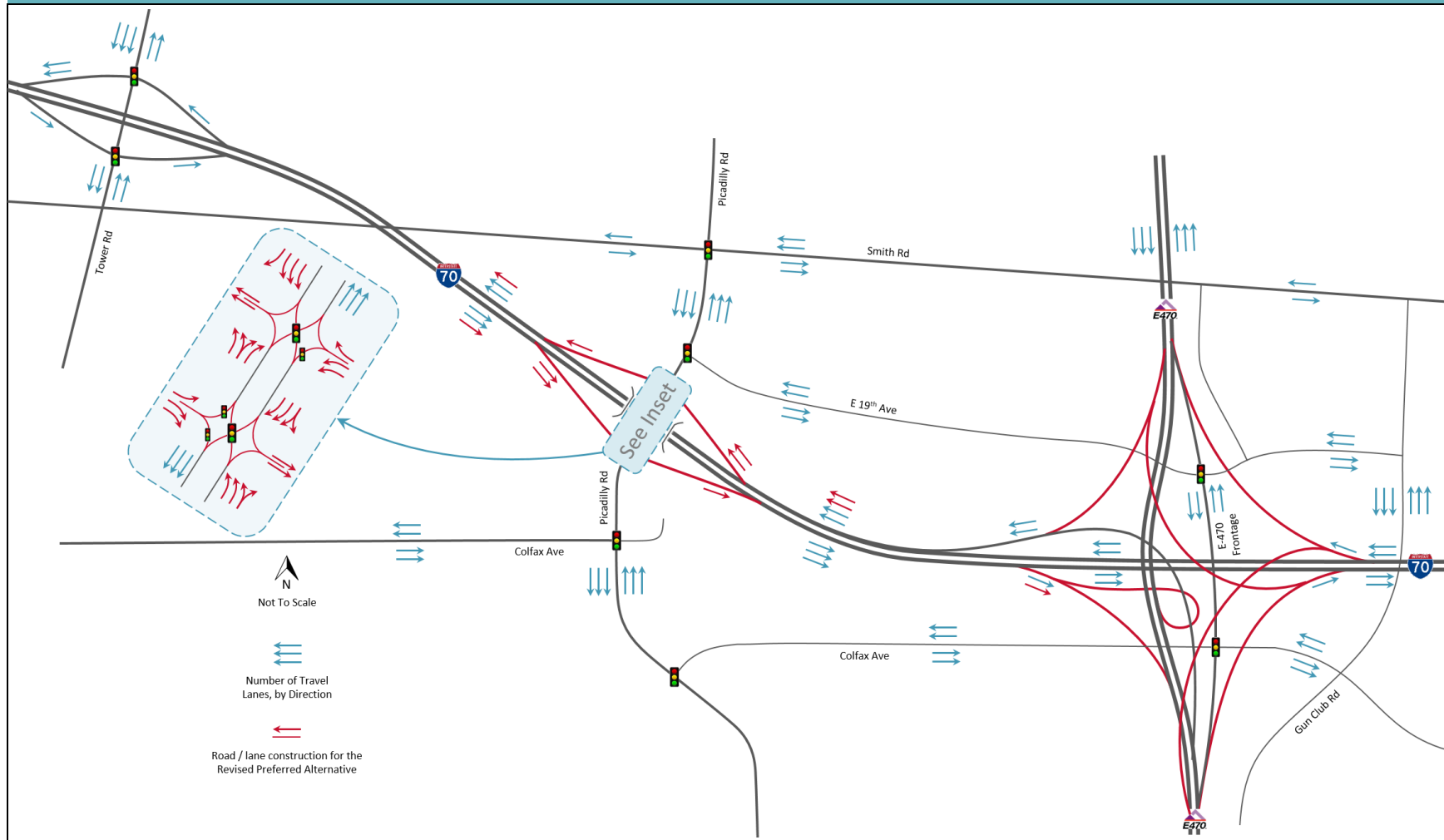
Pedestrian and bicycle trail facilities are proposed on Picadilly Road, with movements through the proposed DDI accommodated via a 14-foot-wide facility located within the median of the DDI bridge structure. Further details about pedestrian and bicycle facilities are provided in Section 4.4.

### 3.7 2040 Revised Preferred Traffic Volumes

Model adjustments were made to the DRCOG 2040 traffic model, to reflect the Revised Preferred Alternative network, and daily traffic volumes produced by the adjusted model were post-processed per the methodology described in Section 3.2.

Peak hour roadway link volumes were developed using the existing peak hour K-factor (proportion of daily traffic traveling during the peak hour), with minor adjustments applied based on anticipated land use changes detailed in Section 3.1. For the arterial corridors, turn movements were then developed using the NCHRP Report 765 iterative procedures, with the resultant peak hour volumes balanced for each corridor, and for the study area as a whole. The daily and AM and PM peak hour 2040 Revised Preferred Alternative traffic volumes are provided in Figure 18.

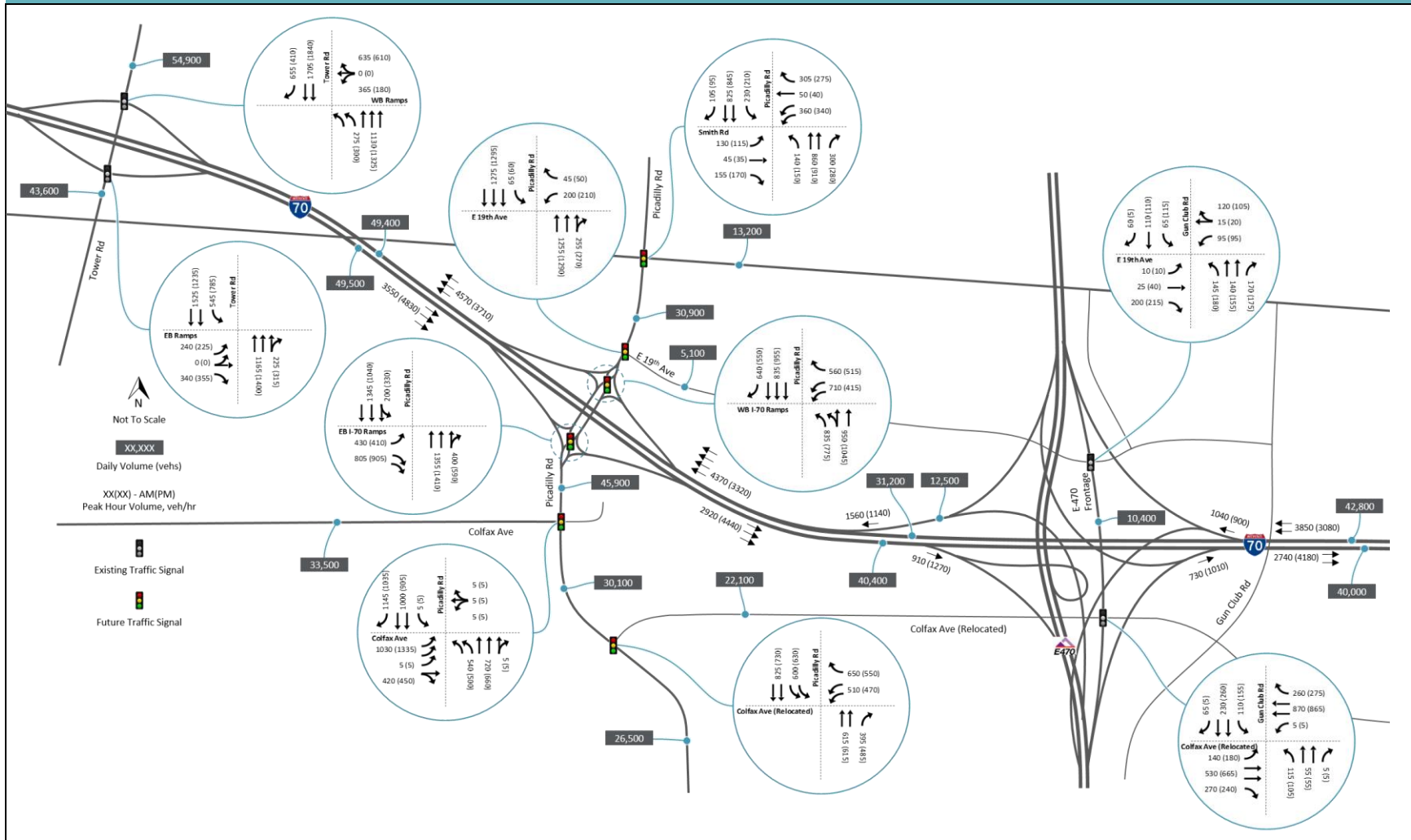
**Figure 17. 2040 Revised Preferred Alternative Roadway Network**



Source: HDR



**Figure 18. 2040 Revised Preferred Alternative Daily and Peak Hour Traffic Volumes**



Source: HDR

Table 6 presents a comparison of 2040 No Action and Revised Preferred Alternative daily traffic projections on major roadways in the study area. Traffic volume on I-70, E-470 south of I-70, Picadilly Road, and Colfax Avenue is projected to be 10 percent to 50 percent higher under the Revised Preferred Alternative, with a 10 percent to 20 percent volume reduction on E-470 north of I-70 and Tower Road south of I-70. The E-470 Frontage/Gun Club Road traffic volumes reduce significantly with closure of the diamond interchange. This traffic would re-route via Smith Road, 19th Avenue, and Relocated Colfax Avenue, to the new Picadilly Road interchange or proposed Harvest Road interchange. The re-routing of traffic is determined through the travel demand model forecasting and accounted for in the forecasts presented in Table 6.

Daily traffic volumes developed from the travel demand model do not include sufficient information to determine the proportion of weaving traffic between E-470 and Picadilly Road/Colfax Avenue. The critical data required for analysis of the weave area are the freeway-to-freeway, freeway-to-ramp, ramp-to-freeway, and ramp-to-ramp volumes. To determine link-to-link volume proportions through the weave areas, a peak hour select link analysis was completed for eastbound and westbound Picadilly Road/I-70/E-470 traffic using the 2040 DRCOG Focus model. The select link analysis provides an estimate of the proportional traffic distribution for the specified links. The results of the select link analysis have been applied to the post-processed link volumes developed from the Focus model.

### 3.8 2040 Revised Preferred Traffic Operations

2040 Revised Preferred Alternative freeway traffic operations have been analyzed using HCS Release 7.8, with intersection operations on the Tower Road and Gun Club corridors analyzed using Synchro v10.2 software. Analysis of the DDI and Picadilly Road corridor was completed using the VISSIM version 11 microsimulation tool. VISSIM is a microscopic, time step, and behavior-based simulation model that is best suited for analyzing operations of the DDI and adjacent Picadilly Road intersections. Further to the traffic volumes presented in Table 6 and Figure 18, and consistent with the No Action analysis, the following demand data assumptions have been made for 2040 Revised Preferred Alternative analysis:

- 0.94 peak hour factor (PHF) on I-70
- 0.92 PHF on arterial roadways
- WB I-70 truck proportion: 8 percent AM peak, 10 percent PM peak consistent with existing conditions
- EB I-70 truck proportion: 12 percent AM peak, 7 percent PM peak, consistent with existing conditions
- Arterial roadway truck proportion: 8 percent both peaks. Estimated based on future planned development, and land use that introduces a substantial amount of residential and mixed use non-truck traffic to the area. The mix of planned land use in the study area is comparable to the

existing Tower Road interchange area where truck proportions range between 4 percent and 7 percent on Tower Road.

**Table 6. 2040 No Action and 2040 Action Traffic Volume Comparison**

Roadway Segment		Daily Traffic		% Change
		2040 No Action	2040 Revised Preferred Alternative	
WB I-70	W of Harvest	28,400	42,800	50.7%
	E of Picadilly	41,600	43,700	5.0%
	E of Tower	41,600	49,400	18.8%
	W of Tower	50,200	49,800	-0.8%
EB I-70	W of Tower	42,400	46,800	10.4%
	E of Tower	39,600	49,500	25.0%
	E of Picadilly	33,000	40,400	22.4%
	E of E-470	26,900	40,000	48.7%
NB E-470	S of I-70 / Gun Club Ramps	41,000	48,000	17.1%
	N of I-70 / Gun Club Ramps	27,500	25,600	-6.9%
SB E-470	N of I-70 / Gun Club Ramps	29,700	25,300	-14.8%
	S of I-70 / Gun Club Ramps	38,400	48,000	25.0%
Picadilly	N of Smith	29,100	29,200	0.3%
	S of Smith	25,300	30,900	22.1%
	S of 19th	27,500	36,500	32.7%
	S of Original Colfax	22,200	30,100	35.6%
	S of Realigned Colfax	26,500	26,500	0.0%
Tower	N of I-70	53,300	54,900	3.0%
	S of I-70	50,000	43,600	-12.8%
Gun Club	N of 19th (E-470 Ramps)	11,500	5,400	-53.0%
	N of I-70	20,400	10,700	-47.5%
	S of I-70	53,000	10,400	-80.4%
	S of Frontage (E-470 Ramps)	22,900	6,200	-72.9%
Colfax/I-70 Frontage	W of Picadilly (W of Frontage in 2018)	28,300	33,500	18.4%
	Relocated Colfax E of Picadilly	13,600	22,100	62.5%

No existing roadway or interchange exists where Picadilly Road is proposed to intersect I-70. Therefore, rather than adjusting to existing conditions, calibration of the VISSIM model attempts to best replicate future real world conditions. The model calibration included adjustment to the mix of vehicle models to better replicate a larger proportion of SUVs and pick-up trucks; careful application of network objects such as reduced speed areas and desired speed decisions to reflect the design speeds of the left and right turn curvature and reverse curves through the DDI; use of realistic signal timings and clearance times; volume checks of model output vs model input for links and intersection turn movements (using the GEH statistic, for comparison of two volume sets).

I-70 corridor 2040 No Action and Revised Preferred Alternative operations are summarized in Table 7, Table 8, and Table 9. Revised Preferred Alternative analysis results are documented in Appendix D. Despite a noticeable increase in projected traffic volume, I-70 corridor operations are generally maintained or improved under the Revised Preferred Alternative when compared to the No Action conditions, with an overall reduction in I-70 travel time. The Tower Road interchange experiences some operational degradation under both future study conditions, and suffers because of increasing traffic volumes on I-70 with no associated capacity improvements. I-70 mainline traffic volumes of the Revised Preferred Alternative increase when compared to the No Action, as traffic to and from the west redistributes to the Picadilly Road interchange rather than using the Tower Road interchange to access I-70. This change in travel patterns results in increased demand and operational impacts at Tower Road, however noticeable operational benefits are apparent throughout the project east of Tower Road.

Between Colfax Avenue/Picadilly Road and E-470, the No Action Alternative results in extremely poor (LOS F) interstate operations for eastbound traffic, and conditions are noticeably improved (LOS C or better) under the Revised Preferred Alternative. Westbound operations between E-470 and Tower Road are improved under the Revised Preferred Alternative, including at the weave area between E-470 and Colfax Avenue/Picadilly Road, where conditions improve from No Action LOS C and LOS D to LOS B under the Revised Preferred Alternative.

