APPENDIX A: AASHTO Controlling Design Criteria Report

PROJECT 010 MA 121 F0486 01L

010-B(222)T

EHRENBERG – PHOENIX HIGHWAY (I-10)

JACKRABBIT TRAIL TI

ROADWAY CONSTRUCTION

AASHTO CONTROLLING DESIGN CRITERIA REPORT

September 2023

Prepared For:

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
PROJECT MANAGEMENT GROUP

Prepared By:

Kimley»Horn

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LIST OF EXISTING FEATURES REQUIRING DESIGN EXCEPTIONS

The following is a list of the existing design features requiring design exceptions based upon A Policy on Geometric Design of Highways and Streets, 2018 edition.

I-10 / JACKRABBIT TR TI

The existing traveled way width is less than the recommended minimum as follows:

1. Ramp A – Station 0+00.00 to Station 21+63.57 – 2 ft less than the 26 ft recommended minimum.
2. Ramp B – Station 0+00.00 to Station 16+53.15 – 2 ft less than the 26 ft recommended minimum.
3. Ramp C – Station 0+00.00 to Station 19+25.88 – 2 ft less than the 26 ft recommended minimum.
4. Ramp D – Station 0+00.00 to Station 14+38.83 – 2 ft less than the 26 ft recommended minimum.

JACKRABBIT TR

No design exceptions.

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
I-10 MAINLINE SUMMARY (DIVIDED)

PROJECT NUMBER:	010 MA 121 F0486 01L	**ROUTE:**	I-10
PROJECT LOCATION:	I-10; EHRENBERG - PHOENIX HIGHWAY	**BEGINNING MP:**	121.33
HIGHWAY SECTION:	VERRADO WAY TO SR 303		122.10
FUNCTIONAL CLASSIFICATION:	PRINCIPAL ARTERIAL INTERSTATE - URBAN		

TRAFFIC VOLUMES AND FACTORS:

	EXISTING	DESIGN	TRAFFIC FACTORS		
I-10 SEGMENT	**2022**	**2042 AADT**	**K=**	**D=**	**T=**
VERRADO WAY - JACKRABBIT TRAIL	115,782	213,114	6%	53%	18%
JACKRABBIT TRAIL - SR-303	125,721	227,096	6%	55%	18%

DESIGN SPEED:

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: 70 MPH — THE POSTED SPEED LIMIT IS: 65 MPH

AVERAGE ELEVATION IS: 1,050 FT — TERRAIN IS: LEVEL

LANE WIDTH:

	LANES	
	EXISTING	**AASHTO**
I-10 EASTBOUND	12'	12'
I-10 WESTBOUND	12'	12'

SHOULDER WIDTH:

	INSIDE SHOULDER		OUTSIDE SHOULDER	
	EXISTING	**AASHTO**	**EXISTING**	**AASHTO**
I-10 EASTBOUND	16'	4'	12'	10'
I-10 WESTBOUND	16'	4'	12'	10'

HORIZONTAL CURVE RADIUS:

	MILEPOST		SUPERELEVATION			EXISTING	AASHTO MAX	METHOD 2	POSTED	EXISTING	EXISTING	HORIZONTAL SSD	
HPI STATION	**BEGIN**	**END**	**EXISTING (FT/FT)**	**AASHTO MIN (FT/FT)**	**RDG MAX (FT/FT)**	**DEGREE OF CURVE**	**DEGREE OF CURVE**	**SPEED (MPH)**	**SPEED (MPH)**	**HSO (FT)**	**GRADE (%)**	**EXISTING (FT)**	**REQUIRED (FT)**

SEE ATTACHMENT #1

REMARKS:

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
I-10 MAINLINE SUMMARY (DIVIDED)
(CONTINUED)

SUPERELEVATION:

EASTBOUND & WESTBOUND EXISTING MAXIMUM RATE IS: 0.020 FT/FT

AASHTO MAXIMUM RATE IS: 0.12 FT/FT

AASHTO MINIMUM RATE IS: SEE ATTACHMENT #1

STOPPING SIGHT DISTANCE:

VPI STATION	MILEPOST BEGIN	MILEPOST END	APPROACH GRADE (%)	DEPARTURE GRADE (%)	LENGTH OF CURVE (FT)	STOPPING SIGHT DISTANCE EXISTING (FT)	STOPPING SIGHT DISTANCE REQUIRED (FT)	EXISTING SPEED (MPH)	POSTED SPEED (MPH)

SEE ATTACHMENT #2

MAXIMUM GRADE:

EASTBOUND EXISTING MAXIMUM GRADE IS: -1.5386%

WESTBOUND EXISTING MAXIMUM GRADE IS: -1.6636%

AASHTO MAXIMUM GRADE IS: 3.0%

CROSS SLOPE:

EASTBOUND & WESTBOUND EXISTING CROSS SLOPE IS: 2%

AASHTO ALLOWABLE RANGE IS: 1.5 - 2.0%

VERTICAL CLEARANCE:

STRUCTURE	MILEPOST	VERTICAL CLEARANCE NB / EB	VERTICAL CLEARANCE SB / WB	MINIMUM CLEARANCE

SEE ATTACHMENT #3

DESIGN LOADING STRUCTURAL CAPACITY:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL/ BARRIER	AC OVERLAY	VERTICAL CLEARANCE (MINIMUM)	BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING

SEE ATTACHMENT #3

REMARKS:

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
I-10 / JACKRABBIT TR TI

PROJECT NUMBER:	010 MA 121 F0486 01L	**ROUTE:**	I-10
PROJECT LOCATION:	JACKRABBIT TR TI	**BEGINNING MP:**	121.33
HIGHWAY SECTION:	-	**ENDING MP:**	122.10
FUNCTIONAL CLASSIFICATION:	FREEWAY RAMPS		

TRAFFIC VOLUMES AND FACTORS:

	EXISTING	DESIGN	TRAFFIC FACTORS		
JACKRABBIT TR TI RAMP	**2022 AADT**	**2042 AADT**	**K=**	**D=**	**T=**
RAMP A (WESTBOUND ON-RAMP)	1,976	6,952	8%	-	4%
RAMP B (EASTBOUND OFF-RAMP)	1,918	6,397	8%	-	4%
RAMP C (WESTBOUND OFF-RAMP)	7,046	13,120	9%	-	4%
RAMP D (EASTBOUND ON-RAMP)	6,787	13,081	6%	-	4%

DESIGN SPEED:

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: RAMP TERMINUS = 35 MPH; RAMP MAIN BODY = 50 MPH; RAMP GORE AREA = 65 MPH (FOR EXIT RAMPS)
RAMP TERMINUS = 35 MPH; RAMP MAIN BODY = 50 MPH; RAMP GORE AREA = 60 MPH (ENTRANCE RAMPS)

THE POSTED SPEED LIMIT IS: None Posted **AVERAGE ELEVATION IS:** 1050 FT **TERRAIN IS:** LEVEL

LANE WIDTH:	TRAVELED WAY		LANES	
(Case, Traffic Condition)	**EXISITING**	**AASHTO**	**EXISTING**	**AASHTO**
RAMP A Entrance (Case 1,	24	26	12'	12'
RAMP B Exit (Case 1,	24	26	12'	12'
RAMP C Exit (Case 1,	24	26	12'	12'
RAMP D Entrance (Case 1,	24	26	12'	12'

SHOULDER WIDTH:

	LEFT SHOULDER		RIGHT SHOULDER			LEFT SHOULDER		RIGHT SHOULDER	
	EXISTING	**AASHTO**	**EXISTING**	**AASHTO**		**EXISTING**	**AASHTO**	**EXISTING**	**AASHTO**
RAMP A:	2'	2' - 4'	8'	8' - 10'	RAMP C:	2'	2' - 4'	8'	8' - 10'
RAMP B:	2'	2' - 4'	8'	8' - 10'	RAMP D:	2'	2' - 4'	8'	8' - 10'

HORIZONTAL CURVE RADIUS:

	MILEPOST		SUPERELEVATION			EXISTING	AASHTO MAX	METHOD 2	POSTED	EXISTING	EXISTING	HORIZONTAL SSD	
HPI STATION	**BEGIN**	**END**	**EXISTING (FT/FT)**	**AASHTO MIN (FT/FT)**	**RDG MAX (FT/FT)**	**DEGREE OF CURVE**	**DEGREE OF CURVE**	**SPEED (MPH)**	**SPEED (MPH)**	**HSO (FT)**	**GRADE (%)**	**EXISTING (FT)**	**REQUIRED (FT)**

SEE ATTACHMENT #1

REMARKS:

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
I-10 / JACKRABBIT TR TI
(CONTINUED)

SUPERELEVATION:

RAMP A EXISTING MAXIMUM RATE: 0.038 FT/FT
RAMP B EXISTING MAXIMUM RATE: 0.020 FT/FT
RAMP C EXISTING MAXIMUM RATE: 0.020 FT/FT
RAMP D EXISTING MAXIMUM RATE: 0.032 FT/FT

AASHTO MAXIMUM RATE IS: 6.0%
AASHTO MINIMUM RATE IS: SEE ATTACHMENT #1

STOPPING SIGHT DISTANCE:

VPI STATION	MILEPOST BEGIN	MILEPOST END	APPROACH GRADE (%)	DEPARTURE GRADE (%)	LENGTH OF CURVE (FT)	STOPPING SIGHT DISTANCE EXISTING (FT)	STOPPING SIGHT DISTANCE REQUIRED (FT)	EXISTING SPEED (MPH)	POSTED SPEED (MPH)

SEE ATTACHMENT #2

MAXIMUM GRADE:

RAMP A EXISTING MAXIMUM GRADE: -1.490%
RAMP B EXISTING MAXIMUM GRADE: -1.469%
RAMP C EXISTING MAXIMUM GRADE: -1.680%
RAMP D EXISTING MAXIMUM GRADE: -1.499%

AASHTO MAXIMUM GRADE FOR 35 MPH IS: 4% - 6%
AASHTO MAXIMUM GRADE FOR 50 MPH IS: 3% - 5%
AASHTO MAXIMUM GRADE FOR GREATER THAN 65 MPH IS: 3% - 5%

CROSS SLOPE:

ALL RAMPS EXISTING CROSS SLOPE IS: 2.0%

AASHTO ALLOWABLE RANGE IS: 1.5 - 2.0%

VERTICAL CLEARANCE:

STRUCTURE	MILEPOST	VERTICAL CLEARANCE NB / EB	VERTICAL CLEARANCE SB / WB	MINIMUM CLEARANCE

NO STRUCTURES

DESIGN LOADING STRUCTURAL CAPACITY:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL/ BARRIER	AC OVERLAY	VERTICAL CLEARANCE (MINIMUM)	BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING

NO STRUCTURES

REMARKS:

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
JACKRABBIT TR CROSSROAD

PROJECT NUMBER: 010 MA 121 F0486 01L
PROJECT LOCATION: JACKRABBIT TR TI
HIGHWAY SECTION: -
FUNCTIONAL CLASSIFICATION: MINOR ARTERIAL - URBAN

ROUTE: I-10
JACKRABBIT TRAIL MP: 121.69

TRAFFIC VOLUMES AND FACTORS:

JACKRABBIT TR SEGMENT	EXISTING 2022 AADT	DESIGN 2040 AADT	TRAFFIC FACTORS K=	D=	T=
NORTH OF I-10	12,781	36,003	9%	51%	4%
BETWEEN I-10 RAMPS	10,590	31,655	9%	62%	4%
SOUTH OF I-10	13,822	31,000	9%	51%	3%

DESIGN SPEED:

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: 45 MPH
THE POSTED SPEED LIMIT IS: 35 & 45 MPH
AVERAGE ELEVATION IS: 1050 FT
TERRAIN IS: LEVEL

LANE WIDTH:

	LANES	
	EXISTING	AASHTO
JACKRABBIT TR	12' & 14'	12'

SHOULDER WIDTH:

	INSIDE SHOULDER		OUTSIDE SHOULDER	
	EXISTING	AASHTO	EXISTING	AASHTO
JACKRABBIT TR	N/A	N/A	6'	N/A

HORIZONTAL CURVE RADIUS:

HPI STATION	MILEPOST BEGIN	MILEPOST END	SUPERELEVATION EXISTING (FT/FT)	SUPERELEVATION AASHTO MIN (FT/FT)	SUPERELEVATION RDG MAX (FT/FT)	EXISTING DEGREE OF CURVE	AASHTO MAX DEGREE OF CURVE	METHOD 2 SPEED (MPH)	POSTED SPEED (MPH)	EXISTING HSO (FT)	EXISTING GRADE (%)	HORIZONTAL SSD EXISTING (FT)	HORIZONTAL SSD REQUIRED (FT)
NO HORIZONTAL CURVES													

REMARKS:

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
JACKRABBIT TR CROSSROAD
(CONTINUED)

SUPERELEVATION:

JACKRABBIT TR EXISTING MAXIMUM RATE: NO HORIZONTAL CURVES

AASHTO MAXIMUM RATE IS: 0.06 FT/FT

STOPPING SIGHT DISTANCE:

VPI STATION	MILEPOST BEGIN	MILEPOST END	APPROACH GRADE (%)	DEPARTURE GRADE (%)	LENGTH OF CURVE (FT)	STOPPING SIGHT DISTANCE EXISTING (FT)	STOPPING SIGHT DISTANCE REQUIRED (FT)	EXISTING SPEED (MPH)	POSTED SPEED (MPH)

SEE ATTACHMENT #2

MAXIMUM GRADE:

JACKRABBIT TR EXISTING MAXIMUM GRADE: -1.5857%

AASHTO MAXIMUM GRADE IS: 6.0%

CROSS SLOPE:

EXISTING CROSS SLOPE IS: 0.020'/FT

AASHTO ALLOWABLE RANGE IS: 1.5% - 3.0%

VERTICAL CLEARANCE:

STRUCTURE	MILEPOST	VERTICAL CLEARANCE NB / EB	VERTICAL CLEARANCE SB / WB	MINIMUM CLEARANCE

EXISTING - NO IMPACT TO STRUCTURE

DESIGN LOADING STRUCTURAL CAPACITY:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL/ BARRIER	AC OVERLAY	VERTICAL CLEARANCE (MINIMUM)	BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING

EXISTING - NO IMPACT TO STRUCTURE

REMARKS:

ATTACHMENT 1 - HORIZONAL CURVE INVENTORY
I-10 / JACKRABBIT TRAIL TI RAMPS

Project Name: Jackrabbit Trail TI
Project No: F0486 01L

HPI Station (ft)	Milepost		Superelevation (ft/ft)			Degree of Curve		Speed (mph)		HSO	Grade	Horizontal SSD (ft)	
	Begin	End	Existing	AASHTO Min	RDG Max	Existing	AASHTO Max	Method 2	Posted	(ft)	(%)	Existing	Required
6432+39.26	121.89	121.99	0.020	0.008	0.060	0 ° 12 ' 00 "	2 ° 49 '	80	70	70.17	1.6800%	4,005.35	705.20
6433+49.58	121.92	122.01	0.032	0.030	0.060	1 ° 00 ' 00 "	3 ° 27 '	80	65	299.98	-1.4991%	3,698.81	662.01
6408+61.47	121.43	121.55	0.020	0.012	0.060	0 ° 20 ' 00 "	2 ° 49 '	80	70	116.86	-1.4690%	4,001.58	747.54
6407+50.21	121.43	121.51	0.038	0.036	0.060	1 ° 15 ' 00 "	3 ° 27 '	80	65	373.12	-0.2492%	3,692.57	646.69

Note:
AASHTO Minimum superelevation derived from Method 5 to meet posted speed.
Roadway Design Guidelines (RDG) Maximum is based on elevation (See RDG Table 202.1A).
Input grade with respect to traffic for inside lane of curve; if both - & + grades within the curve, choose the negative grade;
if all negative grades, choose the largest negative grade; if all positive grades, choose the smallest positive value.
HSO = Horizontal Sightline Offset

ATTACHMENT 1 - VERTICAL CURVE INVENTORY

Project Name: Jackrabbit Trail TI
Project Number: F0486 01L
Roadway Type: Interstate - Urban

VPI STATION	MILEPOST		TRAFFIC DIRECTION (1w, 1a or 2)	GRADE IN (%)	GRADE OUT (%)	CURVE LENGTH (ft)	CURVE TYPE	STOPPING SIGHT DISTANCE		SPEED	
	BEGIN	END						AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
EB I-10											
6405+52.00	121.37	121.52	1w	-0.5101	1.2378	800	Sag	+9999	734	+100	70
6419+41.61	121.53	121.89	1w	1.2378	-1.5386	1900	Crest	1215	749	93	70
6441+30.56	122.03	122.22	1w	-1.5386	-0.4943	1000	Sag	+9999	749	+100	70

Notes:

Traffic Direction:
1w = One Way Traffic in Station direction
1a = One Way Traffic against Station direction
2 = Two Way Traffic

Grades are with respect to Station direction.
* Indicates design exception required.
GB indicates grade break. Stopping Sight Distance and Speed not calculated.
Calculations are based on AASHTO 2001 and ADOT 2004 Roadway Design Guidelines formulas with adjustments for effective grade.

ATTACHMENT 1 - VERTICAL CURVE INVENTORY

Project Name: Jackrabbit Trail TI
Project Number: F0486 01L
Roadway Type: Interstate - Urban

VPI STATION	MILEPOST		TRAFFIC DIRECTION (1w, 1a or 2)	GRADE IN (%)	GRADE OUT (%)	CURVE LENGTH (ft)	CURVE TYPE	STOPPING SIGHT DISTANCE		SPEED	
	BEGIN	END						AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
WB I-10											
6404+61.88	121.33	121.52	1a	-0.5585	1.0909	1000	Sag	+9999	742	+100	70
6419+85.40	121.55	121.88	1a	1.0909	-1.6636	1750	Crest	1171	742	92	70
6439+79.27	122.00	122.19	1a	-1.6636	-0.4741	1000	Sag	+9999	721	+100	70

Notes:

Traffic Direction:
1w = One Way Traffic in Station direction
1a = One Way Traffic against Station direction
2 = Two Way Traffic

Grades are with respect to Station direction.
* Indicates design exception required.
GB indicates grade break. Stopping Sight Distance and Speed not calculated.
Calculations are based on AASHTO 2001 and ADOT 2004 Roadway Design Guidelines formulas with adjustments for effective grade.

ATTACHMENT 1 - VERTICAL CURVE INVENTORY

Project Name: Jackrabbit Trail TI
Project Number: F0486 01L
Roadway Type: Freeway Ramps

VPI STATION	MILEPOST		TRAFFIC DIRECTION (1w, 1a or 2)	GRADE IN (%)	GRADE OUT (%)	CURVE LENGTH (ft)	CURVE TYPE	STOPPING SIGHT DISTANCE		SPEED	
	BEGIN	END						AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
A - 0+25.00	121.70	121.70	1a	-1.9920	0.3333	0	GB	GB	GB	GB	35
A - 13+00.00	121.88	122.00	1a	0.3333	-1.6800	600	Crest	836	731	76	70
B - 0+40.00	121.70	121.70	1w	-1.9904	0.6944	0	GB	GB	GB	GB	35
B - 4+00.00	121.73	121.81	1w	0.6944	1.3430	400	Sag	+9999	419	+100	50
B - 11+00.00	121.84	121.96	1w	1.3430	-1.4991	600	Crest	680	662	66	65
C - 9+00.00	121.46	121.54	1w	0.3876	-1.4690	400	Crest	781	748	72	70
C - 19+00.00	121.69	121.69	1w	-1.4690	1.9920	0	GB	GB	GB	GB	35
D - 6+00.00	121.50	121.57	1a	0.2492	-1.4900	400	Crest	820	647	75	65
D - 14+00.00	121.69	121.69	1a	-1.4900	1.9860	0	GB	GB	GB	GB	35

Notes:

Traffic Direction:
1w = One Way Traffic in Station direction
1a = One Way Traffic against Station direction
2 = Two Way Traffic

Grades are with respect to Station direction.
* Indicates design exception required.
GB indicates grade break. Stopping Sight Distance and Speed not calculated.
Calculations are based on AASHTO 2001 and ADOT 2004 Roadway Design Guidelines formulas with adjustments for effective grade.

ATTACHMENT 1 - VERTICAL CURVE INVENTORY

Project Name: Jackrabbit Trail TI
Project Number: F0486 01L
Roadway Type: Urban Principal / Major Arterial

VPI STATION	MILEPOST		TRAFFIC DIRECTION (1w, 1a or 2)	GRADE IN (%)	GRADE OUT (%)	CURVE LENGTH (ft)	CURVE TYPE	STOPPING SIGHT DISTANCE		SPEED	
	BEGIN	END						AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
1+50.00	121.69	121.69	2	-1.2400	0.0000	300	Sag	+9999	367	+100	45
5+00.00	121.69	121.69	2	0.0000	-0.8750	400	Crest	1433	364	+100	45
11+00.00	121.69	121.69	2	-0.8750	-1.5857	400	Crest	1718	369	+100	45
14+50.00	121.69	121.69	2	-1.5857	-0.7867	300	Sag	+9999	369	+100	45

Notes:

Traffic Direction:
1w = One Way Traffic in Station direction
1a = One Way Traffic against Station direction
2 = Two Way Traffic

Grades are with respect to Station direction.
* Indicates design exception required.
GB indicates grade break. Stopping Sight Distance and Speed not calculated.
Calculations are based on AASHTO 2001 and ADOT 2004 Roadway Design Guidelines formulas with adjustments for effective grade.

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

DATE: 9/14/2023

TO: **Enamul Hoque**
BRIDGE GROUP
BRIDGE MANAGEMENT SECTION, MD 613E

FEDERAL REFERENCE NO: 010-B(222)T TRACS NO: F 0486 01L
HIGHWAY: Interstate 10
LOCATION: I-10 & Jackrabbit Trail TI
MP LIMITS: 121.00 TO: 122.00
PROJECT DESCRIPTION: Improve Jackrabbit Trail and Jackrabbit Trail TI

FROM: **Kimley-Horn & Associates**
7740 N. 16th Street, Ste 300
Phoenix, AZ 85020

SUBJECT: **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER					AC OVERLAY			VERTICAL CLEARANCE (MINIMUM)		BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
					TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW				
N7*	N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
I-10	121.67	**#1683** Jckrbit Trl TI OP	179	152.5	Concrete Barrier	**Yes**	**Yes**	**Yes**	**Yes**	**1"**	**1"**	**1"**	**16.77**	**16.89**	**HS 20+**	**93.00**
		Comments:Existing AC overlay on bridge deck should be removed full depth, bare concrete deck top be inspected, repaired if needed .Then be overlaid with 1" thick appropriate asphaltic overlay. Replace deck joint seals.Repair Slope Paving at the NE and SE corners.														
I-10	121.65	**#6578** RCB Ramp C EB														
		Comments: Culvert Not at Grade														
I-10	121.65	**#6579** RCB Ramp D WB														
		Comments: Culvert Not at Grade														

Evaluation Completed by: Masudur Rahman Date: 9/14/2023

Note: *N numbers are NBI numbers and A numbers are Arizona Items Number for bridge inventory

APPENDIX B: Typical Sections of the Recommended Alternative
Shifted Tight Diamond Interchange with Bridge Replacement

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY
AND OPERATIONS DIVISION

SCHEMATIC PLAN

STATE HIGHWAY
EHRENBURG - PHOENIX HIGHWAY
INTERSTATE 10

KEY MAP
NOT TO SCALE

I-10
JACKRABBIT TRAIL TI
PROJECT NO. 010 MA 121 F0486 01L

MIDPOINT OF PROJECT
Central Zone
State Plane Coordinates
X=972,000
Y=475,000

DESIGN DATA
2022 AADT = 14,000
2050 AADT = 31,000

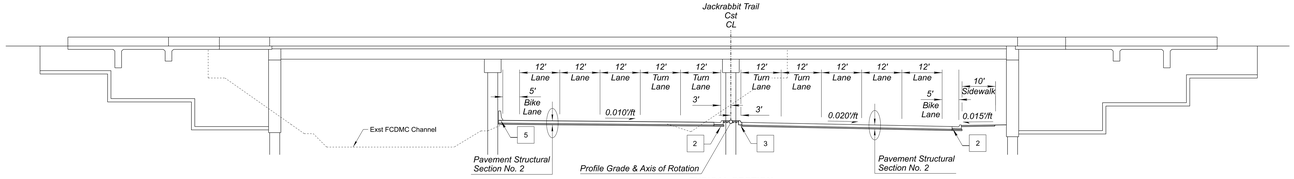
Design Speed

I-10 Mainline	*= 65 MPH*
Jackrabbit Tr	*= 55 MPH*
Jackrabbit Tr Ramps	
Entrance at Gore	*= 55 MPH*
Exit at Gore	*= 60 MPH*
Main Body	*= 50 MPH*
Terminus	*= 35 MPH*

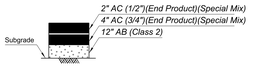
LENGTH OF PROJECT
Jackrabbit Trail Cst CL
Sta 55+43.50 to 106+36.23 =5092.73'
Gross and Net Length =5092.73' = 0.96 Mile

LEGEND

1	*Conc Curb & Gutter ADOT Std C-05.10, Type B, C, or E*	4	*Conc Curb and Gutter MAG Detail 220, Type A*
2	*Conc Curb and Gutter ADOT Std C-05.10, Type D*	5	*Conc Half Barrier ADOT Std C-10.52*
3	*Conc Single Curb ADOT Std C-05.10, Type A*		

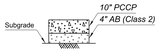


TYPICAL SECTION
Jackrabbit Trail Bridge Cst CL
ADOT R/W
Sta 98+05.36 to Sta 102+05.64



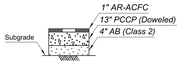
Total Thickness = 18"

SECTION NO. 1
Jackrabbit Trail
City of Buckeye R/W



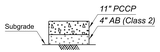
Total Thickness = 14"

SECTION NO. 2
Jackrabbit Trail
ADOT R/W



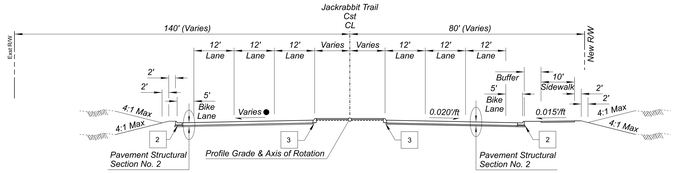
Total Thickness = 18"

SECTION NO. 3
I-10 Mainline



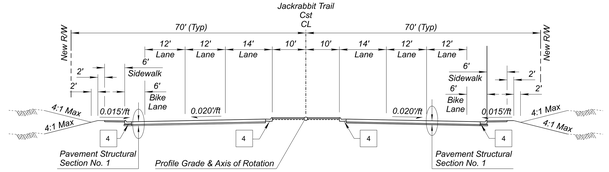
Total Thickness = 15"

SECTION NO. 4
Jackrabbit Trail
Ramps

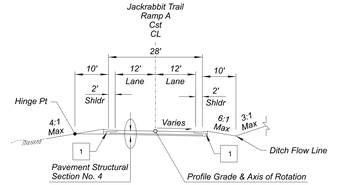


● *See Jackrabbit Trail Superelevation*

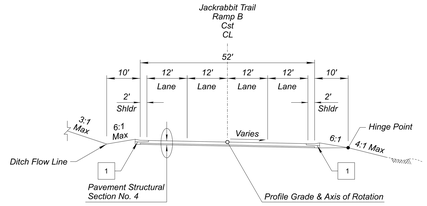
TYPICAL SECTION
Jackrabbit Trail Cst CL
ADOT R/W
Sta 93+38.97 to 98+05.36
Sta 102+05.64 to Sta 106+36.23



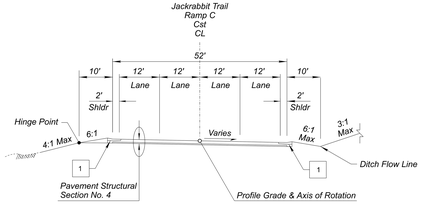
TYPICAL SECTION
Jackrabbit Trail Cst CL
City of Buckeye R/W
Sta 55+43.50 to Sta 93+38.97
Sta 106+36.23 to Sta 122+02.12



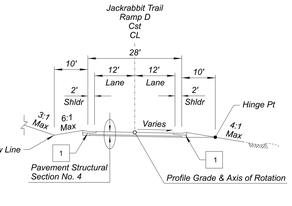
TYPICAL SECTION
Jackrabbit Trail
Ramp A Cst CL
Sta 14+00.00 to Sta 20+50.00



TYPICAL SECTION
Jackrabbit Trail
Ramp B Cst CL
Sta 15+50.00 to Sta 22+87.61



TYPICAL SECTION
Jackrabbit Trail
Ramp C Cst CL
Sta 11+00.00 to Sta 15+00.00



TYPICAL SECTION
Jackrabbit Trail
Ramp D Cst CL
Sta 10+77.93 to Sta 14+00.00

Kimley»Horn
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ADOT

FINAL
DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

	NAME	DATE
DESIGN	TEE	3/24
DRAWN	KW	3/24
CHECKED	TAE	3/24

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
PROJECT MANAGEMENT GROUP

APPENDIX B
TYPICAL SECTIONS
RECOMMENDED ALTERNATIVE

I-10
F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	010 MA 121	N/A	1	1	

I-10 & JACKRABBIT TRAIL TI

TRACS NO. F0486 01L

SHEET OF

ADOT

4:42:25 PM 3/14/2024 edgar.flores K:\PHX_Roadway\Workarea\ADOT_CONNECT_PROJECTS_10-10_2917640\0-F0486_I-10_Jackrabbit_Trl\gir\GIR-Exhibits\Appendix_B\F0486_exhibit_typ_mlkplot.dgn

APPENDIX C: Rollplots of the Recommended Alternative
Shifted Tight Diamond Interchange with Bridge Replacement

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY
AND OPERATIONS DIVISION

SCHEMATIC PLAN

STATE HIGHWAY
EHRENBURG - PHOENIX HIGHWAY
INTERSTATE 10

KEY MAP
NOT TO SCALE

I-10
JACKRABBIT TRAIL TI
PROJECT NO. 010 MA 121 F0486 01L

MIDPOINT OF PROJECT

Central Zone
State Plane Coordinates
X=972,000
Y=475,000

DESIGN DATA

2022 AADT = 14,000
2050 AADT = 31,000

Design Speed

I-10 Mainline	*= 65 MPH*
Jackrabbit Tr	*= 55 MPH*
Jackrabbit Tr Ramps	
Entrance at Gore	*= 55 MPH*
Exit at Gore	*= 60 MPH*
Main Body	*= 50 MPH*
Terminus	*= 35 MPH*

LENGTH OF PROJECT

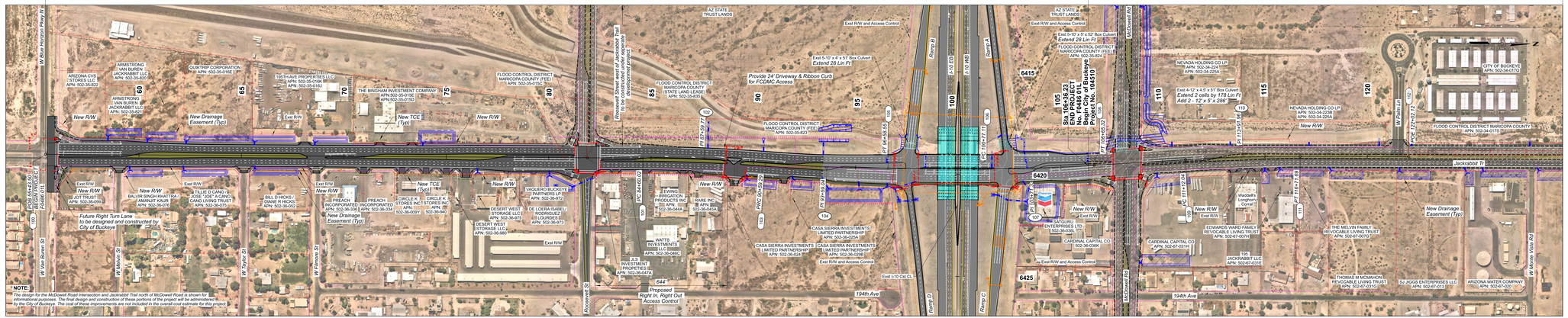
Jackrabbit Trail Cst CL
Sta 55+43.50 to 106+36.23 =5092.73'
Gross and Net Length =5092.73' = 0.96 Mile

LEGEND

- *Proposed Traffic Signals*
- *PCCP Pavement*
- *AC Pavement*
- *Concrete Sidewalk/ Median*
- *Exst Bridge*
- *Proposed Bridge*
- *Proposed Landscape Median*
- *City of Buckeye Improvements*
- *New Access Ctrl*
- *Exst Access Ctrl*
- *Exst Right-of-Way*
- *New Right-of-Way*
- *TCE*
- *Drainage Easement*
- *Exst FMS*
- *New 7-way Micro-duct*

ADOT Project F0486 01L Project Limits
Sta 55+43.50 to Sta 106+36.23

City of Buckeye Project No. 104510
North of Sta 106+36.23



PLAN REF NO.	DESCRIPTION	POINT TYPE	STATION	COORDINATES Northing	COORDINATES Easting	SPIRAL MAIN OR CIRCULAR Δ	D	R	L	T	Ext
100	Jackrabbit Trail	POB	55+43.50	851027.63	328029.94						
101	Jackrabbit Trail	PC	84+60.02	854854.39	328644.49						
102	Jackrabbit Trail	PI	87+59.77	854154.14	755330.81	03°59'58" RI	00°39'43"	8650.00	599.27	299.75	5.19
103	Jackrabbit Trail	PRC	90+59.29	855452.04	328868.87						
104	Jackrabbit Trail	PI	93+59.04	856701.94	329051.58	03°59'58" LT	00°39'43"	8650.00	599.27	299.75	5.19
105	Jackrabbit Trail	PT	96+58.55	856001.68	329083.46						
106	Jackrabbit Trail	PC	100+77.11	856473.23	328996.05						
107	Jackrabbit Trail	PI	103+71.33	856764.44	329007.99	03°33'45" LT	00°39'43"	8650.00	588.21	294.22	5.00
108	Jackrabbit Trail	PT	106+65.32	857055.10	329079.72						
109	Jackrabbit Trail	PC	111+12.04	857503.97	328852.14						
110	Jackrabbit Trail	PI	113+91.96	857783.36	328634.86	03°42'29.2" RI	00°39'43"	8650.00	559.66	279.93	4.53
111	Jackrabbit Trail	PT	116+71.69	858053.28	328630.64						
112	Jackrabbit Trail	POE	122+00.12	858553.71	328627.23						

FINAL
DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

Kimley»Horn
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ADOT

	NAME	DATE
DESIGN	TBS	3/24
DRAWN	KW	3/24
CHECKED	TBS	3/24

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
PROJECT MANAGEMENT GROUP
RECOMMENDED ALTERNATIVE
Jackrabbit Trail Plan and Profile
Scale: 1"=100'

SHEET NO. 1-10
SUBMITTED
LOCATION

F.H.W.A. Arizona Division | STATE ARIZ | PROJECT NO. 010 MA 121 | FEDERAL ID NO. N/A | SHEET NO. 1 | TOTAL SHEETS 2 | RECORD DRAWING

I-10 & JACKRABBIT TRAIL TI

TRACS NO. F0486 01L

ADOT

SHEET OF

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION

SCHEMATIC PLAN

STATE HIGHWAY
EHRENBURG - PHOENIX HIGHWAY
INTERSTATE 10

KEY MAP
NOT TO SCALE

I-10
JACKRABBIT TRAIL TI
PROJECT NO. 010 MA 121 F0486 01L

MIDPOINT OF PROJECT

Central Zone
State Plane Coordinates
X=972,000
Y=475,000

DESIGN DATA

2022 AADT = 14,000
2050 AADT = 31,000

Design Speed

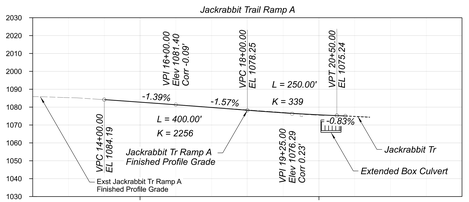
I-10 Mainline	*= 65 MPH*
Jackrabbit Tr	*= 55 MPH*
Jackrabbit Tr Ramps	
Entrance at Gore	*= 55 MPH*
Exit at Gore	*= 60 MPH*
Main Body	*= 50 MPH*
Terminus	*= 35 MPH*

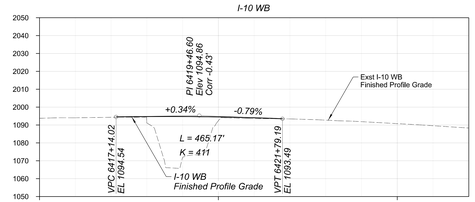
LENGTH OF PROJECT

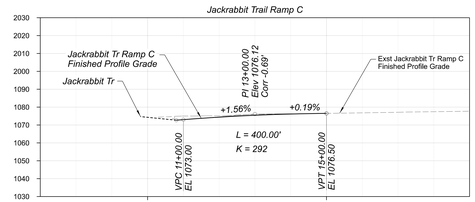
Jackrabbit Trail Cst CL
Sta 55+43.50 to 106+36.23
Gross and Net Length
=5092.73'
=5092.73' = 0.96 Mile

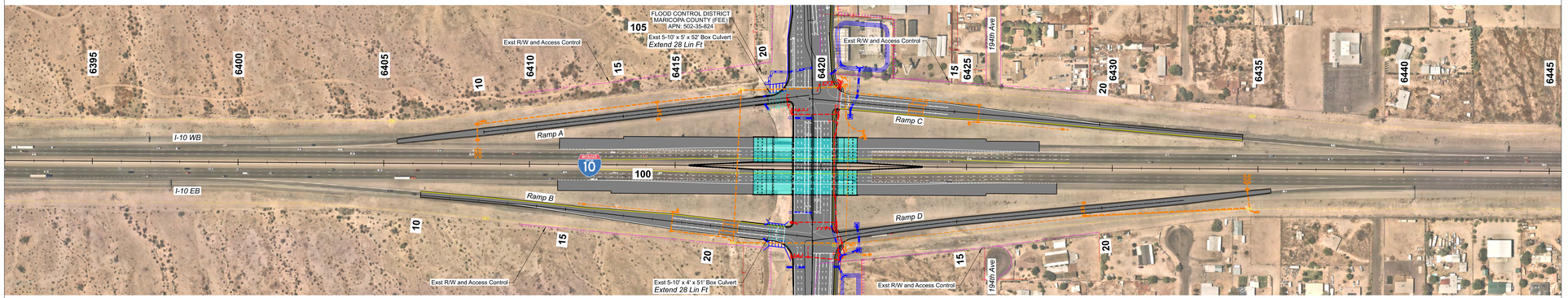
LEGEND

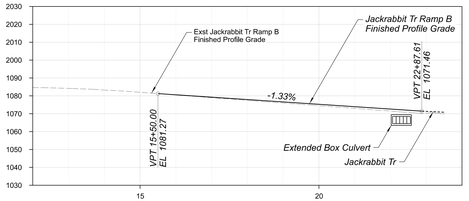
	New Access Ctrl
Proposed Traffic Signals	*Exst Access Ctrl*
PCCP Pavement	*Exst Right-of-Way*
AC Pavement	*New Right-of-Way*
Concrete Sidewalk/ Median	*TCE*
Exst Bridge	*Drainage Easement*
Proposed Bridge	*Exst FMS*
Proposed Landscape Median	*New 7-way Micro-duct*

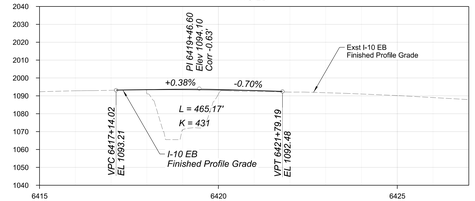


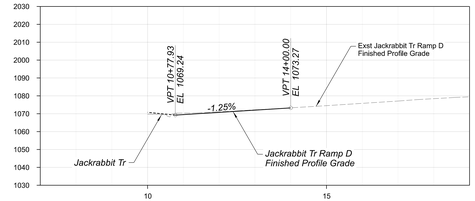












Kimley»Horn
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ADOT

FINAL		NAME	DATE
DCR	DESIGN	TRS	3/24
Review	DRAWN	KW	3/24
NOT FOR CONSTRUCTION OR RECORDING	CHECKED	TRS	3/24

Kimley»Horn
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
PROJECT MANAGEMENT GROUP
RECOMMENDED ALTERNATIVE
I-10 and TI Ramps Plan and Profile
Scale: 1"=100'

ROUTE: I-10
MILEPOST:
STRUCTURE NO.:

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	010 MA 121	N/A	2	2	

LOCATION: I-10 & JACKRABBIT TRAIL TI
SHEET ____ OF ____
TRACS NO. F0486 01L

ADOT

8:44:50 AM 6/10/2024 Edgar.Flores K:\PHX_Roadway\Worksets\ADOT_CONNECT_PROJECTS_10.10_291764000-F0486_I-10_Jackrabbit_TI\dgn\06-Exhibits\Appendix_C\f0486_exhibit_A03B_03.dgn

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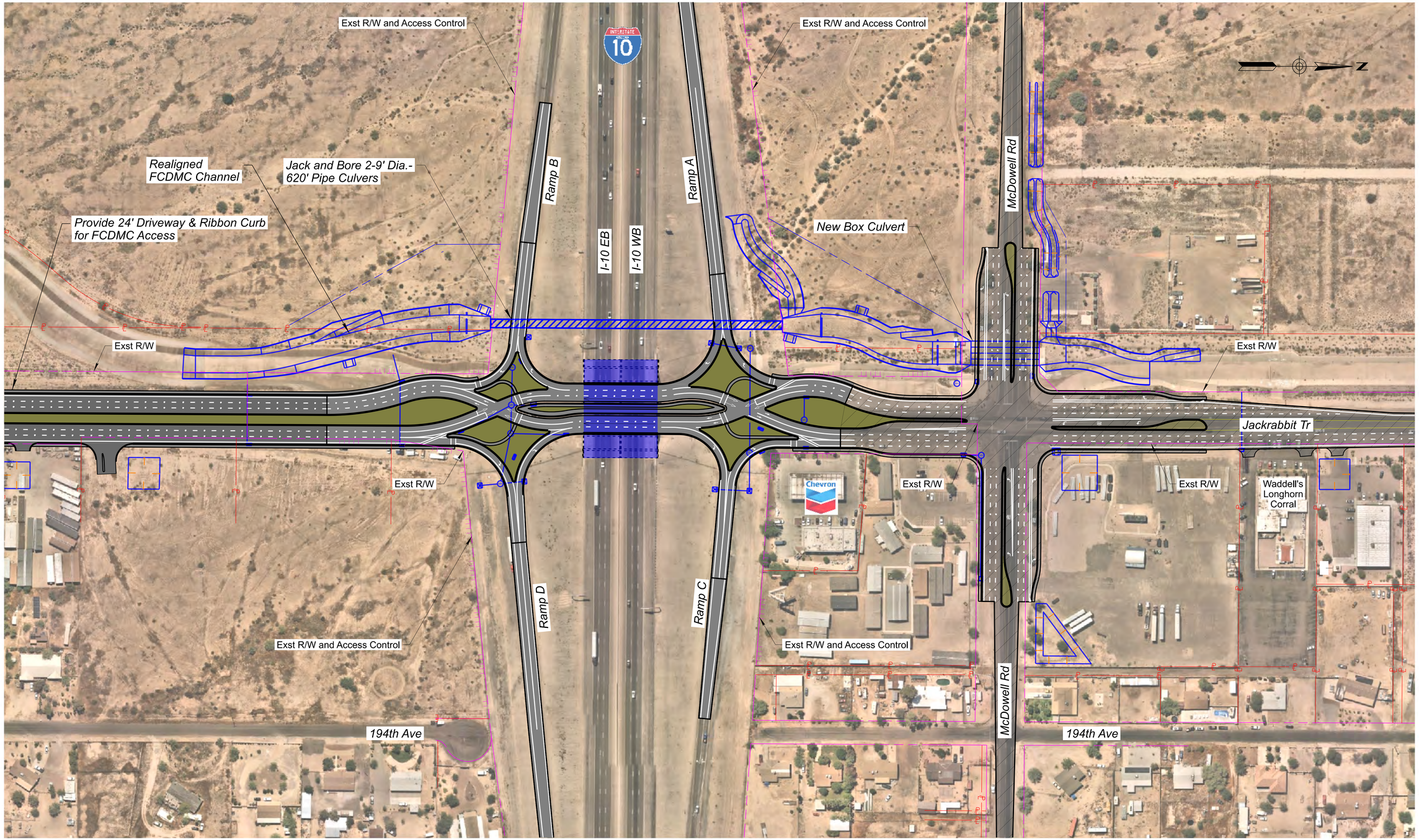
APPENDIX D: Alternatives Considered

- Appendix D1 – Interchange Alternatives
- Appendix D2 – Construction Phasing Alternatives
- Appendix D3 – Bicycle and Pedestrian Accommodation at Interchanges
- Appendix D4 – Proposed Access Control



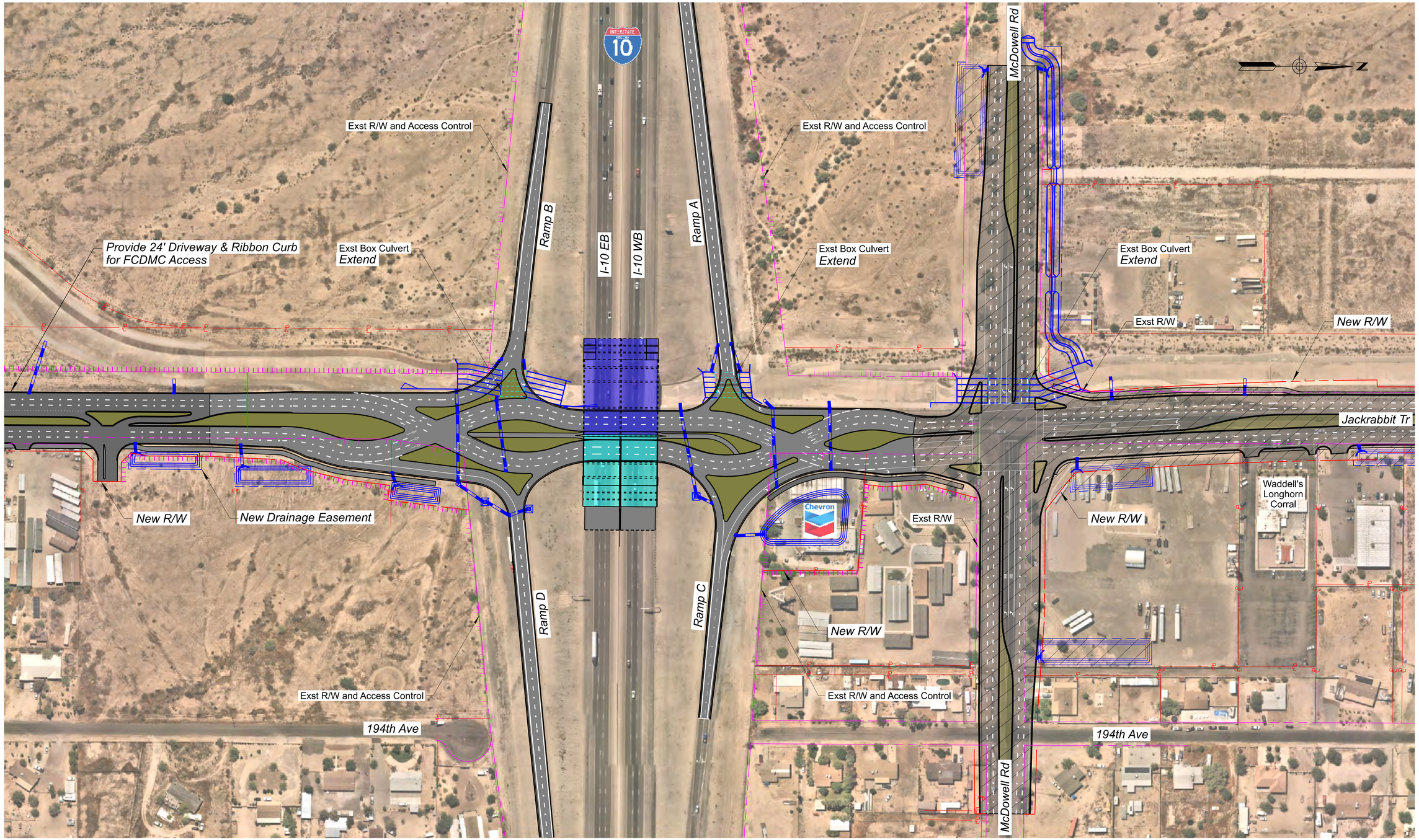
LEGEND

PCCP Pavement	Existing Bridge	City of Buckeye Improvements	Existing Right-of-Way	New Access Control
AC Pavement	Proposed Bridge		New Right-of-Way	Property Line
Concrete Sidewalk/ Median	Proposed Median		New Drainage Easement	TCE

APPENDIX D1
1-10 - JACKRABBIT TRAIL TI
MCDOT SCOPING AND
DESIGN REPORT (SDR)
ALTERNATIVE 1

Kimley»Horn

PROJECT NO.
010 MA 121 F0486 01L
I-10 - JACKRABBIT TRAIL
Scale: 1"=100'



LEGEND

- PCCP Pavement
- AC Pavement
- Concrete Sidewalk/ Median
- Existing Bridge
- Proposed Bridge
- Proposed Median
- City of Buckeye Improvements
- Existing Right-of-Way
- New Right-of-Way
- New Drainage Easement
- New Access Control
- Property Line
- TCE

APPENDIX D1
I-10 - JACKRABBIT TRAIL
SHIFTED DDI WITH
BRIDGE EXTENSION
ALTERNATIVE 2A

Kimley»Horn

PROJECT NO.
010 MA 121 F0486 01L
I-10 - JACKRABBIT TRAIL
Scale: 1"=100'

Exst R/W and Accesss Control
Exst R/W and Access Control
McDowell Rd
N
Provide 24' Driveway & Ribbon Curb for FCDMC Access
Exst Box Culvert Extend
Ramp B
I-10 EB
I-10 WB
Ramp A
Exst Box Culvert Extend
Exst Box Culvert Extend
Exst R/W
Exst R/W
New R/W
Jackrabbit Tr
Waddell's Longhorn Corral
New TCE
New Drainage Easement
New R/W
Exst R/W and Access Control
Ramp D
Ramp C
Exst R/W
New R/W
New R/W
Exst R/W and Access Control
194th Ave
McDowell Rd
194th Ave

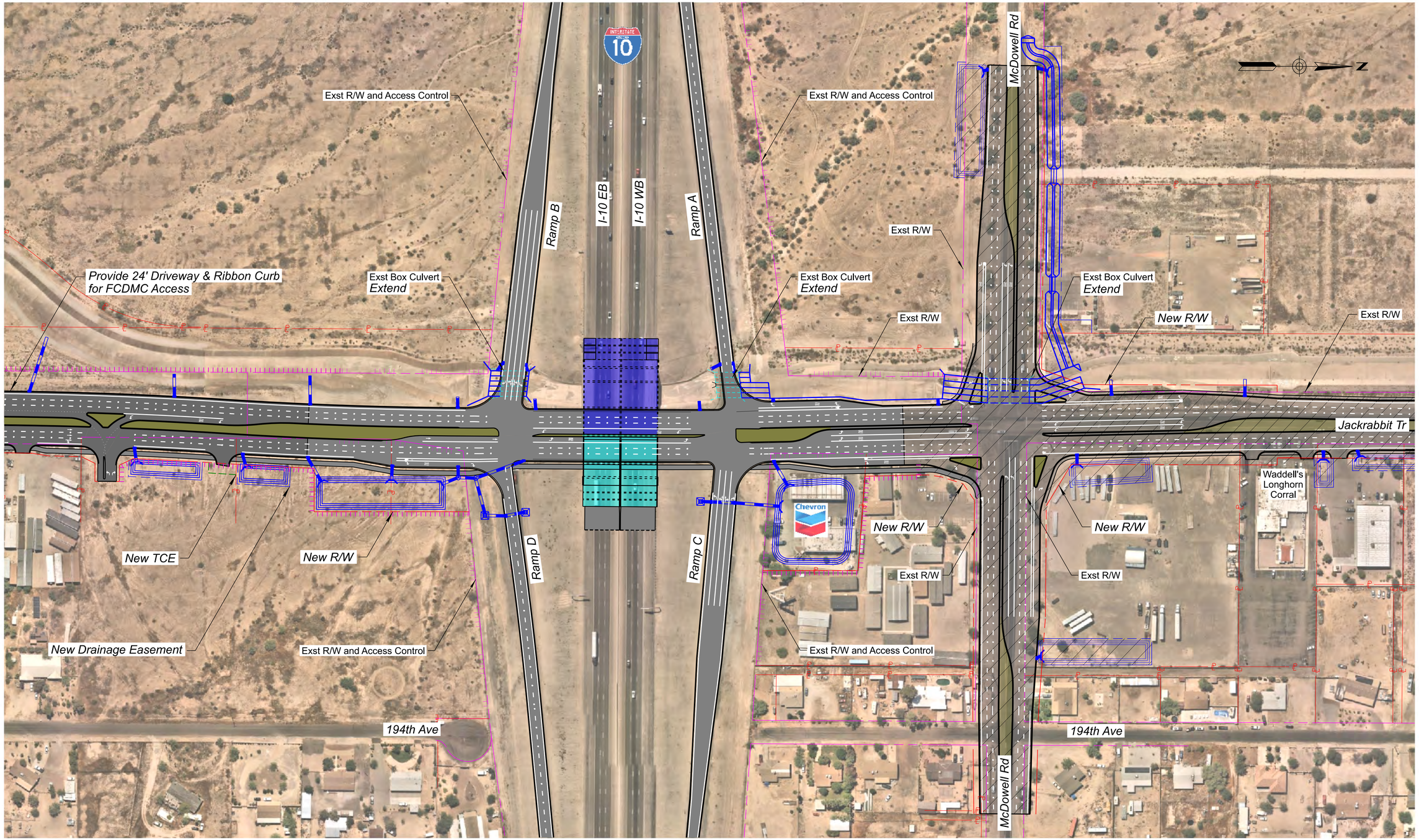
LEGEND

- PCCP Pavement
- AC Pavement
- Concrete Sidewalk/ Median
- Existing Bridge
- Proposed Bridge
- Proposed Median
- City of Buckeye Improvements
- Existing Right-of-Way
- New Right-of-Way
- New Drainage Easement
- New Access Control
- Property Line
- TCE

APPENDIX D1
I-10 - JACKRABBIT TRAIL TI
SHIFTED DDI WITH
BRIDGE REPLACEMENT
ALTERNATIVE 2B

Kimley»Horn

PROJECT NO.
010 MA 121 F0486 01L
I-10 - JACKRABBIT TRAIL
Scale: 1"=100'



LEGEND

- PCCP Pavement
- AC Pavement
- Concrete Sidewalk/ Median
- Existing Bridge
- Proposed Bridge
- Proposed Median
- City of Buckeye Improvements
- Existing Right-of-Way
- New Right-of-Way
- New Drainage Easement
- New Access Control
- Property Line
- TCE

APPENDIX D1
1-10 - JACKRABBIT TRAIL
SHIFTED TDI WITH
BRIDGE EXTENSION
ALTERNATIVE 3A

Kimley»Horn

PROJECT NO.
010 MA 121 F0486 01L

I-10 - JACKRABBIT TRAIL

Scale: 1"=100'

Exst R/W and Access Control

Exst R/W and Access Control

McDowell Rd

Ramp B

I-10 EB

I-10 WB

Ramp A

Provide 24' Driveway & Ribbon Curb for FCDMC Access

Exst 5-10' x 4' x 51' Box Culvert
Extend 28 Lin Ft

Exst 5-10' x 5' x 52' Box Culvert
Extend 28 Lin Ft

Exst 4-12' x 4.5' x 51' Box Culvert
Extend 2 cells by 178 Lin Ft
Add 2 - 12' x 5' x 286'

New R/W

Jackrabbit Tr

Waddell's Longhorn Corral

New R/W

New Drainage Easement

Exst R/W

New R/W

Exst R/W

Exst R/W and Access Control

Exst R/W and Access Control

194th Ave

Ramp D

Ramp C

McDowell Rd

194th Ave

LEGEND

- PCCP Pavement
- AC Pavement
- Concrete Sidewalk/ Median
- Existing Bridge
- Proposed Bridge
- Proposed Median
- City of Buckeye Improvements
- Existing Right-of-Way
- New Right-of-Way
- New Drainage Easement
- New Access Control
- Property Line
- TCE

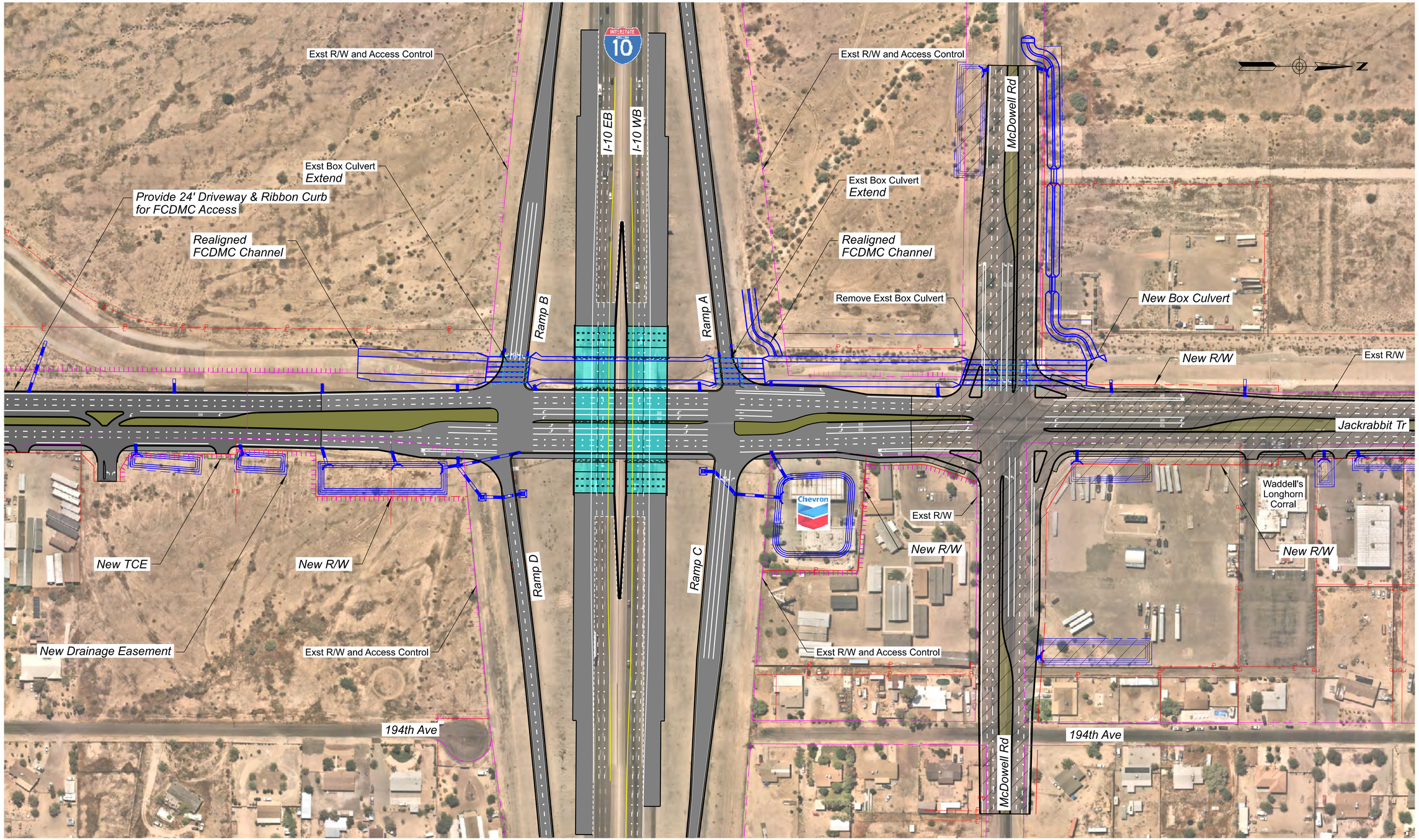
APPENDIX D1
I-10 - JACKRABBIT TRAIL TI
SHIFTED TDI WITH
BRIDGE REPLACEMENT
ALTERNATIVE 3B

Kimley»Horn

PROJECT NO.
010 MA 121 F0486 01L

I-10 - JACKRABBIT TRAIL

Scale: 1"=100'

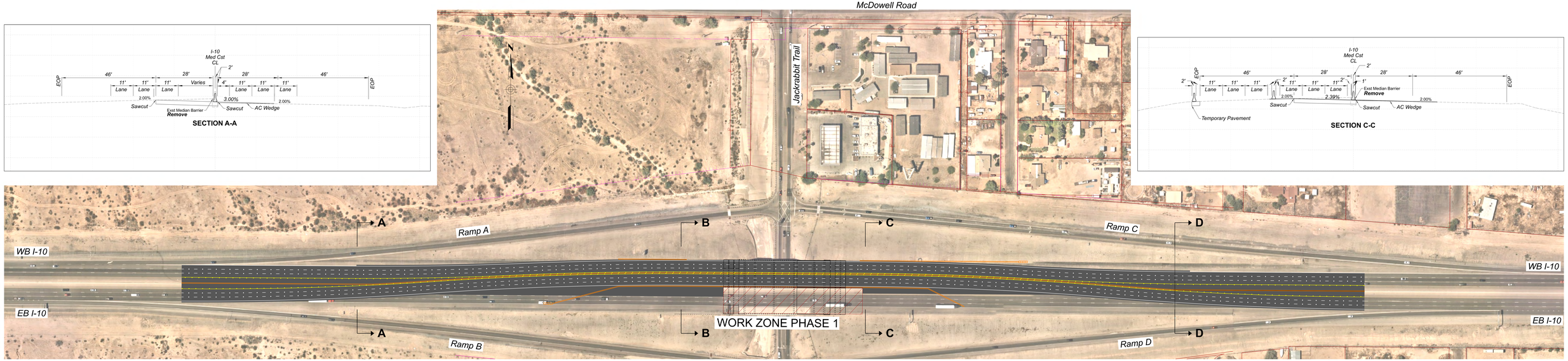


LEGEND							
PCCP Pavement	Existing Bridge	City of Buckeye Improvements	Existing Right-of-Way	New Access Control
AC Pavement	Proposed Bridge		New Right-of-Way	Property Line
Concrete Sidewalk/ Median	Proposed Median		New Drainage Easement	TCE

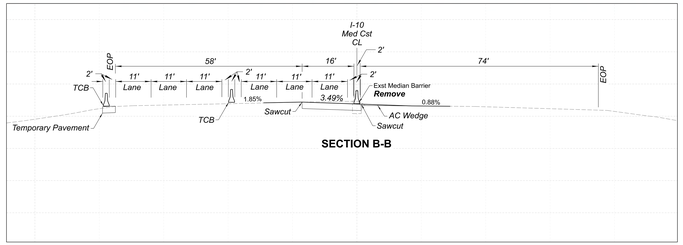
APPENDIX D1
I-10 - JACKRABBIT TRAIL TI
TDI ON SECTION LINE
WITH BRIDGE REPLACEMENT
ALTERNATIVE 4

Kimley»Horn

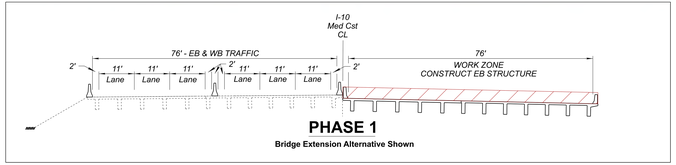
PROJECT NO.
010 MA 121 F0486 01L
I-10 - JACKRABBIT TRAIL
Scale: 1"=100'



SECTION A-A



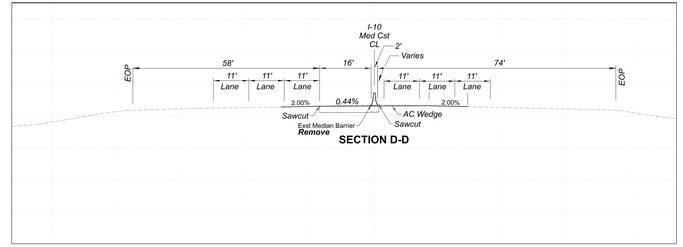
SECTION B-B



PHASE 1

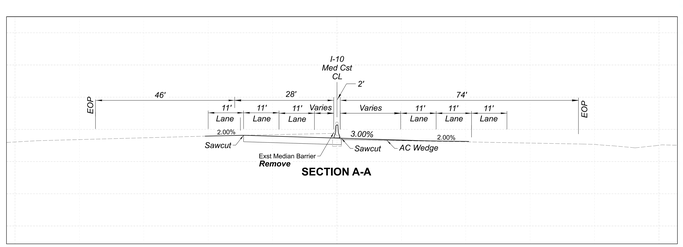
Bridge Extension Alternative Shown

SECTION C-C

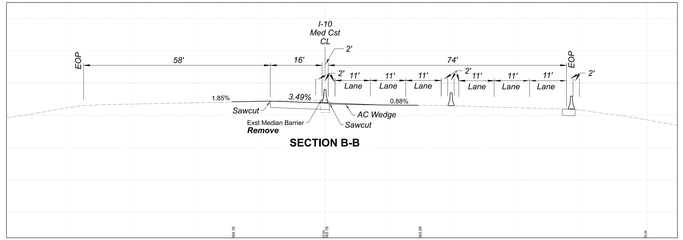


SECTION D-D

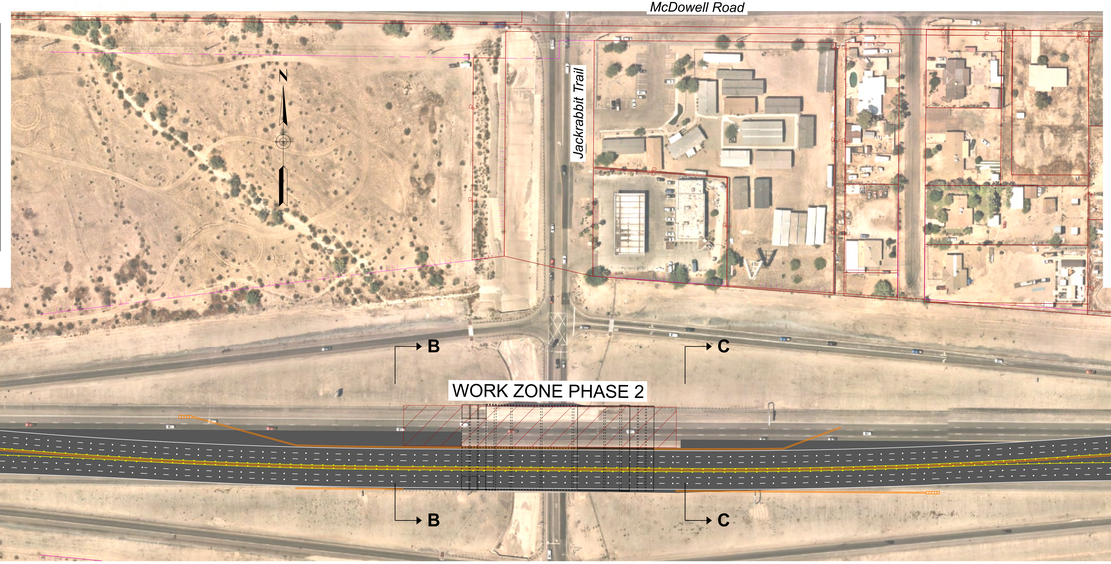
APPENDIX D2 I-10 - JACKRABBIT TRAIL TI CONSTRUCTION PHASING ALTERNATIVE BRIDGE REPLACEMENT	Kimley»Horn I-10 3-LANE DETOUR OPTION PHASE 1	PROJECT NO. 010 MA 121 F0486 01L I-10 - JACKRABBIT TRAIL SCALE: 1"=50'

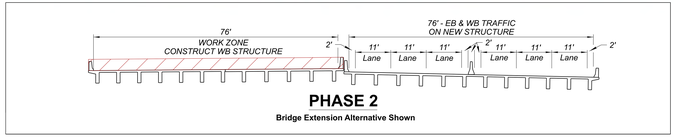


SECTION A-A



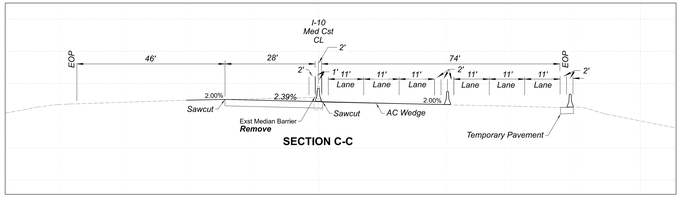
SECTION B-B



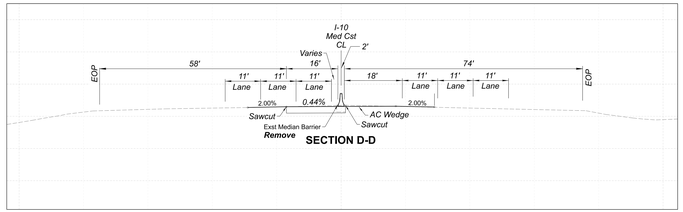


PHASE 2

Bridge Extension Alternative Shown



SECTION C-C



SECTION D-D

APPENDIX D2 I-10 - JACKRABBIT TRAIL TI CONSTRUCTION PHASING ALTERNATIVE BRIDGE REPLACEMENT	Kimley»Horn I-10 3-LANE DETOUR OPTION PHASE 2	PROJECT NO. 010 MA 121 F0486 01L I-10 - JACKRABBIT TRAIL SCALE: 1"=50'

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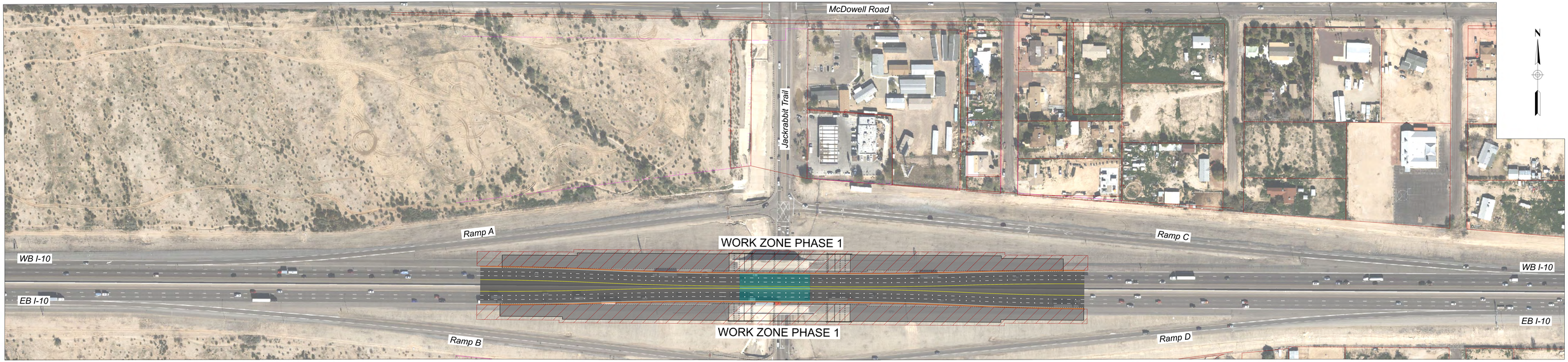

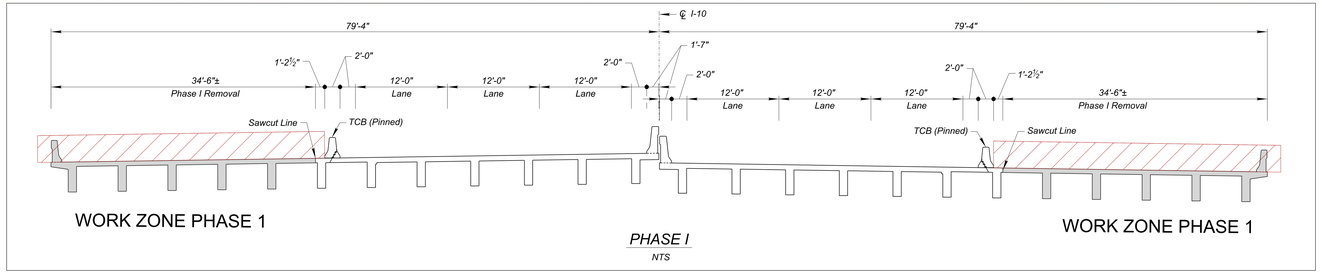

PHASE I
NTS

APPENDIX D2 I-10 – JACKRABBIT TRAIL TI CONSTRUCTION PHASING ALTERNATIVE BRIDGE REPLACMENT	Kimley»Horn	PROJECT NO. 010 MA 121 F0486 01L
	I-10 3-LANE FOOTBALL DETOUR OPTION PHASE 1	I-10 – JACKRABBIT TRAIL
		SCALE: 1"=50'

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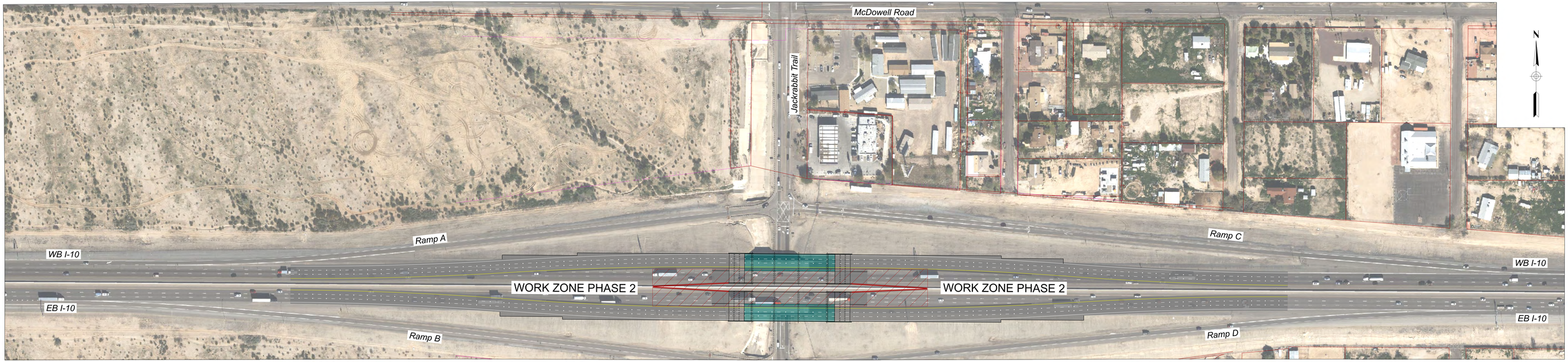
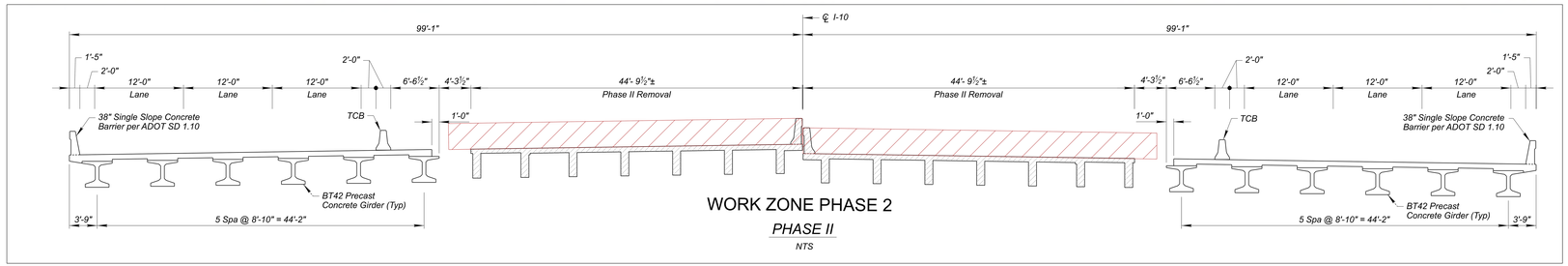




WORK ZONE PHASE 2

PHASE II

NTS

APPENDIX D2
I-10 - JACKRABBIT TRAIL TI
CONSTRUCTION
PHASING ALTERNATIVE
BRIDGE REPLACEMENT

Kimley»Horn

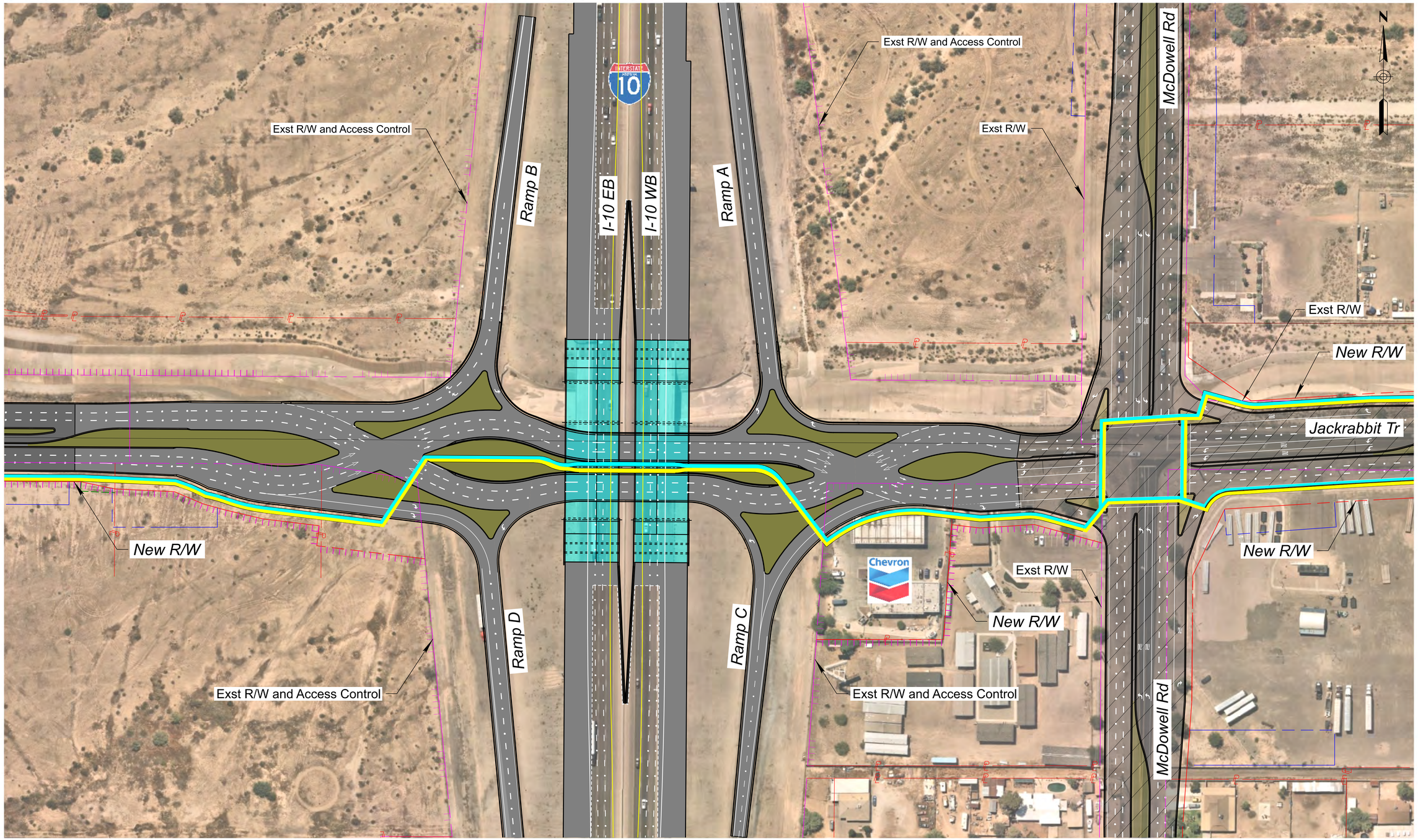
I-10 3-LANE FOOTBALL DETOUR OPTION
PHASE 2

PROJECT NO.
010 MA 121 F0486 01L

I-10 - JACKRABBIT TRAIL

SCALE: 1"=50'

STAKES SCATES SLIDERAILS STILES



LEGEND

- PCCP Pavement
- Pedestrian Access
- Shared Pedestrian & Bicycle Access
- Proposed Paved Median
- Bicycle Access
- AC Pavement
- Proposed Bridge
- City of Buckeye Improvements
- Existing Right-of-Way
- New Right-of-Way
- New Access Control

APPENDIX D3
I-10 JACKRABBIT TRAIL TI
SHIFTED DDI WITH BRIDGE REPLACEMENT
ALTERNATIVE 2B
BICYCLE AND PEDESTRIAN ACCOMODATIONS

Kimley»Horn

PROJECT NO.
010 MA 121 F0486 01L
I-10 - JACKRABBIT TRAIL
SCALE: 1"=75'

Exst R/W and Access Control

Exst R/W and Access Control

N

I-10 EB

I-10 WB

Ramp B

Ramp A

New R/W

Jackrabbit Tr

New R/W

Ramp D

Ramp C

New R/W

Exst R/W and Access Control

Exst R/W

New R/W

Exst R/W and Access Control

McDowell Rd

LEGEND

- PCCP Pavement
- Pedestrian Access
- Shared Pedestrian & Bicycle Access
- Proposed Paved Median
- Bicycle Access
- AC Pavement
- Proposed Bridge
- City of Buckeye Improvements
- Existing Right-of-Way
- New Right-of-Way
- Access Control Line

APPENDIX D3
I-10 - JACKRABBIT TRAIL TI
SHIFTED TDI WITH BRIDGE REPLACEMENT
ALTERNATIVE 3B
BICYCLE AND PEDESTRIAN ACCOMMODATIONS

Kimley»Horn

PROJECT NO.
010 MA 121 F0486 01L
I-10 - JACKRABBIT TRAIL
SCALE: 1"=75'

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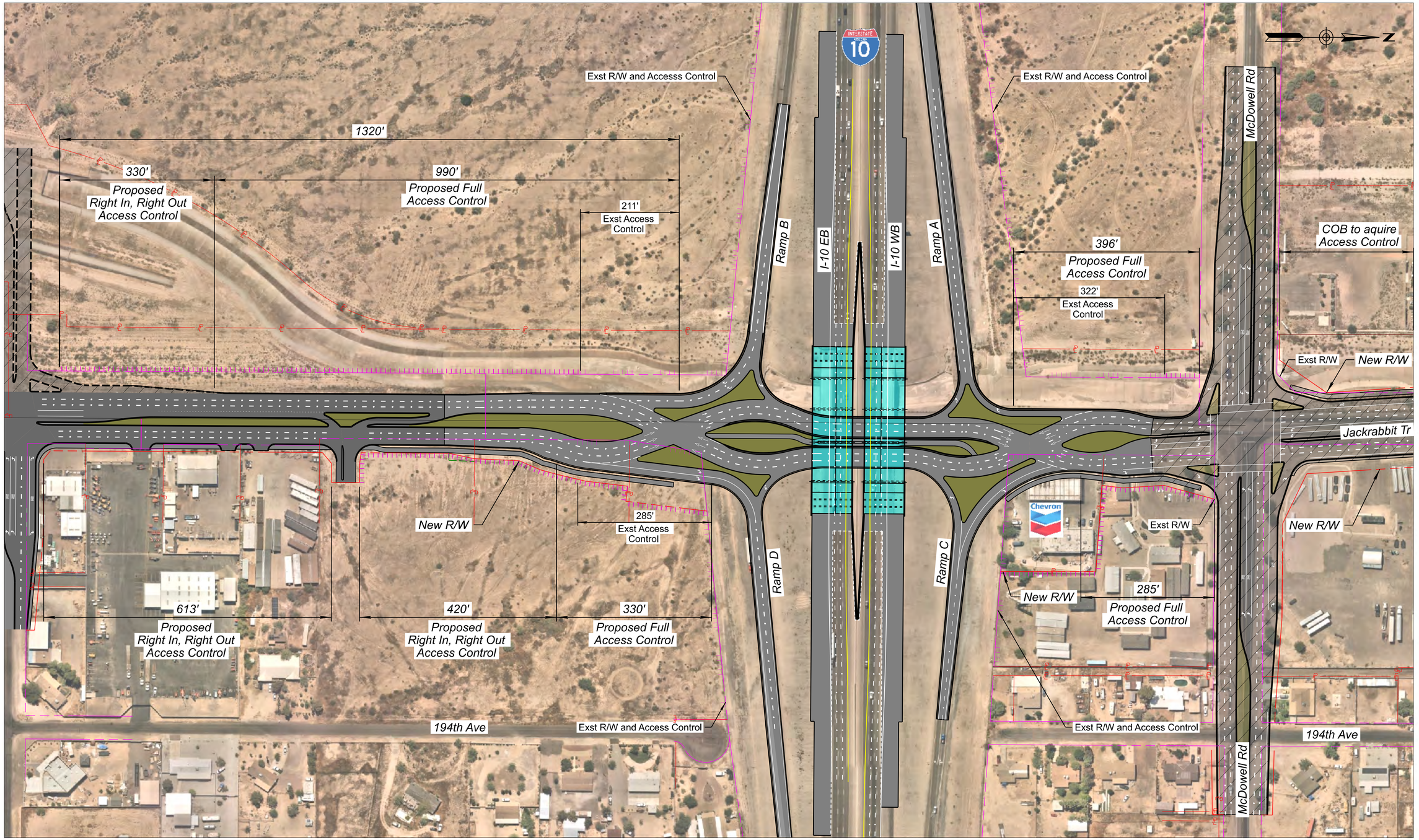


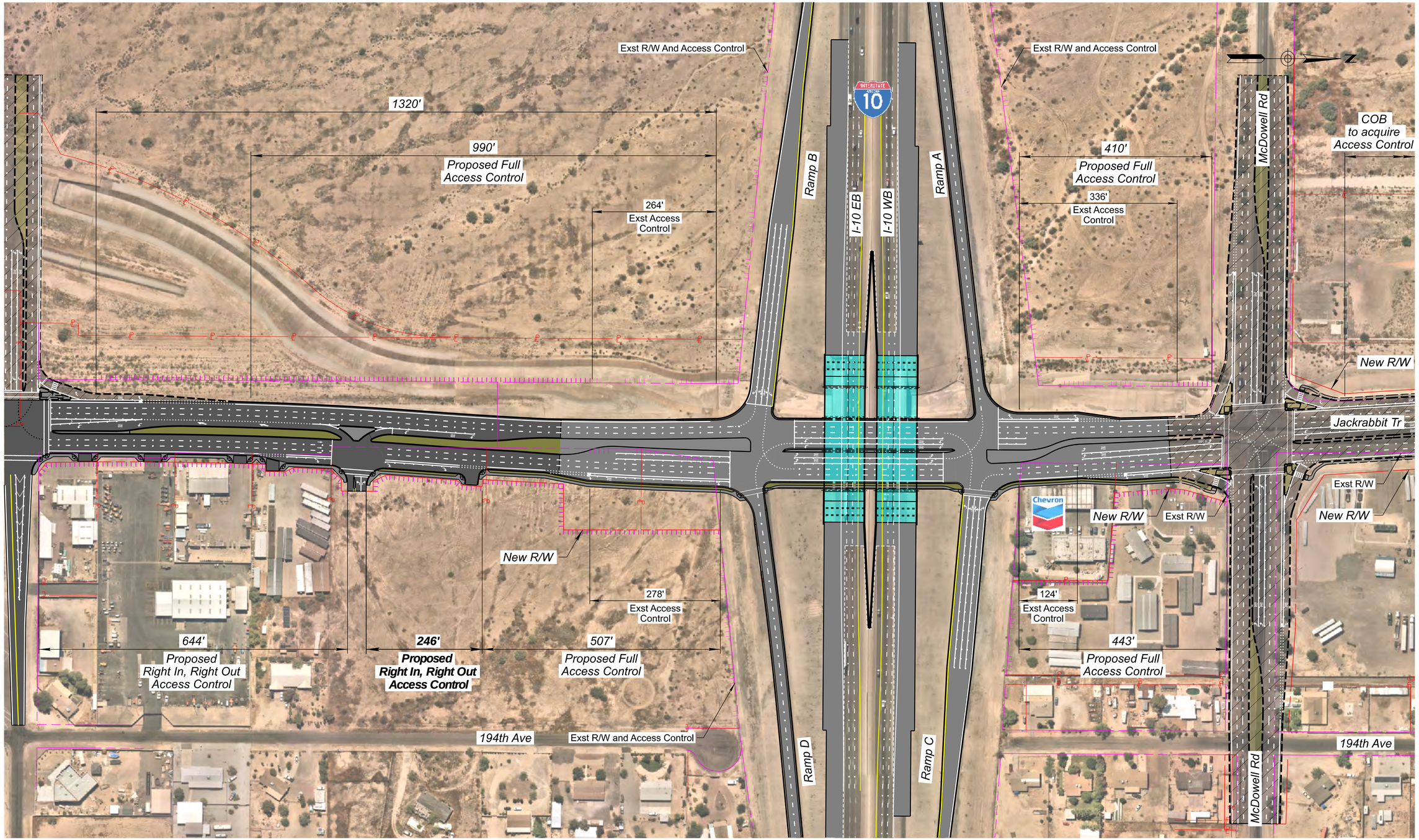
LEGEND

- PCCP Pavement
- AC Pavement
- Concrete Sidewalk/ Median
- Existing Bridge
- Proposed Bridge
- Proposed Median
- City of Buckeye Improvements
- Existing Right-of-Way
- New Right-of-Way
- Property Line
- New Access Control
- Exst Access Control

APPENDIX D4
I-10 - JACKRABBIT TRAIL TI
SHIFTED DDI
ACCESS CONTROL

Kimley»Horn

PROJECT NO.
010 MA 121 F0486 01L
I-10 - JACKRABBIT TRAIL
Scale: 1"=100'



LEGEND

- PCCP Pavement
- AC Pavement
- Concrete Sidewalk/ Median
- Existing Bridge
- Proposed Bridge
- Proposed Median
- City of Buckeye Improvements
- Existing Right-of-Way
- New Right-of-Way
- Property Line
- New Access Control
- Exst Access Control

APPENDIX D4
I-10 - JACKRABBIT TRAIL TI
SHIFTED TDI
ACCESS CONTROL

Kimley»Horn
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PROJECT NO.
010 MA 121 F0486 01L
I-10 - JACKRABBIT TRAIL
Scale: 1"=100'

APPENDIX E: Detailed Cost Estimates for Other Alternatives

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt 1 - MCDOT SDR DDI on Section Line

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
2020029	REMOVAL OF ASPHALTIC CONCRETE PAVEMENT	SQ.YD.	51,940	$7.00	$363,580
2050001	GRADING ROADWAY FOR PAVEMENT	SQ.YD.	98,071	$10.00	$980,710
2030401	DRAINAGE EXCAVATION	CU.YD.	14,000	$15.00	$210,000
3030002	AGGREGATE BASE, CLASS 2	TON	24,846	$90.00	$2,236,140
4010010	PORTLAND CEMENT CONCRETE PAVEMENT (10")	SQ.YD.	34,935	$80.00	$2,794,800
4040230	ASPHALT BINDER (AC-15-5TR)	TON	203	$800.00	$162,400
4040232	ASPHALT BINDER (RUBBER ASPHALT BINDER)	TON	203	$800.00	$162,400
4070002	ASPHALTIC CONCRETE FRICTION COURSE (HIGH TRAFFIC)	TON	5,393	$100.00	$539,300
4160003	ASPHALTIC CONCRETE (1/2" MIX) (END PRODUCT) (SPECIAL MIX)	TON	6,829	$95.00	$648,755
4160004	ASPHALTIC CONCRETE (3/4" MIX) (END PRODUCT) (SPECIAL MIX)	TON	10,646	$100.00	$1,064,600
5010011	PIPE, CORRUGATED METAL, 24"	L.FT.	305	$200.00	$61,000
5011024	PIPE, REINFORCED CONCRETE, CLASS IV, 24"	L.FT.	3,117	$100.00	$311,700
5011044	PIPE, REINFORCED CONCRETE, CLASS IV, 36"	L.FT.	1,996	$150.00	$299,400
5030021	CONCRETE CATCH BASIN (C-15.20) ONE 3.5' WING, H=8' OR LESS	EACH	13	$2,500.00	$32,500
5030347	CATCH BASIN, TYPE D, ONE 6' WING (MAG DET. 533-1)	EACH	5	$2,500.00	$12,500
5030371	CATCH BASIN, TYPE F, (MAG DET. 535)	EACH	8	$1,800.00	$14,400
5030609	CONCRETE CATCH BASIN (C-15.81)	EACH	7	$1,800.00	$12,600
5050001	MANHOLE (C-18.10) (NO. 1) (FOR PIPES 6" TO 36")	EACH	7	$15,000.00	$105,000
5050065	MANHOLE (MAG DET. 520 & 522)	EACH	6	$5,000.00	$30,000
6080101	MISCELLANEOUS WORK (SIGNS)	L.SUM	1	$200,000.00	$200,000
7041501	PAVEMENT MARKINGS	L.SUM	1	$150,000.00	$150,000
7330031	TRAFFIC SIGNAL (SIGNALIZE INTERSECTION)	EACH	4	$600,000.00	$2,400,000
7360300	ROADWAY LIGHTING AND EQUIPMENT	L.SUM	1	$300,000.00	$300,000
9080001	CONCRETE CURB (C-05.10) (TYPE A)	L.FT.	2,623	$22.00	$57,706
9080041	CONCRETE CURB (MAG DET. 222, TYPE A)	L.FT.	8,656	$22.00	$190,432
9080081	CONCRETE CURB AND GUTTER (C-05.10) (TYPE G)	L.FT.	4,380	$40.00	$175,200
9080101	CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220-1)	L.FT.	2,319	$40.00	$92,760
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	13,821	$8.00	$110,568
9080241	CONCRETE SIDEWALK (MAG DET. 230)	SQ.FT.	10,568	$8.00	$84,544
9080288	CONCRETE SIDEWALK RAMP (C-05.30, MODIFIED)	EACH	12	$6,500.00	$78,000
9080289	CONCRETE SIDEWALK RAMP (MAG DET 236)	EACH	4	$6,500.00	$26,000
9080304	CONCRETE DRIVEWAY (MAG DET 250-1)	SQ.FT.	2,639	$20.00	$52,780
9080512	SCUPPER (MAG DETAIL 206, 3-4' CURB OPENINGS)	EACH	1	$2,000.00	$2,000
9100052	CONCRETE BRIDGE BARRIER (MASH LOW PROFILE) (SPECIAL DETAIL)	L.FT.	375	$130.00	$48,750
9240050	MISCELLANEOUS WORK (REMOVALS)	L.SUM	1	$252,500.00	$252,500
9240111	MISCELLANEOUS WORK (ASPHALT SAFETY EDGE, MAG DET 201)	L.FT.	12,879	$3.00	$38,637
9240127	MISCELLANEOUS WORK (FIRST FLUSH TREATMENT DEVICE)	EACH	8	$30,000.00	$240,000
9999910	LUMP SUM (FCDMC CHANNEL)	L.SUM	1	$16,634,051.00	$16,634,051
				ITEM TOTAL	**$31,175,713**

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt 1 - MCDOT SDR DDI on Section Line

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
	PROJECT WIDE				
	Mobilization (10%)				$3,117,572
	Dust and Water Palliative (1%)				$311,758
	Quality Control (2%)				$623,515
	Construction Surveying (1.5%)				$467,636
	Maintenance And Protection Of Traffic (10%)				$3,117,571
	Erosion Control (3%)				$935,271
				PROJECT WIDE SUBTOTAL	**$8,573,324**
	Unidentified Item Allowance (20%)				$7,949,808
				PROJECT WIDE TOTAL	**$16,523,132**
	OTHER COSTS				
	Utility Relocations				$624,000
	Partnering				$20,000
	Public Outreach				$15,000
	Construction Engineering (9%)				$4,292,897
	Construction Contingencies (5%)				$2,384,943
	Consultant Services (1%)				$476,989
	PCCP Materials Quality Incentive ($2 per Sq Yd)			34,935 SQ. YD.	$69,870
	PCCP Smoothness Incentive ($3,500 per Lane-Mile)			5. Lane-Miles	$17,368
	AC Quality Incentive ($3 per Ton)			22,868 Tons	$68,604
	Right-Of-Way and Easement Acquisitions			9.8 Acres	$32,400,000
				OTHER COSTS TOTAL	**$40,369,671**
	SUMMARY				
	ITEM TOTAL				**$31,175,713**
	PROJECT WIDE				**$16,523,132**
	OTHER COST TOTAL				**$40,369,671**
	SUBTOTAL PROJECT COST				**$88,068,516**
	INDIRECT COST ALLOCATION (10.70%)				**$9,423,331**
				TOTAL PROJECT COST	**$97,491,847**

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 2A - Shifted DDI with Bridge Extension

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
2010011	CLEARING AND GRUBBING	ACRE	22	$2,500.00	$55,000
2020020	REMOVAL OF CONCRETE CURB	L.FT.	1,174	$8.00	$9,392
2020021	REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	571	$9.00	$5,139
2020023	REMOVE EXISTING CONCRETE MEDIAN BARRIER	L.FT.	155	$50.00	$7,750
2020025	REMOVAL OF CONCRETE SIDEWALKS, DRIVEWAYS AND SLABS	SQ.FT.	12,303	$4.00	$49,212
2020029	REMOVAL OF ASPHALTIC CONCRETE PAVEMENT	SQ.YD.	91,497	$7.00	$640,479
2020031	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	2,609	$28.00	$73,052
2020052	REMOVE (MASONRY WALL)	L.FT.	32	$50.00	$1,600
2020071	REMOVE GUARD RAIL	L.FT.	2,095	$6.00	$12,570
2020101	REMOVE FENCE	L.FT.	3,743	$15.00	$56,145
2020115	REMOVE (CATTLE GUARD)	EACH	4	$1,000.00	$4,000
2020116	REMOVE (FENCE GATE)	EACH	12	$550.00	$6,600
2020156	REMOVE (THRIE BEAM TRANSITION)	EACH	1	$850.00	$850
2020157	REMOVE (SIGN ASSEMBLY)	EACH	50	$300.00	$15,000
2020158	REMOVE (SIGN STRUCTURES)	EACH	1	$10,000.00	$10,000
2030301	ROADWAY EXCAVATION	CU.YD.	37,673	$20.00	$753,460
2030401	DRAINAGE EXCAVATION	CU.YD.	6,456	$15.00	$96,840
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	17,635	$90.00	$1,587,150
4010009	PORTLAND CEMENT CONCRETE PAVEMENT (9")	SQ.YD.	17,085	$80.00	$1,366,800
4010012	PORTLAND CEMENT CONCRETE PAVEMENT (12")	SQ.YD.	10,125	$90.00	$911,250
4010019	PORTLAND CEMENT CONCRETE PAVEMENT (13") (DOWELED)	SQ.YD.	822	$110.00	$90,420
4040111	BITUMINOUS TACK COAT	TON	15	$550.00	$8,250
4040116	APPLY BITUMINOUS TACK COAT	HOUR	59	$275.00	$16,225
4040282	ASPHALT BINDER (PG 76-16)	TON	726	$900.00	$653,400
4140040	ASPHALTIC CONCRETE FRICTION COURSE (ASPHALT-RUBBER)	TON	25	$70.00	$1,750
4140042	ASPHALT RUBBER MATERIAL (FOR AR-ACFC)	TON	3	$715.00	$2,145
4140044	MINERAL ADMIXTURE (FOR AR-ACFC)	TON	1	$99.00	$99
4160004	ASPHALTIC CONCRETE (3/4" MIX) (END PRODUCT) (SPECIAL MIX)	TON	14,507	$100.00	$1,450,700
4160031	MINERAL ADMIXTURE	TON	137	$90.00	$12,330
5012518	STORM DRAIN PIPE, 18"	L.FT.	2,025	$150.00	$303,750
5012524	STORM DRAIN PIPE, 24"	L.FT.	236	$200.00	$47,200
5012530	STORM DRAIN PIPE, 30"	L.FT.	41	$225.00	$9,225
5030025	CONCRETE CATCH BASIN (C-15.20) ONE 11.5' WING, H=8' OR LESS	EACH	11	$11,000.00	$121,000
5030601	CATCH BASIN (COB B-510A, L=10)	EACH	17	$12,000.00	$204,000
5030602	CATCH BASIN (ADOT C-15.91)	EACH	4	$8,000.00	$32,000
5030606	CONCRETE CATCH BASIN (ADOT C-15.92)	EACH	5	$8,000.00	$40,000
5030608	CONCRETE CATCH BASIN (ADOT C-15.80)	EACH	4	$8,500.00	$34,000
5050001	MANHOLE (C-18.10) (NO. 1) (FOR PIPES 6" TO 36")	EACH	4	$15,000.00	$60,000
6016090	HEADWALL (ADOT SD 6.30)	EACH	5	$10,000.00	$50,000
6016091	HEADWALL (COB DET 51200)	EACH	15	$12,000.00	$180,000
6060057	BRIDGE SIGN STRUCTURE (TAPERED TUBE, SINGLE BEAM, 50' TO 70')	EACH	4	$25,000.00	$100,000
6060074	FOUNDATION FOR BRIDGE SIGN STRUCTURE (TAPERED TUBE)	EACH	4	$8,000.00	$32,000
6060132	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 2C)	EACH	1	$50,000.00	$50,000
6060255	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 2C)	EACH	1	$13,000.00	$13,000
6070055	SIGN POST (PERFORATED) (2 1/2 S)	L.FT.	200	$20.00	$4,000
6070060	FOUNDATION FOR SIGN POST (CONCRETE)	EACH	40	$20.00	$800
6080005	REGULATORY, WARNING, OR MARKER SIGN PANEL	SQ.FT.	400	$30.00	$12,000
6080018	EXTRUDED ALUMINUM SIGN PANEL	SQ.FT.	385	$39.00	$15,015
7040005	PAVEMENT MARKING (WHITE EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	48,703	$0.70	$34,092
7040006	PAVEMENT MARKING (YELLOW EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	30	$0.70	$21
7040072	PAVEMENT MARKING (TRANSVERSE) (THERMOPLASTIC) (ALKYD) (0.090")	L.FT.	16,350	$2.75	$44,963
7040073	PAVEMENT LEGEND (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	42	$160.00	$6,720
7040074	PAVEMENT SYMBOL (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	66	$160.00	$10,560
7060015	PAVEMENT MARKER, RAISED, TYPE D	EACH	104	$6.00	$624
7060018	PAVEMENT MARKER, RAISED, TYPE G	EACH	969	$3.00	$2,907
7080201	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED) (WHITE)	L.FT.	65,053	$1.10	$71,558
7080206	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED SYMBOL) (ARROW)	EACH	66	$90.00	$5,940
7080208	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED LEGEND) (ONLY)	EACH	42	$85.00	$3,570

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 2A - Shifted DDI with Bridge Extension

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
7310011	POLE (TYPE A) (8')	EACH	7	$1,300.00	$9,100
7310012	POLE (TYPE A) (10')	EACH	9	$1,500.00	$13,500
7310070	POLE (TYPE G) (STANDARD BASE)	EACH	8	$3,500.00	$28,000
7310186	POLE (SPECIAL) (APS 1946.S32, 32 FT)	EACH	84	$2,000.00	$168,000
7310187	POLE (SPECIAL) (TROMBONE TYPE A)	EACH	5	$26,500.00	$132,500
7310189	POLE (SPECIAL) (TROMBONE TYPE B W/ 20FT MAST ARM)	EACH	11	$32,000.00	$352,000
7310191	POLE (55 FT CCTV POLE W/LOWERING DEVICE)	EACH	1	$18,000.00	$18,000
7310195	POST (PEDESTRIAN PUSH BUTTON)	EACH	4	$1,000.00	$4,000
7310200	POLE FOUNDATION (TYPE A)	EACH	16	$1,000.00	$16,000
7310260	POLE FOUNDATION (TYPE G) (STANDARD BASE)	EACH	8	$1,700.00	$13,600
7310372	POLE FOUNDATION (54 FT CCTV POLE)	EACH	1	$12,000.00	$12,000
7310373	POLE FOUNDATION (TROMBONE 35' SMA AND LOWER)	EACH	4	$8,000.00	$32,000
7310374	POLE FOUNDATION (TROMBONE 40' SMA TO 45' SMA)	EACH	7	$8,500.00	$59,500
7310375	POLE FOUNDATION (TROMBONE 50' SMA TO 55' SMA)	EACH	5	$9,000.00	$45,000
7310381	POLE FOUNDATION (APS 6'-0" FLUSH)	EACH	84	$800.00	$67,200
7310551	MAST ARM (20 FT.) (TAPERED)	EACH	2	$1,200.00	$2,400
7310582	MAST ARM (35 FT.) (SPECIAL)	EACH	2	$29,000.00	$58,000
7310592	MAST ARM (40 FT.) (SPECIAL)	EACH	2	$32,500.00	$65,000
7310602	MAST ARM (45 FT.) (SPECIAL)	EACH	5	$36,000.00	$180,000
7310650	MAST ARM (SINGLE APS 8'X8' HI RISE)	EACH	37	$600.00	$22,200
7310652	MAST ARM (30 FT.) (SPECIAL)	EACH	47	$1,000.00	$47,000
7310653	MAST ARM (50 FT.) (SPECIAL)	EACH	2	$42,000.00	$84,000
7310654	MAST ARM (55 FT.) (SPECIAL)	EACH	3	$45,000.00	$135,000
7320050	ELECTRICAL CONDUIT (2") (PVC)	L.FT.	2,070	$25.00	$51,750
7320060	ELECTRICAL CONDUIT (2 1/2") (PVC)	L.FT.	60	$35.00	$2,100
7320061	ELECTRIC CONDUIT (2 1/2") (PVC) (APS)	L.FT.	12,100	$18.00	$217,800
7320070	ELECTRICAL CONDUIT (3") (PVC)	L.FT.	810	$38.00	$30,780
7320071	ELECTRICAL CONDUIT (3") (PVC) (APS)	L.FT.	210	$23.00	$4,830
7320072	ELECTRICAL CONDUIT (3 - 3") (PVC)	L.FT.	1,815	$70.00	$127,050
7320073	ELECTRICAL CONDUIT (2 - 3") (PVC)	L.FT.	1,615	$65.00	$104,975
7320220	ELECTRICAL CONDUIT (1")	L.FT.	840	$12.00	$10,080
7320275	ELECTRICAL CONDUIT (3 - 3") (PVC) (DIRECTIONAL DRILL)	L.FT.	2,175	$70.00	$152,250
7320291	ELECTRICAL CONDUIT (2 - 3") (HDPE DIRECTIONAL DRILL)	L.FT.	555	$25.00	$13,875
7320292	ELECTRICAL CONDUIT (2 - 3") (HDPE DIRECTIONAL DRILL)	L.FT.	1,625	$80.00	$130,000
7320293	ELECTRICAL CONDUIT (7-WAY MULTI-DUCT) (DIRECTIONAL DRIL)	L.FT.	1,290	$80.00	$103,200
7320303	CONDUIT IN BRIDGE (1")	L.FT.	400	$20.00	$8,000
7320421	PULL BOX (NO. 7) (WITH EXTENSION)	EACH	31	$1,200.00	$37,200
7320456	PULL BOX (SPLIT NO. 9)	EACH	2	$11,000.00	$22,000
7320460	PULL BOX (APS FURNISHED, CONTRACTOR INSTALL)	EACH	84	$500.00	$42,000
7320520	CONDUCTOR (NO. 8)	L.FT.	15,240	$1.25	$19,050
7320586	CONDUCTOR (INSULATED BOND) (NO. 8)	L.FT.	7,620	$1.25	$9,525
7320649	CONDUCTORS (JACKRABBIT & I-10)	L.SUM	1	$50,000.00	$50,000
7320652	CONDUCTORS (JACKRABBIT & NEW DEVELOPMENT)	L.SUM	1	$20,000.00	$20,000
7320653	CONDUCTORS (JACKRABBIT & ROOSEVELT)	L.SUM	1	$30,000.00	$30,000
7320745	REMOVE AND SALVAGE CONDUCTORS	L.SUM	1	$5,000.00	$5,000
7320765	SINGLE MODE FIBER OPTIC CABLE (12 FIBERS)	L.FT.	2,365	$5.00	$11,825
7320787	SINGLE MODE FIBER OPTIC CABLE (144 FIBERS)	L.FT.	1,700	$4.50	$7,650
7320794	FIBER OPTIC SPLICE CLOSURE (FMS)	EACH	5	$3,000.00	$15,000
7330060	TRAFFIC SIGNAL FACE (TYPE F)	EACH	25	$500.00	$12,500
7330061	TRAFFIC SIGNAL FACE (TYPE F) (MODIFIED)	EACH	33	$600.00	$19,800
7330135	TRAFFIC SIGNAL FACE (TYPE R)	EACH	18	$600.00	$10,800
7330137	TRAFFIC SIGNAL FACE (TYPE R) (MODIFIED)	EACH	18	$600.00	$10,800
7330210	TRAFFIC SIGNAL FACE (PEDESTRIAN) (MAN/HAND)	EACH	26	$500.00	$13,000
7330220	PEDESTRIAN PUSH BUTTON	EACH	26	$500.00	$13,000
7330310	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE II)	EACH	37	$150.00	$5,550
7330330	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE IV)	EACH	8	$500.00	$4,000
7330340	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE V)	EACH	18	$500.00	$9,000
7330400	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE XI)	EACH	22	$400.00	$8,800

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 2A - Shifted DDI with Bridge Extension

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
7330630	REMOVE TRAFFIC SIGNALS	L.SUM	1	$20,000.00	$20,000
7340040	CONTROL CABINET (TYPE IV)	EACH	3	$25,000.00	$75,000
7340101	CONTROL CABINET (DETECTOR)	EACH	2	$10,000.00	$20,000
7340103	CONTROL CABINET (CCTV POLE MOUNTED)	EACH	1	$5,000.00	$5,000
7340105	CONTROL CABINET FOUNDATION	EACH	3	$1,500.00	$4,500
7340120	METER PEDESTAL CABINET	EACH	3	$3,000.00	$9,000
7340252	CONTROLLER (MODEL 2070)	EACH	2	$10,000.00	$20,000
7340306	METER PEDESTAL FOUNDATION	EACH	3	$1,000.00	$3,000
7340401	TRANSFORMER FOUNDATION	EACH	3	$500.00	$1,500
7340411	FOUNDATION (CONTROLLER AND TRANSFORMER)	EACH	2	$1,200.00	$2,400
7350030	LOOP DETECTOR FOR TRAFFIC SURVEILLANCE (6'X6')	EACH	16	$1,000.00	$16,000
7350051	DETECTOR CARD	EACH	10	$250.00	$2,500
7350165	LOOP DETECTOR LEAD-IN CABLE	L.FT.	2,280	$2.00	$4,560
7360104	LUMINAIRE (140W LED) (HORIZONTAL MOUNT) (CITY OF BUCKEYE)	EACH	153	$800.00	$122,400
7360113	LUMINAIRE (LED) (UNDERDECK 15L)	EACH	4	$1,000.00	$4,000
7360160	POWER SUPPLY (BATTERY BACKUP)	EACH	3	$12,000.00	$36,000
7360240	LOAD CENTER CABINET FOUNDATION	EACH	1	$3,000.00	$3,000
7360243	LOAD CENTER CABINET (TYPE IV) (MODIFIED) (120/240v)	EACH	1	$12,000.00	$12,000
7370430	TRANSFORMER (3KVA)	EACH	5	$2,000.00	$10,000
7370452	MISCELLANEOUS ELECTRICAL (ELECTRICAL RECORD DRAWINGS)	L.SUM	1	$2,000.00	$2,000
7370652	FIBER OPTIC EQUIPMENT (NETWORK INTERFACE DEVICE)	EACH	5	$750.00	$3,750
7370705	CCTV FIELD EQUIPMENT	EACH	1	$8,500.00	$8,500
8030106	DECOMPOSED GRANITE (MEDIANS, BASINS, ROW, RAMPS)	SQ.YD.	106,902	$12.00	$1,282,824
9080001	CONCRETE CURB (C-05.10) (TYPE A)	L.FT.	4,507	$22.00	$99,154
9080084	CONCRETE CURB AND GUTTER (C-05.10) (Type C)	L.FT.	6,283	$40.00	$251,320
9080085	CONCRETE CURB AND GUTTER (C-05.10) (Type D)	L.FT.	3,113	$40.00	$124,520
9080101	CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220-1)	L.FT.	16,792	$40.00	$671,680
9080107	CONCRETE SINGLE CURB (MAG DET. 222)	L.FT.	151	$75.00	$11,325
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	55,960	$8.00	$447,680
9080286	CONCRETE SIDEWALK RAMP (C-05.30, MODIFIED)	EACH	6	$6,500.00	$39,000
9080287	CONCRETE SIDEWALK RAMP (MAG DET. 236)	EACH	36	$6,500.00	$234,000
9100053	CONCRETE BRIDGE BARRIER TRANSITION	EACH	1	$30,000.00	$30,000
9100201	CONCRETE MEDIAN BARRIER	L.FT.	35	$150.00	$5,250
9210011	MEDIAN PAVING	SQ.YD.	7,659	$150.00	$1,148,850
9240015	FORCE ACCOUNT WORK (PROVIDE ELECTRICAL SERVICES)	L.SUM	1	$20,000.00	$20,000
9240051	MISCELLANEOUS WORK (THERMAL CAMERA DETECTION SYSTEM, JACKRABBIT & I-10)	L.SUM	1	$40,000.00	$40,000
9240121	MISCELLANEOUS WORK (PIPE PENETRATION C-13.80)	EACH	12	$3,000.00	$36,000
9240133	MISCELLANEOUS WORK (BATTERY BACKUP FOUNDATION)	EACH	3	$1,500.00	$4,500
9240134	MISCELLANEOUS WORK (GIG-E SWITCH)	EACH	5	$2,500.00	$12,500
9240136	MISCELLANEOUS WORK (40 FT THERMAL DETECTION POLE AND FOUNDATION)	EACH	2	$8,000.00	$16,000
9240144	MISCELLANEOUS WORK (COB 7-WAY MULTI-DUCT) (TRENCHED)	L.FT.	4,240	$25.00	$106,000
9240145	MISCELLANEOUS WORK (COB 7-WAY MULTI-DUCT) (DIRECTIONAL DRILL)	L.FT.	825	$80.00	$66,000
9240146	MISCELLANEOUS WORK (COB CONDUIT, STD STL 66102) (TRENCHED)	L.FT.	40	$35.00	$1,400
9240148	MISCELLANEOUS WORK (COB SIGNLE MODE FIBER OPTIC CABLE (144 FIBERS)	L.FT.	5,565	$5.00	$27,825
9240173	MISCELLANEOUS WORK (COB NO. 9 PULL BOX, STD DTL 66124)	EACH	6	$10,000.00	$60,000
9240174	MISCELLANEOUS WORK (COB 6 COUNT BRANCH FIBER AND TERMINATION PANEL)	EACH	2	$2,800.00	$5,600
9240175	MISCELLANEOUS WORK (COB FIBER OPTIC SPLICE CLOSURE)	EACH	3	$3,000.00	$9,000
9240176	MISCELLANEOUS WORK (COB FIELD HARDENED ETHERNET SWITCH) (RS900G)	EACH	2	$3,500.00	$7,000
9240178	MISCELLANEOUS WORK (PAINT MEDIAN CURB NOSE, COB DETAIL 63220)	EACH	13	$150.00	$1,950
9999910	LUMP SUM (JACKRABBIT TRAIL TIOP)	L.SUM	1	$3,846,860.00	$3,846,860
9999911	LUMP SUM (CONCRETE BOX CULVERTS)	L.SUM	1	$1,631,955.00	$1,631,955
				ITEM TOTAL	**$22,907,046**

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 2A - Shifted DDI with Bridge Extension

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
	PROJECT WIDE				
	Mobilization (10%)				$2,290,705
	Dust and Water Palliative (1%)				$229,071
	Contractor Quality Control (2%)				$458,141
	Construction Surveying (1.5%)				$343,606
	Maintenance and Protection of Traffic (10%)				$2,290,705
				PROJECT WIDE SUBTOTAL	**$5,612,228**
	Unidentified Item Allowance (20%)				$5,703,855
				PROJECT WIDE TOTAL	**$11,316,083**
	OTHER COSTS				
	Utility Relocations				$1,000,000
	Public Relations				$15,000
	Construction Engineering (9%)				$3,080,082
	Construction Contingencies (5%)				$1,711,157
	Consultant Services (1%)				$342,232
	PCCP Materials Quality Incentive ($2 per Sq Yd)			28,032 SQ. YD.	$56,064
	PCCP Smoothness Incentive ($3,500 per Lane-Mile)			4. Lane-Miles	$27,873
	AC Quality Incentive ($3 per Ton)			14,532 Tons	$43,596
	Right-Of-Way and Easement Acquisitions			6.6 Acres	$24,400,000
				OTHER COSTS TOTAL	**$30,676,004**
	SUMMARY				
	ITEM TOTAL				**$22,907,046**
	PROJECT WIDE				**$11,316,083**
	OTHER COST TOTAL				**$30,676,004**
	SUBTOTAL PROJECT COST				**$64,899,133**
	INDIRECT COST ALLOCATION (10.70%)				**$6,944,207**
				TOTAL PROJECT COST	**$71,843,340**

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Alt. 2B - Shifted DDI with Bridge Replacement

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
2010011	CLEARING AND GRUBBING	ACRE	22	$2,500.00	$55,000
2020020	REMOVAL OF CONCRETE CURB	L.FT.	1,175	$8.00	$9,400
2020021	REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	387	$9.00	$3,483
2020025	REMOVAL OF CONCRETE SIDEWALKS, DRIVEWAYS AND SLABS	SQ.FT.	12,303	$4.00	$49,212
2020029	REMOVAL OF ASPHALTIC CONCRETE PAVEMENT	SQ.YD.	47,776	$7.00	$334,432
2020031	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	876	$28.00	$24,528
2020052	REMOVE (MASONRY WALL)	L.FT.	32	$50.00	$1,600
2020071	REMOVE GUARD RAIL	L.FT.	2,442	$6.00	$14,652
2020101	REMOVE FENCE	L.FT.	3,647	$15.00	$54,705
2020115	REMOVE (CATTLE GUARD)	EACH	4	$1,000.00	$4,000
2020116	REMOVE (FENCE GATE)	EACH	12	$550.00	$6,600
2020156	REMOVE (THRIE BEAM TRANSITION)	EACH	2	$850.00	$1,700
2020157	REMOVE (SIGN ASSEMBLY)	EACH	50	$300.00	$15,000
2020158	REMOVE (SIGN STRUCTURES)	EACH	1	$10,000.00	$10,000
2030301	ROADWAY EXCAVATION	CU.YD.	47,080	$20.00	$941,600
2030401	DRAINAGE EXCAVATION	CU.YD.	8,068	$15.00	$121,020
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	19,026	$90.00	$1,712,340
4010009	PORTLAND CEMENT CONCRETE PAVEMENT (9")	SQ.YD.	17,084	$80.00	$1,366,720
4010012	PORTLAND CEMENT CONCRETE PAVEMENT (12")	SQ.YD.	10,148	$90.00	$913,320
4010019	PORTLAND CEMENT CONCRETE PAVEMENT (13") (DOWELED)	SQ.YD.	13,315	$110.00	$1,464,650
4040111	BITUMINOUS TACK COAT	TON	15	$550.00	$8,250
4040116	APPLY BITUMINOUS TACK COAT	HOUR	59	$275.00	$16,225
4040282	ASPHALT BINDER (PG 76-16)	TON	726	$900.00	$653,400
4140040	ASPHALTIC CONCRETE FRICTION COURSE (ASPHALT-RUBBER)	TON	393	$70.00	$27,510
4140042	ASPHALT RUBBER MATERIAL (FOR AR-ACFC)	TON	38	$715.00	$27,170
4140044	MINERAL ADMIXTURE (FOR AR-ACFC)	TON	4	$99.00	$396
4160004	ASPHALTIC CONCRETE (3/4" MIX) (END PRODUCT) (SPECIAL MIX)	TON	14,507	$100.00	$1,450,700
4160031	MINERAL ADMIXTURE	TON	137	$90.00	$12,330
5012518	STORM DRAIN PIPE, 18"	L.FT.	2,025	$150.00	$303,750
5012524	STORM DRAIN PIPE, 24"	L.FT.	236	$200.00	$47,200
5012530	STORM DRAIN PIPE, 30"	L.FT.	41	$225.00	$9,225
5030025	CONCRETE CATCH BASIN (C-15.20) ONE 11.5' WING, H=8' OR LESS	EACH	11	$11,000.00	$121,000
5030601	CATCH BASIN (COB B-510A, L=10)	EACH	17	$12,000.00	$204,000
5030602	CATCH BASIN (ADOT C-15.91)	EACH	4	$8,000.00	$32,000
5030606	CONCRETE CATCH BASIN (ADOT C-15.92)	EACH	5	$8,000.00	$40,000
5030608	CONCRETE CATCH BASIN (ADOT C-15.80)	EACH	4	$8,500.00	$34,000
5050001	MANHOLE (C-18.10) (NO. 1) (FOR PIPES 6" TO 36")	EACH	4	$15,000.00	$60,000
6016090	HEADWALL (ADOT SD 6.30)	EACH	5	$10,000.00	$50,000
6016091	HEADWALL (COB DET 51200)	EACH	15	$12,000.00	$180,000
6060057	BRIDGE SIGN STRUCTURE (TAPERED TUBE, SINGLE BEAM, 50' TO 70')	EACH	4	$25,000.00	$100,000
6060074	FOUNDATION FOR BRIDGE SIGN STRUCTURE (TAPERED TUBE)	EACH	4	$8,000.00	$32,000
6060132	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 2C)	EACH	1	$50,000.00	$50,000
6060255	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 2C)	EACH	1	$13,000.00	$13,000
6070055	SIGN POST (PERFORATED) (2 1/2 S)	L.FT.	200	$20.00	$4,000
6070060	FOUNDATION FOR SIGN POST (CONCRETE)	EACH	40	$20.00	$800
6080005	REGULATORY, WARNING, OR MARKER SIGN PANEL	SQ.FT.	400	$30.00	$12,000
6080018	EXTRUDED ALUMINUM SIGN PANEL	SQ.FT.	385	$39.00	$15,015
7040005	PAVEMENT MARKING (WHITE EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	48,703	$0.70	$34,092
7040006	PAVEMENT MARKING (YELLOW EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	30	$0.70	$21
7040072	PAVEMENT MARKING (TRANSVERSE) (THERMOPLASTIC) (ALKYD) (0.090")	L.FT.	16,350	$2.75	$44,963
7040073	PAVEMENT LEGEND (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	42	$160.00	$6,720
7040074	PAVEMENT SYMBOL (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	66	$160.00	$10,560
7060015	PAVEMENT MARKER, RAISED, TYPE D	EACH	104	$6.00	$624
7060018	PAVEMENT MARKER, RAISED, TYPE G	EACH	969	$3.00	$2,907
7080201	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED) (WHITE)	L.FT.	65,053	$1.10	$71,558
7080206	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED SYMBOL) (ARROW)	EACH	66	$90.00	$5,940
7080208	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED LEGEND) (ONLY)	EACH	42	$85.00	$3,570
7310011	POLE (TYPE A) (8')	EACH	7	$1,300.00	$9,100

Arizona Department of Transportation

Estimated Engineering Construction Cost

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Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Alt. 2B - Shifted DDI with Bridge Replacement

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7310012	POLE (TYPE A) (10')	EACH	9	$1,500.00	$13,500
7310070	POLE (TYPE G) (STANDARD BASE)	EACH	8	$3,500.00	$28,000
7310186	POLE (SPECIAL) (APS 1946,S32, 32 FT)	EACH	84	$2,000.00	$168,000
7310187	POLE (SPECIAL) (TROMBONE TYPE A)	EACH	5	$26,500.00	$132,500
7310189	POLE (SPECIAL) (TROMBONE TYPE B W/ 20FT MAST ARM)	EACH	11	$32,000.00	$352,000
7310191	POLE (55 FT CCTV POLE W/LOWERING DEVICE)	EACH	1	$18,000.00	$18,000
7310195	POST (PEDESTRIAN PUSH BUTTON)	EACH	4	$1,000.00	$4,000
7310200	POLE FOUNDATION (TYPE A)	EACH	16	$1,000.00	$16,000
7310260	POLE FOUNDATION (TYPE G) (STANDARD BASE)	EACH	8	$1,700.00	$13,600
7310372	POLE FOUNDATION (54 FT CCTV POLE)	EACH	1	$12,000.00	$12,000
7310373	POLE FOUNDATION (TROMBONE 35' SMA AND LOWER)	EACH	4	$8,000.00	$32,000
7310374	POLE FOUNDATION (TROMBONE 40' SMA TO 45' SMA)	EACH	7	$8,500.00	$59,500
7310375	POLE FOUNDATION (TROMBONE 50' SMA TO 55' SMA)	EACH	5	$9,000.00	$45,000
7310381	POLE FOUNDATION (APS 6'-0" FLUSH)	EACH	84	$800.00	$67,200
7310551	MAST ARM (20 FT.) (TAPERED)	EACH	2	$1,200.00	$2,400
7310582	MAST ARM (35 FT.) (SPECIAL)	EACH	2	$29,000.00	$58,000
7310592	MAST ARM (40 FT.) (SPECIAL)	EACH	2	$32,500.00	$65,000
7310602	MAST ARM (45 FT.) (SPECIAL)	EACH	5	$36,000.00	$180,000
7310650	MAST ARM (SINGLE APS 8'X8' HI RISE)	EACH	37	$600.00	$22,200
7310652	MAST ARM (30 FT.) (SPECIAL)	EACH	47	$1,000.00	$47,000
7310653	MAST ARM (50 FT.) (SPECIAL)	EACH	2	$42,000.00	$84,000
7310654	MAST ARM (55 FT.) (SPECIAL)	EACH	3	$45,000.00	$135,000
7320050	ELECTRICAL CONDUIT (2") (PVC)	L.FT.	2,070	$25.00	$51,750
7320060	ELECTRICAL CONDUIT (2 1/2") (PVC)	L.FT.	60	$35.00	$2,100
7320061	ELECTRIC CONDUIT (2 1/2") (PVC) (APS)	L.FT.	12,100	$18.00	$217,800
7320070	ELECTRICAL CONDUIT (3") (PVC)	L.FT.	810	$38.00	$30,780
7320071	ELECTRICAL CONDUIT (3") (PVC) (APS)	L.FT.	210	$23.00	$4,830
7320072	ELECTRICAL CONDUIT (3 - 3") (PVC)	L.FT.	1,815	$70.00	$127,050
7320073	ELECTRICAL CONDUIT (2 - 3") (PVC)	L.FT.	1,615	$65.00	$104,975
7320220	ELECTRICAL CONDUIT (1")	L.FT.	840	$12.00	$10,080
7320275	ELECTRICAL CONDUIT (3 - 3") (PVC) (DIRECTIONAL DRILL)	L.FT.	2,175	$70.00	$152,250
7320291	ELECTRICAL CONDUIT (2 - 3") (HDPE DIRECTIONAL DRILL)	L.FT.	555	$25.00	$13,875
7320292	ELECTRICAL CONDUIT (2 - 3") (HDPE DIRECTIONAL DRILL)	L.FT.	1,625	$80.00	$130,000
7320293	ELECTRICAL CONDUIT (7-WAY MULTI-DUCT) (DIRECTIONAL DRIL)	L.FT.	1,290	$80.00	$103,200
7320303	CONDUIT IN BRIDGE (1")	L.FT.	400	$20.00	$8,000
7320421	PULL BOX (NO. 7) (WITH EXTENSION)	EACH	31	$1,200.00	$37,200
7320456	PULL BOX (SPLIT NO. 9)	EACH	2	$11,000.00	$22,000
7320460	PULL BOX (APS FURNISHED, CONTRACTOR INSTALL)	EACH	84	$500.00	$42,000
7320520	CONDUCTOR (NO. 8)	L.FT.	15,240	$1.25	$19,050
7320586	CONDUCTOR (INSULATED BOND) (NO. 8)	L.FT.	7,620	$1.25	$9,525
7320649	CONDUCTORS (JACKRABBIT & I-10)	L.SUM	1	$50,000.00	$50,000
7320652	CONDUCTORS (JACKRABBIT & NEW DEVELOPMENT)	L.SUM	1	$20,000.00	$20,000
7320653	CONDUCTORS (JACKRABBIT & ROOSEVELT)	L.SUM	1	$30,000.00	$30,000
7320745	REMOVE AND SALVAGE CONDUCTORS	L.SUM	1	$5,000.00	$5,000
7320765	SINGLE MODE FIBER OPTIC CABLE (12 FIBERS)	L.FT.	2,365	$5.00	$11,825
7320787	SINGLE MODE FIBER OPTIC CABLE (144 FIBERS)	L.FT.	1,700	$4.50	$7,650
7320794	FIBER OPTIC SPLICE CLOSURE (FMS)	EACH	5	$3,000.00	$15,000
7330060	TRAFFIC SIGNAL FACE (TYPE F)	EACH	25	$500.00	$12,500
7330061	TRAFFIC SIGNAL FACE (TYPE F) (MODIFIED)	EACH	33	$600.00	$19,800
7330135	TRAFFIC SIGNAL FACE (TYPE R)	EACH	18	$600.00	$10,800
7330137	TRAFFIC SIGNAL FACE (TYPE R) (MODIFIED)	EACH	18	$600.00	$10,800
7330210	TRAFFIC SIGNAL FACE (PEDESTRIAN) (MAN/HAND)	EACH	26	$500.00	$13,000
7330220	PEDESTRIAN PUSH BUTTON	EACH	26	$500.00	$13,000
7330310	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE II)	EACH	37	$150.00	$5,550
7330330	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE IV)	EACH	8	$500.00	$4,000
7330340	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE V)	EACH	18	$500.00	$9,000
7330400	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE XI)	EACH	22	$400.00	$8,800
7330630	REMOVE TRAFFIC SIGNALS	L.SUM	1	$20,000.00	$20,000

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Alt. 2B - Shifted DDI with Bridge Replacement

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
7340040	CONTROL CABINET (TYPE IV)	EACH	3	$25,000.00	$75,000
7340101	CONTROL CABINET (DETECTOR)	EACH	2	$10,000.00	$20,000
7340103	CONTROL CABINET (CCTV POLE MOUNTED)	EACH	1	$5,000.00	$5,000
7340105	CONTROL CABINET FOUNDATION	EACH	3	$1,500.00	$4,500
7340120	METER PEDESTAL CABINET	EACH	3	$3,000.00	$9,000
7340252	CONTROLLER (MODEL 2070)	EACH	2	$10,000.00	$20,000
7340306	METER PEDESTAL FOUNDATION	EACH	3	$1,000.00	$3,000
7340401	TRANSFORMER FOUNDATION	EACH	3	$500.00	$1,500
7340411	FOUNDATION (CONTROLLER AND TRANSFORMER)	EACH	2	$1,200.00	$2,400
7350030	LOOP DETECTOR FOR TRAFFIC SURVEILLANCE (6'X6')	EACH	16	$1,000.00	$16,000
7350051	DETECTOR CARD	EACH	10	$250.00	$2,500
7350165	LOOP DETECTOR LEAD-IN CABLE	L.FT.	2,280	$2.00	$4,560
7360104	LUMINAIRE (140W LED) (HORIZONTAL MOUNT) (CITY OF BUCKEYE)	EACH	153	$800.00	$122,400
7360113	LUMINAIRE (LED) (UNDERDECK 15L)	EACH	4	$1,000.00	$4,000
7360160	POWER SUPPLY (BATTERY BACKUP)	EACH	3	$12,000.00	$36,000
7360240	LOAD CENTER CABINET FOUNDATION	EACH	1	$3,000.00	$3,000
7360243	LOAD CENTER CABINET (TYPE IV) (MODIFIED) (120/240v)	EACH	1	$12,000.00	$12,000
7370430	TRANSFORMER (3KVA)	EACH	5	$2,000.00	$10,000
7370452	MISCELLANEOUS ELECTRICAL (ELECTRICAL RECORD DRAWINGS)	L.SUM	1	$2,000.00	$2,000
7370652	FIBER OPTIC EQUIPMENT (NETWORK INTERFACE DEVICE)	EACH	5	$750.00	$3,750
7370705	CCTV FIELD EQUIPMENT	EACH	1	$8,500.00	$8,500
8030106	DECOMPOSED GRANITE (MEDIANS, BASINS, ROW, RAMPS)	SQ.YD.	106,162	$12.00	$1,273,944
9080001	CONCRETE CURB (C-05.10) (TYPE A)	L.FT.	3,377	$22.00	$74,294
9080084	CONCRETE CURB AND GUTTER (C-05.10) (Type C)	L.FT.	6,100	$40.00	$244,000
9080085	CONCRETE CURB AND GUTTER (C-05.10) (Type D)	L.FT.	2,452	$40.00	$98,080
9080101	CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220-1)	L.FT.	16,096	$40.00	$643,840
9080107	CONCRETE SINGLE CURB (MAG DET. 222)	L.FT.	151	$75.00	$11,325
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	56,385	$8.00	$451,080
9080286	CONCRETE SIDEWALK RAMP (C-05.30, MODIFIED)	EACH	6	$6,500.00	$39,000
9080287	CONCRETE SIDEWALK RAMP (MAG DET. 236)	EACH	36	$6,500.00	$234,000
9100009	CONCRETE BARRIER (C-10.52)	L.FT.	2,591	$180.00	$466,380
9210011	MEDIAN PAVING	SQ.YD.	7,467	$150.00	$1,120,050
9240015	FORCE ACCOUNT WORK (PROVIDE ELECTRICAL SERVICES)	L.SUM	1	$20,000.00	$20,000
9240051	MISCELLANEOUS WORK (THERMAL CAMERA DETECTION SYSTEM, JACKRABBIT & I-10)	L.SUM	1	$40,000.00	$40,000
9240121	MISCELLANEOUS WORK (PIPE PENETRATION C-13.80)	EACH	12	$3,000.00	$36,000
9240133	MISCELLANEOUS WORK (BATTERY BACKUP FOUNDATION)	EACH	3	$1,500.00	$4,500
9240134	MISCELLANEOUS WORK (GIG-E SWITCH)	EACH	5	$2,500.00	$12,500
9240136	MISCELLANEOUS WORK (40 FT THERMAL DETECTION POLE AND FOUNDATION)	EACH	2	$8,000.00	$16,000
9240144	MISCELLANEOUS WORK (COB 7-WAY MULTI-DUCT) (TRENCHED)	L.FT.	4,240	$25.00	$106,000
9240145	MISCELLANEOUS WORK (COB 7-WAY MULTI-DUCT) (DIRECTIONAL DRILL)	L.FT.	825	$80.00	$66,000
9240146	MISCELLANEOUS WORK (COB CONDUIT, STD STL 66102) (TRENCHED)	L.FT.	40	$35.00	$1,400
9240148	MISCELLANEOUS WORK (COB SIGNLE MODE FIBER OPTIC CABLE (144 FIBERS)	L.FT.	5,565	$5.00	$27,825
9240173	MISCELLANEOUS WORK (COB NO. 9 PULL BOX, STD DTL 66124)	EACH	6	$10,000.00	$60,000
9240174	MISCELLANEOUS WORK (COB 6 COUNT BRANCH FIBER AND TERMINATION PANEL)	EACH	2	$2,800.00	$5,600
9240175	MISCELLANEOUS WORK (COB FIBER OPTIC SPLICE CLOSURE)	EACH	3	$3,000.00	$9,000
9240176	MISCELLANEOUS WORK (COB FIELD HARDENED ETHERNET SWITCH) (RS900G)	EACH	2	$3,500.00	$7,000
9240178	MISCELLANEOUS WORK (PAINT MEDIAN CURB NOSE, COB DETAIL 63220)	EACH	13	$150.00	$1,950
9999910	LUMP SUM (JACKRABBIT TRAIL TIOP)	L.SUM	1	$10,801,238.00	$10,801,238
9999911	LUMP SUM (CONCRETE BOX CULVERTS)	L.SUM	1	$1,631,955.00	$1,631,955
				ITEM TOTAL	**$31,574,149**

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Alt. 2B - Shifted DDI with Bridge Replacement

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
	PROJECT WIDE				
	Mobilization (10%)				$3,157,415
	Dust and Water Palliative (1%)				$315,742
	Contractor Quality Control (2%)				$631,483
	Construction Surveying (1.5%)				$473,613
	Maintenance and Protection of Traffic (10%)				$3,157,415
			PROJECT WIDE SUBTOTAL		**$7,735,668**
	Unidentified Item Allowance (20%)				$7,861,964
			PROJECT WIDE TOTAL		**$15,597,632**
	OTHER COSTS				
	Utility Relocations				$1,000,000
	Public Relations				$15,000
	Construction Engineering (9%)				$4,245,461
	Construction Contingencies (5%)				$2,358,590
	Consultant Services (1%)				$471,718
	PCCP Materials Quality Incentive ($2 per Sq Yd)			40,547 SQ. YD.	$81,094
	PCCP Smoothness Incentive ($3,500 per Lane-Mile)			5.8 Lane-Miles	$40,317
	AC Quality Incentive ($3 per Ton)			14,900 Tons	$44,700
	Right-Of-Way and Easement Acquisitions			6.4 Acres	$23,600,000
			OTHER COSTS TOTAL		**$31,856,880**
	SUMMARY				
	ITEM TOTAL				**$31,574,149**
	PROJECT WIDE				**$15,597,632**
	OTHER COST TOTAL				**$31,856,880**
	SUBTOTAL PROJECT COST				**$79,028,661**
	INDIRECT COST ALLOCATION (10.70%)				**$8,456,067**
			TOTAL PROJECT COST		**$87,484,727**

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 3A - Shifted TDI with Bridge Extension

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
2010011	CLEARING AND GRUBBING	ACRE	23	$2,500.00	$57,500
2020020	REMOVAL OF CONCRETE CURB	L.FT.	782	$8.00	$6,256
2020021	REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	471	$9.00	$4,239
2020023	REMOVE EXISTING CONCRETE MEDIAN BARRIER	L.FT.	155	$50.00	$7,750
2020025	REMOVAL OF CONCRETE SIDEWALKS, DRIVEWAYS AND SLABS	SQ.FT.	8,391	$4.00	$33,564
2020029	REMOVAL OF ASPHALTIC CONCRETE PAVEMENT	SQ.YD.	102,829	$7.00	$719,803
2020031	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	2,609	$28.00	$73,052
2020052	REMOVE (MASONRY WALL)	L.FT.	20	$50.00	$1,000
2020071	REMOVE GUARD RAIL	L.FT.	2,134	$6.00	$12,804
2020101	REMOVE FENCE	L.FT.	3,796	$15.00	$56,940
2020115	REMOVE (CATTLE GUARD)	EACH	4	$1,000.00	$4,000
2020116	REMOVE (FENCE GATE)	EACH	12	$550.00	$6,600
2020156	REMOVE (THRIE BEAM TRANSITION)	EACH	1	$850.00	$850
2020157	REMOVE (SIGN ASSEMBLY)	EACH	50	$300.00	$15,000
2020158	REMOVE (SIGN STRUCTURES)	EACH	1	$10,000.00	$10,000
2030301	ROADWAY EXCAVATION	CU.YD.	41,255	$20.00	$825,100
2030401	DRAINAGE EXCAVATION	CU.YD.	7,070	$15.00	$106,050
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	18,455	$90.00	$1,660,950
4010009	PORTLAND CEMENT CONCRETE PAVEMENT (9")	SQ.YD.	16,626	$80.00	$1,330,080
4010012	PORTLAND CEMENT CONCRETE PAVEMENT (12")	SQ.YD.	14,041	$90.00	$1,263,690
4010019	PORTLAND CEMENT CONCRETE PAVEMENT (13") (DOWELED)	SQ.YD.	822	$110.00	$90,420
4040111	BITUMINOUS TACK COAT	TON	16	$550.00	$8,800
4040116	APPLY BITUMINOUS TACK COAT	HOUR	61	$275.00	$16,775
4040282	ASPHALT BINDER (PG 76-16)	TON	748	$900.00	$673,200
4140040	ASPHALTIC CONCRETE FRICTION COURSE (ASPHALT-RUBBER)	TON	25	$70.00	$1,750
4140042	ASPHALT RUBBER MATERIAL (FOR AR-ACFC)	TON	3	$715.00	$2,145
4140044	MINERAL ADMIXTURE (FOR AR-ACFC)	TON	1	$99.00	$99
4160004	ASPHALTIC CONCRETE (3/4" MIX) (END PRODUCT) (SPECIAL MIX)	TON	14,943	$100.00	$1,494,300
4160031	MINERAL ADMIXTURE	TON	141	$90.00	$12,690
5012518	STORM DRAIN PIPE, 18"	L.FT.	1,787	$150.00	$268,050
5012524	STORM DRAIN PIPE, 24"	L.FT.	196	$200.00	$39,200
5012530	STORM DRAIN PIPE, 30"	L.FT.	34	$225.00	$7,650
5030025	CONCRETE CATCH BASIN (C-15.20) ONE 11.5' WING, H=8' OR LESS	EACH	10	$11,000.00	$110,000
5030601	CATCH BASIN (COB B-510A, L=10)	EACH	17	$12,000.00	$204,000
5030602	CATCH BASIN (ADOT C-15.91)	EACH	3	$8,000.00	$24,000
5030606	CONCRETE CATCH BASIN (ADOT C-15.92)	EACH	4	$8,000.00	$32,000
5030608	CONCRETE CATCH BASIN (ADOT C-15.80)	EACH	3	$8,500.00	$25,500
5050001	MANHOLE (C-18.10) (NO. 1) (FOR PIPES 6" TO 36")	EACH	2	$15,000.00	$30,000
6016090	HEADWALL (ADOT SD 6.30)	EACH	5	$10,000.00	$50,000
6016091	HEADWALL (COB DET 51200)	EACH	15	$12,000.00	$180,000
6060057	BRIDGE SIGN STRUCTURE (TAPERED TUBE, SINGLE BEAM, 50' TO 70')	EACH	4	$25,000.00	$100,000
6060074	FOUNDATION FOR BRIDGE SIGN STRUCTURE (TAPERED TUBE)	EACH	4	$8,000.00	$32,000
6060132	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 2C)	EACH	1	$50,000.00	$50,000
6060255	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 2C)	EACH	1	$13,000.00	$13,000
6070055	SIGN POST (PERFORATED) (2 1/2 S)	L.FT.	200	$20.00	$4,000
6070060	FOUNDATION FOR SIGN POST (CONCRETE)	EACH	40	$20.00	$800
6080005	REGULATORY, WARNING, OR MARKER SIGN PANEL	SQ.FT.	400	$30.00	$12,000
6080018	EXTRUDED ALUMINUM SIGN PANEL	SQ.FT.	385	$39.00	$15,015
7040005	PAVEMENT MARKING (WHITE EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	48,703	$0.70	$34,092
7040006	PAVEMENT MARKING (YELLOW EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	30	$0.70	$21
7040072	PAVEMENT MARKING (TRANSVERSE) (THERMOPLASTIC) (ALKYD) (0.090")	L.FT.	16,350	$2.75	$44,963
7040073	PAVEMENT LEGEND (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	42	$160.00	$6,720
7040074	PAVEMENT SYMBOL (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	66	$160.00	$10,560
7060015	PAVEMENT MARKER, RAISED, TYPE D	EACH	104	$6.00	$624
7060018	PAVEMENT MARKER, RAISED, TYPE G	EACH	969	$3.00	$2,907
7080201	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED) (WHITE)	L.FT.	65,053	$1.10	$71,558
7080206	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED SYMBOL) (ARROW)	EACH	66	$90.00	$5,940
7080208	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED LEGEND) (ONLY)	EACH	42	$85.00	$3,570

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 3A - Shifted TDI with Bridge Extension

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
7310011	POLE (TYPE A) (8')	EACH	3	$1,300.00	$3,900
7310012	POLE (TYPE A) (10')	EACH	4	$1,500.00	$6,000
7310070	POLE (TYPE G) (STANDARD BASE)	EACH	10	$3,500.00	$35,000
7310186	POLE (SPECIAL) (APS 1946.S32, 32 FT)	EACH	84	$2,000.00	$168,000
7310189	POLE (SPECIAL) (TROMBONE TYPE B W/ 20FT MAST ARM)	EACH	12	$32,000.00	$384,000
7310191	POLE (55 FT CCTV POLE W/LOWERING DEVICE)	EACH	1	$18,000.00	$18,000
7310200	POLE FOUNDATION (TYPE A)	EACH	7	$1,000.00	$7,000
7310260	POLE FOUNDATION (TYPE G) (STANDARD BASE)	EACH	10	$1,700.00	$17,000
7310372	POLE FOUNDATION (54 FT CCTV POLE)	EACH	1	$12,000.00	$12,000
7310373	POLE FOUNDATION (TROMBONE 35' SMA AND LOWER)	EACH	2	$8,000.00	$16,000
7310374	POLE FOUNDATION (TROMBONE 40' SMA TO 45' SMA)	EACH	4	$8,500.00	$34,000
7310375	POLE FOUNDATION (TROMBONE 50' SMA TO 55' SMA)	EACH	6	$9,000.00	$54,000
7310381	POLE FOUNDATION (APS 6'-0" FLUSH)	EACH	84	$800.00	$67,200
7310551	MAST ARM (20 FT.) (TAPERED)	EACH	10	$1,200.00	$12,000
7310582	MAST ARM (35 FT.) (SPECIAL)	EACH	2	$29,000.00	$58,000
7310592	MAST ARM (40 FT.) (SPECIAL)	EACH	2	$32,500.00	$65,000
7310602	MAST ARM (45 FT.) (SPECIAL)	EACH	2	$36,000.00	$72,000
7310650	MAST ARM (SINGLE APS 8'X8' HI RISE)	EACH	37	$600.00	$22,200
7310652	MAST ARM (30 FT.) (SPECIAL)	EACH	47	$25,000.00	$1,175,000
7310653	MAST ARM (50 FT.) (SPECIAL)	EACH	2	$42,000.00	$84,000
7310654	MAST ARM (55 FT.) (SPECIAL)	EACH	4	$45,000.00	$180,000
7320050	ELECTRICAL CONDUIT (2") (PVC)	L.FT.	1,770	$25.00	$44,250
7320060	ELECTRICAL CONDUIT (2 1/2") (PVC)	L.FT.	60	$35.00	$2,100
7320061	ELECTRIC CONDUIT (2 1/2") (PVC) (APS)	L.FT.	12,100	$18.00	$217,800
7320070	ELECTRICAL CONDUIT (3") (PVC)	L.FT.	810	$38.00	$30,780
7320071	ELECTRICAL CONDUIT (3") (PVC) (APS)	L.FT.	15	$23.00	$345
7320072	ELECTRICAL CONDUIT (3 - 3") (PVC)	L.FT.	765	$70.00	$53,550
7320073	ELECTRICAL CONDUIT (2 - 3") (PVC)	L.FT.	1,615	$65.00	$104,975
7320220	ELECTRICAL CONDUIT (1")	L.FT.	840	$12.00	$10,080
7320275	ELECTRICAL CONDUIT (3 - 3") (PVC) (DIRECTIONAL DRILL)	L.FT.	1,750	$70.00	$122,500
7320291	ELECTRICAL CONDUIT (2 - 3") (HDPE DIRECTIONAL DRILL)	L.FT.	200	$25.00	$5,000
7320292	ELECTRICAL CONDUIT (2 - 3") (HDPE DIRECTIONAL DRILL)	L.FT.	1,625	$80.00	$130,000
7320293	ELECTRICAL CONDUIT (7-WAY MULTI-DUCT) (DIRECTIONAL DRIL)	L.FT.	1,290	$80.00	$103,200
7320303	CONDUIT IN BRIDGE (1")	L.FT.	400	$20.00	$8,000
7320421	PULL BOX (NO. 7) (WITH EXTENSION)	EACH	19	$1,200.00	$22,800
7320456	PULL BOX (SPLIT NO. 9)	EACH	2	$11,000.00	$22,000
7320460	PULL BOX (APS FURNISHED, CONTRACTOR INSTALL)	EACH	84	$500.00	$42,000
7320520	CONDUCTOR (NO. 8)	L.FT.	15,240	$1.25	$19,050
7320586	CONDUCTOR (INSULATED BOND) (NO. 8)	L.FT.	7,620	$1.25	$9,525
7320649	CONDUCTORS (JACKRABBIT & I-10)	L.SUM	1	$50,000.00	$50,000
7320652	CONDUCTORS (JACKRABBIT & NEW DEVELOPMENT)	L.SUM	1	$20,000.00	$20,000
7320653	CONDUCTORS (JACKRABBIT & ROOSEVELT)	L.SUM	1	$30,000.00	$30,000
7320745	REMOVE AND SALVAGE CONDUCTORS	L.SUM	1	$5,000.00	$5,000
7320765	SINGLE MODE FIBER OPTIC CABLE (12 FIBERS)	L.FT.	2,365	$5.00	$11,825
7320787	SINGLE MODE FIBER OPTIC CABLE (144 FIBERS)	L.FT.	1,700	$4.50	$7,650
7320794	FIBER OPTIC SPLICE CLOSURE (FMS)	EACH	5	$3,000.00	$15,000
7330060	TRAFFIC SIGNAL FACE (TYPE F)	EACH	53	$500.00	$26,500
7330135	TRAFFIC SIGNAL FACE (TYPE R)	EACH	14	$600.00	$8,400
7330210	TRAFFIC SIGNAL FACE (PEDESTRIAN) (MAN/HAND)	EACH	14	$500.00	$7,000
7330220	PEDESTRIAN PUSH BUTTON	EACH	14	$500.00	$7,000
7330310	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE II)	EACH	37	$150.00	$5,550
7330330	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE IV)	EACH	2	$500.00	$1,000
7330340	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE V)	EACH	14	$500.00	$7,000
7330400	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE XI)	EACH	28	$400.00	$11,200
7330630	REMOVE TRAFFIC SIGNALS	L.SUM	1	$20,000.00	$20,000
7340040	CONTROL CABINET (TYPE IV)	EACH	3	$25,000.00	$75,000
7340101	CONTROL CABINET (DETECTOR)	EACH	2	$10,000.00	$20,000
7340103	CONTROL CABINET (CCTV POLE MOUNTED)	EACH	1	$5,000.00	$5,000

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 3A - Shifted TDI with Bridge Extension

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
7340105	CONTROL CABINET FOUNDATION	EACH	3	$1,500.00	$4,500
7340120	METER PEDESTAL CABINET	EACH	3	$3,000.00	$9,000
7340252	CONTROLLER (MODEL 2070)	EACH	2	$10,000.00	$20,000
7340306	METER PEDESTAL FOUNDATION	EACH	3	$1,000.00	$3,000
7340401	TRANSFORMER FOUNDATION	EACH	3	$500.00	$1,500
7340411	FOUNDATION (CONTROLLER AND TRANSFORMER)	EACH	2	$1,200.00	$2,400
7350030	LOOP DETECTOR FOR TRAFFIC SURVEILLANCE (6'X6')	EACH	16	$1,000.00	$16,000
7350051	DETECTOR CARD	EACH	10	$250.00	$2,500
7350165	LOOP DETECTOR LEAD-IN CABLE	L.FT.	2,280	$2.00	$4,560
7360104	LUMINAIRE (140W LED) (HORIZONTAL MOUNT) (CITY OF BUCKEYE)	EACH	156	$800.00	$124,800
7360113	LUMINAIRE (LED) (UNDERDECK 15L)	EACH	4	$1,000.00	$4,000
7360160	POWER SUPPLY (BATTERY BACKUP)	EACH	3	$12,000.00	$36,000
7360240	LOAD CENTER CABINET FOUNDATION	EACH	1	$3,000.00	$3,000
7360243	LOAD CENTER CABINET (TYPE IV) (MODIFIED) (120/240v)	EACH	1	$12,000.00	$12,000
7370430	TRANSFORMER (3KVA)	EACH	5	$2,000.00	$10,000
7370452	MISCELLANEOUS ELECTRICAL (ELECTRICAL RECORD DRAWINGS)	L.SUM	1	$2,000.00	$2,000
7370652	FIBER OPTIC EQUIPMENT (NETWORK INTERFACE DEVICE)	EACH	5	$750.00	$3,750
7370705	CCTV FIELD EQUIPMENT	EACH	1	$8,500.00	$8,500
8030106	DECOMPOSED GRANITE (MEDIANS, BASINS, ROW, RAMPS)	SQ.YD.	110,856	$12.00	$1,330,272
9080001	CONCRETE CURB (C-05.10) (TYPE A)	L.FT.	1,179	$22.00	$25,938
9080084	CONCRETE CURB AND GUTTER (C-05.10) (Type C)	L.FT.	9,485	$40.00	$379,400
9080085	CONCRETE CURB AND GUTTER (C-05.10) (Type D)	L.FT.	4,052	$40.00	$162,080
9080101	CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220-1)	L.FT.	16,562	$40.00	$662,480
9080107	CONCRETE SINGLE CURB (MAG DET. 222)	L.FT.	100	$75.00	$7,500
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	55,960	$8.00	$447,680
9080286	CONCRETE SIDEWALK RAMP (C-05.30, MODIFIED)	EACH	6	$6,500.00	$39,000
9080287	CONCRETE SIDEWALK RAMP (MAG DET. 236)	EACH	36	$6,500.00	$234,000
9100053	CONCRETE BRIDGE BARRIER TRANSITION	EACH	1	$30,000.00	$30,000
9100201	CONCRETE MEDIAN BARRIER	L.FT.	35	$150.00	$5,250
9210011	MEDIAN PAVING	SQ.YD.	7,659	$150.00	$1,148,850
9240015	FORCE ACCOUNT WORK (PROVIDE ELECTRICAL SERVICES)	L.SUM	1	$20,000.00	$20,000
9240051	MISCELLANEOUS WORK (THERMAL CAMERA DETECTION SYSTEM, JACKRABBIT & I-10)	L.SUM	1	$40,000.00	$40,000
9240121	MISCELLANEOUS WORK (PIPE PENETRATION C-13.80)	EACH	12	$3,000.00	$36,000
9240133	MISCELLANEOUS WORK (BATTERY BACKUP FOUNDATION)	EACH	3	$1,500.00	$4,500
9240134	MISCELLANEOUS WORK (GIG-E SWITCH)	EACH	5	$2,500.00	$12,500
9240136	MISCELLANEOUS WORK (40 FT THERMAL DETECTION POLE AND FOUNDATION)	EACH	2	$8,000.00	$16,000
9240144	MISCELLANEOUS WORK (COB 7-WAY MULTI-DUCT) (TRENCHED)	L.FT.	4,240	$25.00	$106,000
9240145	MISCELLANEOUS WORK (COB 7-WAY MULTI-DUCT) (DIRECTIONAL DRILL)	L.FT.	825	$80.00	$66,000
9240146	MISCELLANEOUS WORK (COB CONDUIT, STD STL 66102) (TRENCHED)	L.FT.	40	$35.00	$1,400
9240148	MISCELLANEOUS WORK (COB SIGNLE MODE FIBER OPTIC CABLE (144 FIBERS)	L.FT.	5,565	$5.00	$27,825
9240173	MISCELLANEOUS WORK (COB NO. 9 PULL BOX, STD DTL 66124)	EACH	6	$10,000.00	$60,000
9240174	MISCELLANEOUS WORK (COB 6 COUNT BRANCH FIBER AND TERMINATION PANEL)	EACH	2	$2,800.00	$5,600
9240175	MISCELLANEOUS WORK (COB FIBER OPTIC SPLICE CLOSURE)	EACH	3	$3,000.00	$9,000
9240176	MISCELLANEOUS WORK (COB FIELD HARDENED ETHERNET SWITCH) (RS900G)	EACH	2	$3,500.00	$7,000
9240178	MISCELLANEOUS WORK (PAINT MEDIAN CURB NOSE, COB DETAIL 63220)	EACH	13	$150.00	$1,950
9999910	LUMP SUM (JACKRABBIT TRAIL TIOP)	L.SUM	1	$3,846,860.00	$3,846,860
9999911	LUMP SUM (CONCRETE BOX CULVERTS)	L.SUM	1	$614,098.00	$614,098
				ITEM TOTAL	**$23,259,650**

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 3A - Shifted TDI with Bridge Extension

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
	PROJECT WIDE				
	Mobilization (10%)				$2,325,965
	Dust and Water Palliative (1%)				$232,597
	Contractor Quality Control (2%)				$465,193
	Construction Surveying (1.5%)				$348,895
	Maintenance and Protection of Traffic (10%)				$2,325,965
			PROJECT WIDE SUBTOTAL		**$5,698,615**
	Unidentified Item Allowance (20%)				$5,791,653
			PROJECT WIDE TOTAL		**$11,490,268**
	OTHER COSTS				
	Utility Relocations				$1,000,000
	Public Relations				$15,000
	Construction Engineering (9%)				$3,127,493
	Construction Contingencies (5%)				$1,737,496
	Consultant Services (1%)				$347,500
	PCCP Materials Quality Incentive ($2 per Sq Yd)			31,489 SQ. YD.	$62,978
	PCCP Smoothness Incentive ($3,500 per Lane-Mile)			4.5 Lane-Miles	$31,310
	AC Quality Incentive ($3 per Ton)			14,968 Tons	$44,904
	Right-Of-Way and Easement Acquisitions			6.9 Acres	$25,530,000
			OTHER COSTS TOTAL		**$31,896,681**
	SUMMARY				
	ITEM TOTAL				**$23,259,650**
	PROJECT WIDE				**$11,490,268**
	OTHER COST TOTAL				**$31,896,681**
	SUBTOTAL PROJECT COST				**$66,646,599**
	INDIRECT COST ALLOCATION (10.70%)				**$7,131,186**
			TOTAL PROJECT COST		**$73,777,785**

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 4 - TDI on Section Line with Bridge Replacement

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
2010011	CLEARING AND GRUBBING	ACRE	6	$2,500.00	$15,000
2020020	REMOVAL OF CONCRETE CURB	L.FT.	532	$8.00	$4,256
2020021	REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	486	$9.00	$4,374
2020025	REMOVAL OF CONCRETE SIDEWALKS, DRIVEWAYS AND SLABS	SQ.FT.	5,619	$4.00	$22,476
2020029	REMOVAL OF ASPHALTIC CONCRETE PAVEMENT	SQ.YD.	44,410	$7.00	$310,870
2020031	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	876	$28.00	$24,528
2020052	REMOVE (MASONRY WALL)	L.FT.	20	$50.00	$1,000
2020071	REMOVE GUARD RAIL	L.FT.	2,044	$6.00	$12,264
2020101	REMOVE FENCE	L.FT.	3,937	$15.00	$59,055
2020115	REMOVE (CATTLE GUARD)	EACH	4	$1,000.00	$4,000
2020116	REMOVE (FENCE GATE)	EACH	12	$550.00	$6,600
2020156	REMOVE (THRIE BEAM TRANSITION)	EACH	2	$850.00	$1,700
2020157	REMOVE (SIGN ASSEMBLY)	EACH	50	$300.00	$15,000
2020158	REMOVE (SIGN STRUCTURES)	EACH	1	$10,000.00	$10,000
2030301	ROADWAY EXCAVATION	CU.YD.	51,532	$20.00	$1,030,640
2030401	DRAINAGE EXCAVATION	CU.YD.	8,831	$15.00	$132,465
2030402	DRAINAGE EXCAVATION (CHANNEL)	CU.YD.	6,105	$25.00	$152,625
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	20,021	$90.00	$1,801,890
4010009	PORTLAND CEMENT CONCRETE PAVEMENT (9")	SQ.YD.	17,801	$80.00	$1,424,080
4010012	PORTLAND CEMENT CONCRETE PAVEMENT (12")	SQ.YD.	13,839	$90.00	$1,245,510
4010019	PORTLAND CEMENT CONCRETE PAVEMENT (13") (DOWELED)	SQ.YD.	13,315	$110.00	$1,464,650
4040111	BITUMINOUS TACK COAT	TON	16	$550.00	$8,800
4040116	APPLY BITUMINOUS TACK COAT	HOUR	61	$275.00	$16,775
4040282	ASPHALT BINDER (PG 76-16)	TON	752	$900.00	$676,800
4140040	ASPHALTIC CONCRETE FRICTION COURSE (ASPHALT-RUBBER)	TON	393	$70.00	$27,510
4140042	ASPHALT RUBBER MATERIAL (FOR AR-ACFC)	TON	38	$715.00	$27,170
4140044	MINERAL ADMIXTURE (FOR AR-ACFC)	TON	4	$99.00	$396
4160004	ASPHALTIC CONCRETE (3/4" MIX) (END PRODUCT) (SPECIAL MIX)	TON	15,012	$100.00	$1,501,200
4160031	MINERAL ADMIXTURE	TON	142	$90.00	$12,780
5012518	STORM DRAIN PIPE, 18"	L.FT.	1,787	$150.00	$268,050
5012524	STORM DRAIN PIPE, 24"	L.FT.	196	$200.00	$39,200
5012530	STORM DRAIN PIPE, 30"	L.FT.	34	$225.00	$7,650
5030025	CONCRETE CATCH BASIN (C-15.20) ONE 11.5' WING, H=8' OR LESS	EACH	10	$11,000.00	$110,000
5030601	CATCH BASIN (COB B-510A, L=10)	EACH	17	$12,000.00	$204,000
5030602	CATCH BASIN (ADOT C-15.91)	EACH	3	$8,000.00	$24,000
5030606	CONCRETE CATCH BASIN (ADOT C-15.92)	EACH	4	$8,000.00	$32,000
5030608	CONCRETE CATCH BASIN (ADOT C-15.80)	EACH	3	$8,500.00	$25,500
5050001	MANHOLE (C-18.10) (NO. 1) (FOR PIPES 6" TO 36")	EACH	2	$15,000.00	$30,000
6016090	HEADWALL (ADOT SD 6.30)	EACH	5	$10,000.00	$50,000
6016091	HEADWALL (COB DET 51200)	EACH	15	$12,000.00	$180,000
6060057	BRIDGE SIGN STRUCTURE (TAPERED TUBE, SINGLE BEAM, 50' TO 70')	EACH	4	$25,000.00	$100,000
6060074	FOUNDATION FOR BRIDGE SIGN STRUCTURE (TAPERED TUBE)	EACH	4	$8,000.00	$32,000
6060132	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 2C)	EACH	1	$50,000.00	$50,000
6060255	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 2C)	EACH	1	$13,000.00	$13,000
6070055	SIGN POST (PERFORATED) (2 1/2 S)	L.FT.	200	$20.00	$4,000
6070060	FOUNDATION FOR SIGN POST (CONCRETE)	EACH	40	$20.00	$800
6080005	REGULATORY, WARNING, OR MARKER SIGN PANEL	SQ.FT.	400	$30.00	$12,000
6080018	EXTRUDED ALUMINUM SIGN PANEL	SQ.FT.	385	$39.00	$15,015
7040005	PAVEMENT MARKING (WHITE EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	48,703	$0.70	$34,092
7040006	PAVEMENT MARKING (YELLOW EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	30	$0.70	$21
7040072	PAVEMENT MARKING (TRANSVERSE) (THERMOPLASTIC) (ALKYD) (0.090")	L.FT.	16,350	$2.75	$44,963
7040073	PAVEMENT LEGEND (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	42	$160.00	$6,720
7040074	PAVEMENT SYMBOL (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	66	$160.00	$10,560
7060015	PAVEMENT MARKER, RAISED, TYPE D	EACH	104	$6.00	$624
7060018	PAVEMENT MARKER, RAISED, TYPE G	EACH	969	$3.00	$2,907
7080201	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED) (WHITE)	L.FT.	65,053	$1.10	$71,558
7080206	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED SYMBOL) (ARROW)	EACH	66	$90.00	$5,940
7080208	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED LEGEND) (ONLY)	EACH	42	$85.00	$3,570

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 4 - TDI on Section Line with Bridge Replacement

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
7310011	POLE (TYPE A) (8')	EACH	3	$1,300.00	$3,900
7310012	POLE (TYPE A) (10')	EACH	4	$1,500.00	$6,000
7310070	POLE (TYPE G) (STANDARD BASE)	EACH	10	$3,500.00	$35,000
7310186	POLE (SPECIAL) (APS 1946.S32, 32 FT)	EACH	84	$2,000.00	$168,000
7310189	POLE (SPECIAL) (TROMBONE TYPE B W/ 20FT MAST ARM)	EACH	12	$32,000.00	$384,000
7310191	POLE (55 FT CCTV POLE W/LOWERING DEVICE)	EACH	1	$18,000.00	$18,000
7310200	POLE FOUNDATION (TYPE A)	EACH	7	$1,000.00	$7,000
7310260	POLE FOUNDATION (TYPE G) (STANDARD BASE)	EACH	10	$1,700.00	$17,000
7310372	POLE FOUNDATION (54 FT CCTV POLE)	EACH	1	$12,000.00	$12,000
7310373	POLE FOUNDATION (TROMBONE 35' SMA AND LOWER)	EACH	2	$8,000.00	$16,000
7310374	POLE FOUNDATION (TROMBONE 40' SMA TO 45' SMA)	EACH	4	$8,500.00	$34,000
7310375	POLE FOUNDATION (TROMBONE 50' SMA TO 55' SMA)	EACH	6	$9,000.00	$54,000
7310381	POLE FOUNDATION (APS 6'-0" FLUSH)	EACH	84	$800.00	$67,200
7310551	MAST ARM (20 FT.) (TAPERED)	EACH	10	$1,200.00	$12,000
7310582	MAST ARM (35 FT.) (SPECIAL)	EACH	2	$29,000.00	$58,000
7310592	MAST ARM (40 FT.) (SPECIAL)	EACH	2	$32,500.00	$65,000
7310602	MAST ARM (45 FT.) (SPECIAL)	EACH	2	$36,000.00	$72,000
7310650	MAST ARM (SINGLE APS 8'X8' HI RISE)	EACH	37	$600.00	$22,200
7310652	MAST ARM (30 FT.) (SPECIAL)	EACH	47	$25,000.00	$1,175,000
7310653	MAST ARM (50 FT.) (SPECIAL)	EACH	2	$42,000.00	$84,000
7310654	MAST ARM (55 FT.) (SPECIAL)	EACH	4	$45,000.00	$180,000
7320050	ELECTRICAL CONDUIT (2") (PVC)	L.FT.	1,770	$25.00	$44,250
7320060	ELECTRICAL CONDUIT (2 1/2") (PVC)	L.FT.	60	$35.00	$2,100
7320061	ELECTRIC CONDUIT (2 1/2") (PVC) (APS)	L.FT.	12,100	$18.00	$217,800
7320070	ELECTRICAL CONDUIT (3") (PVC)	L.FT.	810	$38.00	$30,780
7320071	ELECTRICAL CONDUIT (3") (PVC) (APS)	L.FT.	15	$23.00	$345
7320072	ELECTRICAL CONDUIT (3 - 3") (PVC)	L.FT.	765	$70.00	$53,550
7320073	ELECTRICAL CONDUIT (2 - 3") (PVC)	L.FT.	1,615	$65.00	$104,975
7320220	ELECTRICAL CONDUIT (1")	L.FT.	840	$12.00	$10,080
7320275	ELECTRICAL CONDUIT (3 - 3") (PVC) (DIRECTIONAL DRILL)	L.FT.	1,750	$70.00	$122,500
7320291	ELECTRICAL CONDUIT (2 - 3") (HDPE DIRECTIONAL DRILL)	L.FT.	200	$25.00	$5,000
7320292	ELECTRICAL CONDUIT (2 - 3") (HDPE DIRECTIONAL DRILL)	L.FT.	1,625	$80.00	$130,000
7320293	ELECTRICAL CONDUIT (7-WAY MULTI-DUCT) (DIRECTIONAL DRIL)	L.FT.	1,290	$80.00	$103,200
7320303	CONDUIT IN BRIDGE (1")	L.FT.	400	$20.00	$8,000
7320421	PULL BOX (NO. 7) (WITH EXTENSION)	EACH	19	$1,200.00	$22,800
7320456	PULL BOX (SPLIT NO. 9)	EACH	2	$11,000.00	$22,000
7320460	PULL BOX (APS FURNISHED, CONTRACTOR INSTALL)	EACH	84	$500.00	$42,000
7320520	CONDUCTOR (NO. 8)	L.FT.	15,240	$1.25	$19,050
7320586	CONDUCTOR (INSULATED BOND) (NO. 8)	L.FT.	7,620	$1.25	$9,525
7320649	CONDUCTORS (JACKRABBIT & I-10)	L.SUM	1	$50,000.00	$50,000
7320652	CONDUCTORS (JACKRABBIT & NEW DEVELOPMENT)	L.SUM	1	$20,000.00	$20,000
7320653	CONDUCTORS (JACKRABBIT & ROOSEVELT)	L.SUM	1	$30,000.00	$30,000
7320745	REMOVE AND SALVAGE CONDUCTORS	L.SUM	1	$5,000.00	$5,000
7320765	SINGLE MODE FIBER OPTIC CABLE (12 FIBERS)	L.FT.	2,365	$5.00	$11,825
7320787	SINGLE MODE FIBER OPTIC CABLE (144 FIBERS)	L.FT.	1,700	$4.50	$7,650
7320794	FIBER OPTIC SPLICE CLOSURE (FMS)	EACH	5	$3,000.00	$15,000
7330060	TRAFFIC SIGNAL FACE (TYPE F)	EACH	53	$500.00	$26,500
7330135	TRAFFIC SIGNAL FACE (TYPE R)	EACH	14	$600.00	$8,400
7330210	TRAFFIC SIGNAL FACE (PEDESTRIAN) (MAN/HAND)	EACH	14	$500.00	$7,000
7330220	PEDESTRIAN PUSH BUTTON	EACH	14	$500.00	$7,000
7330310	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE II)	EACH	37	$150.00	$5,550
7330330	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE IV)	EACH	2	$500.00	$1,000
7330340	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE V)	EACH	14	$500.00	$7,000
7330400	TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE XI)	EACH	28	$400.00	$11,200
7330630	REMOVE TRAFFIC SIGNALS	L.SUM	1	$20,000.00	$20,000
7340040	CONTROL CABINET (TYPE IV)	EACH	3	$25,000.00	$75,000
7340101	CONTROL CABINET (DETECTOR)	EACH	2	$10,000.00	$20,000
7340103	CONTROL CABINET (CCTV POLE MOUNTED)	EACH	1	$5,000.00	$5,000

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 4 - TDI on Section Line with Bridge Replacement

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
7340105	CONTROL CABINET FOUNDATION	EACH	3	$1,500.00	$4,500
7340120	METER PEDESTAL CABINET	EACH	3	$3,000.00	$9,000
7340252	CONTROLLER (MODEL 2070)	EACH	2	$10,000.00	$20,000
7340306	METER PEDESTAL FOUNDATION	EACH	3	$1,000.00	$3,000
7340401	TRANSFORMER FOUNDATION	EACH	3	$500.00	$1,500
7340411	FOUNDATION (CONTROLLER AND TRANSFORMER)	EACH	2	$1,200.00	$2,400
7350030	LOOP DETECTOR FOR TRAFFIC SURVEILLANCE (6'X6')	EACH	16	$1,000.00	$16,000
7350051	DETECTOR CARD	EACH	10	$250.00	$2,500
7350165	LOOP DETECTOR LEAD-IN CABLE	L.FT.	2,280	$2.00	$4,560
7360104	LUMINAIRE (140W LED) (HORIZONTAL MOUNT) (CITY OF BUCKEYE)	EACH	156	$800.00	$124,800
7360113	LUMINAIRE (LED) (UNDERDECK 15L)	EACH	4	$1,000.00	$4,000
7360160	POWER SUPPLY (BATTERY BACKUP)	EACH	3	$12,000.00	$36,000
7360240	LOAD CENTER CABINET FOUNDATION	EACH	1	$3,000.00	$3,000
7360243	LOAD CENTER CABINET (TYPE IV) (MODIFIED) (120/240v)	EACH	1	$12,000.00	$12,000
7370430	TRANSFORMER (3KVA)	EACH	5	$2,000.00	$10,000
7370452	MISCELLANEOUS ELECTRICAL (ELECTRICAL RECORD DRAWINGS)	L.SUM	1	$2,000.00	$2,000
7370652	FIBER OPTIC EQUIPMENT (NETWORK INTERFACE DEVICE)	EACH	5	$750.00	$3,750
7370705	CCTV FIELD EQUIPMENT	EACH	1	$8,500.00	$8,500
8030106	DECOMPOSED GRANITE (MEDIANS, BASINS, ROW, RAMPS)	SQ.YD.	107,077	$12.00	$1,284,924
9080001	CONCRETE CURB (C-05.10) (TYPE A)	L.FT.	1,428	$22.00	$31,416
9080084	CONCRETE CURB AND GUTTER (C-05.10) (Type C)	L.FT.	9,525	$40.00	$381,000
9080085	CONCRETE CURB AND GUTTER (C-05.10) (Type D)	L.FT.	3,592	$40.00	$143,680
9080101	CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220-1)	L.FT.	16,830	$40.00	$673,200
9080107	CONCRETE SINGLE CURB (MAG DET. 222)	L.FT.	82	$75.00	$6,150
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	48,157	$8.00	$385,256
9080286	CONCRETE SIDEWALK RAMP (C-05.30, MODIFIED)	EACH	4	$6,500.00	$26,000
9080287	CONCRETE SIDEWALK RAMP (MAG DET. 236)	EACH	36	$6,500.00	$234,000
9201017	CONCRETE CHANNEL LINING (9")	SQ.YD.	7,326	$150.00	$1,098,900
9210011	MEDIAN PAVING	SQ.YD.	1,548	$150.00	$232,200
9240015	FORCE ACCOUNT WORK (PROVIDE ELECTRICAL SERVICES)	L.SUM	1	$20,000.00	$20,000
9240051	MISCELLANEOUS WORK (THERMAL CAMERA DETECTION SYSTEM, JACKRABBIT & I-10)	L.SUM	1	$40,000.00	$40,000
9240121	MISCELLANEOUS WORK (PIPE PENETRATION C-13.80)	EACH	12	$3,000.00	$36,000
9240133	MISCELLANEOUS WORK (BATTERY BACKUP FOUNDATION)	EACH	3	$1,500.00	$4,500
9240134	MISCELLANEOUS WORK (GIG-E SWITCH)	EACH	5	$2,500.00	$12,500
9240136	MISCELLANEOUS WORK (40 FT THERMAL DETECTION POLE AND FOUNDATION)	EACH	2	$8,000.00	$16,000
9240144	MISCELLANEOUS WORK (COB 7-WAY MULTI-DUCT) (TRENCHED)	L.FT.	4,240	$25.00	$106,000
9240145	MISCELLANEOUS WORK (COB 7-WAY MULTI-DUCT) (DIRECTIONAL DRILL)	L.FT.	825	$80.00	$66,000
9240146	MISCELLANEOUS WORK (COB CONDUIT, STD STL 66102) (TRENCHED)	L.FT.	40	$35.00	$1,400
9240148	MISCELLANEOUS WORK (COB SIGNLE MODE FIBER OPTIC CABLE (144 FIBERS)	L.FT.	5,565	$5.00	$27,825
9240173	MISCELLANEOUS WORK (COB NO. 9 PULL BOX, STD DTL 66124)	EACH	6	$10,000.00	$60,000
9240174	MISCELLANEOUS WORK (COB 6 COUNT BRANCH FIBER AND TERMINATION PANEL)	EACH	2	$2,800.00	$5,600
9240175	MISCELLANEOUS WORK (COB FIBER OPTIC SPLICE CLOSURE)	EACH	3	$3,000.00	$9,000
9240176	MISCELLANEOUS WORK (COB FIELD HARDENED ETHERNET SWITCH) (RS900G)	EACH	2	$3,500.00	$7,000
9240178	MISCELLANEOUS WORK (PAINT MEDIAN CURB NOSE, COB DETAIL 63220)	EACH	13	$150.00	$1,950
9999910	LUMP SUM (JACKRABBIT TRAIL TIOP)	L.SUM	1	$11,052,963.00	$11,052,963
9999911	LUMP SUM (CONCRETE BOX CULVERTS)	L.SUM	1	$1,432,550.00	$1,432,550
				ITEM TOTAL	**$32,827,488**

Arizona Department of Transportation

Estimated Engineering Construction Cost

Itemized Estimate - Project Wide

Project Number: F0486 01L

Location: I-10 Jackrabbit TI

Version: Alt. 4 - TDI on Section Line with Bridge Replacement

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
	PROJECT WIDE				
	Mobilization (10%)				$3,282,749
	Dust and Water Palliative (1%)				$328,275
	Contractor Quality Control (2%)				$656,550
	Construction Surveying (1.5%)				$492,413
	Maintenance and Protection of Traffic (10%)				$3,282,749
				PROJECT WIDE SUBTOTAL	**$8,042,736**
	Unidentified Item Allowance (20%)				$8,174,045
				PROJECT WIDE TOTAL	**$16,216,781**
	OTHER COSTS				
	Utility Relocations				$1,000,000
	Public Relations				$15,000
	Construction Engineering (9%)				$4,413,985
	Construction Contingencies (5%)				$2,452,214
	Consultant Services (1%)				$490,443
	PCCP Materials Quality Incentive ($2 per Sq Yd)			44,955 SQ. YD.	$89,910
	PCCP Smoothness Incentive ($3,500 per Lane-Mile)			6.4 Lane-Miles	$44,700
	AC Quality Incentive ($3 per Ton)			15,405 Tons	$46,215
	Right-Of-Way and Easement Acquisitions			6.9 Acres	$25,500,000
				OTHER COSTS TOTAL	**$34,052,467**
	SUMMARY				
	ITEM TOTAL				**$32,827,488**
	PROJECT WIDE				**$16,216,781**
	OTHER COST TOTAL				**$34,052,467**
	SUBTOTAL PROJECT COST				**$83,096,735**
	INDIRECT COST ALLOCATION (10.70%)				**$8,891,351**
				TOTAL PROJECT COST	**$91,988,086**

APPENDIX F: Initial Traffic Report

INITIAL TRAFFIC REPORT

I-10/JACKRABBIT TRAIL TRAFFIC INTERCHANGE
DCR AND ENVIRONMENTAL DOCUMENTS

ADOT CENTRAL DISTRICT/MARICOPA COUNTY

ADOT CONTRACT NO. 2022-012
ADOT PROJECT NO. F0486 01L
FEDERAL AID NO. 010-B(222)T

Prepared For:

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
PROJECT MANAGEMENT GROUP

Prepared By:

Kimley»Horn

March 2024

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1. INTRODUCTION

This Initial Traffic Report has been developed to support the Design Concept Report (DCR) for upgrading the existing grade-separated traffic interchange (TI) at Interstate 10 (I-10)/Jackrabbit Trail and improving the Jackrabbit Trail corridor from south of McDowell Road to north of Van Buren Street. The project is located in the Arizona Department of Transportation (ADOT) Central District and in the city of Buckeye, Arizona. The project location and vicinity maps are shown in **Figure 1.1** and **Figure 1.2**, respectively.

The purposes of this report are to analyze traffic operations at TI design alternatives and provide recommendations for improvements within the project limits. The recommended improvements are designed to reduce congestion, promote safety, improve traffic operations, and enhance regional mobility.

The traffic analysis includes the evaluation of the following TI types:

- Diverging Diamond Interchange (DDI)
- Tight Diamond Interchange (TDI)

The study area intersections for this analysis include:

- McDowell Road/Jackrabbit Trail
- I-10/Jackrabbit Trail TI (includes all TI intersections)
- Gas Station Access/Jackrabbit Trail
- Roosevelt Street/Jackrabbit Trail

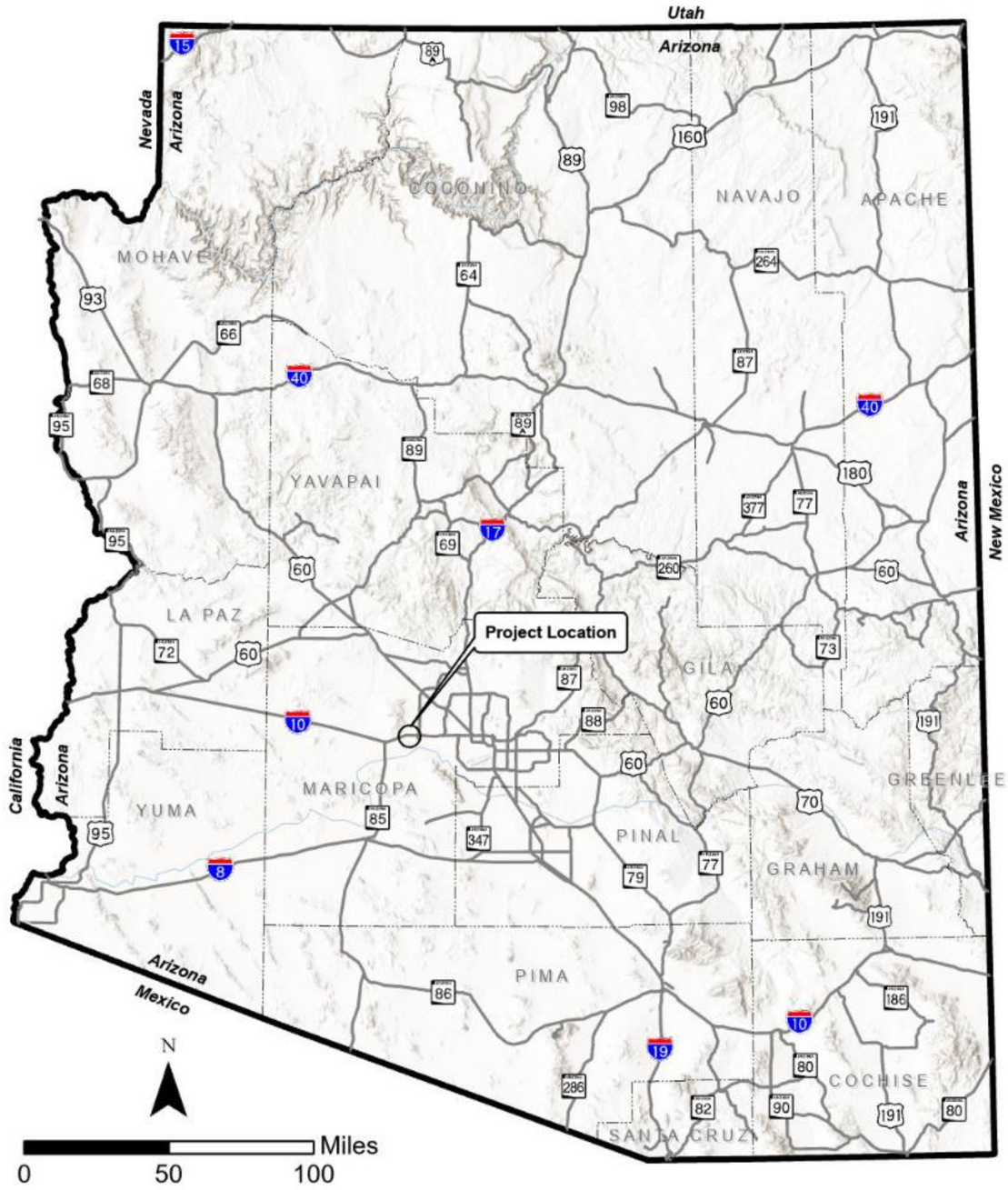


Figure 1.1 – Project Location Map

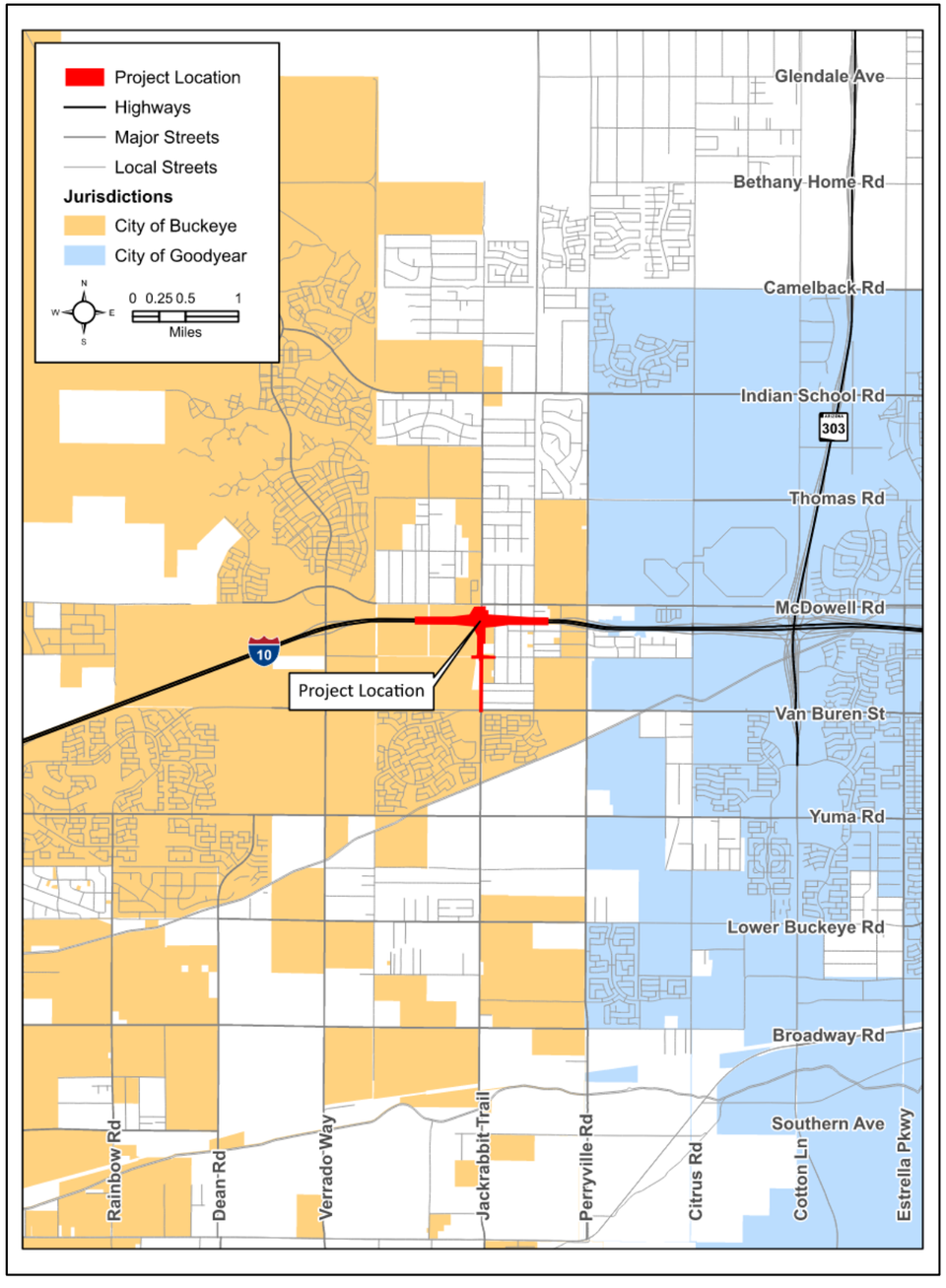


Figure 1.2 – Project Vicinity Map

2. EXISTING CONDITIONS

The existing I-10/Jackrabbit Trail TI is a TDI that is all-way stop controlled at both I-10 off-ramp intersections. The existing study area lane configuration and control is shown in **Figure 2.1**.

Existing traffic counts were collected as a reference point in the development of the future volumes. The following traffic data was collected on October 4, 2022. These volumes are shown in **Figure 2.2**:

- 24-hour bidirectional tube counts were collected at the following locations:
  - Jackrabbit Trail north of I-10 - 12,781 vpd.
  - Jackrabbit Trail south of I-10 - 13,822 vpd.
- Additional daily traffic volumes come from ADOT's and MAG's Transportation Data Management System (TDMS).
- AM and PM peak period turning movement counts were collected at the following intersections:
  - Jackrabbit Trail/McDowell Road
  - I-10 Westbound (WB) Ramps/Jackrabbit Trail
  - I-10 Eastbound (EB) Ramps/Jackrabbit Trail

A crash on the I-10 WB mainline on the bridge above Jackrabbit Trail is believed to have resulted in a large diversion of I-10 WB mainline traffic to the I-10 WB off-ramp at Jackrabbit Trail during the 2022 PM peak period count and then back on to the I-10 WB on-ramp at Jackrabbit Trail to bypass the crash. The I-10 WB through volume is normally believed to be zero or close to zero during peak hours.

Additional traffic data was collected on May 5, 2023. These volumes are shown in **Figure 2.3**:

- 24-hour bidirectional tube counts were collected at the following locations.
  - Jackrabbit Trail north of I-10 - 16,655 vpd.
  - Jackrabbit Trail south of I-10 - 15,807 vpd.
- Additional daily traffic volumes come from MAG's TDMS. ADOT's TDMS does not have 2023 data available.
- AM and PM peak period turning movement counts were collected at the following intersections:
  - Jackrabbit Trail/McDowell Road
  - I-10 WB Ramps/Jackrabbit Trail
  - I-10 EB Ramps/Jackrabbit Trail
  - Jackrabbit Trail/Roosevelt Street

A lane restriction on the I-10 WB mainline related to the widening of I-10 from Verrado Way to State Route 85 was in place during the 2023 count period, with traffic from two lanes having to merge into one lane near the bridge over Jackrabbit Trail. Similar to the crash scenario in 2022, a significant amount of I-10 WB mainline traffic diverted to the I-10 WB off-ramp at Jackrabbit Trail and then back on to the I-10 WB on-ramp at Jackrabbit Trail to bypass the merge point. The I-10 WB through volume is normally believed to be zero or close to zero during peak hours. Once the construction restriction was removed, intersection traffic was observed during peak hours and it was confirmed that the I-10 WB through volume at Jackrabbit Trail was practically non-existent.

Refer to the previously completed Maricopa County Department of Transportation (MCDOT) *Final Traffic Analysis Technical Memorandum, Jackrabbit Trail Improvements: Van Buren Street to McDowell Road* (MCDOT Project Number TT0578, Contract Number 2015-031, February 2019) for more information regarding the existing conditions analysis conducted previously in the project area. This technical memorandum is provided in **Appendix 1**.

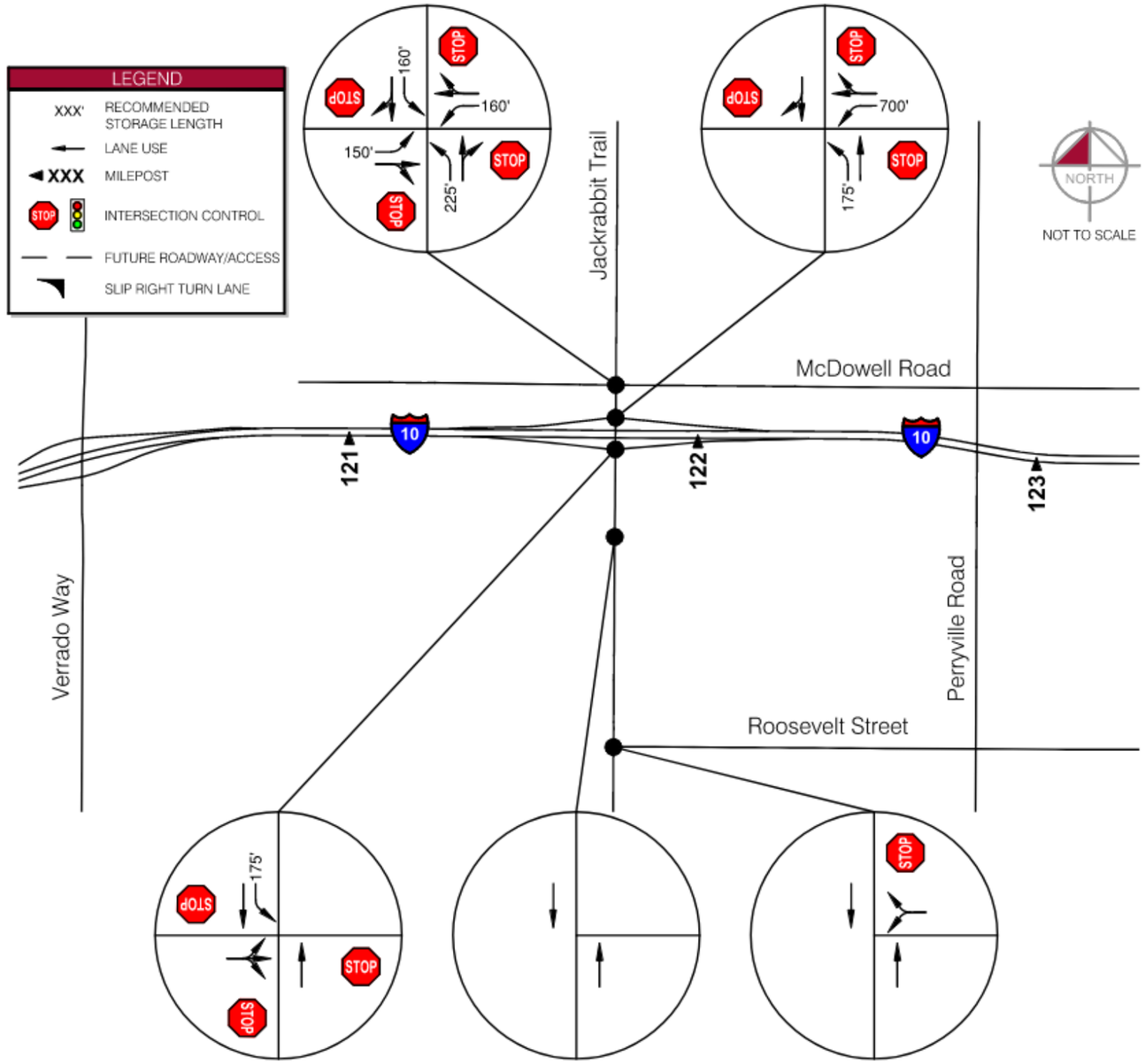


Figure 2.1 – Existing Lane Configuration

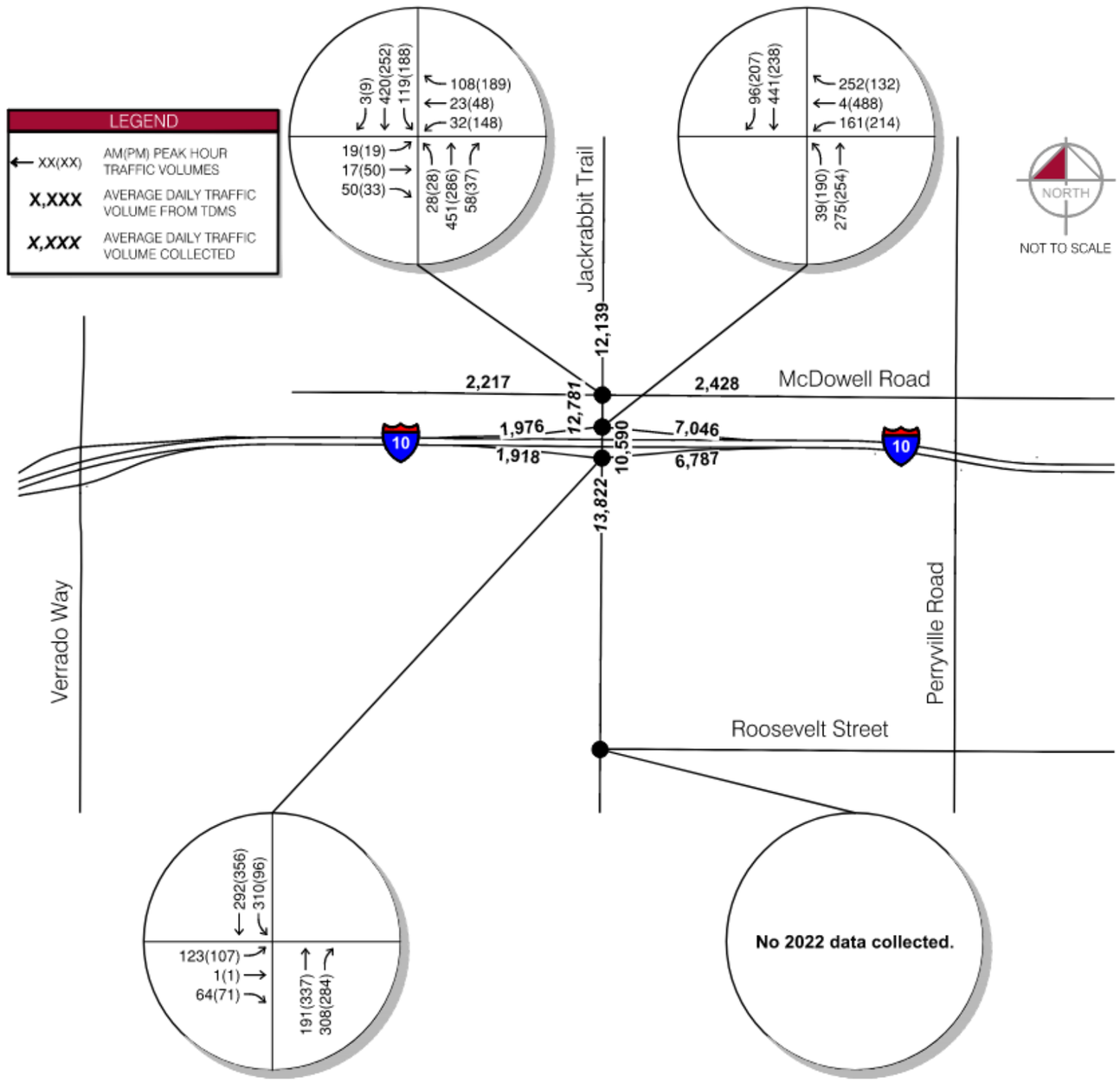


Figure 2.2 – 2022 Existing Traffic Volumes

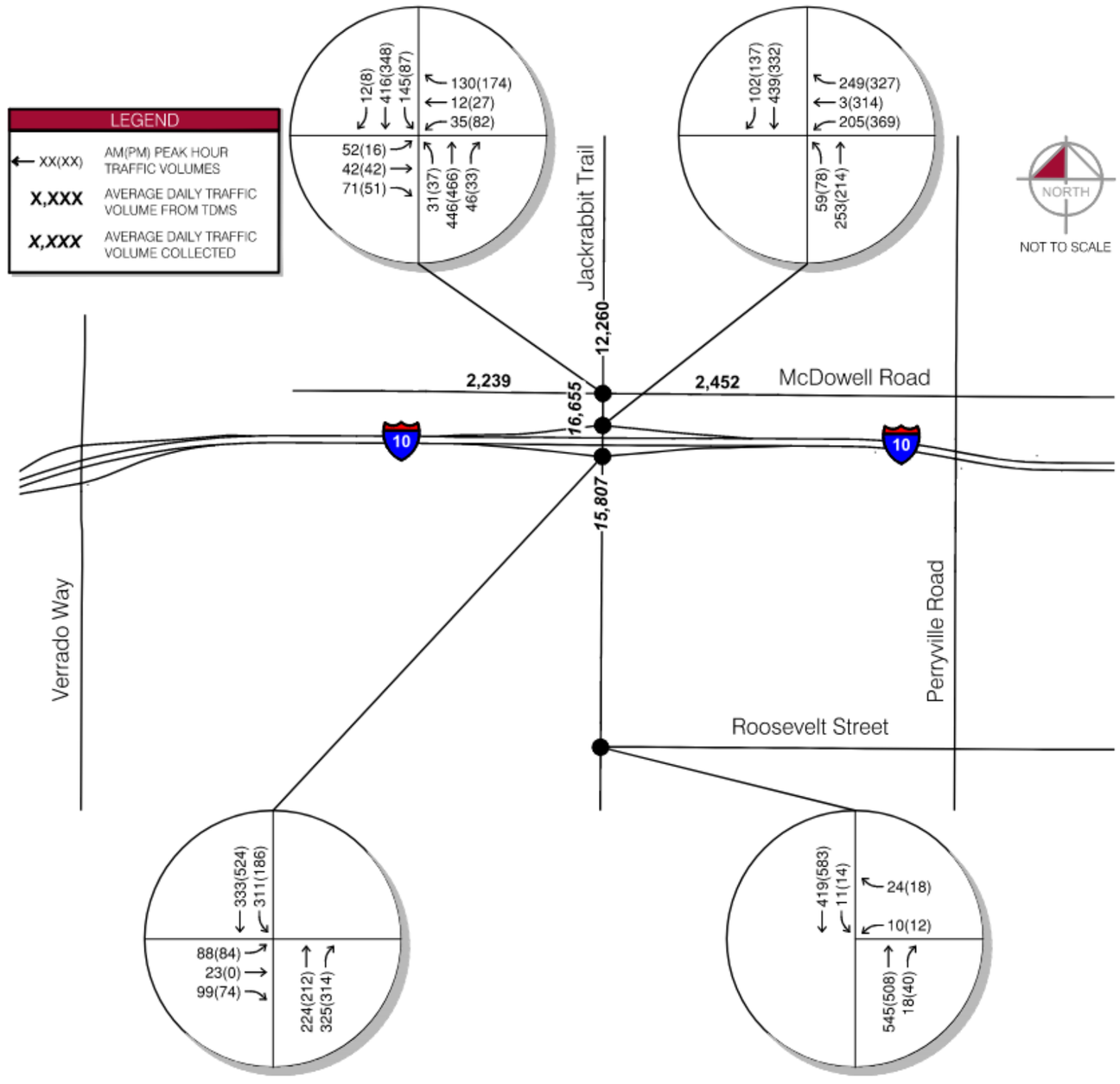


Figure 2.3 – 2023 Existing Traffic Volumes

3. FUTURE TRAFFIC VOLUMES ANALYSIS AND ALTERNATIVES

3.1 2050 MAG Model

The 2050 regional travel demand model (TDM) developed by the Maricopa Association of Governments (MAG) to evaluate the Phoenix metropolitan area's transportation system was used as a starting point in developing the future traffic volumes. The MAG regional TDM is based on projected socioeconomic, population, employment, origin-destination, and other regional data.

The following network model outputs were provided by MAG:

- *2022 Existing* – Existing roadway network with estimated 2022 model volumes
- *2050 No-Build* – Existing roadway network (I-10/Jackrabbit Trail TI is unchanged) plus regionally planned improvements for which funding has been committed, along with projected 2050 model volumes
- *2050 Build* – Existing roadway network with an upgraded I-10/Jackrabbit Trail TI and regionally planned improvements, along with projected 2050 model volumes

The MAG model volumes are shown in **Appendix 2**.

In discussions with ADOT, City of Buckeye, and MAG, it was determined there were concerns the MAG models may not accurately estimate traffic volumes in the project area. A memorandum discussing the efforts to refine and use the MAG model directly to develop turning movement counts and the challenges that arose in doing so is provided in **Appendix 3**. Some of the main concerns identified included:

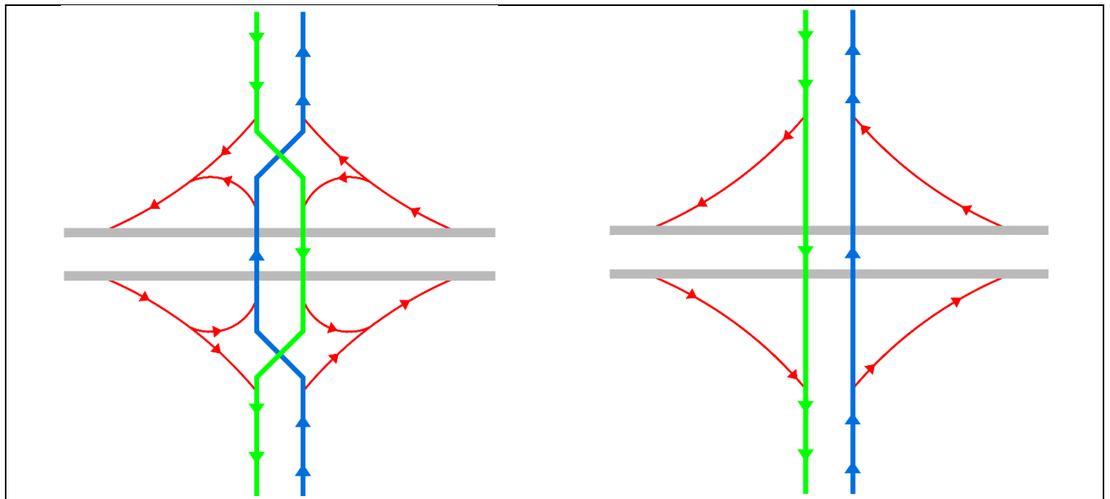
- The counted 2022 volumes and the 2022 model volumes differed significantly, particularly on Jackrabbit Trail south of I-10; this inaccuracy is believed to also propagate to the 2050 model volume projections.
- The number of lanes coded in the TDM differed from existing and/or expected future conditions.
- Several existing and future local roadway connections were not included in the TDM that would most likely have a significant effect on vehicle routing.

Instead of using the MAG TDM results directly, traffic volumes were developed based on a combination of MAG model growth rates, existing and historical traffic volume trends, and anticipated trips generated by planned developments in the area (see description in **Section 3.3** of this report).

3.2 2050 Build Analysis Alternatives

The following TI configurations and alternatives were analyzed at the I-10/Jackrabbit Trail TI under the 2050 Build conditions (see illustrations of the TI configurations shown in **Figure 3.1**):

- DDI
- TDI with three northbound (NB)/southbound (SB) through lanes and one left-turn lane on the TI (TDI-1L)
- TDI with three NB/SB through lanes and two left-turn lanes on the TI (TDI-2L)



Diverging Diamond Interchange Configuration *Tight Diamond Interchange Configuration*

Figure 3.1 – DDI and TDI Configurations

In the DDI configuration, NB and SB traffic on Jackrabbit Trail temporarily cross each other onto opposite sides of the roadway. This configuration eliminates all left-turn crossing conflicts, with oncoming traffic located to the right, instead of to the left, of drivers. This eliminates the need for left-turn signal phasing on the crossroad. The two crossover points on Jackrabbit Trail are assumed to be signalized. The points where I-10 off-ramp traffic merges with Jackrabbit Trail traffic are assumed to have signal or yield control. The points where pedestrian traffic is crossing where the I-10 off-ramp traffic turns onto Jackrabbit Trail and where the Jackrabbit Trail traffic turns onto the I-10 on-ramp are assumed to be signalized to control pedestrians crossing at those locations.

The TDI configuration utilizes two signalized intersections. Each signalized intersection controls off-ramp and on-ramp traffic in one of the directions of I-10 (eastbound (EB) or westbound (WB) traffic).

The following improvements were incorporated into the 2050 alternatives:

- Jackrabbit Trail widened to three lanes in each direction (2050 Build alternative only).
- McDowell Road widened to three lanes in each direction and extended west to allow for continuous traffic flow to Verrado Way.
- Roosevelt Street is extended west as a four-lane roadway (two lanes in each direction) to allow for continuous traffic flow to Verrado Way.
- Florida T intersection constructed at the Gas Station Access south of the I-10/Jackrabbit Trail TI, with a dedicated WB left-turn lane and corresponding SB acceleration lane in the median for vehicles turning left out of the Gas Station Access onto Jackrabbit Trail and traveling SB. SB through vehicles never have to stop with the Florida T configuration.
- Turn lanes:
    - McDowell Road intersection:
        - Dual left-turn lanes and right-turn slip lanes (channelized right-turn lanes) at all approaches.
    - Roosevelt Street intersection:
        - Dual EB left-turn lanes, with one being a trap left-turn lane.
        - Dual NB left-turn lanes.
        - Single SB and WB left-turn lanes.
        - Slip right-turn lanes on the SB and EB approaches.
        - A right-turn lane on the NB approach that is not a slip lane.

3.3 2050 Traffic Volumes and Lane Configurations

The 2022 Existing, 2050 No-Build, and 2050 Build TDM outputs were provided by MAG to be used in developing the future traffic volumes for the Jackrabbit Trail corridor. As stated in **Section 3.1** of this document, there were concerns the MAG models may not accurately estimate traffic volumes in the project area. The following summarizes the process used to develop the future volumes used in the analysis.

- Existing 2022 counted traffic volumes were adjusted due to a crash that occurred on I-10 on the bridge over Jackrabbit Trail the day counts were collected, which resulted in some I-10 WB freeway traffic exiting the freeway at the I-10/Jackrabbit Trail TI and then immediately reentering the freeway to bypass the crash. The volumes adjusted were for the WB through and WB right-turn movements. Traffic counts taken between 2016 and 2023 (included in **Appendix 4**) were reviewed to inform what the adjusted traffic volumes should be.
- Existing and future daily traffic volumes from MAG TDM outputs were compared to identify average annual growth rates to help inform the magnitude of anticipated growth along the Jackrabbit Trail corridor.
- Recent daily traffic count data from the ADOT and MAG TDMS at nearby TIs and arterial streets were compared to MAG TDM outputs to help inform what the future daily traffic volumes on Jackrabbit Trail likely should be based on the relative adjacent land use intensity and location of developments.
- Future AM and PM peak hour K-factors and approach volumes were developed based on historical approach volumes and K-factors developed for the 2019 MCDOT *Final Traffic Analysis Technical Memorandum, Jackrabbit Trail Improvements: Van Buren Street to McDowell Road*.
- Peak hour intersection turning movement volumes were developed based on the 2040 peak hour traffic volumes from the 2019 MCDOT *Final Traffic Analysis Technical Memorandum, Jackrabbit Trail Improvements: Van Buren Street to McDowell Road,* historical turning movement volume distributions at nearby intersections and planned development traffic studies provided by the City of Buckeye and balanced between adjacent intersections.
- The magnitude of the final volumes was checked by summing the existing volumes with projected traffic volumes generated by nine developments in the area. This development information came from traffic impact analysis reports provided by the City of Buckeye, none of which carried volumes all the way to the Jackrabbit Trail/I-10 TI. The planned development volumes are provided in **Appendix 5**.