**Table 7. EB and WB I-70 Speed and Travel Time**

Mainline I-70 Direction		2040 No Action		2040 Revised Preferred	
		AM	PM	AM	PM
EB I-70	Speed (mph)	49.6	47.0	67.1	63.7
	Travel Time (min)	6.0	6.3	4.4	4.7
WB I-70	Speed (mph)	61.5	65.4	64.8	67.0
	Travel Time (min)	5.0	4.7	4.7	4.6

**Table 8. 2040 No Action and 2040 Action LOS—Eastbound I-70**

Eastbound Movement	Location	No Action 2040 LOS						Revised Preferred 2040 LOS					
		AM Peak			PM Peak			AM Peak			PM Peak		
		Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS
		Freeway	Ramp		Freeway	Ramp		Freeway	Ramp		Freeway	Ramp	
Diverge	Off-Ramp to Tower	0.75	0.42	D	0.88	0.36	E	0.85	0.33	E	1.04	0.31	F
Merge	On-Ramp from Tower	0.70	0.31	C	0.92	0.44	D	0.60	0.44	C	0.78	0.60	D
Diverge	Off-Ramp to Colfax	0.69	0.19	C	0.90	0.37	F	-	-	n/a	-	-	n/a
Diverge	Off-Ramp to Picadilly	-	-	n/a	-	-	n/a	0.59	0.35	B	0.76	0.35	B
Weave	Btwn Colfax (or Picadilly) and E-470	1.12	-	F	1.21	-	F	0.52	-	B	0.76	-	C
Merge	On-Ramp from E-470 (or Frontage)	0.37	0.32	A	0.58	0.41	B	0.45	0.41	B	0.66	0.55	C

**Table 9. 2040 No Action and 2040 Action LOS—Westbound I-70**

Westbound Movement	Location	No Action 2040 LOS						Revised Preferred 2040 LOS					
		AM Peak			PM Peak			AM Peak			PM Peak		
		Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS
		Freeway	Ramp		Freeway	Ramp		Freeway	Ramp		Freeway	Ramp	
Diverge	Off-Ramp to E-470 (or Frontage)	0.60	0.40	C	0.46	0.39	B	0.46	0.28	A	0.38	0.25	A
Merge	On-Ramp from E-470 Frontage	0.82	0.92	D	0.58	0.67	B	-	-	n/a	-	-	n/a
Weave	Between E-470 and Picadilly Rd	-	-	n/a	-	-	n/a	0.61	-	B	0.44	-	B
Diverge	Off-Ramp to Colfax	0.82	0.19	C	0.58	0.08	B	-	-	n/a	-	-	n/a
Merge	On-Ramp from E-470 Flyover	0.89	0.52	D	0.70	0.43	C	-	-	n/a	-	-	n/a
Merge	On-Ramp from Picadilly	-	-	n/a	-	-	n/a	0.73	0.80	C	0.60	0.74	C
Diverge	Off-Ramp to Tower	0.90	0.42	E	0.71	0.33	D	0.74	0.55	D	0.62	0.44	C
Merge	On-Ramp from Tower	0.54	0.41	B	0.39	0.25	B	0.55	0.25	B	0.45	0.20	B

No Action and Revised Preferred Alternative intersection operations are documented in Table 10 and Table 11. Under the Revised Preferred Alternative, intersection operations are improved on the E-470 Frontage Road as a result of the diamond interchange removal, and lower forecasted traffic volume. Although traffic volumes on Picadilly Road are projected to increase by up to 30 percent with implementation of the Picadilly Road interchange, acceptable Picadilly Road operations are maintained with intersections operating at LOS C or better for the Revised Preferred Alternative. The DDI ramp terminals are expected to operate at LOS B or LOS C during peak periods. 95th percentile peak hour off-ramp queues at the Picadilly Road DDI are less than 500 feet in length, significantly shorter than the ramp length, and would not be expected to impact I-70 mainline operations. The intersection of 19th Avenue is to be located such that Picadilly Road queues do not affect interchange or intersection operations.

Traffic operations at the westbound Tower Road ramp terminal are poor (LOS F) under both No Action and Revised Preferred Alternative scenarios. The 95th percentile off-ramp queue length is reduced by approximately 18 percent under the Revised Preferred Alternative, however these ramp queues can be expected to continue to cause operational and safety concerns at the Tower Road westbound off-ramp, during peak periods, due to exceeding the available ramp lengths shown in Table 10.

Freeway and ramp terminal operations for the No Action and Revised Preferred Alternative are illustrated in Figure 19 (AM operations) and Figure 20 (PM operations).

**Table 10. 2040 No Action and 2040 Action Ramp Queue**

Ramp Intersection 95th Percentile Queues	No Action 2040 Ramp Queue (ft)		Revised Preferred 2040 Ramp Queue (ft)		Off-Ramp Length to Theoretical Gore (ft)
	AM	PM	AM	PM	
Tower Rd / I-70 WB Off-Ramp	2,075	1,700	1,700	1,400	1,300
Tower Rd / I-70 EB Off-Ramp	250	175	100	125	1,350
E-470 Frontage / I-70 WB Off-Ramp	600	525	n/a	n/a	950
E-470 Frontage / I-70 EB Off-Ramp	1,600	1,775	n/a	n/a	950
Picadilly Rd / WB Ramps	n/a	n/a	250	150	1,700
Picadilly Rd / EB Ramps	n/a	n/a	425	400	1,700

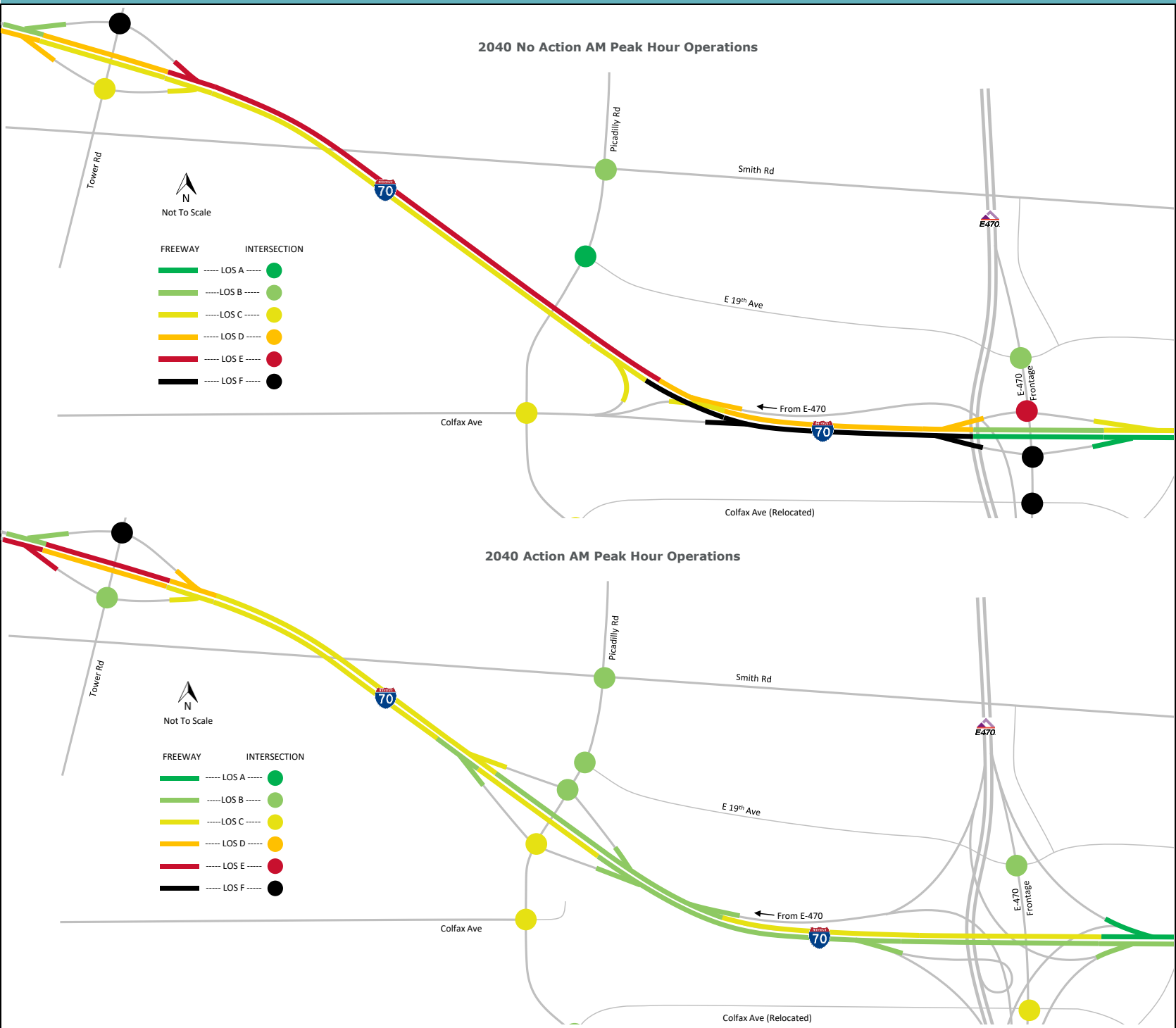
RED highlight = queue exceeds ramp length

Table 11.2040 No Action and 2040 Action LOS—Ramp Terminals/Intersections

Intersection	Approach	No Action 2040 Intersection Operations						Revised Preferred 2040 Intersection Operations					
		AM			PM			AM			PM		
		v/c*	Delay (s)	LOS	v/c*	Delay (s)	LOS	v/c*	Delay (s)	LOS	v/c*	Delay (s)	LOS
Tower Rd / I-70 WB Ramps	Northbound	1.53	81.0	F	1.29	43.6	D	1.56	64	E	1.49	52.8	D
	Southbound	1.43	241.2	F	1.39	211.6	F	1.53	280.2	F	1.34	200.9	F
	Westbound	1.47	268.6	F	1.62	334.5	F	1.54	281.1	F	1.43	251.0	F
	Overall	-	176.0	F	-	149.1	F	-	206.5	F	-	153.7	F
Tower Rd / I-70 EB Ramps	Northbound	0.91	47.1	D	0.70	17.4	B	0.74	37.3	D	0.94	60.4	E
	Southbound	0.73	2.3	A	0.99	12.1	B	0.74	1.7	A	1.01	6.3	A
	Eastbound	0.82	71.0	E	0.77	57.4	E	0.79	57.1	E	0.81	72.4	E
	Overall	-	25.1	C	-	18.1	B	-	17.4	B	-	31.2	C
E-470 Frontage / 19th Ave	Northbound	0.68	15.8	B	0.99	35.8	D	0.26	10.2	B	0.26	9.5	A
	Southbound	0.29	12.2	B	0.24	8.2	A	0.15	10.5	B	0.19	9.6	A
	Eastbound	0.45	62.6	D	0.01	1.0	A	0.16	29.0	C	0.35	32.1	C
	Westbound	0.74	35.8	E	0.73	35.9	D	0.62	28.3	C	0.68	30.7	C
	Overall	-	18.8	B	-	27.2	C	-	15.3	B	-	15.3	B
E-470 Frontage / I-70 WB Ramps	Northbound	1.20	88.8	F	0.99	25.1	C	-	-	-	-	-	-
	Southbound	0.86	47.0	D	0.78	27.8	C	-	-	-	-	-	-
	Westbound	0.91	73.1	E	0.89	69.4	E	-	-	-	-	-	-
	Overall	-	77.7	E	-	31.5	C	-	-	-	-	-	-
E-470 Frontage / I-70 EB Ramps	Northbound	0.92	51.8	D	1.05	88.3	F	-	-	-	-	-	-
	Southbound	0.95	28.6	C	1.12	50.3	D	-	-	-	-	-	-
	Eastbound	1.56	239.3	F	1.34	189.9	F	-	-	-	-	-	-
	Overall	-	88.0	F	-	100.8	F	-	-	-	-	-	-
E-470 Frontage / Colfax Ave	Northbound	1.27	114.9	F	1.73	236.3	F	0.32	20	B	0.31	22.5	C
	Southbound	1.16	107.5	F	1.50	213.3	F	0.34	22.7	C	0.39	23.4	C
	Eastbound	1.12	132.5	F	1.11	79.5	E	0.58	15.8	B	0.64	16.3	B
	Westbound	1.12	80.6	F	1.60	338.5	F	0.86	28.1	C	0.86	28.0	C
	Overall	-	106.3	F	-	201.7	F	-	22.5	C	-	22.4	C
Picadilly Rd / 19th Ave	Northbound	0.34	4.0	A	0.37	4.4	A	~	12.4	B	~	13.5	B
	Southbound	0.27	0.2	A	0.29	5.5	A	~	5.6	A	~	6.9	A
	Westbound	0.67	49.4	D	0.62	42.7	D	~	44.7	D	~	45.0	D
	Overall	-	3.6	A	-	6.1	A	~	12.2	B	~	13.3	B
Picadilly Rd / I-70 WB Ramps	Northbound	-	-	-	-	-	-	~	15.1	B	~	16.7	B
	Southbound	-	-	-	-	-	-	~	23.1	C	~	16.7	B
	Westbound	-	-	-	-	-	-	~	10.3	B	~	6.8	A
	Overall	-	-	-	-	-	-	~	16.4	B	~	14.5	B
Picadilly Rd / I-70 EB Ramps	Northbound	-	-	-	-	-	-	~	14.6	B	~	21.2	C
	Southbound	-	-	-	-	-	-	~	28.6	C	~	18.7	B
	Eastbound	-	-	-	-	-	-	~	22.0	C	~	16.6	C
	Overall	-	-	-	-	-	-	~	21.4	C	~	22.0	C
Picadilly Rd / Colfax Ave	Northbound	0.84	45.0	D	0.44	26.2	C	~	23	C	~	28.7	C
	Southbound	0.42	14.2	B	0.80	26.4	C	~	18	B	~	16.2	B
	Eastbound	0.87	25.4	C	0.91	21.8	C	~	34	C	~	32.8	C
	Westbound	0.83	44.4	D	0.87	34.7	C	~	50.8	D	~	48.2	D
	Overall	-	29.9	C	-	25.8	C	~	24.2	C	~	25.3	C

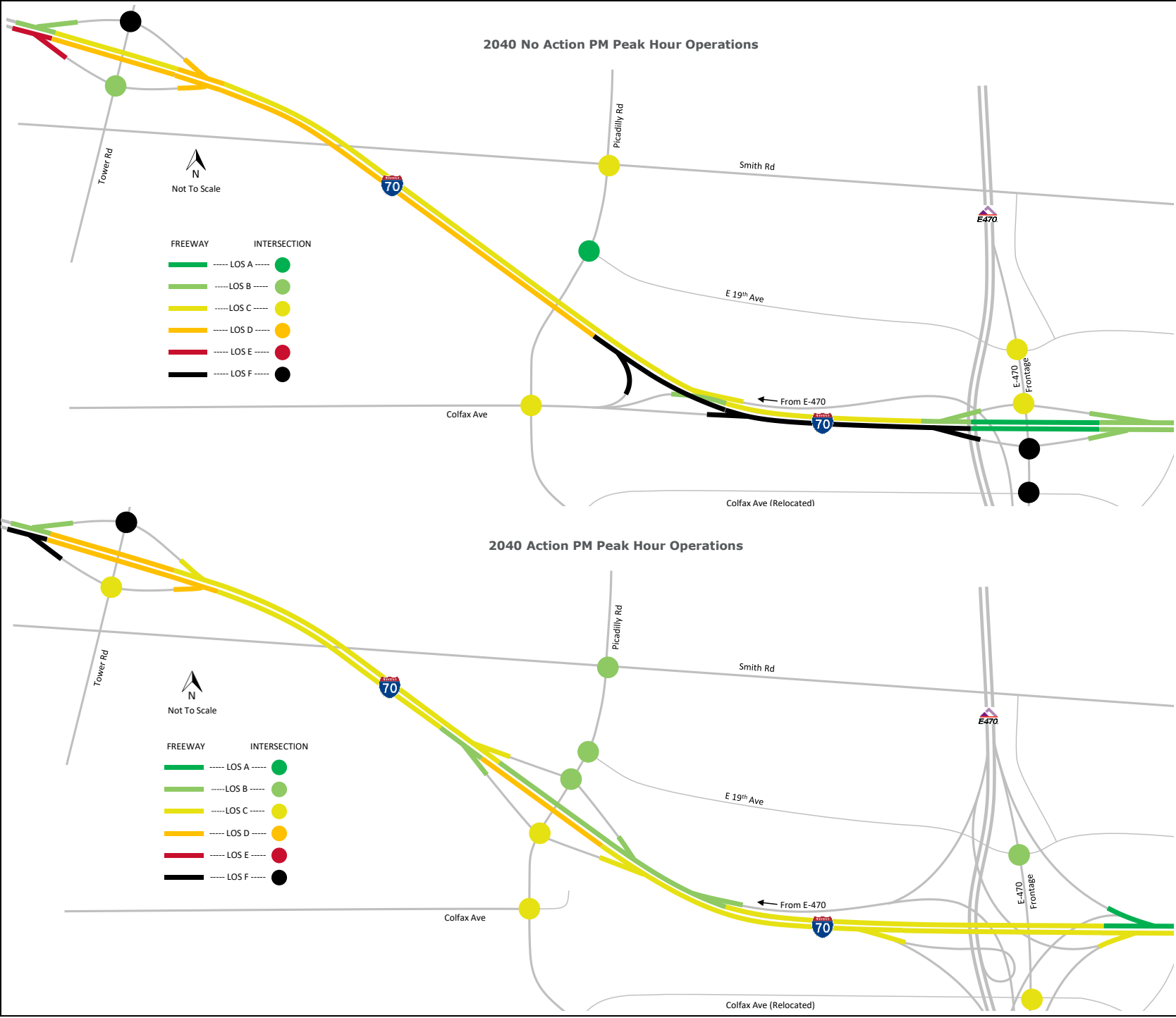
\*Worst performing movement on each approach  
~Microsimulation software such as VISSIM does not output v/c ratio. For further detailed results see Appendix D

Figure 19. 2040 No Action (Top) and 2040 Revised Preferred Alternative AM LOS





**Figure 20. 2040 No Action (Top) and 2040 Revised Preferred Alternative PM LOS**



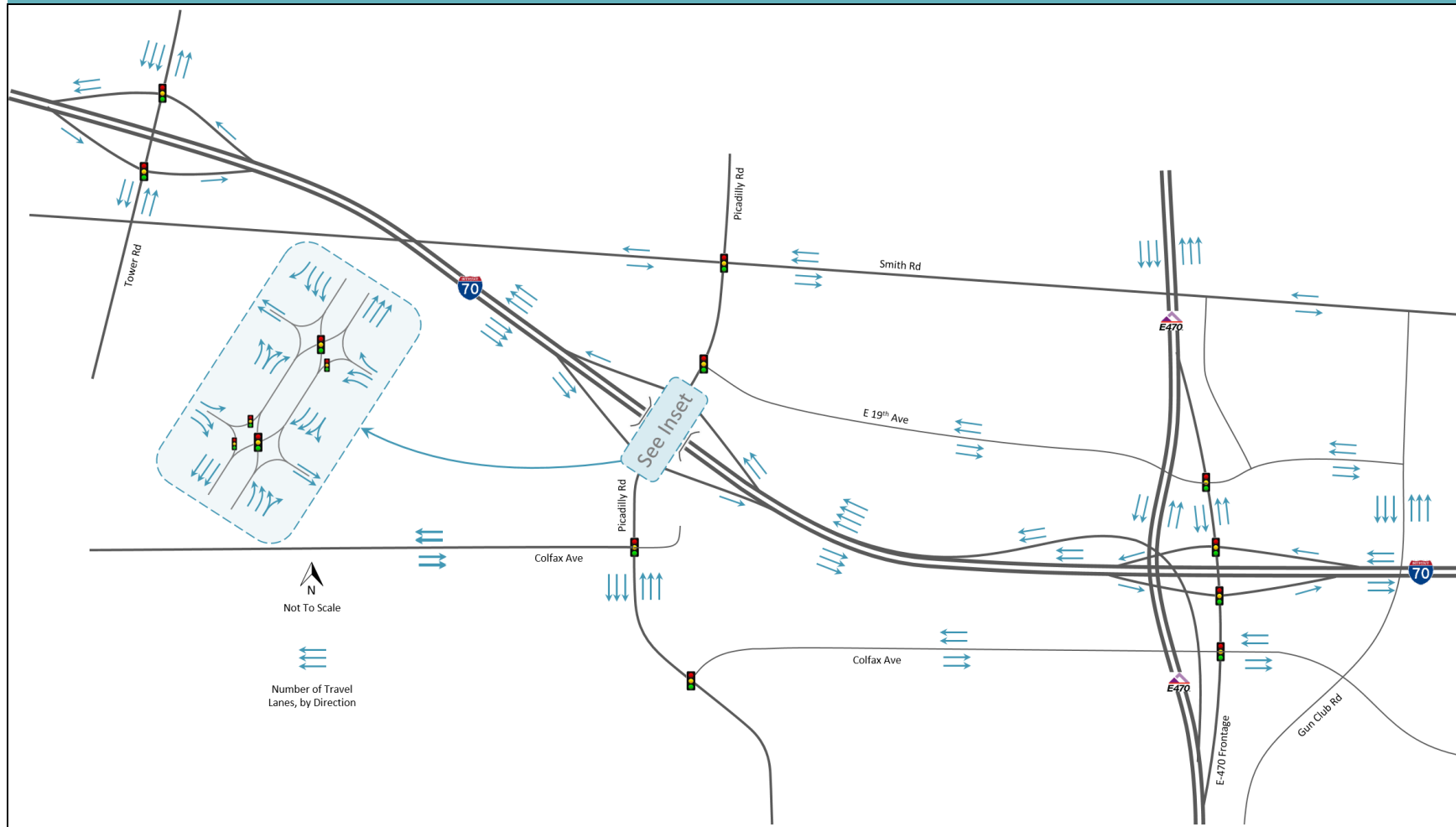
### 3.9 2030 Interim Year Roadway Network and Traffic Volumes

An Interim year 2030 network was developed that assumes the system-to-system ramps proposed at E-470 are constructed after 2030. The resulting network includes existing Tower Road and E-470 diamond interchanges alongside the future Picadilly Road Revised Preferred Alternative interchange. The 2030 Interim network is illustrated in Figure 21.

Model adjustments were made to the DRCOG 2030 traffic model to reflect the agreed upon 2030 Interim network, and daily traffic volumes produced by the adjusted model were post-processed per the methodology described in Section 3.2.

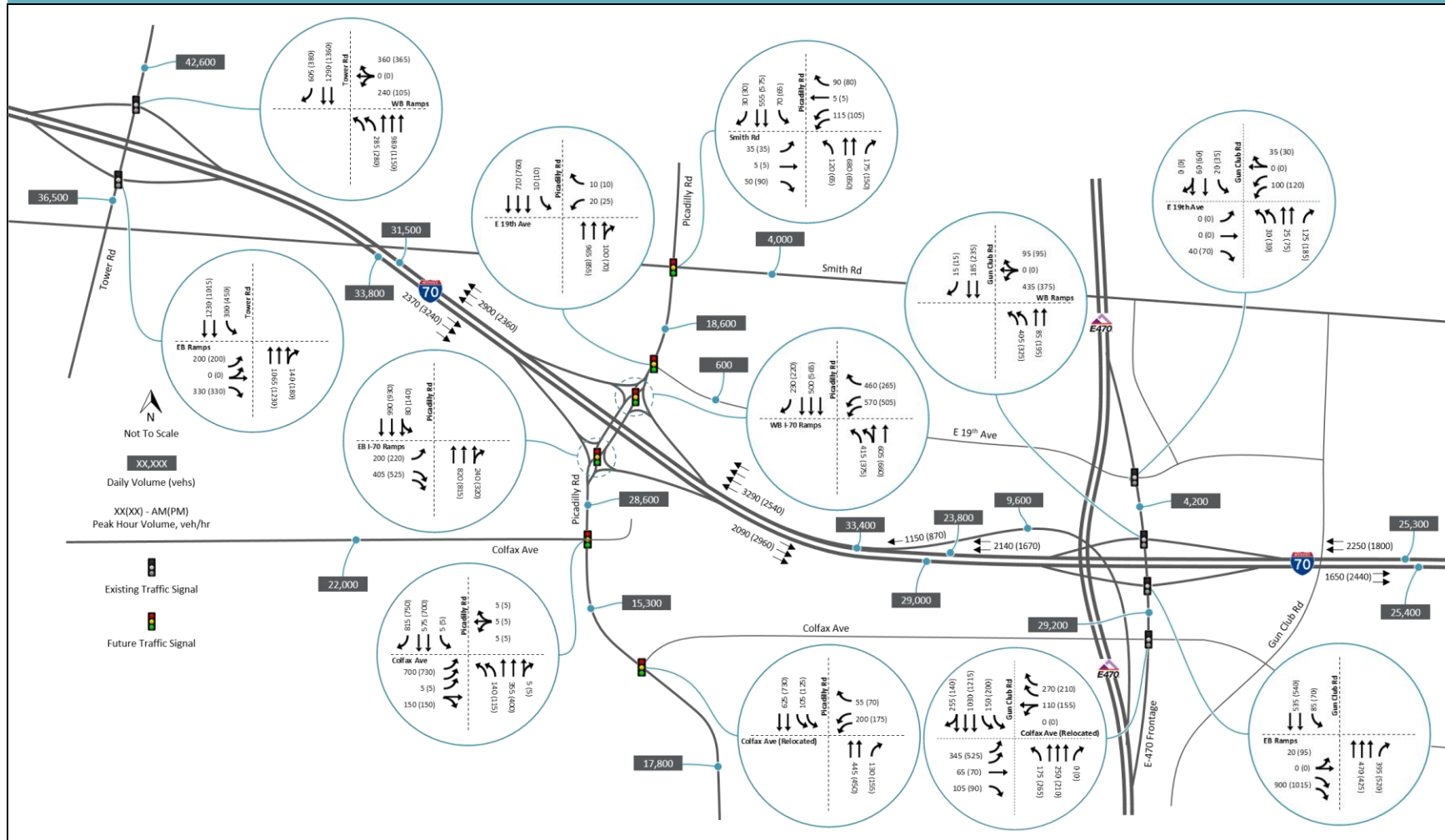
Peak hour roadway link volumes were developed using the existing peak hour K-factor (proportion of daily traffic traveling during the peak hour), with minor adjustments applied based on anticipated land use changes detailed in Section 3.1. For the arterial corridors, turn movements were then developed using the NCHRP Report 765 iterative procedures, with the resultant peak hour volumes balanced for each corridor, and for the study area as a whole. Daily, AM and PM peak hour 2030 interim traffic volumes are illustrated in Figure 22.

**Figure 21. 2030 Interim Roadway Network**



Source: HDR

**Figure 22. 2030 Interim Daily and Peak Hour Traffic Volumes**



Source: HDR

### 3.10 2030 Interim Year Traffic Operations

2030 Interim freeway traffic operations have been analyzed using HCS Release 7.8, with intersection operations on the Tower Road and Gun Club corridors analyzed using Synchro v10.2 software. Analysis of the diverging diamond interchange and Picadilly Road corridor was completed using the VISSIM version 11 microsimulation tool, consistent with the methodology of the 2040 Revised Preferred Alternative analysis.

I-70 corridor 2030 Interim operations are summarized in Table 12 and Table 13. 2030 analysis results are documented in Appendix E. I-70 corridor operations are acceptable in both eastbound and westbound directions during the peak periods analyzed.

**Table 12. 2030 Interim LOS—Eastbound I-70**

Eastbound Movement	Location	2030 Interim LOS					
		AM Peak			PM Peak		
		Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS
		Freeway	Ramp		Freeway	Ramp	
Diverge	Off-Ramp to Tower	0.62	0.30	C	0.76	0.29	D
Merge	On-Ramp from Tower	0.40	0.25	B	0.52	0.34	C
Diverge	Off-Ramp to Picadilly	0.39	0.17	A	0.51	0.20	A
Weave	Between Picadilly and E-470 Frontage	0.52	-	B	0.61	-	B
Merge	On-Ramp from E-470 Frontage	0.41	0.27	B	0.58	0.32	C

**Table 13. 2030 Interim LOS—Westbound I-70**

Westbound Movement	Location	2030 Interim LOS					
		AM Peak			PM Peak		
		Volume-to-Capacity (v/c)		Freeway LOS	Volume-to-Capacity (v/c)		Freeway LOS
		Freeway	Ramp		Freeway	Ramp	
Diverge	Off-Ramp to E-470 Frontage	0.54	0.29	B	0.44	0.26	B
Merge	On-Ramp from E-470 Frontage	0.51	0.23	B	0.41	0.19	B
Weave	Between E-470 and Picadilly Rd	0.46	-	B	0.34	-	B
Merge	On-Ramp from Picadilly	0.46	0.35	B	0.38	0.33	B
Diverge	Off-Ramp to Tower	0.47	0.33	B	0.39	0.26	B
Merge	On-Ramp from Tower	0.39	0.24	B	0.32	0.18	A

Intersection operations are documented in Table 14 and Table 15. Ramp terminal and Picadilly Road corridor intersections generally experience acceptable overall operations of LOS D or better. The exception is the westbound ramp terminal at Tower Road, with degradation of operations to LOS E during the AM peak hour. Overall system traffic operations for the 2030 interim condition are visualized in Figure 23. Off-ramp queues at Tower Road westbound are close to, but do not exceed, the 1,300 foot ramp length under AM peak hour conditions. Ramp queues at Tower Road, Picadilly Road, and Gun Club Road, would not be expected to impact I-70 mainline operations.