The resultant 2050 traffic volumes and lane configurations for the No-Build and various Build TI configurations are presented in the following figures:

- 2050 No-Build – lane configurations **Figure 3.2**, traffic volumes **Figure 3.3**
- 2050 DDI – lane configurations **Figure 3.4**, traffic volumes **Figure 3.5**
- 2050 TDI-1L (three NB/SB through lanes and one left-turn lane) – lane configurations **Figure 3.6**, traffic volumes **Figure 3.8**
- 2050 TDI-2L (three NB/SB through lanes and two left-turn lanes) – lane configurations **Figure 3.7**, traffic volumes **Figure 3.8**

Table 3.1 summarizes the assumed 2050 Build and No-Build average daily traffic (ADT), K-factors (design peak hour percentage of daily volume), D-factors (directional split), and T-factors (heavy vehicle percentage) for each leg of the intersection.

Table 3.1 – Jackrabbit Trail Corridor 2050 Traffic Summary

Intersection	Leg	Build ADT	No-Build ADT	K-Factor	D-Factor	T-Factor
McDowell Rd	North Leg	22,450	17,497	9%	51%	4%
	South Leg	36,003	34,882	9%	51%	4%
	East Leg	19,961	17,851	9%	54%	4%
	West Leg	23,352	20,655	9%	52%	4%
I-10 WB Ramps	North Leg	36,003	34,882	9%	51%	4%
	South Leg	31,655	28,786	9%	62%	4%
	East Leg	13,120	12,062	9%	100%	4%
	West Leg	6,952	10,005	8%	100%	4%
I-10 EB Ramps	North Leg	31,655	28,786	9%	62%	4%
	South Leg	31,000	24,174	9%	51%	3%
	East Leg	13,081	11,692	6%	100%	4%
	West Leg	6,397	8,731	8%	100%	4%
Gas Station Access	North Leg	31,000	24,174	9%	51%	3%
	South Leg	26,226	19,400	10%	51%	3%
	East Leg	8,139*	8,139*	4%*	50%*	3%
Roosevelt St	North Leg	26,226	19,400	9%	51%	3%
	South Leg	21,927	16,851	9%	51%	3%
	East Leg	1,722	856	>10%	50%	3%
	West Leg	15,000	13,000	9%	50%	3%

*Traffic data from *Jackrabbit Square Phase 1 Buckeye, Arizona Traffic Impact Analysis, Approved March 2017*

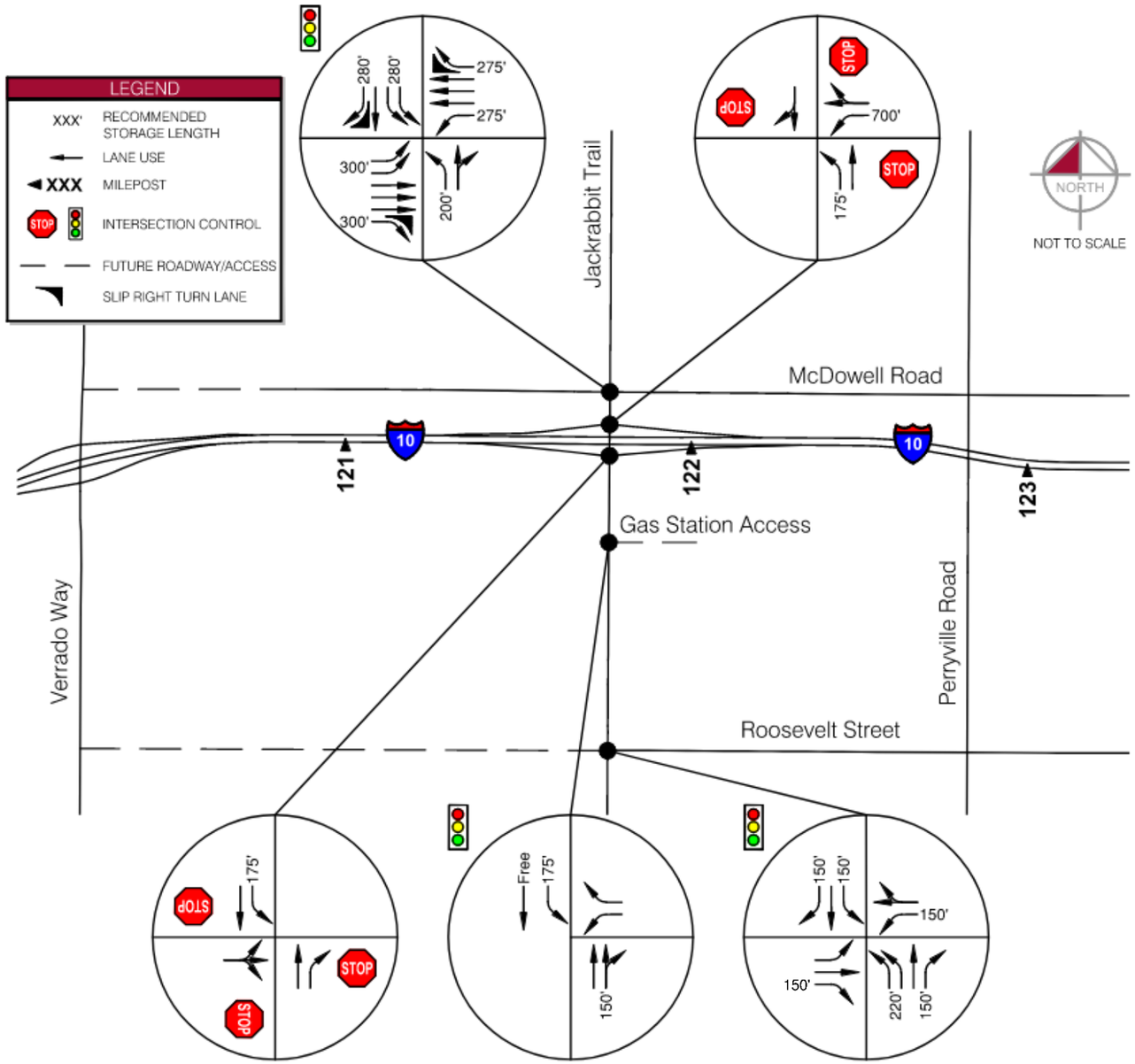


Figure 3.2 – 2050 No-Build TDI Lane Configuration

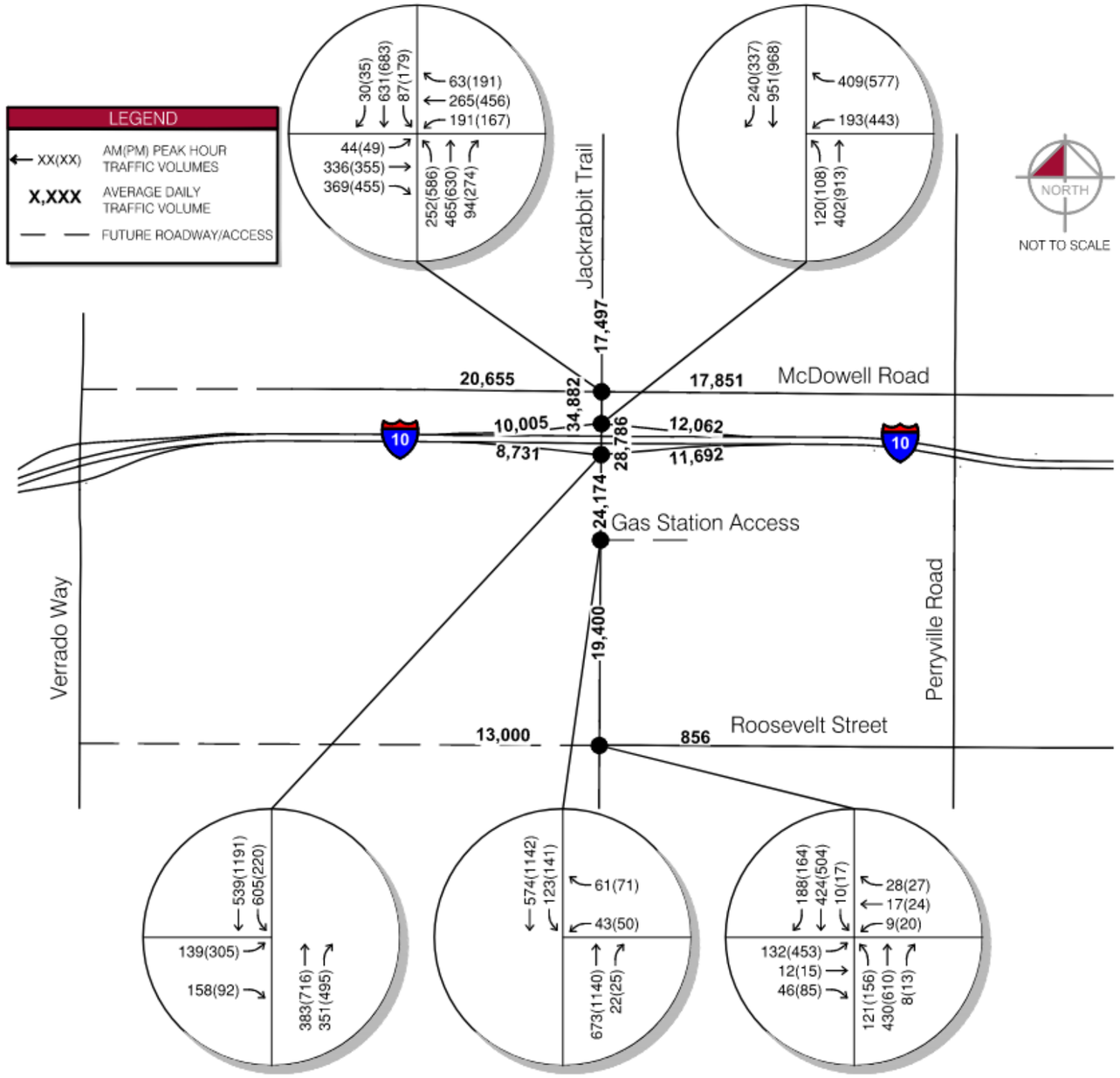
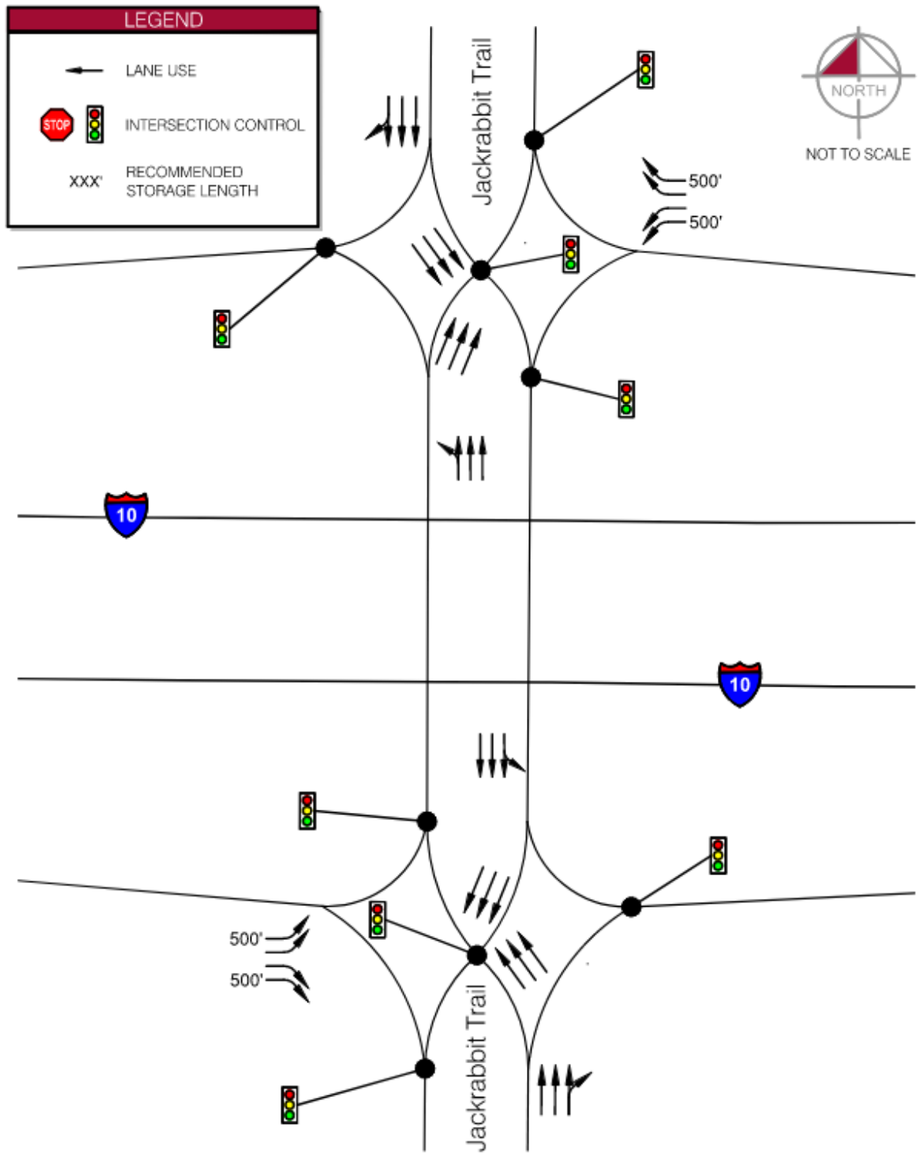


Figure 3.3 – 2050 No-Build TDI Traffic Volumes



Note: The intersections at McDowell Road, the Gas Station Access (Florida T), and Roosevelt Street have the same configuration/storage lengths in all scenarios.

Figure 3.4 – 2050 Build DDI Lane Configuration

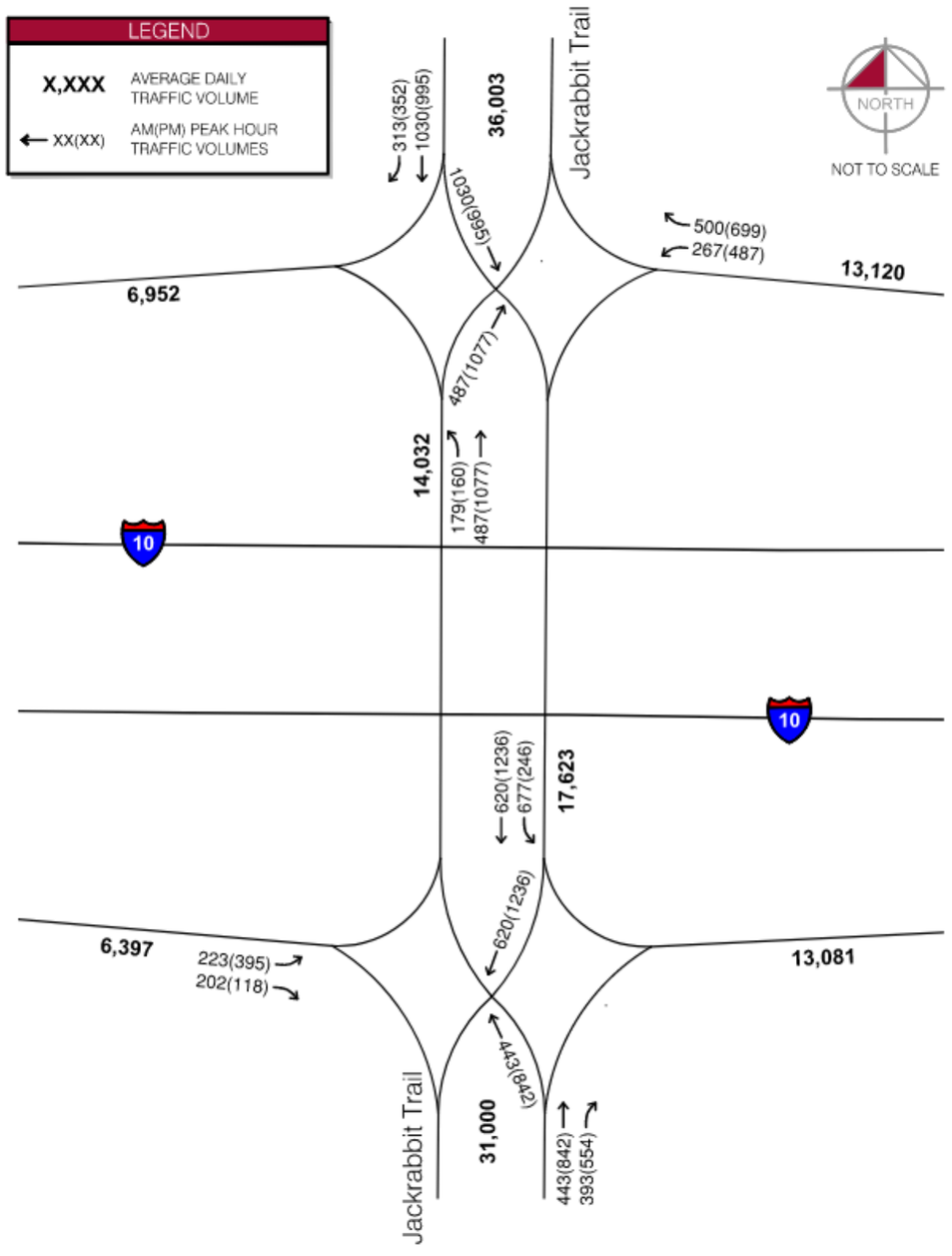


Figure 3.5 – 2050 Build DDI Traffic Volumes

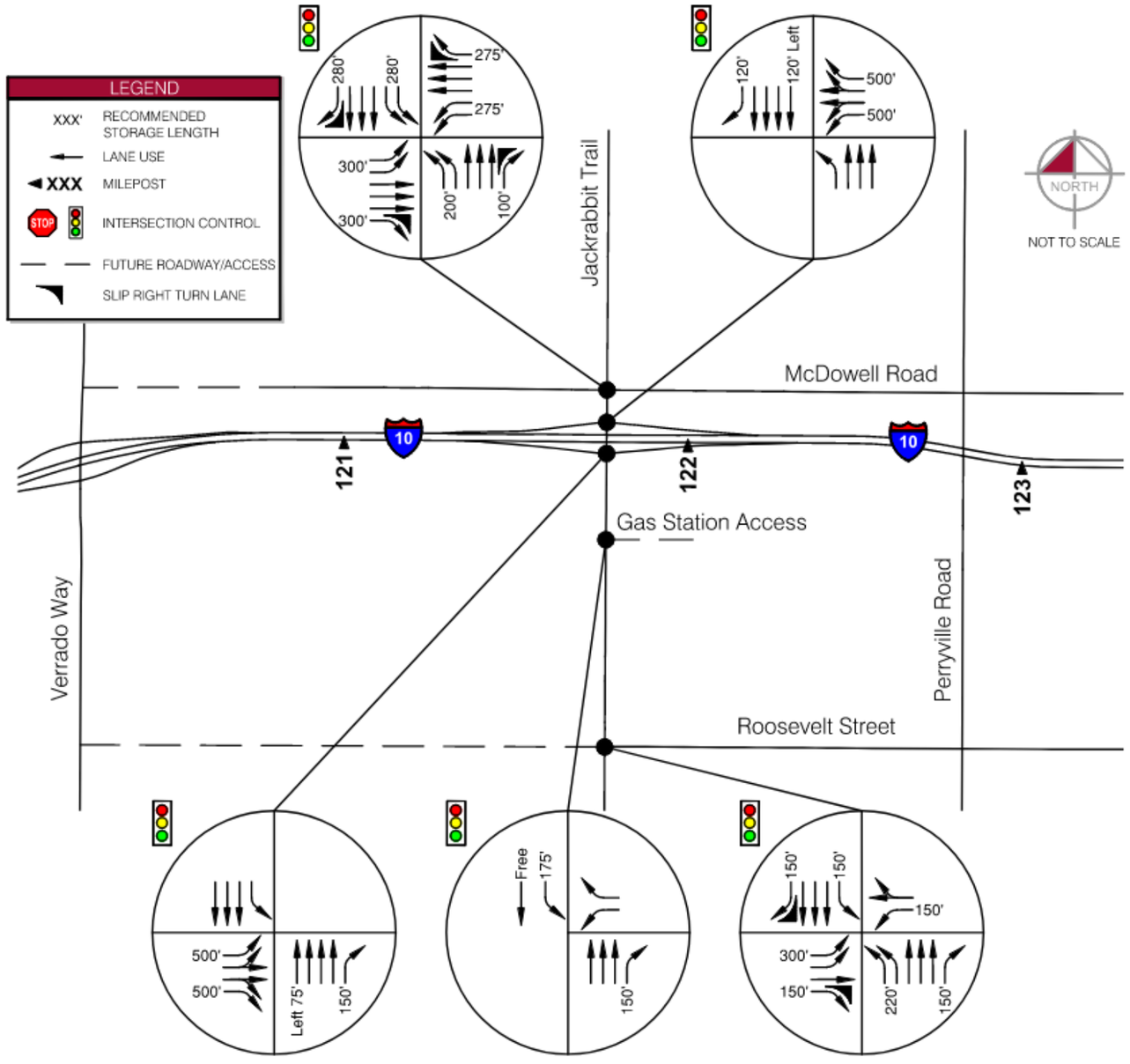


Figure 3.6 – 2050 Build TDI-1L Lane Configuration

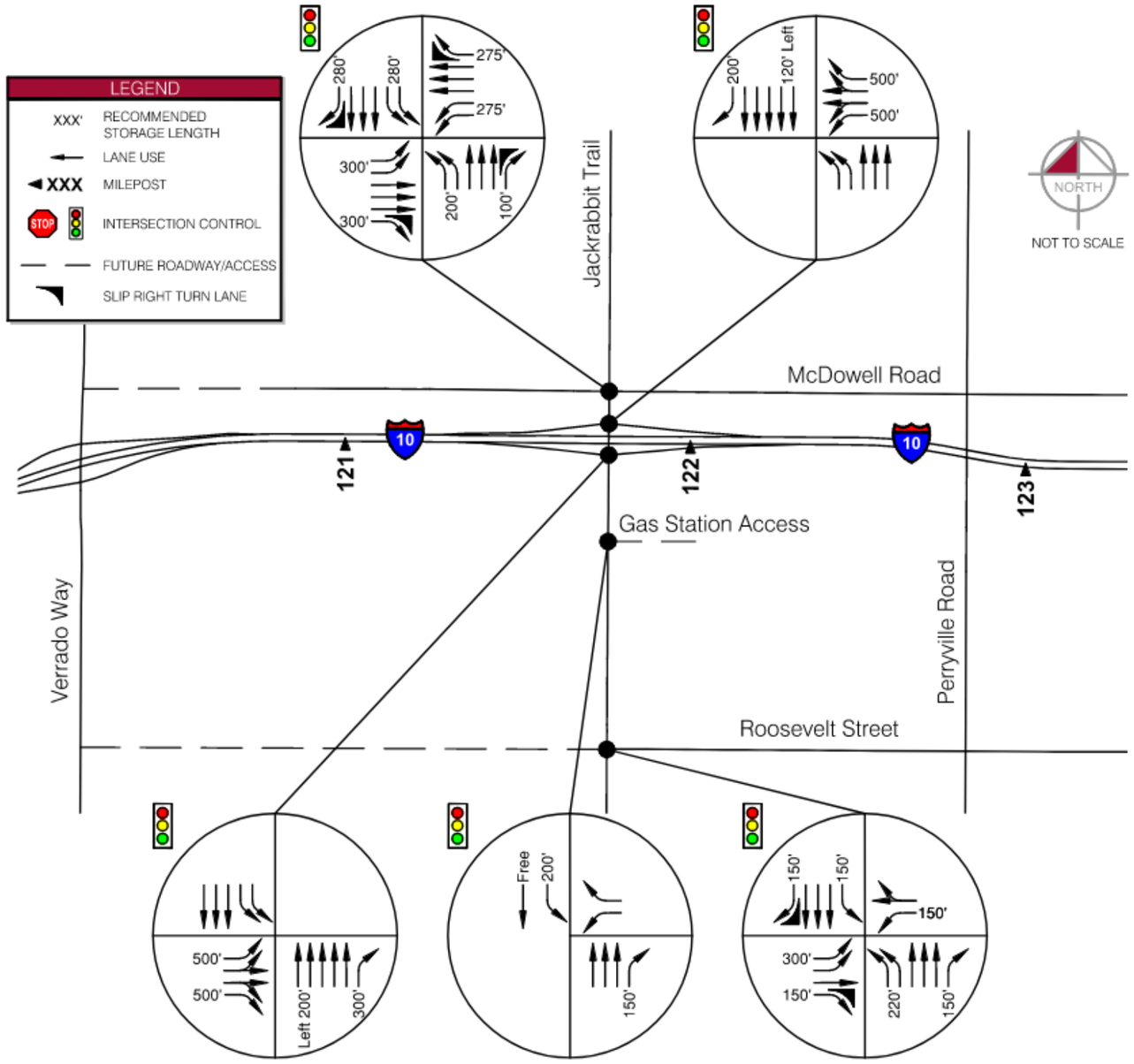


Figure 3.7 – 2050 Build TDI-2L Lane Configuration

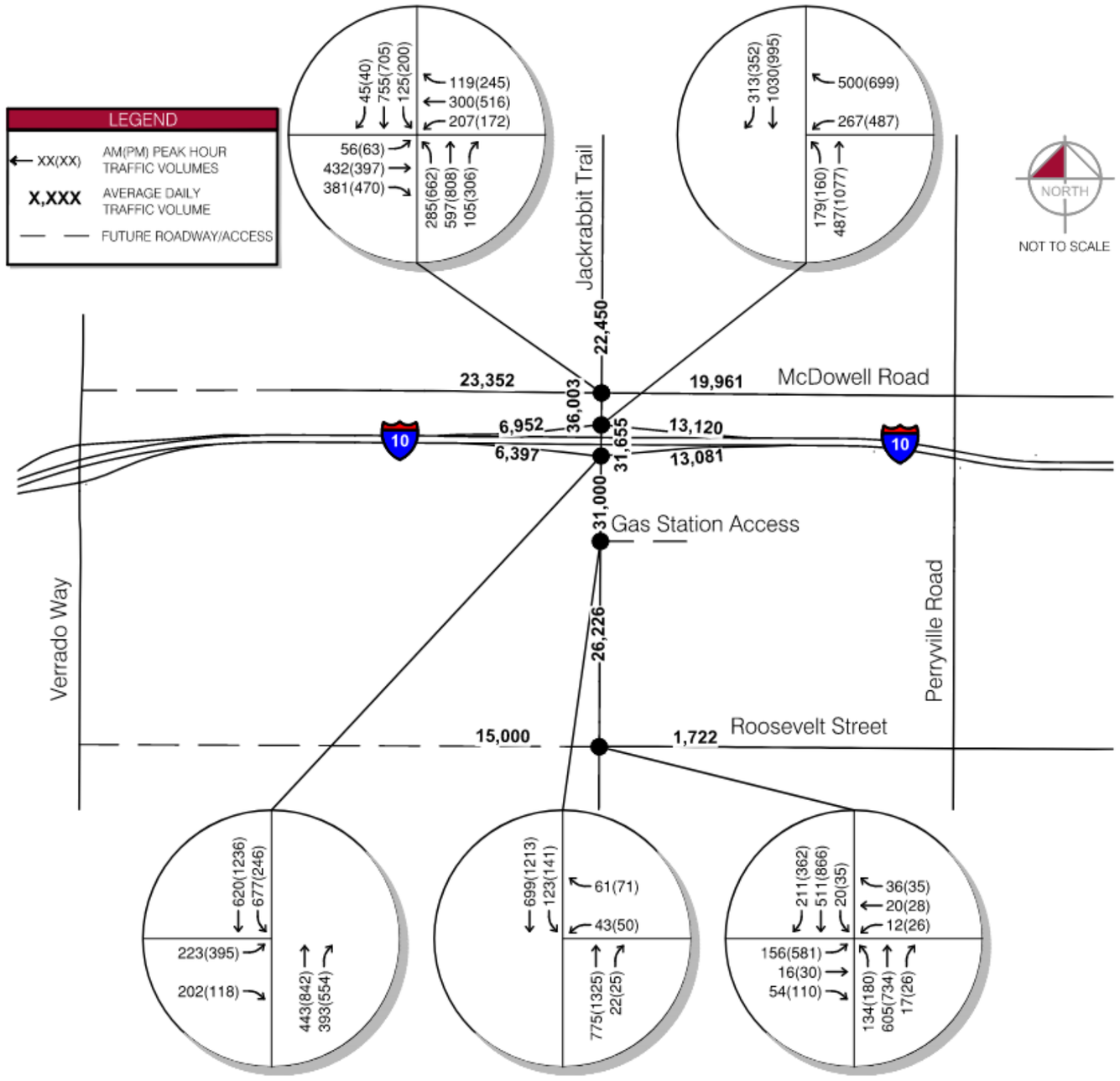


Figure 3.8 – 2050 Build TDI-1L and TDI-2L Traffic Volume

The recommended turn lanes and storage lengths at the traffic interchange shown in **Figure 3.4**, **Figure 3.6**, and **Figure 3.7** were determined using the methodology outlined in ADOT Traffic Guidelines and Processes (TGP) Section 245 and Section 430. Tables 430-1 and 430-2 from the TGP were used to select the appropriate gap and desirable braking distance, respectively. The storage lengths at the McDowell Road, Gas Station Access, and Roosevelt Street intersections were determined based on the City of Buckeye Engineering Design Standards and Details and input from the City of Buckeye. The 95th percentile queue from the different operational analyses presented in **Section 5.4** of this report were used as the queue portion of the storage described in TGP 430.

The following paragraphs describe the 2050 Build lane configurations for the study intersections.

I-10/Jackrabbit Trail TI

The 2050 Build geometry for the different TI configurations shown in **Figure 3.4**, **Figure 3.6**, and **Figure 3.7** assumes two-lane off-ramps that widen to four-lane off-ramp approaches at Jackrabbit Trail. Having two-lane off-ramps with four-lane approaches matches ADOT's desired interchange ramp geometry to allow for flexibility to accommodate a significant diversion of mainline traffic, which could occur periodically to bypass construction and incident closures or lane restrictions.

In all 2050 Build alternatives, Jackrabbit Trail has the following right-turn lanes at the TI:

- An exclusive NB right-turn lane at the EB ramps is warranted based on projected 2050 typical peak hour turning movement volumes.
- An exclusive SB right-turn lane at the WB ramps is warranted based on projected 2050 typical peak hour turning movement volumes.

The DDI alternative is not anticipated to need exclusive left-turn lanes on Jackrabbit Trail at the TI because left-turning vehicles have a mostly free movement at the TI and the expected traffic does not require multiple turn lanes. There are traffic signals at the on-ramps to stop vehicles when activated by a pedestrian, but otherwise the traffic signals run free.

The TDI alternatives have the following left-turn lanes on the TI:

- TDI-1L has exclusive NB and SB left-turn lanes that are warranted based on the projected 2050 peak hour volumes.
- TDI-2L has exclusive dual SB left-turn lanes because the AM peak hour volume exceeds 300 vehicles per hour (vph) based on TGP Section 245. While the NB left-turn lanes do not warrant dual left-turn lanes, the dual NB left-turn lanes have been included based on input provided by ADOT and the City of Buckeye.

McDowell Road Intersection

The 2050 Build geometry for the Jackrabbit Trail/McDowell Road intersection for all alternatives follows Buckeye's Standard Detail 63300-1, "Major Intersection – Slip Right-Turn Lanes Major Arterial – Major Arterial", revised 08-09-22. This detail shows a major arterial intersection with three through lanes, two left-turn lanes and a slip or channelized right-turn lane on all approaches.

Gas Station Access

The 2050 Build geometry for the Gas Station Access (Florida T intersection) provides a free SB through movement, a dedicated SB left-turn lane into the proposed gas station, a dedicated NB right-turn lane that extends to the TI, a SB acceleration lane on Jackrabbit Trail for vehicles making a WB left turn out of the proposed gas station to get up to speed before merging with the SB traffic on Jackrabbit Trail, and a driveway with a WB left-turn lane and a WB right-turn lane.

Roosevelt Street

The 2050 Build geometry for the Jackrabbit Trail/Roosevelt Street intersection is based on Buckeye's Standard Detail 63300-2, "Major Intersection – Slip Right Turn Lanes Major Arterial – Arterial", revised 08-09-22. This detail shows a major arterial-arterial intersection with two left-turn lanes and a slip or channelized right-turn lane on all approaches.

There are some modifications to the intersection layout compared to the detail because Roosevelt Street is a planned to be a future arterial to the west of Jackrabbit Trail and continue as a local road to the east. The difference between Buckeye's Standard Detail 63300-2 and what is used in the analysis is provided below:

- Single SB left-turn lane.
- One EB/WB through lane.
- Dual EB left-turn lanes, one of which is a trap lane.
- Single WB left-turn lane.
- No WB right-turn lane.
- A NB right-turn lane that is not a slip/channelized lane.

The planned Roosevelt Street improvement project will be providing pavement on the east leg to line up the EB and WB through lanes and provide the WB left-turn lane.

4. CRASH ANALYSIS

Refer to *Final Traffic Analysis Technical Memorandum, Jackrabbit Trail Improvements: Van Buren Street to McDowell Road* (MCDOT Project Number TT0578, Contract Number 2015-031, February 2019) for information regarding a crash analysis conducted as part of that study. This technical memorandum is shown in **Appendix 1**.

5. INTERSECTION OPERATIONAL ANALYSIS

5.1 Analysis Methodology

An intersection operational analysis was performed along the Jackrabbit Trail corridor at the intersections of McDowell Road, I-10 TI, Gas Station Access, and Roosevelt Street for the 2050 Build conditions, which includes the previously mentioned TI configuration alternatives. The analysis of the scenarios with signalized and unsignalized intersections was completed using Synchro 12 analysis software. For signalized intersections, intersection level of service (LOS) and queue length are typically analyzed using the Highway Capacity Manual, 7th Edition (HCM 7) methodology; however, HCM 7 methodology does not support the analysis of clustered intersections, which are present in the TDI and DDI design alternatives. Instead, SimTraffic was used to calculate the LOS and queue length for all study intersections within each interchange alternative. SimTraffic is a microsimulation modeling software that can effectively model congested areas with closely spaced intersections where queue spillback may occur. Synchro 12 and HCM 7 were used to evaluate the existing conditions.

Each intersection, approach, or movement is given a letter designation from LOS A to LOS F. LOS A represents operational conditions with minimal delay and traffic volumes significantly less than available capacity (volume-to-capacity ratio (v/c) < 1). LOS F represents poor operational conditions with a high degree of delay and/or traffic volumes greater than the available capacity (v/c >1). Each LOS grade represents a range of operational conditions. **Table 5.1** shows the average vehicle delay ranges for signalized and unsignalized intersections that correspond with each LOS letter grade.

Table 5.1 – Level of Service Thresholds for Signalized and Unsignalized Intersections

Level of Service	Control Delay (s/veh)	
	Signalized	Unsignalized
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 55
F	> 80 or v/c > 1.0*	> 55 or v/c > 1.0*

*v/c = volume-to-capacity ratio
Source: HCM 6th Edition

The existing peak hour factors (PHF) were adjusted in all future analysis scenarios based on the projected traffic demand and proposed lane geometry in accordance with the following guidelines from the ADOT TGP Section 240 for future PHF assumptions:

- PHF = 0.80 for < 75 vph per lane
- PHF = 0.85 for 75 - 300 vph per lane
- PHF = 0.90 for > 300 vph per lane

5.2 Existing Intersection Conditions

The 2022 Existing LOS, delay, and 95th percentile queues along the Jackrabbit Trail corridor were evaluated using the 2022 existing volumes (except at Roosevelt Street, where 2023 volumes were used as 2022 volumes were not available) and the existing geometry. The results of the 2022 Existing AM and Existing PM intersection capacity analyses are shown in **Table 5.2** and **Table 5.3**, respectively. The Synchro HCM 7th Edition results are provided in **Appendix 6**.

The 2022 Existing scenario has the following operational results during the AM peak hour:

- The McDowell Road intersection operates at LOS E. The longest 95th percentile queue is 350 feet in the NB through/right-turn lane.
- The I-10 WB Ramps intersection operates at LOS E. The longest 95th percentile queue is 400 feet in the SB through/right-turn lane.
- The I-10 EB Ramps intersection operates at LOS C. The longest 95th percentile queue is 200 feet in the NB through/right-turn lane.
- The Roosevelt Street critical lanes operate at LOS C or better. The longest 95th percentile queue is 25 feet in the WB lane.

The 2022 Existing scenario has the following operational results during the PM peak hour:

- The McDowell Road intersection operates at LOS C. The longest 95th percentile queue is 150 feet in the NB through/right-turn lane.
- The I-10 WB Ramps intersection operates at LOS C. The longest 95th percentile queue is 225 feet in the SB through/right-turn lane.
- The I-10 EB Ramps intersection operates at LOS D. The longest 95th percentile queue is 375 feet in the NB through/right-turn lane.
- The Roosevelt Street critical lanes operate at LOS C or better. The longest 95th percentile queue is 25 feet in the WB lane.

Table 5.2 – 2022 Existing Capacity Analysis Results: AM Peak Hour

Intersection	NB Approach			SB Approach			EB Approach			WB Approach			Overall
	L	T	R	L	T	R	L	T	R	L	T	R	
McDowell Road and Jackrabbit Trail (All-Way Stop Controlled)													
LOS	A	F		B	D		B	B		B	B		E
Average Delay (s)	10	60		12	34		12	12		12	13		38
95th Percentile Queue (ft)	25	350		25	225		25	25		25	50		-
I-10 WB Ramps and Jackrabbit Trial (All-Way Stop Controlled)													
LOS	B	C	-	-	F		-	-	-	B	C		E
Average Delay (s)	11	19	-	-	74		-	-	-	15	16		41
95th Percentile Queue (ft)	25	100	-	-	400		-	-	-	50	75		-
I-10 EB Ramps and Jackrabbit Trail (All-Way Stop Controlled)													
LOS	-	C		C	B	-	B			-	-	-	C
Average Delay (s)	-	24		18	15	-	13			-	-	-	19
95th Percentile Queue (ft)	-	200		100	75	-	50			-	-	-	-
Roosevelt Street and Jackrabbit Trail (One-Way Stop Controlled)													
LOS	-	-	-	A		-	-	-	-	C			-
Average Delay (s)	-	-	-	9		-	-	-	-	16			-
95th Percentile Queue (ft)	-	-	-	0		-	-	-	-	25			-

Table 5.3 – 2022 Existing Capacity Analysis Results: PM Peak Hour

Intersection	NB Approach			SB Approach			EB Approach			WB Approach			Overall
	L	T	R	L	T	R	L	T	R	L	T	R	
McDowell Road and Jackrabbit Trail (All-Way Stop Controlled)													
LOS	B	C		C	C		B	B		B	C		C
Average Delay (s)	11	25		16	19		12	13		15	16		19
95th Percentile Queue (ft)	25	150		75	100		25	25		50	75		-
I-10 WB Ramps and Jackrabbit Trial (All-Way Stop Controlled)													
LOS	B	C	-	-	D		-	-	-	C	B		C
Average Delay (s)	15	16	-	-	34		-	-	-	18	12		22
95th Percentile Queue (ft)	50	75	-	-	225		-	-	-	75	50		-
I-10 EB Ramps and Jackrabbit Trail (All-Way Stop Controlled)													
LOS	-	E		B	C	-	B			-	-	-	D
Average Delay (s)	-	47		11	19	-	13			-	-	-	31
95th Percentile Queue (ft)	-	375		25	225	-	50			-	-	-	-
Roosevelt Street and Jackrabbit Trail (One-Way Stop Controlled)													
LOS	-	-	-	A		-	-	-	-	C			-
Average Delay (s)	-	-	-	9		-	-	-	-	18			-
95th Percentile Queue (ft)	-	-	-	0		-	-	-	-	25			-

5.3 2050 No-Build Intersection Analysis

The 2050 No-Build LOS, delay, and 95th percentile queues along the Jackrabbit Trail corridor were evaluated using 2050 No-Build volumes and 2050 No-Build geometry, including planned regional improvements. The 2050 No-Build geometry for the I-10 TI and the McDowell Road study intersection – the critical part of the corridor with closely-spaced intersections and the highest volumes – are shown in **Figure 5.1**. The results of the 2050 No-Build AM and 2050 No-Build PM intersection capacity analyses are shown in **Table 5.4** and **Table 5.5**, respectively. The SimTraffic output reports for the 2050 No-Build scenario are provided in **Appendix 6**.

The 2050 No-Build scenario has the following operational results during the AM peak hour:

- The McDowell Road intersection operates at LOS F. The longest 95th percentile queue is 1,353 feet in the WB through lanes. This queue is caused by spillback from the WB left-turn lane, which has limited capacity because the corresponding SB receiving lane is blocked by the queue of SB vehicles that extends back from the I-10 WB Ramps intersection to McDowell Road.
- The I-10 WB Ramps intersection operates at LOS F. The longest 95th percentile queue is 545 feet in the SB lane, which extends upstream to McDowell Road.
- The I-10 EB Ramps intersection operates at LOS C. The longest 95th percentile queue is 249 feet in the NB lane.
- The Gas Station Access intersection operates at LOS A. The longest 95th percentile queue is 109 feet in the NB through lane.
- The Roosevelt Street intersection operates at LOS B. The longest 95th percentile queue is 150 feet in the NB through lane.

The 2050 No-Build scenario has the following operational results during the PM peak hour:

- The McDowell Road intersection operates at LOS F. The longest 95th percentile queue is 1,198 feet in the WB through lanes. This was caused by spillback from the WB left-turn lane, which has limited capacity because the corresponding SB receiving lane is blocked by the queue of SB vehicles that extends back from the I-10 WB Ramps intersection to McDowell Road.
- The I-10 WB Ramps intersection operates at LOS F. The longest 95th percentile queue is 2,486 feet in the WB through/right-turn lane, which extends upstream to the WB off-ramp gore area.
- The I-10 EB Ramps intersection operates at LOS F. The longest 95th percentile queue is 2,019 feet in the EB lane, which extends upstream to the EB off-ramp gore area.
- The Gas Station Access intersection operates at LOS E. The longest 95th percentile queue is 362 feet in the NB through lane.
- The Roosevelt Street intersection operates at LOS F. The longest 95th percentile queue is 1,624 feet in the EB through lane.

Table 5.4 – 2050 No-Build Capacity Analysis Results: AM Peak Hour

Intersection	NB Approach			SB Approach			EB Approach			WB Approach			Overall
	L	T	R	L	T	R	L	T	R	L	T	R	
McDowell Road and Jackrabbit Trail (Signal Controlled)													
LOS	E	C		F	F	F	E	F	D	F	F	A	F
Average Delay (s)	65	26		718	553	575	56	125	52	520	1720	2	180
95th Percentile Queue (ft)	305	451		1,041	889	816	86	482	428	386	1,353	36	-
I-10 WB Ramps and Jackrabbit Trail (All-Way Stop Controlled)													
LOS	A	E	-	-	F		-	-	-	A	D		F
Average Delay (s)	8	38	-	-	97		-	-	-	9	34		55
95th Percentile Queue (ft)	194	341	-	-	545		-	-	-	80	366		-
I-10 EB Ramps and Jackrabbit Trail (All-Way Stop Controlled)													
LOS	-	D	B	A	C	-	B			-	-	-	C
Average Delay (s)	-	27	14	10	18	-	12			-	-	-	17
95th Percentile Queue (ft)	-	249	178	113	81	-	138			-	-	-	-
Gas Station Access and Jackrabbit Trail (Signal Controlled)													
LOS	-	A	A	B	-	-	-	-	-	C	-	A	A
Average Delay (s)	-	6	4	14	-	-	-	-	-	18	-	6	6
95th Percentile Queue (ft)	-	106	109**	74	-	-	-	-	-	60	-	57	-
Roosevelt Street and Jackrabbit Trail (Signal Controlled)													
LOS	D	A	A	D	A	A	D	D	A	D	C		B
Average Delay (s)	41	7	1	47	11	2	41	35	4	38	26		16
95th Percentile Queue (ft)	123	150	8	24	147	68	149	27	34	20	58		-

Table 5.5 – 2050 No-Build Capacity Analysis Results: PM Peak Hour

Intersection	NB Approach			SB Approach			EB Approach			WB Approach			Overall
	L	T	R	L	T	R	L	T	R	L	T	R	
McDowell Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	B		F	F	F	D	F	E	F	F	A	F
Average Delay (s)	42	20		1,648	1,751	1,737	55	524	67	1,535	1,916	6	198
95th Percentile Queue (ft)	300	409		1,104	886	893	79	860	467	654	1,198	80	-
I-10 WB Ramps and Jackrabbit Trail (All-Way Stop Controlled)													
LOS	B	F	-	-	F		-	-	-	F	F		F
Average Delay (s)	11	122	-	-	134		-	-	-	61	416		192
95th Percentile Queue (ft)	351	454	-	-	548		-	-	-	972	2,486		-
I-10 EB Ramps and Jackrabbit Trail (All-Way Stop Controlled)													
LOS	-	F	F	A	F	-	F			-	-	-	F
Average Delay (s)	-	338	260	10	72	-	414			-	-	-	218
95th Percentile Queue (ft)	-	829	831	339	547	-	2,019			-	-	-	-
Gas Station Access and Jackrabbit Trail (Signal Controlled)													
LOS	-	F	F	B	-	-	-	-	-	B	-	E	E
Average Delay (s)	-	177	107	20	-	-	-	-	-	17	-	57	60
95th Percentile Queue (ft)	-	362	246	75	-	-	-	-	-	62	-	123	-
Roosevelt Street and Jackrabbit Trail (Signal Controlled)													
LOS	E	F	A	C	C	A	F	F	A	D	F		F
Average Delay (s)	71	303	2	31	27	3	818	2,019	10	48	113		616
95th Percentile Queue (ft)	417	794	144	50	327	217	1,442	1,624	144	54	164		-

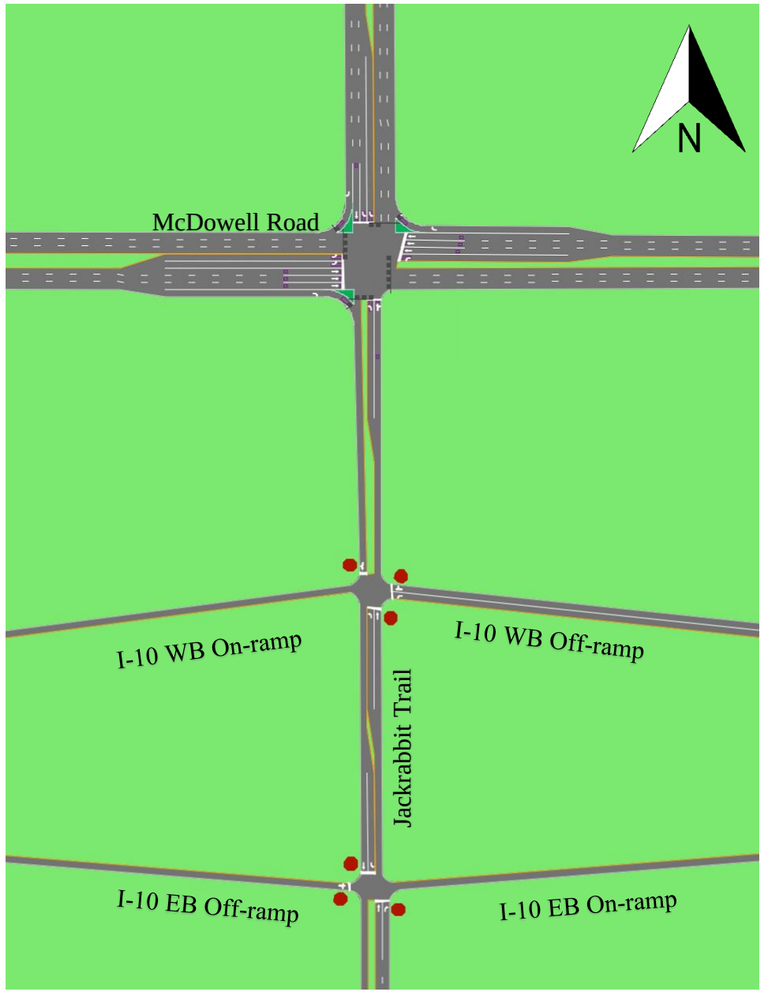


Figure 5.1 – 2050 No-Build Intersection Diagram

5.4 2050 Build Intersection Analysis

The 2050 Build LOS, delay, and 95th percentile queues at the study area intersections on the Jackrabbit Trail corridor were evaluated using the 2050 Build volumes, intersection improvements, and the TDI and DDI interchange design alternatives described previously in **Chapter 3** of this report.

5.4.1 Diverging Diamond Interchange Capacity Analysis Results

An intersection diagram extracted from Synchro showing the DDI lane geometry and intersection numbering is presented in **Figure 5.2**. Intersection numbers at the DDI are provided for reference in reviewing the DDI scenario analysis results. The results of the 2050 Build AM and 2050 Build PM intersection capacity analyses with the DDI configuration are shown in **Table 5.6** and **Table 5.7**, respectively. The SimTraffic output reports for the 2050 DDI scenario are provided in **Appendix 6**.

The NB dual left-turn lane storage at McDowell Road is limited in the DDI scenario because of the close proximity of the I-10 WB ramps intersection and the DDI geometry requiring more space on either end of the TI for vehicles to cross back into their standard travel lanes and directions.

The 2050 Build with DDI scenario has the following operational results during the AM peak hour:

- The McDowell Road intersection operates at LOS C with all movements operating at LOS D or better except for the SB left-turn movement operating at LOS E, which has low volume and a small portion of the overall signal cycle length dedicated to that movement. The longest 95th percentile queue is 326 feet long in the SB through lanes.
- The I-10/Jackrabbit Trail DDI intersections operate at LOS A or LOS B with all movements operating at LOS B or better. The longest 95th percentile queue is 163 feet long in the SB through lanes at Intersection 11.
- The Gas Station Access intersection operates at LOS A with all movements operating at LOS C or better. The longest 95th percentile queue is 176 feet long in the NB through lanes.
- The Roosevelt Street intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 213 feet long in the NB through lanes.

The 2050 Build with DDI scenario has the following operations during the PM peak hour:

- The McDowell Road intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 256 feet long in the SB through lanes.
- The I-10/Jackrabbit Trail DDI intersections operate at LOS A or LOS B with all movements operating at LOS B or better. The longest 95th percentile queue is 188 feet long in the SB through lanes at Intersection 11.
- The Gas Station Access intersection operates at LOS A with all movements operating at LOS C or better. The longest 95th percentile queue is 168 feet long in the NB through lanes.

- The Roosevelt Street intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 246 feet long in the EB left-turn lane.

Concerns with the I-10 TI DDI operations come from the proximity of, and interaction with, the McDowell Road intersection to the north. McDowell Road is planned to be extended west to Verrado Way in Fiscal Year (FY) 2025-2026. With the McDowell Road extension and further development in the area, it is anticipated that by 2050 during peak hours heavy traffic flow will come from the I-10 WB off-ramp at Jackrabbit Trail, head north and make a NB left turn at McDowell Road. The intersection spacing is already tight, not allowing for much weaving distance, and the DDI configuration only allows for 340 feet between where the I-10 WB off-ramp right-turning traffic merges with NB Jackrabbit Trail and the McDowell Road intersection. Due to geometric constraints, the DDI also only allows for 125 feet of storage for the NB dual left-turn lanes at McDowell Road, which does not accommodate the anticipated NB left-turn queue of 180 feet in the AM peak hour and of 218 feet in the PM peak hour.

Table 5.6 – 2050 Build with DDI Capacity Analysis Results: AM Peak Hour

Intersection	NB Approach			SB Approach			EB Approach			WB Approach			Overall
	L	T	R	L	T	R	L	T	R	L	T	R	
McDowell Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	B	A	E	C	A	C	D	C	C	C	A	C
Average Delay (s)	47	16	2	56	29	3	28	38	27	31	30	4	28
95th Percentile Queue (ft)	180	149	46	177	326	11	69	309	315	115	139	37	-
I-10 WBR Off Ramp [Int. ID 14] (Signal Controlled)													
LOS	-	A	-	-	-	-	-	-	-	-	-	A	A
Average Delay (s)	-	4	-	-	-	-	-	-	-	-	-	8	6
95th Percentile Queue (ft)	-	30	-	-	-	-	-	-	-	-	-	143	-
Jackrabbit Trail NB/SB [Int. ID 11] (Signal Controlled)													
LOS	-	A	-	-	B	-	-	-	-	-	-	-	B
Average Delay (s)	-	8	-	-	14	-	-	-	-	-	-	-	12
95th Percentile Queue (ft)	-	58	-	-	163	-	-	-	-	-	-	-	-
I-10 WBL Off Ramp [Int. ID 8] (Signal Controlled)													
LOS	-	-	-	-	A	-	-	-	-	A	-	-	A
Average Delay (s)	-	-	-	-	9	-	-	-	-	10	-	-	10
95th Percentile Queue (ft)	-	-	-	-	116	-	-	-	-	98	-	-	-
I-10 EBL Off Ramp [Int. ID 5] (Signal Controlled)													
LOS	-	A	-	-	-	-	A	-	-	-	-	-	A
Average Delay (s)	-	4	-	-	-	-	6	-	-	-	-	-	5
95th Percentile Queue (ft)	-	50	-	-	-	-	65	-	-	-	-	-	-
Jackrabbit Trail SB/NB [Int. ID 3] (Signal Controlled)													
LOS	-	A	-	-	A	-	-	-	-	-	-	-	A
Average Delay (s)	-	8	-	-	7	-	-	-	-	-	-	-	7
95th Percentile Queue (ft)	-	119	-	-	84	-	-	-	-	-	-	-	-
I-10 EBR Off Ramp[Int. ID 18] (Signal Controlled)													
LOS	-	-	-	-	A	-	-	-	A	-	-	-	A
Average Delay (s)	-	-	-	-	3	-	-	-	8	-	-	-	4
95th Percentile Queue (ft)	-	-	-	-	44	-	-	-	83	-	-	-	-
Gas Station Access and Jackrabbit Trail (Signal Controlled)													
LOS	-	A	A	C	-	-	-	-	-	C	-	B	A
Average Delay (s)	-	5	2	25	-	-	-	-	-	32	-	12	9
95th Percentile Queue (ft)	-	176	22	85	-	-	-	-	-	66	-	55	-
Roosevelt Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	C	A	B	A	A	D	C	A	D	D		C
Average Delay (s)	45	34	3	19	8	3	42	32	3	53	50		23
95th Percentile Queue (ft)	115	213	15	35	95	47	80*	38	0	40	69		-

* Queue for inside left-turn lane

Table 5.7 – 2050 Build with DDI Capacity Analysis Results: PM Peak Hour

Intersection	NB Approach			SB Approach			EB Approach			WB Approach			Overall
	L	T	R	L	T	R	L	T	R	L	T	R	
McDowell Road and Jackrabbit Trail (Signal Controlled)													
LOS	C	B	A	D	D	A	D	D	A	D	D	A	C
Average Delay (s)	27	20	4	43	40	4	37	48	10	40	40	6	28
95th Percentile Queue (ft)	218	243	156	173	256	16	79	215	220	142	203	106	-
I-10 WBR Off Ramp [Int. ID 14] (Signal Controlled)													
LOS	-	A	-	-	-	-	-	-	-	-	-	A	A
Average Delay (s)	-	8	-	-	-	-	-	-	-	-	-	9	9
95th Percentile Queue (ft)	-	71	-	-	-	-	-	-	-	-	-	160	-
Jackrabbit Trail NB/SB [Int. ID 11] (Signal Controlled)													
LOS	-	A	-	-	B	-	-	-	-	-	-	-	B
Average Delay (s)	-	9	-	-	13	-	-	-	-	-	-	-	11
95th Percentile Queue (ft)	-	102	-	-	188	-	-	-	-	-	-	-	-
I-10 WBL Off Ramp [Int. ID 8] (Signal Controlled)													
LOS	-	-	-	-	A	-	-	-	-	A	-	-	A
Average Delay (s)	-	-	-	-	6	-	-	-	-	10	-	-	7
95th Percentile Queue (ft)	-	-	-	-	82	-	-	-	-	122	-	-	-
I-10 EBL Off Ramp [Int. ID 5] (Signal Controlled)													
LOS	-	A	-	-	-	-	A	-	-	-	-	-	A
Average Delay (s)	-	5	-	-	-	-	8	-	-	-	-	-	6
95th Percentile Queue (ft)	-	80	-	-	-	-	101	-	-	-	-	-	-
Jackrabbit Trail SB/NB [Int. ID 3] (Signal Controlled)													
LOS	-	A	-	-	A	-	-	-	-	-	-	-	A
Average Delay (s)	-	6	-	-	9	-	-	-	-	-	-	-	7
95th Percentile Queue (ft)	-	134	-	-	131	-	-	-	-	-	-	-	-
I-10 EBR Off Ramp[Int. ID 18] (Signal Controlled)													
LOS	-	-	-	-	A	-	-	-	A	-	-	-	A
Average Delay (s)	-	-	-	-	5	-	-	-	7	-	-	-	5
95th Percentile Queue (ft)	-	-	-	-	71	-	-	-	66	-	-	-	-
Gas Station Access and Jackrabbit Trail (Signal Controlled)													
LOS	-	A	A	C	-	-	-	-	-	C	-	A	A
Average Delay (s)	-	7	3	24	-	-	-	-	-	24	-	8	9
95th Percentile Queue (ft)	-	168	34	131	-	-	-	-	-	64	-	41	-
Roosevelt Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	C	A	D	C	A	D	C	A	D	D		C
Average Delay (s)	42	23	3	42	24	4	40	29	7	53	54		26
95th Percentile Queue (ft)	119	149	9	61	199	143	246*	52	68	39	107		-

* Queue for inside EB left-turn lane

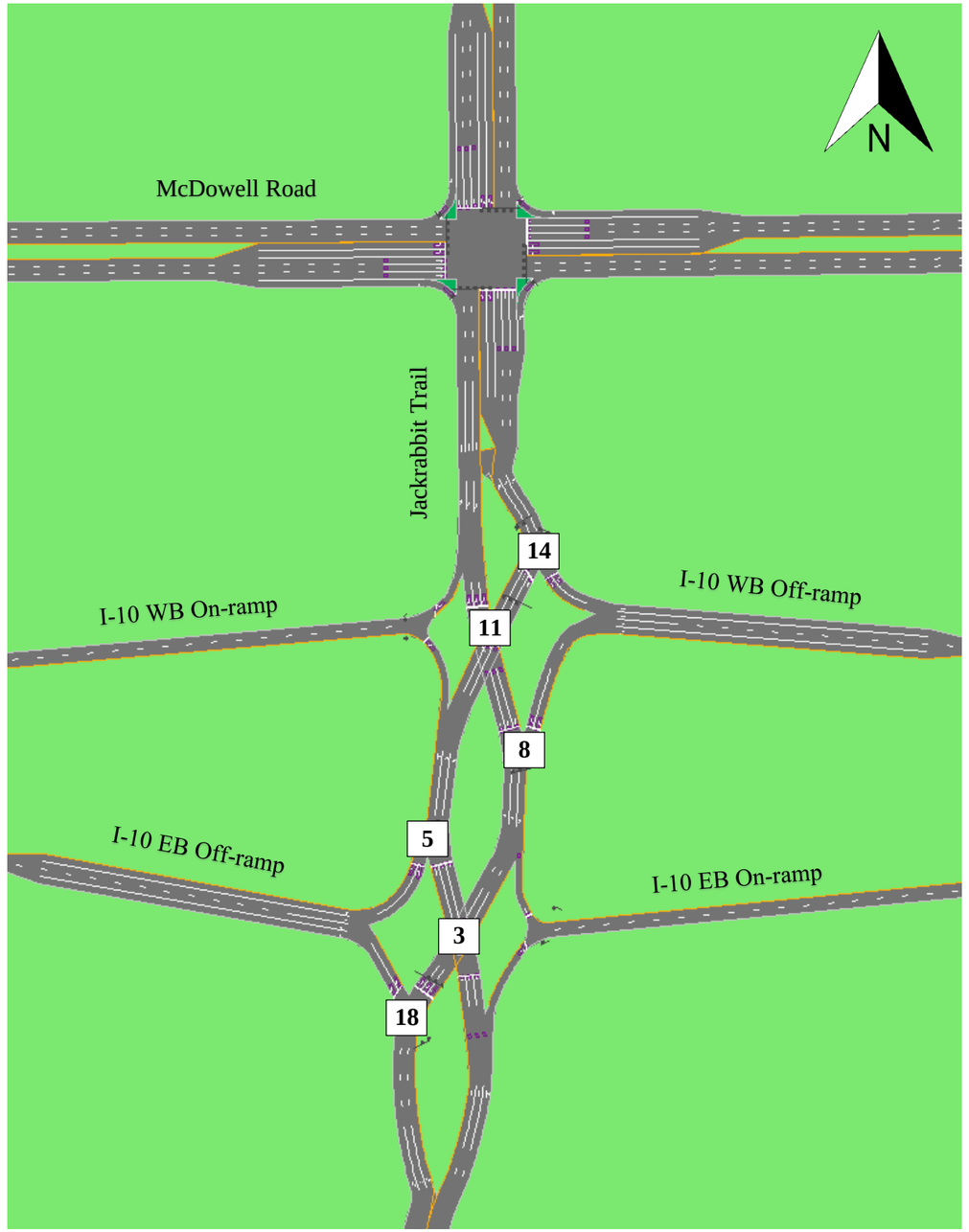


Figure 5.2 – DDI Intersection Diagram

5.4.2 Tight Diamond Interchange-1L: Capacity Analysis Results

An intersection diagram extracted from Synchro showing the TDI-1L lane geometry is presented in **Figure 5.3**. The results of the 2050 Build AM and 2050 Build PM intersection capacity analyses with the TDI-1L configuration are shown in **Table 5.8** and **Table 5.9**, respectively. The SimTraffic output reports for the 2050 TDI-1L scenario are provided in **Appendix 6**.

The 2050 Build with TDI-1L scenario has the following operational results during the AM peak hour:

- The McDowell Road intersection operates at LOS C with all movements operating at LOS D or better except for the SB left-turn movement operating at LOS E, which has low volume and a small portion of the overall signal cycle length dedicated to that movement. The longest 95th percentile queue is 469 feet long in the SB through lanes.
- The I-10 WB Ramps intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 441 feet long in the SB through lanes.
- The I-10 EB Ramps intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 549 feet long in the SB left-turn lane, which extends upstream to the I-10 WB Ramps intersection.
- The Gas Station Access intersection operates at LOS A with all movements operating at LOS B or better. The longest 95th percentile queue is 144 feet long in the NB through lane.
- The Roosevelt Street intersection operates at LOS B with all movements operating at LOS D or better. The longest 95th percentile queue is 129 feet long in the NB left-turn lane.

The 2050 Build with TDI-1L scenario has the following operational results during the PM peak hour:

- The McDowell Road intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 477 feet long in the NB through lanes.
- The I-10 WB Ramps intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 306 feet long in the NB through lanes.
- The I-10 EB Ramps intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 362 feet long in the NB through lanes.
- The Gas Station Access intersection operates at LOS B with all movements operating at LOS C or better. The longest 95th percentile queue is 264 feet long in the NB through lanes.
- The Roosevelt Street intersection operates at LOS C with all movements operating at LOS D or better except for the SB left-turn movement operating at LOS E, which has low volume and a small portion of the overall signal cycle length dedicated to that movement. The longest 95th percentile queue is 287 feet long in the EB left-turn lanes.

The weaving distance between the McDowell Road intersection and the I-10 WB Ramps intersection is maximized with the TDI configuration, providing approximately 500 feet between where the I-10 WB off-ramp right-turning traffic merges with NB Jackrabbit Trail and the McDowell Road intersection. This configuration also allows for the most storage for NB left-turning vehicles at McDowell Road, providing for 315 feet of storage for the NB dual left-turn lanes at McDowell Road.

Table 5.8 – 2050 Build with TDI-1L Capacity Analysis Results: AM Peak Hour

Intersection	NB Approach			SB Approach			EB Approach			WB Approach			Overall
	L	T	R	L	T	R	L	T	R	L	T	R	
McDowell Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	C	A	E	C	A	C	D	A	D	D	A	C
Average Delay (s)	38	25	6	58	30	2	35	46	6	40	37	3	30
95th Percentile Queue (ft)	183	234	165	247	469	13	76	244	179	138	175	46	-
I-10 WB Ramps and Jackrabbit Trial (Signal Controlled)													
LOS	D	D	-	-	C	A	-	-	-	D	-	A	C
Average Delay (s)	54	40	-	-	35	7	-	-	-	55	-	8	31
95th Percentile Queue (ft)	183	151	-	298	441	54	-	-	-	229	146	96	-
I-10 EB Ramps and Jackrabbit Trail (Signal Controlled)													
LOS	-	C	B	D	B	-	D	-	A	-	-	-	C
Average Delay (s)	-	35	16	50	15	-	40	-	6	-	-	-	29
95th Percentile Queue (ft)	131	147	205	549	310	-	142	117	52	-	-	-	-
Gas Station Access and Jackrabbit Trail (Signal Controlled)													
LOS	-	A	A	B	-	-	-	-	-	B	-	A	A
Average Delay (s)	-	5	4	14	-	-	-	-	-	17	-	8	7
95th Percentile Queue (ft)	-	144	46	108	-	-	-	-	-	51	-	49	-
Roosevelt Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	A	A	D	B	A	D	D	A	D	D		B
Average Delay (s)	50	6	2	48	13	3	48	51	6	55	55		17
95th Percentile Queue (ft)	129	128	13	51	129	54	84*	46	56	28	72		-

* Queue for inside EB left-turn lane

Table 5.9 – 2050 Build with TDI-1L Capacity Analysis Results: PM Peak Hour

Intersection	NB Approach			SB Approach			EB Approach			WB Approach			Overall
	L	T	R	L	T	R	L	T	R	L	T	R	
McDowell Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	C	A	D	C	A	D	D	B	D	D	A	C
Average Delay (s)	53	28	8	55	32	2	40	49	18	40	41	4	33
95th Percentile Queue (ft)	302	477	222	199	241	17	87	382	311	152	248	198	-
I-10 WB Ramps and Jackrabbit Trial (Signal Controlled)													
LOS	D	C	-	-	D	B	-	-	-	D	C	B	C
Average Delay (s)	43	25	-	-	39	14	-	-	-	39	31	13	28
95th Percentile Queue (ft)	175	306	-	160	244	192	-	-	-	222	224	158	-
I-10 EB Ramps and Jackrabbit Trail (Signal Controlled)													
LOS	-	D	B	C	B	-	D	-	A	-	-	-	C
Average Delay (s)	-	38	15	34	16	-	38	-	9	-	-	-	25
95th Percentile Queue (ft)	191	362	243	210	212	-	210	206	42	-	-	-	-
Gas Station Access and Jackrabbit Trail (Signal Controlled)													
LOS	-	A	A	C	-	-	-	-	-	C	-	A	B
Average Delay (s)	-	10	7	27	-	-	-	-	-	28	-	10	12
95th Percentile Queue (ft)	-	264	60	155	-	-	-	-	-	67	-	52	-
Roosevelt Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	B	A	E	B	A	D	C	A	D	D		C
Average Delay (s)	50	17	4	67	13	5	44	30	9	55	55		22
95th Percentile Queue (ft)	147	215	54	71	137	38	287*	85	76	54	88		-

* Queue for inside EB left-turn lane

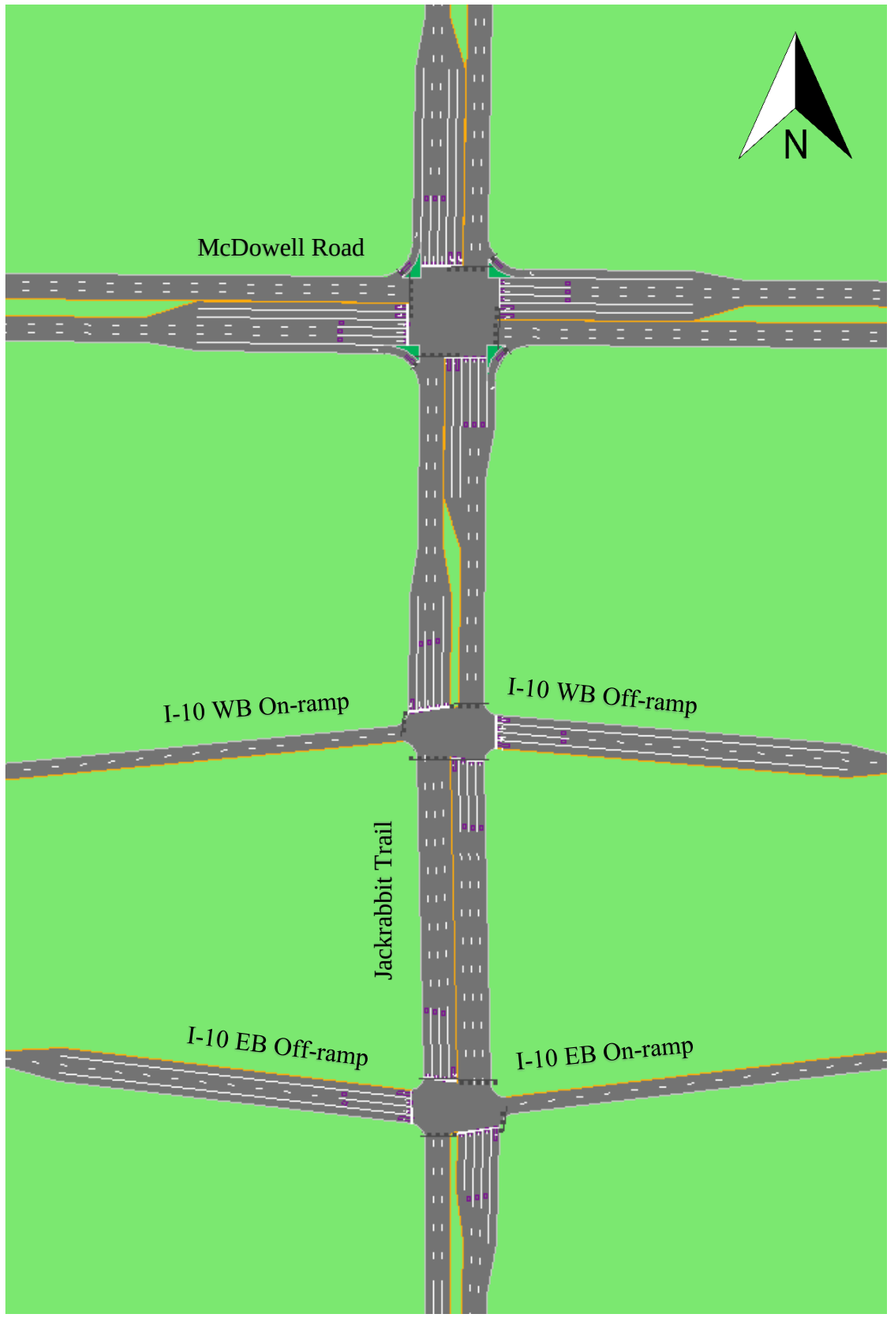


Figure 5.3 – TDI-1L Intersection Diagram

5.4.3 Tight Diamond Interchange-2L: Capacity Analysis Results (Preferred Alternative)

An intersection diagram extracted from Synchro showing the TDI-2L lane geometry is presented in **Figure 5.4**. The results of the 2050 Build AM and 2050 Build PM intersection capacity analyses with the TDI-2L configuration are shown in **Table 5.10** and **Table 5.11**, respectively. The SimTraffic output reports for the 2050 TDI-2L scenario are provided in **Appendix 6**.

The 2050 Build with TDI-2L scenario has the following operational results during the AM peak hour:

- The McDowell Road intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 289 feet long in the SB through lanes.
- The I-10 WB Ramps intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 192 feet long in the WB left-turn lane.
- The I-10 EB Ramps intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 293 feet long in the NB right-turn lane.
- The Gas Station Access intersection operates at LOS A with all movements operating at LOS B or better. The longest 95th percentile queue is 135 feet long in the NB through lanes.
- The Roosevelt Street intersection operates at LOS B with all movements operating at LOS D or better except for the WB lanes operating at LOS E, which have low volumes and a small portion of the overall signal cycle length dedicated to those movements. The longest 95th percentile queue is 140 feet long in the NB through/right- turn lane.

The 2050 Build with TDI-2L scenario has the following operational results during the PM peak hour:

- The McDowell Road intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 301 feet long in the NB through lanes.
- The I-10 WB Ramps intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 272 feet long in one of the WB through turn lanes.
- The I-10 EB Ramps intersection operates at LOS C with all movements operating at LOS D or better. The longest 95th percentile queue is 291 feet long in the NB through lanes.
- The Gas Station Access intersection operates at LOS A with all movements operating at LOS C or better. The longest 95th percentile queue is 218 feet long in the NB through lanes.
- The Roosevelt Street intersection operates at LOS C with all movements operating at LOS D or better except for the SB left-turn movement and WB through/right-turn lane operating at LOS E, which have low volumes and a small portion of the overall signal cycle length dedicated to those movements. The longest 95th percentile queue is 318 feet long in the EB left-turn lane.

The same weaving/storage benefits observed in TDI-1L are also seen in TDI-2L.

Table 5.10 – 2050 Build with TDI-2L Capacity Analysis Results: AM Peak Hour

Intersection	NB Approach			SB Approach			EB Approach			WB Approach			Overall
	L	T	R	L	T	R	L	T	R	L	T	R	
McDowell Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	C	A	D	C	A	D	D	A	D	D	A	C
Average Delay (s)	42	28	5	55	26	3	41	47	8	45	38	3	30
95th Percentile Queue (ft)	182	190	91	157	289	11	78	233	196	149	171	35	-
I-10 WB Ramps and Jackrabbit Trial (Signal Controlled)													
LOS	D	C	-	-	C	B	-	-	-	D	-	A	C
Average Delay (s)	38	31	-	-	23	11	-	-	-	46	-	8	24
95th Percentile Queue (ft)	92	140	-	175	161	114	-	-	-	192	139	88	-
I-10 EB Ramps and Jackrabbit Trail (Signal Controlled)													
LOS	-	C	B	C	B	-	D	-	C	-	-	-	C
Average Delay (s)	-	30	14	30	15	-	37	-	35	-	-	-	25
95th Percentile Queue (ft)	93	131	293	292	164	-	138	146	108	-	-	-	-
Gas Station Access and Jackrabbit Trail (Signal Controlled)													
LOS	-	A	A	B	-	-	-	-	-	B	-	A	A
Average Delay (s)	-	5	3	14	-	-	-	-	-	16	-	8	7
95th Percentile Queue (ft)	-	135	28	103	-	-	-	-	-	50	-	48	-
Roosevelt Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	A	A	D	A	A	D	D	A	E	E		B
Average Delay (s)	51	6	2	50	7	3	52	51	6	65	57		16
95th Percentile Queue (ft)	140	110	12	43	68	13	89*	46	49	27	71		-

* Queue for inside EB left-turn lane

Table 5.11 – 2050 Build with TDI-2L Capacity Analysis Results: PM Peak Hour

Intersection	NB Approach			SB Approach			EB Approach			WB Approach			Overall
	L	T	R	L	T	R	L	T	R	L	T	R	
McDowell Road and Jackrabbit Trail (Signal Controlled)													
LOS	C	C	A	D	D	A	D	D	B	D	D	A	C
Average Delay (s)	31	21	7	50	45	5	47	55	16	55	50	6	33
95th Percentile Queue (ft)	272	301	226	192	320	66	105	245	285	193	269	141	-
I-10 WB Ramps and Jackrabbit Trial (Signal Controlled)													
LOS	D	B	-	-	C	B	-	-	-	D	-	B	C
Average Delay (s)	42	15	-	-	24	12	-	-	-	41	-	17	22
95th Percentile Queue (ft)	107	235	-	116	256	197	-	-	-	247	272	215	-
I-10 EB Ramps and Jackrabbit Trail (Signal Controlled)													
LOS	-	C	B	D	B	-	C	-	C	-	-	-	C
Average Delay (s)	-	28	17	42	12	-	35	-	26	-	-	-	22
95th Percentile Queue (ft)	180	291	247	132	217	-	206	209	63	-	-	-	-
Gas Station Access and Jackrabbit Trail (Signal Controlled)													
LOS	-	A	A	C	-	-	-	-	-	C	-	B	A
Average Delay (s)	-	7	3	29	-	-	-	-	-	26	-	13	10
95th Percentile Queue (ft)	-	218	61	183	-	-	-	-	-	70	-	68	-
Roosevelt Road and Jackrabbit Trail (Signal Controlled)													
LOS	D	C	A	E	B	A	D	C	A	D	E		C
Average Delay (s)	54	21	5	63	19	5	46	29	9	54	60		26
95th Percentile Queue (ft)	173	218	55	77	153	36	318*	77	76	57	101		-

* Queue for inside EB left-turn lane

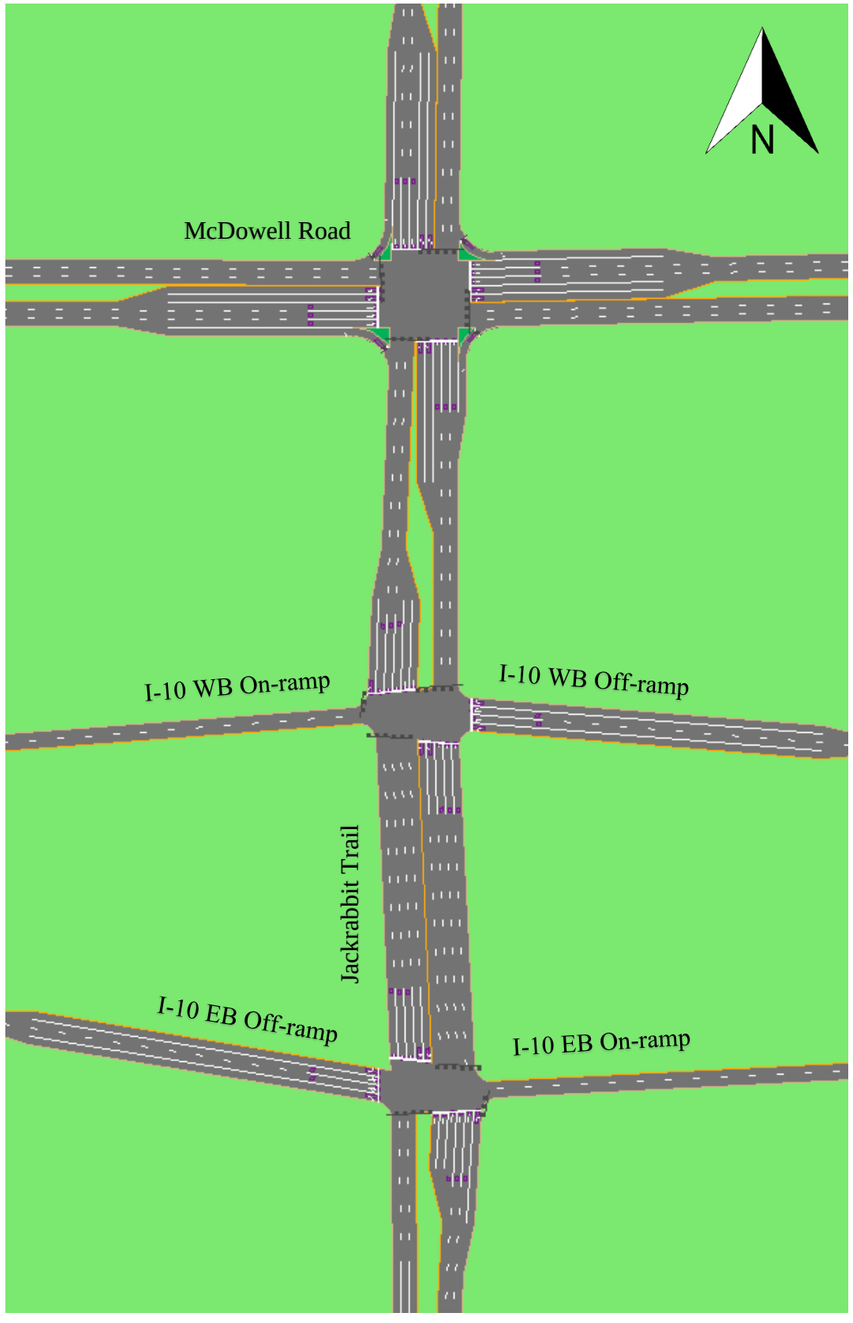


Figure 5.4 – TDI-2L Intersection Diagram

6. Other Interchange Considerations

Several other traffic-related considerations besides traffic operations should be evaluated when determining the advantages and disadvantages of various traffic interchange configurations. These include safety, interchange familiarity, access, traffic diversion accommodation, and pedestrian and bicyclist accommodation.

6.1 Motorist Safety

One measure of safety for interchange configurations is the number of vehicle conflict points, where vehicles may collide if travel right-of-way rules are not observed. Of particular concern are vehicle crossing points, where vehicles traveling different directions could potentially collide (such as in an angle or left-turn crash). These types of crashes are more likely to cause severe injury to vehicle occupants than vehicles traveling in the same general direction (such as sideswipe crashes). Perpendicular crossing points have a high potential for severe injury to vehicle occupants.

The TDI (whether stop-controlled or signal-controlled) has 26 conflict points, including 10 crossing points (4 of which are perpendicular). The DDI has 14 conflict points, including 2 crossing points (0 of which are perpendicular).

Head-on/wrong-way crashes have a high potential for severe injury to vehicle occupants. Head-on/wrong-way travel is prohibited only by signage at the TDI, whereas raised curbs and the angles of intersecting lanes make it more difficult to have head-on/wrong-way travel at the DDI.

Vehicle speeds at the TDI are controlled only by traffic signals and signage, whereas raised curbs and roadway geometry help reduce vehicle speeds at the DDI. This reduces the likelihood of severe injury to vehicle occupants in the event of a crash.

6.2 Interchange Familiarity

Most drivers that will pass through the I-10/Jackrabbit Trail TI will likely be familiar with how a TDI operates as the majority of freeway traffic interchanges in the greater Phoenix area are TDIs, including the existing I-10/Jackrabbit Trail TI and the two existing TIs directly adjacent to the I-10/Jackrabbit Trail TI (I-10/Verrado Way TI and I-10/Perryville Road TI).

Most drivers that will pass through the I-10/Jackrabbit Trail TI will likely not be very familiar with how a DDI operates as DDIs are relatively new to Arizona. To date, there are only five operating DDIs in the greater Phoenix area, all of which have been built in the last five years:

- I-17/Happy Valley Road TI
- I-10/Miller Road TI
- I-10/Watson Road TI
- Loop 202 South Mountain/Desert Foothills Parkway TI (half DDI)
- Loop 202 South Mountain/17th Avenue TI (half DDI)

The I-10/Miller Road TI and I-10/Watson Road TI DDIs are located in the City of Buckeye and are only a few miles away from the I-10/Jackrabbit Trail TI – some drivers at the I-10/Jackrabbit Trail TI may be familiar with these DDIs.

6.3 Access Management

As stated in Section 506 of the 2022 ADOT Roadway Design Guidelines (RDG), “adequate access control is essential to the safe and efficient operation of traffic interchanges.” All interchange configurations (DDI and TDI) will have the same or similar access control requirements that will affect access options on all four corners of the interchange and along the Jackrabbit Trail study corridor. The corridor will have a raised median on Jackrabbit Trail from Van Buren Street to north of McDowell Road, which is an effective means to regulate access control and has been shown to reduce crashes by 40% in urban areas and 60% in rural areas[1].

All interchange configurations will require complete ADOT access control on Jackrabbit Trail between McDowell Road and the I-10 WB Ramps and along the west side of Jackrabbit Trail south of the TI to Roosevelt Street. The east side of Jackrabbit Trail south of the TI has a proposed gas station with two access driveways, one right-in/right-out access approximately 550 feet south of the I-10 EB Ramps, and a full access signalized Florida T intersection (the Gas Station Access intersection) approximately 800 feet south of the I-10 EB Ramps.

Construction of the new TI will require the acquisition and removal of the existing gas station and its access on the east side of Jackrabbit Trail just north of I-10. It will also require the acquisition and removal of the existing access for Home Direct of Buckeye located on the east side of Jackrabbit Trail approximately 190 feet south of McDowell Road.

6.4 Traffic Diversion Accommodation

When there is a closure or restriction on I-10 east or west of Jackrabbit Trail, the I-10/Jackrabbit Trail TI can serve as a diversion point for traffic diverting from I-10. McDowell Road acts as an east/west alternate route for diverting traffic from I-10 via the I-10/Jackrabbit Trail TI or other TIs to the east. McDowell Road is planned to be widened and extended west to Verrado Way, with construction planned to start in FY 2025-2026. Once the extension is completed, McDowell Road will have increased capacity to carry diverted I-10 traffic both east and west from Jackrabbit Trail.

Interchange geometry and traffic control along the Jackrabbit Trail corridor, especially at the I-10 TI, should recognize the need for flexibility to accommodate significant diversions of traffic periodically due to incident and construction closures or restrictions, including routing mainline traffic to use interchange ramps to bypass the closures or restrictions. Recognizing this, ADOT has recently implemented the practice of providing a two-lane off-ramp and a four-lane ramp approach at TI ramp/crossroad intersections, where feasible, to provide flexibility in how traffic

[1] https://safety.fhwa.dot.gov/geometric/pubs/accessmgmtbrochure/median.htm

can be redirected. This practice includes providing the ability for traffic to cross straight through ramp/crossroad intersections and use the on-ramp to reenter the freeway mainline.

The DDI alternatives do not allow for exiting mainline traffic to cross straight through the ramp/crossroad intersection and immediately get back on the mainline. A DDI can be configured to provide diversion accommodation similar to the TDI (as is provided at the I-17/Happy Valley Road TI DDI) but is not feasible at the I-10/Jackrabbit Trail TI due to the proximity of McDowell Road and additional roadway length that would be required on Jackrabbit Trail. No off-ramp through movement can be provided at the I-10/Jackrabbit Trail TI with a DDI configuration due to the channelized left-turn and right-turn lanes on the off-ramps and on-ramps. Instead, diverting traffic would need to proceed to McDowell Road to the north or Yuma Road/Van Buren Street to the south to head east-west to a different TI or make a U-turn on Jackrabbit Trail to reenter the freeway mainline.

The TDI provides the desired ability to allow traffic to exit the mainline at the TI, continue across the crossroad at the TI, and then reenter the mainline. Traffic signal timing at a TDI can easily be modified to better accommodate diverted traffic volumes at the TI, minimizing back-ups onto the mainline.

6.5 Pedestrian and Bicyclist Accommodation and Safety

Pedestrians and bicyclists can be accommodated at both the DDI and TDI configurations being analyzed. The DDI and TDI can provide separate facilities for pedestrians (sidewalk) and bicyclists (bike lanes).

The DDI requires pedestrians to cross vehicle paths at least four times to get across the TI. There are typically pedestrian crossing phases within the traffic signal cycle that provide pedestrian clearance time for pedestrians to cross the channelized right-turn lanes. It can take up to four signal cycles for pedestrians to cross a DDI.

The TDI requires pedestrians to cross vehicle paths at least two times to get across the TI. There are typically pedestrian crossing phases within the traffic signal cycle that provide pedestrian clearance time for pedestrians to cross. If right turn lanes are channelized, the pedestrian crossing is typically not signalized although it can be. It can take up to two signal cycles for pedestrians to cross a TDI.

Bike lanes can be provided on Jackrabbit Trail for both the DDI and TDI configurations.

7. ENVIRONMENTAL REPORT DATA SUMMARY

ADOT requires a Noise Report and Air Quality Report as part of the Environmental Planning process, which include documentation of vehicle classifications, traffic projections and intersection/interchange LOS analysis along Jackrabbit Trail for the 2022 Existing, 2050 No-Build, and 2050 Build scenarios. The following section summarizes these results for use in the Noise Report and Air Quality Report.

7.1 Noise Report Data Summary

For the purposes of this analysis, vehicle volumes were divided into the following three vehicle classification categories:

- Passenger cars;
- Medium vehicles; and
- Heavy vehicles.

Traffic volumes were categorically classified using the FHWA 13-Class classification scheme, where passenger cars are in FHWA Classes 1-4, medium vehicles are in FHWA Class 5, and heavy vehicles are in FHWA Classes 6-13. **Table 7.1** summarizes the percentages of passenger cars, medium vehicles, and heavy vehicles on Jackrabbit Trail north and south of the Jackrabbit Trail TI. These percentages were applied uniformly to each of the analysis scenarios.

Table 7.1 – Noise Report Vehicle Classification Percentages

Roadway Segment	Passenger Cars	Medium Vehicles	Heavy Vehicles
Jackrabbit Trail North of I-10	87%	9%	4%
Jackrabbit Trail South of I-10	93%	4%	3%

Table 7.2 summarizes the bidirectional ADT volumes and peak hour volumes north and south of the I-10/Jackrabbit Trail TI. The bidirectional peak hour volumes were calculated using the K-factors shown in the previously referenced **Table 3.1** and the vehicle classification percentages shown in the previously referenced **Table 7.1**.

Table 7.2 – Noise Report Traffic Volumes

	Roadway Segment	ADT Volume (vpd)	Peak Hour Volume (vph)			
			Total	Passenger Cars	Medium Vehicles	Heavy Vehicles
2022 Existing	Jackrabbit Trail North of I-10	12,781	1,151	1,001	104	46
	Jackrabbit Trail South of I-10	13,822	1,244	1,157	50	37
	Jackrabbit Trail & I-10 WB Off Ramp	7,046	635	552	57	25
	Jackrabbit Trail & I-10 WB On Ramp	1,976	178	155	16	7
	Jackrabbit Trail & I-10 EB Off Ramps	1,918	173	151	16	7
	Jackrabbit Trail & I-10 EB On Ramps	6,787	611	532	55	24
2050 No-Build	Jackrabbit Trail North of I-10	34,882	3,140	2,732	283	126
	Jackrabbit Trail South of I-10	24,174	2,176	2,024	87	65
	Jackrabbit Trail & I-10 WB Off Ramp	12,062	1,086	945	98	43
	Jackrabbit Trail & I-10 WB On Ramp	10,005	901	784	81	36
	Jackrabbit Trail & I-10 EB Off Ramps	8,731	786	684	71	31
	Jackrabbit Trail & I-10 EB On Ramps	11,692	1,053	916	95	42
2050 Build	Jackrabbit Trail North of I-10	36,003	3,241	2,819	292	130
	Jackrabbit Trail South of I-10	31,000	2,790	2,594	112	84
	Jackrabbit Trail & I-10 WB Off Ramp	13,120	1,181	1,027	106	47
	Jackrabbit Trail & I-10 WB On Ramp	6,952	626	545	56	25
	Jackrabbit Trail & I-10 EB Off Ramps	6,397	576	501	52	23
	Jackrabbit Trail & I-10 EB On Ramps	13,081	1,178	1,025	106	47

7.2 Air Quality Report Data Summary

Table 7.3 summarizes the ADTs for all vehicles and truck ADTs and percentages for both medium and heavy vehicles on Jackrabbit Trail north and south of the I-10/Jackrabbit Trail TI.

Table 7.3 – Air Quality Report Daily Traffic Volumes and Truck Percentages

	2022 Existing	2050 No-Build	2050 Build	Difference (2050 Build vs. No-Build)
Jackrabbit Trail North of I-10				
Total ADT	12,781	34,882	36,003	1,121
Truck ADT	1,662	4,535	4,680	145
Truck %	13%	13%	13%	0%
Jackrabbit Trail South of I-10				
Total ADT	13,822	24,174	31,000	6,826
Truck ADT	968	1,692	2,170	478
Truck %	7%	7%	7%	0%
Jackrabbit Trail & WB I-10 Off Ramp				
Total ADT	7,046	12,062	13,120	1,058
Truck ADT	916	1,568	1,706	138
Truck %	13%	13%	13%	0%
Jackrabbit Trail & WB I-10 On Ramp				
Total ADT	1,976	10,005	6,952	-3,053
Truck ADT	257	1,300	904	-396
Truck %	13%	13%	13%	0%
Jackrabbit Trail & EB I-10 Off Ramp				
Total ADT	1,918	8,731	6,397	-2,334
Truck ADT	250	1,135	832	-303
Truck %	13%	13%	13%	0%
Jackrabbit Trail & EB I-10 On Ramp				
Total ADT	6,787	11,692	13,081	1,389
Truck ADT	882	1,520	1,700	180
Truck %	13%	13%	13%	0%
I-10 West of Jackrabbit Trail Ramps				
Total ADT	115,782	220,505	213,114	-7,391
Truck ADT	28,946	55,127	55,410	283
Truck %	25%	25%	26%	1%
I-10 Between Jackrabbit Trail Ramps				
Total ADT	111,888	211,035	206,353	-4,682
Truck ADT	27,972	56,979	55,715	-1,264
Truck %	27%	27%	27%	0%
I-10 East of Jackrabbit Trail Ramps				
Total ADT	125,721	229,839	227,096	-2,743
Truck ADT	31,430	57,459	56,774	-685
Truck %	25%	25%	25%	0%

Table 7.4 summarizes the overall intersection/interchange LOS of each design alternative during the AM and PM peak hours.

Table 7.4 – Air Quality Report Intersection Level of Service

Intersection	Scenario	LOS	
		AM	PM
McDowell Road and Jackrabbit Trail	2022 Existing	E	C
	2050 No-Build	F	F
	2050 DDI	C	C
	2050 TDI-1L/2L	C/C	C/C
Intersection	**Scenario**	**LOS**	
		AM	**PM**
I-10 WB Ramps and Jackrabbit Trail	2022 Existing	E	C
	2050 No-Build	F	F
	2050 DDI	B	B
	2050 TDI-1L/2L	C/C	C/C
Intersection	**Scenario**	**LOS**	
		AM	**PM**
I-10 EB Ramps and Jackrabbit Trail	2022 Existing	C	D
	2050 No-Build	C	F
	2050 DDI	A	A
	2050 TDI-1L/2L	C/C	C/C
Intersection	**Scenario**	**LOS**	
		AM	**PM**
Gas Station Access and Jackrabbit Trail	2022 Existing	*	*
	2050 No-Build	A	E
	2050 DDI	A	A
	2050 TDI-1L/2L	A/A	B/A
Intersection	**Scenario**	**LOS**	
		AM	**PM**
Roosevelt Street and Jackrabbit Trail	2022 Existing ^	C	C
	2050 No-Build	B	F
	2050 DDI	C	C
	2050 TDI-1L/2L	B/B	C/C

*Intersection does not exist in 2022 Existing conditions.
^Traffic volume data is from 2023.

8. SUMMARY AND RECOMMENDATIONS

8.1 Summary

The principal findings of the traffic analysis are summarized below. **Table 8.1** summarizes the worst intersection LOS for each scenario with its accompanying delay in seconds.

The four alternatives were modeled below for the 2050 conditions:

- No-Build
- DDI
- TDI with three through lanes and one left-turn lane at the TI (TDI-1L)
- TDI with three through lanes and two left-turn lanes at the TI (TDI-2L)

McDowell Road/Jackrabbit Trail

- Existing LOS at the stop-controlled intersection is poor during peak times.
- No-Build LOS at the signalized intersection is poor during peak times in 2050.
- The improvements at McDowell Road provide an overall LOS C or better through 2050.

I-10/Jackrabbit Trail TI

- Existing LOS at the stop-controlled intersections are poor during peak times and will continue to degrade in the future without improvements as seen in the 2050 No-Build condition.
- The DDI provides an overall LOS A or LOS B at each TI ramp intersection and crossover point through 2050.
- The TDI provides an overall LOS C at each TI ramp intersection through 2050.

Gas Station Access/Jackrabbit Trail

- This intersection does not currently exist.
- The 2050 No-Build scenario provides LOS E or better through 2050.
- The improvements at Gas Station Access provide an overall LOS B or better through 2050.

Roosevelt Street/Jackrabbit Trail

- Existing LOS at the stop-controlled intersection is LOS C or better.
- The 2050 No-Build LOS at the signalized intersection is poor during the PM peak in 2050.
- The improvements at Roosevelt Street provide an overall LOS C or better through 2050.

Table 8.1 – 2050 Level of Service / Average Delay Summary

Intersection	2050 No-Build	2050 DDI	2050 TDI-1L	2050 TDI-2L
McDowell Road/Jackrabbit Trail	F / 198	C / 28	C / 33	C / 33
I-10/Jackrabbit Trail TI*	F / 218*	B / 12*	C / 31*	C / 25*
Gas Station Access/Jackrabbit Trail	E / 60	A / 9	B / 12	A / 10
Roosevelt Street/Jackrabbit Trail	F / 616	C / 26	C / 22	C / 26

*Worst Peak Hour Intersection LOS / Average Delay (s)

- All three 2050 Build scenarios modeled (representing the six improvement alternatives for the TI) provide acceptable LOS; however, the DDI alternative has short weaving distance between the I-10 WB Ramps and McDowell Road and NB left-turn queueing at McDowell Road that exceeds available storage while the TDI-1L alternative has SB queueing issues at both the I-10 WB Ramps and EB Ramps intersections that spill back to the upstream intersections.

Other Traffic-Related Interchange Considerations

- The DDI provides the most benefit in terms of safety because it has 14 conflicts points and two crossing points versus the TDI, which has 32 conflict points and 10 crossing points. Wrong way driving is also less likely on a DDI because of the raised medians and traffic patterns, which also factor into reducing vehicles speeds, whereas a TDI only has signing to deter wrong way driving, and additional signing and traffic signals to control speed.
- Drivers in the area are most familiar with the TDI.
- The DDI and TDI will likely have similar access requirements along Jackrabbit Trail.
- The TDI provides the most benefit in terms of traffic diversion accommodation; a DDI cannot provide convenient diversion accommodation at this location due to the proximity of McDowell Road and the additional roadway length that would be required on Jackrabbit Trail.
- The TDI provides the most benefit in terms of pedestrian and bicyclist accommodation with only two crossing points to cross the TDI while the DDI requires four crossing points to cross the DDI.

8.2 Recommendations

The six improvement alternatives were compared to each other and to the No-Build alternative using an alternatives matrix that evaluated each alternative for quantitative and qualitative criteria related to the grade-separated TI configurations. Each of the evaluation criteria was rated based on the following descriptors below:

- ● Strong Advantage
- ◐ Advantage
- ○ Neutral
- ◑ Disadvantage
- ● Strong Disadvantage

The Strong Advantage and Advantage descriptors are applied to scenarios that are expected to be positive improvements compared to the existing conditions. Neutral descriptors describe changes that are expected to have no impact or have both positive and negative impacts that offset each other. The Strong Disadvantage and Disadvantage descriptors are applied to scenarios that are expected to have a negative impact compared to existing conditions.

The following seven evaluation criteria were compared for the six alternatives.

1. Traffic Operations
2. Weaving and Storage Constraints
3. Motorist Safety
4. Interchange Familiarity
5. Access Management
6. Traffic Diversion Accommodation
7. Pedestrian and Bicyclist Accommodation and Safety

Other factors besides traffic considerations (e.g., right-of-way impacts, cost, etc.) should be considered before selecting the final preferred TI configuration at the I-10/Jackrabbit Trail TI.

The relative advantages and disadvantages for each evaluation criterion for the 2050 No-Build and all 2050 Build alternatives are summarized in **Table 8.2**.

The McDowell Road, Gas Station Access, and Roosevelt Road intersections all operate similarly across each scenario (DDI, TD-1, and TDI-2L), with a difference in delay across the scenarios of generally just a few seconds.

The DDI operates slightly better than the TDI at the TI, but both are acceptable. However, the DDI geometry has constraints on the NB left-turn lane at McDowell Road, limiting the storage capacity and creating a short weaving distance for vehicles exiting the I-10 WB off-ramp heading north to make a NB left turn at McDowell Road, which is anticipated to be a heavy movement when McDowell Road is improved and extended west to Verrado Way in FY 2025-2026.

TDI-1L and TDI-2L have similar LOS, but TDI-1L has significant SB queueing during the AM peak hour at both I-10 WB Ramps and EB Ramps intersections. The dual left-turn lanes in TDI-2L reduce these queues to stay between the TI intersections and prevent queues from spilling upstream to McDowell Road.

Traffic diversion accommodation at the TDI is also better, allowing for off-ramp vehicles to travel through the intersection and the ability to control the flow of the traffic with a standard TI traffic signal configuration.

Based on the traffic analysis, including the seven evaluation criteria listed previously, TDI-2L (three through lanes and two left-turn lanes) is recommended at the TI along with the aforementioned improvements at McDowell Road, Gas Station Access, and Roosevelt Road. The recommended lane configuration for the study intersections is shown in **Figure 8.1**.

Table 8.2 – Alternatives Evaluation Matrix of Traffic Criteria

Evaluation Criteria	*No-Build Alternative*	*Diverging Diamond Interchange (DDI)*	*Tight Diamond Interchange with One Left-Turn Lane (TDI-1L)*	*Tight Diamond Interchange with Two Left-Turn Lanes (TDI-2L)*
Traffic Operations (2050 AM/PM Level of Service)	● Does not meet capacity needs ● LOS F/F at TI	● Meets capacity needs ● LOS B/B at TI	● Meets capacity needs ◐ LOS C/C at TI	● Meets capacity needs ◐ LOS C/C at TI
Weaving and Storage Constraints	● Significant queue spillback to adjacent intersections; short weaving distance	◑ Insufficient NB left-turn storage at McDowell Road; very short weaving distance	◑ Moderate queue spillback to adjacent intersections; short weaving distance	○ No queue spillback or insufficient left-turn storage; short weaving distance
Motorist Safety	○ 26 conflict points, 10 crossing points	◐ 14 conflict points, 2 crossing points	○ 26 conflict points, 10 crossing points	○ 26 conflict points, 10 crossing points
Interchange Familiarity	● Very common configuration	◑ Less common configuration	● Very common configuration	● Very common configuration
Access Management	● Existing access points within typical access control	◐ No access points within typical access control; requires acquisition and removal of existing access	◐ No access points within typical access control; requires acquisition and removal of existing access	◐ No access points within typical access control; requires acquisition and removal of existing access
Traffic Diversion Accommodation	○ Through movement at ramps; stop control	◑ No through movements at ramps; signal control with increased capacity	● Through movement at ramps; signal control with increased capacity	● Through movement at ramps; signal control with increased capacity
Pedestrian and Bicyclist Accommodation and Safety	○ 2 crossings required, all stop-controlled; no sidewalks or crosswalks; low vehicle speeds at crossings	○ 4 crossings required, all signalized; sidewalks and crosswalks; high vehicle speeds at crossings	◐ 2 crossings required, all signalized; sidewalks and crosswalks; high vehicle speeds at crossings	◐ 2 crossings required, all signalized; sidewalks and crosswalks; high vehicle speeds at crossings

Legend

Strong Advantage ● Advantage ◐ Neutral ○ Disadvantage ◑ Strong Disadvantage ●

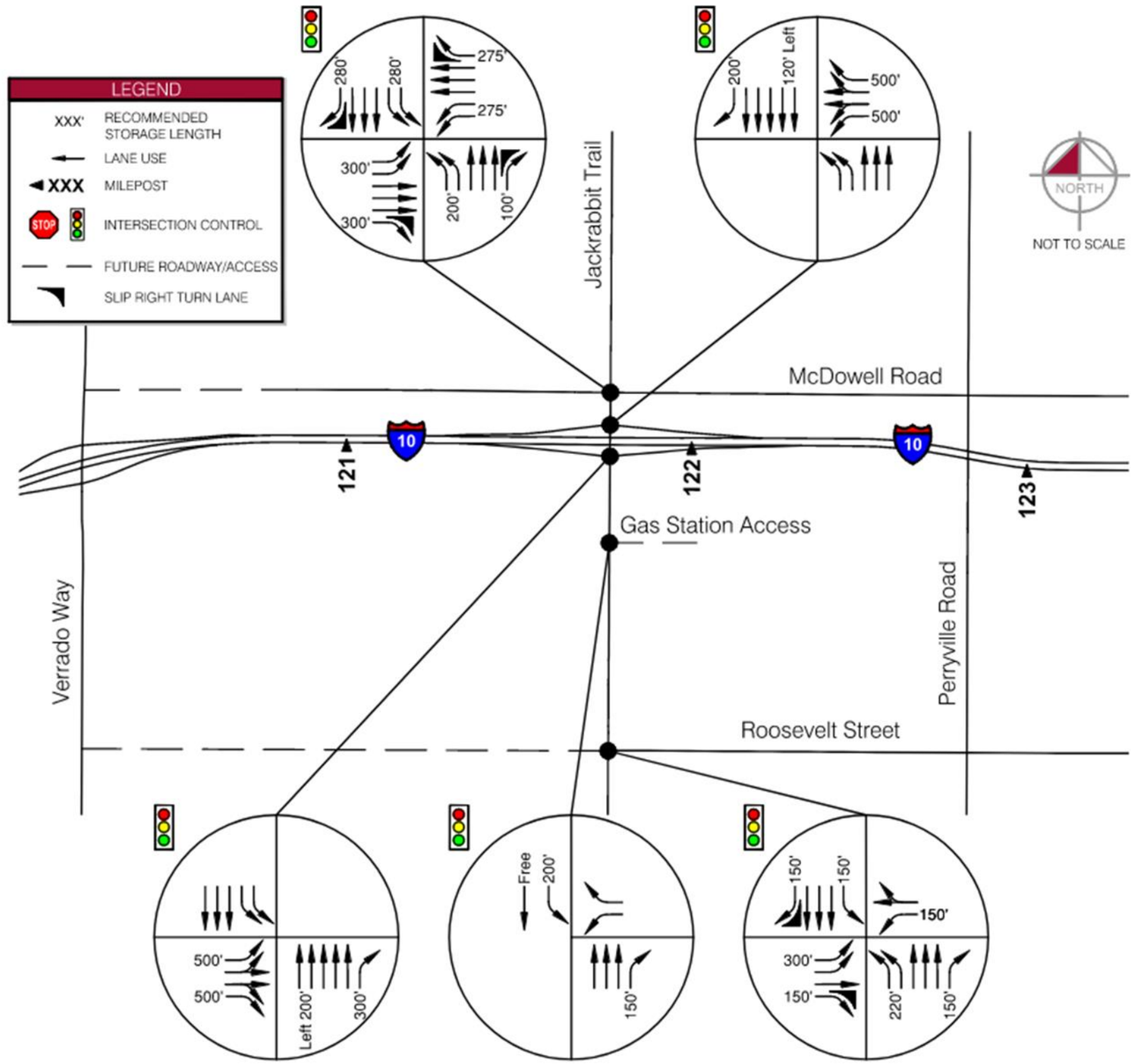


Figure 8.1 – Recommended Lane Configuration and Control

Appendix 1. MCDOT Final Traffic Analysis Technical Memorandum, Jackrabbit Trail Improvements: Van Buren Street to McDowell Road, February 2019

Technical Memorandum

Final Traffic Analysis

Jackrabbit Trail

Van Buren Street to McDowell Road

Project No.:TT0578

Contract No.: 2015-031

February 2019

Prepared For:

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I. INTRODUCTION

A. Project Background

Jackrabbit Trail is a north-south, 2-lane, principal arterial roadway on the MCDOT transportation system which is located near the eastern boundary of the City of Buckeye. Currently a two-lane roadway with intermittent left turn lanes, the existing roadway condition has created challenges to traffic operations, capacity and safety due to the increase in traffic from residential, industrial and commercial development within the area. Interstate 10 (I-10) is a major destination for travelers on Jackrabbit Trail and as such, a significant traffic volume enters and exits the I-10 using eastbound and westbound ramps.