**Table 14. 2030 Interim Ramp Queue**

Ramp Intersection 95th Percentile Queues	2030 Interim Ramp Queue (ft)		Off-Ramp Length to Theoretical Gore (ft)
	AM	PM	
Tower Rd / I-70 WB Off-Ramp	<b>1,050</b>	<b>850</b>	<b>1,300</b>
Tower Rd / I-70 EB Off-Ramp	<b>125</b>	<b>150</b>	<b>1,350</b>
E-470 Frontage / I-70 WB Off-Ramp	<b>325</b>	<b>350</b>	<b>950</b>
E-470 Frontage / I-70 EB Off-Ramp	<b>100</b>	<b>175</b>	<b>950</b>
Picadilly Rd / WB Ramps	<b>200</b>	<b>175</b>	<b>1,700</b>
Picadilly Rd / EB Ramps	<b>200</b>	<b>225</b>	<b>1,700</b>

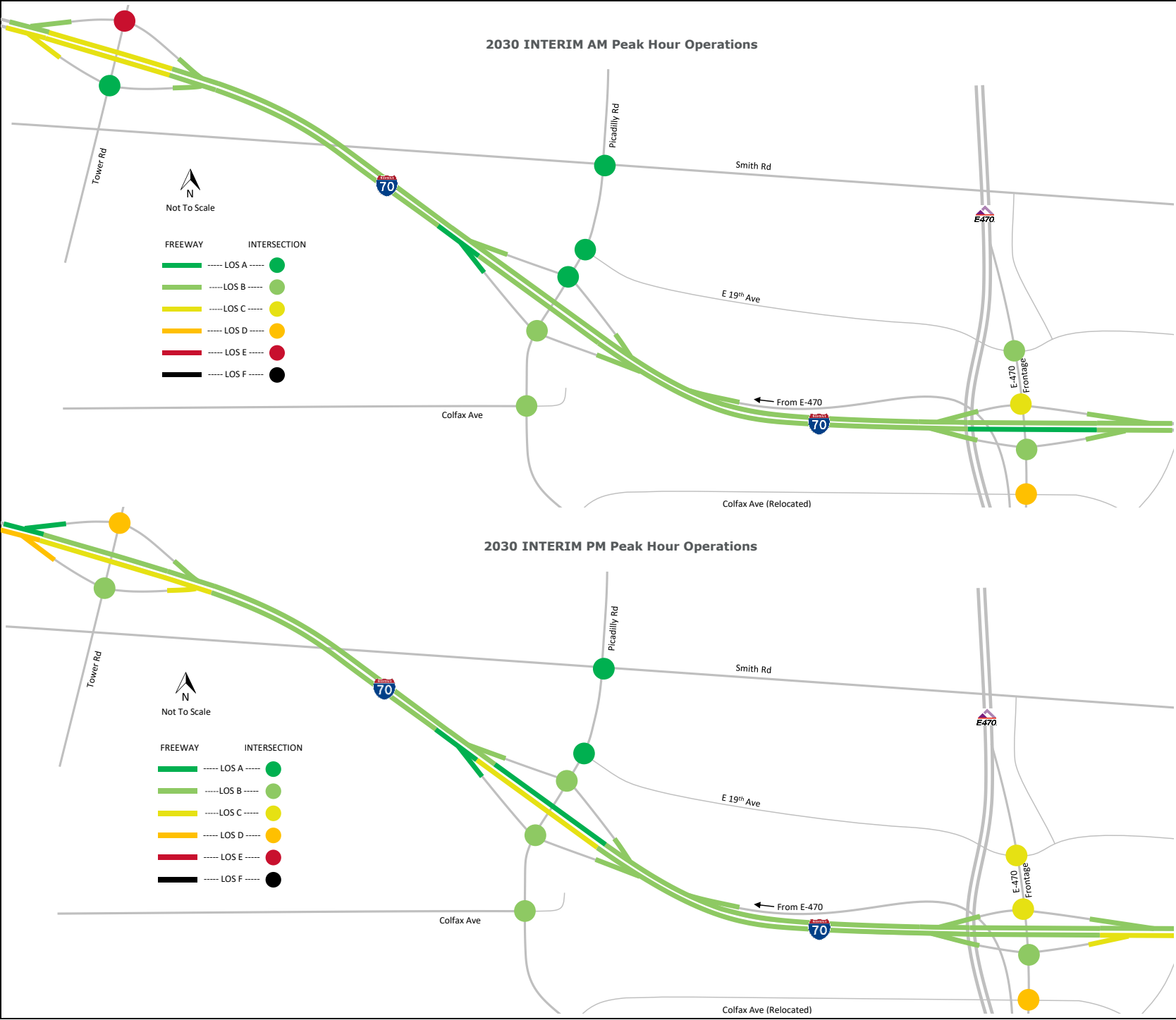
**Table 15.2030 Interim LOS—Ramp Terminals/Intersections**

Intersection	Approach	2030 Interim Intersection Operations					
		AM			PM		
		v/c*	Delay (s)	LOS	v/c*	Delay (s)	LOS
Tower Rd / I-70 WB Ramps	Northbound	0.36	3.9	A	0.51	6.2	A
	Southbound	1.04	61.1	E	0.92	37.6	D
	Westbound	1.24	152.8	F	1.17	138.6	F
	Overall	-	<b>55.6</b>	<b>E</b>	-	<b>38.4</b>	<b>D</b>
Tower Rd / I-70 EB Ramps	Northbound	0.37	7.7	A	0.44	11.1	B
	Southbound	0.66	1.0	A	0.96	5.8	A
	Eastbound	0.71	42.7	D	0.74	52.7	D
	Overall	-	<b>6.5</b>	<b>A</b>	-	<b>11.3</b>	<b>B</b>
E-470 Frontage / 19th Ave	Northbound	0.28	12.2	B	0.34	22.5	C
	Southbound	0.05	9.1	A	0.06	9.1	A
	Eastbound	0.01	1.0	A	0.01	1.0	A
	Westbound	0.47	26.8	C	0.65	44.7	D
	Overall	-	<b>16.6</b>	<b>B</b>	-	<b>26.3</b>	<b>C</b>
E-470 Frontage / I-70 WB Ramps	Northbound	0.61	20.3	C	0.39	27.5	C
	Southbound	0.35	25.6	C	0.31	34.8	C
	Westbound	0.91	40.3	D	0.85	39.0	D
	Overall	-	<b>29.0</b>	<b>C</b>	-	<b>32.8</b>	<b>C</b>
E-470 Frontage / I-70 EB Ramps	Northbound	0.20	7.9	A	0.16	7.7	A
	Southbound	0.78	8.6	A	0.78	9.7	A
	Eastbound	0.78	41.4	D	0.80	48.4	D
	Overall	-	<b>11.6</b>	<b>B</b>	-	<b>16.1</b>	<b>B</b>
E-470 Frontage / Colfax Ave	Northbound	0.89	44.7	D	0.90	53.2	D
	Southbound	0.78	38.1	D	0.88	37.8	D
	Eastbound	0.73	56.3	E	0.94	50.8	D
	Westbound	0.83	79.4	E	0.94	91.2	F
	Overall	-	<b>44.3</b>	<b>D</b>	-	<b>46.2</b>	<b>D</b>
Picadilly Rd / 19th Ave	Northbound	~	4.8	A	~	4.9	A
	Southbound	~	1.7	A	~	2.3	A
	Westbound	~	41.2	D	~	34.0	D
	Overall	~	<b>4.2</b>	<b>A</b>	~	<b>4.4</b>	<b>A</b>
Picadilly Rd / I-70 WB Ramps	Northbound	~	9.7	A	~	9.9	A
	Southbound	~	11.9	B	~	11.1	B
	Westbound	~	8.3	A	~	9.4	A
	Overall	~	<b>9.7</b>	<b>A</b>	~	<b>10.1</b>	<b>B</b>
Picadilly Rd / I-70 EB Ramps	Northbound	~	10.8	B	~	13.0	B
	Southbound	~	23.1	C	~	19.2	B
	Eastbound	~	13.3	B	~	11.2	B
	Overall	~	<b>16.2</b>	<b>B</b>	~	<b>14.6</b>	<b>B</b>
Picadilly Rd / Colfax Ave	Northbound	~	14.8	B	~	15.3	B
	Southbound	~	9.9	A	~	10.5	B
	Eastbound	~	36.8	D	~	35.2	D
	Westbound	~	48.1	D	~	16.7	D
	Overall	~	<b>19.2</b>	<b>B</b>	~	<b>19.1</b>	<b>B</b>

\*Worst performing movement on each approach

~Microsimulation software such as VISSIM does not output v/c ratio. For further detailed results see Appendix

**Figure 23. 2030 Interim AM (Top) and PM LOS**





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## 4.0 Interchange Effects

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### 4.1 Effects on Highway System

Implementation of the Revised Preferred Alternative results in increased traffic when compared to both the existing and No Action conditions. However, the Revised Preferred Alternative is expected to address the need for improved regional mobility and enhanced land use access as outlined earlier in this document while providing the following benefits over the No Action Alternative:

- Improved eastbound I-70 operations.
- Similar or improved westbound I-70 operations.
- Provides the missing westbound on-ramp to I-70 at Colfax Avenue/Picadilly Road.
- Safety enhancements, including removal of the left exit ramp between westbound I-70 and Colfax Avenue, and provision of a more ‘standard’ diamond interchange configuration at Colfax Avenue/Picadilly Road.

The analysis documented in this feasibility study demonstrates that the Revised Preferred Alternative, when compared to the No Action Alternative, addresses the need for improved regional mobility and enhanced land use access without degrading interstate operations.

### 4.2 Effects on Adjacent Interchanges

The Revised Preferred Alternative has minimal impact on the Tower Road interchange when compared to the No Action Alternative. There are noticeable differences at the E-470 interchange when comparing the 2040 Alternatives, because of the Revised Preferred Alternative including the E-470 system-to-system ramps of the 2006 EA. The analysis shows the merge/diverge/weave areas at the E-470 ramps to operate at an acceptable LOS B with the inclusion of the Picadilly Road interchange, and under 2040 projected traffic volumes.

### 4.3 Effects on Non-Motorized Users and Transit

Pedestrian and bicycle access is addressed through the provision of 10-foot-wide, paved shared-use paths along both sides of the full length of Picadilly Road, as illustrated in Figure 33 (page 60), continuing through the Colfax Avenue intersection and crosswalks. Signalization of pedestrian crossings at the ramps, using an independent phase or concurrently with the vehicular traffic, can be easily accommodated.

The NEATS Refresh study recommended a network of future high frequency transit routes. One of these is depicted on Colfax Avenue, to serve the Horizon Uptown Development and another on Picadilly Road, to serve future planned development north and south of I-70.

Mobility hubs (places of connectivity and transfer activity, where particular multimodal infrastructure and services support a variety of modes ranging from walking to bicycling, use of micro mobility devices, micro transit, shared mode ride services, EV charging stations, bike storage, high frequency and rapid transit, come together along with a concentration of employment, residents, commercial services and recreational/entertainment areas) are recommended at a variety of general locations throughout the NEATS Refresh study area. As land parcels within the actual interchange area are developed, densities increase and critical mass materializes, RTD and other mobility services can be provided.

The I-70/Picadilly Road Interchange Revised Preferred Alternative does not preclude a future separate and supportive action taken by others to provide bus service within the Colfax and Picadilly corridors, and to deliver the NEATS Refresh Study recommended mobility hub integrated within the developing mixed-use activity center proximate to the Colfax/Picadilly area.

#### 4.4 Effects on System Traffic Safety

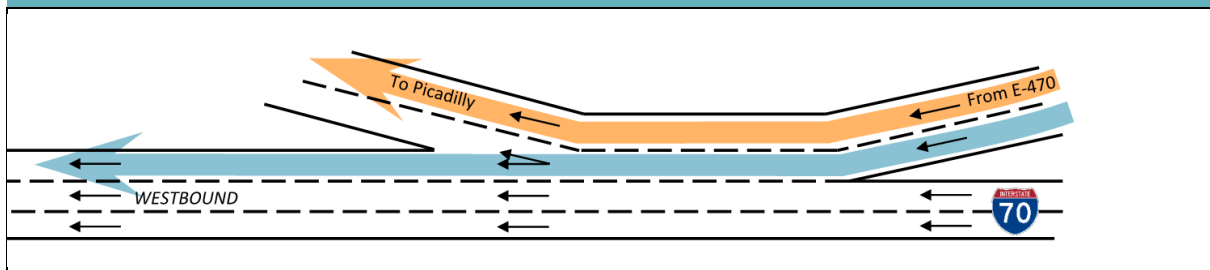
The Revised Preferred Alternative interchange configuration at Picadilly Road provides a full-movement interchange that provides some relief for the congested adjacent facilities at Tower Road and E-470/Gun Club Road, and enhances local access for the future roadway system and travel demand, while only adding one additional merge/diverge point to the Interstate system.

##### Interstate Weave Configurations

The proposed interchange configuration removes the westbound I-70 left exit to Colfax Avenue, and increases the eastbound weave length from an existing 2,000 feet to a proposed 3,100 feet even after relocation of the off-ramp to E-470. The longer weave length increases safety for movements on and off the interstate by increasing the time and distance available for making lane change maneuvers.

The westbound weave area, between the northbound to westbound E-470 flyover ramp and the proposed westbound off-ramp to Picadilly Road, has been designed to maximize safety by minimizing the need for traffic to change lanes. As illustrated in Figure 24, the weave provides a direct connection from the flyover ramp to the Picadilly off-ramp with no lane change required, and provides a continuous lane for E-470 on-ramp traffic joining I-70 with no lane change required. A single lane change is made to access Picadilly Road from I-70 WB.

**Figure 24. Proposed WB Weave Configuration, E-470 to Picadilly Road**



Source: HDR

### Predictive Crash Analysis

Predictive crash analysis has been completed using the Crash Prediction Module (CPM) of the FHWA Interactive Highway Safety Design Model (IHSDM) software. The CPM is an implementation of methods outlined by the American Association of State Highway and Transportation Officials' (AASHTO) First Edition Highway Safety Manual (HSM) for evaluating freeway segments and interchanges. According to FHWA, "the CPM estimates the frequency of crashes expected on a roadway based on its geometric design and traffic characteristics..." using algorithms that incorporate Safety Performance Functions (SPFs) and Crash Modification Factors (CMFs) for specific facility types. The SPFs take into account the daily traffic volumes, while the CMFs are used to make adjustments to the initial SPF results to account for differences between the actual analysis conditions and the theoretical base condition. A CMF of 1 means the analysis condition and the theoretical base condition will predict the same number of crashes. A CMF greater than 1 indicates that the proposed condition will increase the number of predicted crashes, while a CMF less than 1 means the predicted number of crashes will be reduced.

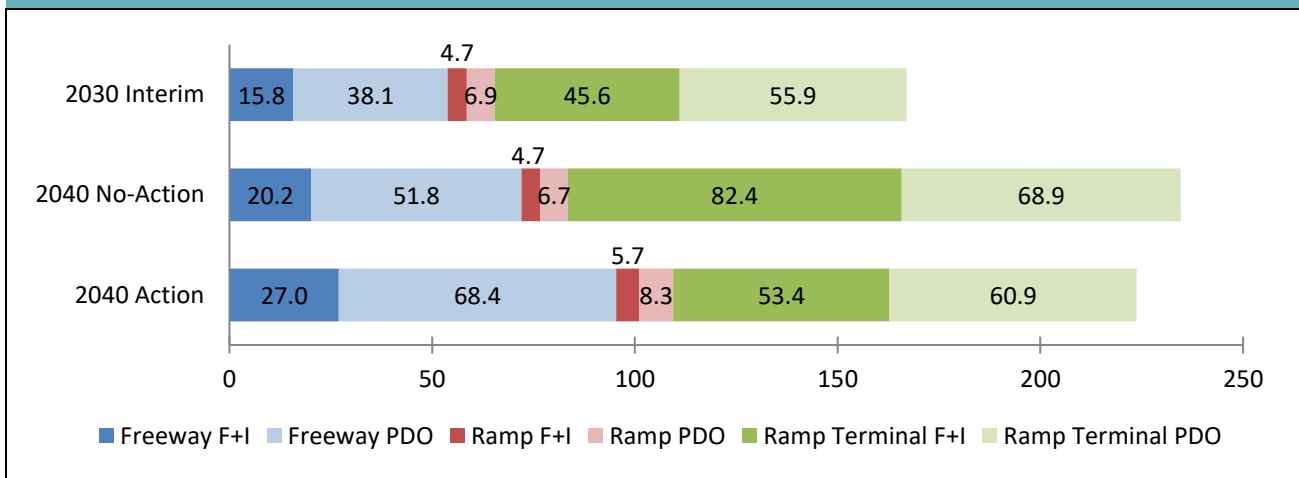
The extents of predictive crash analysis include the I-70 interstate mainline from 3,700 feet west of Tower Road to 5,000 feet east of Old Gun Club Road, ramps and ramp terminals at the Tower Road, Picadilly Road/Colfax Avenue, and E-470/Old Gun Club Road interchanges.

The IHSDM software develops segments of freeways and ramps per HSM guidance, with freeway, ramps and ramp terminals analyzed individually. Geometric and operational inputs are entered into the software to accurately compute the SPFs and correctly apply the CMFs. These inputs include information such as horizontal data, segment length, daily traffic volume, existing and proposed lane configurations, and merge distances. The software does not consider historic crash data. The module also does not allow for analysis specific to a diverging diamond interchange (DDI), therefore the proposed Picadilly ramp terminals were analyzed as signalized intersections with an FHWA Clearinghouse CMF of 0.42 applied to the ramp terminal crash results (4-star rated CMF ID 9658, Convert at-grade intersections to Diverging Diamond Interchanges).

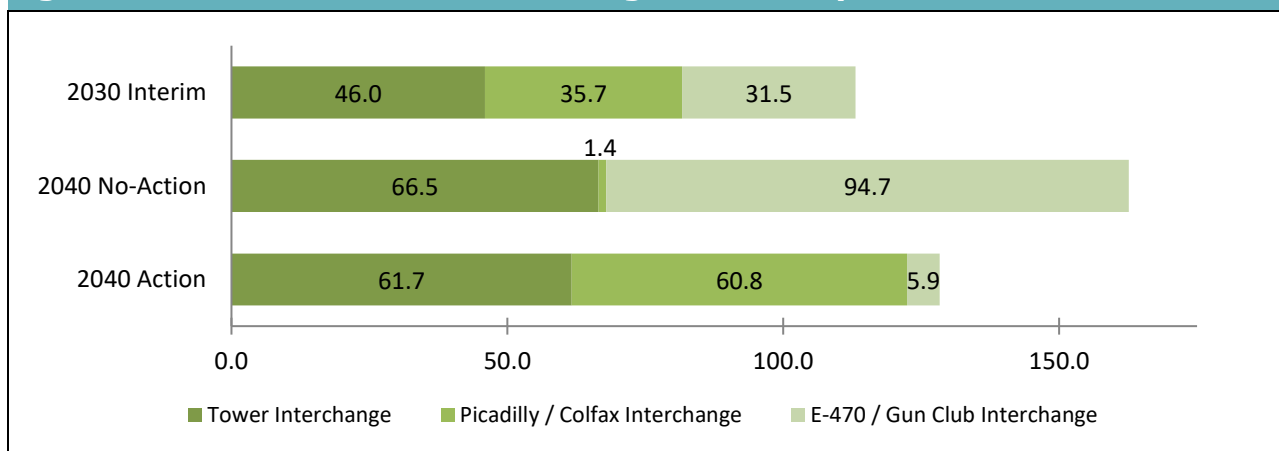
Total predicted crashes for the 2030 Interim, 2040 No Action and 2040 Action conditions are presented in Figure 25, categorized by Fatal + Injury (F+I) and Property Damage Only (PDO) crashes. Total predicted crashes are 167 for the 2030 Interim scenario, 235 crashes for the 2040 No Action, and 224 for the 2040 Action scenario. Detailed IHSDM results are provided in Appendix F.

As illustrated in Figure 24, over half of the predicted crashes for all scenarios occur at the ramp terminal intersections. Comparing the No Action and Action scenarios, analysis indicates the number of freeway crashes is expected to increase by 32 percent (24 crashes), and ramp terminal crashes decrease by 24 percent (37 crashes), with construction of the Picadilly Road and E-470 interchanges. This change is further illustrated in Figure 26 and Figure 27. Overall there is a 5 percent decrease in total predicted crashes, including a 20 percent decrease in fatal and injury crashes, under the Action scenario when compared to the No Action.

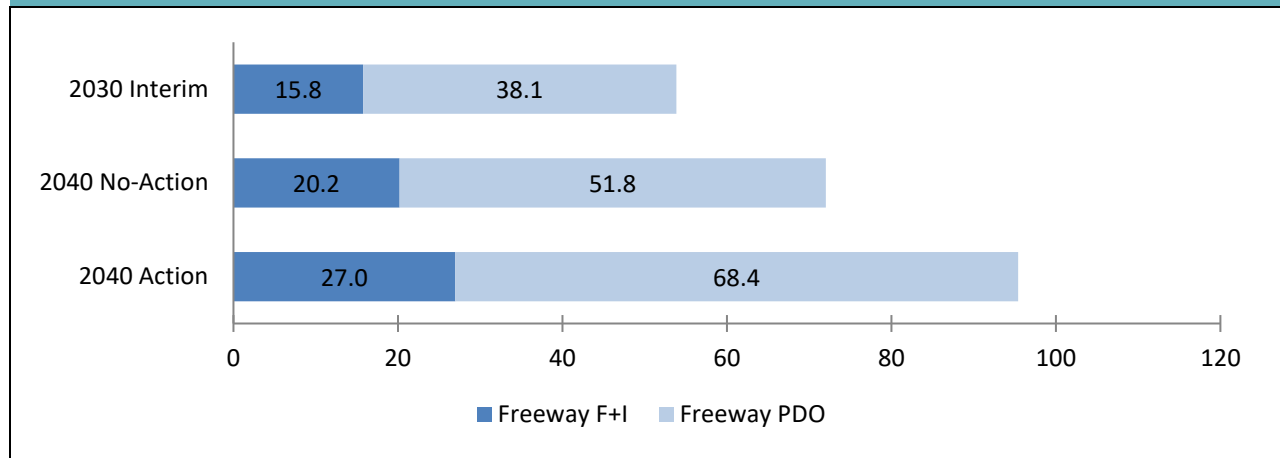
**Figure 25. Total Predicted Crashes by Scenario**



**Figure 26. Total Predicted Interchange Crashes by Scenario**



**Figure 27. Total Predicted I-70 Mainline Crashes by Scenario**



Source: AASHTO and HDR

Figure 26 presents the total predicted crashes at the Tower Road, Picadilly Road (Colfax Avenue existing), and E-470/Old Gun Club Road interchanges, for each of the three future scenarios. The data presented in Figure 26 includes ramp and ramp terminal crashes, and illustrates that 2040 predicted crashes are reduced by 5 crashes per year (7 percent) at the Tower Road interchange and 88 crashes per year (94 percent) at E-470/Gun Club Road with implementation of the Picadilly Road/ E-470 complex. The projected total at Picadilly Road increases by 60 crashes after implementation of the DDI interchange, for a net system reduction of 34 ramp and ramp terminal crashes (21 percent) in year 2040 across the three study interchanges.

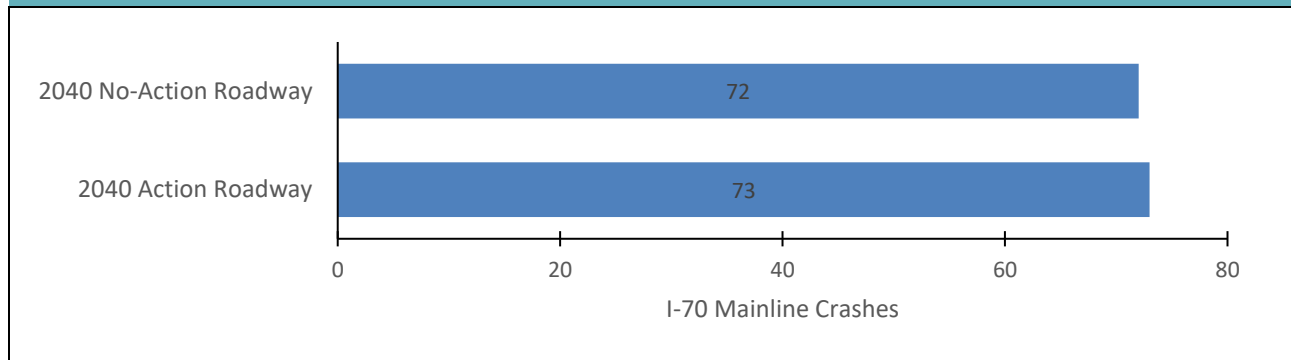
Figure 26 demonstrates that the direct connect ramps at Colfax Avenue in the No Action, and E-470 in the Action, show a very low incidence of predicted crashes. Predicted Old Gun Club Road interchange crashes in the No Action are greater in number than the predicted crashes at the Picadilly Road interchange in the Action scenario. This can be attributed to a lower intersecting traffic volume in the Action scenario, and the proven safety benefits of the diverging diamond interchange configuration.

Predicted I-70 mainline crashes are presented in Figure 27 for each analysis scenario. The analysis indicates an increase of 23 mainline crashes (32 percent) after implementation of the Picadilly Road/E-470 interchange complex, resulting from an up to 50 percent increase in traffic volume on I-70 and an additional ramp merge at the Colfax Avenue/Picadilly Road interchange.

The influence of the change in traffic volume is illustrated using crash rates in Figure 29 (page 57), showing that when compared to the No Action scenario there is almost no change in crash risk on the I-70 mainline under the Action scenario. To further illustrate the effects of changes in traffic volume, IHSDM analysis of the No Action and Action roadway configurations for I-70

has been completed under a single consistent mainline volume set (No Action traffic volume). The total I-70 mainline crashes for each scenario using a consistent set of volumes is shown in Figure 28. The Action scenario shows only one additional crash when compared to the No Action scenario when using a consistent volume forecast. The primary differences in mainline roadway design that the additional Action crash could be attributed to are the additional ramp merge at the Colfax Avenue/Picadilly Road interchange, and reduced weave lengths to the E-470/Old Gun Club Road ramps after implementation of E-470 system ramps in the Action scenario. These design features are key to the EA Revised Preferred Alternative, addressing access and capacity needs.

**Figure 28. I-70 Mainline Crashes by Scenario, Using No Action Volumes**

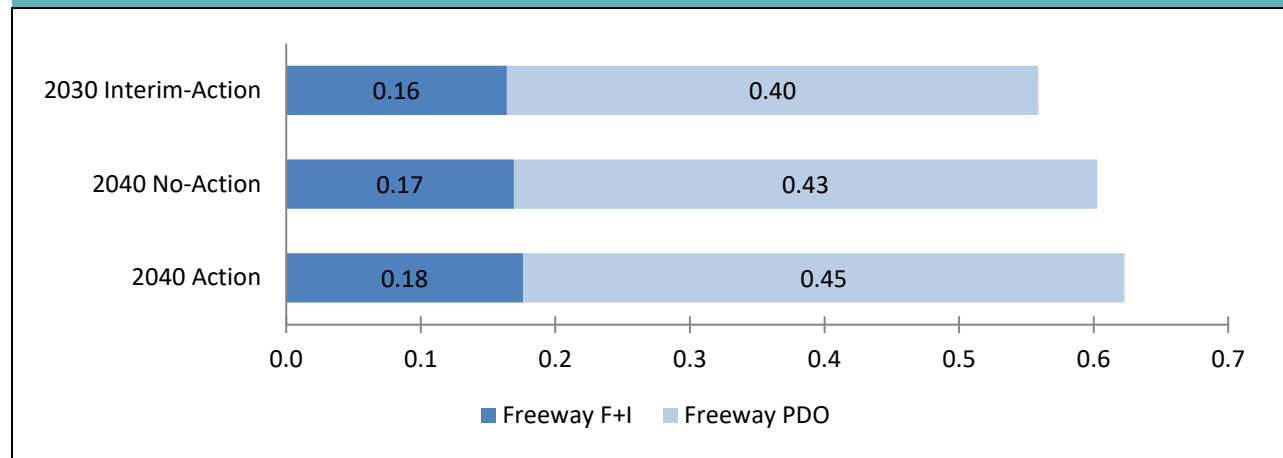


Source: AASHTO and HDR

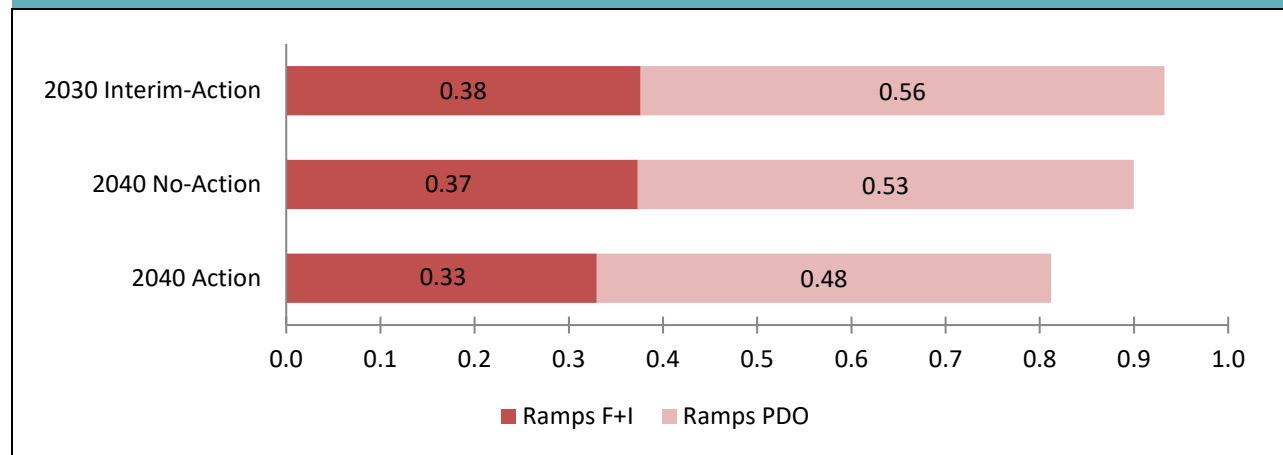
To further clarify the influence of the increase in traffic volume, crash rates have been analyzed for I-70 mainline, ramps, and ramp terminals. Crash rates describe the number of crashes compared to a measure of exposure, typically traffic volume (crashes per million vehicle miles). The determination of a predicted crash rate for each scenario considers the variation in forecast traffic volume resulting from the difference in forecast year and/or interchange configuration. Figure 29, Figure 30, and Figure 31 present the predicted crash rates for the I-70 freeway mainline, ramps, and ramp terminals, respectively.