In June 2016, MCDOT completed a Candidate Assessment Report (CAR) wherein it was shown that the roadway intersections have failing Levels of Service (LOS). The CAR recommended traffic signals at major intersections and the roadway capacity improvements. Since that report, traffic has increased due to the increased number of new homes built in the Blue Horizons and Vista de Montaña subdivisions. **Figure 1** shows a site map for the project location.

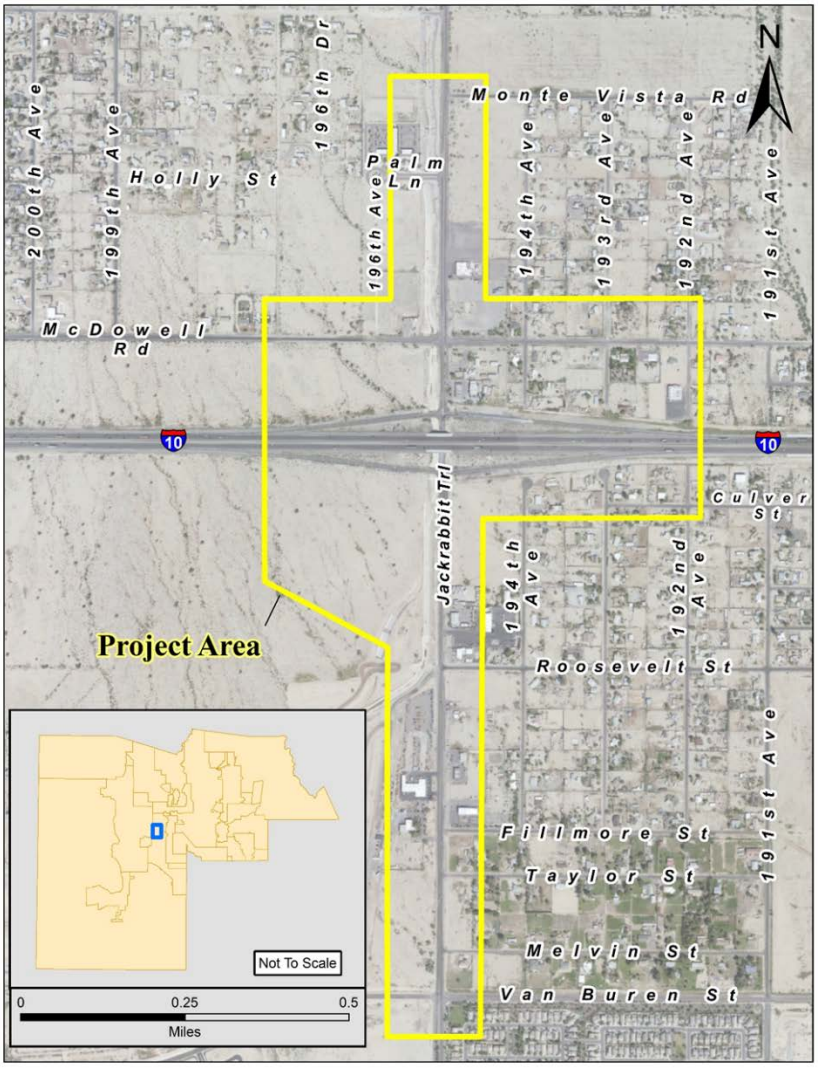


Figure 1 – Site Map

MCDOT has initiated this study to identify alternatives to improve the functionality of the roadway and intersections to meet the existing and future demands.

The purpose of this study is to analyze the existing traffic conditions as well as the projected future traffic conditions along Jackrabbit Trail from McDowell Road to Van Buren Street and to determine the roadway and intersection needs. The MAG Conformity Model with adjustment for the MCDOT White Tanks Small Area Transportation Study model was used as a reference to determine the projections for the horizon year 2040 annual average daily traffic (AADT) and the AADT projections for the roadway segments and turning movements were compared to the existing ADT counts and peak hour turning movements. This report also discusses the existing traffic and the short term needs for Jackrabbit Trail. A previous report conducted by ADOT found that traffic signals are warranted at the I-10 ramps as well as McDowell Road. Providing traffic signals at the intersections is not feasible with existing channel restrictions and proximity of McDowell Road to the I-10. Signals at McDowell Road would only become feasible with the relocation of the channel.

This study uses the ADOT and MCDOT design standards for developing alternatives within this area. A significant amount of issues occur within the ADOT right-of-way. Any capacity improvement within the study area which will improve the transportation system will need be done in partnership with ADOT and MAG.

II. EXISTING FEATURES/SURROUNDING AREA

A. Study Area

This traffic study is assessing the projected growth along Jackrabbit Trail from Van Buren Street to McDowell Road. The project area is located within MCDOT right-of-way; however, it connects with the City of Buckeye (City) roadways and ADOT right-of-way at the I-10 interchange. This project therefore affects all three jurisdictions. This area will see a large amount of growth over the next 20 to 30 years as development increases within the area. This section of Jackrabbit Trail will see a significant traffic increase as it is one of the longest north/south roadways within the western region of the Phoenix metro area and it allows direct access to the I-10. The City has stated they do not plan to annex any portion of Jackrabbit Trail within the project limits. **Figure 2** shows the location of the project.

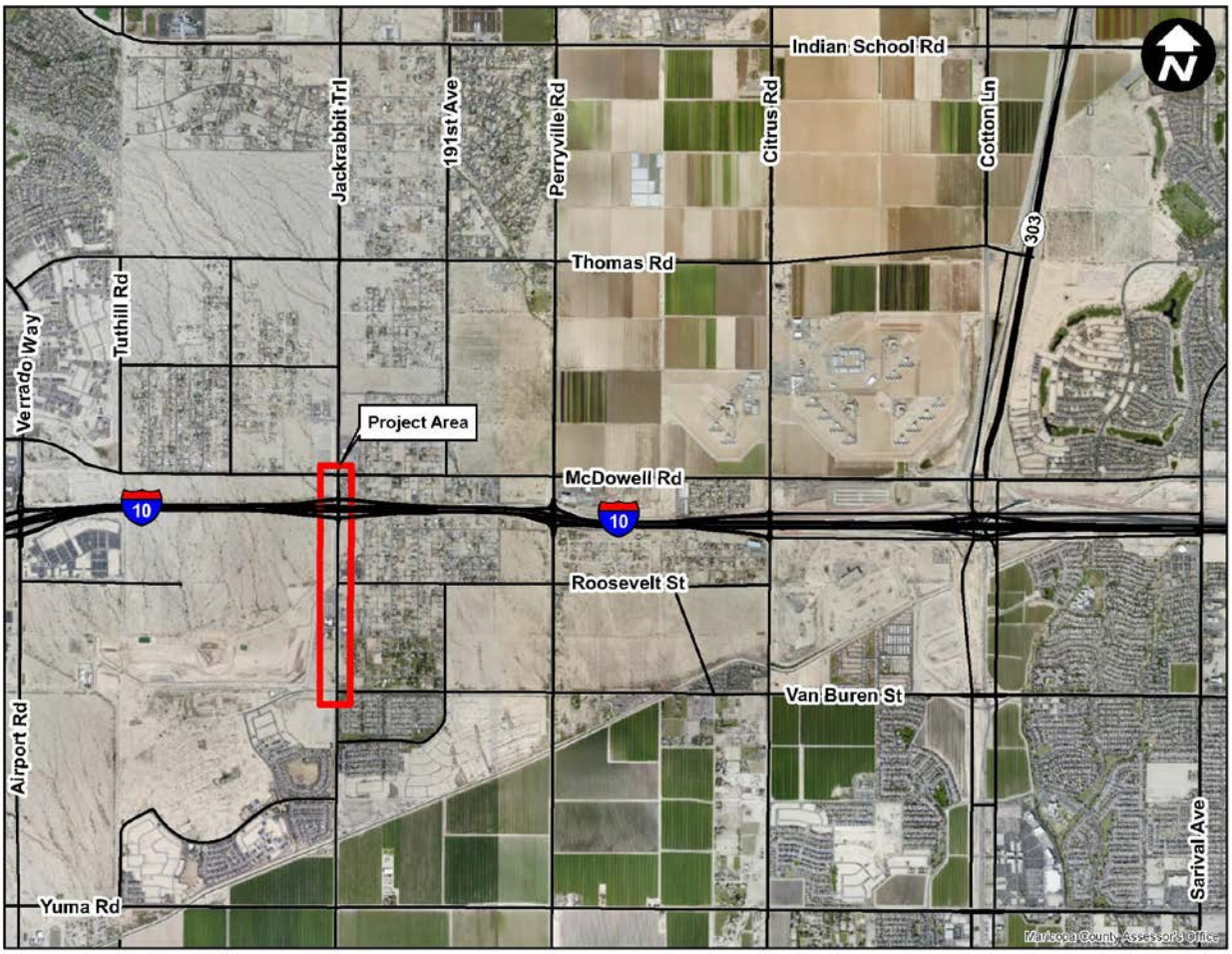


Figure 2 – Project Location

The influence area for this section of Jackrabbit Trail extends beyond the limits of the project. The roadway will be impacted by the increased development along this section of Jackrabbit Trail and beyond. The new but unoccupied commercial center at Verrado Way and Roosevelt Street will influence traffic. Future growth north of I-10 toward Indian School Road will increase traffic through the project area. The planned truck warehouse located at Perryville Road and Roosevelt Street will generate additional traffic. **Figure 3** depicts the existing and planned developments that will impact the traffic on Jackrabbit Trail.

The MAG TransCad traffic projection model considers many of the developments within the influence area.

B. Land Use

1. Existing Land Use

The existing land use along Jackrabbit Trail as well as the roadways connecting with Jackrabbit Trail consists of a mix of residential, rural, planned community, community commercial, commercial and industrial. Many of the commercial and industrial lots are currently vacant with development plans already underway or in construction. There is a large amount of planned growth for each land use within

the area. A Buckeye Park and Ride is also located north of the I-10. This park-and-ride is used for Valley Metro's Route 563: Buckeye Express, which connects to the Light Rail System at Central Avenue.

South of Van Buren Street, the land-use is the residential Master planned community of Vista De Montana to the east and the Blue Horizons Estates to the west. The Blue Horizons development will complete Van Buren Street to the west of Jackrabbit Trail with the intent of looping the road south and back to the east connecting back into Jackrabbit Trail ½ mile south of Van Buren. The southwest quadrant of the Jackrabbit Trail and Van Buren intersection is planned for future commercial.

From north of Van Buren to Fillmore Street, the east side is low density residential estate lots.

From Fillmore Street up to I-10, the east side is commercial with Preach Building & Landscape Supply, Circle K Market, AZ ATV Rentals, Triple D Feeds, Sprinkler World of Arizona, Sunstate Equipment Rental, Ewing Irrigation, and a modular home lot.

The west side from Fillmore Street to I-10 includes Whitton Construction, Bingham Equipment Supply and Carquest Auto Parts Store. North of this commercial area is the Flood Control District Flood Retarding Structure (FRS) No. 4 system. The FRS 4 currently has an improvement project which is being constructed.

North of I-10, the east side includes a Chevron Gas Station and a modular home model home showroom. The west side of Jackrabbit trail is the Jackrabbit Channel and vacant land to the east.

North of McDowell Road, the east side is vacant agricultural land except for a commercial restaurant/bar and the west side is vacant land.

2. Anticipated Future Land Use

Currently, the anticipated future land use types remain the same as the existing land use types. The planned communities already have a large amount of construction underway with the community lots mapped out and waiting to be built. Some of the rural farm land will also transition to commercial and residential areas along Jackrabbit Trail.

Figure 3 depicts many of the existing and planned development for the surrounding area. There are a number of developing areas and planned future development shown on the map. There are also a significant number of vacant parcels that will see future development as the area continues to grow. There is ultimately a lot of potential for growth and therefore a large traffic projection for Jackrabbit Trail.

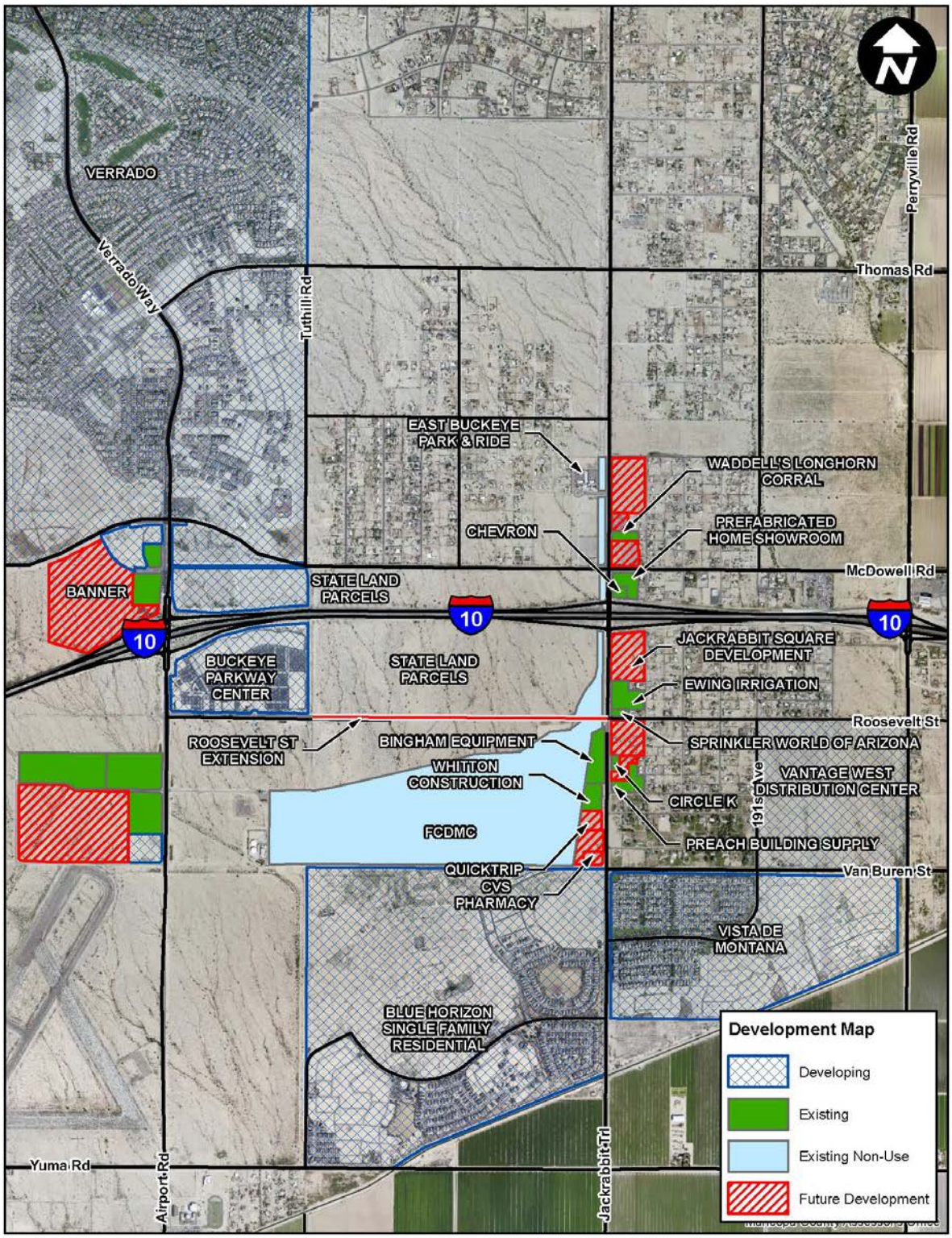


Figure 3 – Existing and Future Community Development

C. Site Accessibility

This section of Jackrabbit Trail can be accessed from several roadways along the project limits. The major roadways include McDowell Road, the I-10 ramps, Roosevelt Street, and Van Buren Street. Local connecting roads include Fillmore Street, Taylor Street, and Melvin Street. There is currently no west leg of Roosevelt Street. This is expected to change in the future when Roosevelt Street will eventually connect Jackrabbit Trail to Verrado Way and to the shopping center on the northeast corner of Roosevelt Street and Verrado Way. The Roosevelt Street Improvement District project, which will create the west leg of Roosevelt Street, is on hold for the time being. There are also a range of businesses along Jackrabbit Trail that have driveways accessing onto to Jackrabbit Trail. **Figure 4** summarizes the existing roadway system with the multimodal options for the area.

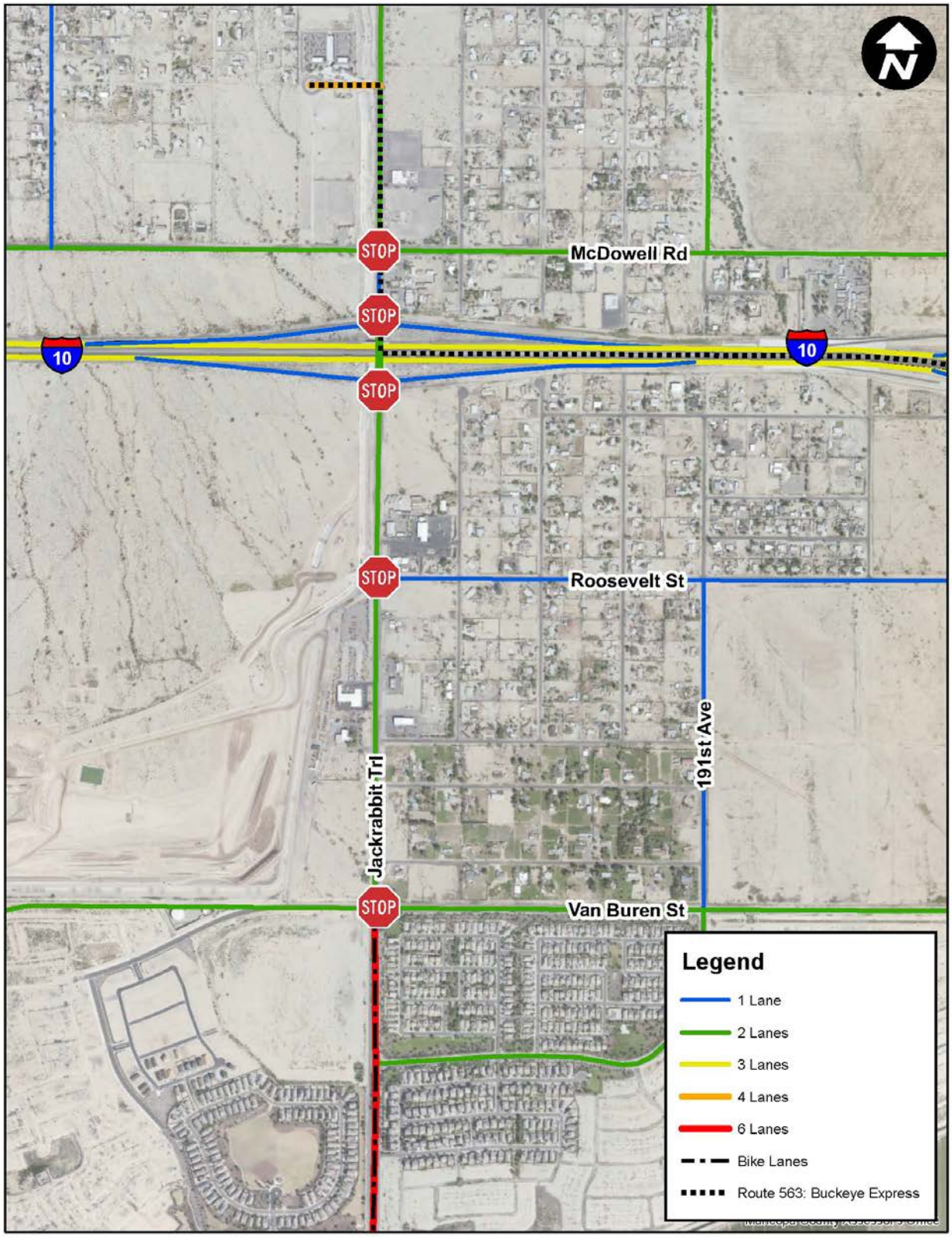


Figure 4 – Existing Roadway Map and Traffic Control

D. Pedestrian/Bicycle Facilities

There are currently no designated crosswalks or bike lanes along the project corridor. The area does appear to see a limited amount of pedestrian, bicycle and horse traffic. Children have been reported crossing the I-10 interchange to reach their bus stop. Many future pedestrian and bicycle generators are also planned for this area.

E. Transit

The East Buckeye Park and Ride lot is located north of McDowell Road on the west side of Jackrabbit Trail. The lot serves the Route 563 Buckeye Express which currently has 4 morning buses and 2 evening buses. The route carries passengers to the Transit Center in downtown Phoenix with a stop at the Avondale Park and Ride lot and at 17th Street and Adams near the state capitol. The route uses Jackrabbit Trail from Palm Lane to I-10 and then uses I-10 easterly.

F. Vehicles

There is a mix of vehicle types ranging from passenger vehicles to heavy trucks that travel along Jackrabbit Trail. Track traffic may increase along Roosevelt street due to a future trucking company that will be located east of the project limits on Roosevelt Street. The truck factor is discussed further in the Traffic Analysis section.

III. TRAFFIC ANALYSIS

A. Existing Roadways

1. Site Location and Description

The site is located on MCDOT right-of-way (ROW) within the City of Buckeye planning area and some incorporated areas. The roadway section is about 1.5 miles, starting ¼ mile south of Van Buren Street to ¼ mile north of McDowell Road as shown in **Figure 5**. Jackrabbit Trail is currently a two-lane roadway from the McDowell Road to Van Buren Street. Sections of the roadway between Roosevelt Street and Van Buren Street include a third two-way left turn center lane. South of Van Buren Street, Jackrabbit Trail is paved for a six-lane urban roadway with a raised median and is striped for a four-lane roadway immediately south of Van Buren Street.

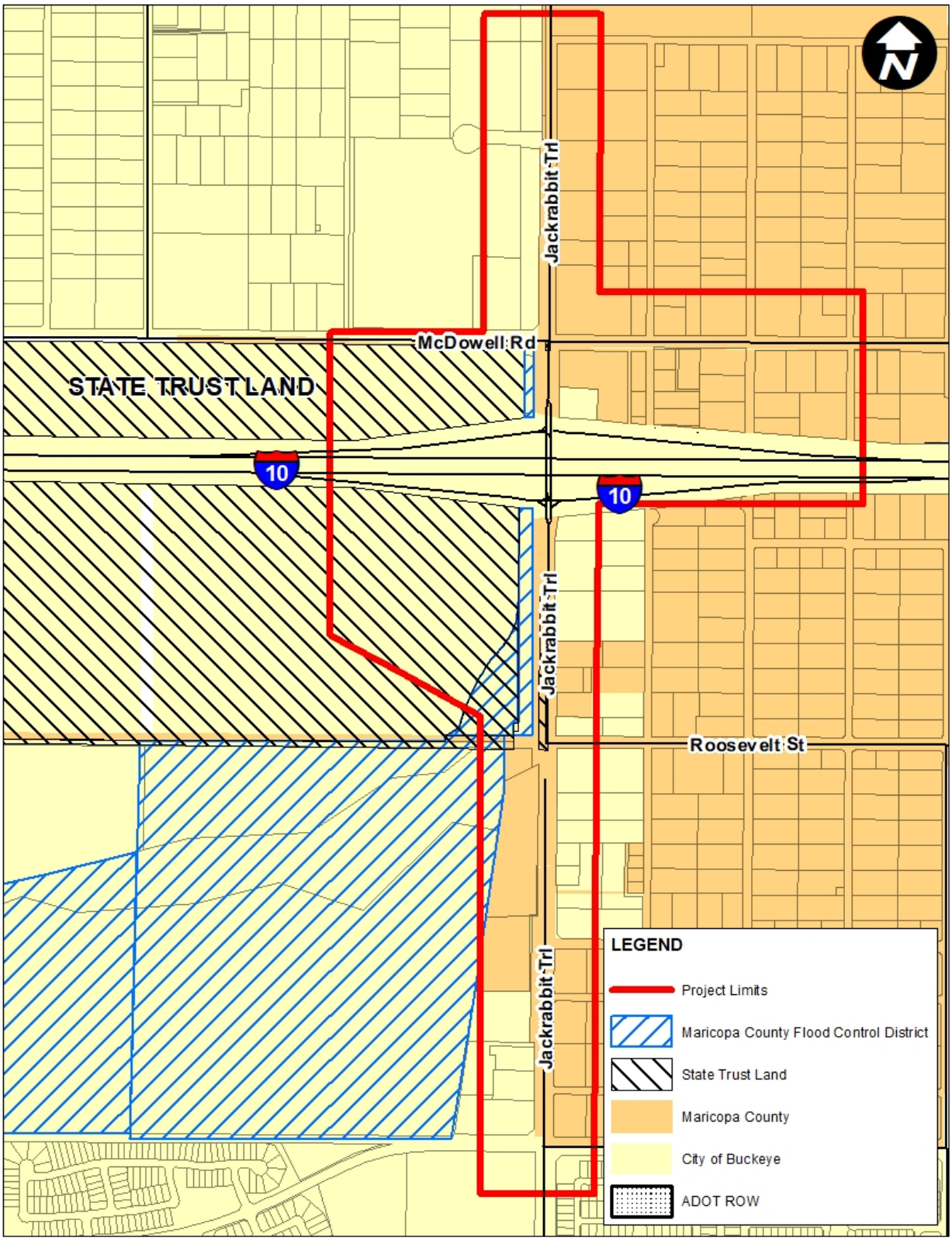


Figure 5 – Project Area

2. Roadway Characteristics

Jackrabbit Trail between McDowell Road and Van Buren Street is a two-lane roadway with the addition of a center lane for left turns where needed. South of Van Buren, Jackrabbit Trail expands from two lanes to six lanes with a center median. There are five intersections of interest along the roadway section. Jackrabbit intersects with the following roadways:

- McDowell Road
- I-10 Westbound Ramps
- I-10 Eastbound Ramps
- Roosevelt Street
- Van Buren Street

McDowell Road & Jackrabbit Trail is a four-legged intersection with four-way stop control. Each approach consists of a left turn lane and a shared through and right turn lane

I-10 Westbound Ramps & Jackrabbit Trail is a four-legged intersection with vehicles approaching from the north, south and east. The westbound traffic is stop controlled, while the northbound and southbound traffic is free flowing. There is currently a northbound left turn lane with a single through lane. The southbound approach consists of a shared through and right turn lane. The westbound approach is a flared all-way shared lane.

I-10 Eastbound Ramps & Jackrabbit Trail is a four-legged intersection with vehicles approaching from the north, south and west. The eastbound traffic is stop controlled, while the northbound and southbound traffic is free flowing. There is currently a southbound left turn lane with a single through lane. The northbound approach consists of a shared through and right turn lane. The eastbound approach is a flared, all-way shared lane.

Roosevelt Street & Jackrabbit Trail is currently a three-legged intersection with vehicles approaching from the north, south, and east. The westbound approach on Roosevelt Street is a side road stop control. The southbound direction consists of a single shared through and left turn lane while the northbound direction consists of a single shared through and right turn lane. The north and southbound traffic is currently free flowing while the westbound traffic on Roosevelt Road is stop controlled.

Van Buren Street & Jackrabbit Trail is a four-legged intersection with two-way stop control on Van Buren Street. The Jackrabbit Trail north and southbound traffic is currently free flowing. The northbound approach consists of one left turn lane, one through lane and one right turn lane. The southbound, eastbound and westbound approaches consist of one left turn lane and one shared through and right turn lane.

Interstate 10 is an interstate freeway on the ADOT Transportation system. I-10 was reconstructed in 2010 to provide two 74-foot wide roadways at Jackrabbit Trail. The freeway was striped to provide three general purpose lanes in each direction over the Jackrabbit Trail overpass. The freeway has the roadway width to provide 4 general purpose lanes and a High Occupancy Vehicle (HOV) lane. I-10 at Perryville Road TI to the east was reconstructed to provide a 125-foot WB roadway and a 115-foot EB roadway.

The striping for I-10 between Jackrabbit Trail ramps and Perryville road ramps provide three general purpose lanes in each each direction with auxiliary lanes between the ramps.

B. Future Roadways

A larger amount of growth is projected in the surrounding areas and new roadway connections to Jackrabbit Trail are expected. Within the study area Roosevelt Street will be extended to Verrado Way allowing for connection to the shopping center underway at the northeast corner of Verrado Way and Roosevelt Street.

The extension of Roosevelt Street to Verrado Way, will generate additional trips from Jackrabbit Trail as it allows for easier access to some of the businesses along Verrado Way and planned commercial centers along Roosevelt Street. The major trip generators for the west leg of Roosevelt Street include the planned shopping center at Roosevelt Street and Verrado way, as well as the Banner Health Center on Verrado Way, north of the I-10.

The planned shopping center at Verrado Way & Roosevelt Street, will provide nearby shopping for the residents along Jackrabbit Trail. The residents within the area are expected to use this shopping center frequently throughout the week. Based on the ITE Trip Generation Manual for Shopping Centers (land use 820), the shopping center is expected to generate around 140,000 trips on a weekday. About 5% (7,000 trips) are expected to come from the neighborhoods along Jackrabbit Trail using Roosevelt Street. The morning and afternoon trips are expected to be about 150 trips during the morning peak hour and 600 trips during the afternoon peak hour.

The Banner Health Center currently provides Family Medicine and Pediatrics services; however, the facility plans to expand and grow as the surrounding community grows. The growth will include a variety of specialists with the goal of meeting all the medical care needs for the community. With the planned growth in the area over the next 20 years, the facility may reach complete buildout of greater than 2,000,000 square-foot parcel by the year 2040. The clinic is also open from 7 a.m. to 7 p.m. on weekdays, therefore, a portion of the trips to this facility will cross over with the morning and afternoon peak hours of Jackrabbit Trail. Based on the ITE Trip Generation Manual for a medical clinic (Land Use 630), this clinic may produce around 75,000 trips on a weekday once the clinic is fully built. About 1% of those trips are expected to arrive from the residents within the Jackrabbit Trail project region. The people within the region are likely to take Roosevelt Street to get to the clinic, adding about 1,000 trips to Roosevelt Street on a given weekday.

The Buckeye Union High School District (BUHSD) learning center, Palo Verde Energy Education Center (PVEEC) as well as the West-MEC Campus will also generate some daily trips when parents drop off or pick up their children.

An increase in housing is also expected within the area with a mix of single family homes and apartments. The addition of both commercial and residential developments will significantly increase the amount of traffic traveling along Jackrabbit Trail and the connecting roadways

I-10 may be widened in the future to match the roadway width at the Perryville Road TI to the east.

C. Existing Traffic Volumes

The existing peak hour turning movement volumes were collected by Field Data Services for the following intersections.

- McDowell Road and Jackrabbit Trail
- I-10 Westbound Ramps and Jackrabbit Trail
- I-10 Eastbound Ramps and Jackrabbit Trail
- Van Buren Street and Jackrabbit Trail

The average daily traffic (ADT) Counts were also collected for Jackrabbit Trail between the I-10 and McDowell Road and the truck traffic was collected for Jackrabbit Trail south of the I-10. The traffic counts were also compared to March 2016 traffic counts as well as the 2016 traffic counts from the Vantage West Distribution Center TIA. The combination of the 2016 and existing 2017 counts were used when analyzing the projected 2040 traffic counts. The counts used for analysis are shown in **Table 1**, followed by **Figure 6** depicting the turning movement counts and existing ADT counts. **Figure 6** also depicts the overall existing level of services for each intersection.

Table 1 – Existing 2017 Traffic Counts

Intersection	Peak Hour	EL	ET	ER	WL	WT	WR	NL	NT	NR	SL	ST	SR
Jackrabbit Trail & Van Buren Street	AM	26	2	3	10	5	10	4	276	12	8	161	15
	PM	17	1	1	35	4	18	2	201	10	15	319	23
Jackrabbit Trail & Roosevelt Street	AM	0	0	0	8	0	13	0	444	11	13	199	0
	PM	0	0	0	15	0	11	0	301	14	20	353	0
Jackrabbit Trail & I-10 EB Ramps	AM	25	2	35	0	0	0	0	89	281	258	143	0
	PM	67	0	42	0	0	0	0	108	167	162	325	0
Jackrabbit Trail & I-10 WB Ramps	AM	0	0	0	111	2	104	27	112	0	0	250	61
	PM	0	0	0	233	2	263	41	150	0	0	224	83
Jackrabbit Trail & McDowell Road	AM	2	2	43	32	3	3	23	147	25	8	215	1
	PM	3	5	32	29	11	21	55	303	26	9	231	4

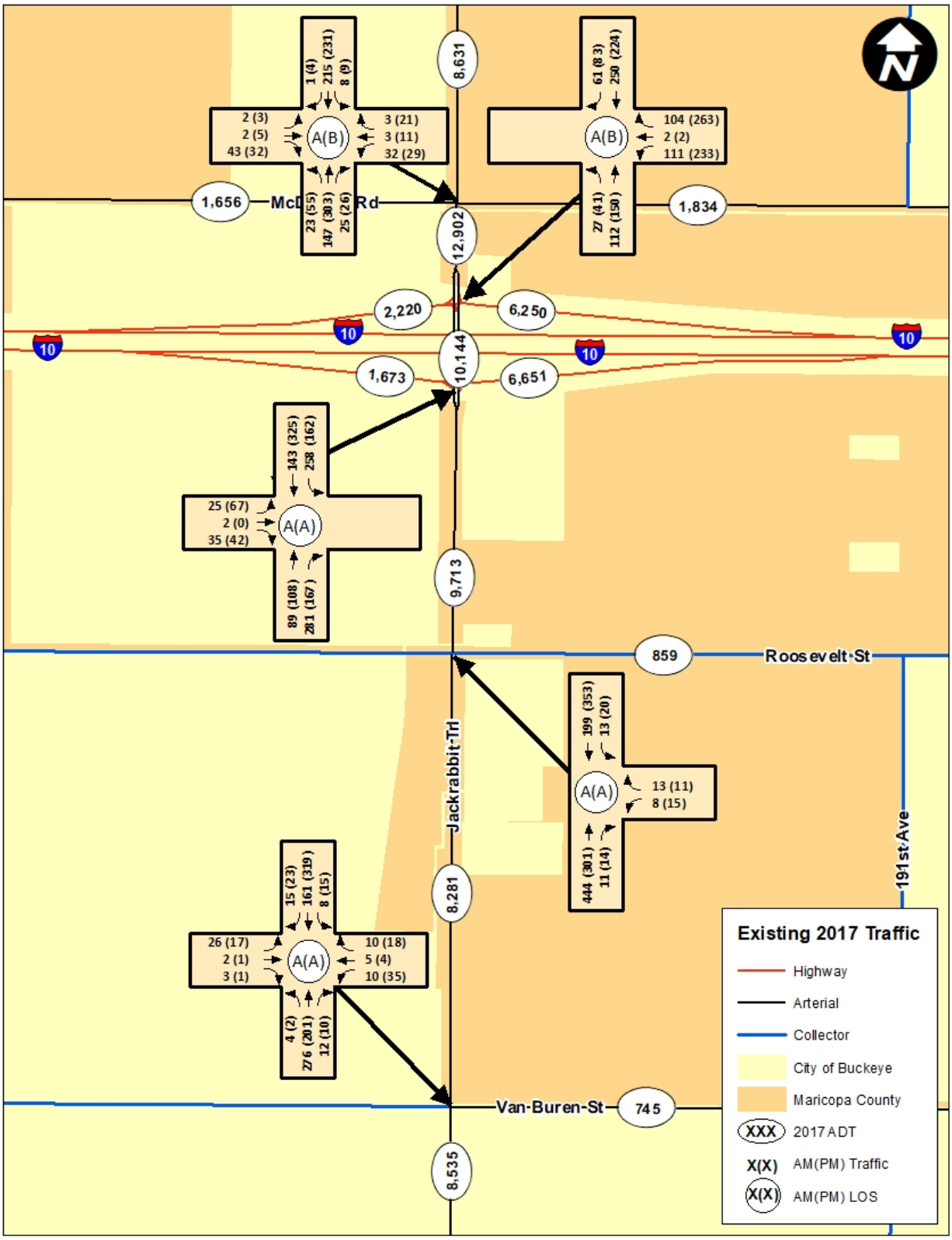


Figure 6 – Existing 2017 Turning Movement and ADT Counts

Truck traffic counts were collected on Wednesday, June 28th, 2017 on Jackrabbit Trail between the I-10 and Roosevelt Street. Counts were collected for a 24-hour period for 13 different vehicle classifications. The detailed counts can be found in **Appendix A**. To remain conservative, the number of trucks is expected to increase by 2040, however they are expected to increase at a lower rate than other vehicles. Existing and future traffic factors were determined using the ADT traffic counts as well as the truck traffic counts. The resulting D, K, and T factors are summarized in **Table 2**.

Table 2 – D, K, and T Factors

Approach	Factor	Value
2017	D	0.56
	K	0.09
	T	0.12
2040	D	0.56
	K	0.10
	T	0.10

D. Projected Traffic Volumes

Maricopa Association of Governments (MAG) provided resulting projected 2040 ADT counts as well as expected turning movement counts based on their traffic model. The numbers in the MAG model reflected an expected increase in ADT for some roadways along the project section, however, not all the projected ADT values seemed to reflect the large amount of growth expected in the surrounding areas. The traffic projections in the model were therefore, increased along certain segments to reflect the expected growth in the area over the next 20 years. **Table 3** summarizes the projected MAG model 2040 ADT counts. The west legs at Van Buren Street and Roosevelt Street were not included in the MAG model.

Table 3 – 2040 MAG Model ADT Counts

Intersection	West	East	South	North	Total
Jackrabbit Trail & Van Buren Street	-	6,758	19,776	13,018	39,552
Jackrabbit Trail & Roosevelt Street	-	977	13,018	13,995	27,990
Jackrabbit Trail & I-10 EB Ramps	4,265	7,818	13,995	17,413	43,491
Jackrabbit Trail & I-10 WB Ramps	4,126	7,201	17,413	23,606	52,346
Jackrabbit Trail & McDowell Road	18,047	12,198	23,606	13,662	67,513

The MAG model projected 2040 ADT counts seem to reflect the expected growth on most of the roadway segments, however, a few of the projected segment traffic counts seemed low based on the ADT counts for expected surrounding segments and expected development and growth. The west legs of Van Buren Street and Roosevelt Street are also not included in the MAG model, therefore, analysis was conducted to determine the estimated number of trips for Roosevelt Street and Van Buren Street on the west side of Jackrabbit Trail. The expected ADT for Van Buren Street was determined using the Blue Horizons Traffic Impact Study conducted by RBF Consultants. The analysis of that report concluded that the estimated ADT would be 6,701 vehicles by full build-out of the Blue Horizons community. Nearly 50% of the community ingress and egress trips are to the north of the site along Jackrabbit Trail. The ADT counts between

Roosevelt Street and Van Buren Street were therefore increased to reflect the addition of the Blue Horizon trips.

The connection of Roosevelt Street from Jackrabbit Trail to Verrado Way was not reflected in the MAG model. The model shows about 11,182 daily trips expected on Roosevelt Street from Verrado Way to the west edge of the shopping center. The number of daily trips for Roosevelt Street leading to Jackrabbit Trail were determined based on the analysis of the new shopping center and medical center along Verrado Way. The shopping center, Buckeye Parkway Center, is located at the northeast corner of Roosevelt Street and Verrado Way while the Banner medical center is located between the I-10 and McDowell Road on the west side of Verrado Way. Both sites are expected to be the largest draw of vehicle trips for residents surrounding the project area. The Banner Health Center is currently a single building offering a few services. According to Banner's website, however, the health center will continue to grow as the surrounding community grows. The expectation is that many residents south of Roosevelt Street along Jackrabbit Trail will use Roosevelt Street to get to both the health center and shopping center.

The Banner Health Center caters to the entire city of Buckeye, therefore the residents along Jackrabbit Trail are expected to make up about 1% of the total trips traveling along Roosevelt Street. The Buckeye Parkway Center caters to the communities within a smaller radius, therefore, the total number of trips using Roosevelt from Jackrabbit is expected to be about 3.6% of the total trips traveling to and from the site. Using the ITE Trip Generation Manual, 9th Edition, the land use for a shopping center (820) and for a medical-dental office building (720), the total number of trips for the shopping center is 138,775 and 85,989 trips for the full build out of the health center. Reducing the number of trips to those traveling along Roosevelt from Jackrabbit and the shopping center trips are expected to be about 5,000 trips and the medical center trips are expected to be about 900 trips. The total estimated daily trips for the west leg of Roosevelt Street and Jackrabbit Trail is about 6,000 trips.

The east leg of the Roosevelt Street and Jackrabbit Trail intersection is another important roadway segment to consider. The MAG model only shows an increase of about 100 vehicle trips between 2017 and 2040, while the surrounding roadways are all increasing by a few thousand vehicle trips. Since this portion of Roosevelt Street is not expected to see as many vehicle trips as other segments, it was not expected to increase by a few thousand, however, a few hundred vehicles seem more accurate. The total number of daily trips were therefore expected to increase by about 500 vehicles between 2017 and 2040, yielding about 1300 daily trips for the east leg of Roosevelt Street.

The combination of the vehicle trip increase for the east and west legs of Roosevelt Street as well as the addition of the Blue Horizons Community trips, is expected to increase the daily trips along Jackrabbit Trail between I-10 and Roosevelt Street in comparison to the MAG Model projections. **Figure 7** depicts the adjusted 2040 ADT projections.

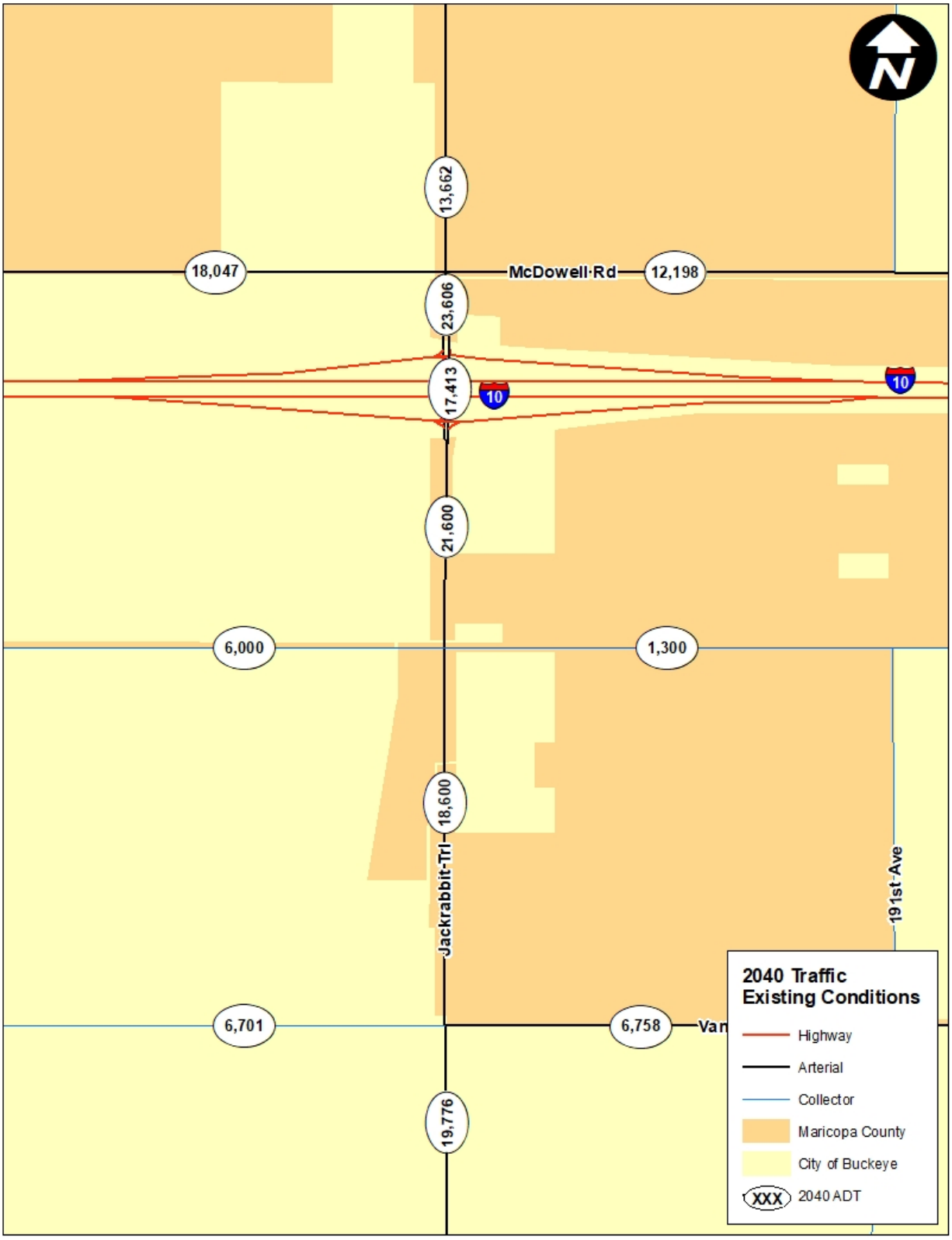


Figure 7 – Adjusted MAG Model 2040 ADT Projections

The turning movement counts for the peak period were also altered to better reflect the growth within the area. The MAG model turning movement projections in **Appendix H** were analyzed for each intersection. Increase factors were first determined using the 2017 ADT counts and the 2040 projected ADT counts for each intersection leg in order to get a general idea of the expected growth for each intersection leg in the model. **Table 4** summarizes the resulting factors. The growth factors for the west legs of Van Buren Street and Roosevelt Street were not calculated since there were not any existing 2017 ADT counts for those segments. The traffic along those segments were analyzed and increased as previously described.

Table 4 – 2040 Increase Factors

Intersection Leg Growth Factors					
Intersection	**Total**	**West**	**East**	**South**	**North**
Jackrabbit Trail & Van Buren Street	183%	-	807%	132%	125%
Jackrabbit Trail & Roosevelt Street	125%	-	51%	125%	122%
Jackrabbit Trail & I-10 EB Ramps	54%	155%	18%	44%	72%
Jackrabbit Trail & I-10 WB Ramps	66%	86%	15%	72%	83%
Jackrabbit Trail & McDowell Road	170%	990%	565%	83%	58%

The factors were then applied to the existing 2017 turning movement counts with each corresponding leg, yielding the results in **Table 5**. The increased turning movement counts were then used as a base comparison with the MAG 2040 projected turning movement counts (TMC).

Table 5 – 2040 Calculated TMC

Intersection	PK HR	EL	ET	ER	WL	WT	WR	NL	NT	NR	SL	ST	SR
Jackrabbit Trail & Van Buren Street	AM	315	21	84	91	52	91	37	640	28	18	362	139
	PM	155	10	41	317	54	163	75	466	23	34	717	316
Jackrabbit Trail & Roosevelt Street	AM	56	11	4	20	30	33	6	1119	28	33	501	84
	PM	225	60	15	23	48	17	12	676	31	44	785	180
Jackrabbit Trail & I-10 EB Ramps	AM	64	5	89	0	0	0	0	198	625	443	245	0
	PM	171	0	107	0	0	0	0	240	371	278	558	0
Jackrabbit Trail & I-10 WB Ramps	AM	0	0	0	203	4	190	49	205	0	0	457	112
	PM	0	0	0	426	4	481	75	274	0	0	410	152
Jackrabbit Trail & McDowell Road	AM	22	22	469	213	20	20	42	269	46	13	340	2
	PM	33	54	349	193	73	140	101	554	48	14	366	6

Starting with the intersection of McDowell Road and Jackrabbit Trail the turning movement counts in **Table 5**, were compared to the MAG model projections. In the MAG Model, the eastbound approach did not show any vehicles turning left in the morning or afternoon. The numbers were altered to consider the traffic that would use that intersection to make an eastbound left driving from locations such as the Banner Health Center or driving to the Buckeye Park and Ride. The same is the case for the McDowell Road westbound approach. Some of the westbound trips dedicated to the left and through traffic movements were distributed to the westbound right turning movement. The north and southbound

traffic was adjusted to reflect the expected traffic traveling on the roadway segments north and south of the intersection.

The I-10 intersections were also adjusted from the MAG model. The turning movement values entering and exiting the ramps were very high compared to the overall ADT for each ramp. For the I-10 westbound ramps, the afternoon southbound right turn onto the I-10 westbound made up more than 30% of the expected ramp ADT without including the northbound left turning traffic. The westbound afternoon right turning traffic also made up about 20% of the project ramp ADT and did not include any of the westbound left turning traffic. The percentages of the ADT projected counts are very high for a one-hour time frame for a single turning movement. The numbers were therefore reduced and some of the traffic was dispersed to the left turning movements to more accurately reflect the expected traffic at the intersection. The I-10 Eastbound ramp intersection was a similar scenario with the eastbound right turning traffic and northbound right turning traffic being high compared to the ADT projected counts for the ramps. The counts were adjusted similarly to reflect the expected traffic in the area.

The Roosevelt Street and Van Buren Street intersections were also modified to reflect the expected growth on the west legs of each intersection. Roosevelt Street did not have any turning movement projections from MAG, therefore the existing counts and the projected 2040 ADT counts were used to determine the northbound, southbound and westbound turning movement counts. The eastbound turning movement counts reflected the trip generations and assignment from the Blue Horizons Community as well as the expected traffic from Verrado Way.

Appendix H reflects the MAG model ADT values as well as the projected peak period turning movement counts. The peak periods from the MAG model reflect a three-hour peak period. The peak hour volumes were determined by using 40 percent of the peak period values. **Figure 8** depicts the adjusted MAG model projected traffic volumes for each intersection turning movement.

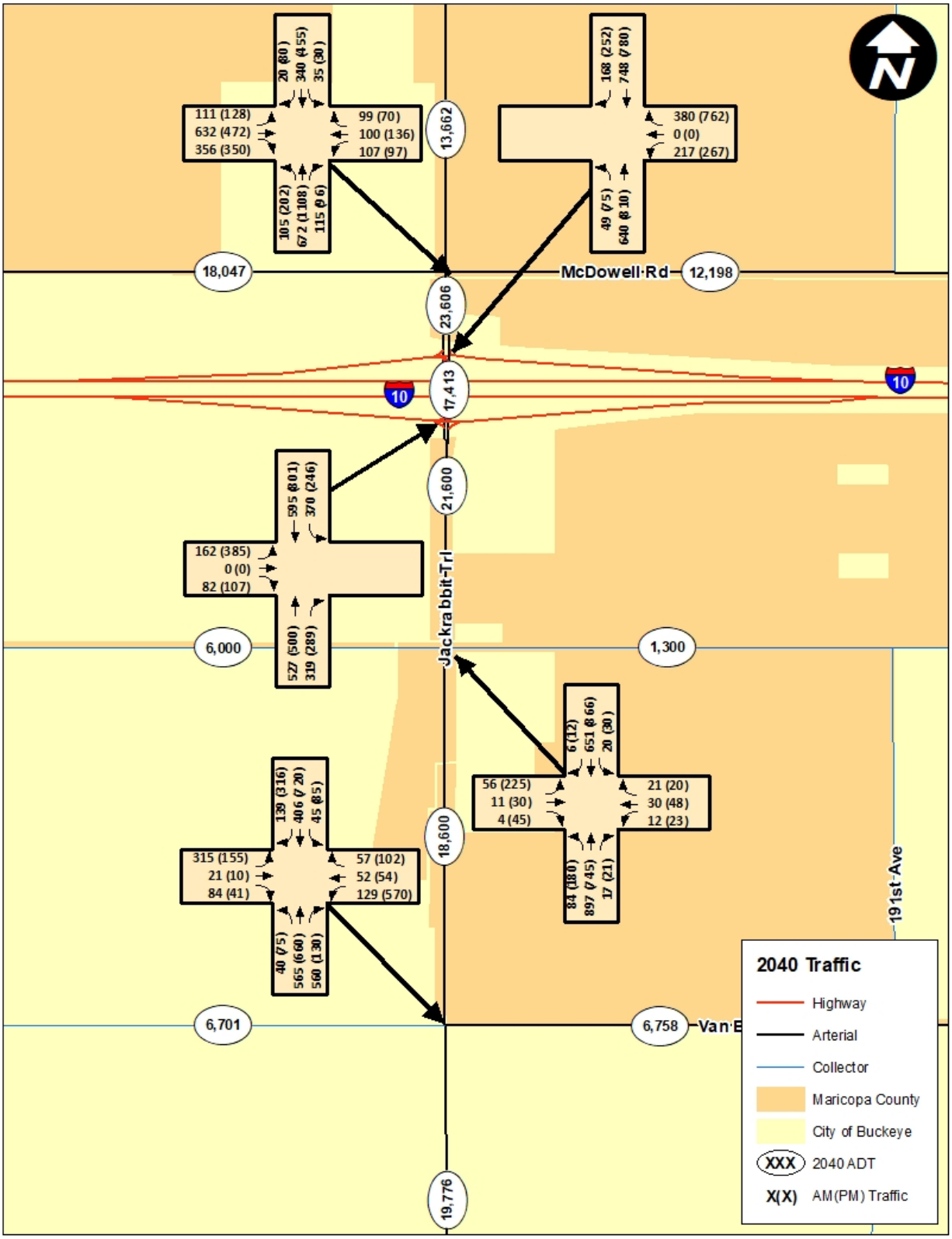


Figure 8 – Adjusted MAG Model Projected 2040 Turning Movement Counts

After determining the projected 2040 traffic volumes for Jackrabbit Trail intersections, the right turning movements were analyzed to determine if right turn lanes are warranted for any of the intersections. According to the MCDOT Roadway Design Manual section 6.1.6, a right turn lane should be provided if any of the following criteria is met:

1. The roadway has 2 approach through lanes, a posted speed limit of 45 mph or greater, and an expected right-turn peak hour volume of 300 vph or greater.
2. The roadway has 1 approach through lane, a posted speed limit of 35 mph or greater, and an expected right-turn peak hour volume of 300 vph or greater.
3. On any roadway where a traffic impact analysis indicates the LOS would be increased to a LOS of D or better with the addition of a right-turn lane.
4. In rural and developing urban areas with higher speeds, a separate right turn lane may be required for lower right turn volumes.

The first set of criteria correlates with this Jackrabbit Trail Segment. Based on the right turn lane criteria, the following MCDOT intersection legs warrant right turn lanes:

- McDowell Road & Jackrabbit Trail Eastbound Right
- Van Buren Street & Jackrabbit Trail Southbound Right

The northbound approach also warrants a right turn lane for Van Buren Street & Jackrabbit Trail Northbound Right according to MCDOT standards. That section of roadway is, however, maintained by the City of Buckeye. A future assessment of a northbound right turn bay is therefore recommended for this intersection.

The I-10 intersections were also analyzed for right turn lane warrants using the ADOT Guidelines and Processes Section 245. According to the ADOT guidelines, right turn lanes are warranted for all approaches.

E. Crash Analysis

Shape files containing crash history data for the study area were obtained from the ADOT for the period of April 2013 to March 2015. The ADOT database is a collection of all the agencies crash data. Injury severity reports for accidents on Jackrabbit Trail are summarized below.

Table 6 – Crash Injury Summary

Segment Location	Total Crashes	No Injury Crashes	Possible Injury Crashes	Non-Incap Injury Crashes	Incap Injury Crashes	Fatal Crashes
Jackrabbit Trail	61	51	9	1	0	0

During the study period, there were 61 reported crashes on Jackrabbit Trail. None of the crashes resulted in incapacitating injuries or fatalities. The data shows that 1 accident (1.6%) was classified as “Non-Incapacitating Injury Crash”, 9 accidents (14.75%) were designated as a “Possible Injury Crash”, and 51 accidents (83.6%) had no injury.

The table below summarizes Jackrabbit Trail accidents by collision type. Rear end and single vehicle crashes were the most frequent collision types within the study area, each accounting for 23% of all crashes. Angle and Left turn crashes each accounted for approximately 17% of all crashes, side sweep

(same direction) accounted for 8%, and side sweep (opposite direction), head-on and "other" collisions each accounted for approximately 4% of the total accidents. The rear end and single vehicle crashes combined account for 46% of the total crashes.

Table 7 – Crash Type Summary

Location	Rear End	Angle	Left-Turn	Sideswipe (Same Dir)	Sideswipe (Opp Dir)	Head-on	Single Vehicle	Other
McDowell to Palm Lane						1		
Jackrabbit/McDowell Intersection	4	1	1		1			
Jackrabbit/I-10WB Ramp Intersection	6	5	4	4	1		2	1
WB to EB Intersection							1	
Jackrabbit/EB Ramp	1	4	2	1			3	1
EB Ramp to Roosevelt							1	
Jackrabbit/Roosevelt Intersection	1		1		1			
Roosevelt to Fillmore			1			1		
Jackrabbit/Fillmore Intersection	1							
Jackrabbit/Taylor Intersection	1							
Jackrabbit/Van Buren Intersection		1	1				7	
Total	14	11	10	5	3	2	14	2

The intersection at the westbound I-10 ramps had 23 accidents during the study period and the predominant crash type at this location is rear end collisions. I-10 westbound ramps are non-signalized intersections at Jackrabbit Trail with single lane entrance and exit ramps for the I-10. Jackrabbit Trail and Van Buren Street had 9 accidents during the study period and the predominant crash type is single vehicle collision.

After evaluating access control along the project corridor, one area of concern includes the Chevron gas station located north of the I-10 on the east side of Jackrabbit Trail. The driveway locations do not follow the typical ADOT requirements as the south driveway is within 50 feet of the westbound off ramp and the north driveway is within 200 feet of the off ramp. Both driveways currently allow for full access, which is a safety concern since it is in close proximity of the I-10 westbound ramps. **Figure 9** shows the location of the Chevron and corresponding driveways. ADOT has purchased the Access Control rights along the east right-of-Way line from I-10 to approximately the north driveway of the Chevron. The south driveway is located within the access control limits and should not have been permitted.

Figure 9 – Chevron Driveways

F. Capacity and Level of Service Alternatives Analysis

1. No Build Traffic Analysis

Using the 2016 and 2017 turning movement counts, the five intersections were analyzed to determine the current level of service (LOS) and delay using the HCS7 two-way stop control (TWSC) and all-way stop control (AWSC) software.

The 2040 projected counts were first analyzed to determine the LOS for each intersection with the existing roadway conditions. As shown in **Figure 10** all of the intersections would be at a failing level of service in the morning and/or afternoon peak hours.

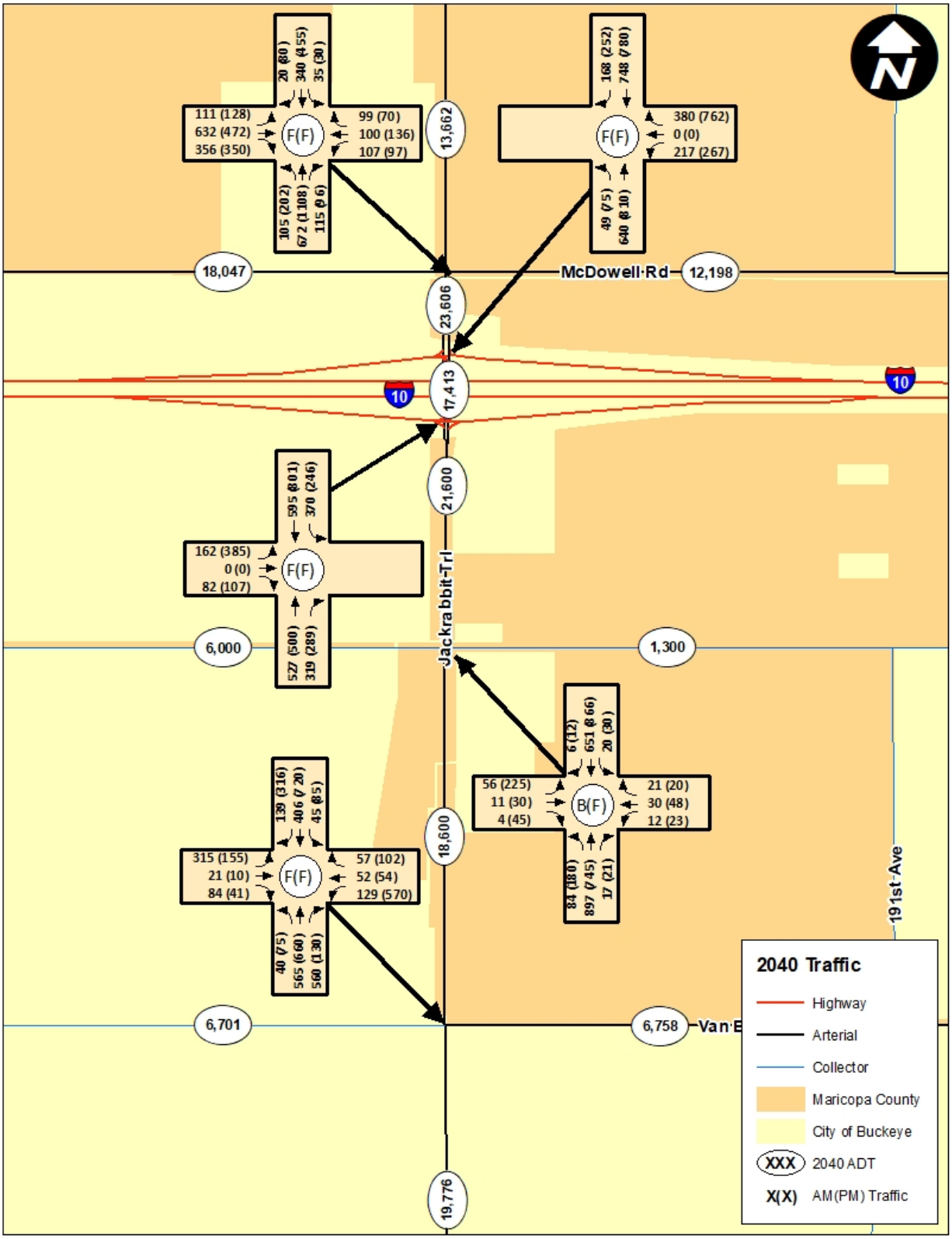


Figure 10 – 2040 Projected Traffic with Existing Conditions

2. Traffic Control Devices

After analyzing the intersections with 2040 counts for existing conditions (no build), the signal warrants were conducted to determine when signals would be needed for each intersection.

ADOT has stated that proposed signals at the I-10 ramp junctions are being added to the I-10 project: State Route 85 to Verrado Way, which is currently in design. At the time of this report, the full scale of the signal work is not known although ADOT is anticipating only adding right-turn lanes at the intersections along with the signals.

Traffic Signal Warrants were conducted for the five major intersections to determine where and when traffic signals may be needed. The following warrants were investigated:

- Warrant 1: Eight-Hour Vehicular Volume
- Warrant 2: Four-Hour Vehicular Volume
- Warrant 3: Peak-Hour
- Warrant 4: Pedestrian Volume

Signal warrants were first conducted at each intersection to determine if there is a current need for traffic signals with the existing 2017 counts. From there, a threshold analysis was conducted for intersections that do not currently warrant a signal to determine when a signal may be needed between today and 2040. The signal warrants found that the following intersections already meet signal warrants:

- Jackrabbit Trail and McDowell Road (Warrant 3: Peak Hour)
- Jackrabbit Trail & I-10 Westbound Ramps (Warrant 2: Four-Hour)

The remaining three intersections were investigated through a threshold analysis using the growth factors discussed in the projected traffic volumes section. The threshold analysis helped to determine what year signals will most likely be needed at each intersection assuming the existing roadway configurations. **Table 8** summarizes the results.

Table 8 – Signal Warrant Threshold Analysis Results

Intersection	Estimated Signal Warrant Year
Jackrabbit Trail & McDowell Road	2018
Jackrabbit Trail & I-10 WB Ramps	2018
Jackrabbit Trail & I-10 EB Ramps	2032
Jackrabbit Trail & Roosevelt Street	2021
Jackrabbit Trail & Van Buren Street	2022

3. Alternatives Traffic Analysis

The signals and counts were then applied to each of the four design alternatives. The following are the four design alternatives:

- **Alternative 1** – Interim 4-lane roadway with raised medians, unpaved shoulders and a diamond interchange at I-10
- **Alternative 2** - Ultimate 6-lane roadway with raised medians, curb, gutter and sidewalks and a diamond interchange at I-10
- **Alternative 3** - Interim 4-lane roadway with raised medians, unpaved shoulders and a diverging diamond interchange at I-10
- **Alternative 4** - Ultimate 6-lane roadway with raised medians, curb, gutter and sidewalks and a diverging diamond interchange at I-10

Each alternative was analyzed using the Synchro 9 software. **Figure 11** through **Figure 14** show the resulting LOS and Delay for each intersection and design alternative. For the interim 4-lane and ultimate 6-lane roadways, it was determined that the intersection at McDowell Road would benefit from protected/permissive left turn phasing for each approach. Although some of the left turn approaches have a lower volume of vehicles, the opposing through traffic is high and does not accommodate as many gaps for left turning traffic. Each alternative was therefore analyzed with the protected/permissive phasing.

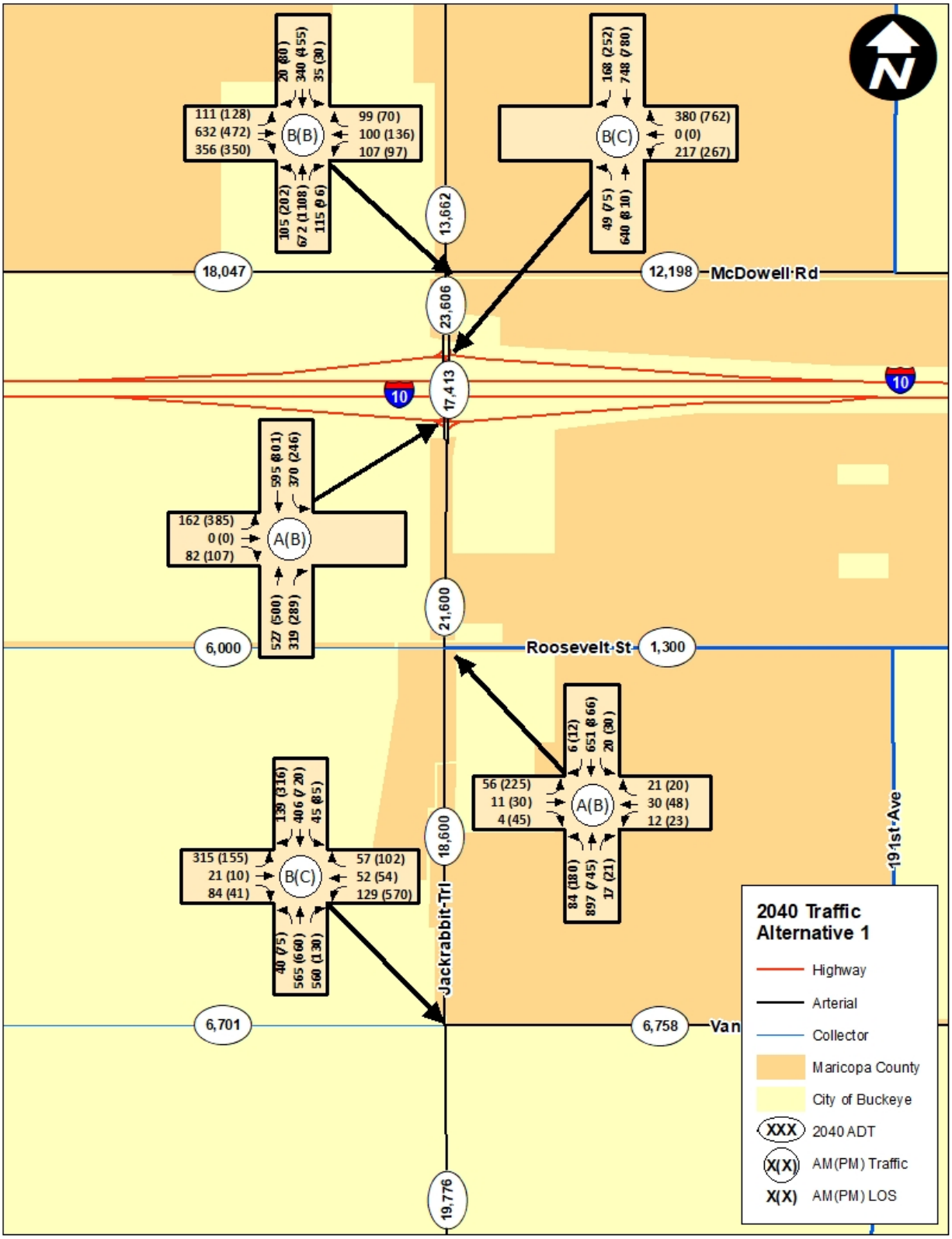


Figure 11 – 2040 Traffic with Alternative 1

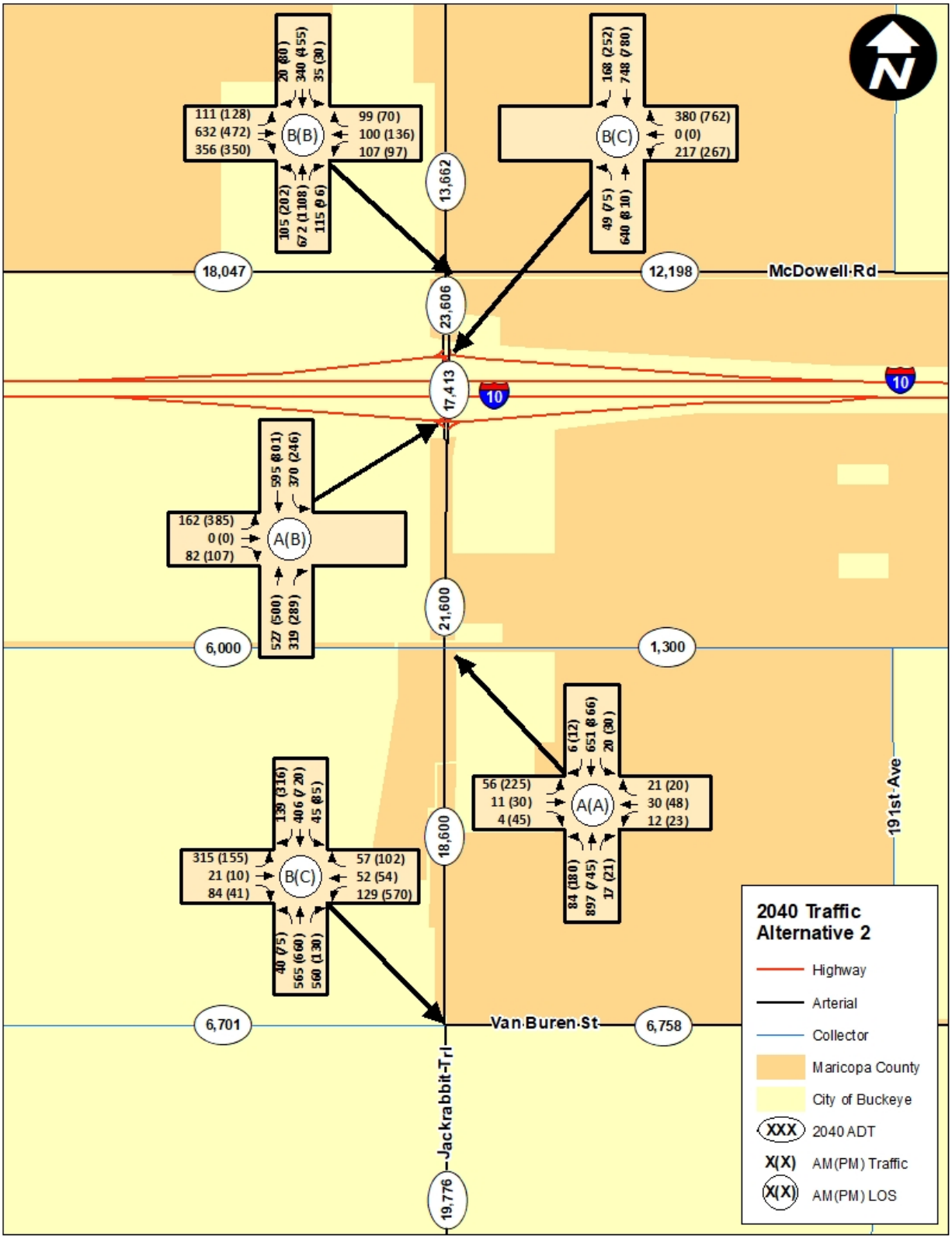


Figure 12 – 2040 Traffic with Alternative 2

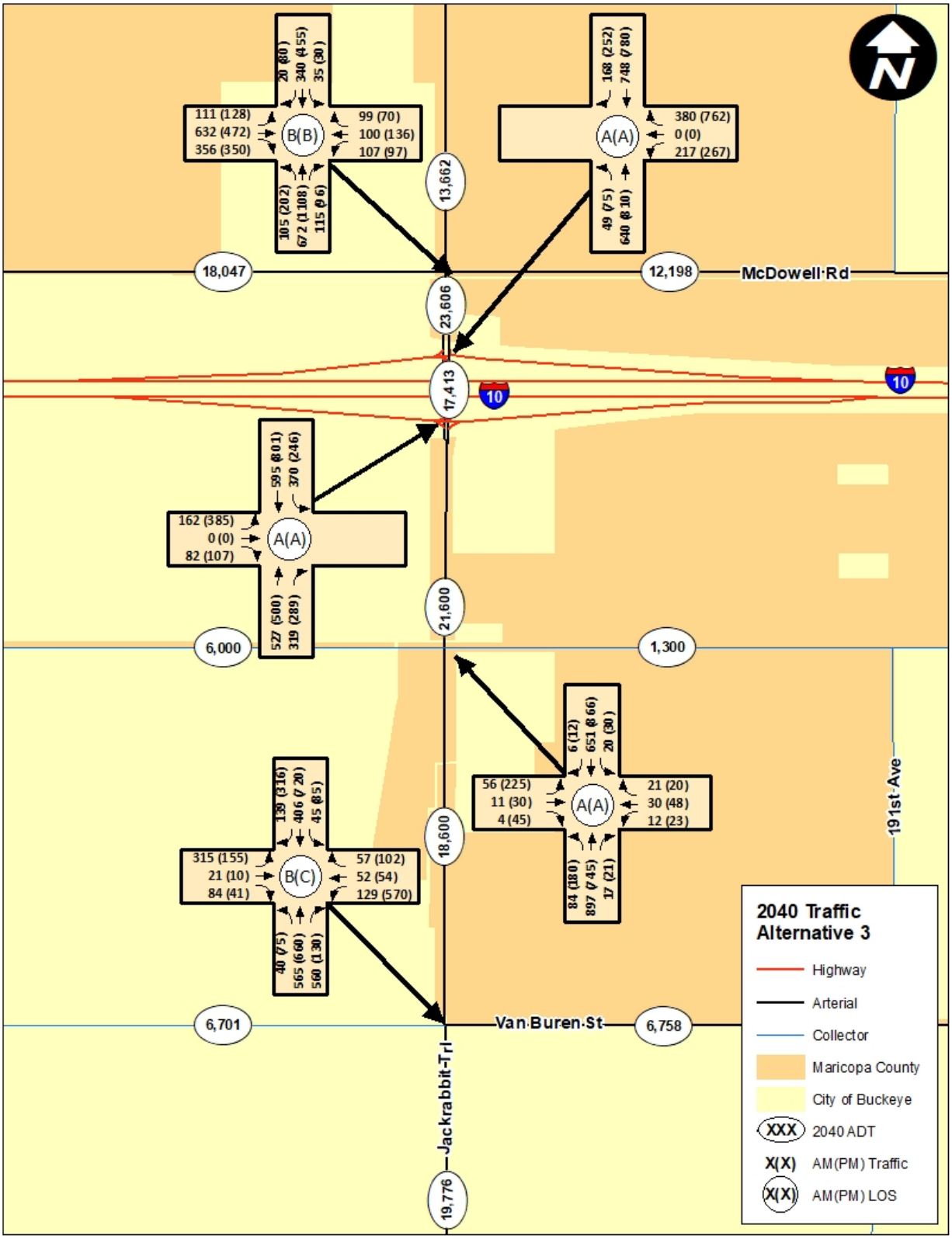


Figure 13 – 2040 Traffic with Alternative 3

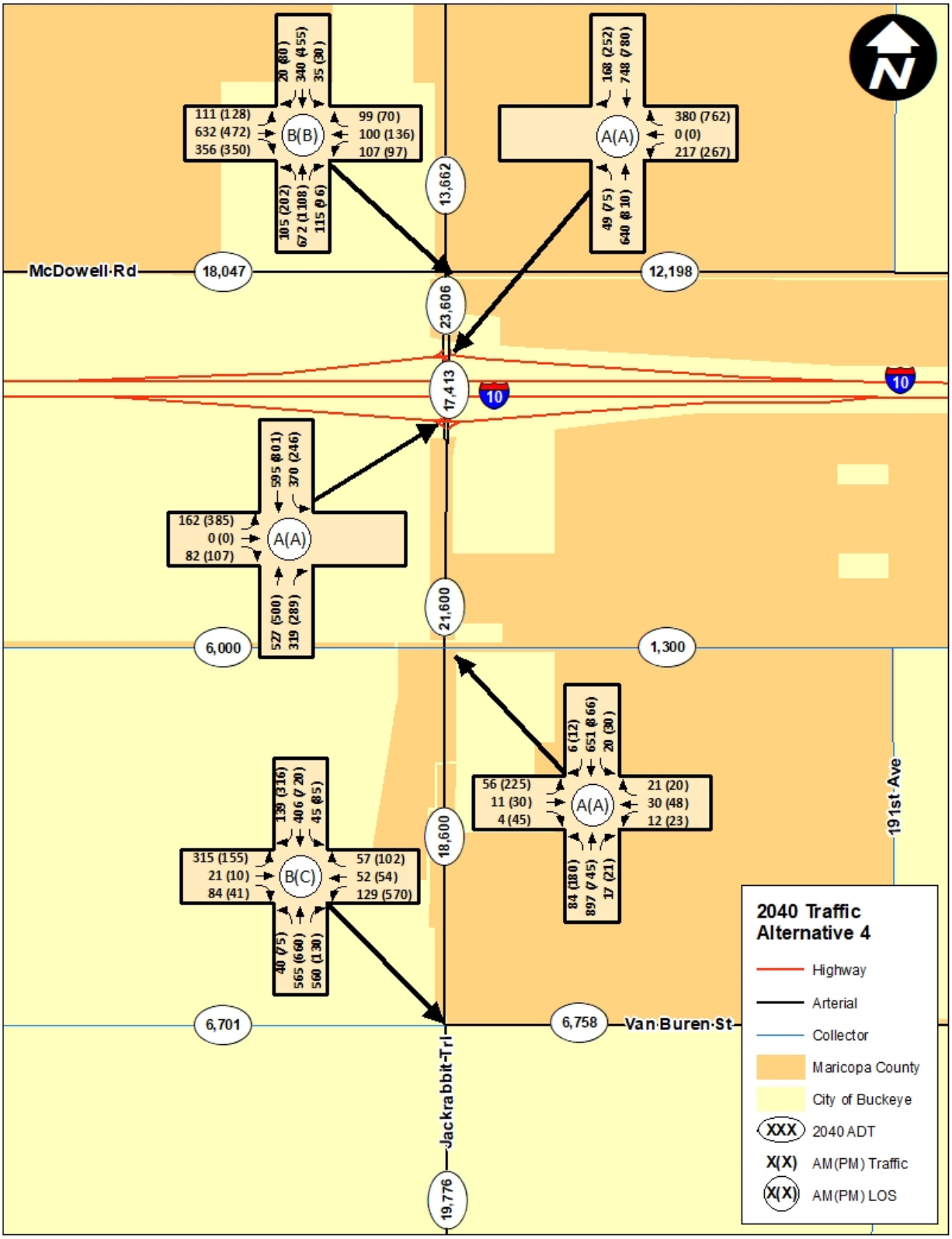


Figure 14 – 2040 Traffic with Alternative 4

A queuing analysis was also conducted using the Synchro software to determine if the minimum storage length of 160 feet required by MCDOT would be sufficient. The I-10 intersection left turn lane storage was calculated using the ADOT Traffic Guidelines and Processes Section 430. **Table 9** summarizes the queue lengths in feet for each left turn lane for the worst- case scenario (morning or afternoon peak).

Table 9 – Queue Analysis (ft)

Intersection	Alternative	EL	WL	NL	SL
Jackrabbit Trail & Van Buren Street	1	175	301	30	51
	2	175	273	32	52
Jackrabbit Trail & Roosevelt Street	1	129	11	11	8
	2	129	11	9	5
Jackrabbit Trail & I-10 EB Ramps	1	215	-	-	79
	2	217	-	-	72
Jackrabbit Trail & I-10 WB Ramps	1	-	118	22	-
	2	-	116	23	-
Jackrabbit Trail & McDowell Road	1	44	33	54	13
	2	44	33	57	11

Table 9 shows that 160 feet of storage works for most of the MCDOT left turn lane storage lengths. The eastbound and westbound left turn lanes for Van Buren Street will require a storage length of at least 175 feet for the eastbound direction and at least 300 feet for the westbound direction.

The same procedure was followed for the right turn lanes for the MCDOT intersections. The Synchro 9 reports in **Appendix D** to **E** show that all of the right turn queue lengths are less than 160 feet, therefore the minimum MCDOT requirement of 160 feet will work for each intersection.

The ADOT right turn lanes were calculated using the ADOT Traffic Guidelines and Processes Section 430. The resulting left turn and right turn lane storage calculations for the ADOT intersections are summarized in **Table 10**. The storage lengths are not used for Alternatives 3 or 4 as the DDI interchange does not require left turn lanes.

Table 10 – Turn Lane Storage

Intersection	Alternative	NL	SL	NR	SR
Jackrabbit Trail & I-10 EB Ramps	1	412	-	532	-
	2	413		522	-
Jackrabbit Trail & I-10 WB Ramps	1	-	469	-	440
	2	-	461	-	440

IV. Selected Alternative Analysis

Once the analysis was conducted for the four alternatives, Alternative 3 was selected which proposed interim four-lane Jackrabbit Trail within the MCDOT jurisdictional area, 6 lane ultimate roadway within

the ADOT Right-of-Way, and a Diverging Diamond Interchange at I-10. Jackrabbit Trail would therefore be built to the interim design level with 4-lanes and a median while the portion of Jackrabbit within the ADOT right-of-way would be built to the ultimate design with 6-lanes entering and exiting the interchange. With the chosen alternative, additional DDI intersection and weaving analyses were conducted for Jackrabbit Trail.

A. Turn Lane Analysis

Using the Synchro Software and the MCDOT roadway design guidelines, the need for additional right turn lanes and the storage length needed for all the right and left turn lanes at each intersection was analyzed along with the necessary storage length for each turn lane. **Table 11** summarizes the resulting right turn lane warrants, queue lengths for left turn lanes and warranted right turn lanes, and the required storage length for each turn lane. The MCDOT Roadway Design Manual states that left and right turn lanes should have a minimum storage length of 160 feet. Since the right turn queues do not exceed 160 feet at any of the intersections, a 160-foot storage length was used. As shown in the table, there are two left turn queues at Van Buren Street that will require left turn lanes that exceed 160 feet (eastbound and westbound).

Table 11 – Turn Lane Queue Length and Storage Length

Intersection	Turn Lanes	Queue Length	Storage Length
Jackrabbit Trail & Van Buren Street	SB Right Turn Lane	87	160
	EB Left Turn Lane	174	175
	WB Left Turn Lane	278	300
	NB Left Turn Lane	37	160
	SB Left Turn Lane	53	160
Jackrabbit Trail & Roosevelt Street	NB Right Turn Lane	0	160
	EB Left Turn Lane	111	160
	WB Left Turn Lane	13	160
	NB Left Turn Lane	109	160
	SB Left Turn Lane	5	160
Jackrabbit Trail & McDowell Road	EB Right Turn Lane	24	160
	WB Right Turn Lane	0	160
	NB Right Turn Lane	3	160
	SB Right Turn Lane	0	160
	EB Left Turn Lane	44	160
	WB Left Turn Lane	33	160
	NB Left Turn Lane	56	160
	SB Left Turn Lane	15	160

Using the warranted turn lane information provided in **Table 11**, **Figure 15** provides a visual of the lane configurations for each intersection.

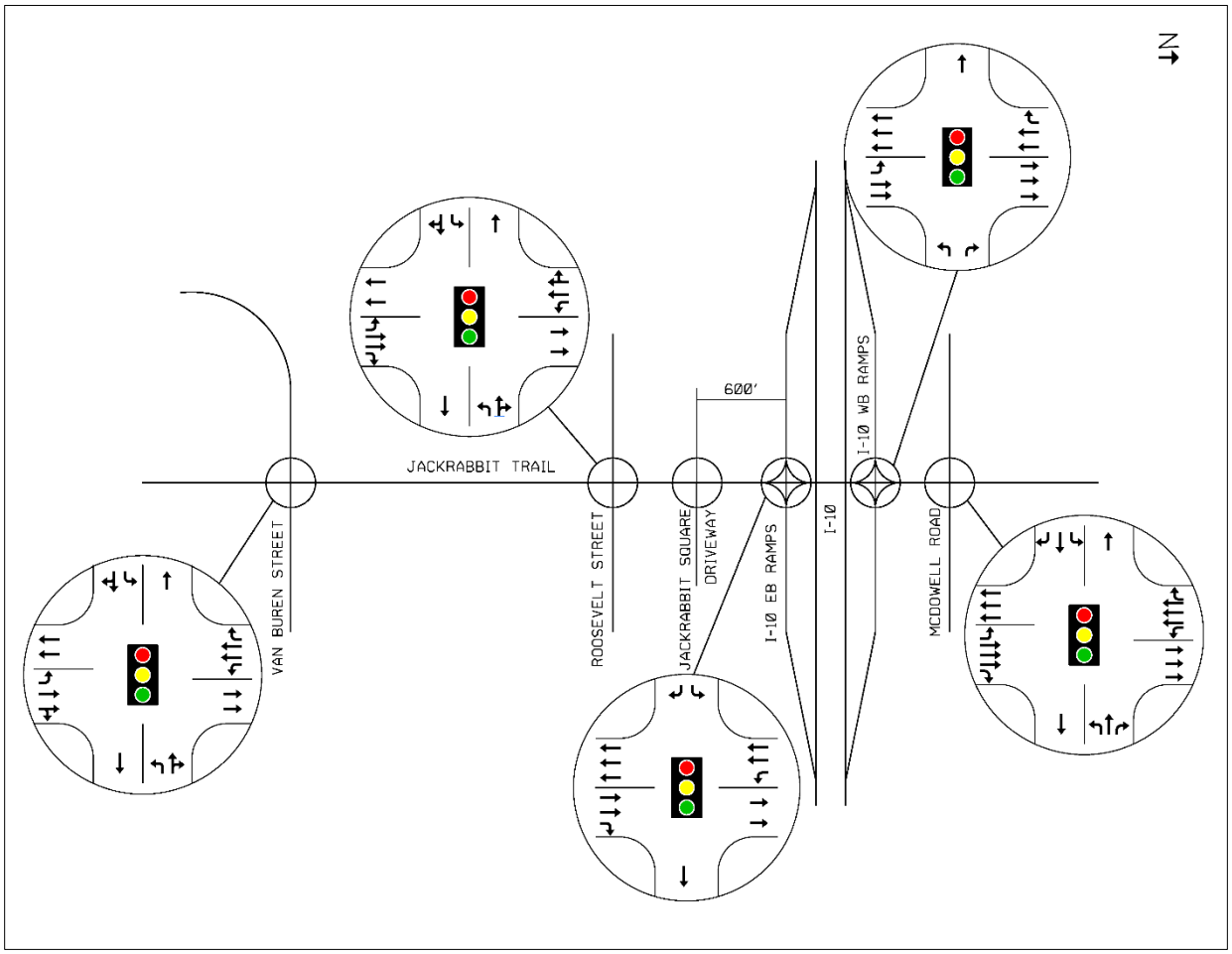


Figure 15 – Intersection Lane Configurations

B. Capacity and Level of Service

The level of service and delay were determined after implementing all the warranted right turn lanes and the required storage length for each turn lane. **Table 12** represents the resulting LOS and delay for each intersection and shows the no build conditions for comparison.

Table 12 – Level of Service and Delay Comparison

Intersection	PK HR	No Build		Selected Alternative	
		LOS	Delay	LOS	Delay
Jackrabbit Trail & Van Buren Street	AM	F	498.8	B	14.9
	PM	F	2188.0	C	27.8
Jackrabbit Trail & Roosevelt Street	AM	B	16.3	A	9.8
	PM	F	122.8	B	18
Jackrabbit Trail & I-10 EB Ramps	AM	F	301.1	B	10.6
	PM	F	669.8	B	10.3
Jackrabbit Trail & I-10 WB Ramps	AM	F	215.0	B	12.5

	PM	F	756.0	B	13.9
Jackrabbit Trail & McDowell Road	AM	F	568.8	C	20.8
	PM	F	728.2	B	19.8

C. Diverging Diamond Interchange

The diverging diamond interchange is recommended for the ultimate build out. There will be three lanes approaching and exiting the interchange on the north and south sides of the I-10 ramps. When approaching the interchange from the north or south, the outside lane will turn into a right turn lane for the I-10 on-ramps. There will be two lanes that continue to travel through the signalized intersections for the DDI and in between the two intersections there will be an additional outside merge lane for the distance between the DDI signals in the north and southbound directions for the left turning vehicles entering and exiting the I-10. When exiting the interchange, the right turn lanes for vehicles exiting the I-10 will add an additional lane to the two through lanes. The third lane tapers off shortly after McDowell Road to the north and tapers off to the south of the DDI interchange.

Several scenarios for the ultimate DDI alternative were compared to determine the best DDI design for the egress left turning vehicles. The eastbound and westbound left turn lanes were tested for three different designs. The first design was for a single left turn with a yield sign. The second option was for a two-lane left turn with a yield and the third option was for a channelized left turn lane that is free moving. The first option resulted in failing level of service for the left turning movement in both directions. The second option resulted in an acceptable level of services ranging from A to C. The third option yielded a LOS of A with no delay due to the free movement of the left turns.

In addition to the proposed improvements discussed in this report, additional improvements outside of this project have been recommended for the future Jackrabbit Square development located south of the I-10 on the east side of Jackrabbit Trail. The traffic study for the development found that a traffic signal is warranted for the driveway access. Due to the close proximity of the I-10 Eastbound ramps, a traditional signal is not recommended at the driveway. A Continuous Green T Intersection was therefore recommended to keep the southbound traffic free flowing and limit the interruption time for the northbound traffic. The Continuous Green T signalized intersection has not yet been approved and was therefore not reflected in this report. A brief supplemental memorandum was conducted to discuss the effects of the proposed Jackrabbit Square signal. The memorandum can be found in **Appendix I**. As discussed in the memorandum, if the future proposed signal is coordinated with the signals warranted at the I-10 interchange and at Roosevelt Street, the signal should not interrupt the flow of traffic and cause starvation or excess delay at any of the intersections.

Once the alternative was selected, the next concern was the westbound off-ramp traffic weaving with the northbound Jackrabbit Trail traffic towards McDowell Road. Since McDowell Road is in close-proximity to the off-ramp and there is a high volume of vehicles exiting the freeway to travel northbound towards McDowell Road, weaving becomes a concern. This is especially the case for traffic that may be looking to exit the freeway and then turn left onto McDowell Road. A few scenarios were therefore analyzed to determine potential mitigation options as traffic increases to the projected 2040 volumes and exceeds those volumes beyond 2040.

The first scenario included a free-flowing channelized right turn lane. The intersection operates at an acceptable level of service with very little delay. Due to the gaps in the northbound through traffic from the DDI signalized intersection, there are plenty of gaps in the through traffic at the off-ramp for westbound right turning traffic to weave across Jackrabbit Trail and make a northbound left turn at McDowell Road. For northbound through and right turning traffic at McDowell Road, the free-flowing right turns increase efficiency. One concern, however, is that the free-flowing traffic will have westbound right turning vehicles making a right turn at the same time as the free-flowing northbound through traffic at the off ramp, making it more difficult for the off-ramp traffic to weave across Jackrabbit Trail and make it to the northbound left turn lane at McDowell Road.

A yield controlled westbound right turn scenario was then analyzed for the off-ramp traffic to determine if that would help the off-ramp traffic needing to weave across Jackrabbit Trail, while maintaining an acceptable delay and LOS for the remaining off-ramp traffic turning right onto Jackrabbit Trail. The ramp traffic would have the opportunity to yield to the northbound through traffic on Jackrabbit Trail to wait for a gap to weave across Jackrabbit Trail. When vehicles wait for a gap to turn right, however, vehicles begin to queue on the ramp.

The next scenario analyzed was to provide a permissive signal for the westbound right turning traffic allowing for efficiency of right turns from the off-ramp. The signal was analyzed in coordination with the DDI signalized intersections allowing cars to turn freely off the ramp while the northbound traffic is stopped at the DDI signal. With this scenario, however, there is still a significant queue forming on the off-ramp. Dual right turn lanes were therefore analyzed for the signalized ramp option. Providing a signal for the westbound right turning traffic with dual right turn lanes, significantly reduces delay and allows drivers to safely weave across Jackrabbit Trail when timed in coordination with the DDI signals and McDowell Road signals. This is the recommended ultimate build out scenario for the I-10 egress right turning traffic.

D. Diverging Diamond Interchange Traffic Signal Control

In addition to the various mitigation opportunities for the DDI, another item to consider is the number of controller cabinets used for the interchange. According to the Federal Highway Administration (FHWA) Diverging Diamond Interchange Informational Guide, DDI interchanges can have one or two controller cabinets for the signals. **Table 13** presents the main differences between using one or two controllers as described in the DDI Informational Guide.

Table 13 – Single Controller vs. Two Controllers

Single Signal Controller	Two Signal Controllers
+ Reduced Hardware Cost	+ Ability to better control offsets
+ Used at most existing DDIs	+ More flexibility if all turns are signalized
+ Avoids need to set up communication between controllers	+ More Transparency in signal design and cabinet set up
+ Improved flow during “free running” signal operation (late night)	- Need for controllers to communicate
- Increased need for wiring across DDI	- Additional hardware and installation cost
- More complicated signal design and cabinet set up	- May result in undesirable gap out situations during low volume periods

With the recommendation for the ultimate build-out to include signalization for the right turning off-ramp traffic, providing two controllers would provide the flexibility to add the additional off-ramp signals when they become warranted. In addition to this project, the planned DDI for Happy Valley Road and the I-17 will use two controller cabinets. The recommendation is therefore to use two controller cabinets for the DDI signal design.

E. Conclusions

All the major intersections discussed within the project limits warrant a traffic signal by 2040.

Improvements to the ADOT interchange are required to handle the future traffic safely and efficiently. This study looked at maintaining the existing diamond interchange for Alternatives 1 and 2 and the Diverging Diamond Interchange (DDI) for Alternatives 3 and 4. Further analysis was then conducted on the selected alternatives, alternatives 3 and 4.

Diamond interchanges are the default traffic interchange used for ADOT improvement projects and is the interchange currently in use at the Jackrabbit Trail and I-10 interchange. The performance of the diamond interchanges are well documented and drivers are accustomed to the traffic patterns. Diverging Diamond interchanges are not as widely used, but ADOT has several DDI projects in planning stages throughout the state. There are three interchanges currently in construction that utilize the DDI layout: Loop 202 at 17th Avenue, Loop 202 at Desert Foothill Parkway, and the I-17 at Happy Valley Road.

Studies have shown that the use of a DDI can improve the safety and operation of the interchange at a minimal cost.

The DDI crosses the through lanes at each ramp junction, effectively making both the right and left turning movements either free flow or yield condition. Since a significant ratio of the traffic at the interchange is turning movements, the DDI significantly reduces the overall delay of the intersection. Even the through movement delay is an improvement since the two intersections of the DDI become two-phase signals. The two-phase signal timing is very efficient. The signal timing at the TI intersections can be coordinated with the McDowell Road intersection signal which will provide significant improvements in progression through the closely spaced signal.

The safety benefits of the DDI interchange over the standard Diamond Interchange are as follows:

- Fewer conflict points (14 for DDI, 26 for DI)
- Improved sight distance
- Wrong Way ramp entrances are extremely difficult to make
- Pedestrian crossings are shorter
- Easy for drivers to maneuver
- Not confusing to drivers

An FHWA study and driver observations at DDI interchanges support the safety and ease of driving benefits. At the Springfield, Missouri DDI, 97% of drivers feel safer compared to conventional diamond interchanges. Crash data at the existing Springfield, Missouri DDI shows a 60% reduction in collisions in a five-month comparison. A study in Utah showed that drivers were able to follow the signs and pavement

lane markings easily. The DDI uses the same conditioning as the Diamond Interchange, i.e., use the left lane to turn left, use the right lane to turn right, etc. This is significantly better for drivers than some other types of interchanges such as ParClo (Partial Cloverleaf) in which you need to be in the right lane to turn left. The DDI is also great in an area with less available space for an interchange foot print.

The operational benefits of the DDI interchange over the standard Diamond Interchange are as follows:

- Signal phasing and timing
- Free flow or yield control left turns and right turns
- Better storage between ramp junctions
- More functional during power outages because only through traffic is at the intersections
- I-10 Travelers can easily exit the freeway, drive through the DDI, and travel in the other direction on the I-10
- Better signal network coordination and progression

The level of service analysis for each intersection and alternative is summarized in **Table 14.**

Table 14 – Level of Service

Intersection	Peak Hour	No Build LOS	Alternative 1 LOS	Alternative 2 LOS	Alternative 3 LOS	Alternative 4 LOS
Jackrabbit Trail & Van Buren Street	AM	F	B	B	B	B
	PM	F	C	C	C	C
Jackrabbit Trail & Roosevelt Street	AM	B	B	A	A	A
	PM	F	B	B	B	B
Jackrabbit Trail & I-10 EB Ramps	AM	F	B	B	B	B
	PM	F	C	B	B	B
Jackrabbit Trail & I-10 WB Ramps	AM	F	B	B	B	B
	PM	F	C	C	B	B
Jackrabbit Trail & McDowell Road	AM	F	C	B	C	C
	PM	F	C	B	B	B

Providing additional mitigation for the right turning traffic on the westbound I-10 off-ramp with the DDI interchange, would be beneficial as traffic continues to increase in the area and eventually exceeds the 2040 traffic projections. Eventually providing a signal with dual right turn lanes would not only increase efficiency for right turning vehicles, but it would also increase the safety for the I-10 traffic weaving across Jackrabbit Trail with the northbound through traffic.

The eastbound through traffic for the McDowell Road intersection is approaching failure for the projected 2040 traffic. Providing an additional through lane will help to mitigate the through traffic delays in the future.

MCDOT plans to purchase right-of-way for the ultimate roadway sections for the developed parcels and purchase the interim right-of-way for undeveloped parcels. For the undeveloped parcels, developers will be required to dedicate right-of-way to provide the remainder of the roadway for the ultimate roadway.

V. RECOMMENDATIONS

A. Short Term Needs

The critical need is for the I-10 ramps and Jackrabbit Trail intersections to be signalized. This project was studied by ADOT and found to be unfeasible.

B. Long Term Needs

In anticipation of the future traffic, within the MCDOT right-of-way, Jackrabbit Trail should be reconstructed to meet the MCDOT Principle Arterial standard. The needs analysis shows only the need for 4-lanes to meet the required minimum level-of-service per the MCDOT Roadway Design Manual. This would be the minimum design to meet the future needs. The ultimate section is for a 6-lane principle arterial roadway. Since much of the corridor's adjacent land is un-developed, obtaining the right-of-way for the six-lane ultimate build out now is a feasible option because the future costs for construction are estimated to be significantly higher.

Within the ADOT right-of-way, the I-10 and Jackrabbit Trail traffic interchange should be reconstructed to provide the required capacity and operational efficiency into the future. This report bases the approach on the existing I-10 overpass structure remaining in place. If it remains in place, the Diverging Diamond Interchange is both feasible and fits within the overpass abutment and pier system better than the Diamond TI. The DDI has more capacity, operates more efficiently, and is easy to drive.

It is also recommended to provide additional space for the westbound off-ramp traffic to accommodate the mitigation measures described in this report. The dual right turn lanes and traffic signal are not yet needed for the right turning traffic, however, planning for the implementation of the additional right turn lane and signal now would be beneficial. This includes additional space for dual right turn lanes, a traffic signal and the use of two traffic signal controllers for the DDI interchange.

Providing traffic signals at the following intersections is warranted and will help improve intersection LOS and Delay, as well as safety. The following intersections should be signalized by 2040:

- McDowell Road
- I-10 DDI Interchange
- Roosevelt Street
- Van Buren Street

Providing pavement for future restriping on the east and west legs of the McDowell Road intersection is recommended to allow for an additional eastbound through lane in the future.

VI. REFERENCES

MCDOT, *Roadway Design Manual*, 2017.

MCDOT, *Traffic Signal Design Manual*, March 2015.

MCDOT, *Pavement Marking Manual*, 2005.

MCDOT, *Major Streets and Routes Plan*, Revised June 2011.

MCDOT, *Transportation System Plan*, 2017.

MCDOT, *Bicycle Transportation Plan*, 1999.

EPS Group*, Jackrabbit Trail (195th Avenue) Van Buren Street to McDowell Road, Candidate Assessment Report*, June 2016.

RBF Consulting, *Blue Horizons Traffic Impact Study*, Revised August 18, 2004.

CivTech, Inc., *Vantage West Distribution Center Traffic Impact Analysis*, February 2017.

DMJM Harris / AECOM, *Jackrabbit Trail Access Control and Corridor Improvement Study, Interstate-10 to Bell Road*, Final Report, October 2008.

MCDOT, *Jackrabbit Trail Public Meeting Comments for September 14, 2017*, September 20, 2017.

FHWA, *Diverging Diamond Interchange Informational Guide*, August 2014.

FHWA, *Manual on Uniform Traffic Control Devices for Streets and Highways*, 2009 Edition, Revised May 2012.

ADOT, *Roadway Design Guidelines*, April 2016.

ADOT, Traffic Guideline and Processes, December 2015.

VII. Appendices

APPENDIX A - Traffic Counts

Intersection Turning Movement

Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Jackrabbit Trail	DATE:	6/27/17	LOCATION:	Buckeye
E-W STREET:	W. Van Buren St.	DAY:	TUESDAY	PROJECT#	17-1244-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	0	1	1	0	1	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	74	7	4	32	5	2	0	0	2	0	4	131
7:15 AM	0	59	2	1	33	3	6	1	0	2	2	4	113
7:30 AM	0	56	0	1	29	4	3	0	0	4	0	2	99
7:45 AM	0	62	3	0	46	2	4	1	0	1	2	0	121
8:00 AM	0	65	1	2	27	6	12	0	2	4	0	3	122
8:15 AM	3	63	4	3	39	1	5	1	0	4	1	2	126
8:30 AM	1	86	4	3	49	6	5	0	1	1	2	5	163
8:45 AM	0	58	1	6	36	3	2	1	0	3	0	3	113
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	5	523	22	20	291	30	39	4	3	21	7	23	988
Approach %	0.91	95.09	4.00	5.87	85.34	8.80	84.78	8.70	6.52	41.18	13.73	45.10	
App/Depart	550	/	585	341	/	315	46	/	46	51	/	42	

AM Peak Hr Begins at: 745 AM

PEAK													
Volumes	4	276	12	8	161	15	26	2	3	10	5	10	532
Approach %	1.37	94.52	4.11	4.35	87.50	8.15	83.87	6.45	9.68	40.00	20.00	40.00	
PEAK HR. FACTOR:		0.802			0.793			0.554			0.781		0.816

CONTROL: 2-Way Stop (EB-WB)
COMMENT 1:
GPS: 33.450213, -112.478809

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON				
PM	400	PM	600	PM

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

Pedestrian & Bicycle Study

N-S STREET: Jackrabbit Trail
E-W STREET: W. Van Buren St.

Date: 6/27/17
Day: TUESDAY

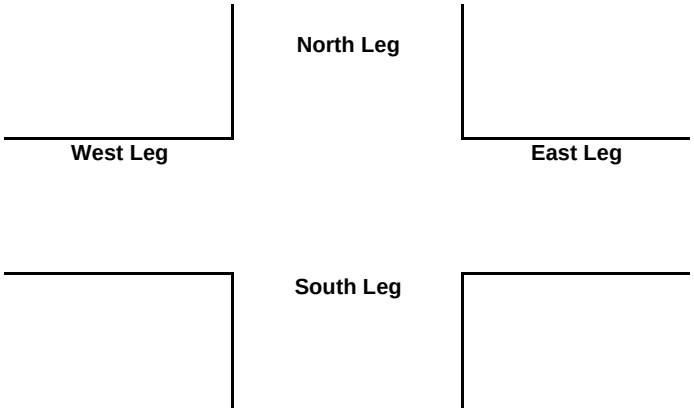
City: Buckeye
Project #: 17-1244-001

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	1	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	**0**	**0**	**1**	**0**

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	1	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
TOTAL	**0**	**0**	**1**	**0**



Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Jackrabbit Trail 0	DATE:	6/27/17	LOCATION:	Buckeye
E-W STREET:	W. Van Buren St.	DAY:	TUESDAY	PROJECT#	17-1244-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	0	1	1	0	1	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	1	42	0	3	87	5	0	0	1	9	3	6	157
4:15 PM	0	54	1	2	70	4	4	0	0	6	0	4	145
4:30 PM	0	57	2	4	73	8	5	0	0	7	1	3	160
4:45 PM	0	43	6	3	90	4	5	0	0	7	1	7	166
5:00 PM	0	51	2	2	78	6	5	0	0	9	2	5	160
5:15 PM	2	50	0	6	78	5	2	1	1	12	0	3	160
5:30 PM	0	36	3	4	84	7	3	0	0	8	0	3	148
5:45 PM	0	54	6	0	75	6	4	0	1	5	0	6	157
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	3	387	20	24	635	45	28	1	3	63	7	37	1253
Approach %	0.73	94.39	4.88	3.41	90.20	6.39	87.50	3.13	9.38	58.88	6.54	34.58	
App/Depart	410	/	452	704	/	701	32	/	45	107	/	55	

PM Peak Hr Begins at: 430 PM

PEAK													
Volumes	2	201	10	15	319	23	17	1	1	35	4	18	646
Approach %	0.94	94.37	4.69	4.20	89.36	6.44	89.47	5.26	5.26	61.40	7.02	31.58	
PEAK HR. FACTOR:		0.903			0.920			0.950			0.891		0.973

CONTROL: 2-Way Stop (EB-WB)
COMMENT 1: 0
GPS: 33.450213, -112.478809

HOURS:

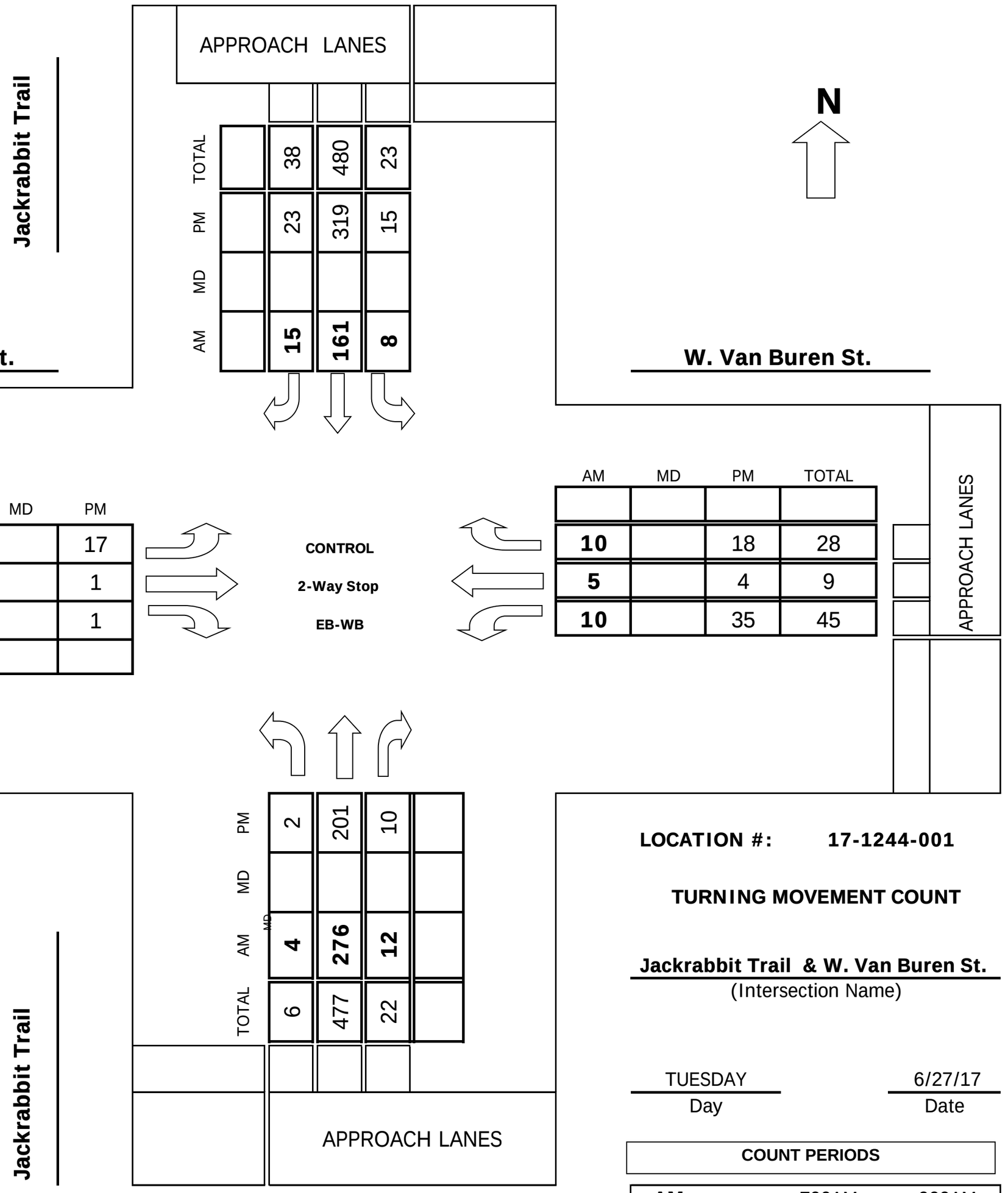
	FROM:		TO:	
AM	700	AM	900	AM
NOON	0	0	0	0
PM	400	PM	600	PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 17-1244-001

TMC SUMMARY OF Jackrabbit Trail & W. Van Buren St.



LOCATION #: 17-1244-001

TURNING MOVEMENT COUNT

Jackrabbit Trail & W. Van Buren St.
(Intersection Name)

TUESDAY — Day

6/27/17 — Date

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 745 AM

NOON PEAK HOUR

PM PEAK HOUR 430 PM

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Wednesday, June 28, 2017 City: Buckeye Project #: 17-1244-001

Location: Jackrabbit Trail North of I-10 Fwy.

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	7		3					12:00	57		52				
00:15	6		4					12:15	53		58				
00:30	7		4					12:30	43		45				
00:45	5	25	3	14			39	12:45	46	199	72	227			426
01:00	7		3					13:00	43		96				
01:15	6		11					13:15	42		50				
01:30	4		1					13:30	49		57				
01:45	3	20	1	16			36	13:45	53	187	46	249			436
02:00	1		2					14:00	44		63				
02:15	2		1					14:15	55		42				
02:30	3		5					14:30	58		48				
02:45	5	11	4	12			23	14:45	52	209	50	203			412
03:00	7		12					15:00	50		50				
03:15	3		15					15:15	49		45				
03:30	10		5					15:30	66		58				
03:45	10	30	17	49			79	15:45	87	252	73	226			478
04:00	28		26					16:00	89		64				
04:15	29		35					16:15	94		56				
04:30	45		24					16:30	77		67				
04:45	39	141	37	122			263	16:45	109	369	83	270			639
05:00	34		43					17:00	92		62				
05:15	52		41					17:15	98		67				
05:30	21		76					17:30	89		84				
05:45	26	133	63	223			356	17:45	105	384	82	295			679
06:00	39		65					18:00	89		64				
06:15	27		64					18:15	67		48				
06:30	39		57					18:30	58		59				
06:45	38	143	77	263			406	18:45	66	280	39	210			490
07:00	29		87					19:00	50		24				
07:15	55		67					19:15	48		33				
07:30	35		77					19:30	54		29				
07:45	46	165	85	316			481	19:45	50	202	21	107			309
08:00	41		76					20:00	43		23				
08:15	42		81					20:15	40		24				
08:30	50		80					20:30	50		21				
08:45	74	207	83	320			527	20:45	37	170	17	85			255
09:00	34		82					21:00	32		19				
09:15	36		64					21:15	28		28				
09:30	39		69					21:30	30		22				
09:45	24	133	42	257			390	21:45	31	121	8	77			198
10:00	32		72					22:00	26		14				
10:15	43		67					22:15	21		11				
10:30	33		64					22:30	14		11				
10:45	46	154	64	267			421	22:45	7	68	8	44			112
11:00	46		53					23:00	18		7				
11:15	43		46					23:15	13		4				
11:30	47		33					23:30	10		5				
11:45	45	181	39	171			352	23:45	8	49	3	19			68
Total Vol.		1343		2030			**3373**			2490		2012			**4502**

GPS Coordinates:

Daily Totals

NB	SB	EB	WB	**Combined**
3833	4042			**7875**

	AM			PM		
Split %	39.8%	60.2%	**42.8%**	55.3%	44.7%	**57.2%**
Peak Hour	08:00	08:15	**08:00**	16:45	17:15	**16:45**
Volume	207	326	**527**	388	297	**684**
P.H.F.	0.70	0.98	**0.84**	0.89	0.88	**0.89**

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Jackrabbit Trail	DATE:	6/27/17	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	17-1244-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	1	0	0	0	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	24	84	79	40	0	6	0	8	0	0	0	241
7:15 AM	0	24	78	55	37	0	5	1	11	0	0	0	211
7:30 AM	0	21	63	60	37	0	10	0	11	0	0	0	202
7:45 AM	0	20	56	64	29	0	4	1	5	0	0	0	179
8:00 AM	0	17	44	49	43	0	2	0	11	0	0	0	166
8:15 AM	0	21	54	52	32	0	7	0	9	0	0	0	175
8:30 AM	0	32	63	41	42	0	10	1	10	0	0	0	199
8:45 AM	0	40	50	43	52	0	12	1	10	0	0	0	208
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	199	492	443	312	0	56	4	75	0	0	0	1581
Approach %	0.00	28.80	71.20	58.68	41.32	0.00	41.48	2.96	55.56	####	####	####	
App/Depart	691	/	255	755	/	387	135	/	939	0	/	0	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	0	89	281	258	143	0	25	2	35	0	0	0	833
Approach %	0.00	24.05	75.95	64.34	35.66	0.00	40.32	3.23	56.45	####	####	####	
PEAK HR. FACTOR:		0.856			0.842			0.738			0.000		0.864

CONTROL: 1-Way Stop (EB)
COMMENT 1:
GPS: 33.461808, -112.478809

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON				
PM	400	PM	600	PM

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

Pedestrian & Bicycle Study

N-S STREET: Jackrabbit Trail
E-W STREET: I-10 EB Ramps

Date: 6/27/17
Day: TUESDAY

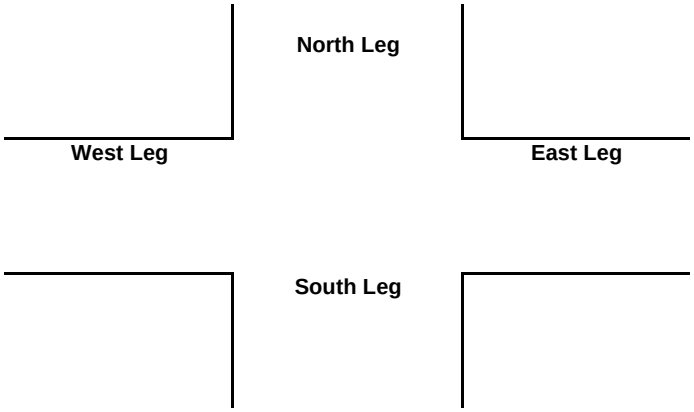
City: Buckeye
Project #: 17-1244-002

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**



Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Jackrabbit Trail 0	DATE:	6/27/17	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	17-1244-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	1	0	0	0	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	34	33	42	65	0	17	0	17	0	0	0	208
4:15 PM	0	34	53	36	84	0	12	0	8	0	0	0	227
4:30 PM	0	29	31	36	79	0	21	0	12	0	0	0	208
4:45 PM	0	33	49	33	76	0	21	0	9	0	0	0	221
5:00 PM	0	17	47	37	78	0	16	0	17	0	0	0	212
5:15 PM	0	27	37	46	84	0	17	0	5	0	0	0	216
5:30 PM	0	31	34	46	87	0	13	0	11	0	0	0	222
5:45 PM	0	27	23	33	80	0	16	1	9	0	0	0	189
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	232	307	309	633	0	133	1	88	0	0	0	1703
Approach %	0.00	43.04	56.96	32.80	67.20	0.00	59.91	0.45	39.64	####	####	####	
App/Depart	539	/	365	942	/	721	222	/	617	0	/	0	

PM Peak Hr Begins at: 445 PM

PEAK													
Volumes	0	108	167	162	325	0	67	0	42	0	0	0	871
Approach %	0.00	39.27	60.73	33.26	66.74	0.00	61.47	0.00	38.53	####	####	####	

PEAK HR. FACTOR:	0.838	0.915	0.826	0.000	0.981

CONTROL: 1-Way Stop (EB)
COMMENT 1: 0
GPS: 33.461808, -112.478809

HOURS:

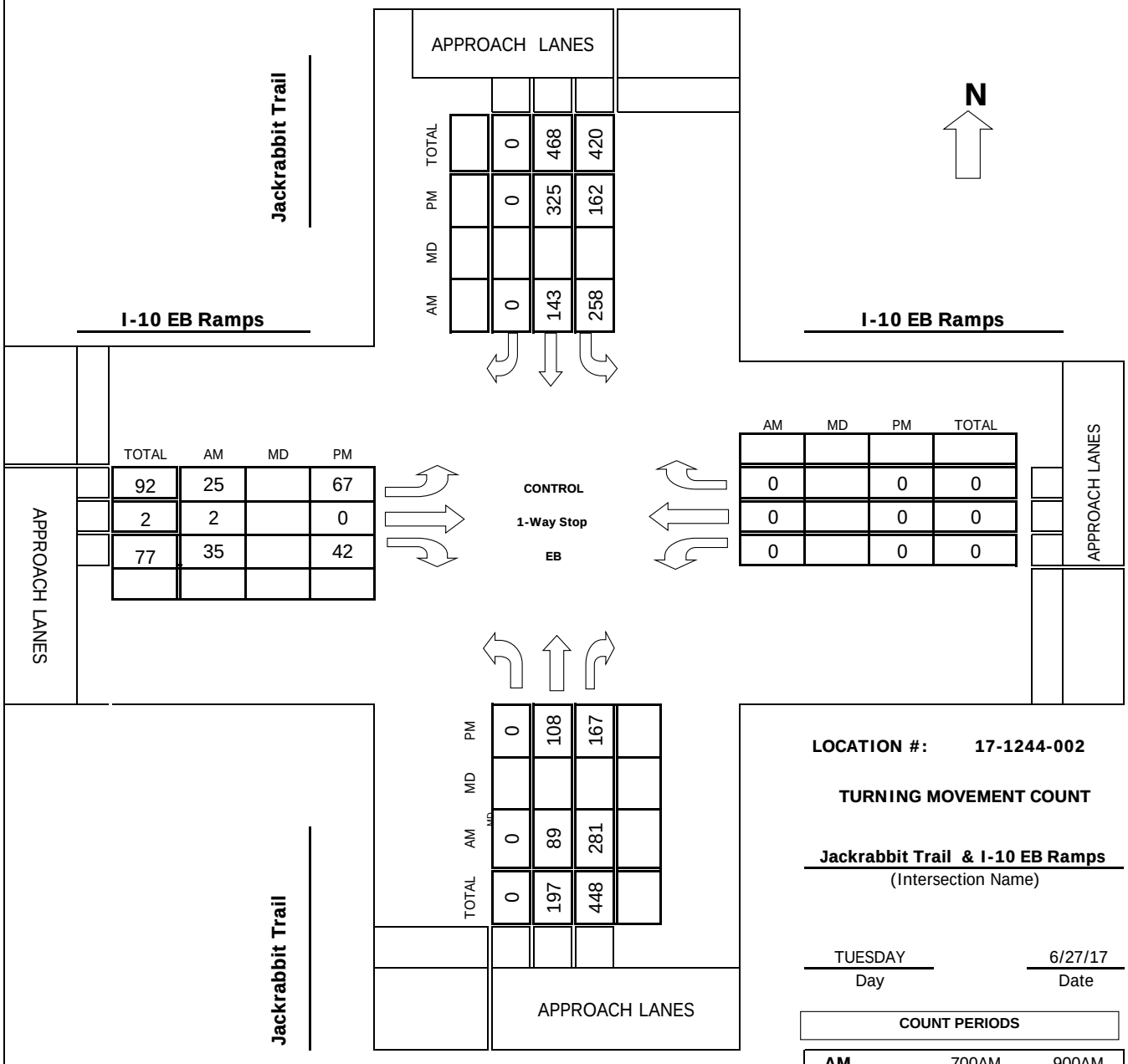
	FROM:		TO:	
AM	700	AM	900	AM
NOON	0	0	0	0
PM	400	PM	600	PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 17-1244-002

TMC SUMMARY OF Jackrabbit Trail & I-10 EB Ramps



LOCATION #: 17-1244-002

TURNING MOVEMENT COUNT

Jackrabbit Trail & I-10 EB Ramps
(Intersection Name)

TUESDAY (Day) 6/27/17 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 700 AM

NOON PEAK HOUR

PM PEAK HOUR 445 PM

Intersection Turning Movement

Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Jackrabbit Trail	DATE:	6/27/17	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	17-1244-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	14	13	0	0	76	17	0	0	0	26	0	18	164
7:15 AM	12	17	0	0	76	9	0	0	0	25	1	20	160
7:30 AM	8	23	0	0	73	12	0	0	0	23	0	21	160
7:45 AM	8	16	0	0	75	7	0	0	0	14	0	20	140
8:00 AM	6	17	0	0	65	15	0	0	0	28	1	23	155
8:15 AM	4	23	0	0	62	14	0	0	0	20	1	26	150
8:30 AM	7	32	0	0	62	15	0	0	0	31	0	21	168
8:45 AM	10	40	0	0	61	17	0	0	0	32	0	34	194
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	69	181	0	0	550	106	0	0	0	199	3	183	1291
Approach %	27.60	72.40	0.00	0.00	83.84	16.16	####	####	####	51.69	0.78	47.53	
App/Depart	250	/	364	656	/	749	0	/	0	385	/	178	

AM Peak Hr Begins at: 800 AM

PEAK													
Volumes	27	112	0	0	250	61	0	0	0	111	2	104	667
Approach %	19.42	80.58	0.00	0.00	80.39	19.61	####	####	####	51.15	0.92	47.93	
PEAK HR. FACTOR:		0.695			0.972			0.000			0.822		0.860

CONTROL: 1-Way Stop (WB)
COMMENT 1:
GPS: 33.463084, -112.478813

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON				
PM	400	PM	600	PM

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

Pedestrian & Bicycle Study

N-S STREET: Jackrabbit Trail
E-W STREET: I-10 WB Ramps

Date: 6/27/17
Day: TUESDAY

City: Buckeye
Project #: 17-1244-003

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	1	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	**0**	**0**	**1**	**0**

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

North Leg

West Leg

East Leg

South Leg

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Jackrabbit Trail 0	DATE:	6/27/17	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	17-1244-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	13	31	0	0	52	24	0	0	0	46	0	75	241
4:15 PM	12	37	0	0	58	24	0	0	0	76	0	66	273
4:30 PM	7	38	0	0	60	17	0	0	0	51	1	59	233
4:45 PM	9	44	0	0	54	18	0	0	0	60	1	63	249
5:00 PM	9	27	0	0	48	10	0	0	0	66	1	63	224
5:15 PM	9	33	0	0	74	22	0	0	0	57	0	80	275
5:30 PM	5	37	0	0	65	18	0	0	0	50	0	50	225
5:45 PM	3	41	0	0	55	20	0	0	0	70	0	73	262
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	67	288	0	0	466	153	0	0	0	476	3	529	1982
Approach %	18.87	81.13	0.00	0.00	75.28	24.72	####	####	####	47.22	0.30	52.48	
App/Depart	355	/	817	619	/	942	0	/	0	1008	/	223	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	41	150	0	0	224	83	0	0	0	233	2	263	996
Approach %	21.47	78.53	0.00	0.00	72.96	27.04	####	####	####	46.79	0.40	52.81	
PEAK HR. FACTOR:		0.901			0.936			0.000			0.877		0.912

CONTROL: 1-Way Stop (WB)
COMMENT 1: 0
GPS: 33.463084, -112.478813

HOURS:

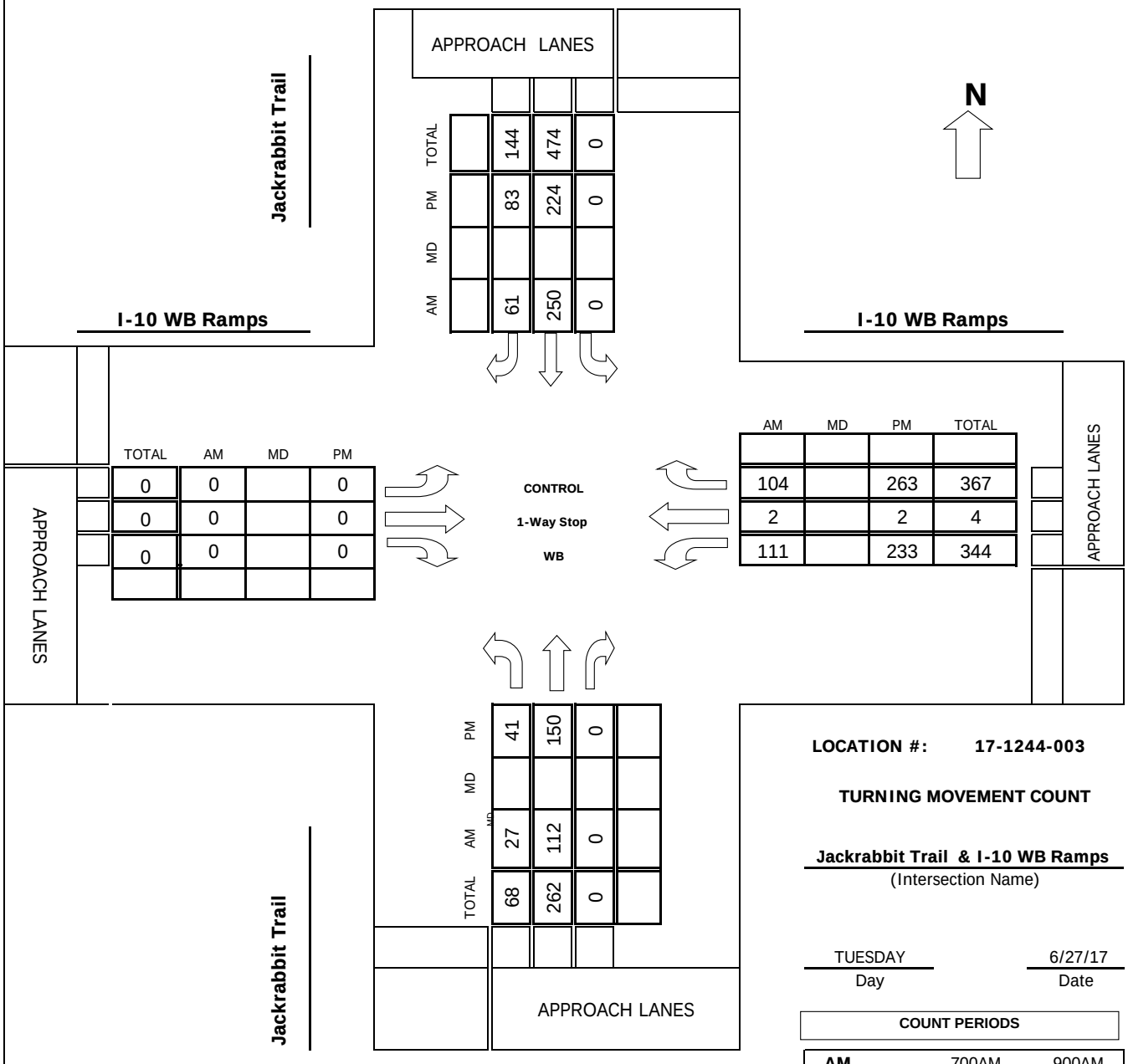
	FROM:		TO:	
AM	700	AM	900	AM
NOON	0	0	0	0
PM	400	PM	600	PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 17-1244-003

TMC SUMMARY OF Jackrabbit Trail & I-10 WB Ramps



LOCATION #: 17-1244-003

TURNING MOVEMENT COUNT

Jackrabbit Trail & I-10 WB Ramps
(Intersection Name)

TUESDAY (Day) 6/27/17 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Jackrabbit Trail	DATE:	6/27/17	LOCATION:	Buckeye
E-W STREET:	McDowell Rd.	DAY:	TUESDAY	PROJECT#	17-1244-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	2	25	7	0	52	1	0	1	20	9	2	0	119
7:15 AM	8	31	5	0	67	0	0	1	14	6	0	2	134
7:30 AM	1	25	8	3	55	1	0	1	14	5	0	3	116
7:45 AM	5	23	6	1	64	0	1	0	8	7	0	1	116
8:00 AM	6	28	8	3	57	0	0	1	12	1	1	1	118
8:15 AM	7	38	4	3	50	1	1	0	10	5	0	1	120
8:30 AM	7	55	7	0	53	0	0	0	11	11	0	1	145
8:45 AM	3	26	6	2	55	0	1	1	10	15	2	0	121
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	39	251	51	12	453	3	3	5	99	59	5	9	989
Approach %	11.44	73.61	14.96	2.56	96.79	0.64	2.80	4.67	92.52	80.82	6.85	12.33	
App/Depart	341	/	263	468	/	611	107	/	68	73	/	47	

AM Peak Hr Begins at: 800 AM

PEAK													
Volumes	23	147	25	8	215	1	2	2	43	32	3	3	504
Approach %	11.79	75.38	12.82	3.57	95.98	0.45	4.26	4.26	91.49	84.21	7.89	7.89	
PEAK HR. FACTOR:	0.707			0.933			0.904			0.559			0.869

CONTROL: 4-Way Stop
COMMENT 1:
GPS: 33.464715, -112.478812

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON				
PM	400	PM	600	PM

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

Pedestrian & Bicycle Study

N-S STREET: Jackrabbit Trail
E-W STREET: McDowell Rd.

Date: 6/27/17
Day: TUESDAY

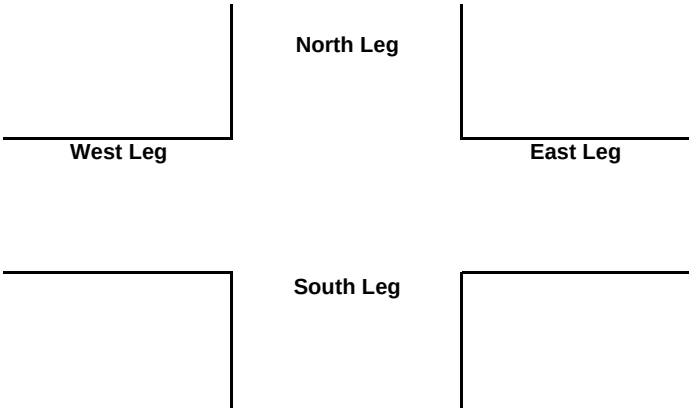
City: Buckeye
Project #: 17-1244-004

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	3	0
7:45 AM	0	0	1	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	**0**	**0**	**4**	**0**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**



Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Jackrabbit Trail 0	DATE:	6/27/17	LOCATION:	Buckeye
E-W STREET:	McDowell Rd.	DAY:	TUESDAY	PROJECT#	17-1244-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	21	59	12	2	53	0	0	1	8	14	0	1	171
4:15 PM	13	67	10	0	41	1	0	2	15	7	0	3	159
4:30 PM	14	74	9	0	41	1	2	1	8	10	2	1	163
4:45 PM	10	74	4	2	46	2	2	0	9	10	1	6	166
5:00 PM	18	73	10	1	78	1	0	1	3	5	2	4	196
5:15 PM	11	65	8	3	60	1	0	2	11	7	4	6	178
5:30 PM	16	91	4	3	47	0	1	2	9	7	4	5	189
5:45 PM	25	73	4	0	28	1	1	1	7	10	3	5	158
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	128	576	61	11	394	7	6	10	70	70	16	31	1380
Approach %	16.73	75.29	7.97	2.67	95.63	1.70	6.98	11.63	81.40	59.83	13.68	26.50	
App/Depart	765	/	613	412	/	534	86	/	82	117	/	151	

PM Peak Hr Begins at: 445 PM

PEAK													
Volumes	55	303	26	9	231	4	3	5	32	29	11	21	729
Approach %	14.32	78.91	6.77	3.69	94.67	1.64	7.50	12.50	80.00	47.54	18.03	34.43	
PEAK HR. FACTOR:		0.865			0.763			0.769			0.897		0.930

CONTROL: 4-Way Stop
COMMENT 1: 0
GPS: 33.464715, -112.478812

HOURS:

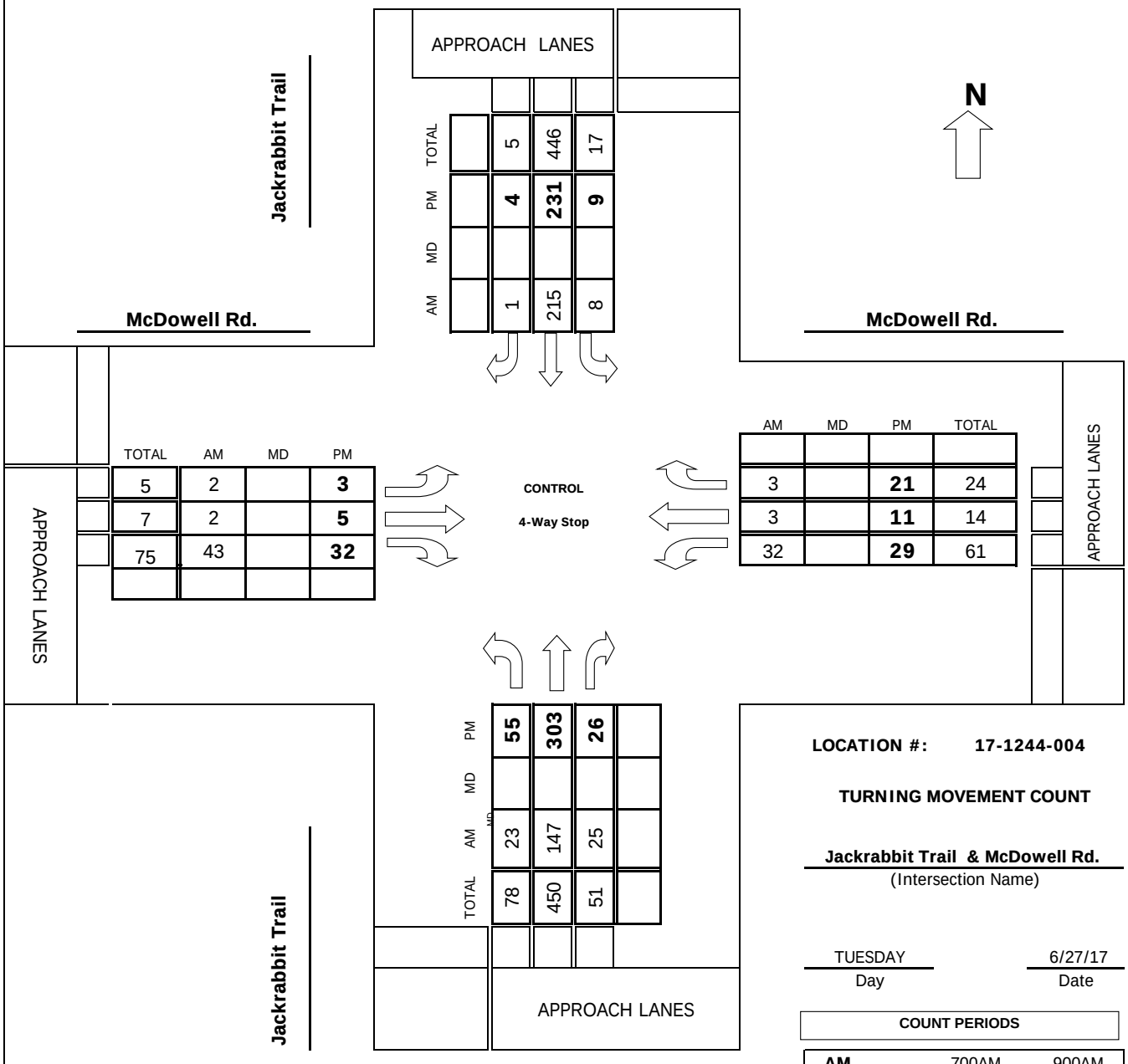
	FROM:		TO:	
AM	700	AM	900	AM
NOON	0	0	0	0
PM	400	PM	600	PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 17-1244-004

TMC SUMMARY OF Jackrabbit Trail & McDowell Rd.



LOCATION #: 17-1244-004

TURNING MOVEMENT COUNT

Jackrabbit Trail & McDowell Rd.
(Intersection Name)

TUESDAY (Day) 6/27/17 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

PM PEAK HOUR 445 PM

Field Data Services of Arizona

21636 N. Dietz Dr.
Maricopa, AZ 85138
520.316.6745

Site Code: 17-1244-002
Station ID: Wed 06/28/17
Jackrabbit Trail South of I-10 Fwy.
33.459679,-112.478938
Latitude: 0' 0.000 Undefined

Northbound

Start Time	Bikes	Cars & Tlrs	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Total
6/28/17	0	16	4	0	5	1	0	0	0	0	0	0	0	26
01:00	0	17	3	0	2	0	0	0	1	0	0	0	0	23
02:00	0	23	11	0	4	0	0	0	2	0	0	0	0	40
03:00	0	50	27	0	7	0	0	2	2	**1**	0	0	0	89
04:00	0	132	70	1	35	4	0	2	1	0	0	0	0	245
05:00	0	171	**90**	0	**43**	2	0	0	5	0	0	0	0	311
06:00	2	**265**	88	0	34	1	0	1	4	0	**1**	0	0	**396**
07:00	0	236	74	1	42	6	0	**4**	4	0	0	0	0	367
08:00	**3**	203	79	1	38	9	2	2	4	0	0	**1**	0	342
09:00	3	172	81	1	30	6	**3**	2	**8**	0	0	0	0	306
10:00	1	169	65	2	33	**13**	0	3	5	0	0	1	0	292
11:00	2	146	60	**4**	39	13	3	4	4	0	0	0	0	275
12 PM	3	165	**80**	0	29	**11**	1	**5**	**5**	0	0	0	0	299
13:00	**4**	188	69	**2**	**37**	9	**3**	2	3	0	0	0	0	**317**
14:00	0	152	80	0	31	6	0	1	4	0	0	0	0	274
15:00	2	181	67	1	30	5	0	2	2	0	0	0	0	290
16:00	0	153	53	2	33	1	0	5	3	0	0	0	0	250
17:00	0	**214**	70	0	26	0	0	0	1	0	0	0	0	311
18:00	1	165	56	2	17	0	0	1	2	0	0	**1**	0	245
19:00	1	113	41	1	13	2	0	2	2	0	0	0	0	175
20:00	0	104	25	1	8	0	0	0	0	0	0	0	0	138
21:00	0	88	18	0	5	0	0	0	1	0	0	0	0	112
22:00	0	47	10	0	2	0	0	1	1	0	0	0	0	61
23:00	2	35	10	0	1	0	0	0	2	0	0	0	0	50
Day Total	24	3205	1231	19	544	89	12	39	66	1	1	3	0	5234
Percent	0.5%	61.2%	23.5%	0.4%	10.4%	1.7%	0.2%	0.7%	1.3%	0.0%	0.0%	0.1%	0.0%	
AM Peak	08:00	06:00	05:00	11:00	05:00	10:00	09:00	07:00	09:00	03:00	06:00	08:00		06:00
Vol.	3	265	90	4	43	13	3	4	8	1	1	1		396
PM Peak	13:00	17:00	12:00	13:00	13:00	12:00	13:00	12:00	12:00			18:00		13:00
Vol.	4	214	80	2	37	11	3	5	5			1		317
Grand Total	24	3205	1231	19	544	89	12	39	66	1	1	3	0	5234
Percent	0.5%	61.2%	23.5%	0.4%	10.4%	1.7%	0.2%	0.7%	1.3%	0.0%	0.0%	0.1%	0.0%	

Field Data Services of Arizona
21636 N. Dietz Dr.
Maricopa, AZ 85138
520.316.6745

Site Code: 17-1244-002
Station ID: Wed 06/28/17
Jackrabbit Trail South of I-10 Fwy.
33.459679,-112.478938
Latitude: 0' 0.000 Undefined

Southbound

Start Time	Bikes	Cars & Tlrs	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Total
6/28/17	0	31	20	1	4	0	0	0	0	0	0	0	0	56
01:00	0	17	12	0	0	0	0	0	1	0	0	0	0	30
02:00	0	14	10	0	4	0	0	0	4	0	0	0	0	32
03:00	0	31	16	1	7	3	0	0	0	0	0	0	0	58
04:00	1	75	28	0	8	2	0	5	1	0	1	0	0	121
05:00	2	98	34	0	12	1	0	5	5	0	0	0	0	157
06:00	0	129	48	2	14	0	0	5	0	0	**2**	0	0	200
07:00	0	114	47	3	16	**5**	1	5	3	0	0	0	0	194
08:00	4	112	53	4	8	1	3	5	**7**	1	0	0	0	198
09:00	2	124	68	4	12	2	**6**	5	4	3	0	**2**	0	232
10:00	**5**	140	75	**7**	19	3	1	5	1	1	0	1	0	258
11:00	3	**154**	**77**	3	**27**	4	2	**7**	3	**4**	0	1	0	**285**
12 PM	4	147	75	**5**	**26**	**4**	**3**	5	3	1	0	0	0	273
13:00	4	162	68	0	16	2	1	**8**	1	**3**	0	0	0	265
14:00	2	188	84	2	12	0	0	7	3	0	0	**1**	0	299
15:00	**6**	202	97	1	13	3	0	4	1	0	**1**	0	0	328
16:00	2	194	111	0	12	2	1	1	2	0	0	0	0	325
17:00	1	**219**	**144**	0	16	0	0	4	0	0	0	0	0	**384**
18:00	0	174	109	0	7	1	0	5	2	0	0	0	0	298
19:00	0	137	98	1	2	0	0	2	**6**	0	0	0	0	246
20:00	0	125	102	2	1	0	0	0	0	0	0	0	0	230
21:00	1	98	67	0	0	1	0	1	0	0	0	0	0	168
22:00	0	74	48	0	0	0	0	3	0	0	0	0	0	125
23:00	0	43	35	1	2	0	0	0	0	0	0	0	0	81
Day Total	37	2802	1526	37	238	34	18	82	47	13	4	5	0	4843
Percent	0.8%	57.9%	31.5%	0.8%	4.9%	0.7%	0.4%	1.7%	1.0%	0.3%	0.1%	0.1%	0.0%	
AM Peak	10:00	11:00	11:00	10:00	11:00	07:00	09:00	11:00	08:00	11:00	06:00	09:00		11:00
Vol.	5	154	77	7	27	5	6	7	7	4	2	2		285
PM Peak	15:00	17:00	17:00	12:00	12:00	12:00	12:00	13:00	19:00	13:00	15:00	14:00		17:00
Vol.	6	219	144	5	26	4	3	8	6	3	1	1		384
Grand Total	37	2802	1526	37	238	34	18	82	47	13	4	5	0	4843
Percent	0.8%	57.9%	31.5%	0.8%	4.9%	0.7%	0.4%	1.7%	1.0%	0.3%	0.1%	0.1%	0.0%	

Field Data Services of Arizona
21636 N. Dietz Dr.
Maricopa, AZ 85138
520.316.6745

Site Code: 17-1244-002
Station ID: Wed 06/28/17
Jackrabbit Trail South of I-10 Fwy.
33.459679,-112.478938
Latitude: 0' 0.000 Undefined

Northbound, Southbound

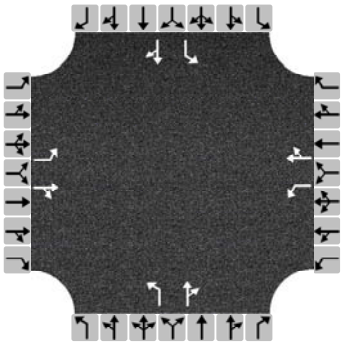
Start Time	Bikes	Cars & Tlrs	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Total
6/28/17	0	47	24	1	9	1	0	0	0	0	0	0	0	82
01:00	0	34	15	0	2	0	0	0	2	0	0	0	0	53
02:00	0	37	21	0	8	0	0	0	6	0	0	0	0	72
03:00	0	81	43	1	14	3	0	2	2	1	0	0	0	147
04:00	1	207	98	1	43	6	0	7	2	0	1	0	0	366
05:00	2	269	124	0	55	3	0	5	10	0	0	0	0	468
06:00	2	**394**	136	2	48	1	0	6	4	0	**3**	0	0	**596**
07:00	0	350	121	4	58	11	1	9	7	0	0	0	0	561
08:00	**7**	315	132	5	46	10	5	7	11	1	0	1	0	540
09:00	5	296	**149**	5	42	8	**9**	7	**12**	3	0	**2**	0	538
10:00	6	309	140	**9**	52	16	1	8	6	1	0	2	0	550
11:00	5	300	137	7	**66**	**17**	5	**11**	7	**4**	0	1	0	560
12 PM	7	312	155	**5**	**55**	**15**	**4**	**10**	**8**	1	0	0	0	572
13:00	**8**	350	137	2	53	11	4	10	4	**3**	0	0	0	582
14:00	2	340	164	2	43	6	0	8	7	0	0	**1**	0	573
15:00	8	383	164	2	43	8	0	6	3	0	**1**	0	0	618
16:00	2	347	164	2	45	3	1	6	5	0	0	0	0	575
17:00	1	**433**	**214**	0	42	0	0	4	1	0	0	0	0	**695**
18:00	1	339	165	2	24	1	0	6	4	0	0	1	0	543
19:00	1	250	139	2	15	2	0	4	8	0	0	0	0	421
20:00	0	229	127	3	9	0	0	0	0	0	0	0	0	368
21:00	1	186	85	0	5	1	0	1	1	0	0	0	0	280
22:00	0	121	58	0	2	0	0	4	1	0	0	0	0	186
23:00	2	78	45	1	3	0	0	0	2	0	0	0	0	131
Day Total	61	6007	2757	56	782	123	30	121	113	14	5	8	0	10077
Percent	0.6%	59.6%	27.4%	0.6%	7.8%	1.2%	0.3%	1.2%	1.1%	0.1%	0.0%	0.1%	0.0%	
AM Peak	08:00	06:00	09:00	10:00	11:00	11:00	09:00	11:00	09:00	11:00	06:00	09:00		06:00
Vol.	7	394	149	9	66	17	9	11	12	4	3	2		596
PM Peak	13:00	17:00	17:00	12:00	12:00	12:00	12:00	12:00	12:00	13:00	15:00	14:00		17:00
Vol.	8	433	214	5	55	15	4	10	8	3	1	1		695
Grand Total	61	6007	2757	56	782	123	30	121	113	14	5	8	0	10077
Percent	0.6%	59.6%	27.4%	0.6%	7.8%	1.2%	0.3%	1.2%	1.1%	0.1%	0.0%	0.1%	0.0%	

APPENDIX B - HCS7 Reports Existing 2017

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	Hunter Venne	Intersection	Jackrabbit & McDowell
Agency/Co.	Dibble Engineering	Jurisdiction	MCDOT/Buckeye
Date Performed	8/23/2017	East/West Street	McDowell Road
Analysis Year	2017	North/South Street	Jackrabbit Trail
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.88
Time Analyzed			
Project Description	Jackrabbit Trail Traffic Study		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	2	2	43	32	3	3	23	147	25	8	215	1
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	TR		L	TR	
Flow Rate, v (veh/h)	2	51		36	7		26	195		9	245	
Percent Heavy Vehicles	10	10		10	10		10	10		10	10	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20	3.20	
Initial Degree of Utilization, x	0.002	0.045		0.032	0.006		0.023	0.174		0.008	0.218	
Final Departure Headway, hd (s)	6.38	5.21		6.38	5.53		5.66	5.06		5.63	5.13	
Final Degree of Utilization, x	0.004	0.074		0.064	0.010		0.041	0.275		0.014	0.350	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Service Time, ts (s)	4.08	2.91		4.08	3.23		3.36	2.76		3.33	2.83	

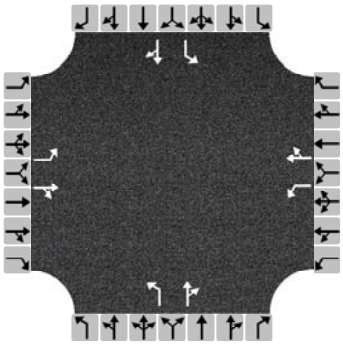
Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	2	51		36	7		26	195		9	245	
Capacity	564	691		564	650		636	712		639	702	
95% Queue Length, Q_{95} (veh)	0.0	0.2		0.2	0.0		0.1	1.1		0.0	1.6	
Control Delay (s/veh)	9.1	8.3		9.5	8.3		8.6	9.7		8.4	10.6	
Level of Service, LOS	A	A		A	A		A	A		A	B	
Approach Delay (s/veh)	8.4			9.3			9.5			10.5		
Approach LOS	A			A			A			B		
Intersection Delay, s/veh | LOS	9.8						A					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	Hunter Venne	Intersection	Jackrabbit & McDowell
Agency/Co.	Dibble Engineering	Jurisdiction	MCDOT/Buckeye
Date Performed	8/23/2017	East/West Street	McDowell Road
Analysis Year	2017	North/South Street	Jackrabbit Trail
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.88
Time Analyzed			
Project Description	Jackrabbit Trail Traffic Study		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	3	5	32	29	11	21	55	303	26	9	231	4
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	TR		L	TR	
Flow Rate, v (veh/h)	3	42		33	36		63	374		10	267	
Percent Heavy Vehicles	2	2		2	2		2	2		2	2	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20	3.20	
Initial Degree of Utilization, x	0.003	0.037		0.029	0.032		0.056	0.332		0.009	0.237	
Final Departure Headway, hd (s)	6.80	5.69		6.75	5.79		5.62	5.07		5.77	5.26	
Final Degree of Utilization, x	0.006	0.067		0.062	0.059		0.098	0.526		0.016	0.390	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Service Time, ts (s)	4.50	3.39		4.45	3.49		3.32	2.77		3.47	2.96	

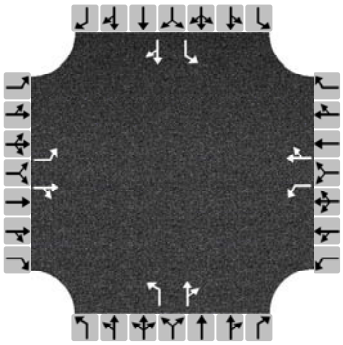
Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	3	42		33	36		63	374		10	267	
Capacity	529	632		533	622		641	711		624	685	
95% Queue Length, Q_{95} (veh)	0.0	0.2		0.2	0.2		0.3	3.1		0.0	1.9	
Control Delay (s/veh)	9.5	8.8		9.9	8.9		8.9	13.2		8.6	11.3	
Level of Service, LOS	A	A		A	A		A	B		A	B	
Approach Delay (s/veh)	8.9			9.3			12.6			11.2		
Approach LOS	A			A			B			B		
Intersection Delay, s/veh | LOS	11.7						B					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	Hunter Venne	Intersection	Jackrabbit & McDowell
Agency/Co.	Dibble Engineering	Jurisdiction	MCDOT/Buckeye
Date Performed	8/23/2017	East/West Street	McDowell Road
Analysis Year	2017	North/South Street	Jackrabbit Trail
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.88
Time Analyzed			
Project Description	Jackrabbit Trail Traffic Study		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	3	5	32	29	11	21	55	303	26	9	231	4
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	TR		L	TR	
Flow Rate, v (veh/h)	3	42		33	36		63	374		10	267	
Percent Heavy Vehicles	2	2		2	2		2	2		2	2	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20	3.20	
Initial Degree of Utilization, x	0.003	0.037		0.029	0.032		0.056	0.332		0.009	0.237	
Final Departure Headway, hd (s)	6.80	5.69		6.75	5.79		5.62	5.07		5.77	5.26	
Final Degree of Utilization, x	0.006	0.067		0.062	0.059		0.098	0.526		0.016	0.390	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Service Time, ts (s)	4.50	3.39		4.45	3.49		3.32	2.77		3.47	2.96	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	3	42		33	36		63	374		10	267	
Capacity	529	632		533	622		641	711		624	685	
95% Queue Length, Q_{95} (veh)	0.0	0.2		0.2	0.2		0.3	3.1		0.0	1.9	
Control Delay (s/veh)	9.5	8.8		9.9	8.9		8.9	13.2		8.6	11.3	
Level of Service, LOS	A	A		A	A		A	B		A	B	
Approach Delay (s/veh)	8.9			9.3			12.6			11.2		
Approach LOS	A			A			B			B		
Intersection Delay, s/veh | LOS	11.7						B					

HCS7 Two-Way Stop-Control Report

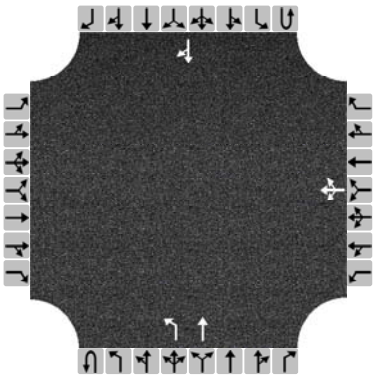
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	8/23/2017
Analysis Year	2017
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & I-10 EB
Jurisdiction	MCDOT/Buckeye
East/West Street	I-10 WB Ramps
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	1	1	0	0	0	1	0
Configuration							LTR			L	T					TR
Volume, V (veh/h)						111	2	104		27	112				250	61
Percent Heavy Vehicles (%)						10	10	10		10						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							246			31						
Capacity, c (veh/h)							733			1163						
v/c Ratio							0.34			0.03						
95% Queue Length, Q_{95} (veh)							1.5			0.1						
Control Delay (s/veh)							12.4			8.2						
Level of Service, LOS							B			A						
Approach Delay (s/veh)						12.4				1.6						
Approach LOS						B										

HCS7 Two-Way Stop-Control Report

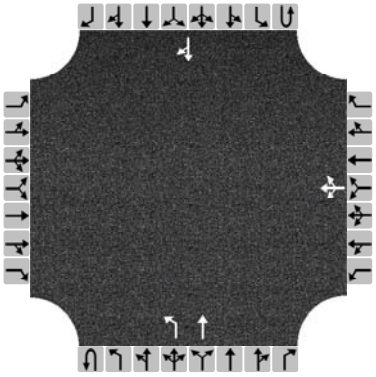
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	8/23/2017
Analysis Year	2017
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & I-10 EB
Jurisdiction	MCDOT/Buckeye
East/West Street	I-10 WB Ramps
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	1	1	0	0	0	1	0
Configuration							LTR			L	T					TR
Volume, V (veh/h)						233	2	263		41	150				224	83
Percent Heavy Vehicles (%)						10	10	10		10						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							566			47						
Capacity, c (veh/h)							666			1167						
v/c Ratio							0.85			0.04						
95% Queue Length, Q_{95} (veh)							9.6			0.1						
Control Delay (s/veh)							33.2			8.2						
Level of Service, LOS							D			A						
Approach Delay (s/veh)						33.2				1.8						
Approach LOS						D										

HCS7 Two-Way Stop-Control Report

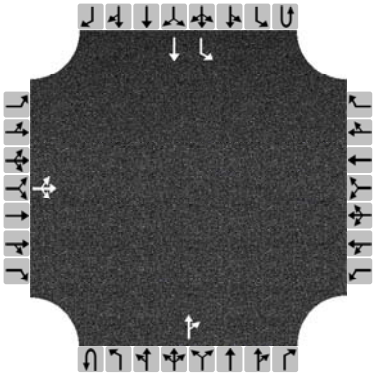
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	8/23/2017
Analysis Year	2040
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & I-10 EB
Jurisdiction	MCDOT/Buckeye
East/West Street	I-10 EB Ramps
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	1	1	0
Configuration			LTR									TR		L	T	
Volume, V (veh/h)		25	2	35							89	281		258	143	
Percent Heavy Vehicles (%)		10	10	10										10		
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			70											293		
Capacity, c (veh/h)			386											1098		
v/c Ratio			0.18											0.27		
95% Queue Length, Q_{95} (veh)			0.7											1.1		
Control Delay (s/veh)			16.4											9.5		
Level of Service, LOS			C											A		
Approach Delay (s/veh)		16.4												6.1		
Approach LOS		C														

HCS7 Two-Way Stop-Control Report

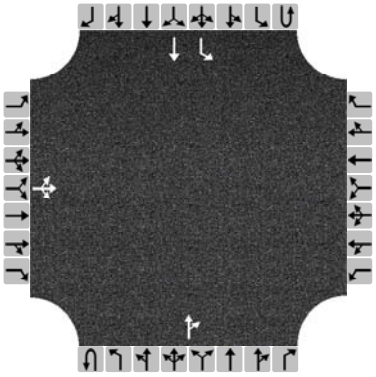
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	8/23/2017
Analysis Year	2040
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & I-10 EB
Jurisdiction	MCDOT/Buckeye
East/West Street	I-10 EB Ramps
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	1	1	0
Configuration			LTR									TR		L	T	
Volume, V (veh/h)		67	0	42							108	167		162	325	
Percent Heavy Vehicles (%)		10	10	10										10		
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			124											184		
Capacity, c (veh/h)			305											1204		
v/c Ratio			0.41											0.15		
95% Queue Length, Q_{95} (veh)			1.9											0.5		
Control Delay (s/veh)			24.7											8.5		
Level of Service, LOS			C											A		
Approach Delay (s/veh)		24.7												2.8		
Approach LOS		C														

HCS7 Two-Way Stop-Control Report

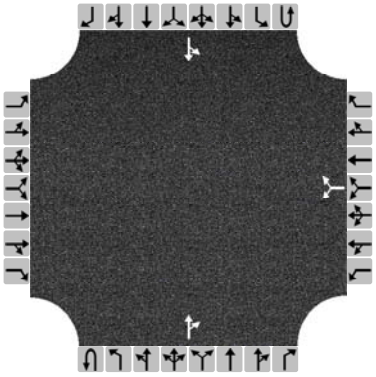
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	8/23/2017
Analysis Year	2017
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & Roosevelt
Jurisdiction	MCDOT/Buckeye
East/West Street	Roosevelt Street
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume, V (veh/h)						8		13			444	11		13	199	
Percent Heavy Vehicles (%)						10		10						10		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							24							15		
Capacity, c (veh/h)							815							1009		
v/c Ratio							0.03							0.01		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							9.6							8.6		
Level of Service, LOS							A							A		
Approach Delay (s/veh)						9.6								0.7		
Approach LOS						A										

HCS7 Two-Way Stop-Control Report

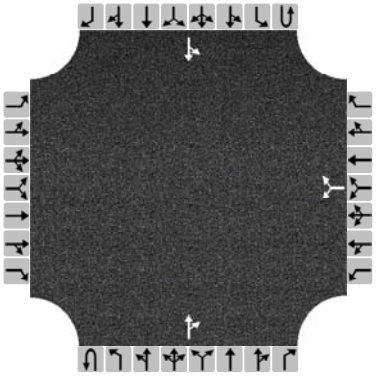
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	8/23/2017
Analysis Year	2017
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & Roosevelt
Jurisdiction	MCDOT/Buckeye
East/West Street	Roosevelt Street
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume, V (veh/h)						15		11			301	14		20	353	
Percent Heavy Vehicles (%)						10		10						10		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							29							23		
Capacity, c (veh/h)							494							1158		
v/c Ratio							0.06							0.02		
95% Queue Length, Q_{95} (veh)							0.2							0.1		
Control Delay (s/veh)							12.7							8.2		
Level of Service, LOS							B							A		
Approach Delay (s/veh)						12.7								0.6		
Approach LOS						B										

HCS7 Two-Way Stop-Control Report

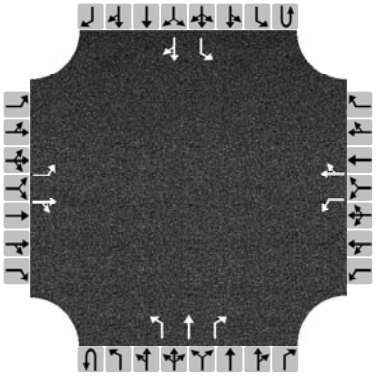
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	8/23/2017
Analysis Year	2017
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & I-10 WB
Jurisdiction	MCDOT/Buckeye
East/West Street	Van Buren Street
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	1	1	0	1	1	0
Configuration		L		TR		L		TR		L	T	R		L		TR
Volume, V (veh/h)		26	2	3		10	5	10		4	276	12		8	161	15
Percent Heavy Vehicles (%)		10	3	3		3	3	3		10				10		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		30		5		11		17		5				9		
Capacity, c (veh/h)		420		616		447		1118		1326				1188		
v/c Ratio		0.07		0.01		0.02		0.02		0.00				0.01		
95% Queue Length, Q_{95} (veh)		0.2		0.0		0.1		0.0		0.0				0.0		
Control Delay (s/veh)		14.2		10.9		13.3		8.3		7.7				8.1		
Level of Service, LOS		B		B		B		A		A				A		
Approach Delay (s/veh)		13.8				10.2				0.1				0.3		
Approach LOS		B				B										

HCS7 Two-Way Stop-Control Report

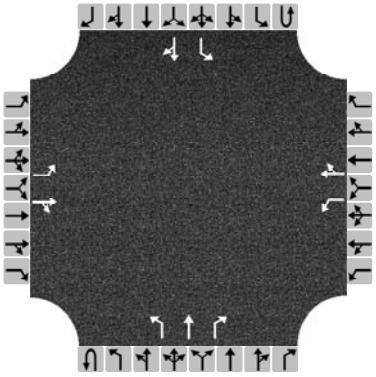
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	8/23/2017
Analysis Year	2017
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & I-10 WB
Jurisdiction	MCDOT/Buckeye
East/West Street	Van Buren Street
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	1	1	0	1	1	0
Configuration		L		TR		L		TR		L	T	R		L		TR
Volume, V (veh/h)		17	1	1		35	4	18		2	201	10		15	319	23
Percent Heavy Vehicles (%)		10	3	3		3	3	3		10				10		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

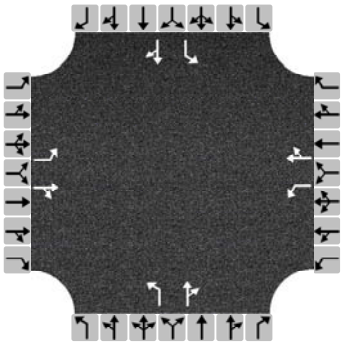
Flow Rate, v (veh/h)		19		2		40		25		2				17		
Capacity, c (veh/h)		350		485		380		1010		1128				1282		
v/c Ratio		0.05		0.00		0.11		0.02		0.00				0.01		
95% Queue Length, Q_{95} (veh)		0.2		0.0		0.4		0.1		0.0				0.0		
Control Delay (s/veh)		15.9		12.5		15.6		8.6		8.2				7.8		
Level of Service, LOS		C		B		C		A		A				A		
Approach Delay (s/veh)	15.6				12.9				0.1				0.3			
Approach LOS	C				B											

APPENDIX C - HCS7 Reports No Build 2040 Traffic

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	Hunter Venne	Intersection	Jackrabbit & McDowell
Agency/Co.	Dibble Engineering	Jurisdiction	MCDOT/Buckeye
Date Performed		East/West Street	McDowell Road
Analysis Year	2017	North/South Street	Jackrabbit Trail
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.80
Time Analyzed			
Project Description	Jackrabbit Trail Traffic Study		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	111	632	356	107	100	99	105	672	115	35	340	20
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	TR		L	TR	
Flow Rate, v (veh/h)	139	1235		134	249		131	984		44	450	
Percent Heavy Vehicles	10	10		10	10		10	10		10	10	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20	3.20	
Initial Degree of Utilization, x	0.123	1.000		0.119	0.221		0.117	0.874		0.039	0.400	
Final Departure Headway, hd (s)	9.61	8.88		10.13	9.31		9.61	9.03		9.70	9.18	
Final Degree of Utilization, x	0.370	3.048		0.376	0.643		0.351	2.468		0.118	1.147	
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Service Time, ts (s)	7.31	6.58		7.83	7.01		7.31	6.73		7.40	6.88	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	139	1235		134	249		131	984		44	450	
Capacity	375	405		355	387		374	399		371	392	
95% Queue Length, Q_{95} (veh)	1.7	108.0		1.7	4.3		1.5	77.9		0.4	17.1	
Control Delay (s/veh)	17.9	946.2		18.8	27.3		17.4	687.4		13.7	121.5	
Level of Service, LOS	C	F		C	D		C	F		B	F	
Approach Delay (s/veh)	852.5			24.3			608.5			111.9		
Approach LOS	F			C			F			F		
Intersection Delay, s/veh | LOS	568.8						F					

HCS7 Two-Way Stop-Control Report

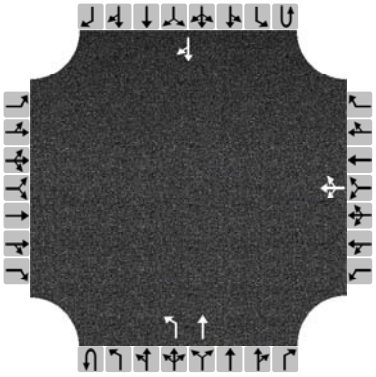
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	
Analysis Year	2040
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & I-10 EB
Jurisdiction	MCDOT/Buckeye
East/West Street	I-10 WB Ramps
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.80
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	1	1	0	0	0	1	0
Configuration							LTR			L	T					TR
Volume, V (veh/h)						267	0	762		75	810				780	252
Percent Heavy Vehicles (%)						10	10	10		10						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							1286			94						
Capacity, c (veh/h)							66			512						
v/c Ratio							19.34			0.18						
95% Queue Length, Q_{95} (veh)							155.5			0.7						
Control Delay (s/veh)							8369.2			13.6						
Level of Service, LOS							F			B						
Approach Delay (s/veh)						8369.2				1.2						
Approach LOS						F										

HCS7 Two-Way Stop-Control Report

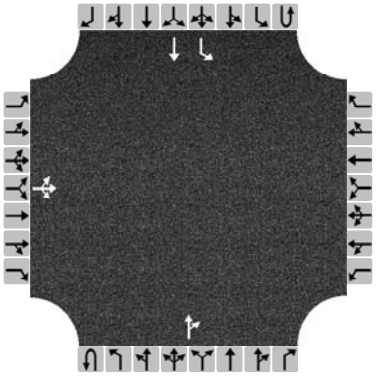
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	
Analysis Year	2040
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & I-10 EB
Jurisdiction	MCDOT/Buckeye
East/West Street	I-10 EB Ramps
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.80
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	1	1	0
Configuration			LTR									TR		L	T	
Volume, V (veh/h)		162	0	82							527	319		370	595	
Percent Heavy Vehicles (%)		10	10	10										10		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			304											462		
Capacity, c (veh/h)			10											629		
v/c Ratio			28.97											0.73		
95% Queue Length, Q_{95} (veh)			39.6											6.4		
Control Delay (s/veh)			13278.3											24.9		
Level of Service, LOS			F											C		
Approach Delay (s/veh)	13278.3												9.5			
Approach LOS	F															

HCS7 Two-Way Stop-Control Report

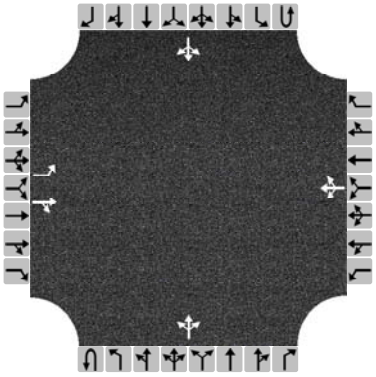
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	8/23/2017
Analysis Year	2040
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & Roosevelt
Jurisdiction	MCDOT/Buckeye
East/West Street	Roosevelt Street
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.80
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration		L		TR			LTR				LTR				LTR	
Volume, V (veh/h)		225	30	45		23	48	20		180	745	21		30	866	12
Percent Heavy Vehicles (%)		10	10	10		10	10	10		10				10		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		281		94			114			225				38		
Capacity, c (veh/h)		0		10						607				687		
v/c Ratio				9.34						0.37				0.06		
95% Queue Length, Q_{95} (veh)				13.2						1.7				0.2		
Control Delay (s/veh)				3631.4						14.4				10.5		
Level of Service, LOS				F						B				B		
Approach Delay (s/veh)									12.0				1.8			
Approach LOS																

HCS7 Two-Way Stop-Control Report

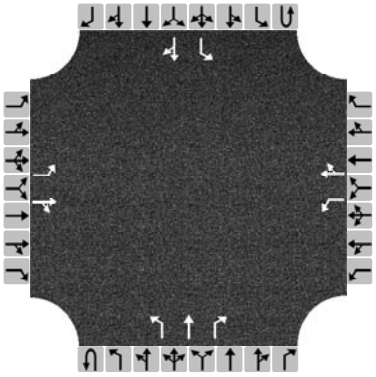
General Information

Analyst	Hunter Venne
Agency/Co.	Dibble Engineering
Date Performed	0
Analysis Year	2017
Time Analyzed	
Intersection Orientation	North-South
Project Description	Jackrabbit Trail Traffic Study

Site Information

Intersection	Jackrabbit & I-10 WB
Jurisdiction	MCDOT/Buckeye
East/West Street	Van Buren Street
North/South Street	Jackrabbit Trail
Peak Hour Factor	0.80
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	1	1	0	1	1	0
Configuration		L		TR		L		TR		L	T	R		L		TR
Volume, V (veh/h)		315	21	84		129	52	57		40	565	560		45	406	139
Percent Heavy Vehicles (%)		10	10	10		10	10	10		10				10		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

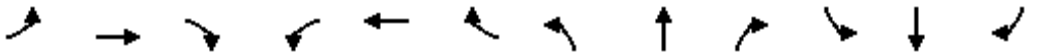
Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

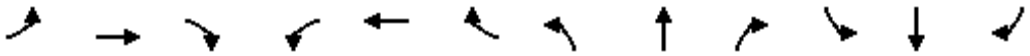
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		394		131		161		136		50				56		
Capacity, c (veh/h)		13		135		23		117		875				461		
v/c Ratio		30.68		0.97		7.10		1.17		0.06				0.12		
95% Queue Length, Q_{95} (veh)		50.6		6.7		20.3		8.5		0.2				0.4		
Control Delay (s/veh)		13923.1		132.2		3081.8		124.7		9.4				13.9		
Level of Service, LOS		F		F		F		F		A				B		
Approach Delay (s/veh)		10481.9				1727.7				0.3				1.1		
Approach LOS		F				F										

APPENDIX D - Synchro Reports 2040 Alternative 1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	10	41	570	54	102	75	660	130	85	720	316
Future Volume (vph)	155	10	41	570	54	102	75	660	130	85	720	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	300		0	275		275	160		160
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.879			0.902				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1637	0	1770	1680	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.649			0.720			0.233			0.267		
Satd. Flow (perm)	1209	1637	0	1341	1680	0	434	3539	1583	497	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			71				141			343
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2230			5280			5280			2120	
Travel Time (s)		50.7			120.0			120.0			48.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	11	45	620	59	111	82	717	141	92	783	343
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	56	0	620	170	0	82	717	141	92	783	343
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6



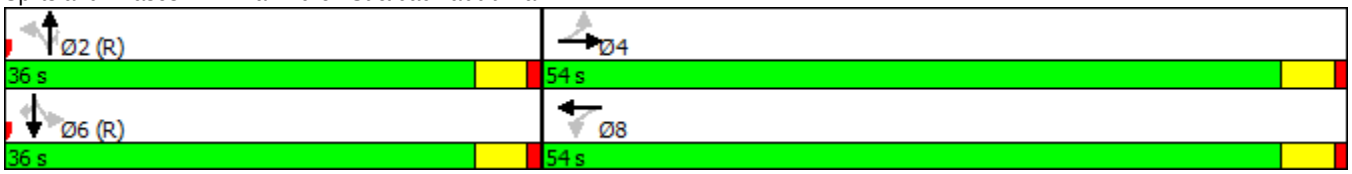
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	54.0	54.0		54.0	54.0		36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Maximum Green (s)	49.5	49.5		49.5	49.5		31.5	31.5	31.5	31.5	31.5	31.5
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	46.4	46.4		46.4	46.4		34.6	34.6	34.6	34.6	34.6	34.6
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.38	0.38	0.38	0.38	0.38	0.38
v/c Ratio	0.27	0.06		0.90	0.19		0.49	0.53	0.20	0.48	0.58	0.42
Control Delay	12.8	4.1		37.1	6.5		35.7	24.0	4.5	49.0	38.0	18.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	4.1		37.1	6.5		35.7	24.0	4.5	49.0	38.0	18.0
LOS	B	A		D	A		D	C	A	D	D	B
Approach Delay		10.6			30.5			22.1			33.2	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	47	3		278	25		37	172	0	53	241	87
Queue Length 95th (ft)	85	19		#505	56		#98	230	38	106	301	183
Internal Link Dist (ft)		2150			5200			5200			2040	
Turn Bay Length (ft)	175			300			275		275	160		160
Base Capacity (vph)	664	920		737	955		166	1361	695	191	1361	820
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.06		0.84	0.18		0.49	0.53	0.20	0.48	0.58	0.42

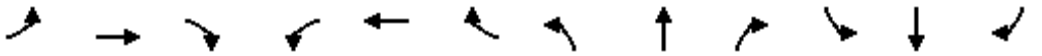
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 27.7		Intersection LOS: C	
Intersection Capacity Utilization 74.8%		ICU Level of Service D	
Analysis Period (min) 15			

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

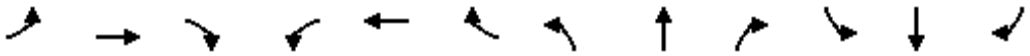
Queue shown is maximum after two cycles.

Splits and Phases: 2: Van Buren St & Jackrabbit Trail





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	30	45	23	48	20	180	745	21	30	866	12
Future Volume (vph)	225	30	45	23	48	20	180	745	21	30	866	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	160		0	160		160	160		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.910			0.955			0.996			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1695	0	1770	1779	0	1770	3525	0	1770	3532	0
Flt Permitted	0.434			0.704			0.250			0.296		
Satd. Flow (perm)	808	1695	0	1311	1779	0	466	3525	0	551	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			22			4			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2539			3986			2767			2757	
Travel Time (s)		57.7			90.6			62.9			62.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	33	49	25	52	22	196	810	23	33	941	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	82	0	25	74	0	196	833	0	33	954	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	20.0	46.0		26.0	26.0		44.0	44.0		44.0	44.0	
Total Split (%)	22.2%	51.1%		28.9%	28.9%		48.9%	48.9%		48.9%	48.9%	
Maximum Green (s)	15.5	41.5		21.5	21.5		39.5	39.5		39.5	39.5	
Yellow Time (s)	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	25.4	25.4		8.2	8.2		55.6	55.6		55.6	55.6	
Actuated g/C Ratio	0.28	0.28		0.09	0.09		0.62	0.62		0.62	0.62	
v/c Ratio	0.64	0.16		0.21	0.41		0.68	0.38		0.10	0.44	
Control Delay	33.5	11.1		40.8	34.8		32.4	11.5		14.9	15.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.5	11.1		40.8	34.8		32.4	11.5		14.9	15.7	
LOS	C	B		D	C		C	B		B	B	
Approach Delay		27.9			36.3			15.5			15.6	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	111	13		13	28		109	196		5	224	
Queue Length 95th (ft)	169	42		37	68		#211	263		m45	364	
Internal Link Dist (ft)		2459			3906			2687			2677	
Turn Bay Length (ft)	160			160			160			160		
Base Capacity (vph)	401	807		313	441		287	2179		340	2182	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.61	0.10		0.08	0.17		0.68	0.38		0.10	0.44	

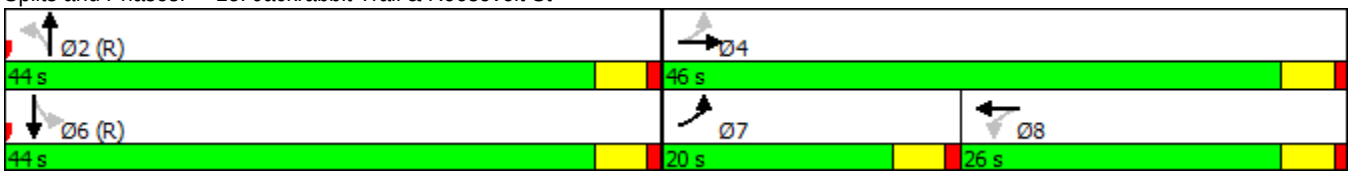
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 18.0		Intersection LOS: B	
Intersection Capacity Utilization 64.7%		ICU Level of Service C	
Analysis Period (min) 15			

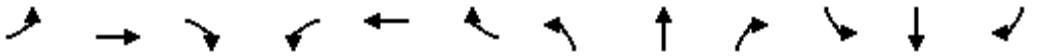
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

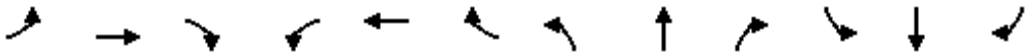
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Jackrabbit Trail & Roosevelt St





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	217	0	380	49	640	0	0	748	168
Future Volume (vph)	0	0	0	217	0	380	49	640	0	0	748	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	0		300
Storage Lanes	0		0	1		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt					0.850							0.850
Flt Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	1770	1583	0	1770	3539	0	0	3539	1583
Flt Permitted				0.950			0.268					
Satd. Flow (perm)	0	0	0	1770	1583	0	499	3539	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					187							183
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5280			5280			300			300	
Travel Time (s)		120.0			120.0			6.8			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	236	0	413	53	696	0	0	813	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	236	413	0	53	696	0	0	813	183
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2			2	1
Detector Template				Left	Thru		Left	Thru			Thru	Right
Leading Detector (ft)				20	100		20	100			100	20
Trailing Detector (ft)				0	0		0	0			0	0
Detector 1 Position(ft)				0	0		0	0			0	0
Detector 1 Size(ft)				20	6		20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8			2					6

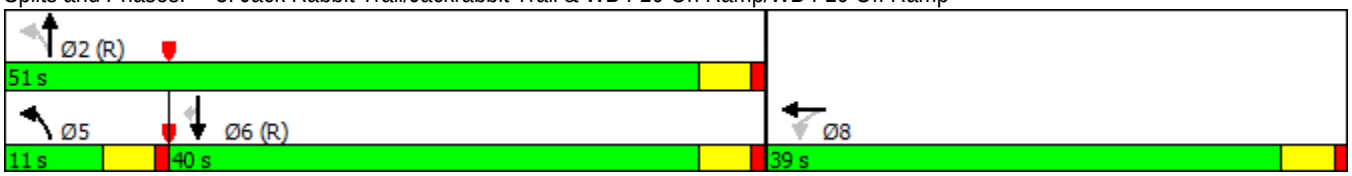


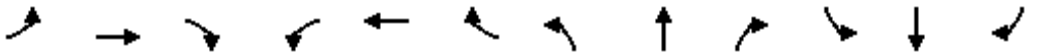
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				5.0	5.0		5.0	5.0			5.0	5.0
Minimum Split (s)				22.5	22.5		9.5	22.5			22.5	22.5
Total Split (s)				39.0	39.0		11.0	51.0			40.0	40.0
Total Split (%)				43.3%	43.3%		12.2%	56.7%			44.4%	44.4%
Maximum Green (s)				34.5	34.5		6.5	46.5			35.5	35.5
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							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode				None	None		None	C-Max			C-Max	C-Max
Walk Time (s)				7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)				0	0			0			0	0
Act Effct Green (s)				21.6	21.6		59.4	59.4			52.4	52.4
Actuated g/C Ratio				0.24	0.24		0.66	0.66			0.58	0.58
v/c Ratio				0.56	0.79		0.13	0.30			0.39	0.18
Control Delay				33.4	27.5		6.7	6.2			12.2	2.7
Queue Delay				0.1	0.1		0.0	0.1			0.2	0.2
Total Delay				33.5	27.6		6.7	6.3			12.4	2.9
LOS				C	C		A	A			B	A
Approach Delay					29.8			6.3			10.6	
Approach LOS					C			A			B	
Queue Length 50th (ft)				118	122		9	58			106	0
Queue Length 95th (ft)				158	194		0	67			m180	m22
Internal Link Dist (ft)		5200			5200			220			220	
Turn Bay Length (ft)							200					300
Base Capacity (vph)				678	722		426	2334			2059	997
Starvation Cap Reductn				0	0		0	632			477	318
Spillback Cap Reductn				64	26		0	505			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.38	0.59		0.12	0.41			0.51	0.27

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 14.5		Intersection LOS: B	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

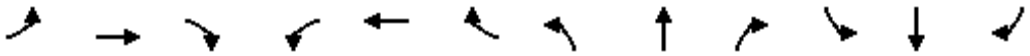
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Jack Rabbit Trail/Jackrabbit Trail & WB I-10 On Ramp/WB I-10 Off Ramp





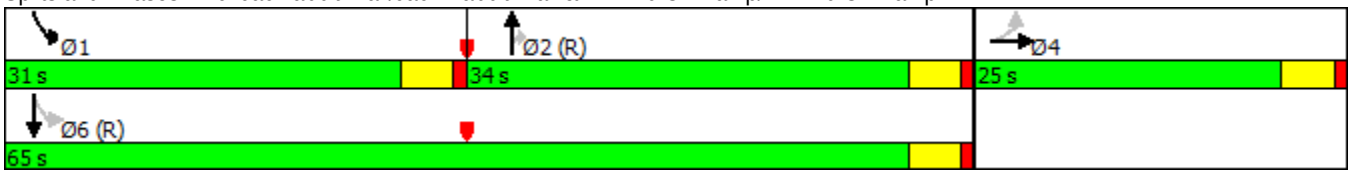
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	0	82	0	0	0	0	527	319	370	595	0
Future Volume (vph)	162	0	82	0	0	0	0	527	319	370	595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		300	200		0
Storage Lanes	1		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.850							0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1583	0	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950									0.369		
Satd. Flow (perm)	1770	1583	0	0	0	0	0	3539	1583	687	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		313							347			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5280			5280			2120			300	
Travel Time (s)		120.0			120.0			48.2			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	0	89	0	0	0	0	573	347	402	647	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	89	0	0	0	0	0	573	347	402	647	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2						2	1	1	2	
Detector Template	Left	Thru						Thru	Right	Left	Thru	
Leading Detector (ft)	20	100						100	20	20	100	
Trailing Detector (ft)	0	0						0	0	0	0	
Detector 1 Position(ft)	0	0						0	0	0	0	
Detector 1 Size(ft)	20	6						6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex						Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0						0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0						0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0						0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA						NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4								2	6		

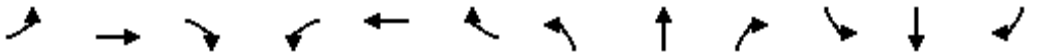


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0						5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5						22.5	22.5	9.5	22.5	
Total Split (s)	25.0	25.0						34.0	34.0	31.0	65.0	
Total Split (%)	27.8%	27.8%						37.8%	37.8%	34.4%	72.2%	
Maximum Green (s)	20.5	20.5						29.5	29.5	26.5	60.5	
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		
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Recall Mode	None	None						C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0						11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)	14.2	14.2						49.1	49.1	66.8	66.8	
Actuated g/C Ratio	0.16	0.16						0.55	0.55	0.74	0.74	
v/c Ratio	0.63	0.17						0.30	0.34	0.60	0.25	
Control Delay	45.1	0.7						18.4	10.3	15.7	2.8	
Queue Delay	0.0	0.0						0.0	0.0	0.5	0.3	
Total Delay	45.1	0.7						18.4	10.3	16.2	3.1	
LOS	D	A						B	B	B	A	
Approach Delay		30.2						15.3			8.1	
Approach LOS		C						B			A	
Queue Length 50th (ft)	95	0						96	8	40	24	
Queue Length 95th (ft)	151	0						224	169	228	63	
Internal Link Dist (ft)		5200			5200			2040			220	
Turn Bay Length (ft)									300	200		
Base Capacity (vph)	403	602						1932	1021	828	2627	
Starvation Cap Reductn	0	0						0	0	140	1222	
Spillback Cap Reductn	0	0						0	0	0	0	
Storage Cap Reductn	0	0						0	0	0	0	
Reduced v/c Ratio	0.44	0.15						0.30	0.34	0.58	0.46	

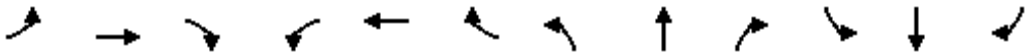
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 13.7		Intersection LOS: B	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 6: Jackrabbit Trail/Jack Rabbit Trail & EB I-10 Off Ramp/EB I-10 On Ramp





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	472	350	97	136	70	202	1108	96	30	455	80
Future Volume (vph)	128	472	350	97	136	70	202	1108	96	30	455	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	165		0	225		0	160		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt			0.850		0.949			0.988			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1768	0	1770	5024	0	1770	3461	0
Flt Permitted	0.548			0.204			0.295			0.166		
Satd. Flow (perm)	1021	1863	1583	380	1768	0	550	5024	0	309	3461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			380		36			17			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5280			5280			300			5280	
Travel Time (s)		120.0			120.0			6.8			120.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	139	513	380	105	148	76	220	1204	104	33	495	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	513	380	105	224	0	220	1308	0	33	582	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	43.0	43.0	43.0	43.0	43.0		19.8	37.4		9.6	27.2	
Total Split (%)	47.8%	47.8%	47.8%	47.8%	47.8%		22.0%	41.6%		10.7%	30.2%	
Maximum Green (s)	38.5	38.5	38.5	38.5	38.5		15.3	32.9		5.1	22.7	
Yellow Time (s)	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	
Lost Time Adjust (s)	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	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	32.4	32.4	32.4	32.4	32.4		48.6	42.5		38.3	32.6	
Actuated g/C Ratio	0.36	0.36	0.36	0.36	0.36		0.54	0.47		0.43	0.36	
v/c Ratio	0.38	0.77	0.47	0.77	0.34		0.49	0.55		0.15	0.46	
Control Delay	23.1	33.0	3.9	60.1	17.7		10.8	13.6		14.6	24.8	
Queue Delay	0.0	0.0	0.1	0.0	0.0		0.2	0.3		0.0	0.7	
Total Delay	23.1	33.0	3.9	60.1	17.7		11.0	13.9		14.6	25.4	
LOS	C	C	A	E	B		B	B		B	C	
Approach Delay		21.0			31.2			13.5			24.9	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	56	247	0	51	73		41	137		9	129	
Queue Length 95th (ft)	97	334	50	#131	118		m85	m216		25	207	
Internal Link Dist (ft)		5200			5200			220			5200	
Turn Bay Length (ft)	160		160	165			225			160		
Base Capacity (vph)	436	796	894	162	776		504	2382		223	1268	
Starvation Cap Reductn	0	0	0	0	0		37	458		0	0	
Spillback Cap Reductn	0	0	38	0	0		0	0		0	356	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.64	0.44	0.65	0.29		0.47	0.68		0.15	0.64	

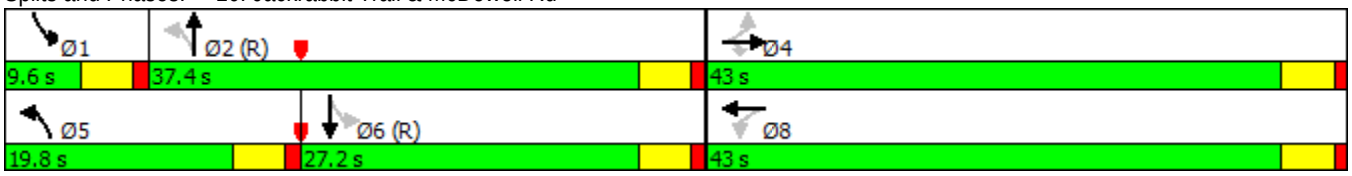
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 19.3		Intersection LOS: B	
Intersection Capacity Utilization 72.9%		ICU Level of Service C	
Analysis Period (min) 15			

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

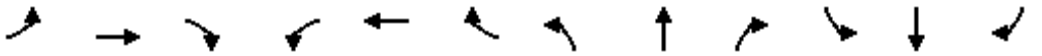
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

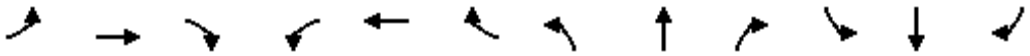
Splits and Phases: 10: Jackrabbit Trail & McDowell Rd



APPENDIX E - Synchro Reports 2040 Alternative 2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	10	41	570	54	102	75	660	130	85	720	316
Future Volume (vph)	155	10	41	570	54	102	75	660	130	85	720	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		200	165		200	275		275	110		200
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt		0.879			0.902			0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1637	0	1770	1680	0	1770	4958	0	1770	5085	1583
Flt Permitted	0.650			0.720			0.236			0.197		
Satd. Flow (perm)	1211	1637	0	1341	1680	0	440	4958	0	367	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			111			42				343
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2230			5280			5280			2120	
Travel Time (s)		50.7			120.0			120.0			48.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	11	45	620	59	111	82	717	141	92	783	343
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	56	0	620	170	0	82	858	0	92	783	343
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6



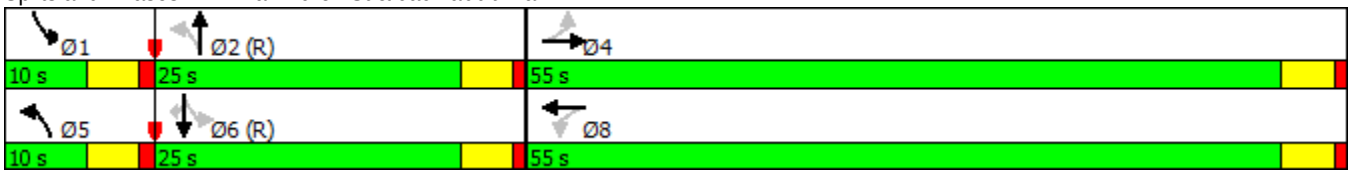
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		9.5	22.5		9.5	22.5	22.5
Total Split (s)	55.0	55.0		55.0	55.0		10.0	25.0		10.0	25.0	25.0
Total Split (%)	61.1%	61.1%		61.1%	61.1%		11.1%	27.8%		11.1%	27.8%	27.8%
Maximum Green (s)	50.5	50.5		50.5	50.5		5.5	20.5		5.5	20.5	20.5
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0			0			0	0
Act Effct Green (s)	46.9	46.9		46.9	46.9		30.4	25.6		30.5	25.6	25.6
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.34	0.28		0.34	0.28	0.28
v/c Ratio	0.27	0.06		0.89	0.18		0.35	0.60		0.42	0.54	0.49
Control Delay	12.3	3.9		35.2	4.3		24.6	30.1		37.2	44.2	24.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	12.3	3.9		35.2	4.3		24.6	30.1		37.2	44.2	24.0
LOS	B	A		D	A		C	C		D	D	C
Approach Delay		10.2			28.5			29.6			38.0	
Approach LOS		B			C			C			D	
Queue Length 50th (ft)	46	3		273	15		32	158		52	173	133
Queue Length 95th (ft)	82	19		#496	42		65	205		100	216	206
Internal Link Dist (ft)		2150			5200			5200			2040	
Turn Bay Length (ft)				165			275			110		200
Base Capacity (vph)	679	938		752	991		237	1438		218	1447	696
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.25	0.06		0.82	0.17		0.35	0.60		0.42	0.54	0.49

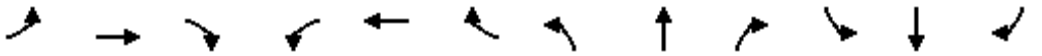
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			

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

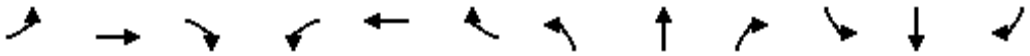
Queue shown is maximum after two cycles.