When compared to the No Action scenario the crash rates indicate just a 5 percent increase in crash risk on the I-70 mainline under the Action scenario, together with a 10 percent decrease in crash risk at the interchange ramps and 24 percent decrease at the ramp terminals.

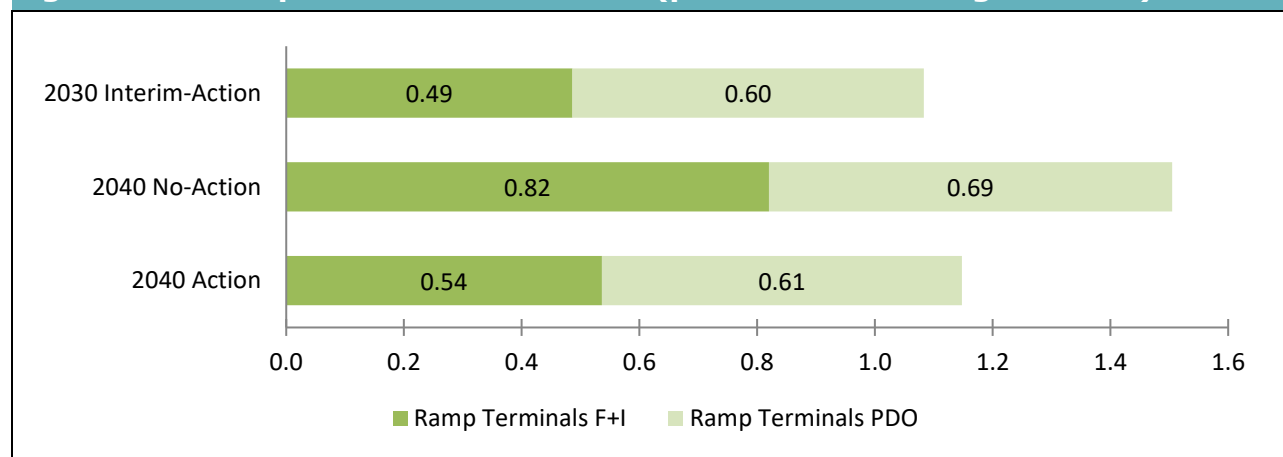
**Figure 29. I-70 Mainline Crash Rate (per Million Vehicle Miles)**



**Figure 30. I-70 Ramp Crash Rate (per Million Vehicle Miles)**



**Figure 31. Ramp Terminal Crash Rate (per Million Entering Vehicles)**



Source: AASHTO and HDR

## Diverging Diamond Interchange

There are a number of cited safety advantages that the DDI configuration presents when compared to a standard diamond interchange configuration. The crossing over of through movement arterial traffic in the diverging diamond configuration reduces and/or spreads out the number of conflict points at the interchange as illustrated in Figure 32. It also severely limits the potential for wrong-way movement onto ramps. Traffic speeds through the interchange are calmed through the use of median barriers and approach and departure curvature at the ramp terminals. Ramp terminal layout and curvature also improves sight distance for turning traffic.

Studies of observed safety performance at DDIs are limited. The Utah Department of Transportation (UDOT) DDI Guideline (UDOT, 2014) notes a 45 percent crash reduction at the I-15 Pioneer Crossing DDI in American Fork, UT, a retrofit application that replaced an existing diamond interchange. Before-and-after safety evaluation was performed for the state of Missouri (MoDOT, 2015) on a sample of six DDI locations in the state:

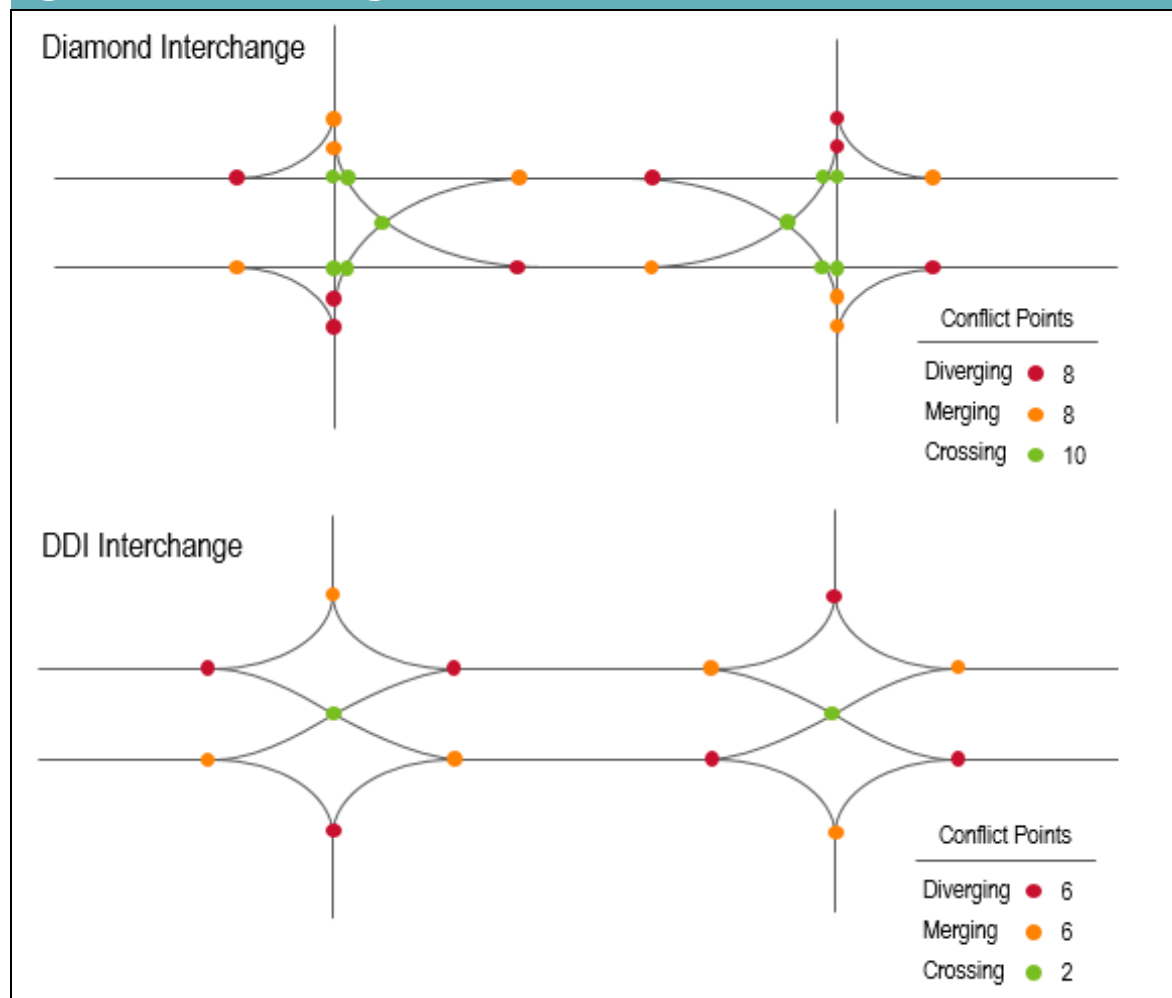
- Route 13 and I-44, Springfield
- I-370 and Dorsett Road, Maryland Heights
- James River Expressway and National Avenue, Springfield
- US 65 and MO 248, Branson
- I-435 and Front Street, Kansas City
- Chestnut Expressway and Route 65, Springfield

The study found that a DDI replacing a conventional diamond decreased crash frequency for all severities, with a 60 percent crash reduction observed for fatal and injury crashes and 34 percent reduction for property damage crashes. The primary crash types observed for the conventional diamond configuration were ‘crossing left turn onto ramp’ with 57 observed crashes and ‘rear end at exit ramp’ with 51 observed crashes. The 57 observed ‘crossing left turn onto ramp’ crashes are eliminated by the DDI design and replaced by three ‘crossing at ramp terminal’ crashes for the same study duration. The 51 ‘rear end at exit ramp’ crashes were reduced to 23 after conversion to DDI for the same study duration.

In the 2040 Revised Preferred Alternative, system-to-system ramps are provided at E-470, with auxiliary lanes creating mainline weave areas eastbound (3,100-foot weave) and westbound (2,100-foot weave) on I-70 between Picadilly Road and E-470. The I-70 to E-470 system-to-system ramps, and subsequent removal of the diamond interchange at Gun Club Road, reduces the number of conflicting turning maneuvers at interchange terminals. Local access that would otherwise have occurred at the Gun Club Road interchange is now facilitated by the Picadilly Road interchange providing the safety benefits noted above.



**Figure 32. Interchange Conflict Points—Diamond vs. DDI**



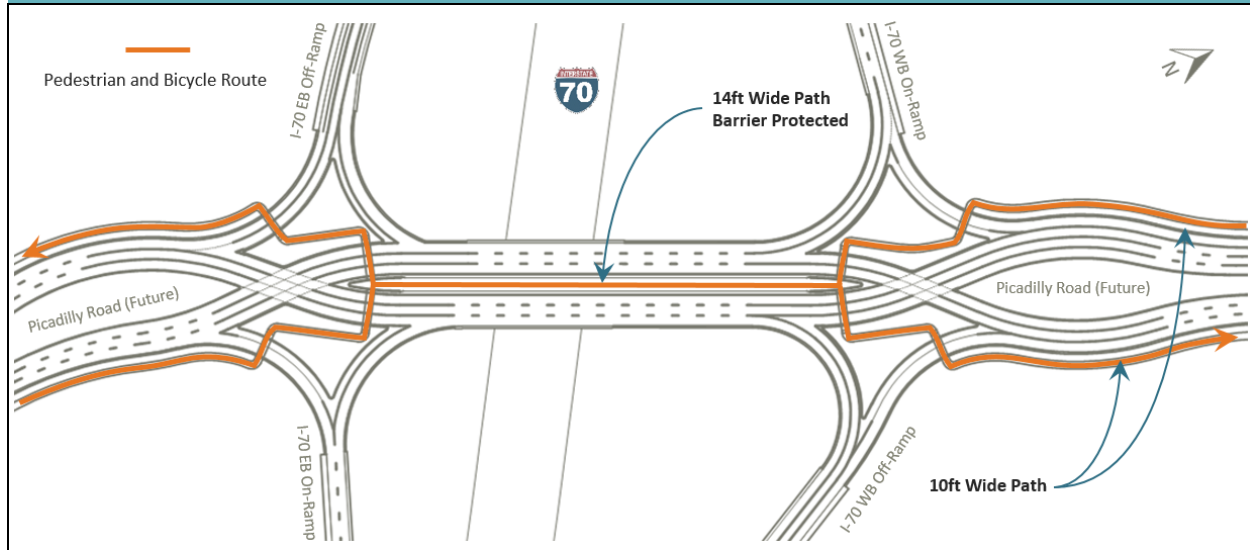
Source: HDR

### Non-Motorized Users

Pedestrian and bicycle safety is addressed through the provision of 10-foot-wide, paved shared-use paths along both sides of the full length of Picadilly Road, with a 14-foot trail section through the interchange utilizing a barrier-protected DDI median featuring pedestrian-scale lighting (Figure 33). Although the number of pedestrian-vehicle conflict points is generally the same as a traditional diamond, the DDI configuration means that pedestrians never cross against left turning traffic. Furthermore, the Preferred Alternative required pedestrians and bicyclists to cross high-speed traffic movements onto free-flow ramps. In contrast, the Revised Preferred Alternative design results in more controlled vehicle speeds, a reduced number of conflict points, and all pedestrian/bicyclist/vehicle interactions are at intersections. The 10-foot-wide, paved shared-use paths will continue through the Colfax Avenue intersection and crosswalks.

DDI traffic signal cycle lengths are typically 30 percent to 50 percent shorter than a traditional diamond (between 45 and 90 seconds at a DDI; UDOT, 2014) resulting in more frequent crossing opportunities and reducing the likelihood of pedestrians crossing against the ‘no walk’ signal. Signalization of pedestrian crossings at the ramps, using an independent phase or concurrently with the vehicular traffic, can be easily accommodated.

**Figure 33. DDI Pedestrian/Bicycle Facilities**



Source: HDR

## 4.5 Environmental Overview

Analysis of changes in laws, policies, guidelines, design, environmental setting, impacts and mitigation was conducted of the Revised Preferred Alternative. There have been over 20 relevant changes in laws, policies, or guidance since 2007. The design of the interchange has changed to a diverging diamond interchange instead of a partial cloverleaf. There have been changes in environmental setting such as more prairie dog towns, a nonattainment area designation for ozone and fewer wetlands. Land use and transportation planning has changed, including a new travel demand model from DRCOG, resulting in a more robust local area network which reduces forecasted traffic on each individual roadway segment. Environmental impacts have changed because of the new interchange design and the changes in environmental setting and transportation planning. There is some new mitigation that is needed because of these changes.

There have been either no or minimal changes in impacts to the following resources:

- Air quality
- Geological resources and soils
- Floodplains
- Vegetation and noxious weeds
- Archaeological resources
- Paleontological resources
- Land use
- Economic resources
- Utilities and railroads
- Section 4(f)/Section 6(f)
- Farmlands
- Noise
- Visual resources
- Energy
- Hazardous materials
- Cumulative impacts

The following resources would experience reduced impacts compared to the Preferred Alternative identified in the 2007 Finding of No Significant Impact:

- Water quality
- Wetlands
- Historic resources
- Right-of-way
- Social
- Environmental justice
- Transportation

Full analysis is contained in the CDOT Reevaluation Form #1399, which includes seven Technical Reports.

## 5.0 Evaluation of Alternatives

### 5.1 Refinement Screening Summary

During the NEPA reevaluation process for the Picadilly Road interchange a number of interchange refinements were developed and considered. A high-level screening was undertaken over a six month period by the Project Management Team, comprising the City of Aurora, E-470 Public Highway Authority, CDOT, and FHWA, streamlining the refinements to a shortlist.

The qualitative and quantitative criteria used for the high-level screening process were mobility, safety/geometric feasibility, effectiveness and directness of access, community planning, and environmental impacts. The shortlist included the original EA Preferred Alternative with a westbound loop ramp and eastbound braided ramp connections, a conventional diamond interchange, and the DDI.