Splits and Phases: 2: Van Buren St & Jackrabbit Trail





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	30	45	23	48	20	180	745	21	30	866	12
Future Volume (vph)	225	30	45	23	48	20	180	745	21	30	866	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		200	0		200	150		200	150		200
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.723			0.736			0.229			0.334		
Satd. Flow (perm)	1347	1863	1583	1371	1863	1583	427	5085	1583	622	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127			127			73			127
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2539			3986			2767			2757	
Travel Time (s)		57.7			90.6			62.9			62.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	33	49	25	52	22	196	810	23	33	941	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	33	49	25	52	22	196	810	23	33	941	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

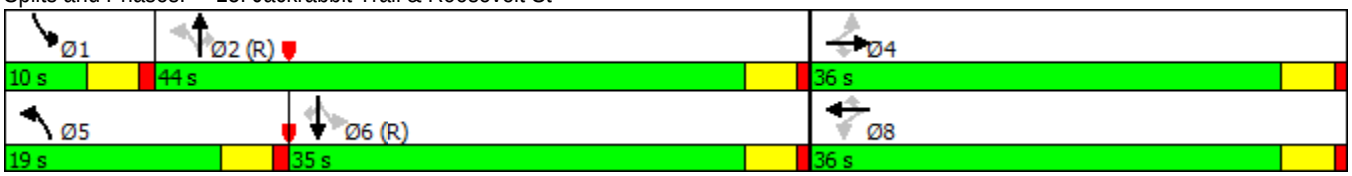


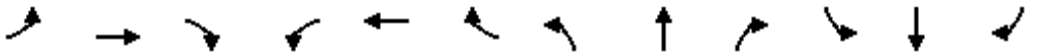
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	36.0	36.0	36.0	36.0	36.0	36.0	19.0	44.0	44.0	10.0	35.0	35.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	21.1%	48.9%	48.9%	11.1%	38.9%	38.9%
Maximum Green (s)	31.5	31.5	31.5	31.5	31.5	31.5	14.5	39.5	39.5	5.5	30.5	30.5
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 Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	0
Act Effct Green (s)	21.8	21.8	21.8	21.8	21.8	21.8	59.0	52.7	52.7	51.1	45.0	45.0
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.24	0.24	0.66	0.59	0.59	0.57	0.50	0.50
v/c Ratio	0.75	0.07	0.10	0.08	0.12	0.05	0.46	0.27	0.02	0.08	0.37	0.02
Control Delay	45.4	23.6	0.4	23.6	24.4	0.2	6.8	9.1	2.6	9.6	18.6	0.3
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	45.4	23.6	0.4	23.6	24.4	0.2	6.8	9.1	2.6	9.6	18.6	0.3
LOS	D	C	A	C	C	A	A	A	A	A	B	A
Approach Delay		36.5			18.8			8.5			18.0	
Approach LOS		D			B			A			B	
Queue Length 50th (ft)	129	15	0	11	23	0	9	120	1	5	201	0
Queue Length 95th (ft)	188	33	0	27	45	0	52	182	m7	16	253	m1
Internal Link Dist (ft)		2459			3906			2687			2677	
Turn Bay Length (ft)			200			200	150		200	150		200
Base Capacity (vph)	471	652	636	479	652	636	497	2977	957	430	2543	855
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	0.52	0.05	0.08	0.05	0.08	0.03	0.39	0.27	0.02	0.08	0.37	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			

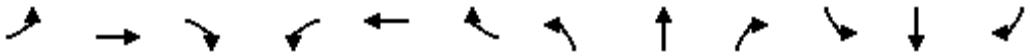
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Jackrabbit Trail & Roosevelt St





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	217	0	380	49	640	0	0	748	168
Future Volume (vph)	0	0	0	217	0	380	49	640	0	0	748	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	0		300
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	1770	0	1583	1770	5085	0	0	5085	1583
Flt Permitted				0.950			0.283					
Satd. Flow (perm)	0	0	0	1770	0	1583	527	5085	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						142						183
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5280			5280			300			300	
Travel Time (s)		120.0			120.0			6.8			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	236	0	413	53	696	0	0	813	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	236	0	413	53	696	0	0	813	183
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1		1	1	2			2	1
Detector Template				Left		Right	Left	Thru			Thru	Right
Leading Detector (ft)				20		20	20	100			100	20
Trailing Detector (ft)				0		0	0	0			0	0
Detector 1 Position(ft)				0		0	0	0			0	0
Detector 1 Size(ft)				20		20	20	6			6	20
Detector 1 Type				Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0		0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0		0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0		0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type				Perm		Perm	pm+pt	NA			NA	Perm
Protected Phases							5	2			6	
Permitted Phases				8		8	2					6

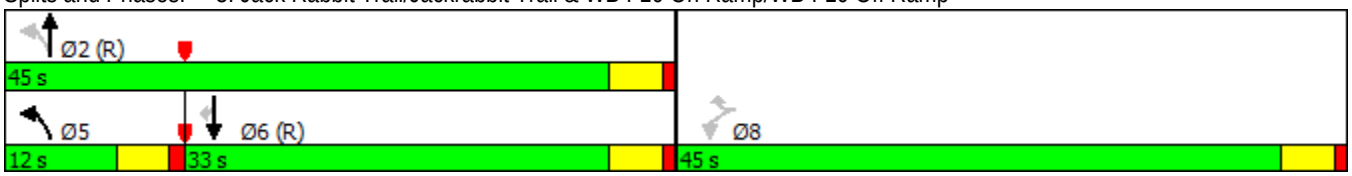


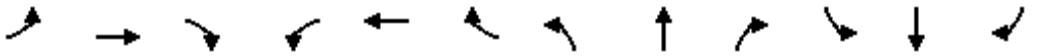
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8		8	5	2			6	6
Switch Phase												
Minimum Initial (s)				5.0		5.0	5.0	5.0			5.0	5.0
Minimum Split (s)				22.5		22.5	9.5	22.5			22.5	22.5
Total Split (s)				45.0		45.0	12.0	45.0			33.0	33.0
Total Split (%)				50.0%		50.0%	13.3%	50.0%			36.7%	36.7%
Maximum Green (s)				40.5		40.5	7.5	40.5			28.5	28.5
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							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	3.0
Recall Mode				None		None	None	C-Max			C-Max	C-Max
Walk Time (s)				7.0		7.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0		11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)				0		0		0			0	0
Act Effct Green (s)				23.0		23.0	58.0	58.0			50.9	50.9
Actuated g/C Ratio				0.26		0.26	0.64	0.64			0.57	0.57
v/c Ratio				0.52		0.81	0.12	0.21			0.28	0.19
Control Delay				31.3		32.1	6.5	5.6			10.9	2.6
Queue Delay				0.0		0.0	0.0	0.1			0.1	0.2
Total Delay				31.4		32.1	6.5	5.7			11.0	2.7
LOS				C		C	A	A			B	A
Approach Delay					31.8			5.8			9.5	
Approach LOS					C			A			A	
Queue Length 50th (ft)				116		148	11	51			71	0
Queue Length 95th (ft)				155		217	17	47			116	m22
Internal Link Dist (ft)		5200			5200			220			220	
Turn Bay Length (ft)							200					300
Base Capacity (vph)				796		790	445	3275			2875	974
Starvation Cap Reductn				0		0	0	1259			829	292
Spillback Cap Reductn				32		0	0	0			25	0
Storage Cap Reductn				0		0	0	0			0	0
Reduced v/c Ratio				0.31		0.52	0.12	0.35			0.40	0.27

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

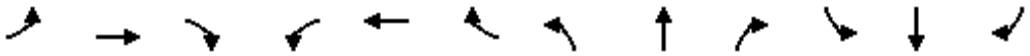
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Jack Rabbit Trail/Jackrabbit Trail & WB I-10 On Ramp/WB I-10 Off Ramp





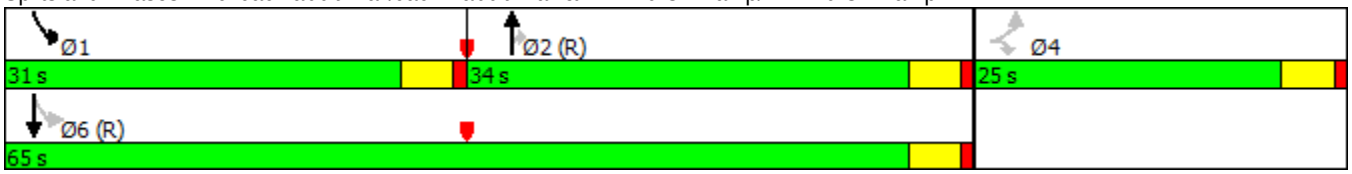
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	0	82	0	0	0	0	527	319	370	595	0
Future Volume (vph)	162	0	82	0	0	0	0	527	319	370	595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		300	200		0
Storage Lanes	1		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	0	1583	0	0	0	0	5085	1583	1770	5085	0
Flt Permitted	0.950									0.384		
Satd. Flow (perm)	1770	0	1583	0	0	0	0	5085	1583	715	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89						347			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5280			5280			2120			300	
Travel Time (s)		120.0			120.0			48.2			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	0	89	0	0	0	0	573	347	402	647	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	0	89	0	0	0	0	573	347	402	647	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1		1					2	1	1	2	
Detector Template	Left		Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20		20					100	20	20	100	
Trailing Detector (ft)	0		0					0	0	0	0	
Detector 1 Position(ft)	0		0					0	0	0	0	
Detector 1 Size(ft)	20		20					6	20	20	6	
Detector 1 Type	Cl+Ex		Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm		Perm					NA	Perm	pm+pt	NA	
Protected Phases								2		1	6	
Permitted Phases	4		4						2	6		

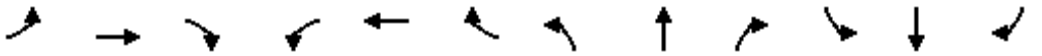


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4		4					2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0		5.0					5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5		22.5					22.5	22.5	9.5	22.5	
Total Split (s)	25.0		25.0					34.0	34.0	31.0	65.0	
Total Split (%)	27.8%		27.8%					37.8%	37.8%	34.4%	72.2%	
Maximum Green (s)	20.5		20.5					29.5	29.5	26.5	60.5	
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		
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0	3.0	
Recall Mode	None		None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0		7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	11.0		11.0					11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0		0					0	0		0	
Act Effct Green (s)	14.2		14.2					49.5	49.5	66.8	66.8	
Actuated g/C Ratio	0.16		0.16					0.55	0.55	0.74	0.74	
v/c Ratio	0.63		0.27					0.21	0.34	0.59	0.17	
Control Delay	45.1		9.2					18.0	11.2	16.0	2.8	
Queue Delay	0.0		0.0					0.0	0.0	0.3	0.1	
Total Delay	45.1		9.2					18.0	11.2	16.3	2.9	
LOS	D		A					B	B	B	A	
Approach Delay		33.1						15.4			8.0	
Approach LOS		C						B			A	
Queue Length 50th (ft)	95		0					38	6	59	31	
Queue Length 95th (ft)	151		37					158	163	198	39	
Internal Link Dist (ft)		5200			5200			2040			220	
Turn Bay Length (ft)									300	200		
Base Capacity (vph)	403		429					2794	1026	841	3775	
Starvation Cap Reductn	0		0					0	0	102	1842	
Spillback Cap Reductn	0		0					0	0	0	0	
Storage Cap Reductn	0		0					0	0	0	0	
Reduced v/c Ratio	0.44		0.21					0.21	0.34	0.54	0.33	

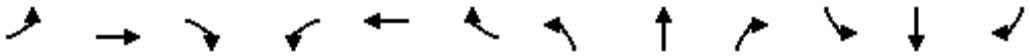
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 6: Jackrabbit Trail/Jack Rabbit Trail & EB I-10 Off Ramp/EB I-10 On Ramp





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	472	350	97	136	70	202	1108	96	30	455	80
Future Volume (vph)	128	472	350	97	136	70	202	1108	96	30	455	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	160		160	160		160	160		160
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.593			0.171			0.360			0.175		
Satd. Flow (perm)	1105	1863	1583	319	1863	1583	671	5085	1583	326	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			326			182			127			182
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5280			5280			300			5280	
Travel Time (s)		120.0			120.0			6.8			120.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	139	513	380	105	148	76	220	1204	104	33	495	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	513	380	105	148	76	220	1204	104	33	495	87
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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)	10.9	37.0	37.0	10.0	36.1	36.1	16.0	33.5	33.5	9.5	27.0	27.0
Total Split (%)	12.1%	41.1%	41.1%	11.1%	40.1%	40.1%	17.8%	37.2%	37.2%	10.6%	30.0%	30.0%
Maximum Green (s)	6.4	32.5	32.5	5.5	31.6	31.6	11.5	29.0	29.0	5.0	22.5	22.5
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
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	34.6	29.5	29.5	32.1	26.6	26.6	43.5	37.7	37.7	33.8	28.4	28.4
Actuated g/C Ratio	0.38	0.33	0.33	0.36	0.30	0.30	0.48	0.42	0.42	0.38	0.32	0.32
v/c Ratio	0.29	0.84	0.52	0.52	0.27	0.13	0.49	0.57	0.14	0.16	0.31	0.14
Control Delay	16.9	41.2	6.9	24.1	23.7	0.4	13.4	16.6	2.0	17.4	26.0	0.5
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.1	0.0
Total Delay	16.9	41.2	6.9	24.1	23.7	0.4	13.7	16.9	2.0	17.4	26.1	0.5
LOS	B	D	A	C	C	A	B	B	A	B	C	A
Approach Delay		25.3			18.5			15.5			22.0	
Approach LOS		C			B			B			C	
Queue Length 50th (ft)	44	256	20	33	59	0	56	147	0	11	85	0
Queue Length 95th (ft)	79	#379	87	62	104	0	m94	m229	m1	28	117	0
Internal Link Dist (ft)		5200			5200			220			5200	
Turn Bay Length (ft)	160		160	160		160	160		160	160		160
Base Capacity (vph)	472	672	779	202	654	673	465	2128	736	208	1605	624
Starvation Cap Reductn	0	0	0	0	0	0	43	342	0	0	0	0
Spillback Cap Reductn	0	0	21	0	0	0	0	0	0	0	340	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.76	0.50	0.52	0.23	0.11	0.52	0.67	0.14	0.16	0.39	0.14

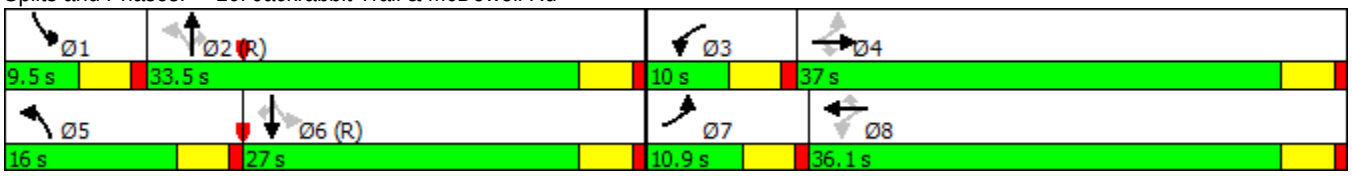
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 19.8		Intersection LOS: B	
Intersection Capacity Utilization 70.8%		ICU Level of Service C	
Analysis Period (min) 15			

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Jackrabbit Trail & McDowell Rd



APPENDIX F - Synchro Reports 2040 Alternative 3

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	370	595
Future Volume (vph)	0	0	0	0	370	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	0	1770	3539
Link Speed (mph)	20		20			20
Link Distance (ft)	511		139			168
Travel Time (s)	17.4		4.7			5.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	402	647
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	402	647
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	527	0	0	0	0	0	595	0
Future Volume (vph)	0	0	0	0	527	0	0	0	0	0	595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3539	0	0	0	0	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3539	0	0	0	0	0	3539	0
Right Turn on Red			Yes	Yes		Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		20			20			20			20	
Link Distance (ft)		117			151			176			139	
Travel Time (s)		4.0			5.1			6.0			4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	573	0	0	0	0	0	647	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	573	0	0	0	0	0	647	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2						2	
Detector Template					Thru						Thru	
Leading Detector (ft)					100						100	
Trailing Detector (ft)					0						0	
Detector 1 Position(ft)					0						0	
Detector 1 Size(ft)					6						6	
Detector 1 Type					Cl+Ex						Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)					0.0						0.0	
Detector 1 Queue (s)					0.0						0.0	
Detector 1 Delay (s)					0.0						0.0	
Detector 2 Position(ft)					94						94	
Detector 2 Size(ft)					6						6	
Detector 2 Type					Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0						0.0	
Turn Type					NA						NA	
Protected Phases					2						8	
Permitted Phases												
Detector Phase					2						8	
Switch Phase												
Minimum Initial (s)					5.0						5.0	

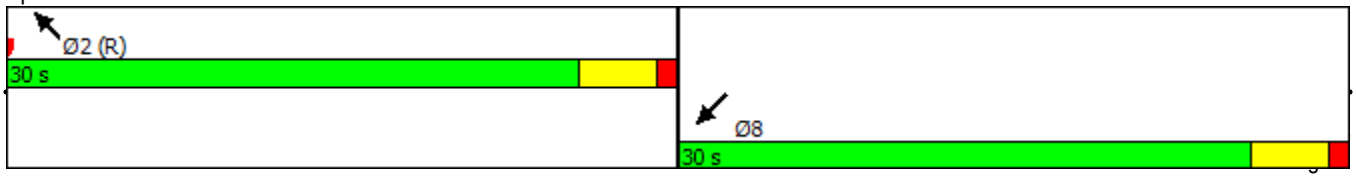
Lanes, Volumes, Timings
3: 12/11/2017

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)					22.5						22.5	
Total Split (s)					30.0						30.0	
Total Split (%)					50.0%						50.0%	
Maximum Green (s)					25.5						25.5	
Yellow Time (s)					3.5						3.5	
All-Red Time (s)					1.0						1.0	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					4.5						4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0						3.0	
Recall Mode					C-Max						None	
Walk Time (s)					7.0						7.0	
Flash Dont Walk (s)					11.0						11.0	
Pedestrian Calls (#/hr)					0						0	
Act Effct Green (s)					32.3						18.7	
Actuated g/C Ratio					0.54						0.31	
v/c Ratio					0.30						0.59	
Control Delay					9.1						12.0	
Queue Delay					0.0						0.0	
Total Delay					9.1						12.0	
LOS					A						B	
Approach Delay					9.1						12.0	
Approach LOS					A						B	
Queue Length 50th (ft)					54						102	
Queue Length 95th (ft)					102						40	
Internal Link Dist (ft)		37			71			96			59	
Turn Bay Length (ft)												
Base Capacity (vph)					1907						1504	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.30						0.43	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NWT and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 10.6 Intersection LOS: B
Intersection Capacity Utilization 38.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3:



Lane Group	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	162	0	0	0	0	527
Future Volume (vph)	162	0	0	0	0	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	0	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	0	0	3539
Link Speed (mph)	20		20			20
Link Distance (ft)	156		201			117
Travel Time (s)	5.3		6.9			4.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	0	0	0	0	573
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	0	0	0	0	573
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Free		Stop			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.4%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	748	0	0	217	0
Future Volume (vph)	0	748	0	0	217	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3539	0	0	1770	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		208	223		227	
Travel Time (s)		7.1	7.6		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	813	0	0	236	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	813	0	0	236	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.3%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	49	640	0	0
Future Volume (vph)	0	0	49	640	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	181			177	191	
Travel Time (s)	6.2			6.0	6.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	53	696	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	53	696	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.4%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	748	0	0	0	0	0	640	0	0	0	0
Future Volume (vph)	0	748	0	0	0	0	0	640	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	0	0	3539	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	0	0	3539	0	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		20			20			20			20	
Link Distance (ft)		67			208			191			72	
Travel Time (s)		2.3			7.1			6.5			2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	813	0	0	0	0	0	696	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	813	0	0	0	0	0	696	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2						2				
Detector Template		Thru						Thru				
Leading Detector (ft)		100						100				
Trailing Detector (ft)		0						0				
Detector 1 Position(ft)		0						0				
Detector 1 Size(ft)		6						6				
Detector 1 Type		Cl+Ex						Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0						0.0				
Detector 1 Queue (s)		0.0						0.0				
Detector 1 Delay (s)		0.0						0.0				
Detector 2 Position(ft)		94						94				
Detector 2 Size(ft)		6						6				
Detector 2 Type		Cl+Ex						Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0				
Turn Type		NA						NA				
Protected Phases		6						4				
Permitted Phases												
Detector Phase		6						4				
Switch Phase												
Minimum Initial (s)		5.0						5.0				

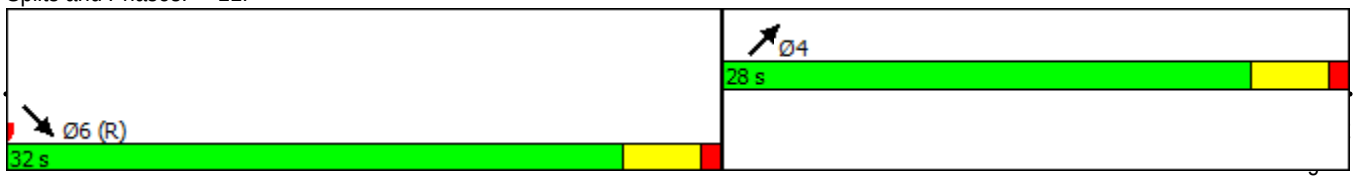
Lanes, Volumes, Timings
11: 12/11/2017

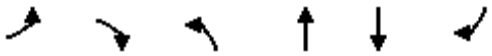
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)		22.5						22.5				
Total Split (s)		32.0						28.0				
Total Split (%)		53.3%						46.7%				
Maximum Green (s)		27.5						23.5				
Yellow Time (s)		3.5						3.5				
All-Red Time (s)		1.0						1.0				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		4.5						4.5				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0						3.0				
Recall Mode		C-Max						None				
Walk Time (s)		7.0						7.0				
Flash Dont Walk (s)		11.0						11.0				
Pedestrian Calls (#/hr)		0						0				
Act Effct Green (s)		32.0						19.0				
Actuated g/C Ratio		0.53						0.32				
v/c Ratio		0.43						0.62				
Control Delay		10.2						15.3				
Queue Delay		0.0						0.0				
Total Delay		10.2						15.3				
LOS		B						B				
Approach Delay		10.2						15.3				
Approach LOS		B						B				
Queue Length 50th (ft)		85						115				
Queue Length 95th (ft)		146						163				
Internal Link Dist (ft)		1			128			111			1	
Turn Bay Length (ft)												
Base Capacity (vph)		1888						1386				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.43						0.50				

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2: and 6:SET, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 12.5 Intersection LOS: B
Intersection Capacity Utilization 47.9% ICU Level of Service A
Analysis Period (min) 15

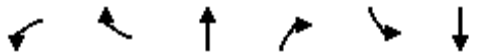
Splits and Phases: 11:





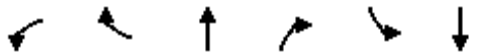
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	748	168
Future Volume (vph)	0	0	0	0	748	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			200
Storage Lanes	0	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	0	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	0	0	0	3539	1583
Link Speed (mph)	20			20	20	
Link Distance (ft)	332			133	335	
Travel Time (s)	11.3			4.5	11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	813	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	813	183
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.5%		ICU Level of Service A	
Analysis Period (min) 15			



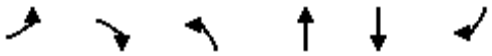
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	380	640	0	0	0
Future Volume (vph)	0	380	640	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	3539	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	3539	0	0	0
Link Speed (mph)	20		20			20
Link Distance (ft)	142		129			364
Travel Time (s)	4.8		4.4			12.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	413	696	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	413	696	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Free		Free			Stop

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.9%		ICU Level of Service A	
Analysis Period (min) 15			



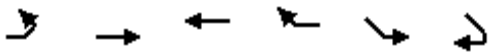
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	527	319	0	0
Future Volume (vph)	0	0	527	319	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		200	0	
Storage Lanes	0	0		1	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3539	1583	0	0
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	0
Link Speed (mph)	20		20			20
Link Distance (ft)	394		289			122
Travel Time (s)	13.4		9.9			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	573	347	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	573	347	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Yield

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			



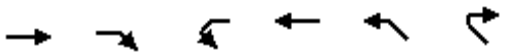
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	82	0	0	595	0
Future Volume (vph)	0	82	0	0	595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	0	0	3539	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	0	3539	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	233			280	121	
Travel Time (s)	7.9			9.5	4.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	89	0	0	647	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	89	0	0	647	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Yield			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			



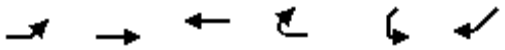
Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	319	0	0	370	0
Future Volume (vph)	0	319	0	0	370	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	0	1770	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		394	217		511	
Travel Time (s)		13.4	7.4		17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	347	0	0	402	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	347	0	0	402	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.0%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	168	49	0
Future Volume (vph)	0	0	0	168	49	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	1863	1770	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	101			332	237	
Travel Time (s)	3.4			11.3	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	183	53	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	183	53	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.4%		ICU Level of Service A	
Analysis Period (min) 15			

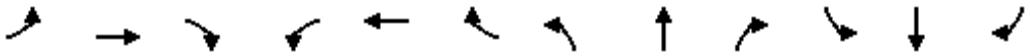


Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	162	82	0	0	0	0
Future Volume (vph)	162	82	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	1863	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1863	0	0	0	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		196	185		429	
Travel Time (s)		6.7	6.3		14.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	89	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	89	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.3%		ICU Level of Service B	
Analysis Period (min) 15			

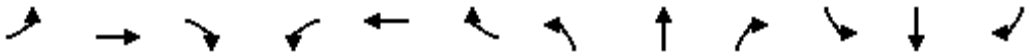
Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	0	217	380	0	0
Future Volume (vph)	0	0	217	380	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	1863	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	1863	0	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	102			220	103	
Travel Time (s)	3.5			7.5	3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	236	413	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	236	413	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.3%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	846	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0	0	846	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	3539	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	3539	0	0	0	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		318			296			254			59	
Travel Time (s)		7.2			6.7			5.8			1.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	920	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	920	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.7%		ICU Level of Service A	
Analysis Period (min) 15			

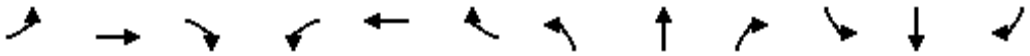


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	677	0
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	677	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	3539	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		203			318			132			94	
Travel Time (s)		4.6			7.2			3.0			2.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	736	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	736	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.7%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.88
Frt						
Flt Protected						
Satd. Flow (prot)	0	0	0	3539	0	3278
Flt Permitted						
Satd. Flow (perm)	0	0	0	3539	0	3278
Link Speed (mph)	30			30	30	
Link Distance (ft)	222			211	214	
Travel Time (s)	5.0			4.8	4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	5085	0	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	5085	0	0	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		491			674			211			216	
Travel Time (s)		11.2			15.3			4.8			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type												
Protected Phases								2			6	
Permitted Phases												
Minimum Split (s)								22.5			22.5	
Total Split (s)								22.5			22.5	
Total Split (%)								100.0%			100.0%	
Maximum Green (s)								18.0			18.0	
Yellow Time (s)								3.5			3.5	
All-Red Time (s)								1.0			1.0	
Lost Time Adjust (s)								0.0			0.0	
Total Lost Time (s)								4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								11.0			11.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS												
Approach Delay												
Approach LOS												
Queue Length 50th (ft)												
Queue Length 95th (ft)												
Internal Link Dist (ft)		411			594			131			136	
Turn Bay Length (ft)												
Base Capacity (vph)												
Starvation Cap Reductn												
Spillback Cap Reductn												
Storage Cap Reductn												
Reduced v/c Ratio												

Intersection Summary			
Area Type:	Other		
Cycle Length: 22.5			
Actuated Cycle Length: 22.5			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 48:

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	246	801
Future Volume (vph)	0	0	0	0	246	801
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	0	1770	3539
Link Speed (mph)	20		20			20
Link Distance (ft)	511		139			168
Travel Time (s)	17.4		4.7			5.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	267	871
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	267	871
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.2%		ICU Level of Service C	
Analysis Period (min) 15			

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	500	0	0	0	0	0	801	0
Future Volume (vph)	0	0	0	0	500	0	0	0	0	0	801	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3539	0	0	0	0	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3539	0	0	0	0	0	3539	0
Right Turn on Red			Yes	Yes		Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		20			20			20			20	
Link Distance (ft)		165			151			176			139	
Travel Time (s)		5.6			5.1			6.0			4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	543	0	0	0	0	0	871	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	543	0	0	0	0	0	871	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2						2	
Detector Template					Thru						Thru	
Leading Detector (ft)					100						100	
Trailing Detector (ft)					0						0	
Detector 1 Position(ft)					0						0	
Detector 1 Size(ft)					6						6	
Detector 1 Type					Cl+Ex						Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)					0.0						0.0	
Detector 1 Queue (s)					0.0						0.0	
Detector 1 Delay (s)					0.0						0.0	
Detector 2 Position(ft)					94						94	
Detector 2 Size(ft)					6						6	
Detector 2 Type					Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0						0.0	
Turn Type					NA						NA	
Protected Phases					2						8	
Permitted Phases												
Detector Phase					2						8	
Switch Phase												
Minimum Initial (s)					5.0						5.0	

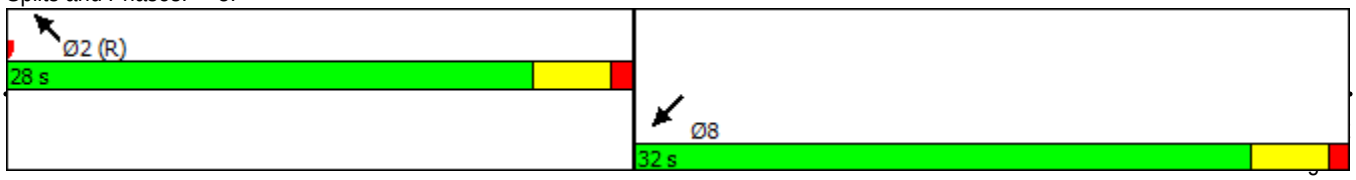
Lanes, Volumes, Timings
3: 12/07/2017

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)					22.5						22.5	
Total Split (s)					28.0						32.0	
Total Split (%)					46.7%						53.3%	
Maximum Green (s)					23.5						27.5	
Yellow Time (s)					3.5						3.5	
All-Red Time (s)					1.0						1.0	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					4.5						4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0						3.0	
Recall Mode					C-Max						None	
Walk Time (s)					7.0						7.0	
Flash Dont Walk (s)					11.0						11.0	
Pedestrian Calls (#/hr)					0						0	
Act Effct Green (s)					27.8						23.2	
Actuated g/C Ratio					0.46						0.39	
v/c Ratio					0.33						0.64	
Control Delay					11.9						9.4	
Queue Delay					0.0						0.0	
Total Delay					11.9						9.4	
LOS					B						A	
Approach Delay					11.9						9.4	
Approach LOS					B						A	
Queue Length 50th (ft)					62						78	
Queue Length 95th (ft)					107						30	
Internal Link Dist (ft)		85			71			96			59	
Turn Bay Length (ft)												
Base Capacity (vph)					1641						1622	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.33						0.54	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NWT and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 43.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3:



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	0	0	500	385	0
Future Volume (vph)	0	0	0	500	385	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	3433	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	152			165	179	
Travel Time (s)	5.2			5.6	6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	543	418	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	543	418	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.8%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	780	0	0	267	0
Future Volume (vph)	0	780	0	0	267	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3539	0	0	3433	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		208	223		227	
Travel Time (s)		7.1	7.6		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	848	0	0	290	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	848	0	0	290	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	75	810	0	0
Future Volume (vph)	0	0	75	810	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	181			177	191	
Travel Time (s)	6.2			6.0	6.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	82	880	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	82	880	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.1%		ICU Level of Service A	
Analysis Period (min) 15			

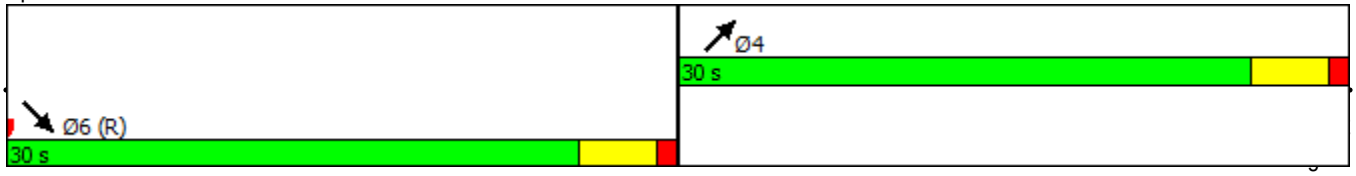
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	780	0	0	0	0	0	810	0	0	0	0
Future Volume (vph)	0	780	0	0	0	0	0	810	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	0	0	3539	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	0	0	3539	0	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		20			20			20			20	
Link Distance (ft)		67			208			191			72	
Travel Time (s)		2.3			7.1			6.5			2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	848	0	0	0	0	0	880	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	848	0	0	0	0	0	880	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2						2				
Detector Template		Thru						Thru				
Leading Detector (ft)		100						100				
Trailing Detector (ft)		0						0				
Detector 1 Position(ft)		0						0				
Detector 1 Size(ft)		6						6				
Detector 1 Type		Cl+Ex						Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0						0.0				
Detector 1 Queue (s)		0.0						0.0				
Detector 1 Delay (s)		0.0						0.0				
Detector 2 Position(ft)		94						94				
Detector 2 Size(ft)		6						6				
Detector 2 Type		Cl+Ex						Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0				
Turn Type		NA						NA				
Protected Phases		6						4				
Permitted Phases												
Detector Phase		6						4				
Switch Phase												
Minimum Initial (s)		5.0						5.0				

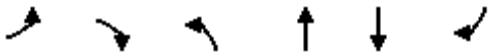
Lanes, Volumes, Timings
11: 12/07/2017

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)		22.5						22.5				
Total Split (s)		30.0						30.0				
Total Split (%)		50.0%						50.0%				
Maximum Green (s)		25.5						25.5				
Yellow Time (s)		3.5						3.5				
All-Red Time (s)		1.0						1.0				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		4.5						4.5				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0						3.0				
Recall Mode		C-Max						None				
Walk Time (s)		7.0						7.0				
Flash Dont Walk (s)		11.0						11.0				
Pedestrian Calls (#/hr)		0						0				
Act Effct Green (s)		28.5						22.5				
Actuated g/C Ratio		0.48						0.38				
v/c Ratio		0.51						0.66				
Control Delay		13.0						14.8				
Queue Delay		0.0						0.0				
Total Delay		13.0						14.8				
LOS		B						B				
Approach Delay		13.0						14.8				
Approach LOS		B						B				
Queue Length 50th (ft)		108						146				
Queue Length 95th (ft)		165						203				
Internal Link Dist (ft)		1			128			111			1	
Turn Bay Length (ft)												
Base Capacity (vph)		1678						1504				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.51						0.59				

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2: and 6:SET, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 13.9		Intersection LOS: B	
Intersection Capacity Utilization 76.2%		ICU Level of Service D	
Analysis Period (min) 15			

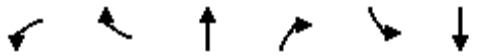
Splits and Phases: 11:





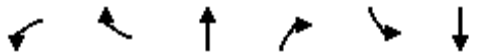
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	780	252
Future Volume (vph)	0	0	0	0	780	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	0	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	0	0	0	3539	1583
Link Speed (mph)	20			20	20	
Link Distance (ft)	332			133	335	
Travel Time (s)	11.3			4.5	11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	848	274
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	848	274
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.0%		ICU Level of Service A	
Analysis Period (min) 15			



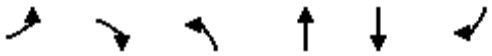
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	762	810	0	0	0
Future Volume (vph)	0	762	810	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	3539	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	3539	0	0	0
Link Speed (mph)	20		20			20
Link Distance (ft)	142		129			364
Travel Time (s)	4.8		4.4			12.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	828	880	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	828	880	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Stop

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 76.2%		ICU Level of Service D	
Analysis Period (min) 15			



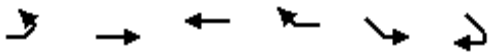
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	500	289	0	0
Future Volume (vph)	0	0	500	289	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3539	1583	0	0
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	0
Link Speed (mph)	20		20			20
Link Distance (ft)	394		284			122
Travel Time (s)	13.4		9.7			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	543	314	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	543	314	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Yield

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.5%		ICU Level of Service A	
Analysis Period (min) 15			



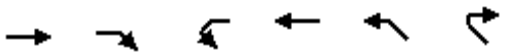
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	107	0	0	801	0
Future Volume (vph)	0	107	0	0	801	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	0	0	3539	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	0	3539	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	155			280	121	
Travel Time (s)	5.3			9.5	4.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	116	0	0	871	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	116	0	0	871	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Yield			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.5%		ICU Level of Service A	
Analysis Period (min) 15			



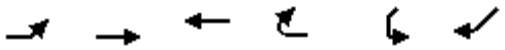
Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	289	0	0	246	0
Future Volume (vph)	0	289	0	0	246	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	0	1770	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		394	217		511	
Travel Time (s)		13.4	7.4		17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	314	0	0	267	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	314	0	0	267	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.0%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	252	75	0
Future Volume (vph)	0	0	0	252	75	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	1863	1770	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	101			332	237	
Travel Time (s)	3.4			11.3	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	274	82	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	274	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.1%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	385	107	0	0	0	0
Future Volume (vph)	385	107	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	1863	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1863	0	0	0	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		196	49		273	
Travel Time (s)		6.7	1.7		9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	418	116	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	418	116	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	0	267	762	0	0
Future Volume (vph)	0	0	267	762	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	1863	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	1863	0	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	102			220	103	
Travel Time (s)	3.5			7.5	3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	290	828	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	290	828	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

APPENDIX G - Synchro Reports 2040 Alternative 4

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	370	595
Future Volume (vph)	0	0	0	0	370	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	0	1770	3539
Link Speed (mph)	20		20			20
Link Distance (ft)	511		139			168
Travel Time (s)	17.4		4.7			5.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	402	647
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	402	647
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	527	0	0	0	0	0	595	0
Future Volume (vph)	0	0	0	0	527	0	0	0	0	0	595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3539	0	0	0	0	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3539	0	0	0	0	0	3539	0
Right Turn on Red			Yes	Yes		Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		20			20			20			20	
Link Distance (ft)		176			151			176			139	
Travel Time (s)		6.0			5.1			6.0			4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	573	0	0	0	0	0	647	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	573	0	0	0	0	0	647	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2						2	
Detector Template					Thru						Thru	
Leading Detector (ft)					100						100	
Trailing Detector (ft)					0						0	
Detector 1 Position(ft)					0						0	
Detector 1 Size(ft)					6						6	
Detector 1 Type					Cl+Ex						Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)					0.0						0.0	
Detector 1 Queue (s)					0.0						0.0	
Detector 1 Delay (s)					0.0						0.0	
Detector 2 Position(ft)					94						94	
Detector 2 Size(ft)					6						6	
Detector 2 Type					Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0						0.0	
Turn Type					NA						NA	
Protected Phases					2						8	
Permitted Phases												
Detector Phase					2						8	
Switch Phase												
Minimum Initial (s)					5.0						5.0	

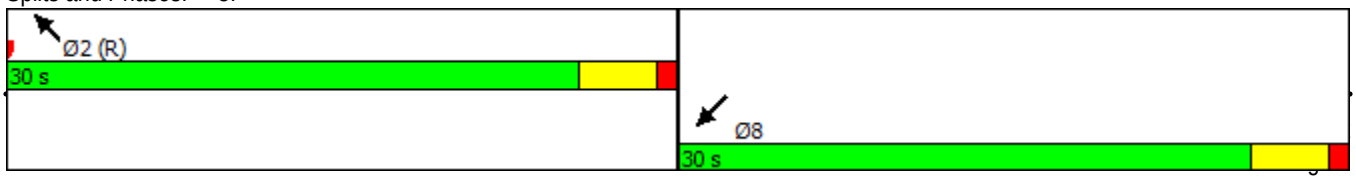
Lanes, Volumes, Timings
3: 12/07/2017

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)					22.5						22.5	
Total Split (s)					30.0						30.0	
Total Split (%)					50.0%						50.0%	
Maximum Green (s)					25.5						25.5	
Yellow Time (s)					3.5						3.5	
All-Red Time (s)					1.0						1.0	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					4.5						4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0						3.0	
Recall Mode					C-Max						None	
Walk Time (s)					7.0						7.0	
Flash Dont Walk (s)					11.0						11.0	
Pedestrian Calls (#/hr)					0						0	
Act Effct Green (s)					32.3						18.7	
Actuated g/C Ratio					0.54						0.31	
v/c Ratio					0.30						0.59	
Control Delay					9.1						12.0	
Queue Delay					0.0						0.0	
Total Delay					9.1						12.0	
LOS					A						B	
Approach Delay					9.1						12.0	
Approach LOS					A						B	
Queue Length 50th (ft)					54						102	
Queue Length 95th (ft)					102						40	
Internal Link Dist (ft)		96			71			96			59	
Turn Bay Length (ft)												
Base Capacity (vph)					1907						1504	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.30						0.43	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NWT and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 10.6 Intersection LOS: B
Intersection Capacity Utilization 38.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3:



Lane Group	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	162	0	0	0	0	527
Future Volume (vph)	162	0	0	0	0	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	0	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	0	0	3539
Link Speed (mph)	20		20			20
Link Distance (ft)	182		173			176
Travel Time (s)	6.2		5.9			6.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	0	0	0	0	573
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	0	0	0	0	573
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Stop			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.1%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	748	0	0	217	0
Future Volume (vph)	0	748	0	0	217	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3539	0	0	1770	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		208	223		227	
Travel Time (s)		7.1	7.6		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	813	0	0	236	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	813	0	0	236	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.3%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	49	640	0	0
Future Volume (vph)	0	0	49	640	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	181			146	191	
Travel Time (s)	6.2			5.0	6.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	53	696	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	53	696	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.4%		ICU Level of Service A	
Analysis Period (min) 15			

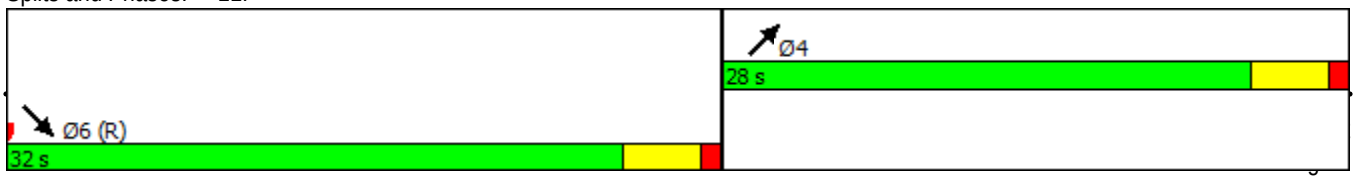
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	748	0	0	0	0	0	640	0	0	0	0
Future Volume (vph)	0	748	0	0	0	0	0	640	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	0	0	3539	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	0	0	3539	0	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		20			20			20			20	
Link Distance (ft)		67			208			191			72	
Travel Time (s)		2.3			7.1			6.5			2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	813	0	0	0	0	0	696	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	813	0	0	0	0	0	696	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2						2				
Detector Template		Thru						Thru				
Leading Detector (ft)		100						100				
Trailing Detector (ft)		0						0				
Detector 1 Position(ft)		0						0				
Detector 1 Size(ft)		6						6				
Detector 1 Type		Cl+Ex						Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0						0.0				
Detector 1 Queue (s)		0.0						0.0				
Detector 1 Delay (s)		0.0						0.0				
Detector 2 Position(ft)		94						94				
Detector 2 Size(ft)		6						6				
Detector 2 Type		Cl+Ex						Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0				
Turn Type		NA						NA				
Protected Phases		6						4				
Permitted Phases												
Detector Phase		6						4				
Switch Phase												
Minimum Initial (s)		5.0						5.0				

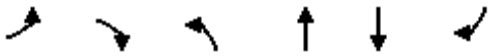
Lanes, Volumes, Timings
11: 12/07/2017

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)		22.5						22.5				
Total Split (s)		32.0						28.0				
Total Split (%)		53.3%						46.7%				
Maximum Green (s)		27.5						23.5				
Yellow Time (s)		3.5						3.5				
All-Red Time (s)		1.0						1.0				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		4.5						4.5				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0						3.0				
Recall Mode		C-Max						None				
Walk Time (s)		7.0						7.0				
Flash Dont Walk (s)		11.0						11.0				
Pedestrian Calls (#/hr)		0						0				
Act Effct Green (s)		32.0						19.0				
Actuated g/C Ratio		0.53						0.32				
v/c Ratio		0.43						0.62				
Control Delay		10.2						15.3				
Queue Delay		0.0						0.0				
Total Delay		10.2						15.3				
LOS		B						B				
Approach Delay		10.2						15.3				
Approach LOS		B						B				
Queue Length 50th (ft)		85						115				
Queue Length 95th (ft)		146						163				
Internal Link Dist (ft)		1			128			111			1	
Turn Bay Length (ft)												
Base Capacity (vph)		1888						1386				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.43						0.50				

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2: and 6:SET, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 47.9%		ICU Level of Service A	
Analysis Period (min) 15			

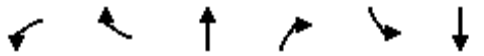
Splits and Phases: 11:





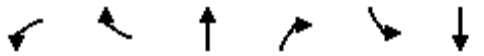
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	748	168
Future Volume (vph)	0	0	0	0	748	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	0	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	0	0	0	3539	1583
Link Speed (mph)	20			20	20	
Link Distance (ft)	332			133	335	
Travel Time (s)	11.3			4.5	11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	813	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	813	183
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.5%		ICU Level of Service A	
Analysis Period (min) 15			



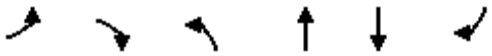
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	380	640	0	0	0
Future Volume (vph)	0	380	640	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	3539	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	3539	0	0	0
Link Speed (mph)	20		20			20
Link Distance (ft)	142		129			364
Travel Time (s)	4.8		4.4			12.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	413	696	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	413	696	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Free		Free			Stop

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.9%		ICU Level of Service A	
Analysis Period (min) 15			



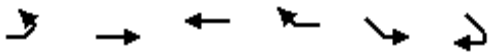
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	527	319	0	0
Future Volume (vph)	0	0	527	319	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3539	1583	0	0
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	0
Link Speed (mph)	20		20			20
Link Distance (ft)	394		461			122
Travel Time (s)	13.4		15.7			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	573	347	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	573	347	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Yield

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			



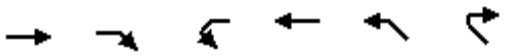
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	82	0	0	595	0
Future Volume (vph)	0	82	0	0	595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	0	0	3539	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	0	3539	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	233			546	121	
Travel Time (s)	7.9			18.6	4.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	89	0	0	647	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	89	0	0	647	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Yield			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			



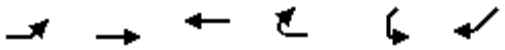
Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	319	0	0	370	0
Future Volume (vph)	0	319	0	0	370	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	0	1770	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		394	217		511	
Travel Time (s)		13.4	7.4		17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	347	0	0	402	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	347	0	0	402	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.0%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	168	49	0
Future Volume (vph)	0	0	0	168	49	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	1863	1770	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	101			332	237	
Travel Time (s)	3.4			11.3	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	183	53	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	183	53	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.4%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	162	82	0	0	0	0
Future Volume (vph)	162	82	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	1863	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1863	0	0	0	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		196	185		414	
Travel Time (s)		6.7	6.3		14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	89	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	89	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Stop	

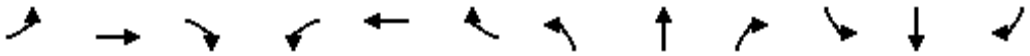
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.7%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	0	217	380	0	0
Future Volume (vph)	0	0	217	380	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	1863	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	1863	0	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	102			220	103	
Travel Time (s)	3.5			7.5	3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	236	413	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	236	413	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.3%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	0.76
Frt						
Flt Protected						
Satd. Flow (prot)	0	0	0	5085	0	4247
Flt Permitted						
Satd. Flow (perm)	0	0	0	5085	0	4247
Link Speed (mph)	30			30	30	
Link Distance (ft)	222			211	214	
Travel Time (s)	5.0			4.8	4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	5085	0	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	5085	0	0	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		491			674			211			216	
Travel Time (s)		11.2			15.3			4.8			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type												
Protected Phases								2			6	
Permitted Phases												
Minimum Split (s)								22.5			22.5	
Total Split (s)								22.5			22.5	
Total Split (%)								100.0%			100.0%	
Maximum Green (s)								18.0			18.0	
Yellow Time (s)								3.5			3.5	
All-Red Time (s)								1.0			1.0	
Lost Time Adjust (s)								0.0			0.0	
Total Lost Time (s)								4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								11.0			11.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS												
Approach Delay												
Approach LOS												
Queue Length 50th (ft)												
Queue Length 95th (ft)												
Internal Link Dist (ft)		411			594			131			136	
Turn Bay Length (ft)												
Base Capacity (vph)												
Starvation Cap Reductn												
Spillback Cap Reductn												
Storage Cap Reductn												
Reduced v/c Ratio												

Intersection Summary			
Area Type:	Other		
Cycle Length: 22.5			
Actuated Cycle Length: 22.5			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 48:

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	246	801
Future Volume (vph)	0	0	0	0	246	801
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	0	1770	3539
Link Speed (mph)	20		20			20
Link Distance (ft)	511		139			168
Travel Time (s)	17.4		4.7			5.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	267	871
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	267	871
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.2%		ICU Level of Service C	
Analysis Period (min) 15			

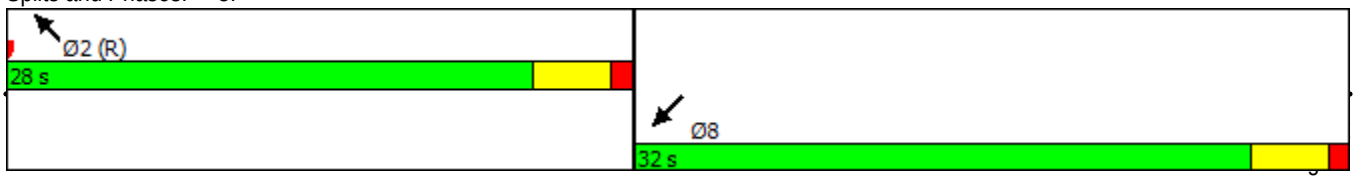
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	500	0	0	0	0	0	801	0
Future Volume (vph)	0	0	0	0	500	0	0	0	0	0	801	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3539	0	0	0	0	0	3539	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3539	0	0	0	0	0	3539	0
Right Turn on Red			Yes	Yes		Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		20			20			20			20	
Link Distance (ft)		165			151			176			139	
Travel Time (s)		5.6			5.1			6.0			4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	543	0	0	0	0	0	871	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	543	0	0	0	0	0	871	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2						2	
Detector Template					Thru						Thru	
Leading Detector (ft)					100						100	
Trailing Detector (ft)					0						0	
Detector 1 Position(ft)					0						0	
Detector 1 Size(ft)					6						6	
Detector 1 Type					Cl+Ex						Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)					0.0						0.0	
Detector 1 Queue (s)					0.0						0.0	
Detector 1 Delay (s)					0.0						0.0	
Detector 2 Position(ft)					94						94	
Detector 2 Size(ft)					6						6	
Detector 2 Type					Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0						0.0	
Turn Type					NA						NA	
Protected Phases					2						8	
Permitted Phases												
Detector Phase					2						8	
Switch Phase												
Minimum Initial (s)					5.0						5.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)					22.5						22.5	
Total Split (s)					28.0						32.0	
Total Split (%)					46.7%						53.3%	
Maximum Green (s)					23.5						27.5	
Yellow Time (s)					3.5						3.5	
All-Red Time (s)					1.0						1.0	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					4.5						4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0						3.0	
Recall Mode					C-Max						None	
Walk Time (s)					7.0						7.0	
Flash Dont Walk (s)					11.0						11.0	
Pedestrian Calls (#/hr)					0						0	
Act Effct Green (s)					27.8						23.2	
Actuated g/C Ratio					0.46						0.39	
v/c Ratio					0.33						0.64	
Control Delay					11.9						9.4	
Queue Delay					0.0						0.0	
Total Delay					11.9						9.4	
LOS					B						A	
Approach Delay					11.9						9.4	
Approach LOS					B						A	
Queue Length 50th (ft)					62						78	
Queue Length 95th (ft)					107						30	
Internal Link Dist (ft)		85			71			96			59	
Turn Bay Length (ft)												
Base Capacity (vph)					1641						1622	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.33						0.54	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NWT and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 43.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3:



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	0	0	500	385	0
Future Volume (vph)	0	0	0	500	385	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	3433	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	152			165	179	
Travel Time (s)	5.2			5.6	6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	543	418	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	543	418	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.8%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	780	0	0	267	0
Future Volume (vph)	0	780	0	0	267	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3539	0	0	3433	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		208	223		227	
Travel Time (s)		7.1	7.6		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	848	0	0	290	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	848	0	0	290	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	75	810	0	0
Future Volume (vph)	0	0	75	810	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	181			177	191	
Travel Time (s)	6.2			6.0	6.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	82	880	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	82	880	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.1%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	780	0	0	0	0	0	810	0	0	0	0
Future Volume (vph)	0	780	0	0	0	0	0	810	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	0	0	3539	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	0	0	3539	0	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		20			20			20			20	
Link Distance (ft)		67			208			191			72	
Travel Time (s)		2.3			7.1			6.5			2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	848	0	0	0	0	0	880	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	848	0	0	0	0	0	880	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2						2				
Detector Template		Thru						Thru				
Leading Detector (ft)		100						100				
Trailing Detector (ft)		0						0				
Detector 1 Position(ft)		0						0				
Detector 1 Size(ft)		6						6				
Detector 1 Type		Cl+Ex						Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0						0.0				
Detector 1 Queue (s)		0.0						0.0				
Detector 1 Delay (s)		0.0						0.0				
Detector 2 Position(ft)		94						94				
Detector 2 Size(ft)		6						6				
Detector 2 Type		Cl+Ex						Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0				
Turn Type		NA						NA				
Protected Phases		6						4				
Permitted Phases												
Detector Phase		6						4				
Switch Phase												
Minimum Initial (s)		5.0						5.0				

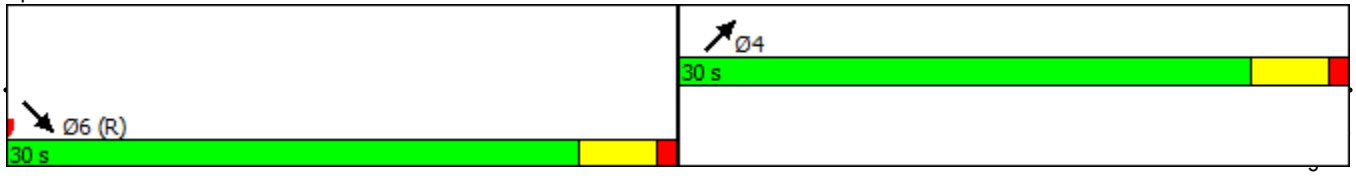
Lanes, Volumes, Timings
11: 12/11/2017

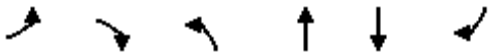
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)		22.5						22.5				
Total Split (s)		30.0						30.0				
Total Split (%)		50.0%						50.0%				
Maximum Green (s)		25.5						25.5				
Yellow Time (s)		3.5						3.5				
All-Red Time (s)		1.0						1.0				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		4.5						4.5				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0						3.0				
Recall Mode		C-Max						None				
Walk Time (s)		7.0						7.0				
Flash Dont Walk (s)		11.0						11.0				
Pedestrian Calls (#/hr)		0						0				
Act Effct Green (s)		28.5						22.5				
Actuated g/C Ratio		0.48						0.38				
v/c Ratio		0.51						0.66				
Control Delay		13.0						14.8				
Queue Delay		0.0						0.0				
Total Delay		13.0						14.8				
LOS		B						B				
Approach Delay		13.0						14.8				
Approach LOS		B						B				
Queue Length 50th (ft)		108						146				
Queue Length 95th (ft)		165						203				
Internal Link Dist (ft)		1			128			111			1	
Turn Bay Length (ft)												
Base Capacity (vph)		1678						1504				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.51						0.59				

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2: and 6:SET, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 76.2% ICU Level of Service D
Analysis Period (min) 15

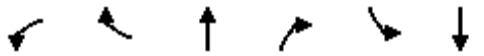
Splits and Phases: 11:





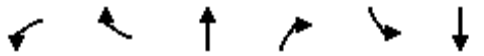
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	780	252
Future Volume (vph)	0	0	0	0	780	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	0	3539	1583
Flt Permitted						
Satd. Flow (perm)	0	0	0	0	3539	1583
Link Speed (mph)	20			20	20	
Link Distance (ft)	332			133	335	
Travel Time (s)	11.3			4.5	11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	848	274
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	848	274
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.0%		ICU Level of Service A	
Analysis Period (min) 15			



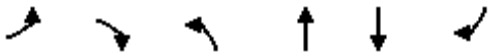
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	762	810	0	0	0
Future Volume (vph)	0	762	810	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	3539	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	3539	0	0	0
Link Speed (mph)	20		20			20
Link Distance (ft)	142		129			364
Travel Time (s)	4.8		4.4			12.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	828	880	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	828	880	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Stop

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 76.2%		ICU Level of Service D	
Analysis Period (min) 15			



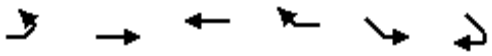
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	500	289	0	0
Future Volume (vph)	0	0	500	289	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3539	1583	0	0
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	0
Link Speed (mph)	20		20			20
Link Distance (ft)	394		284			122
Travel Time (s)	13.4		9.7			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	543	314	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	543	314	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Yield

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.5%		ICU Level of Service A	
Analysis Period (min) 15			



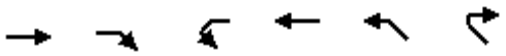
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	107	0	0	801	0
Future Volume (vph)	0	107	0	0	801	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	0	0	3539	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	0	3539	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	155			280	121	
Travel Time (s)	5.3			9.5	4.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	116	0	0	871	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	116	0	0	871	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Yield			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.5%		ICU Level of Service A	
Analysis Period (min) 15			



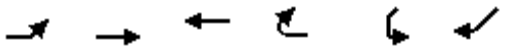
Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	289	0	0	246	0
Future Volume (vph)	0	289	0	0	246	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	0	1770	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		394	217		511	
Travel Time (s)		13.4	7.4		17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	314	0	0	267	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	314	0	0	267	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.0%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	252	75	0
Future Volume (vph)	0	0	0	252	75	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	1863	1770	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	101			332	237	
Travel Time (s)	3.4			11.3	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	274	82	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	274	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.1%		ICU Level of Service A	
Analysis Period (min) 15			



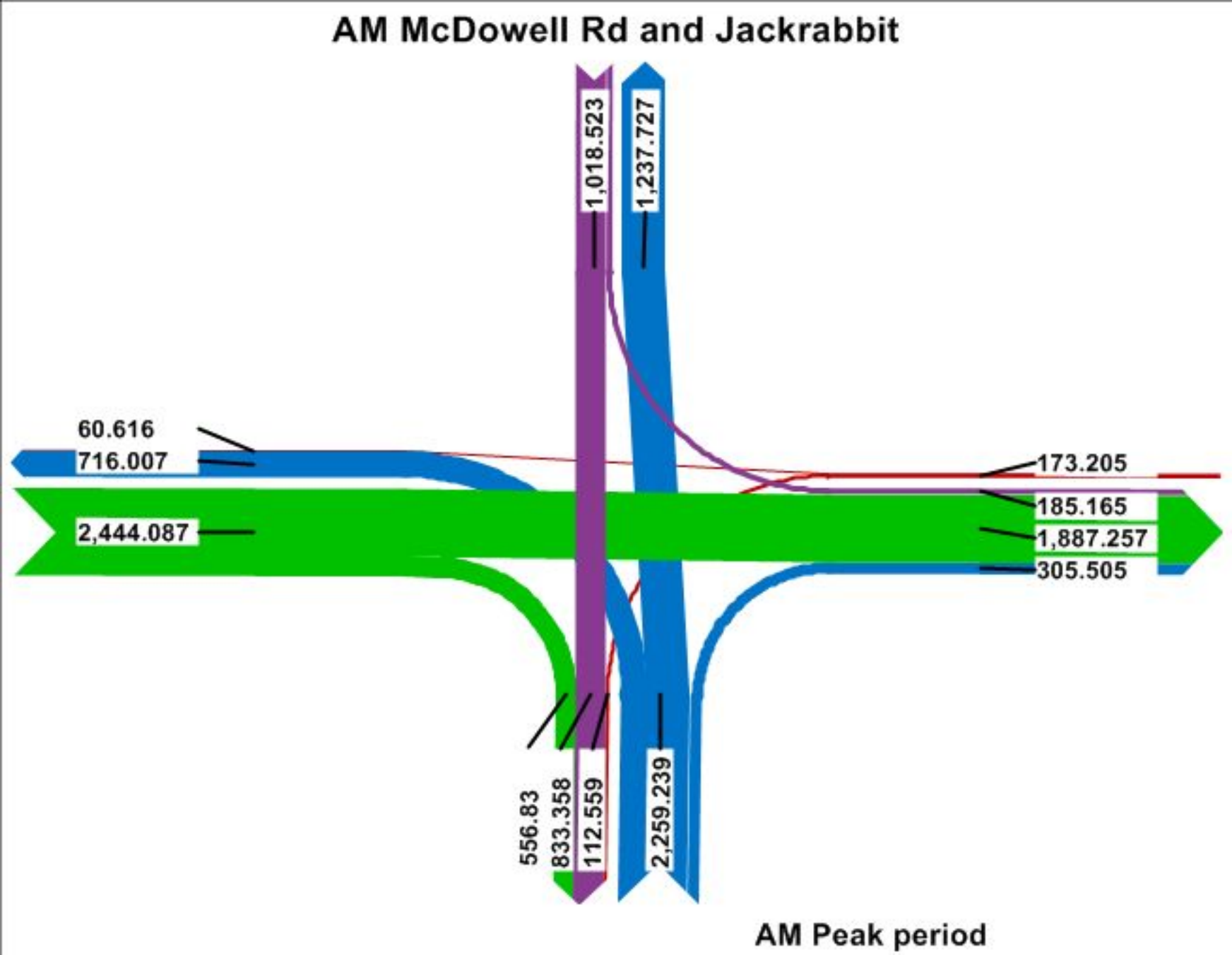
Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	385	107	0	0	0	0
Future Volume (vph)	385	107	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	1863	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1863	0	0	0	0
Link Speed (mph)		20	20		20	
Link Distance (ft)		196	49		273	
Travel Time (s)		6.7	1.7		9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	418	116	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	418	116	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.0%		ICU Level of Service A	
Analysis Period (min) 15			

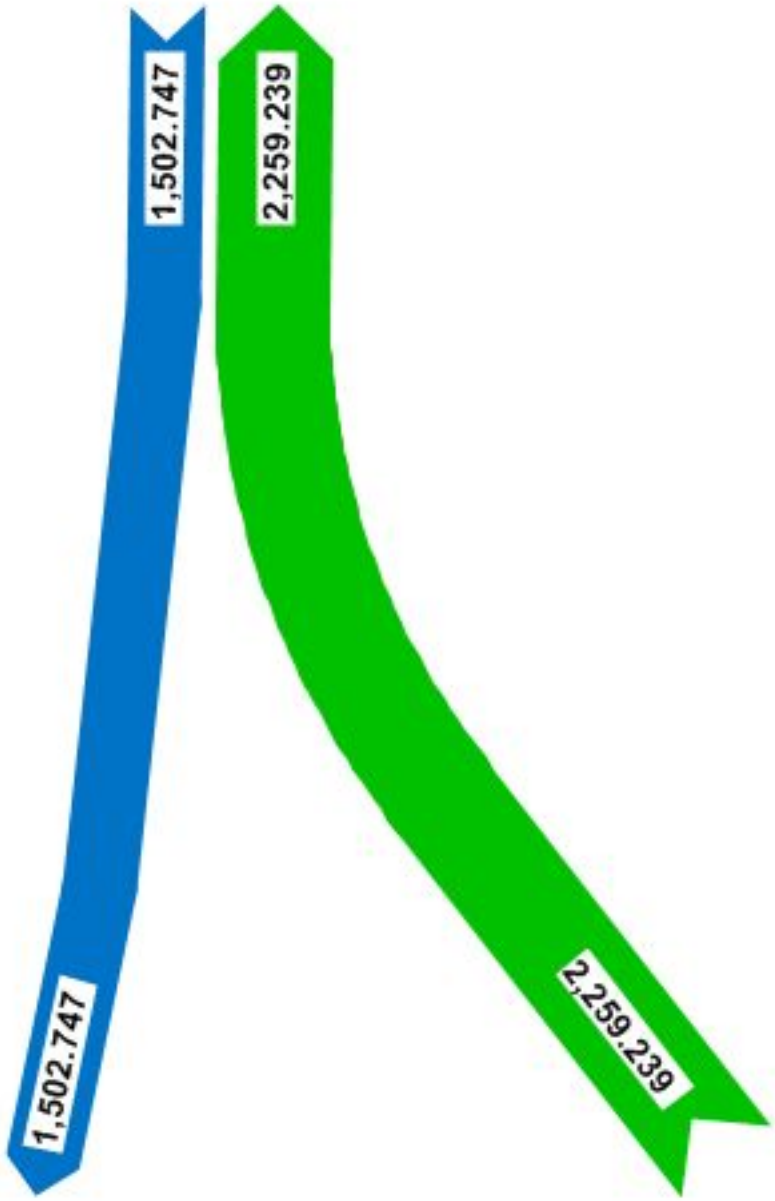
Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	0	267	762	0	0
Future Volume (vph)	0	0	267	762	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	1863	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	1863	0	0
Link Speed (mph)	20			20	20	
Link Distance (ft)	102			220	103	
Travel Time (s)	3.5			7.5	3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	290	828	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	290	828	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

APPENDIX H - MAG Model Turning Movement Counts 2040

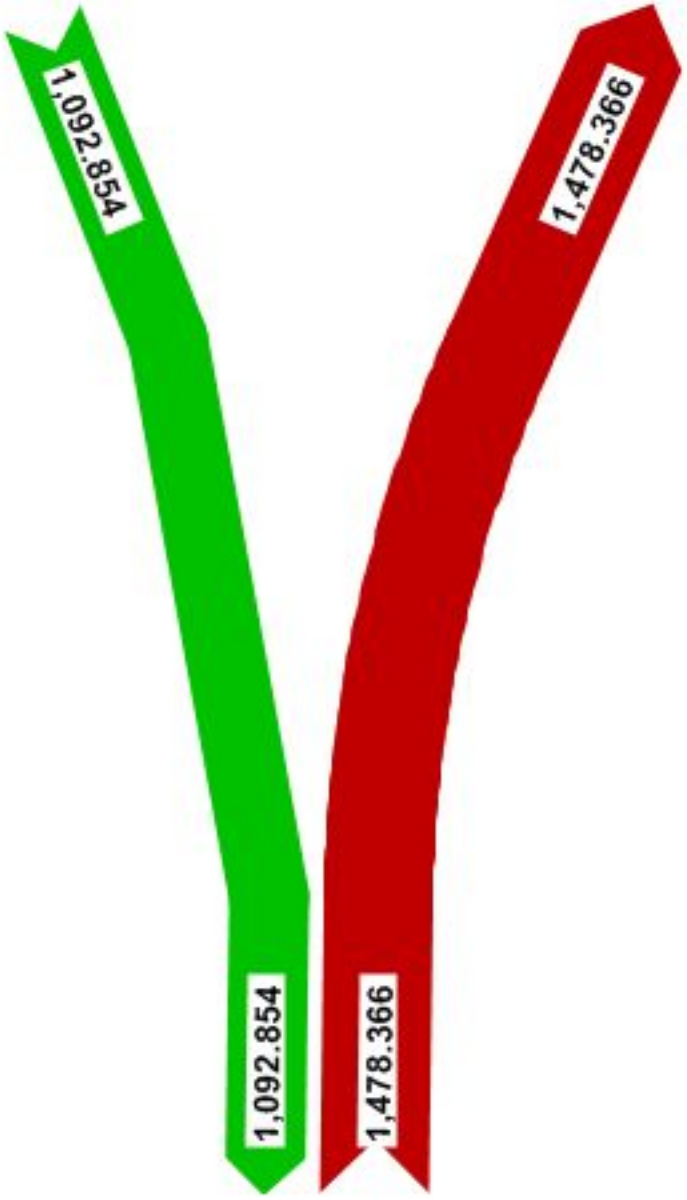

AM McDowell Rd and Jackrabbit
1,018.523
1,237.727
60.616
716.007
2,444.087
173.205
185.165
1,887.257
305.505
556.83
833.358
112.559
2,259.239
AM Peak period

AM North of I-10 and Jackrabbit



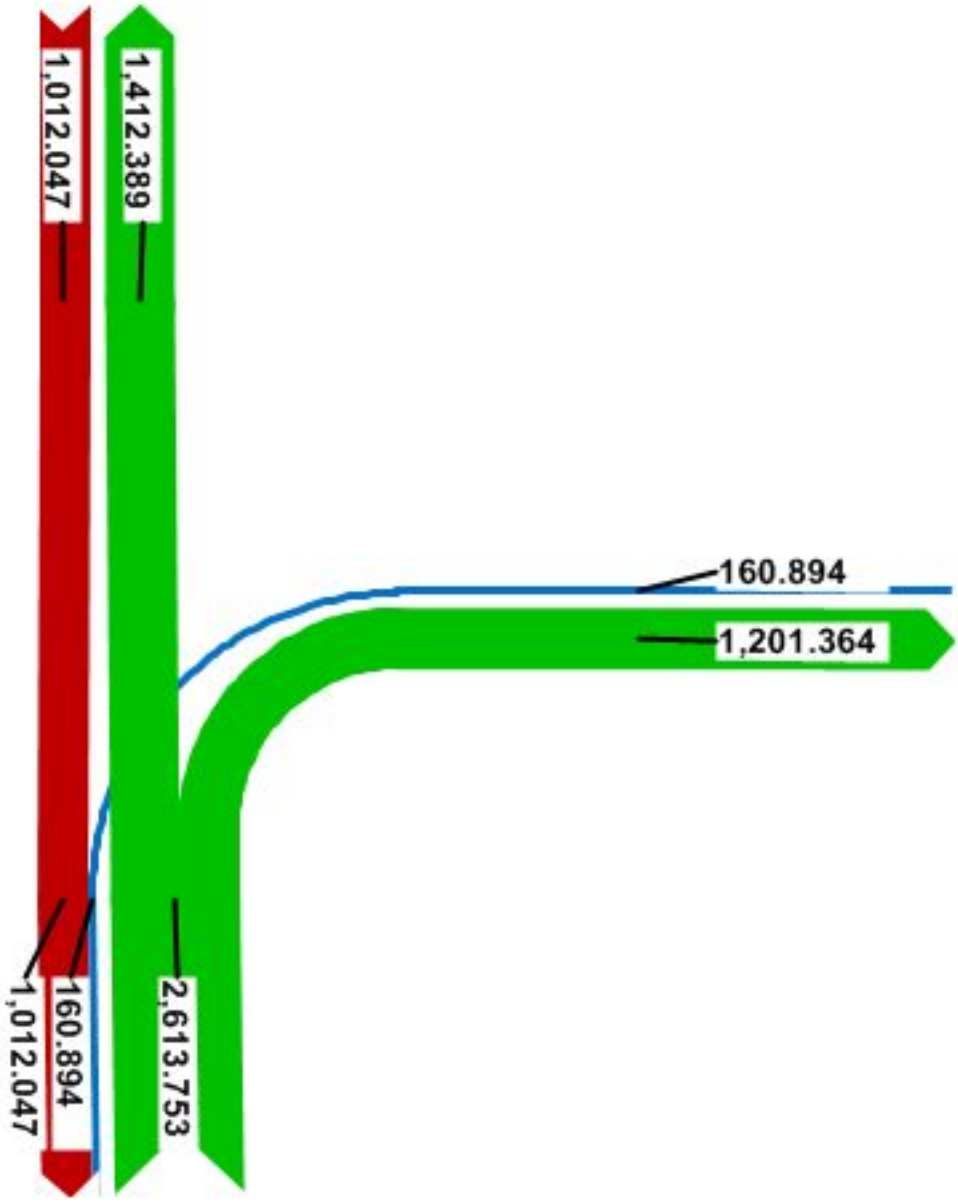
AM Peak period

AM South of I-10 and Jackrabbit



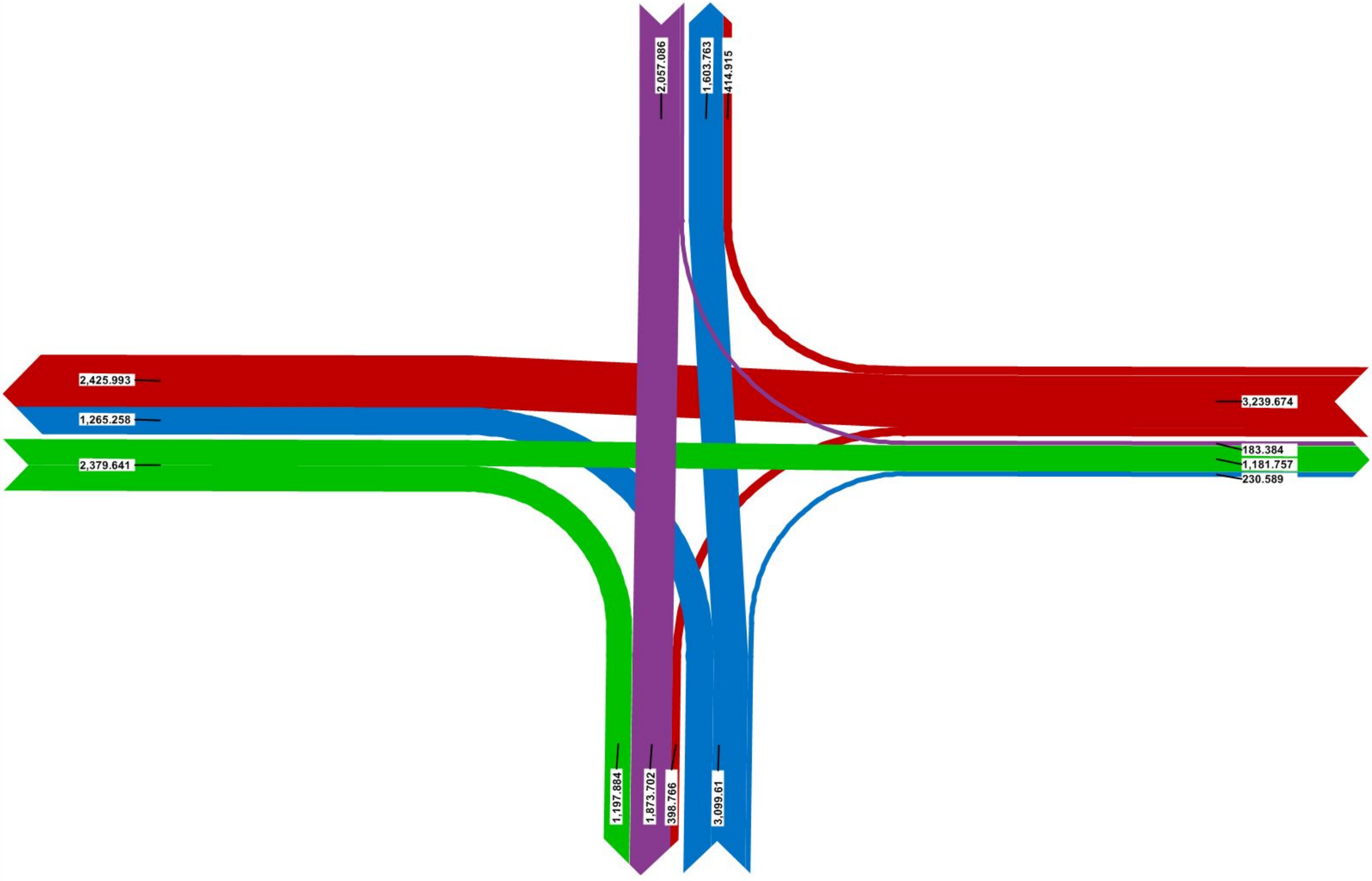
AM Peak period

AM Vanburen Rd and Jackrabbit



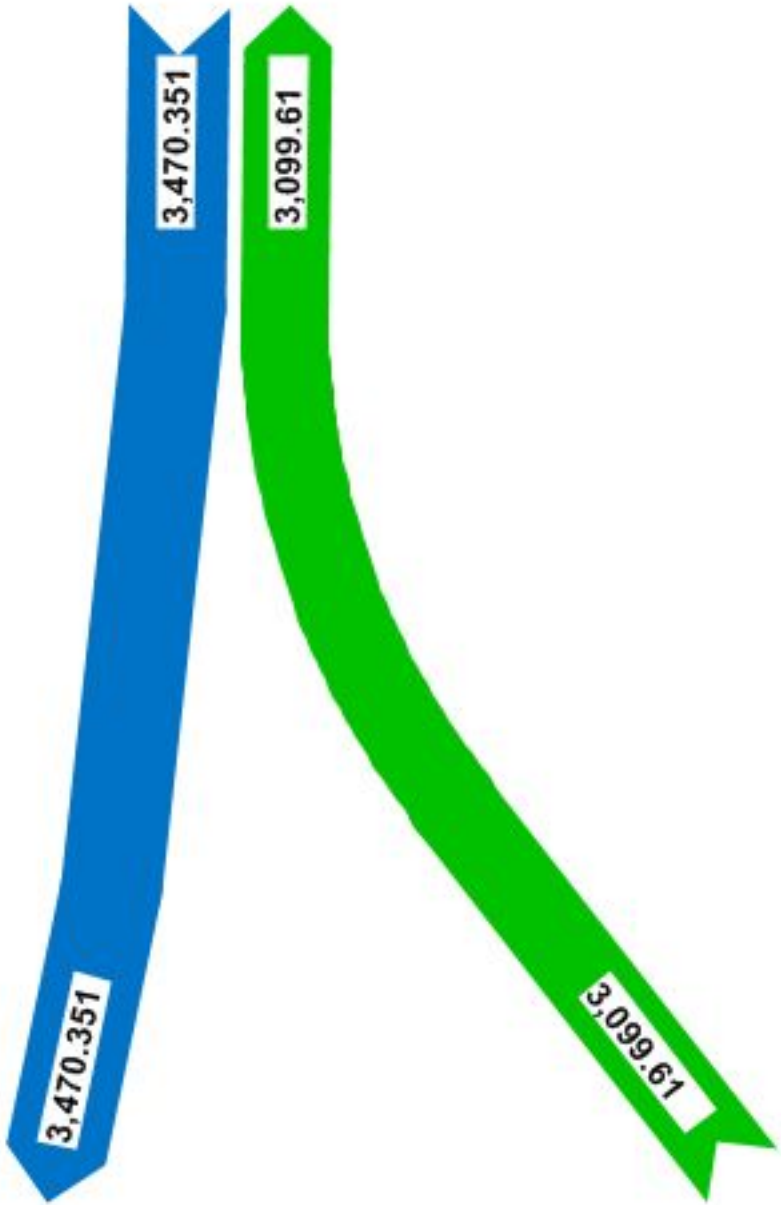
AM Peak period

PM McDowell Rd and Jackrabbit



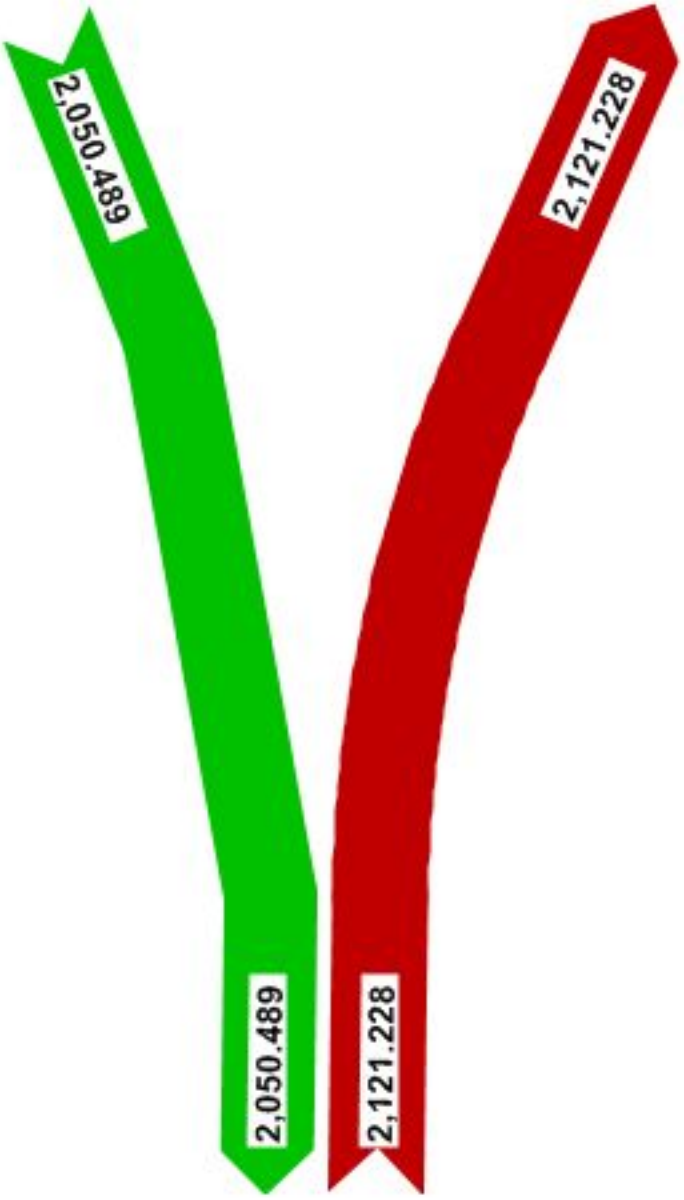
PM Peak period

PM North of I-10 and Jackrabbit



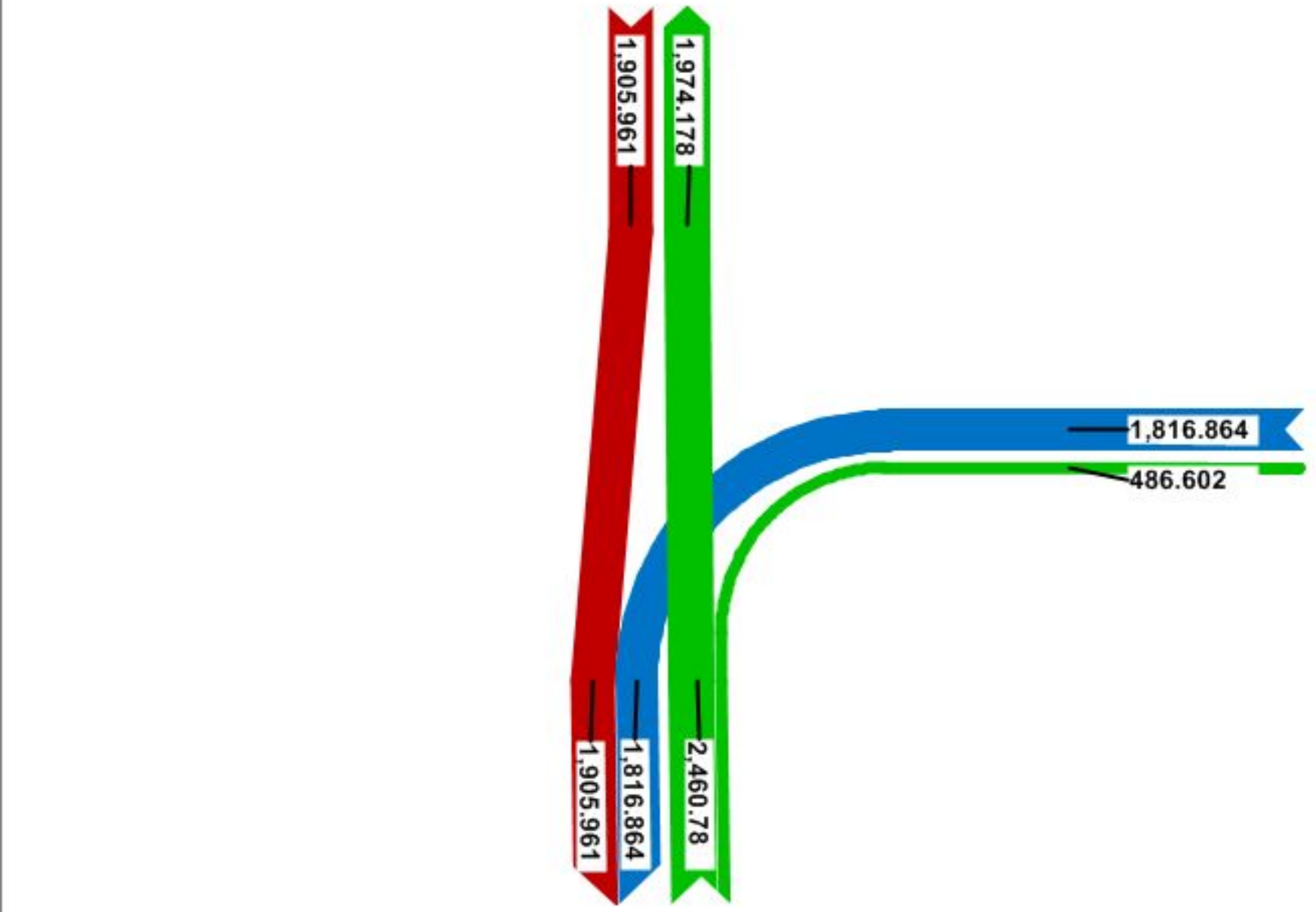
PM Peak period

PM South of I-10 and Jackrabbit



PM Peak period

PM Vanburen Rd and Jackrabbit



PM Peak period

APPENDIX I - Jackrabbit Square Memorandum

Dibble Engineering

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Memorandum

To:	Bill Hahn, P.E.	**Date:**	3/2/18
Copy:			
From:	Drew Spear, P.E.	**Project No:**	1016024.02
Subject:	TT0578: Jackrabbit Trail Traffic Memo for Jackrabbit Square		

Introduction

The MCDOT Jackrabbit Trail Scoping Project, TT0578, is proposing a Diverging Diamond configuration for the Interstate 10 (I-10) and Jackrabbit Trail traffic interchange. South of the I-10 ramps, a developer is proposing a multi-phase development which will need access onto Jackrabbit Trail. The development is located on the east side of Jackrabbit Trail, extends approximately 820 feet south of the I-10 Right-of-Way, and extends 1/8 mile to the east. The development is currently in Phase 1 which proposes a convenience store and 20 pump gas station at the south end of the development. The proposed development includes two access points with the north access point used to provide further access to the northern area of the development. No information is available for the future phases of the development though commercial and lodging have been considered. The development is proposing a signal and a Florida "T" signal configuration. The Florida "T" is used for T intersections where acceleration lanes are provided for left turning vehicles and where the opposite side through movement does not stop (unless pedestrian phases are included).

The ADOT R/W extends 506.77 feet south of the ADOT I-10 Right-of-Way along Jackrabbit Trail. ADOT has purchased full access control for the northern portion of the ADOT Right-of-Way along Jackrabbit Trail for approximately 370 feet. ADOT Policy is from the entrance ramp curb return, full access control extends 330 feet. This is consistent with the existing access control. Within the ADOT Right-of-Way, access is limited to right-in/right-out only. ADOT policy is that the nearest signalized intersection should be 2640 feet from any ramp intersection unless existing conditions dictate otherwise or unless an operational analysis can justify a closer proximity (ADOT, *Roadway Design Manual*, Section 506).

South of I-10 on Jackrabbit Trail, the Scoping study has determined that a signal will be warranted in the future and the Roosevelt Street and Jackrabbit Trail intersection located 1550 feet south of the I-10 ramp intersection. This is within the 2640 foot distance stated by ADOT. The proposed Jackrabbit Trail driveways identified in the Jackrabbit Square Phase 1, Buckeye Arizona, Traffic Impact Analysis, dated 12/9/2016, are to be located approximately 600 feet and 850 feet south of the I-10 ramp intersections.

The DDI was chosen because of the superior traffic capacity, operational benefits, ease of use, and the ability to physically fit within the I-10 overpass constraints. The impact of the Jackrabbit Square proposed driveway signal may be detrimental to the DDI operations. This memo seeks to understand those potential impacts.

Operational considerations for the DDI include the queue spillback, demand starvation, and signal progression (FHWA, *Diverging Diamond Informational Guide*, August 2014).

A Synchro9 and SimTraffic model has been prepared which includes intersection from Roosevelt to the north I-10 ramps. Jackrabbit Trail has 4 lanes to meet the 2040 demand. The ultimate Jackrabbit Trail is a 6-lane arterial. The signals at the DDI were optimized at 45 second cycles in two phases which are coded as split

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phases since the through opposing movement cross. The Jackrabbit Square sign was optimized at 70 second cycle with no southbound stopping.

Scenarios include:

1. 2040 without Jackrabbit Square
2. 2040 with Jackrabbit Square Phase 1
3. 2040 with Jackrabbit Square buildout
4. 2040 with Jackrabbit Square buildout and leg to west

Queue Spillback

A DDI intersection operates more efficiently than the standard upstream or downstream intersections since DDIs operate with fewer signal phases and have greater capacity and throughput. However, the proximity of the Jackrabbit Square proposed signal to the I-10 ramp could affect the upstream by causing a left turn queue buildup at the northbound left lane at the I-10 south ramp intersection. The following is the assessment of the Scenarios with regard to Queue Spillback.

Scenario 1

Northbound queues approaching the I-10 south ramps average 3 vehicles in the left lane. The shorter cycles at the DDI south intersection allows this queue to clear before the Roosevelt queue approaches.

No spillback from the southbound lanes.

Southbound queues at Roosevelt Street average 3 vehicles per lane.

Scenario 2

Northbound queues approaching the I-10 south ramps average 6 vehicles in the left lane. The shorter cycles at the DDI south intersection allows this queue to clear before the Roosevelt queue approaches.

No spillback from the southbound lanes.

Southbound lefts at Jackrabbit Square average 5 vehicles. The northbound through queues at the Jackrabbit Square signal average 11 vehicles per lane.

Southbound queues at Roosevelt Street average 3 vehicles. The queue does not interfere with the Jackrabbit Square left turns.

Scenario 3

Northbound queues approaching the I-10 south ramps average 6 vehicles in the left lane. The shorter cycles at the DDI south intersection allows this queue to clear before the Roosevelt queue approaches.

No spillback from the southbound lanes.

Southbound queues at Roosevelt Street average 3 vehicles. The queue does not interfere with the Jackrabbit Square left turns.

Scenario 4

Northbound queues approaching the I-10 south ramps average 4 vehicles in the left lane. The shorter cycles at the DDI south intersection allows this queue to clear before the Roosevelt queue approaches.

Spillback in the southbound lanes at the Jackrabbit Square signal average 6 vehicles but do not impact the DDI southbound operation.

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Southbound queues at Roosevelt Street average 5 vehicles. The queue does not interfere with the Jackrabbit Square left turns.

Conclusion

The queuing from the morning peak hour traffic does not spill back into the operation of the upstream signals under the scenarios which were evaluated. The addition of a west leg does not show spillback into the DDI.

Demand Starvation

Demand starvation occurs when the DDI signal phase is green but no traffic is present due to upstream signalized intersections. This situation means the actual throughput of the DDI movement is less than its potential capacity.

Scenario 1

No signal at Jackrabbit Square allows the traffic platoon from the Roosevelt through lanes to reach the DDI south intersection.

Scenario 2

The Jackrabbit Square signal shows demand starvation on approximately 1 of 7 cycles. In most cycles, the northbound platoon from Jackrabbit Square reached the I-10 south intersection on red but the short cycles lengths at I-10 mean shorter delays.

Scenario 3

The Jackrabbit Square signal shows demand starvation on approximately 1 of 4 cycles. As more time is given at the Jackrabbit Square signal for southbound left turns, the northbound platoon is delayed and grows while no vehicles are waiting at the I-10 south intersection.

Scenario 4

The Jackrabbit Square signal shows demand starvation on approximately 1 of 4 cycles. As more time is given for the side road movements, additional starvation may be seen over Scenario 3.

Conclusion

The upstream signal at Jackrabbit Square will cause demand starvation and as the development grows, the impact will be greater. The signal timing may be refined to prioritize the northbound movement, but the southbound through traffic will be disrupted.

Signal Progression

Signal progression looked at the possibility of timing the signals to minimize the stopping of traffic. This study concentrated on the northbound movements.

Scenario 1

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Progression was optimized for northbound and southbound traffic. The DDI shorter cycles help reduce delay but the platoons were hitting the downstream signal on red most cycles. The short cycles at the DDI were flushing the queue efficiently each cycle.

Scenario 2

Northbound progression was suffering as platoons from Roosevelt Street were hitting Jackrabbit Square signal. Lane utilization suffers as the right through lane is heavier due to the approaching right turn at the I-10 south ramp intersection.

Scenario 3

Northbound progression suffers as platoons from Roosevelt Street were hitting Jackrabbit Square signal. Lane utilization suffers as the right through lane is heavier due to the approaching right turn at the I-10 south ramp intersection.

The traffic platoon from Jackrabbit Square hits the I-10 south ramp intersection during green in approximately 1 out of every 8 cycles in the optimized condition.

Scenario 4

Larger platoons from the additional traffic at Jackrabbit Square combined with the smaller green window for northbound through traffic show that the DDI south ramp intersection needs a longer cycle length to create the green window to clear the platoon efficiently. This affects the southbound through progression. Southbound platoons were hitting the Jackrabbit Square signal on red similar to northbound traffic. The green windows at the DDI were efficiently clearing the queue but not hitting the downstream green.

Conclusion

The signal at Jackrabbit Square disrupts the progression of northbound traffic in scenarios 2, 3 and 4 and disrupts the southbound progression for Scenario 4. The progression can be refined to favor one direction over another but the intersection spacing is such that it is unlikely to improve the progression to near the efficiency of Scenario 1.

Conclusions

Queue Spillback does not seem to be an issue with the operation of the DDI. Demand Starvation and Progression are impacted and that impact worsens as the Jackrabbit Square side road volumes increase. Starvation is very problematic due to the loss of efficiently where full green cycles are lost with no traffic able to use the green time. Signal timing will continue to be an issue as volume fluctuate seasonally and grow annually.

Appendix 2. MAG Model Traffic Volumes

Traffic Parameter	Jackrabbit Trail North of McDowell Road	McDowell Road West of Jackrabbit Trail	McDowell Road East of Jackrabbit Trail	Jackrabbit Trail North of I-10 TI	WB Off Ramp	WB On Ramp	Jackrabbit Trail Between WB and EB Ramps	EB Off Ramp	EB On Ramp	Jackrabbit Trail South of I-10 TI	Roosevelt Street West of Jackrabbit Trail	Roosevelt Street East of Jackrabbit Trail	Jackrabbit Trail South of Roosevelt Street	I-10 West of JRT TI Ramps	I-10 Between JRT TI Ramps	I-10 East of JRT TI Ramps	Source
2017 MAG Model ADT	8,511	5,326	1,360	13,799	6,659	1,210		1,260	6,551	5,370			4,855				2017 MAG Model
2017 Existing Count ADT				12,902						9,713							2019 MCDOT SDR
2020 MAG Model ADT	10,310	5,596	2,221	15,509	8,039	1,233		1,324	7,711	6,025			5,509				2020 MAG Model
2022 Initial MAG Model ADT	10,310	5,596	2,221	15,897	8,039	1,233		1,324	7,711	7,266			5,509				2022 MAG Model
2022 Existing Count ADT	**12,086**	**1,895**	**2,417**	**12,781**	**7,046**	**1,976**	**10,590**	**1,918**	**6,787**	**13,822**				**115,782**	**111,888**	**125,721**	**2022 ADOT DCR**
2022 Updated MAG Model ADT	**9,286**	**7,344**	**2,016**	**16,208**	**8,264**	**1,073**	**10,769**	**1,119**	**8,047**	**6,015**	**-**	**806**	**5,769**	**108,800**	**106,608**	**122,918**	**2023 Updated MAG Model**
2040 MAG Model ADT				23,606						13,995							2040 MAG Model
2040 MCDOT SDR ADT				**23,606**						**21,600**							**2019 MCDOT SDR**
2050 Build Initial MAG Model ADT	11,915	28,352	14,711	36,003	9,047	4,453	24,785	4,898	9,090	13,415			11,693	216,535	207,185	225,321	2022 MAG Model
2050 Build ADOT DCR Draft Traffic Study ADT	**22,450**	**23,352**	**19,961**	**36,003**	**13,120**	**6,952**	**31,655**	**6,397**	**13,081**	**31,000**	**15,000**	**1,722**	**21,927**	**213,114**	**206,353**	**227,096**	**2023 ADOT Draft Traffic Study**
2050 Build Updated MAG Model ADT	**20,305**	**32,715**	**20,198**	**38,161**	**10,347**	**3,248**	**27,484**	**3,514**	**10,396**	**17,329**	**12,178**	**3,472**	**15,336**	**213,114**	**206,353**	**227,096**	**2023 Updated MAG Model**
2050 No-Build Updated MAG Model ADT	**15,826**	**28,936**	**18,062**	**36,973**	**9,513**	**4,674**	**24,994**	**4,796**	**9,292**	**13,513**		**1,727**	**11,786**	**220,505**	**211,035**	**229,839**	**2023 Updated MAG Model**
2050 No-Build ADOT DCR Draft Traffic Study ADT	**17,497**	**20,655**	**17,851**	**34,882**	**12,062**	**10,005**	**28,786**	**8,731**	**11,692**	**24,174**	**13,000**	**856**	**16,851**	**220,505**	**211,035**	**229,839**	**2023 ADOT Draft Traffic Study**

Appendix 3. MAG Model Memorandum

I-10/JACKRABBIT TRAIL TRAFFIC INTERCHANGE

MAG MODEL ANALYSIS TECHNICAL MEMORANDUM

Date: February 19, 2024

Subject: MAG Model Analysis for the I-10/Jackrabbit Trail Traffic Interchange

1. INTRODUCTION

Kimley-Horn intended to obtain traffic forecasts for the project study area using the Maricopa Association of Governments (MAG) Regional Travel Demand Model (TDM). However, significant discrepancies were found comparing the base year TDM assigned volumes with the traffic counts collected for existing conditions. After further discussion with ADOT and MAG, it was decided that Kimley-Horn would modify MAG's TDM using a subarea modeling approach to hopefully be able to identify and address the identified discrepancies and obtain more reliable traffic forecasts for the project study area.

2. SUBAREA MODELING METHODOLOGY AND DATA COLLECTION

The subarea model boundary was defined as Camelback Road to the north, Broadway Road to the south, Watson Road to the west, and State Route 303L to the east. Kimley-Horn built the base year subarea model using the following information provided by MAG:

- Base year 2022 windowed highway network using the subarea model boundary
- Base year 2022 subarea Origin-Destination (OD) trip tables by time-of-day periods by vehicle classes (auto drive alone, auto shared ride, light truck, medium truck, and heavy truck)

Kimley-Horn built the subarea model in TransCAD to conduct base year traffic assignment using the windowed highway network and OD trip tables provided by MAG as the starting point. The subarea model has the capability to report turning movement volumes at selected intersections for AM and PM peak periods.

Kimley-Horn modified the subarea network to incorporate the lane reduction on westbound I-10 from east of Jackrabbit Trail to the Verrado Way interchange that was present when traffic counts were conducted due to the ongoing widening project on I-10 between State Route 85 and Verrado Way. Kimley-Horn reviewed the subarea network using 2022 aerial photo and incorporated existing roadways that were missing from the model base year network.

When traffic counts were collected by the project team in October 2022, travel patterns were affected by a crash which occurred on the mainline above the Jackrabbit Trail traffic interchange and resulted in some I-10 westbound traffic diverting via the Jackrabbit Trail traffic interchange westbound off-ramp and then on-ramp to bypass the crash. In May 2023, the 24-hour road tube counts were recollected on Jackrabbit Trail north and south of the I-10 interchange and AM and PM peak turning movement volumes were recollected at the following four intersections:

- Jackrabbit Trail at I-10 eastbound ramps
- Jackrabbit Trail at I-10 westbound ramps
- Jackrabbit Trail at McDowell Road
- Jackrabbit Trail at Roosevelt Street

3. SUBAREA MODEL BASE YEAR CALIBRATION AND VALIDATION PROCESS

Kimley-Horn used the subarea model run results from the MAG model as the starting point. The model-predicted traffic volumes were compared with daily and AM/PM peak period levels, focusing on the following roads around the project corridor:

- Jackrabbit Trail
- I-10 mainline and ramps
- McDowell Road
- Roosevelt Street

Kimley-Horn calibrated the subarea model using an iterative process with the intention to match the AM and PM peak period volumes on I-10, Jackrabbit Trail, and McDowell Road with a 15% target margin of error compared to traffic counts. Calibration effort included the following:

- Correcting network connectivity coding issues
- Adding travel time penalties based on existing traffic control delays
- Adjusting centroid connector locations
- Adjusting free flow speeds
- Applying adjustment factors to the OD trip tables

MAG regional model's AM peak period is 6 AM to 9 AM and the model's PM peak period is 2 PM to 6 PM. For AM peak period comparison, the time period in which turning movement counts were collected by the project team (6 AM to 9 AM) matches the AM peak period from the regional and the subarea model. For PM peak period comparison, the time period in which turning movement counts were collected by the project team was 3 PM to 6 PM. An adjustment factor of 0.761 was applied to convert the four-hour model volume to a three-hour volume to reflect 3 PM to 6 PM for comparison purposes. Daily segment model volumes and traffic counts on I-10 and Jackrabbit Trail were directly compared without factoring.

Figure 1 shows peak period model volumes compared with counts at the beginning of the subarea model calibration effort, using the subarea network directly from the MAG regional model. Model volumes on the following approaches were significantly lower compared with counts:

- McDowell Road westbound at Jackrabbit Trail (AM 58% and PM 47% lower)
- I-10 westbound off-ramp at Jackrabbit Trail (PM 45% lower)
- I-10 eastbound off-ramp at Jackrabbit Trail (AM 37% and PM 45% lower)
- Jackrabbit Trail northbound between I-10 ramps (AM 40% and PM 53% lower)
- Jackrabbit Trail northbound between Roosevelt Street and I-10 (AM 60% and PM 63% lower)

- Jackrabbit Trail northbound south of Roosevelt Street (AM 57% and PM 67% lower)
- Jackrabbit Trail southbound at McDowell Road (AM 47% and PM 36% lower)
- Jackrabbit Trail southbound at McDowell Road (AM 53% and PM 58% lower)

Model volumes on the following approaches were significantly higher compared with counts:

- McDowell Road eastbound at Jackrabbit Trail (AM 153% and PM 113% higher)
- Roosevelt Street westbound at Jackrabbit Trail (PM 43% higher)

After reviewing the results with MAG staff, the calibration effort was focused on the following areas:

- The I-10 westbound outer lane closure at the Jackrabbit Trail interchange happened after MAG model's base year and was still closed when counts were taken. Travel speed and capacity should be reduced to simulate the current traffic condition.
- The model significantly under-predicted traffic on Jackrabbit Trail south of I-10. An Origin-Destination Matrix Estimation (ODME) process was suggested by MAG to scale the subarea model OD matrices using observed counts as ODME constraints.

In addition, the project team conducted minor edits to the subarea network, including disconnecting Thomas Road east of Acacia way and centroid connect location adjustments.

Figure 2 shows the resulting PM peak period model volumes compared with counts after the network adjustments. One I-10 westbound lane was removed at the Jackrabbit Trail interchange and free-flow speeds on I-10 from east of the Citrus Road interchange to west of the Jackrabbit Trail interchange were reduced to 33 miles per hour (mph). In addition, free-flow speed for westbound McDowell Road was reduced to 31 mph so model volumes would more closely match the observed traffic counts. In **Figure 2**, PM approach volumes with significant differences compared with counts are highlighted in red.

Using the adjusted highway network, the project team then proceeded with the ODME process for the PM peak period only. Key roadway traffic counts used as constraints for the ODME process were the daily volumes on I-10, Jackrabbit Trail, McDowell Road, and Yuma Road. The PM OD matrices obtained from the ODME process were assigned to the PM network to obtain the PM period model segment volume and turns. Resulting PM peak period model volumes are compared with traffic counts in **Figure 3**. PM approach volumes with significant differences compared with counts are highlighted in red.

As shown in **Figure 3**, at the conclusion of the base year subarea model calibration, differences between model volumes and counts were significantly improved at the intersection approach level, but at the level of individual turn volumes, significant errors remained.

4. SUBAREA MODEL FUTURE YEAR APPLICATION

Based on MAG's request, Kimley-Horn built the future year subarea model using the subarea information provided by MAG:

- Future year 2050 windowed highway network using the subarea model boundary
- Future year 2050 subarea OD trip tables by time-of-day periods by vehicle classes (auto drive alone, auto shared ride, light truck, medium truck, and heavy truck)

The 2050 OD matrices were adjusted using the same adjustment factors developed as part of the ODME process from the base year. 2050 PM period model volumes and turns were obtained after the 2050 subarea model run. Resulting 2050 PM peak period model volumes are compared with the 2023 traffic counts in **Figure 4**. The model 2050 results show some unrealistic traffic growth in the project area due to the factoring effect of the model OD matrices.

5. SUMMARY AND CONCLUSION

Kimley-Horn built the subarea assignment models using the subarea network and OD trip tables derived from the MAG regional model. Network adjustments were made to more closely match traffic conditions on I-10 and McDowell Road. ODME process were used to adjust the base year OD matrices to increase the model assigned volume on Jackrabbit Trail south of I-10. After the calibration effort, although model-assigned volumes were significantly improved at the intersection approach level, significant errors still existed at the level of individual turning movements. Based on this finding, it was determined that turning movement volumes forecasted by the model cannot be used directly for project evaluation as they still do not appear to be reliably accurate.