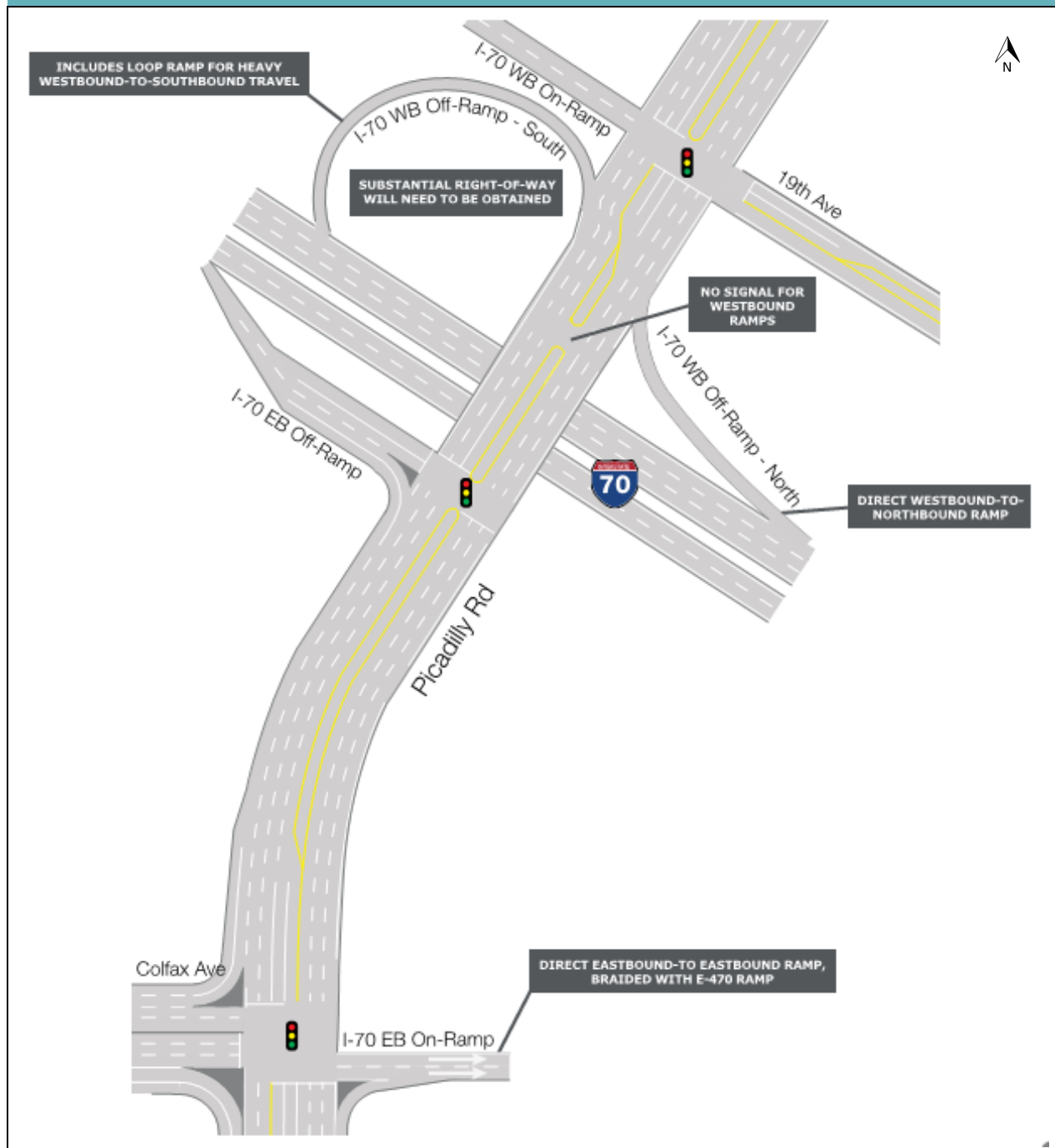
Conceptual layouts of the screened refinements are provided in Figure 34, Figure 35, and Figure 36. Table 16 shows the results of the criteria matrix for the final three screened refinements.

**Table 16. 2040 Picadilly Road NEPA Reevaluation Criteria Matrix**

PICADILLY ROAD EA RE-EVALUATION SCREENING MATRIX		OPTION 1 2007 EA Alternative	OPTION 2 Conventional Diamond Refinement	OPTION 3 Diverging Diamond Refinement
TRAFFIC	Vehicular Mobility	Best	Fair	Good
	Pedestrian Mobility	Good	Best	Good
	Traffic Operations	Best	Good	Good
SAFETY	Safety	Good	Good	Best
	Driver Expectancy	Good	Best	Good
ROADWAY	ROW	Fair	Best	Best
	Cost	Fair	Best	Best
	Maintenance	Best	Best	Good
ENVIRONMENTAL	Visual Impact	Fair	Best	Best
	Existing Parcel Access	Fair	Best	Best
	Environmental Justice	Fair	Best	Best

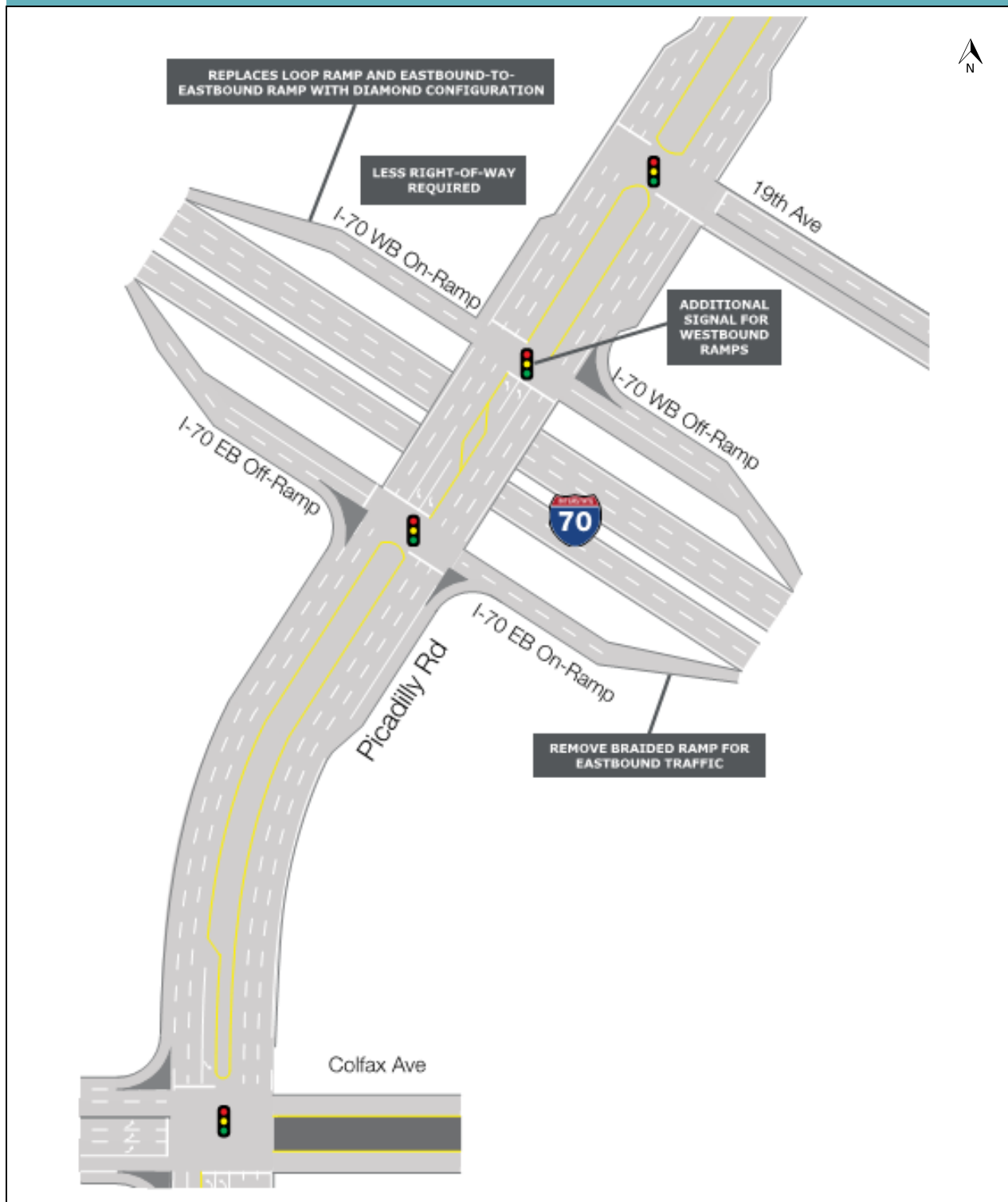
PICADILLY ROAD EA RE-EVALUATION SCREENING MATRIX (TRAFFIC-SPECIFIC)		OPTION 1 2007 EA Alternative	OPTION 2 Conventional Diamond Refinement	OPTION 3 Diverging Diamond Refinement
TRAFFIC OPERATIONS BY FACILITY	I-70 Mainline WB	Good	Best	Best
	I-70 Mainline EB	Good	Good	Good
	Picadilly Interchange Terminals	Best	Good	Good
	Picadilly / Colfax Intersection	Best	Good	Good

**Figure 34. 2007 EA Preferred Alternative (NOT TO SCALE)**



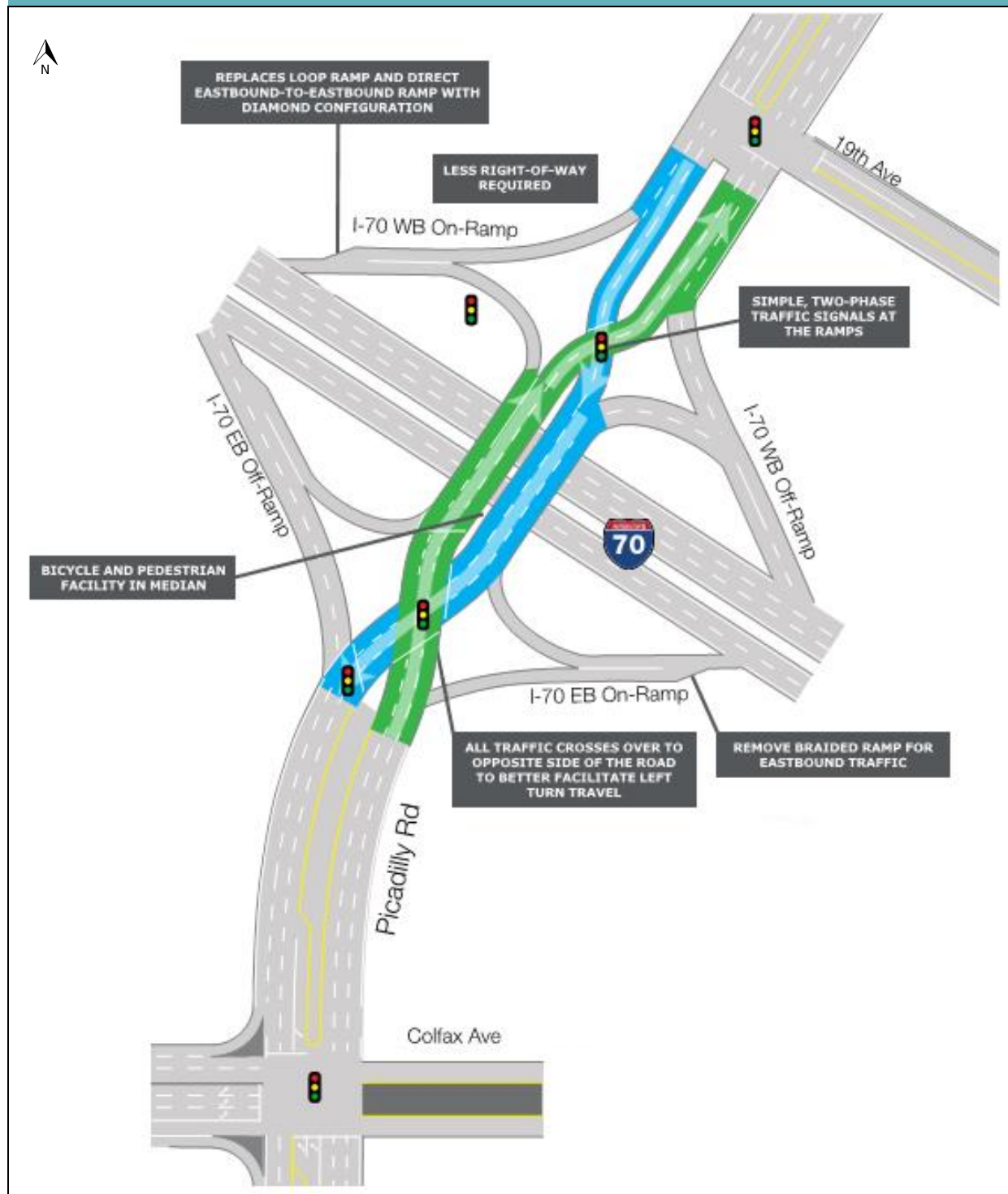
Source: HDR

**Figure 35. Refinement: Traditional Diamond (NOT TO SCALE)**



Source: HDR

**Figure 36. Refinement: Diverging Diamond (NOT TO SCALE)**



Source: HDR

Through the screening process the Project Management Team selected Option 3: Diverging Diamond Refinement as the Revised Preferred Alternative discussed in this document. The primary reasons the diverging diamond was chosen as the Revised Preferred Alternative was that it provides the necessary level of service for operations, especially the westbound I-70-to-southbound Picadilly Road left-turn movement, while also improving safety in comparison to the other interchange configurations with conflicting left-turn movements. It also has fewer right-of-way impacts to private property than the 2007 Preferred Alternative. And it has superior local access to the residential and commercially used parcel just north of Colfax Avenue and west of the existing partial interchange of Colfax Avenue with I-70.