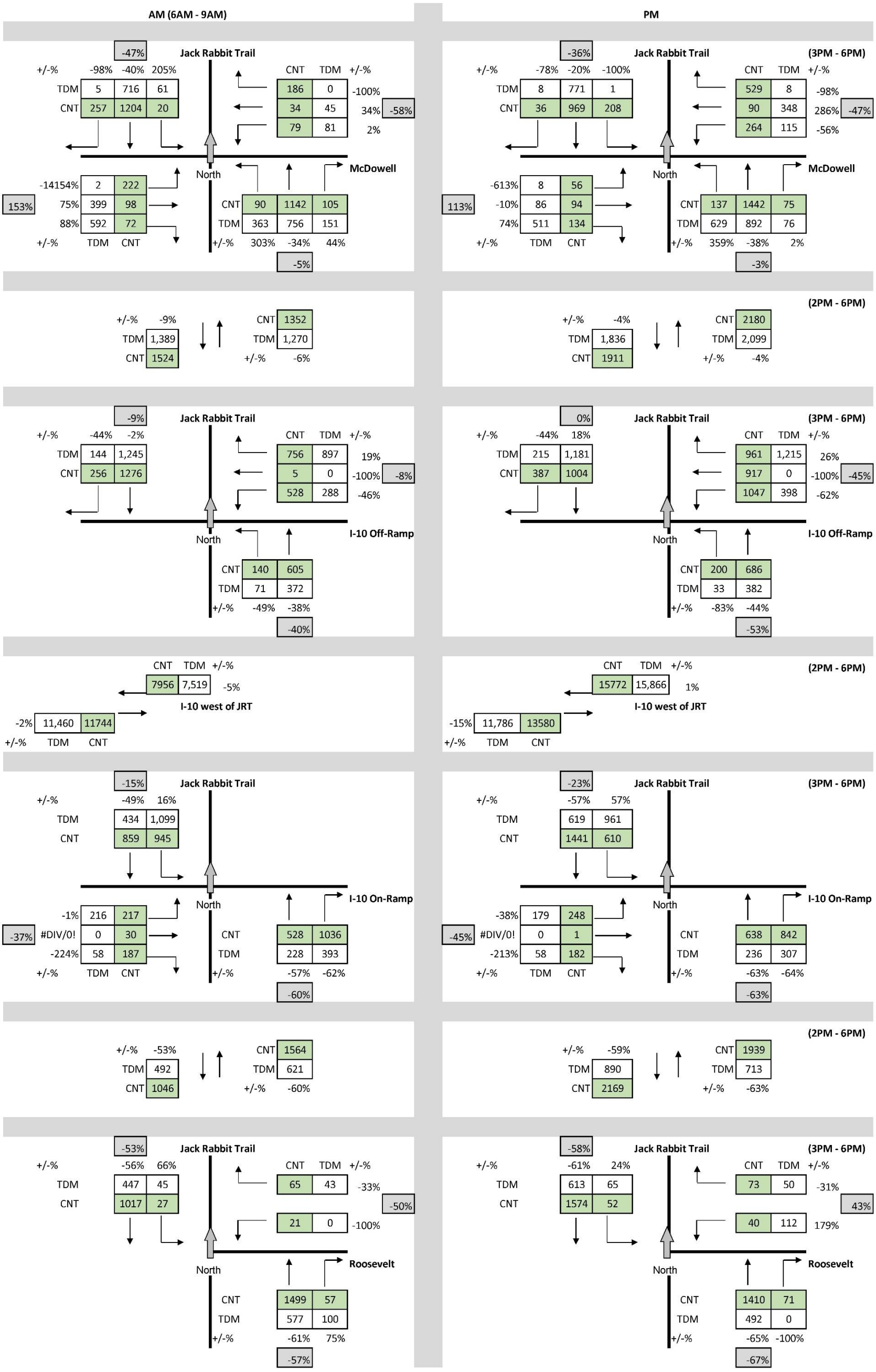

Figure 1 - AM and PM Peak Period Model Volume Compared with Traffic Counts (Using Original MAG Model Input)

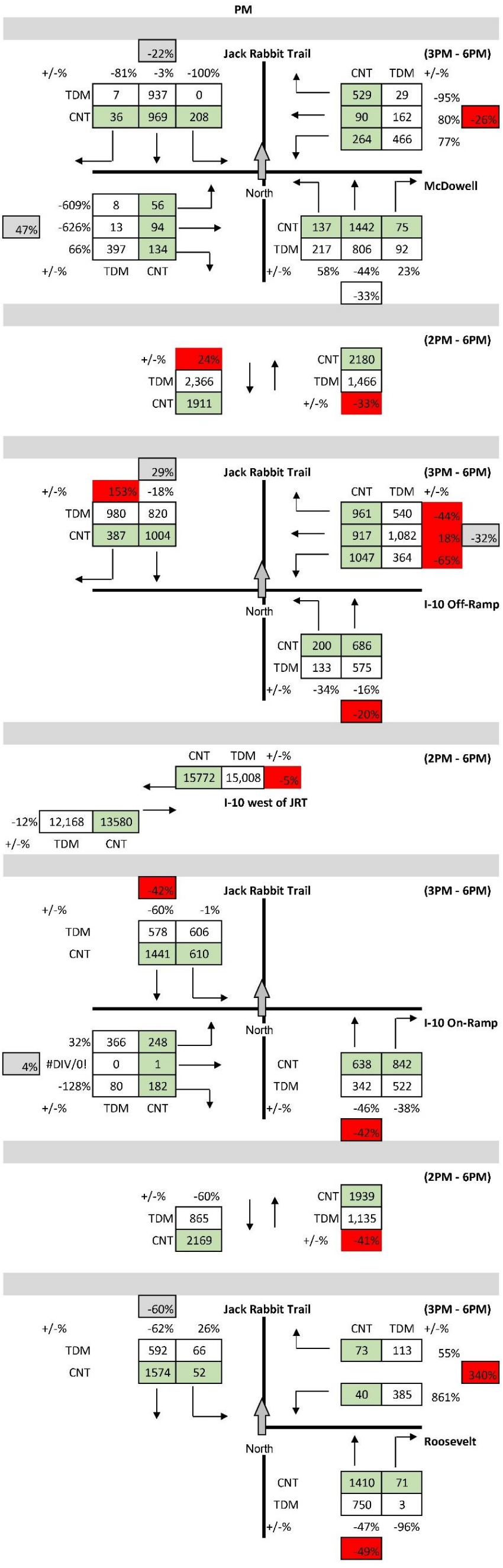

Figure 2 - PM Peak Period Model Volume Compared with Traffic Counts (Adjusted Highway Network)

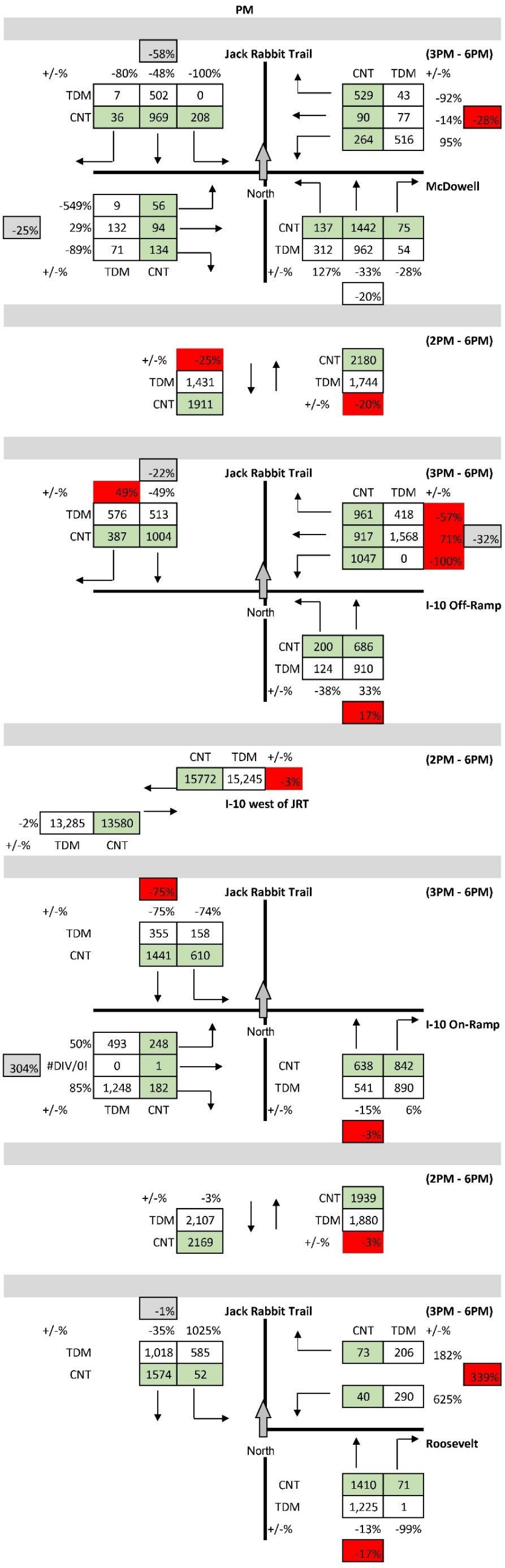

Figure 3 - PM Peak Period Model Volume Compared with Traffic Counts (Adjusted Highway Network and OD Matrices)

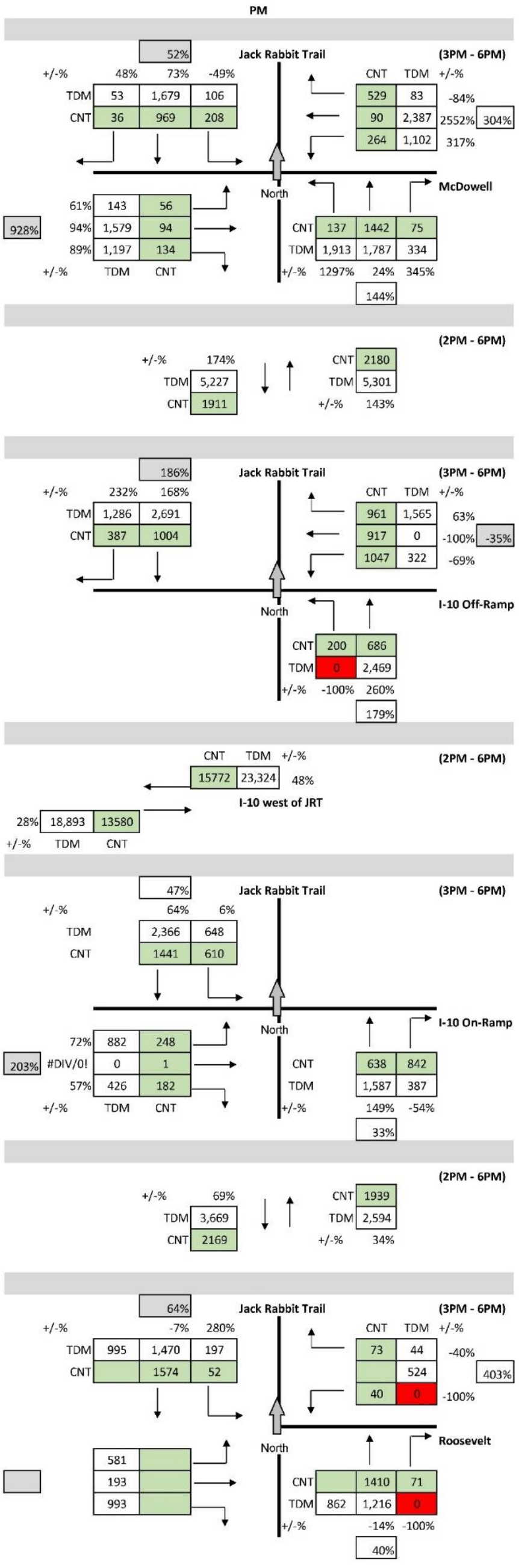

Figure 4 - 2050 PM Peak Period Model Volume Compared with 2023 Traffic Counts

Appendix 4. Collected Traffic Data

BEGIN		JACKRABBIT TRAIL Northbound				JACKRABBIT TRAIL Southbound				MCDOWELL RD Eastbound				MCDOWELL RD Westbound				ALL	60 MIN.
TIME	AM/PM	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	TOTAL	TOTAL
7:00	AM	3	39	8	50	1	80	0	81	0	3	16	19	5	1	5	11	161	869
7:15	AM	4	58	11	73	3	71	0	74	1	1	21	23	8	1	4	13	183	995
7:30	AM	10	100	7	117	1	74	1	76	2	1	16	19	4	2	6	12	224	976
7:45	AM	11	139	10	160	5	93	2	100	3	2	11	16	7	2	16	25	301	876
8:00	AM	6	97	7	110	4	118	2	124	0	3	21	24	10	1	18	29	287	707
8:15	AM	13	36	7	56	3	81	0	84	0	0	10	10	11	0	3	14	164	
8:30	AM	5	34	8	47	1	56	0	57	3	1	9	13	5	0	2	7	124	
8:45	AM	4	36	7	47	3	60	0	63	0	2	11	13	5	2	2	9	132	MAX
AM PEAK		31	394	35	460	13	356	5	374	6	7	69	82	29	6	44	79	995	995
PHF		0.7	0.71	0.8	0.72	0.65	0.75	0.63	0.75	0.5	0.58	0.82	0.85	0.73	0.75	0.61	0.68	0.83	
4:00	PM	18	66	10	94	2	70	3	75	1	0	13	14	16	2	9	27	210	850
4:15	PM	15	74	6	95	2	69	1	72	0	1	7	8	8	1	7	16	191	829
4:30	PM	15	94	14	123	4	65	0	69	2	2	11	15	15	1	2	18	225	881
4:45	PM	14	100	9	123	3	67	0	70	1	0	10	11	14	2	4	20	224	873
5:00	PM	20	76	6	102	2	56	0	58	0	1	13	14	10	2	3	15	189	883
5:15	PM	16	100	8	124	1	87	2	90	1	0	11	12	11	3	3	17	243	
5:30	PM	12	85	5	102	3	81	1	85	1	1	9	11	12	0	7	19	217	
5:45	PM	18	109	10	137	1	71	1	73	3	0	10	13	7	0	4	11	234	MAX
PM PEAK		66	370	29	465	7	295	4	306	5	2	43	50	40	5	17	62	883	883
PHF		0.83	0.85	0.73	0.85	0.58	0.85	0.5	0.85	0.42	0.5	0.83	0.89	0.83	0.42	0.61	0.82	0.91	

March 2016 count from MCDOT

BEGIN		JACKRABBIT TRAIL Northbound				JACKRABBIT TRAIL Southbound				1-10 WB ON-RAMP Eastbound				1-10 WB OFF-RAMP Westbound				ALL	60 MIN.
TIME	AM/PM	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	TOTAL	TOTAL
7:00	AM	14	24	0	38	0	95	14	109	0	0	0	0	29	1	35	65	212	1046
7:15	AM	22	35	0	57	0	94	13	107	0	0	0	0	19	1	49	69	233	1125
7:30	AM	11	75	0	86	0	88	17	105	0	0	0	0	22	1	66	89	280	1081
7:45	AM	18	81	0	99	0	85	20	105	0	0	0	0	26	1	90	117	321	947
8:00	AM	16	46	0	62	0	121	40	161	0	0	0	0	24	0	44	68	291	812
8:15	AM	12	35	0	47	0	91	11	102	0	0	0	0	16	0	24	40	189	
8:30	AM	9	23	0	32	0	52	16	68	0	0	0	0	23	0	23	46	146	
8:45	AM	18	27	0	45	0	77	13	90	0	0	0	0	21	0	30	51	186	MAX
AM PEAK		67	237	0	304	0	388	90	478	0	0	0	0	91	3	249	343	1125	1125
PHF		0.76	0.73	0	0.77	0	0.8	0.56	0.74	0	0	0	0	0.88	0.75	0.69	0.73	0.88	
4:00	PM	12	37	0	49	0	85	27	112	0	0	0	0	57	0	66	123	284	1136
4:15	PM	9	41	0	50	0	64	23	87	0	0	0	0	56	1	72	129	266	1120
4:30	PM	15	47	0	62	0	80	27	107	0	0	0	0	49	0	81	130	299	1156
4:45	PM	9	40	0	49	0	59	34	93	0	0	0	0	59	0	86	145	287	1136
5:00	PM	8	41	0	49	0	62	26	88	0	0	0	0	58	0	73	131	268	1139
5:15	PM	10	49	0	59	0	82	31	113	0	0	0	0	55	0	75	130	302	
5:30	PM	14	39	0	53	0	88	17	105	0	0	0	0	51	0	70	121	279	
5:45	PM	9	47	0	56	0	88	7	95	0	0	0	0	45	0	94	139	290	MAX
PM PEAK		42	177	0	219	0	283	118	401	0	0	0	0	221	0	315	536	1156	1156
PHF		0.7	0.9	0	0.88	0	0.86	0.87	0.89	0	0	0	0	0.94	0	0.92	0.92	0.96	

March 2016 count from MCDOT

BEGIN		JACKRABBIT TRAIL Northbound				JACKRABBIT TRAIL Southbound				1-10 EB OFF-RAMP Eastbound				1-10 EB ON-RAMP Westbound				ALL	60 MIN.
TIME	AM/PM	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	TOTAL	TOTAL
7:00	AM	0	34	66	100	67	46	0	113	12	1	5	18	0	0	0	0	231	1023
7:15	AM	0	42	74	116	80	43	0	123	12	0	7	19	0	0	0	0	258	1047
7:30	AM	0	64	57	121	74	38	0	112	15	0	11	26	0	0	0	0	259	1021
7:45	AM	0	82	52	134	61	52	0	113	18	0	10	28	0	0	0	0	275	944
8:00	AM	0	50	45	95	78	54	0	132	15	0	13	28	0	0	0	0	255	866
8:15	AM	0	29	51	80	72	43	0	115	19	0	18	37	0	0	0	0	232	
8:30	AM	0	29	59	88	42	37	0	79	7	0	8	15	0	0	0	0	182	
8:45	AM	0	32	46	78	54	42	0	96	15	0	8	23	0	0	0	0	197	MAX
AM PEAK		0	238	228	466	293	187	0	480	60	0	41	101	0	0	0	0	1047	1047
PHF		0	0.73	0.77	0.87	0.92	0.87	0	0.91	0.83	0	0.79	0.9	0	0	0	0	0.95	
4:00	PM	0	33	35	68	59	74	0	133	21	0	8	29	0	0	0	0	230	923
4:15	PM	0	33	44	77	49	80	0	129	12	0	4	16	0	0	0	0	222	928
4:30	PM	0	44	51	95	54	71	0	125	20	0	14	34	0	0	0	0	254	966
4:45	PM	0	33	38	71	50	69	0	119	18	0	9	27	0	0	0	0	217	955
5:00	PM	0	31	52	83	41	83	0	124	14	0	14	28	0	0	0	0	235	987
5:15	PM	0	31	42	73	55	84	0	139	30	0	18	48	0	0	0	0	260	
5:30	PM	0	28	40	68	61	73	0	134	26	0	15	41	0	0	0	0	243	
5:45	PM	0	38	34	72	62	73	0	135	28	0	14	42	0	0	0	0	249	MAX
PM PEAK		0	128	168	296	219	313	0	532	98	0	61	159	0	0	0	0	987	987
PHF		0	0.84	0.81	0.89	0.88	0.93	0	0.96	0.82	0	0.85	0.83	0	0	0	0	0.95	

March 2016 count from MCDOT

BEGIN		JACKRABBIT TRAIL Northbound				JACKRABBIT TRAIL Southbound				ROOSEVELT STREET Eastbound				ROOSEVELT STREET Westbound				ALL	60 MIN.
TIME	AM/PM	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	TOTAL	TOTAL
7:00	AM	0	79	4	83	1	49	0	50	0	0	0	0	5	0	6	11	144	687
7:15	AM	0	116	2	118	3	43	0	46	0	0	0	0	2	0	2	4	168	688
7:30	AM	0	122	5	127	4	44	0	48	0	0	0	0	5	0	1	6	181	666
7:45	AM	0	130	2	132	2	55	0	57	0	0	0	0	1	0	4	5	194	611
8:00	AM	0	76	2	78	4	57	0	61	0	0	0	0	0	0	6	6	145	547
8:15	AM	0	77	2	79	7	53	0	60	0	0	0	0	2	0	5	7	146	
8:30	AM	0	76	0	76	3	39	0	42	0	0	0	0	5	0	3	8	126	
8:45	AM	0	75	4	79	3	43	0	46	0	0	0	0	1	0	4	5	130	MAX
AM PEAK		0	444	11	455	13	199	0	212	0	0	0	0	8	0	13	21	688	688
PHF		0	0.85	0.55	0.86	0.81	0.87	0	0.87	0	0	0	0	0.4	0	0.54	0.88	0.89	
4:00	PM	0	60	3	63	3	81	0	84	0	0	0	0	3	0	4	7	154	668
4:15	PM	0	71	4	75	2	80	0	82	0	0	0	0	3	0	5	8	165	698
4:30	PM	0	94	3	97	9	85	0	94	0	0	0	0	5	0	2	7	198	714
4:45	PM	0	64	1	65	4	78	0	82	0	0	0	0	2	0	2	4	151	685
5:00	PM	0	77	5	82	1	93	0	94	0	0	0	0	5	0	3	8	184	693
5:15	PM	0	66	5	71	6	97	0	103	0	0	0	0	3	0	4	7	181	
5:30	PM	0	69	6	75	6	79	0	85	0	0	0	0	4	0	5	9	169	
5:45	PM	0	58	3	61	3	84	0	87	0	0	0	0	6	0	5	11	159	MAX
PM PEAK		0	301	14	315	20	353	0	373	0	0	0	0	15	0	11	26	714	714
PHF		0	0.8	0.7	0.81	0.56	0.91	0	0.91	0	0	0	0	0.75	0	0.69	0.81	0.9	

March 2016 count from MCDOT

Intersection Turning Movement

Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Miller Rd.	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM	31	0	0	0	4	2	0	0	0	66	0	2	105
6:45 AM	21	0	0	0	3	0	0	0	0	99	0	1	124
7:00 AM	35	1	0	0	0	0	0	0	0	104	1	2	143
7:15 AM	34	2	0	0	3	0	0	0	0	139	0	2	180
7:30 AM	32	4	0	0	0	1	0	0	0	100	0	5	142
7:45 AM	31	2	0	0	4	0	0	0	0	92	0	12	141
8:00 AM	29	2	0	0	3	0	0	0	0	64	0	5	103
8:15 AM	49	5	0	0	2	0	0	0	0	140	1	8	205
8:30 AM	24	3	0	0	1	0	0	0	0	79	0	4	111
8:45 AM	28	4	0	0	3	0	0	0	0	66	1	8	110
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	314	23	0	0	23	3	0	0	0	949	3	49	1364
Approach %	93.18	6.82	0.00	0.00	88.46	11.54	####	####	####	94.81	0.30	4.90	
App/Depart	337	/	72	26	/	972	0	/	0	1001	/	320	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	132	9	0	0	7	1	0	0	0	435	1	21	606
Approach %	93.62	6.38	0.00	0.00	87.50	12.50	####	####	####	95.19	0.22	4.60	
PEAK HR. FACTOR:	0.979			0.500			0.000			0.810			0.842

CONTROL: 1-Way Stop (WB)
COMMENT 1:
GPS: 33.434279, -112.590920

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Miller Rd. 0	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM	35	3	0	0	9	0	0	0	0	120	0	0	167
3:45 PM	24	3	0	0	7	0	0	0	0	143	0	1	178
4:00 PM	41	4	0	0	11	0	0	0	0	132	0	4	192
4:15 PM	32	1	0	0	9	1	0	0	0	135	2	2	182
4:30 PM	47	0	0	0	8	0	0	0	0	131	1	3	190
4:45 PM	39	0	0	0	0	0	0	0	0	142	0	2	183
5:00 PM	36	1	0	0	12	1	0	0	0	141	0	3	194
5:15 PM	35	1	0	0	4	0	0	0	0	151	2	0	193
5:30 PM	46	2	0	0	6	0	0	0	0	139	1	1	195
5:45 PM	36	1	0	0	4	0	0	0	0	151	0	1	193
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	371	16	0	0	70	2	0	0	0	1385	6	17	1867
Approach %	95.87	4.13	0.00	0.00	97.22	2.78	####	####	####	98.37	0.43	1.21	
App/Depart	387	/	33	72	/	1455	0	/	0	1408	/	379	

PM Peak Hr Begins at: 500 PM

PEAK													
Volumes	153	5	0	0	26	1	0	0	0	582	3	5	775
Approach %	96.84	3.16	0.00	0.00	96.30	3.70	####	####	####	98.64	0.51	0.85	
PEAK HR. FACTOR:	0.823			0.519			0.000			0.964			0.994

CONTROL:	1-Way Stop (WB)
COMMENT 1:	0
GPS:	33.434279, -112.590920

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Miller Rd.	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	1	1	1	0	0	1	0	0	0	0	
6:00 AM													
6:15 AM													
6:30 AM	0	35	147	4	75	0	0	0	30	0	0	0	291
6:45 AM	0	21	135	1	100	0	0	0	26	0	0	0	283
7:00 AM	0	33	143	3	105	0	0	0	35	0	0	0	319
7:15 AM	0	38	185	3	137	0	1	1	34	0	0	0	399
7:30 AM	0	34	179	0	88	0	0	1	30	0	0	0	332
7:45 AM	0	34	149	4	86	0	1	0	20	0	0	0	294
8:00 AM	0	27	117	3	73	0	0	0	20	0	0	0	240
8:15 AM	0	23	117	1	75	0	1	2	27	0	0	0	246
8:30 AM	0	24	124	1	78	0	1	1	20	0	0	0	249
8:45 AM	0	34	83	1	66	0	0	0	29	0	0	0	213
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	303	1379	21	883	0	4	5	271	0	0	0	2866
Approach %	0.00	18.01	81.99	2.32	97.68	0.00	1.43	1.79	96.79	####	####	####	
App/Depart	1682	/	307	904	/	1154	280	/	1405	0	/	0	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	0	139	656	10	416	0	2	2	119	0	0	0	1344
Approach %	0.00	17.48	82.52	2.35	97.65	0.00	1.63	1.63	96.75	####	####	####	

PEAK HR. FACTOR:	0.891	0.761	0.854	0.000	0.842

CONTROL: 1-Way Stop (EB)
COMMENT 1:
GPS: 33.432859, -112.590933

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Miller Rd. 0	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	1	1	1	0	0	1	0	0	0	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM	0	38	97	9	126	0	0	0	42	0	0	0	312
3:45 PM	0	20	102	2	149	0	2	0	25	0	0	0	300
4:00 PM	0	45	104	4	137	0	0	1	35	0	0	0	326
4:15 PM	0	31	106	5	138	0	1	0	24	0	0	0	305
4:30 PM	0	53	103	2	136	0	0	0	48	0	0	0	342
4:45 PM	0	32	89	2	143	0	1	0	39	0	0	0	306
5:00 PM	0	33	103	10	144	0	0	0	33	0	0	0	323
5:15 PM	0	33	86	3	145	0	0	3	38	0	0	0	308
5:30 PM	0	51	100	8	132	0	0	1	40	0	0	0	332
5:45 PM	0	35	108	4	160	0	0	1	40	0	0	0	348
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	371	998	49	1410	0	4	6	364	0	0	0	3202
Approach %	0.00	27.10	72.90	3.36	96.64	0.00	1.07	1.60	97.33	####	####	####	
App/Depart	1369	/	375	1459	/	1774	374	/	1053	0	/	0	

PM Peak Hr Begins at: 500 PM

PEAK													
Volumes	0	152	397	25	581	0	0	5	151	0	0	0	1311
Approach %	0.00	27.69	72.31	4.13	95.87	0.00	0.00	3.21	96.79	####	####	####	

PEAK HR. FACTOR:	0.909	0.924	0.951	0.000	0.942

CONTROL: 1-Way Stop (EB)
COMMENT 1: 0
GPS: 33.432859, -112.590933

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Watson Rd.	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-003 -- Cars

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	2	0	0	0	0	1.5	0.5	1	
6:00 AM													
6:15 AM													
6:30 AM	34	2	0	0	14	1	0	0	0	118	1	7	177
6:45 AM	25	3	0	0	28	3	0	0	0	156	1	6	222
7:00 AM	32	13	0	0	23	4	0	0	0	134	0	3	209
7:15 AM	33	17	0	0	24	3	0	0	0	138	0	10	225
7:30 AM	36	12	0	0	15	3	0	0	0	177	0	8	251
7:45 AM	13	10	0	0	31	4	0	0	0	138	1	6	203
8:00 AM	29	9	0	0	28	0	0	0	0	121	0	8	195
8:15 AM	32	12	0	0	24	2	0	0	0	130	1	3	204
8:30 AM	20	12	0	0	17	1	0	0	0	119	0	7	176
8:45 AM	30	8	0	0	16	1	0	0	0	131	1	3	190
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	284	98	0	0	220	22	0	0	0	1362	5	61	2052
Approach %	74.35	25.65	0.00	0.00	90.91	9.09	####	####	####	95.38	0.35	4.27	
App/Depart	382	/	159	242	/	1582	0	/	0	1428	/	311	

AM Peak Hr Begins at: 645 AM

PEAK													
Volumes	126	45	0	0	90	13	0	0	0	605	1	27	907
Approach %	73.68	26.32	0.00	0.00	87.38	12.62	####	####	####	95.58	0.16	4.27	
PEAK HR. FACTOR:	0.855			0.831			0.000			0.855			0.903

CONTROL:	Signal
COMMENT 1:	
GPS:	33.445456, -112.556513

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Watson Rd. 0	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-003 -- Cars

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	2	0	0	0	0	1.5	0.5	1	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM	52	11	0	0	14	2	0	0	0	305	1	5	390
3:45 PM	56	15	0	0	17	5	0	0	0	297	1	15	406
4:00 PM	58	17	0	0	18	2	0	0	0	324	0	13	432
4:15 PM	64	21	0	0	22	3	0	0	0	312	2	17	441
4:30 PM	56	24	0	0	14	2	0	0	0	347	3	10	456
4:45 PM	72	13	0	0	16	1	0	0	0	306	1	13	422
5:00 PM	67	12	0	0	24	3	0	0	0	333	0	8	447
5:15 PM	57	17	0	0	24	3	0	0	0	323	4	12	440
5:30 PM	61	16	0	0	25	2	0	0	0	324	0	12	440
5:45 PM	47	14	0	0	23	1	0	0	0	305	0	11	401
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	590	160	0	0	197	24	0	0	0	3176	12	116	4275
Approach %	78.67	21.33	0.00	0.00	89.14	10.86	####	####	####	96.13	0.36	3.51	
App/Depart	750	/	276	221	/	3373	0	/	0	3304	/	626	

PM Peak Hr Begins at: 415 PM

PEAK													
Volumes	259	70	0	0	76	9	0	0	0	1298	6	48	1766
Approach %	78.72	21.28	0.00	0.00	89.41	10.59	####	####	####	96.01	0.44	3.55	
PEAK HR. FACTOR:		0.968			0.787			0.000			0.939		0.968

CONTROL:	Signal
COMMENT 1:	0
GPS:	33.445456, -112.556513

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Watson Rd.	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	1	1	2	0	1	1	1	0	0	0	
6:00 AM													
6:15 AM													
6:30 AM	0	33	267	10	130	0	1	0	36	0	0	0	477
6:45 AM	0	28	224	19	157	0	0	0	27	0	0	0	455
7:00 AM	0	43	255	11	146	0	2	0	24	0	0	0	481
7:15 AM	0	50	303	13	155	0	2	0	33	0	0	0	556
7:30 AM	0	45	273	6	188	0	3	0	27	0	0	0	542
7:45 AM	0	23	219	9	169	0	2	0	54	0	0	0	476
8:00 AM	0	38	192	12	131	0	1	0	36	0	0	0	410
8:15 AM	0	44	204	13	153	0	1	0	35	0	0	0	450
8:30 AM	0	32	202	6	122	0	0	0	33	0	0	0	395
8:45 AM	0	38	194	8	141	0	0	0	43	0	0	0	424
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	374	2333	107	1492	0	12	0	348	0	0	0	4666
Approach %	0.00	13.82	86.18	6.69	93.31	0.00	3.33	0.00	96.67	####	####	####	
App/Depart	2707	/	386	1599	/	1840	360	/	2440	0	/	0	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	0	161	1050	39	658	0	9	0	138	0	0	0	2055
Approach %	0.00	13.29	86.71	5.60	94.40	0.00	6.12	0.00	93.88	####	####	####	

PEAK HR. FACTOR:	0.858	0.898	0.656	0.000	0.924

CONTROL: Signal
COMMENT 1:
GPS: 33.443934, -112.556477

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Watson Rd. 0	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	1	1	2	0	1	1	1	0	0	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM	0	62	176	4	340	0	0	0	50	0	0	0	632
3:45 PM	0	71	194	9	303	0	3	0	54	0	0	0	634
4:00 PM	0	67	172	8	339	0	7	0	50	0	0	0	643
4:15 PM	0	79	172	7	341	0	7	0	67	0	0	0	673
4:30 PM	0	75	221	6	354	0	3	0	51	0	0	0	710
4:45 PM	0	78	174	4	322	0	2	0	79	0	0	0	659
5:00 PM	0	79	201	6	351	0	1	0	54	0	0	0	692
5:15 PM	0	70	187	4	359	0	4	0	82	0	0	0	706
5:30 PM	0	75	214	8	338	0	3	0	71	0	0	0	709
5:45 PM	0	61	165	8	332	0	3	0	54	0	0	0	623
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	717	1876	64	3379	0	33	0	612	0	0	0	6681
Approach %	0.00	27.65	72.35	1.86	98.14	0.00	5.12	0.00	94.88	####	####	####	
App/Depart	2593	/	750	3443	/	3991	645	/	1940	0	/	0	

PM Peak Hr Begins at: 430 PM

PEAK													
Volumes	0	302	783	20	1386	0	10	0	266	0	0	0	2767
Approach %	0.00	27.83	72.17	1.42	98.58	0.00	3.62	0.00	96.38	####	####	####	

PEAK HR. FACTOR:	0.916	0.968	0.802	0.000	0.974

CONTROL:	Signal
COMMENT 1:	0
GPS:	33.443934, -112.556477

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Verrado Way	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	4	1	0	0	0	1.5	0.5	1	
6:00 AM													
6:15 AM													
6:30 AM	2	32	0	0	138	18	0	0	0	42	0	91	323
6:45 AM	0	76	0	0	157	17	0	0	0	79	0	150	479
7:00 AM	5	151	0	0	203	43	0	0	0	74	0	130	606
7:15 AM	2	120	0	0	282	55	0	0	0	75	0	106	640
7:30 AM	6	92	0	0	262	41	0	0	0	64	0	86	551
7:45 AM	3	93	0	0	177	24	0	0	0	60	0	134	491
8:00 AM	4	56	0	0	191	36	0	0	0	64	0	112	463
8:15 AM	3	61	0	0	131	37	0	0	0	38	0	86	356
8:30 AM	2	72	0	0	156	27	0	0	0	49	0	105	411
8:45 AM	8	51	0	0	166	48	0	0	0	32	0	78	383
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	35	804	0	0	1863	346	0	0	0	577	0	1078	4703
Approach %	4.17	95.83	0.00	0.00	84.34	15.66	####	####	####	34.86	0.00	65.14	
App/Depart	839	/	1882	2209	/	2440	0	/	0	1655	/	381	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	16	456	0	0	924	163	0	0	0	273	0	456	2288
Approach %	3.39	96.61	0.00	0.00	85.00	15.00	####	####	####	37.45	0.00	62.55	
PEAK HR. FACTOR:		0.756			0.806			0.000			0.893		0.894

CONTROL:	Signal
COMMENT 1:	
GPS:	33.462157, -112.504338

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Verrado Way 0	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	4	1	0	0	0	1.5	0.5	1	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM	7	98	0	0	192	37	0	0	0	157	0	146	637
3:45 PM	6	75	0	0	139	34	0	0	0	121	0	102	477
4:00 PM	6	129	0	0	216	75	0	0	0	126	1	166	719
4:15 PM	5	81	0	0	224	71	0	0	0	133	0	158	672
4:30 PM	5	71	0	0	150	44	0	0	0	163	0	166	599
4:45 PM	3	107	0	0	125	37	0	0	0	159	0	142	573
5:00 PM	1	77	0	0	150	48	0	0	0	127	1	157	561
5:15 PM	1	105	0	0	165	33	0	0	0	142	1	178	625
5:30 PM	3	80	0	0	138	49	0	0	0	162	0	166	598
5:45 PM	1	69	0	0	132	37	0	0	0	197	0	164	600
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	38	892	0	0	1631	465	0	0	0	1487	3	1545	6061
Approach %	4.09	95.91	0.00	0.00	77.81	22.19	####	####	####	49.00	0.10	50.91	
App/Depart	930	/	2437	2096	/	3118	0	/	0	3035	/	506	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	19	388	0	0	715	227	0	0	0	581	1	632	2563
Approach %	4.67	95.33	0.00	0.00	75.90	24.10	####	####	####	47.86	0.08	52.06	
PEAK HR. FACTOR:		0.754			0.798			0.000			0.922		0.891

CONTROL:	Signal
COMMENT 1:	0
GPS:	33.462157, -112.504338

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Verrado Way	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-002 -- Cars

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	3	1	2	2	0	2	0	1	0	0	0	
6:00 AM													
6:15 AM													
6:30 AM	0	17	168	124	51	0	15	1	6	0	0	0	382
6:45 AM	0	35	132	131	110	0	38	0	16	0	0	0	462
7:00 AM	0	98	133	155	136	0	63	1	11	0	0	0	597
7:15 AM	0	66	169	184	160	0	49	0	11	0	0	0	639
7:30 AM	0	55	173	201	110	0	41	0	2	0	0	0	582
7:45 AM	0	43	109	135	89	0	41	0	4	0	0	0	421
8:00 AM	0	28	91	170	91	0	28	0	2	0	0	0	410
8:15 AM	0	33	86	108	48	0	35	0	9	0	0	0	319
8:30 AM	0	34	93	129	60	0	35	0	3	0	0	0	354
8:45 AM	0	32	69	141	55	0	19	0	6	0	0	0	322
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	441	1223	1478	910	0	364	2	70	0	0	0	4488
Approach %	0.00	26.50	73.50	61.89	38.11	0.00	83.49	0.46	16.06	####	####	####	
App/Depart	1664	/	805	2388	/	980	436	/	2703	0	/	0	

AM Peak Hr Begins at: 645 AM

PEAK													
Volumes	0	254	607	671	516	0	191	1	40	0	0	0	2280
Approach %	0.00	29.50	70.50	56.53	43.47	0.00	82.33	0.43	17.24	####	####	####	
PEAK HR. FACTOR:		0.916			0.863			0.773			0.000		0.892

CONTROL:	Signal
COMMENT 1:	
GPS:	33.460536, -112.504356

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Verrado Way 0	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-002 -- Cars

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	3	1	2	2	0	2	0	1	0	0	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM	0	57	115	142	210	0	50	0	13	0	0	0	587
3:45 PM	0	77	121	100	213	0	61	0	6	0	0	0	578
4:00 PM	0	72	99	150	186	0	51	0	6	0	0	0	564
4:15 PM	0	35	73	154	217	0	50	0	3	0	0	0	532
4:30 PM	0	27	115	114	184	0	50	0	6	0	0	0	496
4:45 PM	0	46	61	92	201	0	55	0	6	0	0	0	461
5:00 PM	0	44	84	107	168	0	52	0	2	0	0	0	457
5:15 PM	0	39	98	128	182	0	43	0	10	0	0	0	500
5:30 PM	0	32	74	98	187	0	45	0	11	0	0	0	447
5:45 PM	0	28	76	97	220	0	45	0	11	0	0	0	477
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	457	916	1182	1968	0	502	0	74	0	0	0	5099
Approach %	0.00	33.28	66.72	37.52	62.48	0.00	87.15	0.00	12.85	####	####	####	
App/Depart	1373	/	959	3150	/	2042	576	/	2098	0	/	0	

PM Peak Hr Begins at: 330 PM

PEAK													
Volumes	0	241	408	546	826	0	212	0	28	0	0	0	2261
Approach %	0.00	37.13	62.87	39.80	60.20	0.00	88.33	0.00	11.67	####	####	####	

PEAK HR. FACTOR:	0.819	0.925	0.896	0.000	0.963

CONTROL: Signal
COMMENT 1: 0
GPS: 33.460536, -112.504356

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

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N-S STREET:	Jackrabbit Trail	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM	18	14	0	0	76	24	0	0	0	52	0	46	230
6:45 AM	14	14	0	0	81	19	0	0	0	71	0	39	238
7:00 AM	25	34	0	0	86	15	0	0	0	57	2	44	263
7:15 AM	18	33	0	0	84	12	0	0	0	37	1	40	225
7:30 AM	10	20	0	0	94	15	0	0	0	27	0	44	210
7:45 AM	19	37	0	0	80	17	0	0	0	40	1	45	239
8:00 AM	14	42	0	0	66	15	0	0	0	29	0	45	211
8:15 AM	13	57	0	0	70	29	0	0	0	27	0	75	271
8:30 AM	6	57	0	0	115	19	0	0	0	35	0	87	319
8:45 AM	13	29	0	0	129	21	0	0	0	23	0	31	246
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	150	337	0	0	881	186	0	0	0	398	4	496	2452
Approach %	30.80	69.20	0.00	0.00	82.57	17.43	####	####	####	44.32	0.45	55.23	
App/Depart	487	/	833	1067	/	1279	0	/	0	898	/	340	

AM Peak Hr Begins at: 800 AM

PEAK													
Volumes	46	185	0	0	380	84	0	0	0	114	0	238	1047
Approach %	19.91	80.09	0.00	0.00	81.90	18.10	####	####	####	32.39	0.00	67.61	
PEAK HR. FACTOR:		0.825			0.773			0.000			0.721		0.821

CONTROL:	1-Way Stop (WB)
COMMENT 1:	
GPS:	33.463079, -112.478824

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Jackrabbit Trail 0	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM	13	37	0	0	78	22	0	0	0	49	1	84	284
3:45 PM	15	39	0	0	84	20	0	0	0	58	2	85	303
4:00 PM	14	34	0	0	86	20	0	0	0	59	0	78	291
4:15 PM	16	37	0	0	84	20	0	0	0	70	0	77	304
4:30 PM	15	33	0	0	78	16	0	0	0	68	1	76	287
4:45 PM	9	50	0	0	66	21	0	0	0	60	0	83	289
5:00 PM	15	45	0	0	82	17	0	0	0	65	0	93	317
5:15 PM	8	48	0	0	106	25	0	0	0	66	0	79	332
5:30 PM	15	39	0	0	77	44	0	0	0	71	0	84	330
5:45 PM	12	26	0	0	81	19	0	0	0	58	1	87	284
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	132	388	0	0	822	224	0	0	0	624	5	826	3021
Approach %	25.38	74.62	0.00	0.00	78.59	21.41	####	####	####	42.89	0.34	56.77	
App/Depart	520	/	1214	1046	/	1446	0	/	0	1455	/	361	

PM Peak Hr Begins at: 445 PM

PEAK													
Volumes	47	182	0	0	331	107	0	0	0	262	0	339	1268
Approach %	20.52	79.48	0.00	0.00	75.57	24.43	####	####	####	43.59	0.00	56.41	
PEAK HR. FACTOR:		0.954			0.836			0.000			0.951		0.955

CONTROL:	1-Way Stop (WB)
COMMENT 1:	0
GPS:	33.463079, -112.478824

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Jackrabbit Trail	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	1	0	0	0	0	
6:00 AM													
6:15 AM													
6:30 AM	0	35	96	57	62	0	7	0	8	0	0	0	265
6:45 AM	0	30	90	63	95	0	6	0	9	0	0	0	293
7:00 AM	0	49	72	55	79	0	4	0	8	0	0	0	267
7:15 AM	0	54	86	66	69	0	6	0	10	0	0	0	291
7:30 AM	0	29	106	68	50	0	4	0	10	0	0	0	267
7:45 AM	0	40	86	67	55	0	13	0	10	0	0	0	271
8:00 AM	0	44	52	53	45	0	16	0	11	0	0	0	221
8:15 AM	0	55	62	54	38	0	12	0	22	0	0	0	243
8:30 AM	0	58	72	90	60	0	9	0	8	0	0	0	297
8:45 AM	0	35	52	86	59	0	8	0	12	0	0	0	252
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	429	774	659	612	0	85	0	108	0	0	0	2667
Approach %	0.00	35.66	64.34	51.85	48.15	0.00	44.04	0.00	55.96	####	####	####	
App/Depart	1203	/	514	1271	/	720	193	/	1433	0	/	0	

AM Peak Hr Begins at: 645 AM

PEAK													
Volumes	0	162	354	252	293	0	20	0	37	0	0	0	1118
Approach %	0.00	31.40	68.60	46.24	53.76	0.00	35.09	0.00	64.91	####	####	####	

PEAK HR. FACTOR:	0.921	0.862	0.891	0.000	0.954

CONTROL: 1-Way Stop (EB)
COMMENT 1:
GPS: 33.461806, -112.478816

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

N-S STREET:	Jackrabbit Trail 0	DATE:	12/12/17	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	17-1479-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	1	0	0	0	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM	0	33	46	53	75	0	21	0	18	0	0	0	246
3:45 PM	0	38	56	62	78	0	18	0	14	0	0	0	266
4:00 PM	0	28	52	58	80	0	15	0	18	0	0	0	251
4:15 PM	0	41	57	57	108	0	11	1	22	0	0	0	297
4:30 PM	0	32	69	62	78	0	18	0	19	0	0	0	278
4:45 PM	0	30	68	43	87	0	30	0	15	0	0	0	273
5:00 PM	0	38	54	54	84	0	22	0	14	0	0	0	266
5:15 PM	0	33	63	82	94	0	24	0	15	0	0	0	311
5:30 PM	0	37	44	67	85	0	16	0	17	0	0	0	266
5:45 PM	0	26	52	48	94	0	18	0	11	0	0	0	249
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	336	561	586	863	0	193	1	163	0	0	0	2703
Approach %	0.00	37.46	62.54	40.44	59.56	0.00	54.06	0.28	45.66	####	####	####	
App/Depart	897	/	529	1449	/	1026	357	/	1148	0	/	0	

PM Peak Hr Begins at: 430 PM

PEAK													
Volumes	0	133	254	241	343	0	94	0	63	0	0	0	1128
Approach %	0.00	34.37	65.63	41.27	58.73	0.00	59.87	0.00	40.13	####	####	####	

PEAK HR. FACTOR:	0.958	0.830	0.872	0.000	0.907

CONTROL: 1-Way Stop (EB)
COMMENT 1: 0
GPS: 33.461806, -112.478816

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

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N-S STREET:	Jackrabbit Trail	DATE:	06/23/21	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	WEDNESDAY	PROJECT#	21-1424-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	0	1	0	
6:00 AM	7	34	0	0	81	17	0	0	0	37	0	48	224
6:15 AM	4	29	0	0	76	11	0	0	0	25	0	39	184
6:30 AM	20	49	0	0	89	16	0	0	0	32	1	47	254
6:45 AM	12	37	0	0	101	21	0	0	0	27	0	53	251
7:00 AM	9	33	0	0	96	22	0	0	0	31	0	63	254
7:15 AM	13	44	0	0	80	17	0	0	0	35	0	53	242
7:30 AM	20	56	0	0	93	15	0	0	0	35	0	56	275
7:45 AM	13	50	0	0	88	28	0	0	0	27	0	48	254
8:00 AM	15	35	0	0	94	34	0	0	0	29	0	43	250
8:15 AM	17	33	0	0	84	22	0	0	0	30	0	58	244
8:30 AM	12	32	0	0	94	24	0	0	0	39	0	50	251
8:45 AM	9	37	0	0	107	14	0	0	0	35	0	49	251
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	151	469	0	0	1083	241	0	0	0	382	1	607	2934
Approach %	24.35	75.65	0.00	0.00	81.80	18.20	####	####	####	38.59	0.10	61.31	
App/Depart	620	/	1076	1324	/	1465	0	/	0	990	/	393	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	55	183	0	0	357	82	0	0	0	128	0	220	1025
Approach %	23.11	76.89	0.00	0.00	81.32	18.68	####	####	####	36.78	0.00	63.22	
PEAK HR. FACTOR:		0.783			0.930			0.000			0.926		0.932

CONTROL:	1-Way Stop (WB)
COMMENT 1:	
GPS:	33.463090, -112.478804

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Jackrabbit Trail 0	DATE:	06/23/21	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	WEDNESDAY	PROJECT#	21-1424-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM	10	45	0	0	104	24	0	0	0	57	0	88	328
3:45 PM	17	35	0	0	112	28	0	0	0	48	0	78	318
4:00 PM	16	44	0	0	135	32	0	0	0	52	1	86	366
4:15 PM	9	43	0	0	112	19	0	0	0	61	0	81	325
4:30 PM	15	51	0	0	123	24	0	0	0	54	0	67	334
4:45 PM	11	47	0	0	120	32	0	0	0	43	1	70	324
5:00 PM	12	38	0	0	101	25	0	0	0	77	0	82	335
5:15 PM	14	48	0	0	111	20	0	0	0	68	1	82	344
5:30 PM	11	37	0	0	83	31	0	0	0	60	2	78	302
5:45 PM	15	38	0	0	114	20	0	0	0	69	0	85	341
6:00 PM	10	43	0	0	94	19	0	0	0	73	0	69	308
6:15 PM	16	40	0	0	84	27	0	0	0	70	1	56	294
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	156	509	0	0	1293	301	0	0	0	732	6	922	3919
Approach %	23.46	76.54	0.00	0.00	81.12	18.88	####	####	####	44.10	0.36	55.54	
App/Depart	665	/	1431	1594	/	2025	0	/	0	1660	/	463	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	51	185	0	0	490	107	0	0	0	210	2	304	1349
Approach %	21.61	78.39	0.00	0.00	82.08	17.92	####	####	####	40.70	0.39	58.91	
PEAK HR. FACTOR:		0.894			0.894			0.000			0.908		0.921

CONTROL:	1-Way Stop (WB)
COMMENT 1:	0
GPS:	33.463090, -112.478804

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Jackrabbit Trail	DATE:	10/04/22	LOCATION:	Buckeye
E-W STREET:	McDowell Rd	DAY:	TUESDAY	PROJECT#	22-1537-003 -- Cars

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	0	
6:00 AM	2	65	10	1	83	0	0	5	11	6	0	7	190
6:15 AM	3	73	9	10	84	0	0	2	10	3	1	6	201
6:30 AM	3	83	19	19	89	0	0	9	11	7	1	6	247
6:45 AM	5	81	16	16	76	1	2	4	16	3	4	10	234
7:00 AM	7	89	15	29	93	1	2	8	12	7	0	5	268
7:15 AM	2	120	21	23	91	1	5	7	13	5	3	12	303
7:30 AM	5	126	14	34	110	0	2	3	14	7	6	28	349
7:45 AM	7	119	11	33	114	0	5	5	8	11	7	47	367
8:00 AM	14	86	12	29	105	2	7	2	15	9	7	21	309
8:15 AM	7	75	12	14	119	4	5	3	7	11	4	12	273
8:30 AM	10	81	11	9	107	2	2	1	12	2	1	11	249
8:45 AM	6	90	2	8	95	2	3	0	8	8	4	9	235
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	71	1088	152	225	1166	13	33	49	137	79	38	174	3225
Approach %	5.42	82.99	11.59	16.03	83.05	0.93	15.07	22.37	62.56	27.15	13.06	59.79	
App/Depart	1311	/	1295	1404	/	1382	219	/	426	291	/	122	

AM Peak Hr Begins at: 715 AM

PEAK													
Volumes	28	451	58	119	420	3	19	17	50	32	23	108	1328
Approach %	5.21	83.99	10.80	21.96	77.49	0.55	22.09	19.77	58.14	19.63	14.11	66.26	
PEAK HR. FACTOR:		0.926			0.922			0.860			0.627		0.905

CONTROL: 4-Way Stop
COMMENT 1:
GPS: 33.464710, -112.478853

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Jackrabbit Trail 0	DATE:	10/04/22	LOCATION:	Buckeye
E-W STREET:	McDowell Rd	DAY:	TUESDAY	PROJECT#	22-1537-003 -- Cars

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM	5	76	13	53	60	2	3	10	9	35	14	55	335
3:15 PM	13	64	11	70	60	3	5	18	12	40	9	45	350
3:30 PM	8	83	8	40	68	3	6	7	8	38	16	47	332
3:45 PM	2	63	5	25	64	1	5	15	4	35	9	42	270
4:00 PM	4	73	15	33	54	3	0	7	5	53	13	42	302
4:15 PM	5	71	9	30	57	4	6	5	7	41	16	50	301
4:30 PM	12	81	5	24	60	1	3	3	4	41	10	44	288
4:45 PM	11	80	7	31	62	4	1	5	8	39	10	42	300
5:00 PM	9	68	9	28	59	5	3	6	11	51	14	52	315
5:15 PM	12	67	13	25	47	3	2	8	11	54	11	43	296
5:30 PM	13	75	10	20	59	2	0	5	8	50	7	48	297
5:45 PM	6	66	7	22	59	1	3	4	7	49	13	36	273
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	100	867	112	401	709	32	37	93	94	526	142	546	3659
Approach %	9.27	80.35	10.38	35.11	62.08	2.80	16.52	41.52	41.96	43.33	11.70	44.98	
App/Depart	1079	/	1450	1142	/	1329	224	/	606	1214	/	274	

PM Peak Hr Begins at: 300 PM

PEAK													
Volumes	28	286	37	188	252	9	19	50	33	148	48	189	1287
Approach %	7.98	81.48	10.54	41.87	56.12	2.00	18.63	49.02	32.35	38.44	12.47	49.09	
PEAK HR. FACTOR:		0.886			0.844			0.729			0.925		0.919

CONTROL:	4-Way Stop
COMMENT 1:	0
GPS:	33.464710, -112.478853

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracity traffic gro

N-S STREET:	Jackrabbit Trail	DATE:	10/04/22	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	22-1537-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	1	0.5	0.5	
6:00 AM	9	38	0	0	92	20	0	0	0	33	2	51	245
6:15 AM	8	36	0	0	76	20	0	0	0	36	0	55	231
6:30 AM	11	41	0	0	103	20	0	0	0	46	1	39	261
6:45 AM	15	49	0	0	70	19	0	0	0	40	1	59	253
7:00 AM	13	47	0	0	102	29	0	0	0	54	0	44	289
7:15 AM	22	57	0	0	86	22	0	0	0	36	2	54	279
7:30 AM	10	82	0	0	104	31	0	0	0	41	0	66	334
7:45 AM	8	78	0	0	107	27	0	0	0	37	3	68	328
8:00 AM	9	71	0	0	113	15	0	0	0	37	0	72	317
8:15 AM	12	44	0	0	117	23	0	0	0	46	1	46	289
8:30 AM	11	54	0	0	87	22	0	0	0	32	0	52	258
8:45 AM	13	55	0	0	95	23	0	0	0	40	2	48	276
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	141	652	0	0	1152	271	0	0	0	478	12	654	3360
Approach %	17.78	82.22	0.00	0.00	80.96	19.04	####	####	####	41.78	1.05	57.17	
App/Depart	793	/	1306	1423	/	1630	0	/	0	1144	/	424	

AM Peak Hr Begins at: 730 AM

PEAK													
Volumes	39	275	0	0	441	96	0	0	0	161	4	252	1268
Approach %	12.42	87.58	0.00	0.00	82.12	17.88	####	####	####	38.61	0.96	60.43	
PEAK HR. FACTOR:		0.853			0.959			0.000			0.956		0.949

CONTROL:	1-Way Stop (WB)
COMMENT 1:	
GPS:	33.463078, -112.478830

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

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N-S STREET:	Jackrabbit Trail 0	DATE:	10/04/22	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	TUESDAY	PROJECT#	22-1537-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	1	0.5	0.5	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM	33	66	0	0	64	46	0	0	0	57	113	36	415
3:15 PM	55	48	0	0	72	35	0	0	0	51	121	36	418
3:30 PM	30	59	0	0	71	44	0	0	0	57	125	35	421
3:45 PM	34	57	0	0	62	50	0	0	0	51	126	16	396
4:00 PM	58	61	0	0	65	43	0	0	0	50	120	34	431
4:15 PM	43	55	0	0	59	62	0	0	0	65	123	39	446
4:30 PM	47	64	0	0	62	45	0	0	0	55	127	29	429
4:45 PM	42	74	0	0	52	57	0	0	0	44	118	30	417
5:00 PM	28	62	0	0	62	56	0	0	0	55	120	36	419
5:15 PM	44	58	0	0	66	57	0	0	0	66	120	36	447
5:30 PM	33	66	0	0	52	68	0	0	0	33	127	21	400
5:45 PM	27	59	0	0	68	50	0	0	0	61	115	35	415
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	474	729	0	0	755	613	0	0	0	645	1455	383	5054
Approach %	39.40	60.60	0.00	0.00	55.19	44.81	####	####	####	25.98	58.60	15.42	
App/Depart	1203	/	1112	1368	/	1400	0	/	0	2483	/	2542	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	190	254	0	0	238	207	0	0	0	214	488	132	1723
Approach %	42.79	57.21	0.00	0.00	53.48	46.52	####	####	####	25.66	58.51	15.83	
PEAK HR. FACTOR:		0.933			0.919			0.000			0.919		0.966

CONTROL:	1-Way Stop (WB)
COMMENT 1:	0
GPS:	33.463078, -112.478830

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

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N-S STREET:	Jackrabbit Trail	DATE:	10/04/22	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	22-1537-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	1	0	0	0	0	
6:00 AM	0	30	99	74	51	0	17	0	9	0	0	0	280
6:15 AM	0	27	92	63	49	0	17	0	9	0	0	0	257
6:30 AM	0	36	108	75	74	0	16	1	9	0	0	0	319
6:45 AM	0	48	103	62	48	0	16	0	14	0	0	0	291
7:00 AM	0	42	88	67	89	0	18	0	12	0	0	0	316
7:15 AM	0	61	72	51	71	0	18	0	8	0	0	0	281
7:30 AM	0	50	84	76	69	0	42	0	27	0	0	0	348
7:45 AM	0	50	69	78	66	0	36	1	13	0	0	0	313
8:00 AM	0	56	73	75	75	0	24	0	12	0	0	0	315
8:15 AM	0	35	82	81	82	0	21	0	12	0	0	0	313
8:30 AM	0	46	79	53	66	0	19	0	12	0	0	0	275
8:45 AM	0	46	67	79	56	0	22	1	12	0	0	0	283
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	527	1016	834	796	0	266	3	149	0	0	0	3591
Approach %	0.00	34.15	65.85	51.17	48.83	0.00	63.64	0.72	35.65	####	####	####	
App/Depart	1543	/	793	1630	/	945	418	/	1853	0	/	0	

AM Peak Hr Begins at: 730 AM

PEAK													
Volumes	0	191	308	310	292	0	123	1	64	0	0	0	1289
Approach %	0.00	38.28	61.72	51.50	48.50	0.00	65.43	0.53	34.04	####	####	####	

PEAK HR. FACTOR:	0.931	0.923	0.681	0.000	0.926

CONTROL: 1-Way Stop (EB)
COMMENT 1:
GPS: 33.461784, -112.478833

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

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N-S STREET:	Jackrabbit Trail 0	DATE:	10/04/22	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	TUESDAY	PROJECT#	22-1537-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	1	0	0	0	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM	0	78	67	28	93	0	21	0	20	0	0	0	307
3:15 PM	0	86	67	39	84	0	17	1	19	0	0	0	313
3:30 PM	0	54	59	23	105	0	35	0	14	0	0	0	290
3:45 PM	0	69	58	26	87	0	22	0	17	0	0	0	279
4:00 PM	0	95	75	21	94	0	24	1	16	0	0	0	326
4:15 PM	0	74	76	23	101	0	24	0	17	0	0	0	315
4:30 PM	0	81	71	32	85	0	30	0	17	0	0	0	316
4:45 PM	0	87	62	20	76	0	29	0	21	0	0	0	295
5:00 PM	0	64	79	32	85	0	26	1	8	0	0	0	295
5:15 PM	0	76	80	31	101	0	26	2	12	0	0	0	328
5:30 PM	0	72	62	20	65	0	27	0	8	0	0	0	254
5:45 PM	0	65	56	33	96	0	21	0	12	0	0	0	283
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	901	812	328	1072	0	302	5	181	0	0	0	3601
Approach %	0.00	52.60	47.40	23.43	76.57	0.00	61.89	1.02	37.09	####	####	####	
App/Depart	1713	/	1203	1400	/	1253	488	/	1145	0	/	0	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	0	337	284	96	356	0	107	1	71	0	0	0	1252
Approach %	0.00	54.27	45.73	21.24	78.76	0.00	59.78	0.56	39.66	####	####	####	
PEAK HR. FACTOR:		0.913			0.911			0.895			0.000		0.960

CONTROL:	1-Way Stop (EB)
COMMENT 1:	0
GPS:	33.461784, -112.478833

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

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N-S STREET:	Jackrabbit Trail	DATE:	05/10/23	LOCATION:	Buckeye
E-W STREET:	McDowell Rd	DAY:	WEDNESDAY	PROJECT#	23-1271-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	ALL VEHICLES												
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	0	
6:00 AM	6	88	5	2	88	0	0	2	17	4	0	7	219
6:15 AM	4	62	3	7	89	1	0	2	23	5	1	3	200
6:30 AM	11	87	10	13	108	0	0	8	21	3	1	2	264
6:45 AM	9	95	15	10	92	1	2	14	24	3	3	2	270
7:00 AM	7	83	6	28	109	0	4	20	18	5	3	5	288
7:15 AM	7	101	17	33	103	0	12	10	19	10	2	5	319
7:30 AM	10	102	13	39	111	3	8	12	20	7	3	23	351
7:45 AM	3	121	9	45	107	6	14	10	18	7	1	51	392
8:00 AM	11	122	7	28	95	3	18	10	14	11	6	51	376
8:15 AM	7	105	5	24	104	4	4	0	16	8	9	17	303
8:30 AM	5	92	5	17	103	1	6	2	22	8	2	8	271
8:45 AM	10	84	10	11	95	1	4	8	10	8	3	12	256
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	90	1142	105	257	1204	20	72	98	222	79	34	186	3509
Approach %	6.73	85.42	7.85	17.35	81.30	1.35	18.37	25.00	56.63	26.42	11.37	62.21	
App/Depart	1337	/	1400	1481	/	1505	392	/	460	299	/	144	

AM Peak Hr Begins at: 715 AM

PEAK													
Volumes	31	446	46	145	416	12	52	42	71	35	12	130	1438
Approach %	5.93	85.28	8.80	25.31	72.60	2.09	31.52	25.45	43.03	19.77	6.78	73.45	
PEAK HR. FACTOR:		0.934			0.907			0.982			0.651		0.917

CONTROL: 4-Way Stop
COMMENT 1: 0
GPS: 33.464708, -112.478832

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON				
PM	400	PM	600	PM

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

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N-S STREET:	Jackrabbit Trail 0	DATE:	05/10/23	LOCATION:	Buckeye
E-W STREET:	McDowell Rd	DAY:	WEDNESDAY	PROJECT#	23-1271-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	ALL VEHICLES												
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM	7	123	8	14	87	4	2	6	13	19	9	36	328
3:15 PM	9	120	7	25	88	0	2	10	13	24	6	42	346
3:30 PM	12	119	14	15	89	3	6	14	12	21	5	43	353
3:45 PM	9	104	4	33	84	1	6	12	13	18	7	53	344
4:00 PM	4	123	2	15	64	6	2	6	7	25	8	49	311
4:15 PM	17	102	8	16	87	2	4	12	7	22	6	48	331
4:30 PM	16	129	6	26	82	2	6	14	13	25	4	32	355
4:45 PM	15	124	2	12	67	2	4	2	15	23	4	46	316
5:00 PM	10	119	6	13	81	3	6	4	8	18	6	37	311
5:15 PM	11	125	5	13	74	5	6	2	14	28	9	45	337
5:30 PM	12	135	6	15	87	4	6	8	6	21	7	54	361
5:45 PM	15	119	7	11	79	4	6	4	13	20	19	44	341
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	137	1442	75	208	969	36	56	94	134	264	90	529	4034
Approach %	8.28	87.18	4.53	17.15	79.88	2.97	19.72	33.10	47.18	29.90	10.19	59.91	
App/Depart	1654	/	2027	1213	/	1367	284	/	377	883	/	263	

PM Peak Hr Begins at: 300 PM

PEAK													
Volumes	37	466	33	87	348	8	16	42	51	82	27	174	1371
Approach %	6.90	86.94	6.16	19.64	78.56	1.81	14.68	38.53	46.79	28.98	9.54	61.48	
PEAK HR. FACTOR:		0.924			0.939			0.852			0.907		0.971

CONTROL: 4-Way Stop
COMMENT 1: 0
GPS: 33.464708, -112.478832

HOURS:

	FROM:		TO:	
AM	600	AM	900	AM
NOON	0	0	0	0
PM	300	PM	600	PM

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

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N-S STREET:	Jackrabbit Trail	DATE:	05/10/23	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	WEDNESDAY	PROJECT#	23-1271-002

ALL VEHICLES

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	1	0.5	0.5	
6:00 AM	5	26	0	0	101	17	0	0	0	28	1	70	248
6:15 AM	6	45	0	0	92	19	0	0	0	32	0	44	238
6:30 AM	8	38	0	0	124	15	0	0	0	44	0	65	294
6:45 AM	14	48	0	0	94	23	0	0	0	65	1	67	312
7:00 AM	19	48	0	0	104	31	0	0	0	68	0	47	317
7:15 AM	8	65	0	0	102	28	0	0	0	49	2	64	318
7:30 AM	10	77	0	0	110	22	0	0	0	46	0	75	340
7:45 AM	22	63	0	0	123	21	0	0	0	42	1	63	335
8:00 AM	9	63	0	0	105	15	0	0	0	38	0	69	299
8:15 AM	15	42	0	0	112	19	0	0	0	41	0	73	302
8:30 AM	7	52	0	0	105	23	0	0	0	37	0	57	281
8:45 AM	17	38	0	0	104	23	0	0	0	38	0	62	282
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	140	605	0	0	1276	256	0	0	0	528	5	756	3566
Approach %	18.79	81.21	0.00	0.00	83.29	16.71	####	####	####	40.96	0.39	58.65	
App/Depart	745	/	1361	1532	/	1804	0	/	0	1289	/	401	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	59	253	0	0	439	102	0	0	0	205	3	249	1310
Approach %	18.91	81.09	0.00	0.00	81.15	18.85	####	####	####	44.86	0.66	54.49	
PEAK HR. FACTOR:		0.897			0.939			0.000			0.944		0.963

CONTROL: 1-Way Stop (WB)
COMMENT 1: 0
GPS: 33.463076, -112.478840

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON				
PM	400	PM	600	PM

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

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N-S STREET:	Jackrabbit Trail 0	DATE:	05/10/23	LOCATION:	Buckeye
E-W STREET:	I-10 WB Ramps	DAY:	WEDNESDAY	PROJECT#	23-1271-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	ALL VEHICLES												
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	0	0	0	1	0.5	0.5	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM	14	52	0	0	91	23	0	0	0	111	51	92	434
3:15 PM	16	52	0	0	89	34	0	0	0	99	65	84	439
3:30 PM	12	63	0	0	85	34	0	0	0	90	73	78	435
3:45 PM	23	54	0	0	80	42	0	0	0	97	77	62	435
4:00 PM	18	51	0	0	74	30	0	0	0	98	92	76	439
4:15 PM	21	54	0	0	90	28	0	0	0	96	71	85	445
4:30 PM	16	55	0	0	88	37	0	0	0	78	74	104	452
4:45 PM	14	49	0	0	78	34	0	0	0	75	82	89	421
5:00 PM	20	65	0	0	79	29	0	0	0	79	65	72	409
5:15 PM	15	57	0	0	82	34	0	0	0	79	86	84	437
5:30 PM	13	59	0	0	92	31	0	0	0	84	96	71	446
5:45 PM	18	75	0	0	76	31	0	0	0	61	85	64	410
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	200	686	0	0	1004	387	0	0	0	1047	917	961	5202
Approach %	22.57	77.43	0.00	0.00	72.18	27.82	####	####	####	35.79	31.35	32.85	
App/Depart	886	/	1647	1391	/	2051	0	/	0	2925	/	1504	

PM Peak Hr Begins at: 345 PM

PEAK													
Volumes	78	214	0	0	332	137	0	0	0	369	314	327	1771
Approach %	26.71	73.29	0.00	0.00	70.79	29.21	####	####	####	36.53	31.09	32.38	
PEAK HR. FACTOR:	0.948			0.938			0.000			0.949			0.980

CONTROL: 1-Way Stop (WB)
COMMENT 1: 0
GPS: 33.463076, -112.478840

HOURS:

	FROM:		TO:	
AM	600	AM	900	AM
NOON	0	0	0	0
PM	300	PM	600	PM

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N-S STREET:	Jackrabbit Trail	DATE:	05/10/23	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	WEDNESDAY	PROJECT#	23-1271-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	ALL VEHICLES												
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	1	0	0	0	0	
6:00 AM	0	20	99	85	44	0	11	1	10	0	0	0	270
6:15 AM	0	36	112	79	45	0	15	0	8	0	0	0	295
6:30 AM	0	29	110	94	74	0	17	2	10	0	0	0	336
6:45 AM	0	43	100	69	90	0	19	2	14	0	0	0	337
7:00 AM	0	46	94	72	100	0	21	2	20	0	0	0	355
7:15 AM	0	51	99	65	86	0	22	6	23	0	0	0	352
7:30 AM	0	61	74	86	70	0	26	10	28	0	0	0	355
7:45 AM	0	66	58	88	77	0	19	5	28	0	0	0	341
8:00 AM	0	52	66	78	65	0	20	1	14	0	0	0	296
8:15 AM	0	44	70	80	73	0	13	1	9	0	0	0	290
8:30 AM	0	39	84	78	64	0	20	0	13	0	0	0	298
8:45 AM	0	41	70	71	71	0	14	0	10	0	0	0	277
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	528	1036	945	859	0	217	30	187	0	0	0	3802
Approach %	0.00	33.76	66.24	52.38	47.62	0.00	50.00	6.91	43.09	####	####	####	
App/Depart	1564	/	745	1804	/	1046	434	/	2011	0	/	0	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	0	224	325	311	333	0	88	23	99	0	0	0	1403
Approach %	0.00	40.80	59.20	48.29	51.71	0.00	41.90	10.95	47.14	####	####	####	
PEAK HR. FACTOR:		0.915			0.936			0.820			0.000		0.988

CONTROL: 1-Way Stop (EB)
COMMENT 1: 0
GPS: 33.461796, -112.478837

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON				
PM	400	PM	600	PM

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N-S STREET:	Jackrabbit Trail 0	DATE:	05/10/23	LOCATION:	Buckeye
E-W STREET:	I-10 EB Ramps	DAY:	WEDNESDAY	PROJECT#	23-1271-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	ALL VEHICLES												
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	1	0	0	0	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM	0	41	65	65	137	0	25	0	9	0	0	0	342
3:15 PM	0	48	68	54	134	0	20	0	17	0	0	0	341
3:30 PM	0	55	75	55	120	0	20	0	20	0	0	0	345
3:45 PM	0	57	85	37	140	0	20	0	17	0	0	0	356
4:00 PM	0	49	74	36	136	0	20	0	19	0	0	0	334
4:15 PM	0	51	80	58	128	0	24	0	18	0	0	0	359
4:30 PM	0	59	65	52	114	0	12	1	12	0	0	0	315
4:45 PM	0	44	70	53	100	0	19	0	14	0	0	0	300
5:00 PM	0	62	66	44	114	0	23	0	11	0	0	0	320
5:15 PM	0	45	67	47	114	0	27	0	14	0	0	0	314
5:30 PM	0	54	65	70	106	0	18	0	16	0	0	0	329
5:45 PM	0	73	62	39	98	0	20	0	15	0	0	0	307
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	638	842	610	1441	0	248	1	182	0	0	0	3962
Approach %	0.00	43.11	56.89	29.74	70.26	0.00	57.54	0.23	42.23	####	####	####	
App/Depart	1480	/	886	2051	/	1623	431	/	1453	0	/	0	

PM Peak Hr Begins at: 330 PM

PEAK													
Volumes	0	212	314	186	524	0	84	0	74	0	0	0	1394
Approach %	0.00	40.30	59.70	26.20	73.80	0.00	53.16	0.00	46.84	####	####	####	
PEAK HR. FACTOR:		0.926			0.954			0.940			0.000		0.971

CONTROL: 1-Way Stop (EB)
COMMENT 1: 0
GPS: 33.461796, -112.478837

HOURS:

	FROM:		TO:	
AM	600	AM	900	AM
NOON	0	0	0	0
PM	300	PM	600	PM

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N-S STREET:	Jackrabbit Trail	DATE:	05/10/23	LOCATION:	Buckeye
E-W STREET:	Roosevelt St	DAY:	WEDNESDAY	PROJECT#	23-1271-004

ALL VEHICLES

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	
6:00 AM	0	114	1	0	53	0	0	0	0	2	0	4	174
6:15 AM	0	137	1	2	52	0	0	0	0	2	0	10	204
6:30 AM	0	137	1	1	83	0	0	0	0	1	0	2	225
6:45 AM	0	138	3	4	100	0	0	0	0	1	0	5	251
7:00 AM	0	136	2	2	117	0	0	0	0	2	0	5	264
7:15 AM	0	140	5	2	107	0	0	0	0	7	0	10	271
7:30 AM	0	131	8	3	95	0	0	0	0	0	0	4	241
7:45 AM	0	121	10	4	100	0	0	0	0	1	0	4	240
8:00 AM	0	113	14	3	76	0	0	0	0	1	0	5	212
8:15 AM	0	106	2	1	81	0	0	0	0	1	0	8	199
8:30 AM	0	119	4	2	75	0	0	0	0	1	0	4	205
8:45 AM	0	107	6	3	78	0	0	0	0	2	0	4	200
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	1499	57	27	1017	0	0	0	0	21	0	65	2686
Approach %	0.00	96.34	3.66	2.59	97.41	0.00	####	####	####	24.42	0.00	75.58	
App/Depart	1556	/	1564	1044	/	1038	0	/	84	86	/	0	

AM Peak Hr Begins at: 645 AM

PEAK													
Volumes	0	545	18	11	419	0	0	0	0	10	0	24	1027
Approach %	0.00	96.80	3.20	2.56	97.44	0.00	####	####	####	29.41	0.00	70.59	
PEAK HR. FACTOR:		0.971			0.903			0.000			0.500		0.947

CONTROL: 1-Way Stop (WB)
COMMENT 1: 0
GPS: 33.457471, -112.478852

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON				
PM	400	PM	600	PM

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N-S STREET:	Jackrabbit Trail 0	DATE:	05/10/23	LOCATION:	Buckeye
E-W STREET:	Roosevelt St	DAY:	WEDNESDAY	PROJECT#	23-1271-004

ALL VEHICLES

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM	0	99	5	0	146	0	0	0	0	5	0	8	263
3:15 PM	0	110	2	4	149	0	0	0	0	4	0	6	275
3:30 PM	0	126	6	1	139	0	0	0	0	5	0	4	281
3:45 PM	0	138	17	6	151	0	0	0	0	3	0	3	318
4:00 PM	0	119	8	5	150	0	0	0	0	3	0	4	289
4:15 PM	0	125	9	2	143	0	0	0	0	1	0	7	287
4:30 PM	0	118	2	7	119	0	0	0	0	4	0	6	256
4:45 PM	0	108	6	5	109	0	0	0	0	2	0	8	238
5:00 PM	0	121	5	4	123	0	0	0	0	3	0	7	263
5:15 PM	0	108	0	6	122	0	0	0	0	3	0	4	243
5:30 PM	0	111	8	4	118	0	0	0	0	4	0	8	253
5:45 PM	0	127	3	8	105	0	0	0	0	3	0	8	254
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	1410	71	52	1574	0	0	0	0	40	0	73	3220
Approach %	0.00	95.21	4.79	3.20	96.80	0.00	####	####	####	35.40	0.00	64.60	
App/Depart	1481	/	1483	1626	/	1614	0	/	123	113	/	0	

PM Peak Hr Begins at: 330 PM

PEAK													
Volumes	0	508	40	14	583	0	0	0	0	12	0	18	1175
Approach %	0.00	92.70	7.30	2.35	97.65	0.00	####	####	####	40.00	0.00	60.00	
PEAK HR. FACTOR:		0.884			0.951			0.000			0.833		0.924

CONTROL: 1-Way Stop (WB)
COMMENT 1: 0
GPS: 33.457471, -112.478852

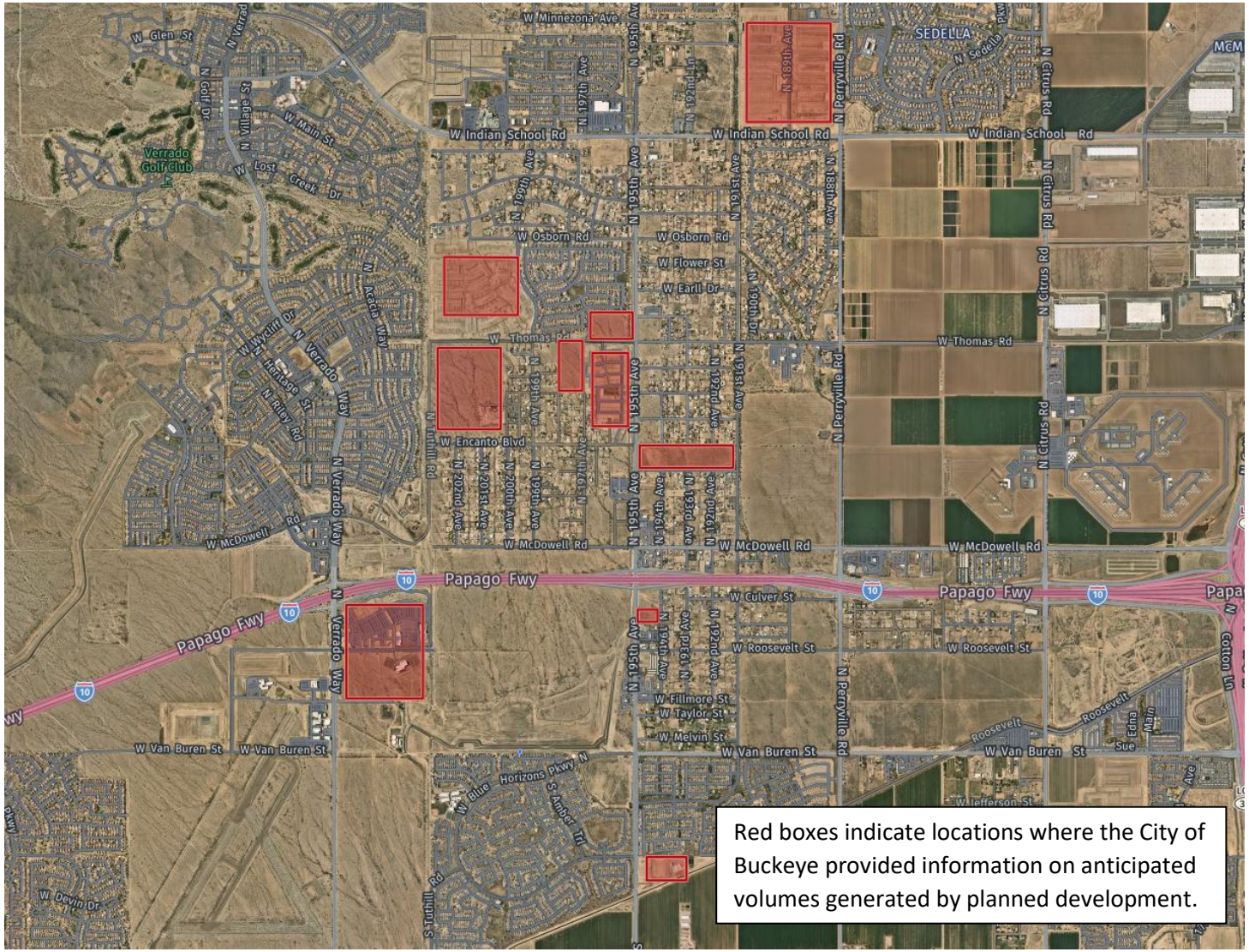
HOURS:

	FROM:		TO:	
AM	600	AM	900	AM
NOON	0	0	0	0
PM	300	PM	600	PM

Appendix 5. Jackrabbit Trail Corridor Development Projects Volume

Jackrabbit Trail Corridor Projects

Planned Developments Map



Encanto 38 –

Planning to open in 2023/24. Built out by 2024.

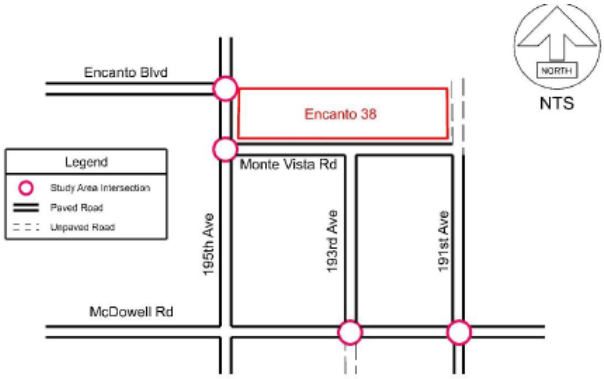


Figure 1: Vicinity Map

- Southbound: 80% and Northbound: 20%

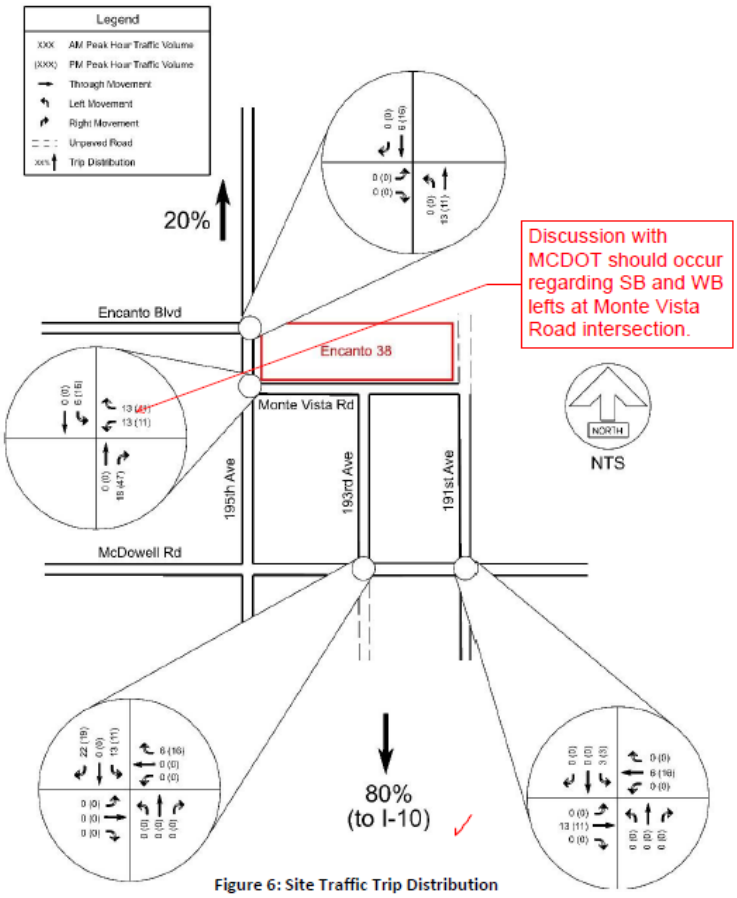


Figure 6: Site Traffic Trip Distribution

Arroyo Verde –

Planning to open in 2023/24. Built out by 2025

The traffic down 202nd Avenue will use McDowell Road to Jackrabbit Trail.

Figure 2: Project Site Aerial (2021)

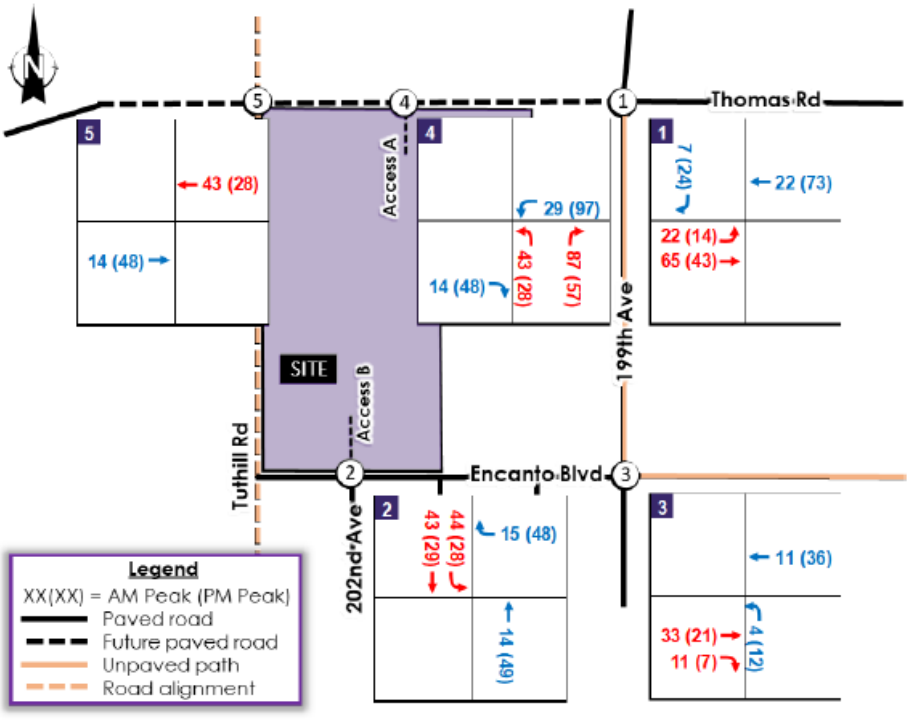


Figure 7: Site Volumes

Arroyo Seco South –

Under construction. Built out by end of 2024.

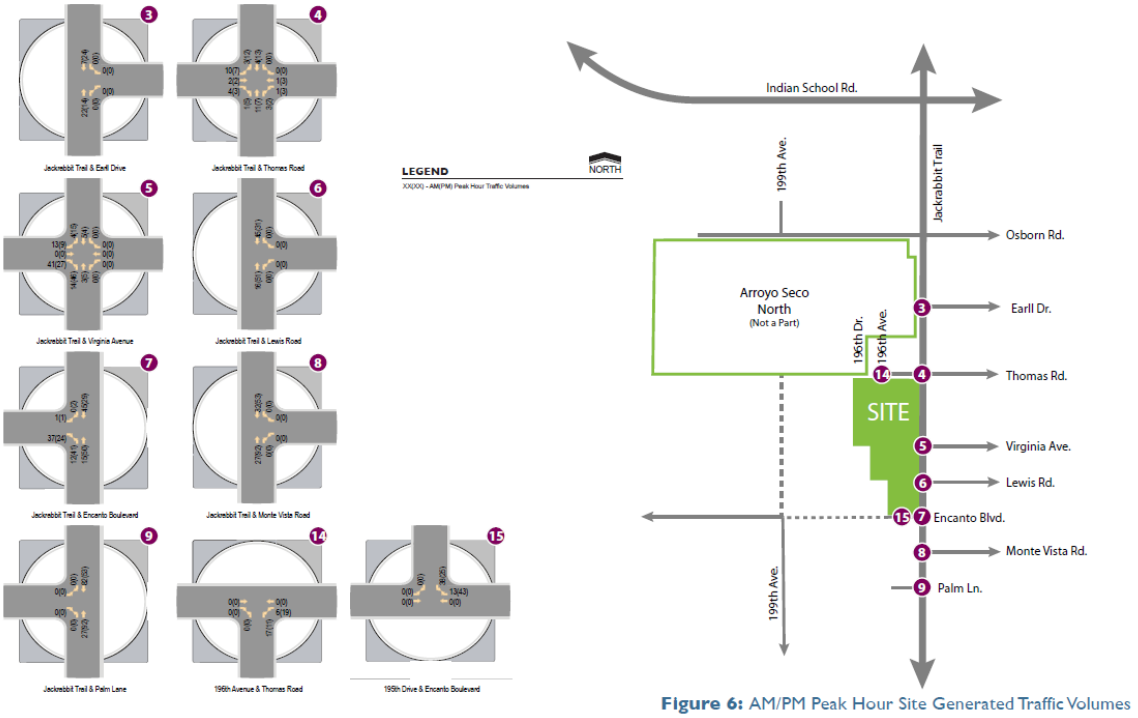


Figure 6: AM/PM Peak Hour Site Generated Traffic Volumes

Arroyo Seco North –

50% has been completed. Completed by end of 2024.

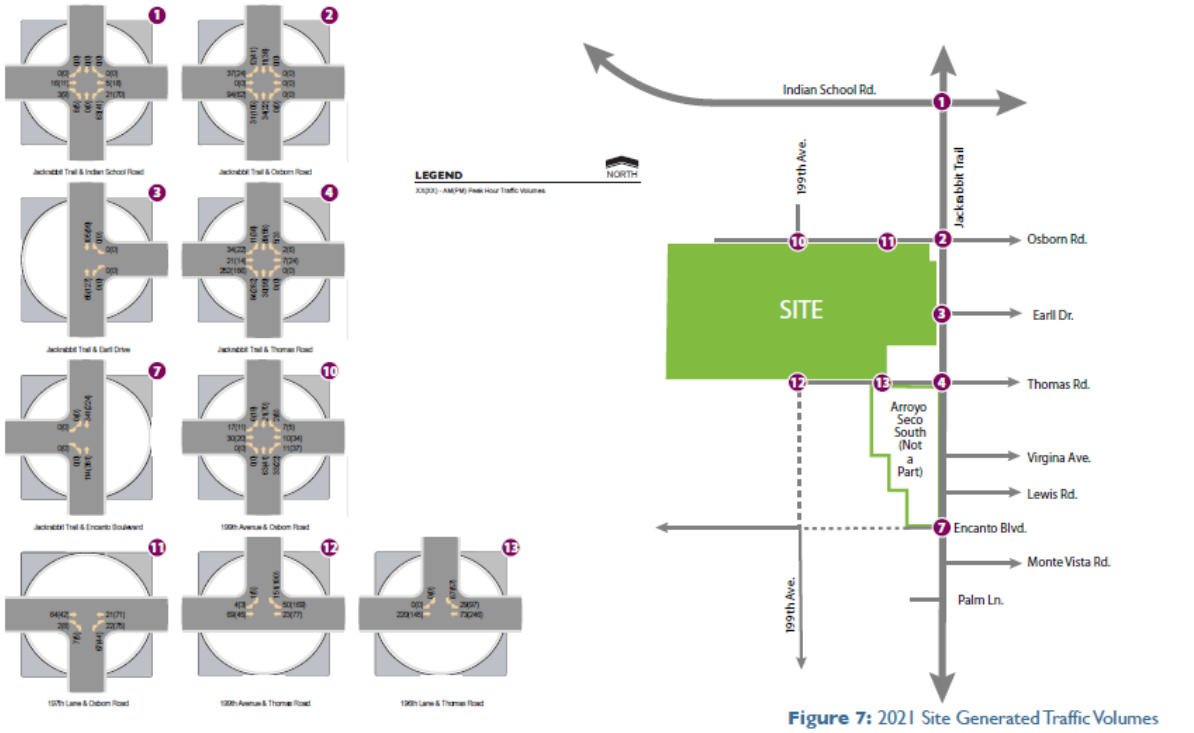
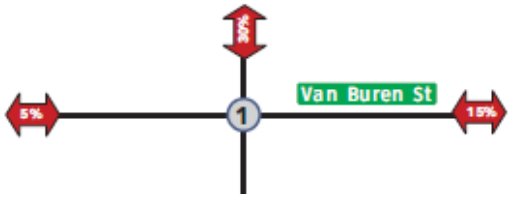


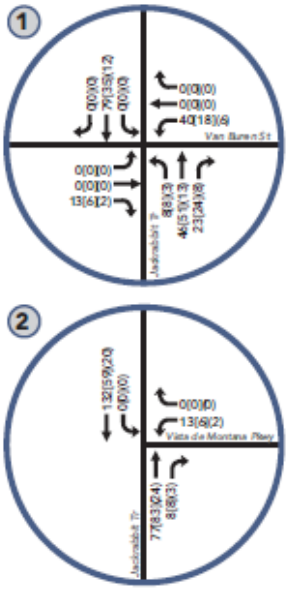
Figure 7: 2021 Site Generated Traffic Volumes

Great Hearts Charter School –

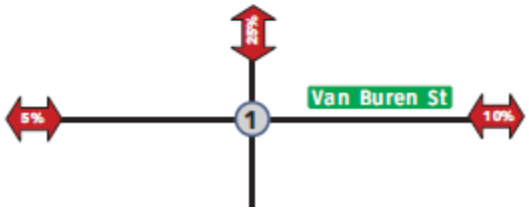
~750 student enrollment now. Full enrollment by 2025.

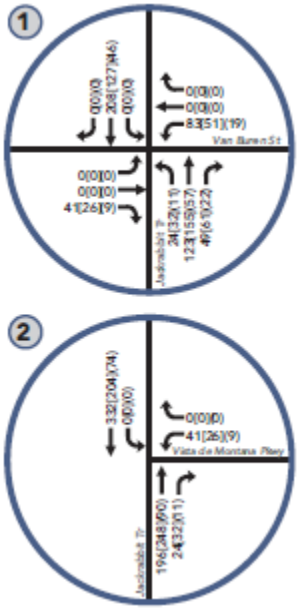
2022/23





Full enrollment





Costco –

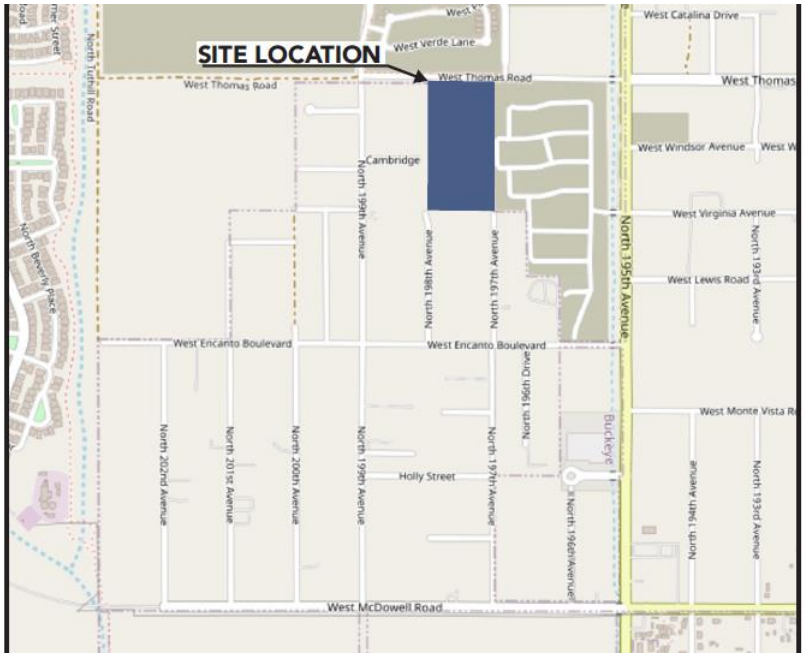
161,000 sf building. Open by summer 2023.

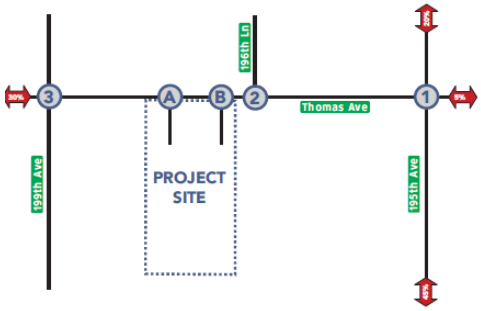
15% of traffic east of Roosevelt to Jackrabbit Trail. 10% to the south and 5% to the north to I-10 and then to the east.

Additional commercial/retail by 2024. Possibly double the traffic by from the Costco.

Avila Marigold –

Open by late 2023. Completed late 2024

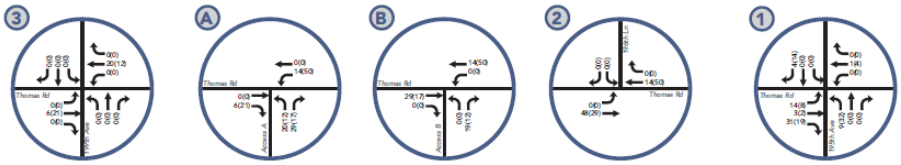




LEGEND

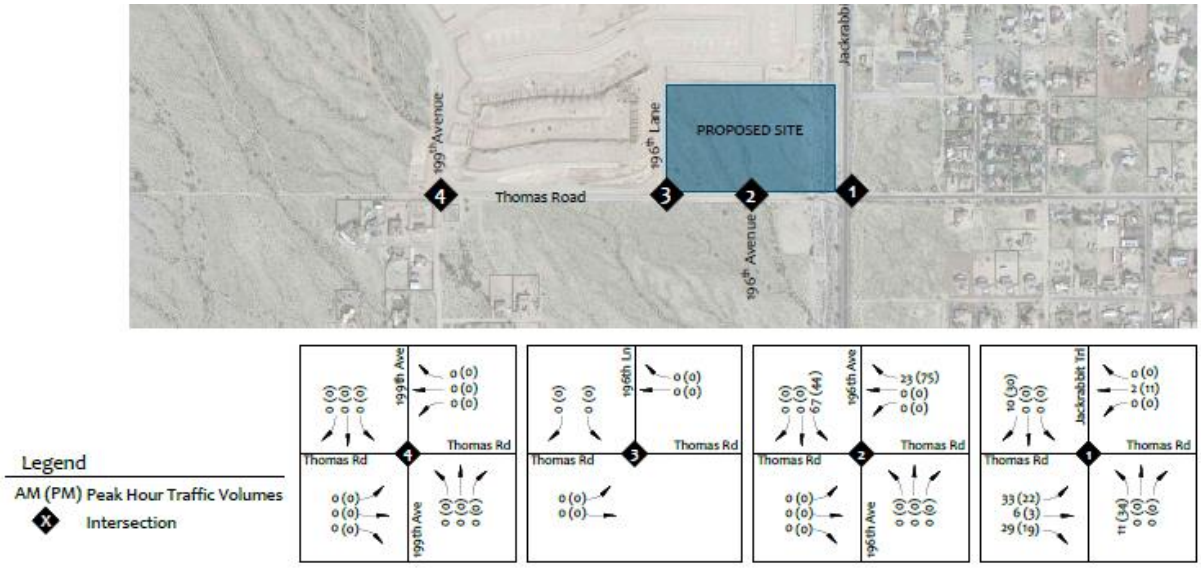
XX(XX) AM(PM) Peak Hour Traffic Volume

XX% Trip Distribution Percentage



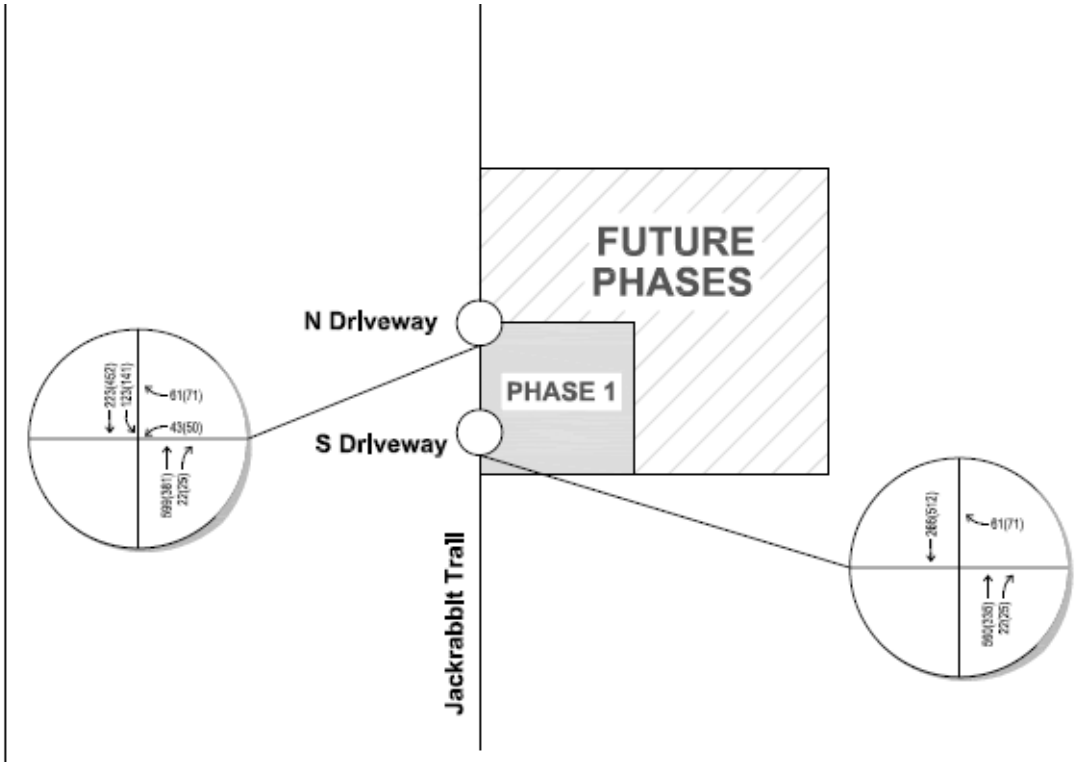
Avanterra –

Open by late 2023. Completed late 2024

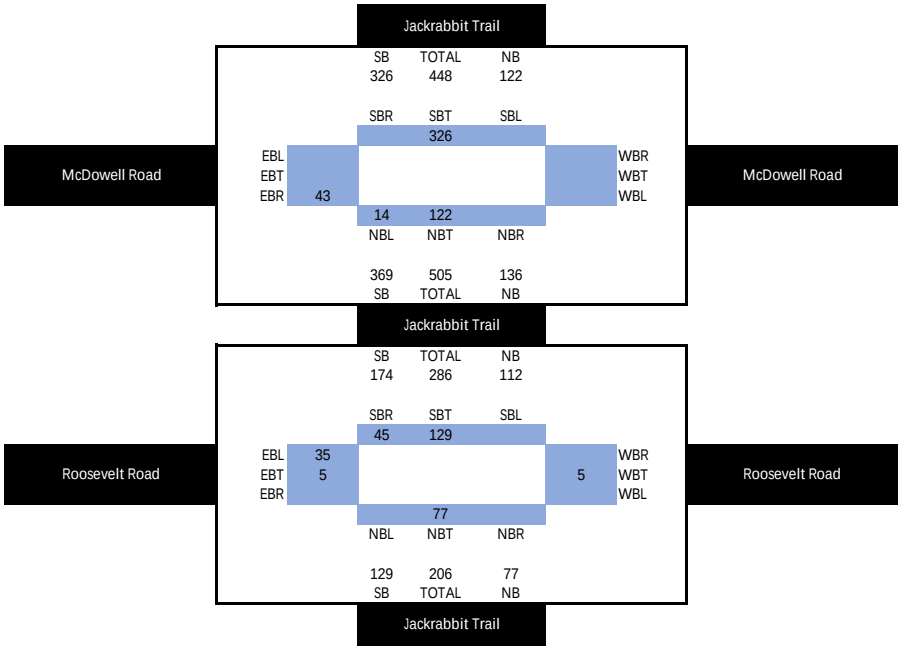


Circle K –

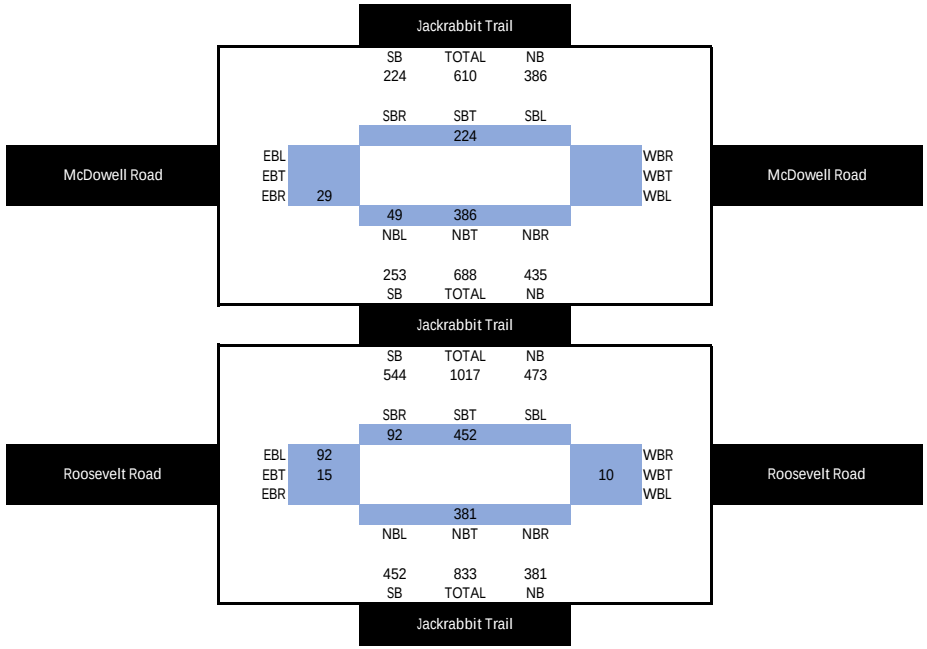
Older version for the Circle K only. Prior to the full movement access being change to the south driveway. Volumes are still relatively valid.