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## 6.0 Interchange Management Plan

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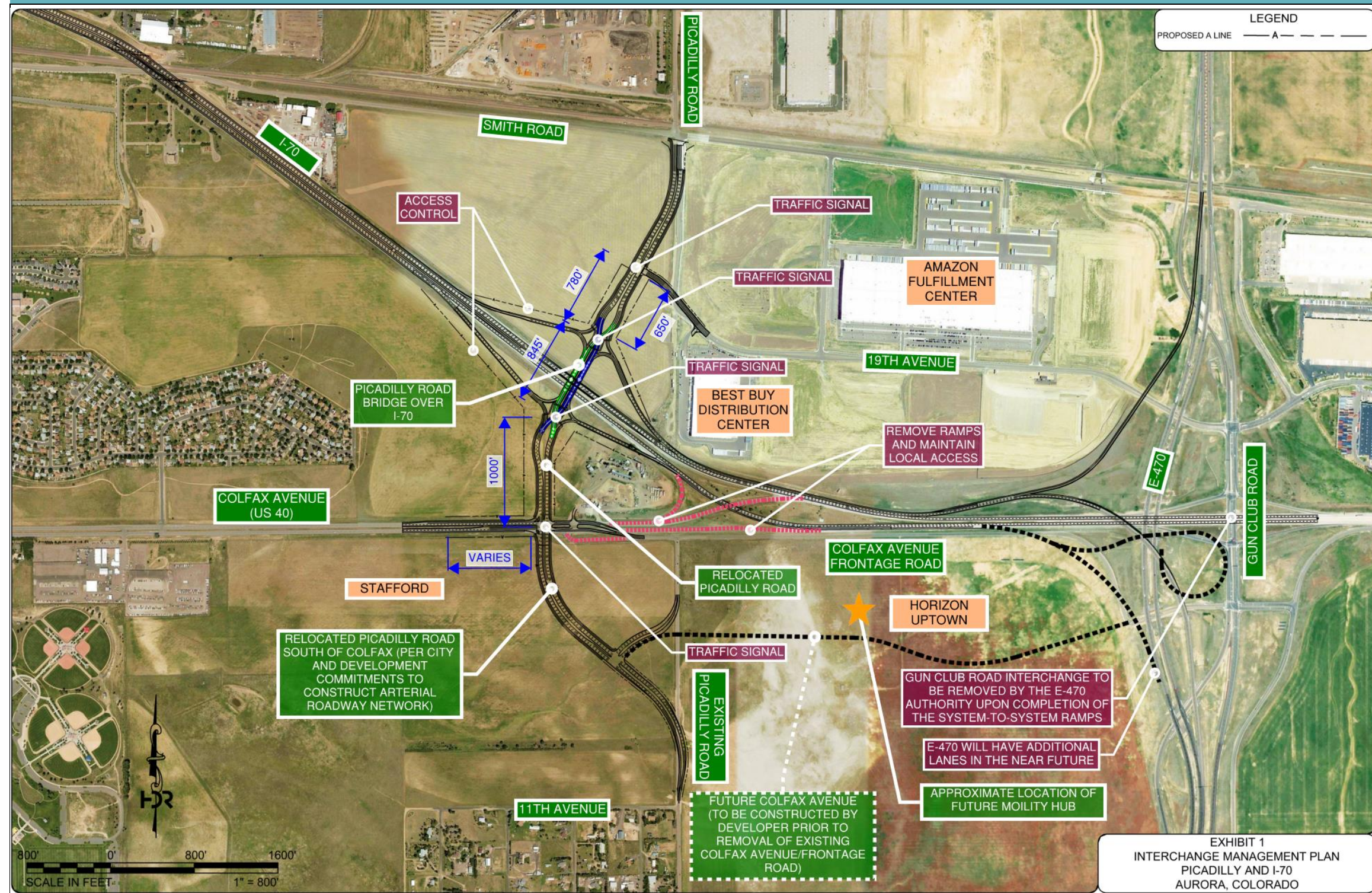
Figure 37, Figure 38, and Figure 39 illustrate the Refined Preferred Alternative interchange relative to existing and proposed access control lines (A-lines). Access rights will be obtained by, or on behalf of, CDOT along Picadilly Road for a 550 foot distance from each ramp, as defined by the proposed A-line in Figure 37, and no existing or future access is planned within the proposed A-line extents. The control of access within the extents of the proposed A-line will protect the functional integrity of the interchange, including Picadilly Road, the I-70 ramps, and the ramp terminal intersections.

As noted in Figure 39, the alignment of US 40 will be revised to include a short section of Picadilly Road between Colfax Avenue and the interchange, and maintain continuity of the route between Colfax Avenue and I-70. The bridge structure and ramps at the Picadilly Road Interchange will be designed to not preclude a future eastbound I-70 to E-470 braided system-to-system ramp, as illustrated in Figure 38.

The I-70 Frontage Road east of the realigned segment of Picadilly Road will be removed at the time Picadilly Road south of Colfax Avenue is constructed. Local access to properties will be accommodated outside of the A-lines.



**Figure 37. I-70/Picadilly Road Interchange Management Plan**





**Figure 38. Potential Future Eastbound System Ramp Alignment**

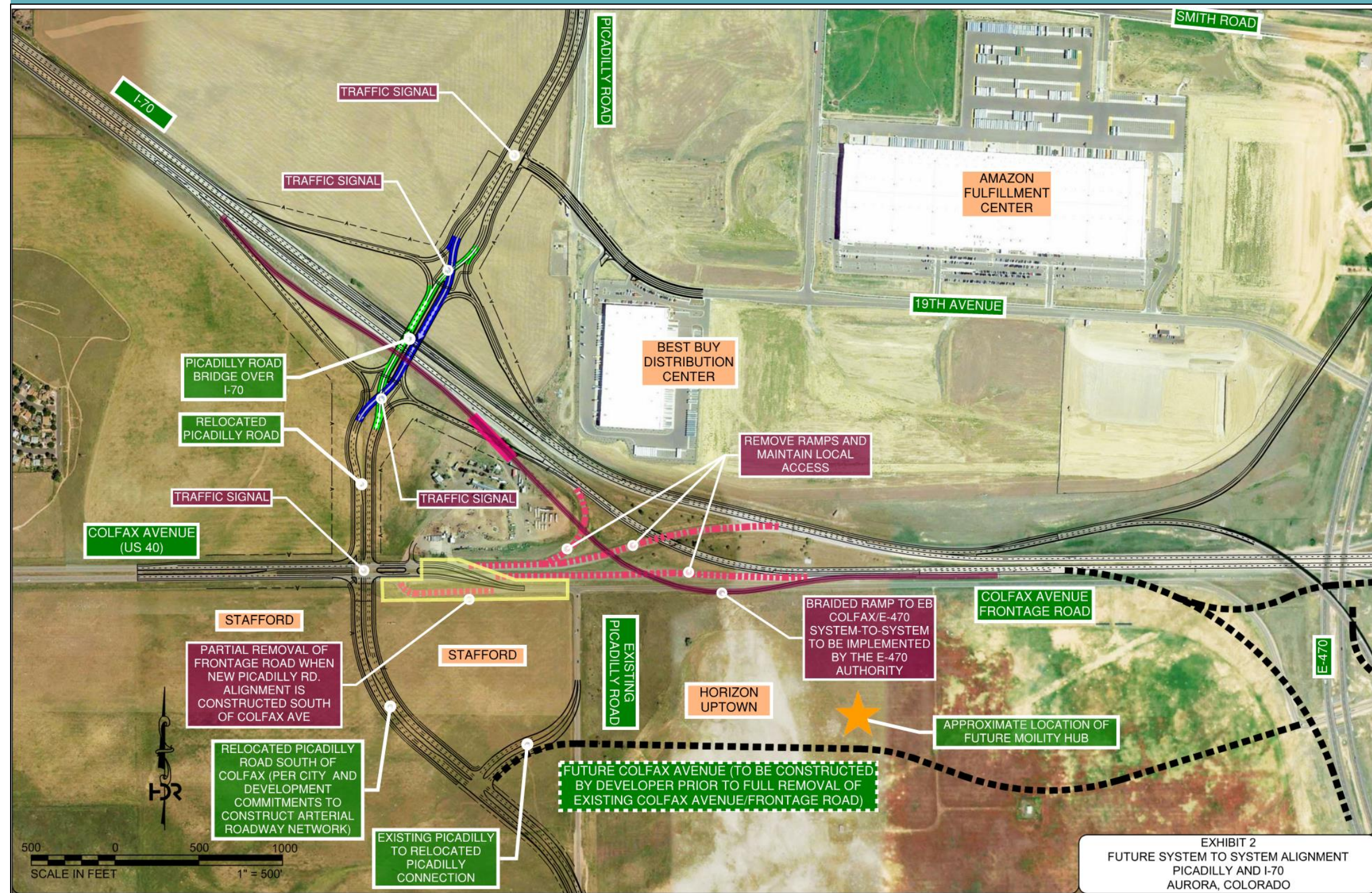
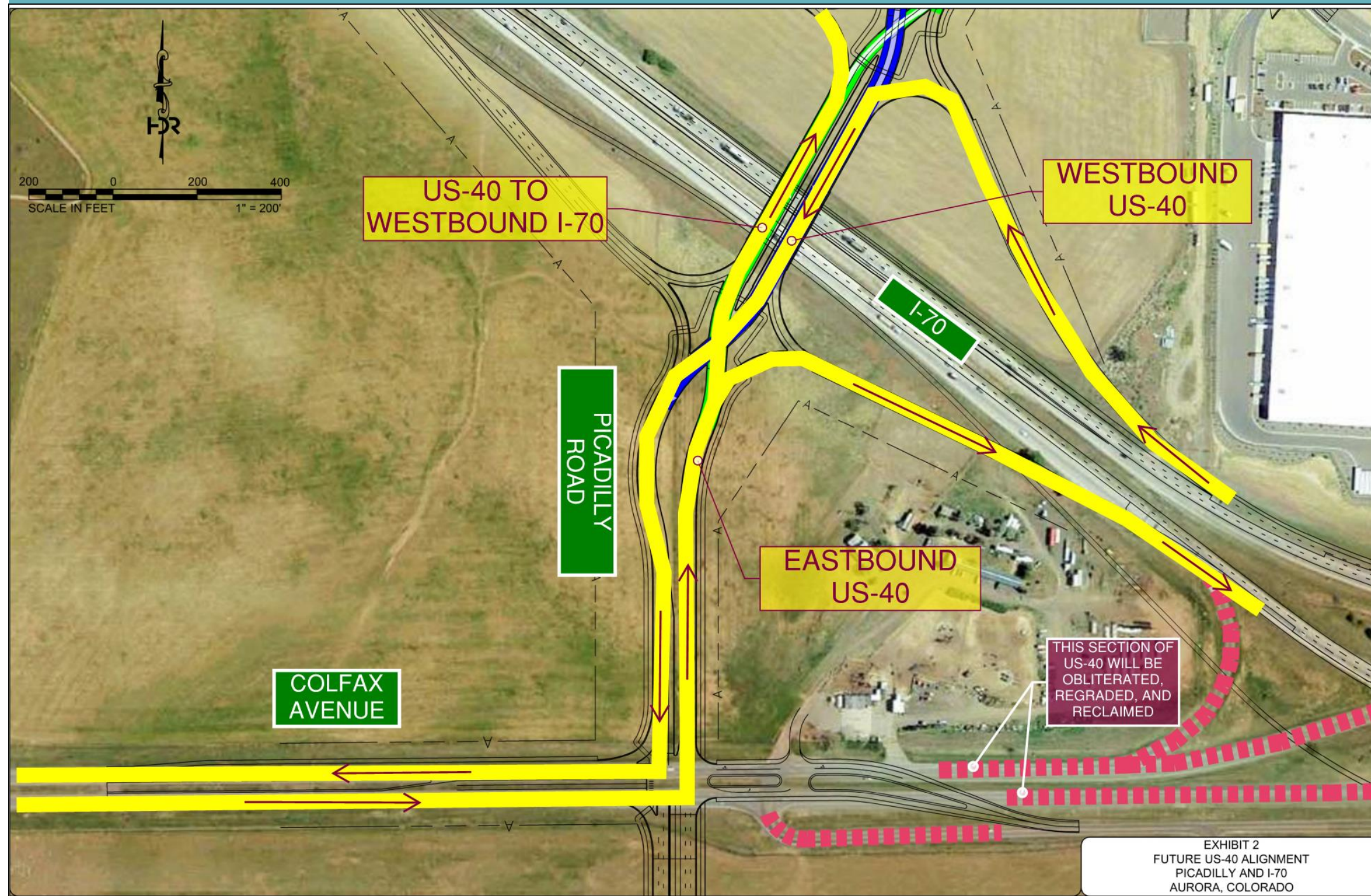




Figure 39. Future US 40 Alignment





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## 7.0 Preliminary Financial Plan

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The estimated construction cost for the interchange is \$56.6 million, including right-of-way acquisition. The breakdown of costs is provided in Table 17.

The City of Aurora is committed to advancing the next phases for ultimate construction of this interchange. Funding for the project has been identified from the City's General Fund, up to the amount of \$15 million. In addition to this commitment, the Aerotropolis Regional Transportation Authority, which is was formed by the City of Aurora, Adams County, and private partners, has set aside \$2.4 million for final design of the interchange. Additional private partners have stated their commitment to providing up to \$15 million towards right-of-way acquisition and interchange construction. After completion of the NEPA process and 1601 and IAR approvals from CDOT and FHWA, the City would begin the final design and right-of-way acquisition process. The right-of-way acquisition would use committed City of Aurora General Funds, along with private donations. Concurrently, with ARTA's \$2.4 million, the City would move into the Final Design phase.

The City has been successful in leveraging a further \$25 million through the Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants program. This funding allows the City to move directly into the construction phase of the project once right-of-way acquisition and final design are complete. Any further funding gaps will be met through City-apportioned monies and developer fees.

**Table 17. Construction Cost Estimate**

Picadilly Over I70 w/DDI Intersections					
Estimate of Probable Costs				Prepared By: Jacob McPhaul	
Project Limits: Picadilly - Smith Road to South Connection - Full Buildout (1.34 miles)				Date: 9/21/2018	
ITEM NUMBER	ITEM	UNIT	PRICE	QUANTITY	AMOUNT
203-00060	Embankment Material (Complete in Place)	CY	\$ 15	500,000	\$ 7,500,000
304-06000	Aggregate Base Course (Class 6)	TON	\$ 25	27,584	\$ 689,589
403-34871	HMA (Gr SX) (100) (PG 76-28)	TON	\$ 100	31,109	\$ 3,110,927
608-00006	Concrete Sidewalk (6 Inch)	LF	\$ 35	6,653	\$ 232,840
609-21020	Curb & Gutter Type 2 (Section II-B)	LF	\$ 25	18,309	\$ 457,715
610-00020	Median Cover (Pattern Conc)	SF	\$ 10	124,658	\$ 1,246,581
	Concrete Barrier	LF	\$ 100	9,050	\$ 905,000
	New Picadilly Bridge Over I70 (10 lane)	SF	\$ 250	25,800	\$ 6,450,000
	Removal of Bridge	EACH	\$ 100,000	1	
	Conventional Traffic Signal	LS	\$ 315,000	4	\$ 1,260,000
Project Construction Bid Items					\$ 21,852,652
		% Range	% Used	Cost	
Project Construction Bid Items				\$ 21,852,652	(A)
Contingencies		(10%) OF (A)	10.00%	\$ 2,185,265	(B)
Minor Construction Items		(15%-30%) OF (A)	15.00%	\$ 3,277,898	
SWMP		(3-10%) OF (A+B)	2.00%	\$ 480,758	(C)
Drainage/WQ		(3-10%) of (A+B) default = 6%	6.00%	\$ 1,442,275	(D)
Utilities		(1-10%) of (A+B) default = 6%	6.00%	\$ 1,442,275	(E)
Signing and Striping		1 to 5% of (A+B+C+D) default = 5%	5.00%	\$ 1,461,942	(F)
Construction signing & traffic control		5 to 25% of (A+B+C+D+E+F) default = 20%	10.00%	\$ 3,214,307	(G)
Mobilization		4 to 10% of (A+B+C+D+E+F+G) default = 7%	10.00%	\$ 3,535,737	(H)
Total of Construction Bid Items		(A)+(B)+(C)+(D)+(E)+(F)+(G)+(H)	-----	\$ 38,893,109	(I)
Force Account - Utilities		1 to 2% of (I) default = 2%	1.00%	\$ 388,931	(J)
Force Account - Misc.		10 to 15% of (I) default = 12%	10.00%	\$ 3,889,311	(K)
Subtotal of Construction Cost		(I+J+K)	-----	\$ 43,171,351	(L)
Total Construction Engineering, CE + Indirects		22.10% of (L)	8.00%	\$ 3,453,708	(M)
Total Design Engineering (COA + Consultant)		8% of (L)	0.00%	\$ -	(N)
Right-of-way		\$6/SF + Appraisals and Legal Fees	1662516	\$ 9,975,096	(O)
Total Project Cost				\$ 56,600,155	(P)

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## 8.0 References

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