Known Development AM Peak Hour Volumes



Known Development PM Peak Hour Volumes



Appendix 6. SimTraffic Output Reports (2022 Existing, 2050 No-Build, 2050 DDI, 2050 TDI-1L, 2050 TDI-2L)

2022 Existing

Intersection	
Intersection Delay, s/veh	37.5
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	17	50	32	23	108	28	451	58	119	420	3
Future Vol, veh/h	19	17	50	32	23	108	28	451	58	119	420	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	18	54	35	25	117	30	490	63	129	457	3
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay, s/veh	12	13	57.6	28.9
HCM LOS	B	B	F	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	89%	0%	25%	0%	18%	0%	99%
Vol Right, %	0%	11%	0%	75%	0%	82%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	509	19	67	32	131	119	423
LT Vol	28	0	19	0	32	0	119	0
Through Vol	0	451	0	17	0	23	0	420
RT Vol	0	58	0	50	0	108	0	3
Lane Flow Rate	30	553	21	73	35	142	129	460
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.059	0.988	0.051	0.157	0.082	0.293	0.252	0.831
Departure Headway (Hd)	7.023	6.432	8.831	7.771	8.528	7.415	7.021	6.506
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	510	564	406	461	421	484	512	556
Service Time	4.759	4.169	6.584	5.524	6.274	5.161	4.758	4.243
HCM Lane V/C Ratio	0.059	0.98	0.052	0.158	0.083	0.293	0.252	0.827
HCM Control Delay, s/veh	10.2	60.2	12.1	12	12	13.2	12.1	33.6
HCM Lane LOS	B	F	B	B	B	B	B	D
HCM 95th-tile Q	0.2	13.9	0.2	0.6	0.3	1.2	1	8.5

Intersection	
Intersection Delay, s/veh	40.9
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	161	4	252	39	275	0	0	441	96
Future Vol, veh/h	0	0	0	161	4	252	39	275	0	0	441	96
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	175	4	274	42	299	0	0	479	104
Number of Lanes	0	0	0	1	1	0	1	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay, s/veh	15.5	17.6	74.2
HCM LOS	C	C	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	2%	82%
Vol Right, %	0%	0%	0%	98%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	39	275	161	256	537
LT Vol	39	0	161	0	0
Through Vol	0	275	0	4	441
RT Vol	0	0	0	252	96
Lane Flow Rate	42	299	175	278	584
Geometry Grp	5	5	5	5	4b
Degree of Util (X)	0.086	0.566	0.371	0.499	1.04
Departure Headway (Hd)	7.521	7.008	7.842	6.624	6.416
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	479	517	462	548	566
Service Time	5.221	4.708	5.542	4.324	4.467
HCM Lane V/C Ratio	0.088	0.578	0.379	0.507	1.032
HCM Control Delay, s/veh	10.9	18.5	15.1	15.7	74.2
HCM Lane LOS	B	C	C	C	F
HCM 95th-tile Q	0.3	3.5	1.7	2.8	16.2

Intersection	
Intersection Delay, s/veh	18.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	123	1	64	0	0	0	0	191	308	310	292	0
Future Vol, veh/h	123	1	64	0	0	0	0	191	308	310	292	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	134	1	70	0	0	0	0	208	335	337	317	0
Number of Lanes	0	1	0	0	0	0	0	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	13.2	23.7	16.4
HCM LOS	B	C	C

Lane	NBLn1	EBLn1	SBLn1	SBLn2
Vol Left, %	0%	65%	100%	0%
Vol Thru, %	38%	1%	0%	100%
Vol Right, %	62%	34%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	499	188	310	292
LT Vol	0	123	310	0
Through Vol	191	1	0	292
RT Vol	308	64	0	0
Lane Flow Rate	542	204	337	317
Geometry Grp	4a	2	5	5
Degree of Util (X)	0.775	0.367	0.595	0.515
Departure Headway (Hd)	5.142	6.462	6.353	5.845
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	705	556	569	616
Service Time	3.179	4.51	4.094	3.587
HCM Lane V/C Ratio	0.769	0.367	0.592	0.515
HCM Control Delay, s/veh	23.7	13.2	18	14.7
HCM Lane LOS	C	B	C	B
HCM 95th-tile Q	7.5	1.7	3.9	3

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	24	545	18	11	419
Future Vol, veh/h	10	24	545	18	11	419
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, %	2	2	2	2	2	2
Mvmt Flow	11	26	592	20	12	455

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1082	602	0	0	612	0
Stage 1	602	-	-	-	-	-
Stage 2	479	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	241	499	-	-	967	-
Stage 1	547	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	237	499	-	-	967	-
Mov Cap-2 Maneuver	237	-	-	-	-	-
Stage 1	547	-	-	-	-	-
Stage 2	612	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	15.59	0	0.22
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	377	46	-
HCM Lane V/C Ratio	-	-	0.098	0.012	-
HCM Control Delay (s/veh)	-	-	15.6	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Intersection Delay, s/veh	18.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	50	33	148	48	189	28	286	37	188	252	9
Future Vol, veh/h	19	50	33	148	48	189	28	286	37	188	252	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	54	36	161	52	205	30	311	40	204	274	10
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay, s/veh	12.6	15.9	24.2	17.6
HCM LOS	B	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	89%	0%	60%	0%	20%	0%	97%
Vol Right, %	0%	11%	0%	40%	0%	80%	0%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	323	19	83	148	237	188	261
LT Vol	28	0	19	0	148	0	188	0
Through Vol	0	286	0	50	0	48	0	252
RT Vol	0	37	0	33	0	189	0	9
Lane Flow Rate	30	351	21	90	161	258	204	284
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.066	0.702	0.05	0.2	0.358	0.496	0.434	0.56
Departure Headway (Hd)	7.793	7.198	8.772	7.967	8.011	6.925	7.646	7.11
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	459	502	408	449	449	520	470	508
Service Time	5.544	4.949	6.535	5.729	5.759	4.673	5.398	4.861
HCM Lane V/C Ratio	0.065	0.699	0.051	0.2	0.359	0.496	0.434	0.559
HCM Control Delay, s/veh	11.1	25.3	12	12.7	15.2	16.3	16.2	18.6
HCM Lane LOS	B	D	B	B	C	C	C	C
HCM 95th-tile Q	0.2	5.5	0.2	0.7	1.6	2.7	2.2	3.4

Intersection	
Intersection Delay, s/veh	21.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	214	10	132	190	254	0	0	238	207
Future Vol, veh/h	0	0	0	214	10	132	190	254	0	0	238	207
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	233	11	143	207	276	0	0	259	225
Number of Lanes	0	0	0	1	1	0	1	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay, s/veh	15.4	15.4	33.6
HCM LOS	C	C	D

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	7%	53%
Vol Right, %	0%	0%	0%	93%	47%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	254	214	142	445
LT Vol	190	0	214	0	0
Through Vol	0	254	0	10	238
RT Vol	0	0	0	132	207
Lane Flow Rate	207	276	233	154	484
Geometry Grp	5	5	5	5	4b
Degree of Util (X)	0.408	0.506	0.495	0.278	0.837
Departure Headway (Hd)	7.108	6.597	7.654	6.478	6.233
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	504	544	470	553	580
Service Time	4.884	4.373	5.425	4.248	4.297
HCM Lane V/C Ratio	0.411	0.507	0.496	0.278	0.834
HCM Control Delay, s/veh	14.7	16	17.8	11.7	33.6
HCM Lane LOS	B	C	C	B	D
HCM 95th-tile Q	2	2.8	2.7	1.1	8.8

Intersection	
Intersection Delay, s/veh	31.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	107	1	71	0	0	0	0	337	284	96	356	0
Future Vol, veh/h	107	1	71	0	0	0	0	337	284	96	356	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	116	1	77	0	0	0	0	366	309	104	387	0
Number of Lanes	0	1	0	0	0	0	0	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	13.2	46.8	17
HCM LOS	B	E	C

Lane	NBLn1	EBLn1	SBLn1	SBLn2
Vol Left, %	0%	60%	100%	0%
Vol Thru, %	54%	1%	0%	100%
Vol Right, %	46%	40%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	621	179	96	356
LT Vol	0	107	96	0
Through Vol	337	1	0	356
RT Vol	284	71	0	0
Lane Flow Rate	675	195	104	387
Geometry Grp	4a	2	5	5
Degree of Util (X)	0.958	0.353	0.187	0.639
Departure Headway (Hd)	5.107	6.534	6.455	5.947
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	709	549	555	608
Service Time	3.149	4.596	4.205	3.697
HCM Lane V/C Ratio	0.952	0.355	0.187	0.637
HCM Control Delay, s/veh	46.8	13.2	10.7	18.7
HCM Lane LOS	E	B	B	C
HCM 95th-tile Q	14.1	1.6	0.7	4.5

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	18	508	40	14	583
Future Vol, veh/h	12	18	508	40	14	583
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, %	2	2	2	2	2	2
Mvmt Flow	13	20	552	43	15	634

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1238	574	0	0	596	0
Stage 1	574	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	194	518	-	-	981	-
Stage 1	563	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	189	518	-	-	981	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	500	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	18.17	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	306	42	-
HCM Lane V/C Ratio	-	-	0.107	0.016	-
HCM Control Delay (s/veh)	-	-	18.2	8.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

2050 No-Build

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2	2
Vehs Entered	3392	3349	3443	3404	3265	3327	3377
Vehs Exited	3325	3280	3402	3365	3197	3277	3318
Starting Vehs	208	198	208	194	168	198	190
Ending Vehs	275	267	249	233	236	248	249
Travel Distance (mi)	2206	2189	2243	2226	2147	2201	2212
Travel Time (hr)	588.2	617.4	518.4	542.5	563.5	588.9	540.8
Total Delay (hr)	521.4	550.9	450.6	475.0	498.5	522.2	473.8
Total Stops	6130	6078	6253	6103	5933	6100	6136
Fuel Used (gal)	195.0	200.6	179.4	184.4	187.1	194.2	184.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	3	3	3	3
# of Recorded Intervals	2	2	2	2
Vehs Entered	3285	3451	3423	3372
Vehs Exited	3204	3395	3329	3309
Starting Vehs	190	191	183	189
Ending Vehs	271	247	277	250
Travel Distance (mi)	2161	2245	2242	2207
Travel Time (hr)	627.7	537.6	614.4	573.9
Total Delay (hr)	562.3	469.4	546.3	507.0
Total Stops	5955	6178	6199	6106
Fuel Used (gal)	201.3	184.2	201.0	191.2

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1009	998	1029	1033	969	946	1017
Vehs Exited	922	904	981	947	859	829	907
Starting Vehs	208	198	208	194	168	198	190
Ending Vehs	295	292	256	280	278	315	300
Travel Distance (mi)	612	608	630	621	571	566	603
Travel Time (hr)	89.5	87.2	81.2	80.6	74.0	88.4	78.3
Total Delay (hr)	71.1	68.7	62.1	61.8	56.7	71.5	60.2
Total Stops	1801	1827	1814	1818	1692	1693	1795
Fuel Used (gal)	37.2	36.4	35.9	35.6	32.5	35.6	34.3

Interval #1 Information

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	949	1035	1036	1003
Vehs Exited	845	952	911	907
Starting Vehs	190	191	183	189
Ending Vehs	294	274	308	286
Travel Distance (mi)	577	624	619	603
Travel Time (hr)	86.7	78.2	83.9	82.8
Total Delay (hr)	69.4	59.3	65.2	64.6
Total Stops	1717	1863	1811	1783
Fuel Used (gal)	35.7	34.8	36.1	35.4

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2383	2351	2414	2371	2296	2381	2360
Vehs Exited	2403	2376	2421	2418	2338	2448	2411
Starting Vehs	295	292	256	280	278	315	300
Ending Vehs	275	267	249	233	236	248	249
Travel Distance (mi)	1594	1580	1614	1605	1577	1635	1609
Travel Time (hr)	498.6	530.3	437.2	462.0	489.5	500.5	462.4
Total Delay (hr)	450.3	482.2	388.5	413.2	441.7	450.7	413.6
Total Stops	4329	4251	4439	4285	4241	4407	4341
Fuel Used (gal)	157.8	164.2	143.5	148.8	154.6	158.5	149.9

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	2336	2416	2387	2369
Vehs Exited	2359	2443	2418	2405
Starting Vehs	294	274	308	286
Ending Vehs	271	247	277	250
Travel Distance (mi)	1584	1622	1623	1604
Travel Time (hr)	541.0	459.4	530.5	491.1
Total Delay (hr)	492.9	410.2	481.1	442.4
Total Stops	4238	4315	4388	4325
Fuel Used (gal)	165.7	149.4	164.9	155.7

1: Jackrabbit Trail & McDowell Road Performance by lane

Lane	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Movements Served	L	L	T	T	T	R	L	T	T	T	R	L
Denied Del/Veh (s)												
Total Del/Veh (s)	40.1	55.7	125.2	78.3	96.5	51.7	519.9	1720.0	61.7	56.0	2.1	65.0

1: Jackrabbit Trail & McDowell Road Performance by lane

Lane	NB	SB	SB	SB	SB	All
Movements Served	TR	L	L	T	R	
Denied Del/Veh (s)						95.1
Total Del/Veh (s)	26.2	50.5	718.1	553.4	574.9	179.9

2: Jackrabbit Trail & I-10 WB On Ramp/I-10 WB Off Ramp Performance by lane

Lane	WB	WB	NB	NB	SB	All
Movements Served	L	TR	L	T	TR	
Denied Del/Veh (s)						2.5
Total Del/Veh (s)	8.6	33.7	7.6	38.1	96.6	54.4

3: Jackrabbit Trail & I-10 EB Off Ramp/I-10 EB On Ramp Performance by lane

Lane	EB	NB	NB	SB	SB	All
Movements Served	LTR	T	R	L	T	
Denied Del/Veh (s)						0.0
Total Del/Veh (s)	11.8	27.2	13.5	9.9	18.3	16.4

4: Jackrabbit Trail & Gas Station Performance by lane

Lane	WB	WB	NB	NB	SB	SB	All
Movements Served	L	R	T	TR	L	T	
Denied Del/Veh (s)							0.0
Total Del/Veh (s)	18.4	5.3	6.0	4.3	13.9	4.6	6.0

5: Jackrabbit Trail & Roosevelt Road Performance by lane

Lane	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Movements Served	L	T	R	L	TR	L	L	T	R	L	T	R
Denied Del/Veh (s)												
Total Del/Veh (s)	41.1	35.0	3.8	38.3	26.0	27.1	41.2	7.3	0.8	47.0	10.9	2.3

5: Jackrabbit Trail & Roosevelt Road Performance by lane

Lane	All
Movements Served	
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	15.6

Total Network Performance

Denied Del/Veh (s)	284.8
Total Del/Veh (s)	192.2

Intersection: 1: Jackrabbit Trail & McDowell Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	T	T	T	R	L
Maximum Queue (ft)	54	117	292	354	543	373	350	1080	1055	765	63	275
Average Queue (ft)	6	39	196	173	179	251	343	961	366	121	6	202
95th Queue (ft)	33	86	269	276	482	428	386	1353	1051	548	36	305
Link Distance (ft)			1150	1150	1150			1048	1048	1048		
Upstream Blk Time (%)								76	2	0		
Queuing Penalty (veh)								0	0	0		
Storage Bay Dist (ft)	300	300				300	275				275	200
Storage Blk Time (%)			0			26	97	0				17
Queuing Penalty (veh)			0			34	85	0				97

Intersection: 1: Jackrabbit Trail & McDowell Road

Movement	NB	SB	SB	SB	SB	B18	B18	B18
Directions Served	TR	L	L	T	R	T	T	T
Maximum Queue (ft)	470	354	842	901	769	327	315	318
Average Queue (ft)	255	42	518	876	282	299	302	292
95th Queue (ft)	451	210	1041	889	816	335	317	370
Link Distance (ft)	463		803	803	803	288	288	288
Upstream Blk Time (%)	3		14	100	5	95	98	87
Queuing Penalty (veh)	25		0	0	0	0	0	0
Storage Bay Dist (ft)		280						
Storage Blk Time (%)	10	0	3					
Queuing Penalty (veh)	26	0	1					

Intersection: 2: Jackrabbit Trail & I-10 WB On Ramp/I-10 WB Off Ramp

Movement	WB	WB	NB	NB	SB
Directions Served	L	TR	L	T	TR
Maximum Queue (ft)	97	399	192	365	556
Average Queue (ft)	49	151	67	139	526
95th Queue (ft)	80	366	194	341	545
Link Distance (ft)		1934		446	463
Upstream Blk Time (%)				1	87
Queuing Penalty (veh)				5	1038
Storage Bay Dist (ft)	700		170		
Storage Blk Time (%)				18	
Queuing Penalty (veh)				23	

Intersection: 3: Jackrabbit Trail & I-10 EB Off Ramp/I-10 EB On Ramp

Movement	EB	NB	NB	SB	SB
Directions Served	LTR	T	R	L	T
Maximum Queue (ft)	195	288	225	128	90
Average Queue (ft)	71	117	92	72	57
95th Queue (ft)	138	249	178	113	81
Link Distance (ft)	1752	796	796		446
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				170	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 4: Jackrabbit Trail & Gas Station

Movement	WB	WB	NB	NB	SB
Directions Served	L	R	T	TR	L
Maximum Queue (ft)	70	68	129	135	92
Average Queue (ft)	28	31	55	57	40
95th Queue (ft)	60	57	106	109	74
Link Distance (ft)	388	388	258		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				150	150
Storage Blk Time (%)			0	0	0
Queuing Penalty (veh)			0	0	0

Intersection: 5: Jackrabbit Trail & Roosevelt Road

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	R	L	T	R
Maximum Queue (ft)	182	38	49	29	76	81	141	215	16	31	177	99
Average Queue (ft)	83	8	13	4	23	11	70	61	1	7	79	30
95th Queue (ft)	149	27	34	20	58	53	123	150	8	24	147	68
Link Distance (ft)	1176	1176			989			649			362	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			150	110		220	220		150	150		150
Storage Blk Time (%)					0			1			1	
Queuing Penalty (veh)					0			1			1	

Intersection: 5: Jackrabbit Trail & Roosevelt Road

Movement	B17
Directions Served	T
Maximum Queue (ft)	21
Average Queue (ft)	1
95th Queue (ft)	13
Link Distance (ft)	258
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1337

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2	2
Vehs Entered	3309	3306	3267	3319	3108	3245	3125
Vehs Exited	3098	3113	3072	3066	2944	2994	2949
Starting Vehs	352	355	408	337	379	353	367
Ending Vehs	563	548	603	590	543	604	543
Travel Distance (mi)	2144	2157	2115	2142	2039	2079	2054
Travel Time (hr)	1699.1	1652.6	1720.7	1712.0	1730.1	1611.2	1741.3
Total Delay (hr)	1635.2	1588.2	1657.6	1648.2	1669.5	1549.4	1680.0
Total Stops	6933	6778	6661	6909	6401	6382	6417
Fuel Used (gal)	441.5	432.8	445.1	444.3	445.8	419.0	448.5

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	3	3	3	3
# of Recorded Intervals	2	2	2	2
Vehs Entered	3345	3255	3344	3257
Vehs Exited	3117	3056	3176	3060
Starting Vehs	351	398	427	371
Ending Vehs	579	597	595	575
Travel Distance (mi)	2161	2100	2189	2118
Travel Time (hr)	1709.0	1745.6	1661.1	1698.3
Total Delay (hr)	1644.6	1683.2	1596.1	1635.2
Total Stops	7070	6716	7710	6800
Fuel Used (gal)	444.8	450.9	434.5	440.7

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1154	1086	1151	1074	1086	1217	996
Vehs Exited	924	926	942	884	922	947	810
Starting Vehs	352	355	408	337	379	353	367
Ending Vehs	582	515	617	527	543	623	553
Travel Distance (mi)	613	601	623	598	605	638	561
Travel Time (hr)	180.8	181.8	185.6	170.2	187.3	166.8	189.1
Total Delay (hr)	162.7	163.9	167.1	152.5	169.5	147.9	172.5
Total Stops	2120	1923	2218	2005	2001	2329	1898
Fuel Used (gal)	56.3	56.9	58.1	53.6	57.5	54.0	56.9

Interval #1 Information

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	1158	1079	999	1098
Vehs Exited	934	925	838	906
Starting Vehs	351	398	427	371
Ending Vehs	575	552	588	564
Travel Distance (mi)	634	600	558	603
Travel Time (hr)	185.6	195.7	194.3	183.7
Total Delay (hr)	166.9	177.9	177.8	165.9
Total Stops	2302	1935	1914	2062
Fuel Used (gal)	58.1	60.2	58.4	57.0

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2155	2220	2116	2245	2022	2028	2129
Vehs Exited	2174	2187	2130	2182	2022	2047	2139
Starting Vehs	582	515	617	527	543	623	553
Ending Vehs	563	548	603	590	543	604	543
Travel Distance (mi)	1531	1555	1492	1543	1433	1441	1493
Travel Time (hr)	1518.3	1470.8	1535.1	1541.8	1542.8	1444.4	1552.2
Total Delay (hr)	1472.6	1424.3	1490.5	1495.7	1500.1	1401.5	1507.6
Total Stops	4813	4855	4443	4904	4400	4053	4519
Fuel Used (gal)	385.2	375.9	387.1	390.7	388.3	365.0	391.6

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	2187	2176	2345	2162
Vehs Exited	2183	2131	2338	2152
Starting Vehs	575	552	588	564
Ending Vehs	579	597	595	575
Travel Distance (mi)	1527	1500	1631	1515
Travel Time (hr)	1523.4	1549.9	1466.8	1514.5
Total Delay (hr)	1477.7	1505.3	1418.3	1469.4
Total Stops	4768	4781	5796	4731
Fuel Used (gal)	386.7	390.7	376.1	383.7

1: Jackrabbit Trail & McDowell Road Performance by lane

Lane	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Movements Served	L	L	T	T	T	R	L	T	T	T	R	L
Denied Del/Veh (s)												
Total Del/Veh (s)	41.6	55.1	74.8	49.1	523.9	67.2	1535.2	1916.4	76.4	54.9	6.1	41.5

1: Jackrabbit Trail & McDowell Road Performance by lane

Lane	NB	SB	SB	SB	SB	All
Movements Served	TR	L	L	T	R	
Denied Del/Veh (s)						332.3
Total Del/Veh (s)	20.4	31.8	1647.5	1751.1	1737.0	197.5

2: Jackrabbit Trail & I-10 WB On Ramp/I-10 WB Off Ramp Performance by lane

Lane	WB	WB	NB	NB	SB	All
Movements Served	L	TR	L	T	TR	
Denied Del/Veh (s)						80.3
Total Del/Veh (s)	60.8	416.2	10.6	122.2	133.8	191.7

3: Jackrabbit Trail & I-10 EB Off Ramp/I-10 EB On Ramp Performance by lane

Lane	EB	NB	NB	SB	SB	All
Movements Served	LTR	T	R	L	T	
Denied Del/Veh (s)						34.8
Total Del/Veh (s)	413.5	338.3	260.0	9.4	71.6	218.0

4: Jackrabbit Trail & Gas Station Performance by lane

Lane	WB	WB	NB	NB	SB	SB	All
Movements Served	L	R	T	TR	L	T	
Denied Del/Veh (s)							1.2
Total Del/Veh (s)	16.5	56.8	177.1	107.3	20.1	5.3	60.2

5: Jackrabbit Trail & Roosevelt Road Performance by lane

Lane	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Movements Served	L	T	R	L	TR	L	L	T	R	L	T	R
Denied Del/Veh (s)												
Total Del/Veh (s)	818.3	2019.1	9.5	48.1	112.8	62.7	70.9	302.7	2.3	31.0	26.8	2.9

5: Jackrabbit Trail & Roosevelt Road Performance by lane

Lane	All
Movements Served	
Denied Del/Veh (s)	616.1
Total Del/Veh (s)	239.4

Total Network Performance

Denied Del/Veh (s)	729.9
Total Del/Veh (s)	488.7

Intersection: 1: Jackrabbit Trail & McDowell Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	T	T	T	R	L
Maximum Queue (ft)	46	96	232	535	778	375	348	1070	1044	439	144	274
Average Queue (ft)	6	37	156	161	324	300	341	1022	244	69	16	227
95th Queue (ft)	28	79	217	409	860	467	354	1198	888	354	80	300
Link Distance (ft)			1150	1150	1150			1048	1048	1048		
Upstream Blk Time (%)					1			86	2	0		
Queuing Penalty (veh)					0			0	0	0		
Storage Bay Dist (ft)	300	300				300	275				275	200
Storage Blk Time (%)					0	55	100					19
Queuing Penalty (veh)					0	66	152					172

Intersection: 1: Jackrabbit Trail & McDowell Road

Movement	NB	SB	SB	SB	SB	B18	B18	B18
Directions Served	TR	L	L	T	R	T	T	T
Maximum Queue (ft)	457	199	836	889	619	313	307	307
Average Queue (ft)	247	22	532	869	293	291	293	261
95th Queue (ft)	409	144	1104	886	893	317	307	390
Link Distance (ft)	463		803	803	803	288	288	288
Upstream Blk Time (%)	0		24	100	16	95	100	74
Queuing Penalty (veh)	7		0	0	0	0	0	0
Storage Bay Dist (ft)		280						
Storage Blk Time (%)	4	0	2					
Queuing Penalty (veh)	26	0	2					

Intersection: 2: Jackrabbit Trail & I-10 WB On Ramp/I-10 WB Off Ramp

Movement	WB	WB	NB	NB	SB
Directions Served	L	TR	L	T	TR
Maximum Queue (ft)	775	1984	245	457	560
Average Queue (ft)	734	1781	206	448	528
95th Queue (ft)	972	2486	351	454	548
Link Distance (ft)		1934		446	463
Upstream Blk Time (%)		76		16	97
Queuing Penalty (veh)		0		162	1270
Storage Bay Dist (ft)	700		170		
Storage Blk Time (%)	1	91		100	
Queuing Penalty (veh)	3	398		108	

Intersection: 3: Jackrabbit Trail & I-10 EB Off Ramp/I-10 EB On Ramp

Movement	EB	NB	NB	SB	SB
Directions Served	LTR	T	R	L	T
Maximum Queue (ft)	1362	836	843	245	451
Average Queue (ft)	1018	809	811	206	379
95th Queue (ft)	2019	829	831	339	547
Link Distance (ft)	1752	796	796		446
Upstream Blk Time (%)	29	42	57		3
Queuing Penalty (veh)	0	256	343		41
Storage Bay Dist (ft)				170	
Storage Blk Time (%)					87
Queuing Penalty (veh)					192

Intersection: 4: Jackrabbit Trail & Gas Station

Movement	WB	WB	NB	NB	B17	SB	SB
Directions Served	L	R	T	TR	T	L	T
Maximum Queue (ft)	76	142	363	225	426	85	5
Average Queue (ft)	28	59	333	222	378	41	0
95th Queue (ft)	62	123	362	246	441	75	5
Link Distance (ft)	388	388	258		362		796
Upstream Blk Time (%)			83		56		
Queuing Penalty (veh)			966		654		
Storage Bay Dist (ft)				150		150	
Storage Blk Time (%)			89	80			
Queuing Penalty (veh)			532	457			

Intersection: 5: Jackrabbit Trail & Roosevelt Road

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	R	L	T	R
Maximum Queue (ft)	1211	1205	225	72	182	125	295	696	225	94	365	225
Average Queue (ft)	1134	1066	30	15	61	26	212	651	26	9	204	83
95th Queue (ft)	1442	1634	144	54	164	77	417	794	144	50	327	217
Link Distance (ft)	1176	1176			989			649			362	
Upstream Blk Time (%)	83	83						87			1	
Queuing Penalty (veh)	0	0						0			11	
Storage Bay Dist (ft)			150	110		220	220		150	150		150
Storage Blk Time (%)		3			11			90			17	
Queuing Penalty (veh)		3			2			150			60	

Intersection: 5: Jackrabbit Trail & Roosevelt Road

Movement	B17	B17
Directions Served	T	
Maximum Queue (ft)	63	39
Average Queue (ft)	6	2
95th Queue (ft)	50	47
Link Distance (ft)	258	258
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	1	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 6034

2050 DDI

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:55	6:55	6:55	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2	2
Vehs Entered	4884	5028	4954	4895	4861	4934	4947
Vehs Exited	4876	5030	4938	4870	4872	4923	4934
Starting Vehs	136	157	150	144	161	160	159
Ending Vehs	144	155	166	169	150	171	172
Travel Distance (mi)	3584	3675	3623	3563	3599	3605	3652
Travel Time (hr)	159.1	172.3	169.3	160.7	161.2	165.6	184.4
Total Delay (hr)	70.3	81.2	79.5	72.3	72.1	76.3	93.8
Total Stops	6846	7560	7480	7122	7192	7245	8125
Fuel Used (gal)	146.8	151.7	149.6	145.6	147.7	148.8	154.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65
Time Recorded (min)	60	60	60	60
# of Intervals	3	3	3	3
# of Recorded Intervals	2	2	2	2
Vehs Entered	5127	4977	4926	4950
Vehs Exited	5138	4987	4932	4950
Starting Vehs	165	176	176	153
Ending Vehs	154	166	170	149
Travel Distance (mi)	3751	3686	3632	3637
Travel Time (hr)	178.8	169.0	165.8	168.6
Total Delay (hr)	85.8	77.7	75.9	78.5
Total Stops	8228	7536	7402	7477
Fuel Used (gal)	156.2	152.4	149.0	150.2

Interval #0 Information Seeding

Start Time	6:55
End Time	7:00
Total Time (min)	5

No data recorded this interval.

Interval #1 Information V15

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1428	1585	1511	1453	1411	1458	1472
Vehs Exited	1372	1508	1417	1405	1385	1420	1369
Starting Vehs	136	157	150	144	161	160	159
Ending Vehs	192	234	244	192	187	198	262
Travel Distance (mi)	1010	1109	1051	1010	991	1016	1014
Travel Time (hr)	45.4	54.1	52.3	47.5	44.7	47.3	55.9
Total Delay (hr)	20.4	26.7	26.3	22.5	20.2	22.2	30.7
Total Stops	2045	2496	2399	2193	2057	2210	2319
Fuel Used (gal)	41.3	46.0	44.0	42.3	40.6	42.6	43.8

Interval #1 Information V15

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	1582	1511	1454	1483
Vehs Exited	1499	1478	1430	1427
Starting Vehs	165	176	176	153
Ending Vehs	248	209	200	214
Travel Distance (mi)	1094	1075	1042	1041
Travel Time (hr)	54.2	51.0	48.9	50.1
Total Delay (hr)	27.1	24.4	23.3	24.4
Total Stops	2634	2252	2219	2280
Fuel Used (gal)	45.8	44.6	43.5	43.5

Interval #2 Information Runoff

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	3456	3443	3443	3442	3450	3476	3475
Vehs Exited	3504	3522	3521	3465	3487	3503	3565
Starting Vehs	192	234	244	192	187	198	262
Ending Vehs	144	155	166	169	150	171	172
Travel Distance (mi)	2574	2566	2572	2553	2608	2589	2638
Travel Time (hr)	113.6	118.2	117.0	113.2	116.5	118.3	128.5
Total Delay (hr)	50.0	54.6	53.2	49.9	51.9	54.1	63.1
Total Stops	4801	5064	5081	4929	5135	5035	5806
Fuel Used (gal)	105.5	105.7	105.7	103.3	107.1	106.2	110.4

Interval #2 Information Runoff

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	3545	3466	3472	3465
Vehs Exited	3639	3509	3502	3522
Starting Vehs	248	209	200	214
Ending Vehs	154	166	170	149
Travel Distance (mi)	2658	2611	2590	2596
Travel Time (hr)	124.6	118.0	116.9	118.5
Total Delay (hr)	58.8	53.3	52.5	54.1
Total Stops	5594	5284	5183	5190
Fuel Used (gal)	110.4	107.7	105.6	106.8

1: Jackrabbit Trail Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.2	0.0	0.1
Total Del/Veh (s)	32.0	12.2	4.6	2.0	25.1	2.7	8.5

2: SB 7/SB 6 & Southbound Left Performance by movement

Movement	SWL	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	3.1	1.8	2.4

3: SB 8/SB 7 & NB 2/NB 3 Performance by movement

Movement	NBT	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	8.0	7.0	7.4

5: EB Left & NB 3/NB 4 Performance by movement

Movement	NBT	NEL	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	4.2	6.2	4.9

8: SB 5/SB 4 & WB Left Performance by movement

Movement	SBT	SWL	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	9.3	9.9	9.4

9: NB 5/NB 6 & NB Left Performance by movement

Movement	NEL	NET	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.7	1.7	1.4

11: NB 6/NB 7 & SB 4/SB 3 Performance by movement

Movement	SBT	NET	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	13.7	8.4	12.0

13: SB Right & SB 3/SB 2 Performance by movement

Movement	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	6.3	0.9	5.1

14: NB 7/NB 8 & WB Right Performance by movement

Movement	NBT	NWR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	3.9	7.5	5.7

16: Jackrabbit Trail & Roosevelt Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.1	1.2	3.0	0.1	0.1	2.4	0.2	2.3	0.1	0.0	0.1
Total Del/Veh (s)	41.6	31.9	2.9	52.8	49.9	10.6	44.5	34.2	2.8	19.4	7.5	2.3

16: Jackrabbit Trail & Roosevelt Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	22.8

17: NB 1/NB 2 & Northbound Right Performance by movement

Movement	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.4	1.8	1.6

18: SB 9/SB 8 & WB Right Performance by movement

Movement	SBT	SER	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	3.1	8.1	4.3

21: Northbound Right & EB On Ramp & Southbound Left Performance by movement

Movement	NBT	NBR	SEL	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.8	8.9	9.8	9.4

23: Jackrabbit Trail/SB 10 Performance by movement

Movement	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.4	1.1	1.2

24: NB Left & WB On Ramp & SB Right Performance by movement

Movement	SBR	NWL	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	11.2	10.0	10.8

26: Jackrabbit Trail Performance by movement

Movement	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.5	4.3	0.2	1.2

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.8	0.2	2.9	2.9	0.1	2.8	0.0	0.0	0.1	2.7	0.4	2.7
Total Del/Veh (s)	27.9	38.2	26.9	30.9	30.2	3.5	47.3	16.2	2.2	55.8	28.8	3.2

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	28.3

29: WB Right & EB Off Ramp/EB Left Performance by movement

Movement	EBT	EBR	All
Denied Del/Veh (s)	0.9	1.0	0.9
Total Del/Veh (s)	1.6	1.1	1.3

33: WB Left & WB Right/WB Off Ramp Performance by movement

Movement	WBL	WBT	All
Denied Del/Veh (s)	1.5	0.5	0.9
Total Del/Veh (s)	0.9	3.3	2.4

35: Jackrabbit Trail Performance by movement

Movement	NBT	NBR	SBT	SWL	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.5	5.8	0.2	4.6	4.6	3.2

41: SB 1/Jackrabbit Trail & NB 8 Performance by movement

Movement	NBT	NBR	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	1.3	13.0	7.9

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	54.5

Intersection: 1: Jackrabbit Trail

Movement	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	R	T	T	T	R	L
Maximum Queue (ft)	83	66	93	155	164	30	76
Average Queue (ft)	30	30	23	43	85	5	57
95th Queue (ft)	66	55	71	113	176	22	85
Link Distance (ft)	306	306	96	96	96	96	69
Upstream Blk Time (%)			0	1	5		10
Queuing Penalty (veh)			0	2	11		13
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 2: SB 7/SB 6 & Southbound Left

Movement	SW	SW	SW
Directions Served	LT	T	T
Maximum Queue (ft)	148	38	4
Average Queue (ft)	43	1	0
95th Queue (ft)	122	15	4
Link Distance (ft)	83	83	83
Upstream Blk Time (%)	4	0	
Queuing Penalty (veh)	17	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SB 8/SB 7 & NB 2/NB 3

Movement	NB	NB	NB	SW	SW	SW
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	154	99	91	92	67	109
Average Queue (ft)	61	36	37	22	26	43
95th Queue (ft)	119	77	75	58	53	84
Link Distance (ft)	75	75	75	65	65	65
Upstream Blk Time (%)	4	1	1	0	0	3
Queuing Penalty (veh)	6	1	1	0	1	6
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: EB Left & NB 3/NB 4

Movement	NB	NB	NB	NE	NE
Directions Served	T	T	T	L	L
Maximum Queue (ft)	63	40	39	78	72
Average Queue (ft)	17	4	6	31	32
95th Queue (ft)	50	23	25	65	65
Link Distance (ft)	52	52	52	98	98
Upstream Blk Time (%)	3	0	0	0	
Queuing Penalty (veh)	5	1	1	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: SB 5/SB 4 & WB Left

Movement	SB	SB	SB	SW	SW
Directions Served	T	T	T	L	L
Maximum Queue (ft)	117	51	63	122	80
Average Queue (ft)	83	11	18	52	35
95th Queue (ft)	116	38	52	98	69
Link Distance (ft)	64	64	64	160	160
Upstream Blk Time (%)	36	0	1	0	
Queuing Penalty (veh)	124	1	3	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: NB 5/NB 6 & NB Left

Movement	NE
Directions Served	LT
Maximum Queue (ft)	5
Average Queue (ft)	0
95th Queue (ft)	4
Link Distance (ft)	110
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB 6/NB 7 & SB 4/SB 3

Movement	SB	SB	SB	NE	NE	NE
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	160	123	123	81	74	69
Average Queue (ft)	131	53	49	21	25	26
95th Queue (ft)	163	104	94	57	57	58
Link Distance (ft)	45	45	45	25	25	25
Upstream Blk Time (%)	50	9	9	6	8	16
Queuing Penalty (veh)	173	32	32	10	13	26
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 13: SB Right & SB 3/SB 2

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	141	72	101
Average Queue (ft)	87	8	15
95th Queue (ft)	168	45	61
Link Distance (ft)	81	81	81
Upstream Blk Time (%)	20	0	0
Queuing Penalty (veh)	91	0	2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: NB 7/NB 8 & WB Right

Movement	NB	NB	NB	NW	NW
Directions Served	T	T	T	R	R
Maximum Queue (ft)	25	41	38	152	103
Average Queue (ft)	2	5	10	86	43
95th Queue (ft)	12	23	30	143	98
Link Distance (ft)	47	47	47	98	98
Upstream Blk Time (%)	0	0	1	4	0
Queuing Penalty (veh)	0	1	1	10	1
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 16: Jackrabbit Trail & Roosevelt Street

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	NB	SB
Directions Served	L	L	T	L	TR	L	L	T	T	T	R	L
Maximum Queue (ft)	102	124	46	51	88	110	136	221	240	172	20	48
Average Queue (ft)	37	66	12	13	34	28	64	135	144	35	4	10
95th Queue (ft)	80	111	38	40	69	75	115	204	213	118	15	35
Link Distance (ft)		3022	3022		1844			1802	1802	1802		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			110		220	220				150	200
Storage Blk Time (%)					0			0		0		
Queuing Penalty (veh)					0			1		0		

Intersection: 16: Jackrabbit Trail & Roosevelt Street

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	90	97	108	81
Average Queue (ft)	26	44	46	9
95th Queue (ft)	68	84	95	47
Link Distance (ft)	507	507	507	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				150
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: NB 1/NB 2 & Northbound Right

Movement	NB	NB
Directions Served	T	TR
Maximum Queue (ft)	4	9
Average Queue (ft)	0	0
95th Queue (ft)	3	3
Link Distance (ft)	185	185
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: SB 9/SB 8 & WB Right

Movement	SB	SB	SB	SE	SE
Directions Served	T	T	T	R	R
Maximum Queue (ft)	43	49	52	102	56
Average Queue (ft)	8	13	16	42	17
95th Queue (ft)	30	39	44	83	44
Link Distance (ft)	49	49	49	73	73
Upstream Blk Time (%)	0	1	1	2	0
Queuing Penalty (veh)	1	1	3	2	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 21: Northbound Right & EB On Ramp & Southbound Left

Movement	NB	SE
Directions Served	R	L
Maximum Queue (ft)	214	174
Average Queue (ft)	96	134
95th Queue (ft)	184	190
Link Distance (ft)	127	72
Upstream Blk Time (%)	3	30
Queuing Penalty (veh)	13	205
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 23: Jackrabbit Trail/SB 10

Movement	NB	NB
Directions Served	R	R
Maximum Queue (ft)	5	6
Average Queue (ft)	0	0
95th Queue (ft)	7	6
Link Distance (ft)	226	226
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 24: NB Left & WB On Ramp & SB Right

Movement	SB	NW
Directions Served	R	L
Maximum Queue (ft)	152	125
Average Queue (ft)	102	60
95th Queue (ft)	160	106
Link Distance (ft)	41	97
Upstream Blk Time (%)	27	1
Queuing Penalty (veh)	84	3
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 26: Jackrabbit Trail

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	41	43	49	91	11
Average Queue (ft)	2	3	2	12	0
95th Queue (ft)	18	22	23	52	11
Link Distance (ft)	69	69	69	226	226
Upstream Blk Time (%)	0	0	0		
Queuing Penalty (veh)	0	0	0		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	35	83	221	245	374	334	114	136	162	127	78	61
Average Queue (ft)	5	33	139	106	68	138	56	66	87	63	19	7
95th Queue (ft)	25	69	201	219	309	315	102	115	139	111	57	37
Link Distance (ft)			1368	1368	1368				1573	1573	1573	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300	300				300	275	275				275
Storage Blk Time (%)					0	8						
Queuing Penalty (veh)					0	11						

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	192	203	193	172	161	92	122	220	364	294	190	16
Average Queue (ft)	100	119	73	92	84	6	25	89	196	112	79	1
95th Queue (ft)	171	180	149	144	136	46	78	177	326	260	157	11
Link Distance (ft)			253	253	253				938	938	938	
Upstream Blk Time (%)	0	0	0	0	0							
Queuing Penalty (veh)	0	0	0	0	0							
Storage Bay Dist (ft)	200	200				100	280	280				280
Storage Blk Time (%)	0	1	0		5	0			3		0	
Queuing Penalty (veh)	0	2	1		6	0			4		0	

Intersection: 29: WB Right & EB Off Ramp/EB Left

Movement	EB
Directions Served	R
Maximum Queue (ft)	2
Average Queue (ft)	0
95th Queue (ft)	2
Link Distance (ft)	1117
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 33: WB Left & WB Right/WB Off Ramp

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	3	21
Average Queue (ft)	0	1
95th Queue (ft)	3	14
Link Distance (ft)		1387
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	500	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 35: Jackrabbit Trail

Movement	NB	NB	SW
Directions Served	R	R	L
Maximum Queue (ft)	46	90	57
Average Queue (ft)	3	9	9
95th Queue (ft)	24	48	37
Link Distance (ft)	507	507	96
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 41: SB 1/Jackrabbit Trail & NB 8

Movement	NB	SW	SW	SW
Directions Served	R	T	T	T
Maximum Queue (ft)	16	241	185	129
Average Queue (ft)	1	90	35	11
95th Queue (ft)	9	247	148	89
Link Distance (ft)	94	253	253	253
Upstream Blk Time (%)		1	0	0
Queuing Penalty (veh)		5	0	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 927

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2	2
Vehs Entered	6680	6531	6447	6490	6517	6530	6526
Vehs Exited	6670	6523	6488	6520	6527	6527	6556
Starting Vehs	235	228	237	256	241	216	255
Ending Vehs	245	236	196	226	231	219	225
Travel Distance (mi)	5427	5272	5266	5266	5324	5297	5287
Travel Time (hr)	253.4	243.7	243.2	247.2	245.8	242.3	244.7
Total Delay (hr)	112.4	107.0	106.6	110.6	107.7	105.1	107.5
Total Stops	10459	9851	9891	10131	9978	9856	10138
Fuel Used (gal)	226.1	219.7	219.9	219.4	221.5	220.0	220.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	3	3	3	3
# of Recorded Intervals	2	2	2	2
Vehs Entered	6596	6429	6482	6524
Vehs Exited	6601	6432	6476	6531
Starting Vehs	219	231	233	230
Ending Vehs	214	228	239	219
Travel Distance (mi)	5332	5196	5246	5291
Travel Time (hr)	245.4	241.3	242.7	245.0
Total Delay (hr)	107.1	106.3	107.0	107.7
Total Stops	9961	9905	10000	10020
Fuel Used (gal)	221.9	216.6	218.0	220.3

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information V15

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1962	1945	1900	1912	1872	1891	1926
Vehs Exited	1919	1914	1824	1849	1795	1832	1886
Starting Vehs	235	228	237	256	241	216	255
Ending Vehs	278	259	313	319	318	275	295
Travel Distance (mi)	1547	1517	1485	1486	1446	1472	1488
Travel Time (hr)	75.1	73.7	71.2	73.2	68.4	69.9	72.4
Total Delay (hr)	34.8	34.6	32.8	34.7	31.0	31.7	33.8
Total Stops	3203	3117	2965	3061	2867	2936	3108
Fuel Used (gal)	64.7	63.9	62.4	62.5	60.3	61.6	62.8

Interval #1 Information V15

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	1932	1826	1929	1911
Vehs Exited	1850	1764	1868	1849
Starting Vehs	219	231	233	230
Ending Vehs	301	293	294	289
Travel Distance (mi)	1485	1422	1491	1484
Travel Time (hr)	71.1	67.9	72.8	71.6
Total Delay (hr)	32.6	31.0	34.2	33.1
Total Stops	3034	2840	3171	3026
Fuel Used (gal)	62.6	59.8	62.8	62.3

Interval #2 Information Runoff

Start Time	5:15
End Time	6:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	4718	4586	4547	4578	4645	4639	4600
Vehs Exited	4751	4609	4664	4671	4732	4695	4670
Starting Vehs	278	259	313	319	318	275	295
Ending Vehs	245	236	196	226	231	219	225
Travel Distance (mi)	3879	3755	3782	3780	3878	3825	3799
Travel Time (hr)	178.3	170.0	172.0	174.0	177.4	172.4	172.3
Total Delay (hr)	77.6	72.4	73.8	75.8	76.7	73.4	73.7
Total Stops	7256	6734	6926	7070	7111	6920	7030
Fuel Used (gal)	161.3	155.8	157.5	156.9	161.2	158.4	157.3

Interval #2 Information Runoff

Start Time	5:15
End Time	6:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	4664	4603	4553	4613
Vehs Exited	4751	4668	4608	4680
Starting Vehs	301	293	294	289
Ending Vehs	214	228	239	219
Travel Distance (mi)	3848	3774	3755	3808
Travel Time (hr)	174.3	173.4	169.9	173.4
Total Delay (hr)	74.5	75.2	72.7	74.6
Total Stops	6927	7065	6829	6981
Fuel Used (gal)	159.3	156.9	155.3	158.0

1: Jackrabbit Trail Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	24.4	7.7	6.8	3.2	23.6	6.1	8.7

2: SB 7/SB 6 & Southbound Left Performance by movement

Movement	SWL	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.5	2.0	1.9

3: SB 8/SB 7 & NB 2/NB 3 Performance by movement

Movement	NBT	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	5.5	8.6	7.4

5: EB Left & NB 3/NB 4 Performance by movement

Movement	NBT	NEL	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	4.5	8.1	5.7

8: SB 5/SB 4 & WB Left Performance by movement

Movement	SBT	SWL	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	6.0	9.5	7.1

9: NB 5/NB 6 & NB Left Performance by movement

Movement	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	2.6	2.5	2.5

11: NB 6/NB 7 & SB 4/SB 3 Performance by movement

Movement	SBT	NET	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	12.6	9.1	10.8

13: SB Right & SB 3/SB 2 Performance by movement

Movement	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	2.1	0.7	1.8

14: NB 7/NB 8 & WB Right Performance by movement

Movement	NBT	NWR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	8.4	8.6	8.5

16: Jackrabbit Trail & Roosevelt Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	1.0	0.2	0.2	0.2	2.2	0.1	2.3	0.0	0.0	0.0
Total Del/Veh (s)	40.4	29.3	7.4	52.5	54.1	24.5	42.4	22.9	3.4	42.0	23.6	3.9

16: Jackrabbit Trail & Roosevelt Street Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	25.5

17: NB 1/NB 2 & Northbound Right Performance by movement

Movement	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	2.3	2.9	2.6

18: SB 9/SB 8 & WB Right Performance by movement

Movement	SBT	SET	SER	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.5	0.8	7.4	4.8

21: Northbound Right & EB On Ramp & Southbound Left Performance by movement

Movement	SBL	SBT	NER	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.8	1.0	9.7	9.1

23: Jackrabbit Trail/SB 10 Performance by movement

Movement	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	2.7	1.2	1.9

24: NB Left/SB Right & WB On Ramp Performance by movement

Movement	NBL	NBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.0	4.1	0.4	0.6

26: Jackrabbit Trail Performance by movement

Movement	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.1	2.3	1.2	1.7

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.8	0.3	2.8	2.5	0.2	2.5	0.0	0.0	0.1	2.8	0.3	2.6
Total Del/Veh (s)	37.4	47.6	10.1	39.7	39.5	5.7	27.3	20.5	3.9	43.0	40.4	4.1

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	27.9

29: WB Right/EB Left & EB Off Ramp Performance by movement

Movement	EBL	EBR	All
Denied Del/Veh (s)	1.0	0.8	1.0
Total Del/Veh (s)	0.9	0.7	0.9

33: WB Left/WB Right & WB Off Ramp Performance by movement

Movement	WBL	WBR	All
Denied Del/Veh (s)	0.7	0.7	0.7
Total Del/Veh (s)	1.8	3.3	2.7

35: Jackrabbit Trail Performance by movement

Movement	SBR	NET	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.3	2.9	17.9	2.4

41: SB 1 & NB 8/Jackrabbit Trail Performance by movement

Movement	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.9	5.5	6.7	4.0

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	56.6

Intersection: 1: Jackrabbit Trail

Movement	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	R	T	T	T	R	L
Maximum Queue (ft)	80	62	139	168	187	42	155
Average Queue (ft)	29	25	62	79	99	11	75
95th Queue (ft)	64	51	119	146	168	34	131
Link Distance (ft)	305	305	139	139	139	139	109
Upstream Blk Time (%)			0	1	2		3
Queuing Penalty (veh)			1	3	7		4
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 2: SB 7/SB 6 & Southbound Left

Movement	SW	SW	SW
Directions Served	LT	T	T
Maximum Queue (ft)	18	17	40
Average Queue (ft)	1	1	3
95th Queue (ft)	8	11	20
Link Distance (ft)	94	94	94
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SB 8/SB 7 & NB 2/NB 3

Movement	NB	NB	NB	SW	SW	SW
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	134	98	114	111	125	131
Average Queue (ft)	65	35	44	54	70	88
95th Queue (ft)	121	75	90	99	112	128
Link Distance (ft)	75	75	75	80	80	80
Upstream Blk Time (%)	5	1	2	2	4	10
Queuing Penalty (veh)	15	3	6	8	17	43
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: EB Left & NB 3/NB 4

Movement	NB	NB	NB	NE	NE
Directions Served	T	T	T	L	L
Maximum Queue (ft)	93	50	54	119	121
Average Queue (ft)	32	9	11	56	55
95th Queue (ft)	80	34	35	101	99
Link Distance (ft)	79	79	79	120	120
Upstream Blk Time (%)	2	0	0	0	0
Queuing Penalty (veh)	7	0	0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: SB 5/SB 4 & WB Left

Movement	SB	SB	SB	SW	SW
Directions Served	T	T	T	L	L
Maximum Queue (ft)	93	73	79	115	140
Average Queue (ft)	36	18	39	54	78
95th Queue (ft)	82	56	77	97	122
Link Distance (ft)	65	65	65	149	149
Upstream Blk Time (%)	4	1	3	0	0
Queuing Penalty (veh)	13	4	11	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: NB 5/NB 6 & NB Left

Movement	NB	NB	NB
Directions Served	LT	T	T
Maximum Queue (ft)	147	71	65
Average Queue (ft)	22	3	5
95th Queue (ft)	90	33	31
Link Distance (ft)	126	126	126
Upstream Blk Time (%)	1	0	0
Queuing Penalty (veh)	4	1	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: NB 6/NB 7 & SB 4/SB 3

Movement	SB	SB	SB	NE	NE	NE
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	178	187	159	98	87	92
Average Queue (ft)	134	124	92	65	46	55
95th Queue (ft)	188	186	139	102	81	92
Link Distance (ft)	74	74	74	28	28	28
Upstream Blk Time (%)	15	16	15	26	18	32
Queuing Penalty (veh)	49	52	51	93	65	114
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 13: SB Right & SB 3/SB 2

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	89	63	59
Average Queue (ft)	13	6	4
95th Queue (ft)	54	34	27
Link Distance (ft)	85	85	85
Upstream Blk Time (%)	0	0	0
Queuing Penalty (veh)	1	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: NB 7/NB 8 & WB Right

Movement	NB	NB	NB	NW	NW
Directions Served	T	T	T	R	R
Maximum Queue (ft)	81	56	82	170	128
Average Queue (ft)	39	21	35	106	69
95th Queue (ft)	71	47	71	160	119
Link Distance (ft)	101	101	101	110	110
Upstream Blk Time (%)	0		0	5	1
Queuing Penalty (veh)	1		1	17	2
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 16: Jackrabbit Trail & Roosevelt Street

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	LTR	L	L	T	T	T	R
Maximum Queue (ft)	270	324	65	88	55	131	108	141	154	158	149	17
Average Queue (ft)	142	197	20	36	6	53	33	67	94	98	69	1
95th Queue (ft)	246	289	52	68	30	107	81	119	146	149	137	9
Link Distance (ft)		3015	3015			1844			1785	1785	1785	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			150	110		220	220				150
Storage Blk Time (%)	1	10				2					0	
Queuing Penalty (veh)	3	29				0					0	

Intersection: 16: Jackrabbit Trail & Roosevelt Street

Movement	SB	SB	SB	SB	SB
Directions Served	L	T	T	T	R
Maximum Queue (ft)	78	208	211	242	212
Average Queue (ft)	27	115	125	127	40
95th Queue (ft)	61	181	188	199	143
Link Distance (ft)		352	352	352	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200				150
Storage Blk Time (%)		0		4	0
Queuing Penalty (veh)		0		14	0

Intersection: 17: NB 1/NB 2 & Northbound Right

Movement	NB	NB	NB
Directions Served	T	T	TR
Maximum Queue (ft)	53	106	171
Average Queue (ft)	3	6	21
95th Queue (ft)	25	45	97
Link Distance (ft)	167	167	167
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 18: SB 9/SB 8 & WB Right

Movement	SB	SB	SB	SE	SE
Directions Served	T	T	T	R	R
Maximum Queue (ft)	47	58	77	75	57
Average Queue (ft)	9	16	39	31	13
95th Queue (ft)	29	41	71	66	43
Link Distance (ft)	72	72	72	71	71
Upstream Blk Time (%)	0	0	2	1	0
Queuing Penalty (veh)	0	1	8	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 21: Northbound Right & EB On Ramp & Southbound Left

Movement	SB	NE
Directions Served	L	R
Maximum Queue (ft)	150	191
Average Queue (ft)	62	117
95th Queue (ft)	120	201
Link Distance (ft)	131	86
Upstream Blk Time (%)	0	14
Queuing Penalty (veh)	1	79
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 23: Jackrabbit Trail/SB 10

Movement	NB	NB	NB
Directions Served	R	R	R
Maximum Queue (ft)	16	34	34
Average Queue (ft)	1	1	2
95th Queue (ft)	9	18	20
Link Distance (ft)	357	357	357
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 24: NB Left/SB Right & WB On Ramp

Movement	NB	SB
Directions Served	L	R
Maximum Queue (ft)	33	36
Average Queue (ft)	2	1
95th Queue (ft)	29	26
Link Distance (ft)	97	89
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 26: Jackrabbit Trail

Movement	NB	NB	NB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	95	121	97	22
Average Queue (ft)	11	16	14	1
95th Queue (ft)	53	73	59	12
Link Distance (ft)	109	109	109	357
Upstream Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	1	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	45	96	234	209	153	258	140	174	227	208	161	135
Average Queue (ft)	7	41	146	114	32	111	41	80	145	122	56	37
95th Queue (ft)	31	79	215	195	103	220	96	142	203	190	131	106
Link Distance (ft)			1368	1368	1368				1573	1573	1573	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300	300				300	275	275				275
Storage Blk Time (%)						0			0			
Queuing Penalty (veh)						0			0			

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	200	213	273	224	222	175	165	194	290	260	236	35
Average Queue (ft)	155	168	129	120	116	58	45	112	173	136	126	1
95th Queue (ft)	206	218	243	186	188	156	124	173	256	233	210	16
Link Distance (ft)			214	214	214				938	938	938	
Upstream Blk Time (%)	0	1	1	0	0							
Queuing Penalty (veh)	0	0	6	2	1							
Storage Bay Dist (ft)	200	200				100	280	280				280
Storage Blk Time (%)	0	3	1		14	2			0		0	
Queuing Penalty (veh)	1	7	5		44	5			1		0	

Intersection: 29: WB Right/EB Left & EB Off Ramp

Movement	EB	EB	EB
Directions Served	L	L	R
Maximum Queue (ft)	7	8	2
Average Queue (ft)	0	0	0
95th Queue (ft)	6	7	2
Link Distance (ft)		1114	1114
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	500		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 33: WB Left/WB Right & WB Off Ramp

Movement	WB	WB	WB
Directions Served	L	R	R
Maximum Queue (ft)	11	50	20
Average Queue (ft)	0	2	1
95th Queue (ft)	8	25	20
Link Distance (ft)	1549	1549	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			500
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 35: Jackrabbit Trail

Movement	SB	SB	SB	B39	SW
Directions Served	R	R	R	T	T
Maximum Queue (ft)	2	6	3	23	86
Average Queue (ft)	0	0	0	1	33
95th Queue (ft)	2	6	4	23	71
Link Distance (ft)	159	159	159	149	139
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 41: SB 1 & NB 8/Jackrabbit Trail

Movement	NB	NB	NB	SB	SB	SB
Directions Served	T	T	T	R	R	R
Maximum Queue (ft)	39	3	8	28	1	14
Average Queue (ft)	2	0	0	1	0	0
95th Queue (ft)	22	3	6	12	1	7
Link Distance (ft)	88	88	88	214	214	214
Upstream Blk Time (%)	0					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 802

2050 TDI-1L

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2	2
Vehs Entered	4861	4762	4732	4865	4712	4651	4850
Vehs Exited	4876	4789	4743	4898	4735	4662	4880
Starting Vehs	172	196	168	219	172	184	201
Ending Vehs	157	169	157	186	149	173	171
Travel Distance (mi)	3246	3230	3152	3277	3185	3144	3274
Travel Time (hr)	206.0	212.9	187.6	211.4	206.3	196.3	201.1
Total Delay (hr)	89.7	97.2	74.9	94.2	92.2	83.7	84.2
Total Stops	7876	7883	6932	7877	7755	7473	7602
Fuel Used (gal)	132.9	133.5	125.6	134.1	131.0	127.7	132.3

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	3	3	3	3
# of Recorded Intervals	2	2	2	2
Vehs Entered	4797	4828	4831	4788
Vehs Exited	4807	4840	4860	4811
Starting Vehs	209	195	204	190
Ending Vehs	199	183	175	172
Travel Distance (mi)	3217	3244	3253	3222
Travel Time (hr)	236.8	205.8	196.9	206.1
Total Delay (hr)	121.9	89.5	80.5	90.8
Total Stops	8586	7724	7380	7706
Fuel Used (gal)	139.2	132.1	130.1	131.9

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1419	1405	1407	1417	1347	1304	1395
Vehs Exited	1319	1320	1338	1344	1248	1263	1356
Starting Vehs	172	196	168	219	172	184	201
Ending Vehs	272	281	237	292	271	225	240
Travel Distance (mi)	926	932	909	938	876	859	922
Travel Time (hr)	60.7	64.5	55.1	61.6	56.0	53.1	57.6
Total Delay (hr)	27.5	31.1	22.8	28.1	24.7	22.3	24.7
Total Stops	2377	2379	2057	2387	2173	2043	2145
Fuel Used (gal)	38.5	39.2	36.5	38.8	35.7	34.6	37.6

Interval #1 Information

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	1372	1424	1395	1387
Vehs Exited	1304	1351	1355	1319
Starting Vehs	209	195	204	190
Ending Vehs	277	268	244	258
Travel Distance (mi)	887	926	929	910
Travel Time (hr)	61.5	61.8	57.7	59.0
Total Delay (hr)	29.8	28.7	24.5	26.4
Total Stops	2415	2349	2205	2256
Fuel Used (gal)	37.4	38.1	37.7	37.4

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	3442	3357	3325	3448	3365	3347	3455
Vehs Exited	3557	3469	3405	3554	3487	3399	3524
Starting Vehs	272	281	237	292	271	225	240
Ending Vehs	157	169	157	186	149	173	171
Travel Distance (mi)	2320	2299	2243	2340	2309	2285	2352
Travel Time (hr)	145.3	148.4	132.5	149.8	150.3	143.2	143.5
Total Delay (hr)	62.2	66.1	52.1	66.1	67.6	61.4	59.5
Total Stops	5499	5504	4875	5490	5582	5430	5457
Fuel Used (gal)	94.4	94.4	89.1	95.3	95.3	93.1	94.7

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	3425	3404	3436	3399
Vehs Exited	3503	3489	3505	3489
Starting Vehs	277	268	244	258
Ending Vehs	199	183	175	172
Travel Distance (mi)	2330	2318	2324	2312
Travel Time (hr)	175.4	143.9	139.3	147.1
Total Delay (hr)	92.1	60.8	56.1	64.4
Total Stops	6171	5375	5175	5454
Fuel Used (gal)	101.8	94.0	92.4	94.4

1: Jackrabbit Trail & WB On Ramp/WB Off Ramp Performance by movement

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	1.5	0.4	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	55.6	8.3	53.6	40.2	35.4	7.3	31.3

4: Jackrabbit Trail & EB Off Ramp/EB On Ramp Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.6	0.6	0.0	0.0	0.9	0.1	0.5
Total Del/Veh (s)	40.0	6.4	34.9	16.3	50.2	15.3	29.3

8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.6	0.2	2.4	2.9	0.2	0.2	2.6	0.2	2.6	0.0	0.0	0.0
Total Del/Veh (s)	47.8	50.7	5.6	55.4	55.1	15.3	50.4	6.4	1.9	48.3	13.3	3.3

8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	16.5

11: Jackrabbit Trail & Gas Station Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	17.3	8.3	5.2	4.1	14.2	7.0

13: Jackrabbit Trail Performance by movement

Movement	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.3	1.3	1.3	1.3

14: Jackrabbit Trail Performance by movement

Movement	NBT	SBT	SER	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.3	4.7	0.2	0.9

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.8	0.2	2.9	3.2	0.2	3.1	0.0	0.0	0.0	1.1	0.3	0.9
Total Del/Veh (s)	34.5	45.8	6.4	40.4	37.1	2.3	38.2	24.5	5.6	58.2	30.4	2.0

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	29.5

Total Network Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	64.5

Intersection: 1: Jackrabbit Trail & WB On Ramp/WB Off Ramp

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	TR	R	L	T	T	T	T	T	T	T
Maximum Queue (ft)	248	182	117	119	217	169	142	162	247	353	304	160
Average Queue (ft)	137	80	62	57	94	82	60	86	176	171	102	61
95th Queue (ft)	229	146	99	96	183	151	123	141	298	441	303	127
Link Distance (ft)		2265	2265		450	450	450	450		493	493	493
Upstream Blk Time (%)										1	0	
Queuing Penalty (veh)										6	0	
Storage Bay Dist (ft)	500			500					200			
Storage Blk Time (%)									27	20		0
Queuing Penalty (veh)									69	52		1

Intersection: 1: Jackrabbit Trail & WB On Ramp/WB Off Ramp

Movement	SB
Directions Served	R
Maximum Queue (ft)	83
Average Queue (ft)	32
95th Queue (ft)	64
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Jackrabbit Trail & EB Off Ramp/EB On Ramp

Movement	EB	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	TR	R	T	T	T	T	R	L	T	T
Maximum Queue (ft)	168	138	72	72	146	180	131	253	222	482	394	328
Average Queue (ft)	80	70	35	26	66	82	55	58	118	409	116	104
95th Queue (ft)	142	117	61	52	131	147	105	149	205	549	310	243
Link Distance (ft)		1729	1729			306	306	306		450	450	450
Upstream Blk Time (%)								0		9	1	0
Queuing Penalty (veh)								0		29	2	0
Storage Bay Dist (ft)	500			500	75				150			
Storage Blk Time (%)					11	13		0	6			
Queuing Penalty (veh)					13	15		1	7			

Intersection: 4: Jackrabbit Trail & EB Off Ramp/EB On Ramp

Movement	SB
Directions Served	T
Maximum Queue (ft)	257
Average Queue (ft)	125
95th Queue (ft)	210
Link Distance (ft)	450
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	TR	L	L	T	T	T	R
Maximum Queue (ft)	122	178	59	67	40	92	123	144	125	101	155	23
Average Queue (ft)	36	79	15	28	8	31	32	78	47	22	64	2
95th Queue (ft)	84	142	46	56	28	72	85	129	101	66	128	13
Link Distance (ft)		1698	1698			1414			1190	1190	1190	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			150	110		220	220				150
Storage Blk Time (%)		0				0					0	
Queuing Penalty (veh)		0				0					0	

Intersection: 8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road

Movement	SB	SB	SB	SB	SB
Directions Served	L	T	T	T	R
Maximum Queue (ft)	63	106	127	143	89
Average Queue (ft)	19	43	68	78	10
95th Queue (ft)	51	92	112	129	54
Link Distance (ft)		490	490	490	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200				150
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				1	0

Intersection: 11: Jackrabbit Trail & Gas Station

Movement	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	R	T	T	T	R	L
Maximum Queue (ft)	62	61	120	86	183	75	135
Average Queue (ft)	22	25	51	28	74	10	61
95th Queue (ft)	51	49	101	71	144	46	108
Link Distance (ft)	248	248	88	88	88		190
Upstream Blk Time (%)			1	0	4	0	0
Queuing Penalty (veh)			2	0	10	0	0
Storage Bay Dist (ft)						150	
Storage Blk Time (%)					4	0	
Queuing Penalty (veh)					1	0	

Intersection: 13: Jackrabbit Trail

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 14: Jackrabbit Trail

Movement	NB	SB	B18
Directions Served	T	T	T
Maximum Queue (ft)	10	38	9
Average Queue (ft)	0	3	0
95th Queue (ft)	8	21	7
Link Distance (ft)	490	88	175
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	33	95	265	238	160	209	147	168	201	168	98	64
Average Queue (ft)	3	37	170	133	34	85	65	78	110	79	15	8
95th Queue (ft)	19	76	244	218	119	179	123	138	175	151	57	46
Link Distance (ft)			781	781	781				730	730	730	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300	300				300	275	275				275
Storage Blk Time (%)			0						0			
Queuing Penalty (veh)			0						0			

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	194	207	190	241	278	175	126	227	400	355	229	22
Average Queue (ft)	93	118	95	130	155	46	27	116	221	145	106	1
95th Queue (ft)	164	183	167	201	234	165	88	247	469	408	198	13
Link Distance (ft)			493	493	493				945	945	945	
Upstream Blk Time (%)									0			
Queuing Penalty (veh)									0			
Storage Bay Dist (ft)	200	200				100	280	280				280
Storage Blk Time (%)	0	0	0		21			0	7		0	
Queuing Penalty (veh)	0	1	1		22			0	9		0	

Network Summary

Network wide Queuing Penalty: 244

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2	2
Vehs Entered	6624	6568	6453	6411	6416	6525	6507
Vehs Exited	6656	6611	6505	6413	6416	6518	6552
Starting Vehs	298	305	309	282	250	270	272
Ending Vehs	266	262	257	280	250	277	227
Travel Distance (mi)	4583	4485	4455	4359	4419	4471	4473
Travel Time (hr)	302.5	294.1	294.5	284.8	287.5	290.3	289.0
Total Delay (hr)	138.1	132.9	134.9	128.2	129.1	129.6	128.4
Total Stops	11428	11068	11077	10722	10780	11016	10952
Fuel Used (gal)	191.1	186.0	185.5	180.4	183.1	184.6	185.3

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	3	3	3	3
# of Recorded Intervals	2	2	2	2
Vehs Entered	6550	6545	6431	6504
Vehs Exited	6570	6560	6454	6524
Starting Vehs	286	276	278	284
Ending Vehs	266	261	255	255
Travel Distance (mi)	4495	4490	4422	4465
Travel Time (hr)	299.3	293.8	285.8	292.1
Total Delay (hr)	138.1	132.5	126.8	131.8
Total Stops	10901	11076	10622	10967
Fuel Used (gal)	186.9	186.6	182.4	185.2

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1925	1933	1910	1928	1805	1898	1900
Vehs Exited	1877	1900	1832	1805	1721	1804	1842
Starting Vehs	298	305	309	282	250	270	272
Ending Vehs	346	338	387	405	334	364	330
Travel Distance (mi)	1288	1281	1266	1239	1201	1263	1249
Travel Time (hr)	89.1	87.1	88.3	85.1	80.4	83.9	84.5
Total Delay (hr)	43.0	41.0	43.1	40.9	37.4	38.7	39.8
Total Stops	3406	3404	3430	3346	3051	3289	3244
Fuel Used (gal)	54.9	53.9	53.9	52.2	50.3	53.2	52.9

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	1907	1935	1880	1902
Vehs Exited	1816	1835	1827	1827
Starting Vehs	286	276	278	284
Ending Vehs	377	376	331	358
Travel Distance (mi)	1260	1286	1247	1258
Travel Time (hr)	91.2	90.2	83.8	86.4
Total Delay (hr)	46.0	44.0	39.2	41.3
Total Stops	3189	3569	3142	3307
Fuel Used (gal)	54.1	54.8	52.2	53.2

Interval #2 Information

Start Time	5:15
End Time	6:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	4699	4635	4543	4483	4611	4627	4607
Vehs Exited	4779	4711	4673	4608	4695	4714	4710
Starting Vehs	346	338	387	405	334	364	330
Ending Vehs	266	262	257	280	250	277	227
Travel Distance (mi)	3295	3204	3189	3120	3218	3208	3223
Travel Time (hr)	213.4	207.1	206.1	199.7	207.1	206.4	204.5
Total Delay (hr)	95.2	91.9	91.7	87.3	91.7	90.9	88.6
Total Stops	8022	7664	7647	7376	7729	7727	7708
Fuel Used (gal)	136.2	132.1	131.6	128.2	132.7	131.4	132.3

Interval #2 Information

Start Time	5:15
End Time	6:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	4643	4610	4551	4600
Vehs Exited	4754	4725	4627	4697
Starting Vehs	377	376	331	358
Ending Vehs	266	261	255	255
Travel Distance (mi)	3234	3204	3175	3207
Travel Time (hr)	208.1	203.5	201.9	205.8
Total Delay (hr)	92.0	88.5	87.6	90.5
Total Stops	7712	7507	7480	7658
Fuel Used (gal)	132.9	131.8	130.2	131.9

1: Jackrabbit Trail & WB On Ramp/WB Off Ramp Performance by movement

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.7	0.3	0.5	0.0	0.0	0.0	0.1	0.2
Total Del/Veh (s)	39.3	30.5	13.0	42.5	25.1	39.3	13.5	28.1

4: Jackrabbit Trail & EB Off Ramp/EB On Ramp Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.4	0.6	0.1	0.1	0.0	0.0	0.2
Total Del/Veh (s)	38.4	9.0	37.6	15.0	34.0	16.2	25.0

8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.6	0.2	1.9	3.0	0.2	0.2	2.5	0.3	2.4	0.1	0.0	0.1
Total Del/Veh (s)	43.8	30.4	8.5	54.6	55.8	20.6	49.8	17.0	3.5	67.1	12.6	5.0

8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	22.4

11: Jackrabbit Trail & Gas Station Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	27.7	10.3	10.0	6.6	26.6	1.4	12.0

13: Jackrabbit Trail Performance by movement

Movement	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.9	1.5	1.8	1.8

14: Jackrabbit Trail Performance by movement

Movement	NBT	SBT	SER	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.8	2.2	0.3	1.6

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.4	0.6	3.2	2.8	0.2	2.8	0.0	0.0	0.1	1.1	0.2	1.2
Total Del/Veh (s)	39.5	48.5	17.7	39.5	41.1	3.9	53.3	28.2	7.9	55.8	31.5	2.4

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	33.3

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	69.0

Intersection: 1: Jackrabbit Trail & WB On Ramp/WB Off Ramp

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	TR	R	L	T	T	T	T	T	T	T
Maximum Queue (ft)	262	248	212	219	243	344	233	265	182	206	245	286
Average Queue (ft)	141	152	94	85	80	178	86	119	96	120	136	161
95th Queue (ft)	222	224	160	158	175	306	180	213	160	186	210	244
Link Distance (ft)		2265	2265		450	450	450	450		493	493	493
Upstream Blk Time (%)						0						
Queuing Penalty (veh)						0						
Storage Bay Dist (ft)	500			500					200			
Storage Blk Time (%)									0	0		15
Queuing Penalty (veh)									0	1		53

Intersection: 1: Jackrabbit Trail & WB On Ramp/WB Off Ramp

Movement	SB
Directions Served	R
Maximum Queue (ft)	225
Average Queue (ft)	89
95th Queue (ft)	192
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	1
Queuing Penalty (veh)	2

Intersection: 4: Jackrabbit Trail & EB Off Ramp/EB On Ramp

Movement	EB	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	TR	R	T	T	T	T	R	L	T	T
Maximum Queue (ft)	252	243	68	54	150	402	309	370	225	255	179	200
Average Queue (ft)	136	126	27	18	104	213	131	150	143	118	87	113
95th Queue (ft)	210	206	54	42	191	362	249	300	243	210	145	176
Link Distance (ft)		1729	1729			306	306	306		450	450	450
Upstream Blk Time (%)						4	0	1				
Queuing Penalty (veh)						18	1	5				
Storage Bay Dist (ft)	500			500	75				150			
Storage Blk Time (%)					11	42		5	9			
Queuing Penalty (veh)					24	89		27	20			

Intersection: 4: Jackrabbit Trail & EB Off Ramp/EB On Ramp

Movement	SB
Directions Served	T
Maximum Queue (ft)	228
Average Queue (ft)	147
95th Queue (ft)	212
Link Distance (ft)	450
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	TR	L	L	T	T	T	R
Maximum Queue (ft)	275	477	137	99	81	119	141	163	195	185	240	108
Average Queue (ft)	187	248	30	42	20	40	47	94	88	64	121	10
95th Queue (ft)	287	372	85	76	54	88	114	147	161	148	215	54
Link Distance (ft)		1698	1698			1414			1190	1190	1190	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			150	110		220	220				150
Storage Blk Time (%)	2	16		0	0	1			0		5	
Queuing Penalty (veh)	6	48		0	0	0			0		1	

Intersection: 8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road

Movement	SB	SB	SB	SB	SB
Directions Served	L	T	T	T	R
Maximum Queue (ft)	84	144	152	175	90
Average Queue (ft)	31	63	74	76	5
95th Queue (ft)	71	118	126	137	38
Link Distance (ft)		490	490	490	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200				150
Storage Blk Time (%)		0		0	
Queuing Penalty (veh)		0		2	

Intersection: 11: Jackrabbit Trail & Gas Station

Movement	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	R	T	T	T	R	L
Maximum Queue (ft)	82	64	214	154	231	87	192
Average Queue (ft)	32	26	116	76	174	14	90
95th Queue (ft)	67	52	196	133	264	60	155
Link Distance (ft)	248	248	88	88	88		190
Upstream Blk Time (%)			10	4	18	0	0
Queuing Penalty (veh)			48	21	83	0	1
Storage Bay Dist (ft)						150	
Storage Blk Time (%)					18	0	
Queuing Penalty (veh)					5	0	

Intersection: 13: Jackrabbit Trail

Movement	NB	NB
Directions Served	T	T
Maximum Queue (ft)	39	11
Average Queue (ft)	2	1
95th Queue (ft)	26	16
Link Distance (ft)	190	190
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Jackrabbit Trail

Movement	NB	NB	NB	SB	SE	B18
Directions Served	T	T	T	T	R	T
Maximum Queue (ft)	26	31	150	41	6	5
Average Queue (ft)	1	1	25	3	0	0
95th Queue (ft)	13	24	101	20	6	5
Link Distance (ft)	490	490	490	88	122	175
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	53	104	260	295	277	336	142	188	277	247	166	145
Average Queue (ft)	6	43	161	129	61	159	37	84	171	142	54	39
95th Queue (ft)	31	87	235	254	282	311	93	152	248	223	147	109
Link Distance (ft)			781	781	781				730	730	730	
Upstream Blk Time (%)				0	1							
Queuing Penalty (veh)				0	0							
Storage Bay Dist (ft)	300	300				300	275	275				275
Storage Blk Time (%)			0			4			0			
Queuing Penalty (veh)			0			5			1			

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	237	275	500	459	358	175	188	228	266	241	247	26
Average Queue (ft)	218	246	229	171	182	103	73	131	159	128	135	1
95th Queue (ft)	266	302	477	320	286	222	164	199	241	217	217	17
Link Distance (ft)			493	493	493				945	945	945	
Upstream Blk Time (%)			1	1								
Queuing Penalty (veh)			5	5								
Storage Bay Dist (ft)	200	200				100	280	280				280
Storage Blk Time (%)	11	24	0		33	2		0	0		0	
Queuing Penalty (veh)	29	65	1		102	5		0	0		0	

Network Summary

Network wide Queuing Penalty: 675

2050 TDI-2L

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2	2
Vehs Entered	4792	4800	4766	4796	4869	4769	4778
Vehs Exited	4835	4817	4772	4841	4857	4819	4795
Starting Vehs	184	180	156	190	176	180	183
Ending Vehs	141	163	150	145	188	130	166
Travel Distance (mi)	3159	3151	3118	3137	3165	3103	3126
Travel Time (hr)	178.3	178.4	175.5	178.9	179.7	174.2	176.0
Total Delay (hr)	81.5	82.1	80.1	82.8	83.2	79.3	80.6
Total Stops	6888	6923	6808	6967	6861	6681	6701
Fuel Used (gal)	130.4	130.2	128.8	130.0	130.8	127.9	128.7

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	3	3	3	3
# of Recorded Intervals	2	2	2	2
Vehs Entered	4784	4787	4843	4795
Vehs Exited	4816	4787	4859	4818
Starting Vehs	179	155	176	176
Ending Vehs	147	155	160	151
Travel Distance (mi)	3086	3106	3172	3132
Travel Time (hr)	175.2	174.2	179.9	177.0
Total Delay (hr)	80.9	79.5	83.1	81.3
Total Stops	6678	6727	6889	6809
Fuel Used (gal)	127.6	128.9	130.7	129.4

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15

No data recorded this interval.

Interval #1 Information

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1403	1434	1405	1389	1382	1376	1423
Vehs Exited	1372	1406	1350	1372	1358	1338	1405
Starting Vehs	184	180	156	190	176	180	183
Ending Vehs	215	208	211	207	200	218	201
Travel Distance (mi)	904	923	886	889	883	877	907
Travel Time (hr)	52.7	53.8	50.6	51.4	50.9	50.9	53.0
Total Delay (hr)	25.0	25.5	23.7	24.2	24.1	24.1	25.4
Total Stops	2032	2091	2003	1992	1935	1931	2023
Fuel Used (gal)	37.6	38.5	36.6	36.9	36.8	36.6	37.5

Interval #1 Information

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	1436	1371	1440	1405
Vehs Exited	1383	1334	1390	1370
Starting Vehs	179	155	176	176
Ending Vehs	232	192	226	207
Travel Distance (mi)	902	877	928	898
Travel Time (hr)	53.1	50.1	54.6	52.1
Total Delay (hr)	25.7	23.4	26.4	24.7
Total Stops	2036	1940	2061	2003
Fuel Used (gal)	37.8	36.5	38.3	37.3

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	3389	3366	3361	3407	3487	3393	3355
Vehs Exited	3463	3411	3422	3469	3499	3481	3390
Starting Vehs	215	208	211	207	200	218	201
Ending Vehs	141	163	150	145	188	130	166
Travel Distance (mi)	2255	2227	2233	2248	2282	2227	2219
Travel Time (hr)	125.6	124.6	124.9	127.5	128.9	123.3	123.0
Total Delay (hr)	56.5	56.5	56.4	58.6	59.1	55.3	55.2
Total Stops	4856	4832	4805	4975	4926	4750	4678
Fuel Used (gal)	92.7	91.7	92.2	93.0	94.0	91.3	91.2

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	3348	3416	3403	3393
Vehs Exited	3433	3453	3469	3448
Starting Vehs	232	192	226	207
Ending Vehs	147	155	160	151
Travel Distance (mi)	2184	2229	2244	2235
Travel Time (hr)	122.1	124.1	125.3	124.9
Total Delay (hr)	55.2	56.1	56.7	56.6
Total Stops	4642	4787	4828	4809
Fuel Used (gal)	89.8	92.4	92.3	92.1

1: Jackrabbit Trail & WB On Ramp/WB Off Ramp Performance by movement

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	1.8	0.5	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	45.8	8.3	37.5	31.3	23.2	10.9	23.5

4: Jackrabbit Trail & EB Off Ramp/EB On Ramp Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.9	0.9	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	37.1	34.7	30.2	14.1	30.3	14.5	24.9

8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.9	0.2	3.1	4.1	0.1	0.1	2.9	0.3	3.1	0.0	0.0	0.0
Total Del/Veh (s)	51.5	50.8	5.9	64.8	57.2	14.5	51.4	6.4	2.3	50.2	7.3	3.1

8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	15.5

11: Jackrabbit Trail & Gas Station Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	16.1	8.2	4.7	2.9	14.1	6.5

13: Jackrabbit Trail Performance by movement

Movement	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.5	2.5	2.5	2.0

14: Jackrabbit Trail Performance by movement

Movement	NBR	SBT	SWL	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.6	0.2	7.8	2.5	1.7

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.9	0.2	2.9	3.2	0.2	3.1	0.0	0.0	0.0	2.8	0.4	2.7
Total Del/Veh (s)	40.8	46.7	8.2	45.0	37.9	2.5	42.4	28.1	4.6	54.7	26.3	3.2

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	All
Denied Del/Veh (s)	1.0
Total Del/Veh (s)	30.1

Total Network Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	57.8

Intersection: 1: Jackrabbit Trail & WB On Ramp/WB Off Ramp

Movement	WB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	TR	R	L	L	T	T	T	T	T	T
Maximum Queue (ft)	216	162	155	128	100	108	162	120	154	156	183	223
Average Queue (ft)	118	78	70	43	38	49	71	52	77	95	114	75
95th Queue (ft)	192	139	119	88	85	92	140	106	130	162	175	161
Link Distance (ft)		2259	2259		445	445	445	445	445			491
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500			500						120	120	
Storage Blk Time (%)										3	7	1
Queuing Penalty (veh)										6	14	4

Intersection: 1: Jackrabbit Trail & WB On Ramp/WB Off Ramp

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	151	173	168
Average Queue (ft)	47	64	51
95th Queue (ft)	108	125	114
Link Distance (ft)	491	491	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			120
Storage Blk Time (%)		1	1
Queuing Penalty (veh)		2	2

Intersection: 4: Jackrabbit Trail & EB Off Ramp/EB On Ramp

Movement	EB	EB	EB	EB	NB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	TR	R	T	T	T	T	T	R	L	L
Maximum Queue (ft)	157	155	164	140	91	122	166	134	222	221	297	338
Average Queue (ft)	78	68	84	48	18	47	72	52	52	112	169	180
95th Queue (ft)	138	124	146	108	58	93	131	103	129	203	267	292
Link Distance (ft)		1529	1529				308	308	308		445	445
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	500			500	75	75				150		
Storage Blk Time (%)					0	3	9		0	5		
Queuing Penalty (veh)					0	3	16		2	5		

Intersection: 4: Jackrabbit Trail & EB Off Ramp/EB On Ramp

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	130	148	177
Average Queue (ft)	56	60	95
95th Queue (ft)	116	124	164
Link Distance (ft)	445	445	445
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	TR	L	L	T	T	T	R
Maximum Queue (ft)	127	169	60	61	40	99	132	159	130	74	140	19
Average Queue (ft)	37	77	15	25	8	29	29	83	42	12	49	2
95th Queue (ft)	89	141	46	49	27	71	87	140	95	45	110	12
Link Distance (ft)		1698	1698			1414			1190	1190	1190	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			150	110		220	220				150
Storage Blk Time (%)	0	0				1					0	
Queuing Penalty (veh)	0	0				0					0	

Intersection: 8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road

Movement	SB	SB	SB	SB	SB
Directions Served	L	T	T	T	R
Maximum Queue (ft)	59	69	82	77	22
Average Queue (ft)	16	26	36	31	1
95th Queue (ft)	43	58	66	68	13
Link Distance (ft)		491	491	491	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200				150
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: Jackrabbit Trail & Gas Station

Movement	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	R	T	T	TR	R	L
Maximum Queue (ft)	58	66	120	79	171	60	127
Average Queue (ft)	22	23	50	22	70	4	58
95th Queue (ft)	50	48	99	58	135	28	103
Link Distance (ft)	248	248	150	150	150		170
Upstream Blk Time (%)			0	0	0	0	
Queuing Penalty (veh)			0	0	1	0	
Storage Bay Dist (ft)						150	
Storage Blk Time (%)					0	0	
Queuing Penalty (veh)					0	0	

Intersection: 13: Jackrabbit Trail

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 14: Jackrabbit Trail

Movement	NB	B18	SW
Directions Served	R	T	L
Maximum Queue (ft)	7	4	59
Average Queue (ft)	0	0	8
95th Queue (ft)	8	4	35
Link Distance (ft)	491	156	150
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	54	100	250	217	153	243	164	181	185	163	108	66
Average Queue (ft)	4	37	173	133	33	87	64	79	105	76	14	6
95th Queue (ft)	25	78	233	211	115	196	128	149	171	144	59	35
Link Distance (ft)			764	764	764				703	703	703	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300	300				300	275	275				275
Storage Blk Time (%)						0	0	0				
Queuing Penalty (veh)						0	0	0				

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	191	199	159	193	220	154	121	194	305	230	223	18
Average Queue (ft)	102	124	73	104	116	17	22	86	183	81	107	1
95th Queue (ft)	168	182	139	169	190	91	83	157	289	193	191	11
Link Distance (ft)			491	491	491				826	826	826	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200				100	280	280				280
Storage Blk Time (%)	0	0	0		16	0			1		0	
Queuing Penalty (veh)	0	1	0		17	0			1		0	

Network Summary

Network wide Queuing Penalty: 75

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2	2
Vehs Entered	7366	7432	7357	7231	7351	7381	7332
Vehs Exited	7328	7343	7290	7143	7293	7339	7289
Starting Vehs	248	263	230	235	230	238	250
Ending Vehs	286	352	297	323	288	280	293
Travel Distance (mi)	4842	4895	4836	4789	4833	4897	4789
Travel Time (hr)	290.1	295.3	290.0	287.9	290.4	294.2	287.2
Total Delay (hr)	138.0	141.7	138.1	137.6	138.6	140.4	136.7
Total Stops	11052	11219	11063	10972	10920	11048	10830
Fuel Used (gal)	198.6	200.6	199.0	196.6	198.2	200.5	196.4

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	3	3	3	3
# of Recorded Intervals	2	2	2	2
Vehs Entered	7215	7339	7275	7326
Vehs Exited	7175	7290	7219	7270
Starting Vehs	271	261	259	244
Ending Vehs	311	310	315	302
Travel Distance (mi)	4770	4837	4812	4830
Travel Time (hr)	287.3	290.6	291.8	290.5
Total Delay (hr)	137.3	138.3	140.4	138.7
Total Stops	10839	10942	11127	11002
Fuel Used (gal)	195.2	198.8	197.6	198.2

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15

No data recorded this interval.

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Run Number	1	2	3	4	5	6	7
Vehs Entered	1607	1613	1610	1517	1584	1633	1627
Vehs Exited	1599	1569	1588	1512	1562	1591	1611
Starting Vehs	248	263	230	235	230	238	250
Ending Vehs	256	307	252	240	252	280	266
Travel Distance (mi)	1083	1092	1079	1054	1066	1105	1091
Travel Time (hr)	62.4	62.6	61.6	59.0	60.8	63.4	62.9
Total Delay (hr)	28.3	28.3	27.7	26.0	27.5	28.7	28.6
Total Stops	2277	2303	2242	2177	2251	2297	2341
Fuel Used (gal)	44.2	43.7	43.5	42.3	43.1	44.6	44.3

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Run Number	8	9	10	Avg
Vehs Entered	1569	1593	1567	1591
Vehs Exited	1589	1597	1555	1577
Starting Vehs	271	261	259	244
Ending Vehs	251	257	271	263
Travel Distance (mi)	1092	1100	1069	1083
Travel Time (hr)	63.4	63.2	61.7	62.1
Total Delay (hr)	29.0	28.6	28.1	28.1
Total Stops	2342	2295	2287	2279
Fuel Used (gal)	44.1	44.4	43.3	43.8

Interval #2 Information

Start Time	5:15
End Time	6:00
Total Time (min)	45

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5759	5819	5747	5714	5767	5748	5705
Vehs Exited	5729	5774	5702	5631	5731	5748	5678
Starting Vehs	256	307	252	240	252	280	266
Ending Vehs	286	352	297	323	288	280	293
Travel Distance (mi)	3758	3803	3757	3735	3767	3792	3698
Travel Time (hr)	227.7	232.6	228.4	228.9	229.6	230.8	224.3
Total Delay (hr)	109.7	113.4	110.4	111.6	111.2	111.7	108.1
Total Stops	8775	8916	8821	8795	8669	8751	8489
Fuel Used (gal)	154.4	157.0	155.5	154.3	155.1	155.9	152.1

Interval #2 Information

Start Time	5:15
End Time	6:00
Total Time (min)	45

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	5646	5746	5708	5740
Vehs Exited	5586	5693	5664	5693
Starting Vehs	251	257	271	263
Ending Vehs	311	310	315	302
Travel Distance (mi)	3678	3737	3743	3747
Travel Time (hr)	223.9	227.5	230.1	228.4
Total Delay (hr)	108.3	109.7	112.3	110.6
Total Stops	8497	8647	8840	8720
Fuel Used (gal)	151.1	154.4	154.3	154.4

1: Jackrabbit Trail & WB On Ramp/WB Off Ramp Performance by movement

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.7	0.6	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	40.6	16.9	41.6	14.5	23.5	11.7	21.6

4: Jackrabbit Trail & EB Off Ramp/EB On Ramp Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.7	0.9	0.1	0.2	0.0	0.0	0.3
Total Del/Veh (s)	35.3	26.1	27.8	16.8	42.4	12.0	22.2

8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.9	0.3	2.4	4.0	0.3	0.2	2.6	0.3	2.4	0.1	0.0	0.1
Total Del/Veh (s)	45.8	28.5	8.5	54.3	59.6	24.5	53.7	20.6	4.7	63.3	18.9	4.9

8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	25.9

11: Jackrabbit Trail & Gas Station Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.1	0.0
Total Del/Veh (s)	26.1	12.6	7.3	3.0	29.6	10.2

13: Jackrabbit Trail Performance by movement

Movement	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.3	1.2	1.5	1.4

14: Jackrabbit Trail Performance by movement

Movement	NBT	NBR	SBT	SWL	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.8	4.4	0.7	3.0	1.0	2.6

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.6	0.3	2.8	2.7	0.2	2.6	0.1	0.0	0.1	2.6	0.4	2.7
Total Del/Veh (s)	47.4	55.5	15.0	58.0	49.1	6.7	30.8	21.5	7.6	50.5	46.0	4.9

27: Jackrabbit Trail & McDowell Road Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	33.4

Total Network Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	64.9

Intersection: 1: Jackrabbit Trail & WB On Ramp/WB Off Ramp

Movement	WB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	TR	R	L	L	T	T	T	T	T	T
Maximum Queue (ft)	275	306	299	249	115	127	288	150	199	79	171	237
Average Queue (ft)	162	182	159	111	49	66	135	66	102	11	54	99
95th Queue (ft)	247	272	264	215	98	107	235	126	165	42	116	183
Link Distance (ft)		2259	2259		445	445	445	445	445			491
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500			500						120	120	
Storage Blk Time (%)										0	0	2
Queuing Penalty (veh)										0	0	8

Intersection: 1: Jackrabbit Trail & WB On Ramp/WB Off Ramp

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	250	347	195
Average Queue (ft)	122	147	80
95th Queue (ft)	202	256	197
Link Distance (ft)	491	491	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			120
Storage Blk Time (%)		11	0
Queuing Penalty (veh)		43	0

Intersection: 4: Jackrabbit Trail & EB Off Ramp/EB On Ramp

Movement	EB	EB	EB	EB	NB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	TR	R	T	T	T	T	T	R	L	L
Maximum Queue (ft)	231	231	116	89	93	150	333	240	398	225	134	149
Average Queue (ft)	135	137	52	25	16	91	180	107	152	166	70	82
95th Queue (ft)	206	209	101	63	56	180	291	188	288	247	122	132
Link Distance (ft)		1529	1529				308	308	308		445	445
Upstream Blk Time (%)							1	0	1			
Queuing Penalty (veh)							5	0	6			
Storage Bay Dist (ft)	500			500	75	75				150		
Storage Blk Time (%)					0	6	34		5	13		
Queuing Penalty (veh)					0	11	130		29	25		

Intersection: 4: Jackrabbit Trail & EB Off Ramp/EB On Ramp

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	153	205	249
Average Queue (ft)	83	110	153
95th Queue (ft)	140	173	217
Link Distance (ft)	445	445	445
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	TR	L	L	T	T	T	R
Maximum Queue (ft)	275	501	118	93	78	134	158	192	217	208	251	129
Average Queue (ft)	195	286	24	41	23	45	60	108	106	77	124	11
95th Queue (ft)	318	448	77	76	57	101	140	173	185	169	218	55
Link Distance (ft)		1698	1698			1414			1190	1190	1190	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			150	110		220	220				150
Storage Blk Time (%)	3	24	0		0	2		0	0		6	
Queuing Penalty (veh)	9	80	0		0	0		0	0		2	

Intersection: 8: Jackrabbit Trail & Roosevlet Road/Roosevelt Road

Movement	SB	SB	SB	SB	SB
Directions Served	L	T	T	T	R
Maximum Queue (ft)	88	155	168	178	68
Average Queue (ft)	35	73	92	98	4
95th Queue (ft)	77	132	143	153	36
Link Distance (ft)		491	491	491	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200				150
Storage Blk Time (%)		0		2	
Queuing Penalty (veh)		0		8	

Intersection: 11: Jackrabbit Trail & Gas Station

Movement	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	R	T	T	TR	R	L
Maximum Queue (ft)	95	84	176	134	218	118	202
Average Queue (ft)	34	35	74	44	136	9	106
95th Queue (ft)	70	70	141	103	233	57	179
Link Distance (ft)	248	248	150	150	150		170
Upstream Blk Time (%)			1	0	8	0	1
Queuing Penalty (veh)			3	1	38	0	2
Storage Bay Dist (ft)						150	
Storage Blk Time (%)					8	0	
Queuing Penalty (veh)					1	0	

Intersection: 13: Jackrabbit Trail

Movement	NB	SB
Directions Served	T	R
Maximum Queue (ft)	7	2
Average Queue (ft)	0	0
95th Queue (ft)	6	2
Link Distance (ft)	170	308
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Jackrabbit Trail

Movement	NB	NB	SW
Directions Served	R	R	L
Maximum Queue (ft)	4	147	81
Average Queue (ft)	0	17	11
95th Queue (ft)	4	88	47
Link Distance (ft)	491	491	150
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 27: Jackrabbit Trail & McDowell Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	59	142	267	230	231	325	170	217	293	268	217	211
Average Queue (ft)	7	51	180	143	50	161	55	116	191	166	88	50
95th Queue (ft)	34	105	245	216	166	285	131	193	269	243	195	141
Link Distance (ft)			764	764	764				703	703	703	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300	300				300	275	275				275
Storage Blk Time (%)			0			1			1		0	0
Queuing Penalty (veh)			0			2			1		0	1

Intersection: 27: Jackrabbit Trail & McDowell Road

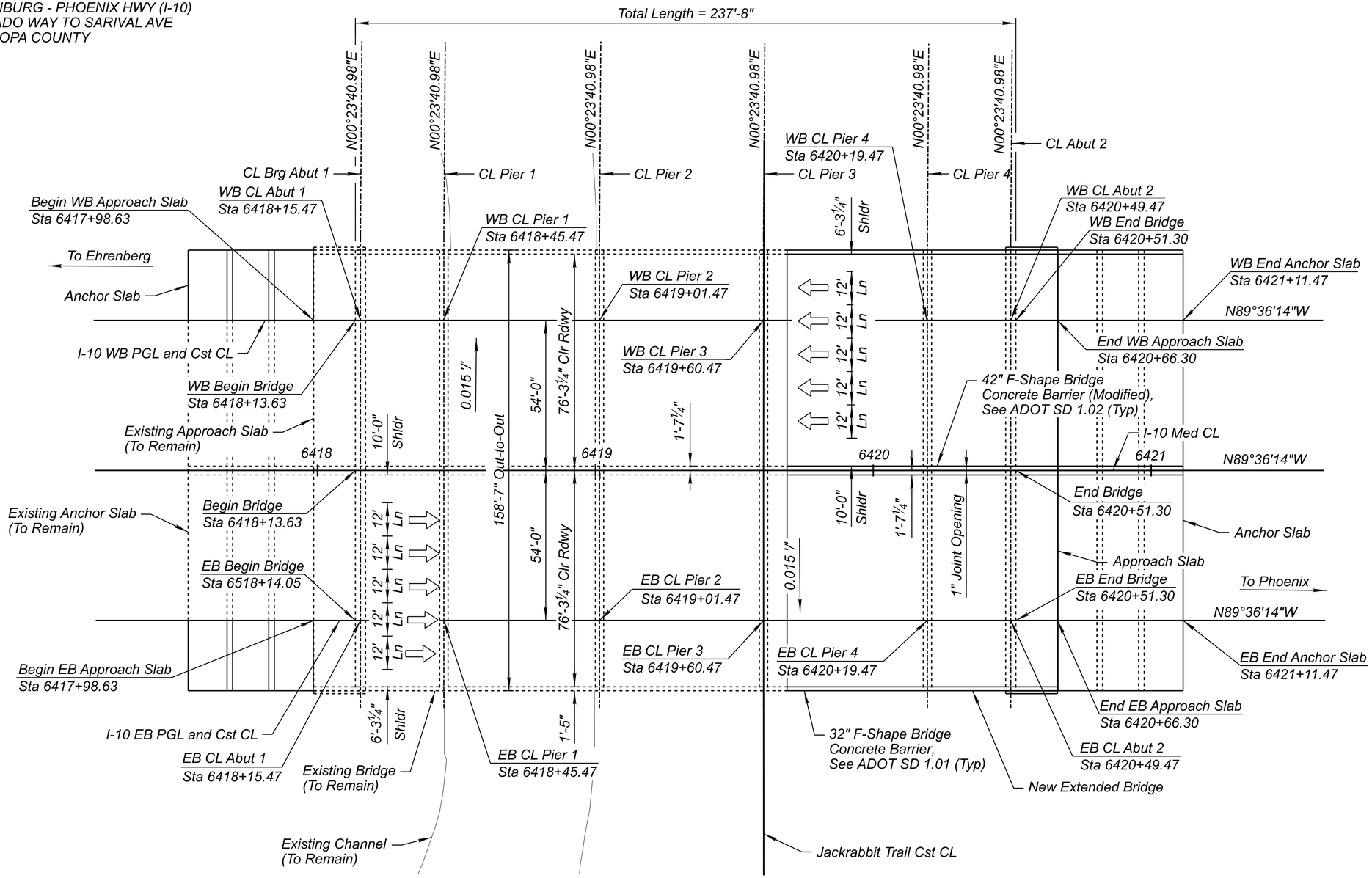
Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	237	273	404	270	310	175	175	220	292	312	348	97
Average Queue (ft)	160	183	147	157	180	118	65	126	178	157	213	5
95th Queue (ft)	252	272	301	242	287	226	159	192	258	264	320	66
Link Distance (ft)			491	491	491				826	826	826	
Upstream Blk Time (%)			0									
Queuing Penalty (veh)			0									
Storage Bay Dist (ft)	200	200				100	280	280				280
Storage Blk Time (%)	1	5	0		15	2			0		4	
Queuing Penalty (veh)	4	17	3		50	7			1		2	

Network Summary

Network wide Queuing Penalty: 487

APPENDIX G: Bridge Exhibits

EHRENBURG - PHOENIX HWY (I-10)
VERRADO WAY TO SARIVAL AVE
MARICOPA COUNTY



PLAN

Alternative 2A - Shifted DDI With Bridge Extension
Stations and Dimensions are along I-10 Construction Center Line
Skew: 0°0'0"
Scale 1" = 20'

FINAL **DCR** Review NOT FOR CONSTRUCTION OR RECORDING		NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP	ROUTE I-10	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	DESIGN	NLM	3/24				ARIZ.	010 MA 121	010-B(222)T	1	2	
	DRAWN	SYY	3/24	STA 6418+00 I-10 JACKRABBIT TRAIL TI OP BRIDGE GENERAL PLAN	MILEPOST 121.67	LOCATION JACKRABBIT TRAIL TRAFFIC INTERCHANGE						DWG NO.
	CHECKED	DJL	3/24		STRUCTURE NO. 1683	TRACS NO. F0486 01L						___ OF ___

Kimley»Horn
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ADOT

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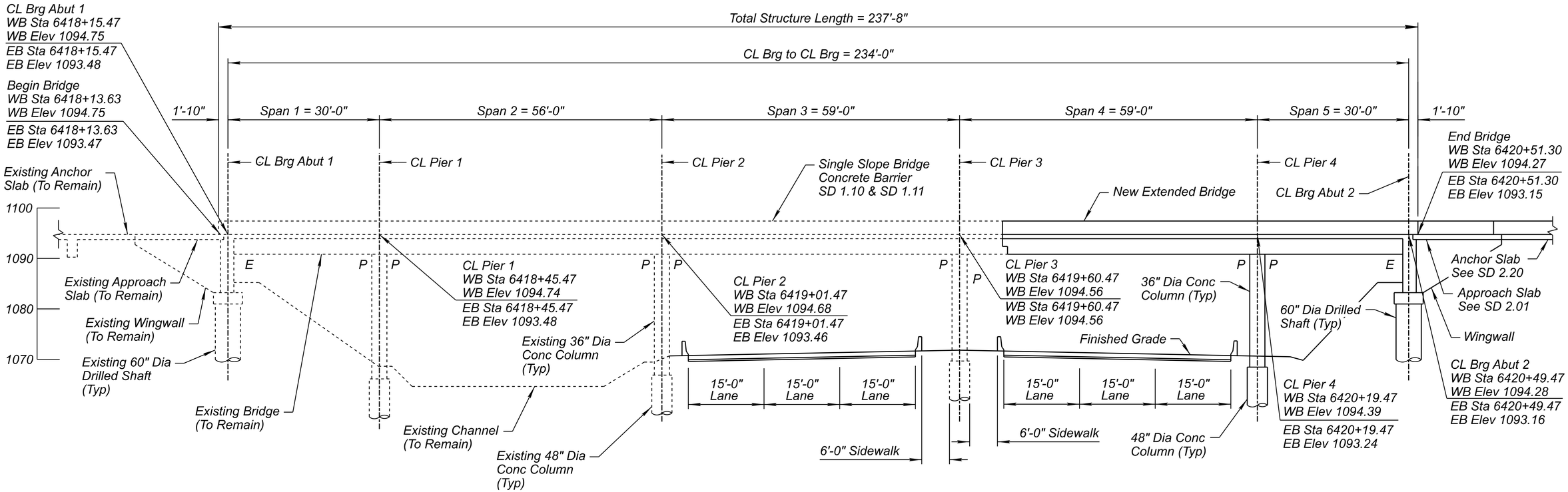

ELEVATION

Alternative 2A- Shifted DDI With Bridge Extension
Stations and Dimensions are along I-10 Construction Center Line
Scale: 1" = 10'

FINAL
DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

	NAME	DATE
DESIGN	NLM	3/24
DRAWN	SYY	3/24
CHECKED	DJL	3/24

Kimley»Horn

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE GROUP

STA 6418+00
I-10 JACKRABBIT TRAIL TI OP BRIDGE
ELEVATION

ROUTE I-10
MILEPOST 121.67
STRUCTURE NO. 1683

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	010 MA 121	010-B(222)T	2	2	

LOCATION JACKRABBIT TRAIL TRAFFIC INTERCHANGE
DWG NO.
TRACS NO. F0486 01L
ADOT
___ OF ___

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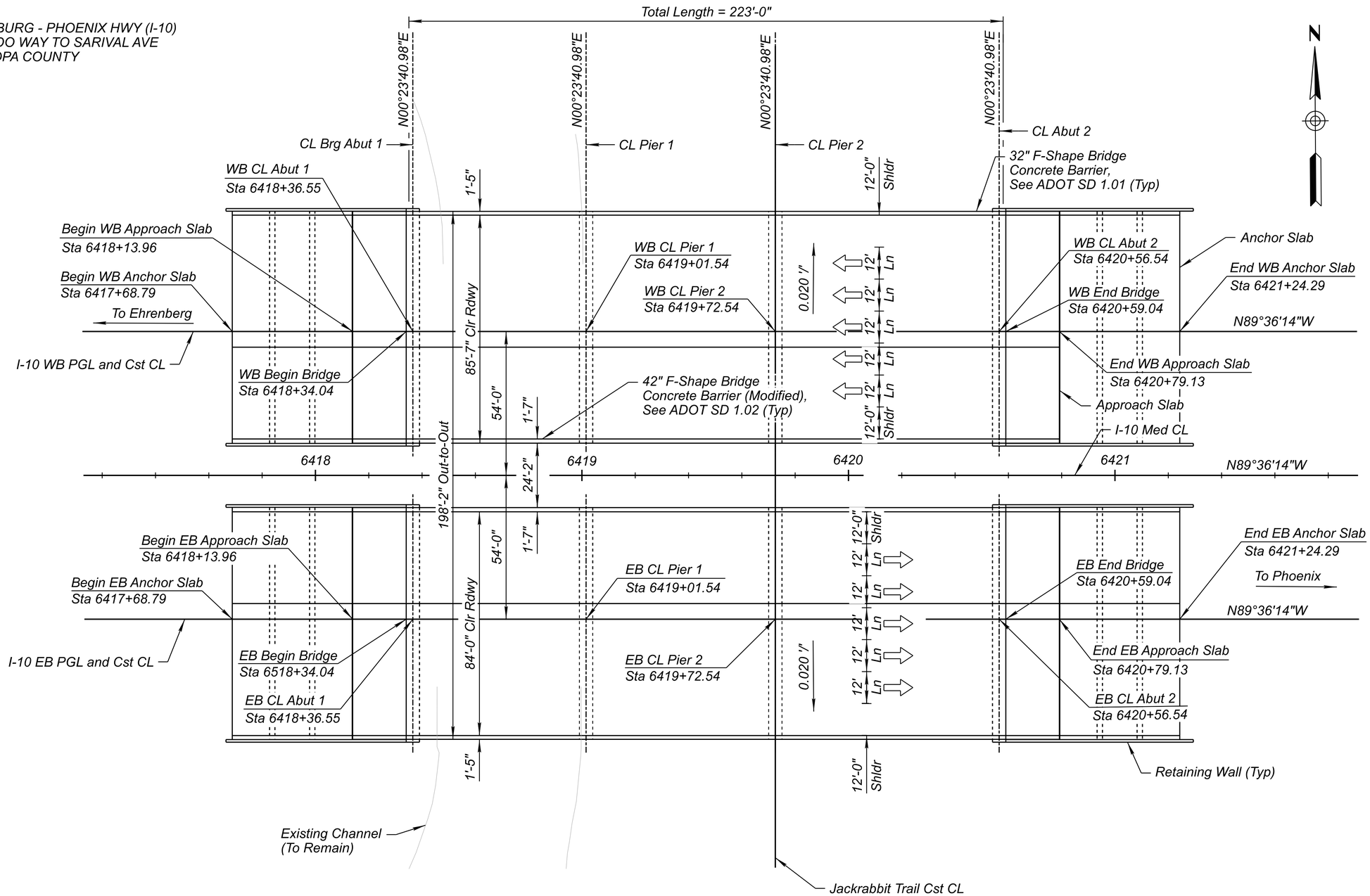
EHRENBURG - PHOENIX HWY (I-10)
VERRADO WAY TO SARIVAL AVE
MARICOPA COUNTY



PLAN

Alternative 2B - Shifted DDI With Bridge Replacement
Stations and Dimensions are along I-10 Construction Center Line
Skew: 0°0'0"
Scale 1" = 20'

FINAL
DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

	NAME	DATE
DESIGN	NLM	3/24
DRAWN	SYY	3/24
CHECKED	DJL	3/24

Kimley»Horn

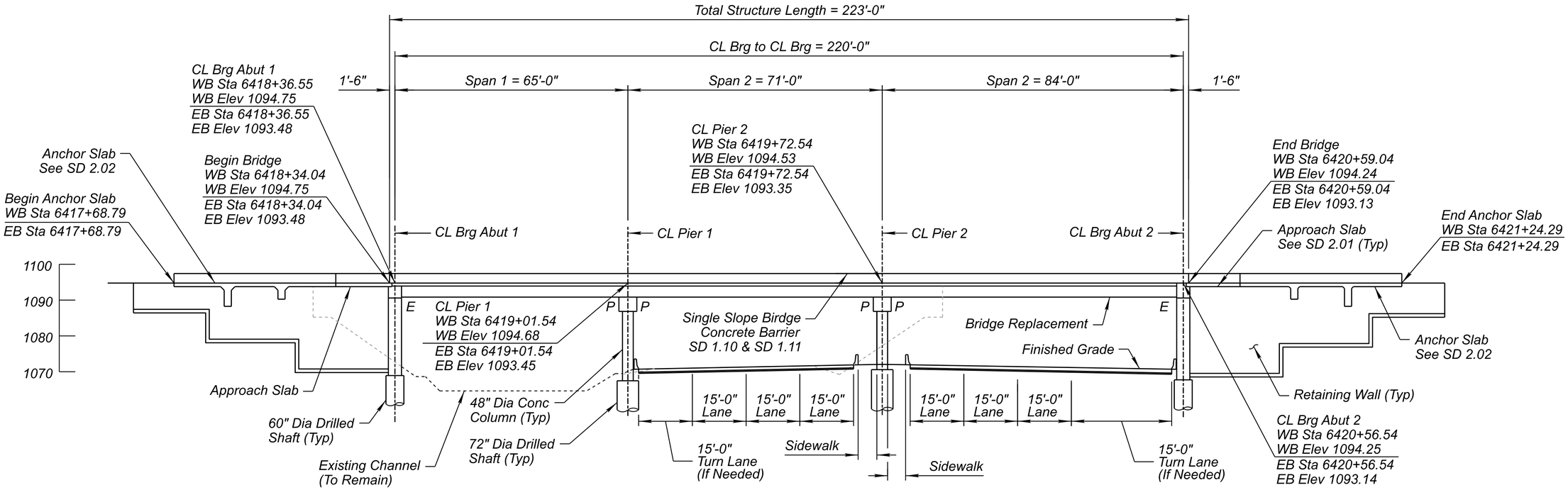
ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE GROUP

STA 6418+00
I-10 JACKRABBIT TRAIL TI OP BRIDGE
GENERAL PLAN

ROUTE I-10
MILEPOST 121.67
STRUCTURE NO. 1683

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	010 MA 121	010-B(222)T	1	2	

LOCATION JACKRABBIT TRAIL TRAFFIC INTERCHANGE
DWG NO.
TRACS NO. F0486 01L
ADOT
___ OF ___



ELEVATION

Alternative 2B- Shifted DDI With Bridge Replacement
Stations and Dimensions are along I-10 Construction Center Line
Scale: 1" = 15'

FINAL **DCR** Review NOT FOR CONSTRUCTION OR RECORDING		NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP	ROUTE I-10	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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	DRAWN	SYY	3/24	STA 6418+00 I-10 JACKRABBIT TRAIL TI OP BRIDGE ELEVATION	MILEPOST 121.67	LOCATION JACKRABBIT TRAIL TRAFFIC INTERCHANGE						DWG NO.
	CHECKED	DJL	3/24		STRUCTURE NO. 1683	TRACS NO. F0486 01L		ADOT				___ OF ___

Kimley»Horn

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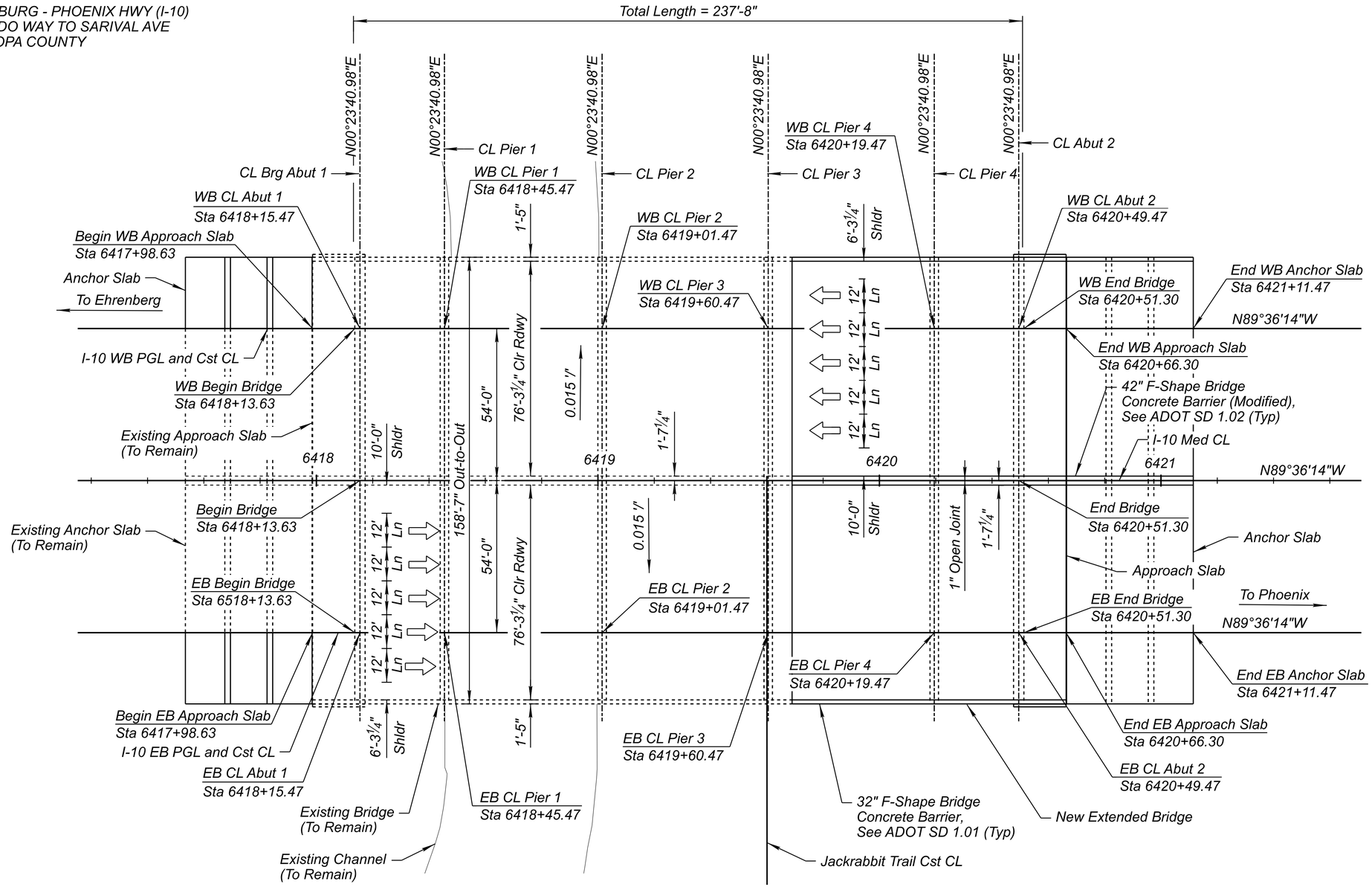
EHRENBURG - PHOENIX HWY (I-10)
VERRADO WAY TO SARIVAL AVE
MARICOPA COUNTY



PLAN

Alternative 3A - Shifted TDI With Bridge Extension
Stations and Dimensions are along I-10 Construction Center Line
Skew: 0°0'0"
Scale 1" = 20'

FINAL **DCR** Review NOT FOR CONSTRUCTION OR RECORDING		NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP	ROUTE I-10	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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	CHECKED	DJL	3/24			TRACS NO. F0486 01L						___ OF ___

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ADOT

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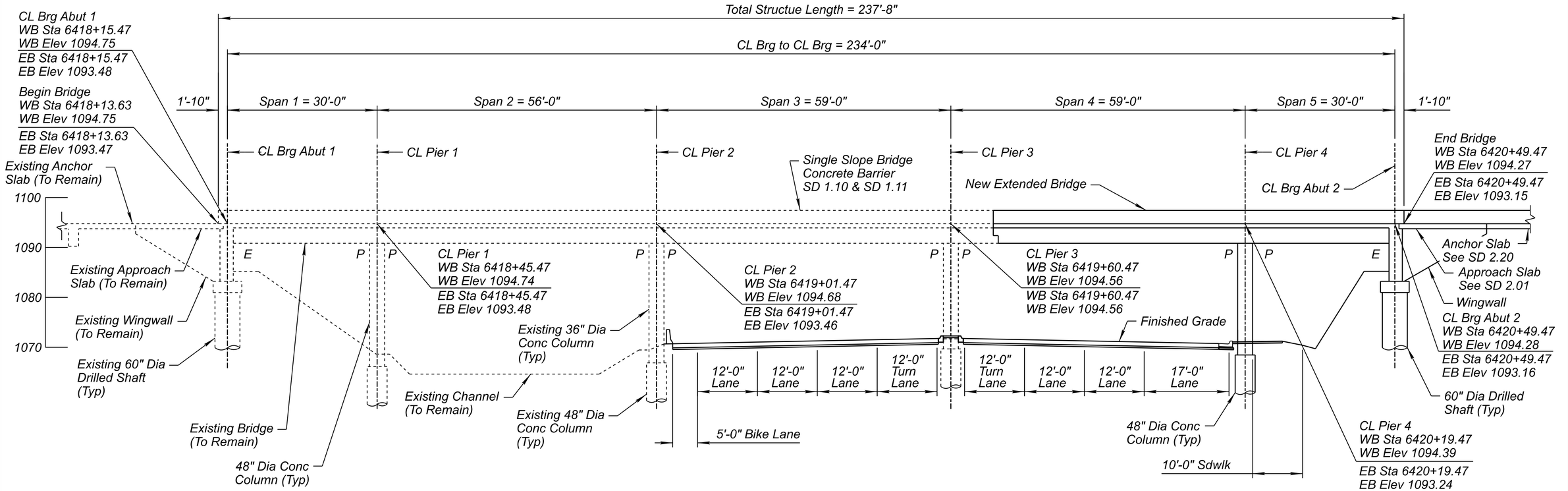

ELEVATION

Alternative 3A- Shifted TDI With Bridge Extension
Stations and Dimensions are along I-10 Construction Center Line
Scale: 1" = 10'

FINAL **DCR** Review NOT FOR CONSTRUCTION OR RECORDING	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP	ROUTE I-10	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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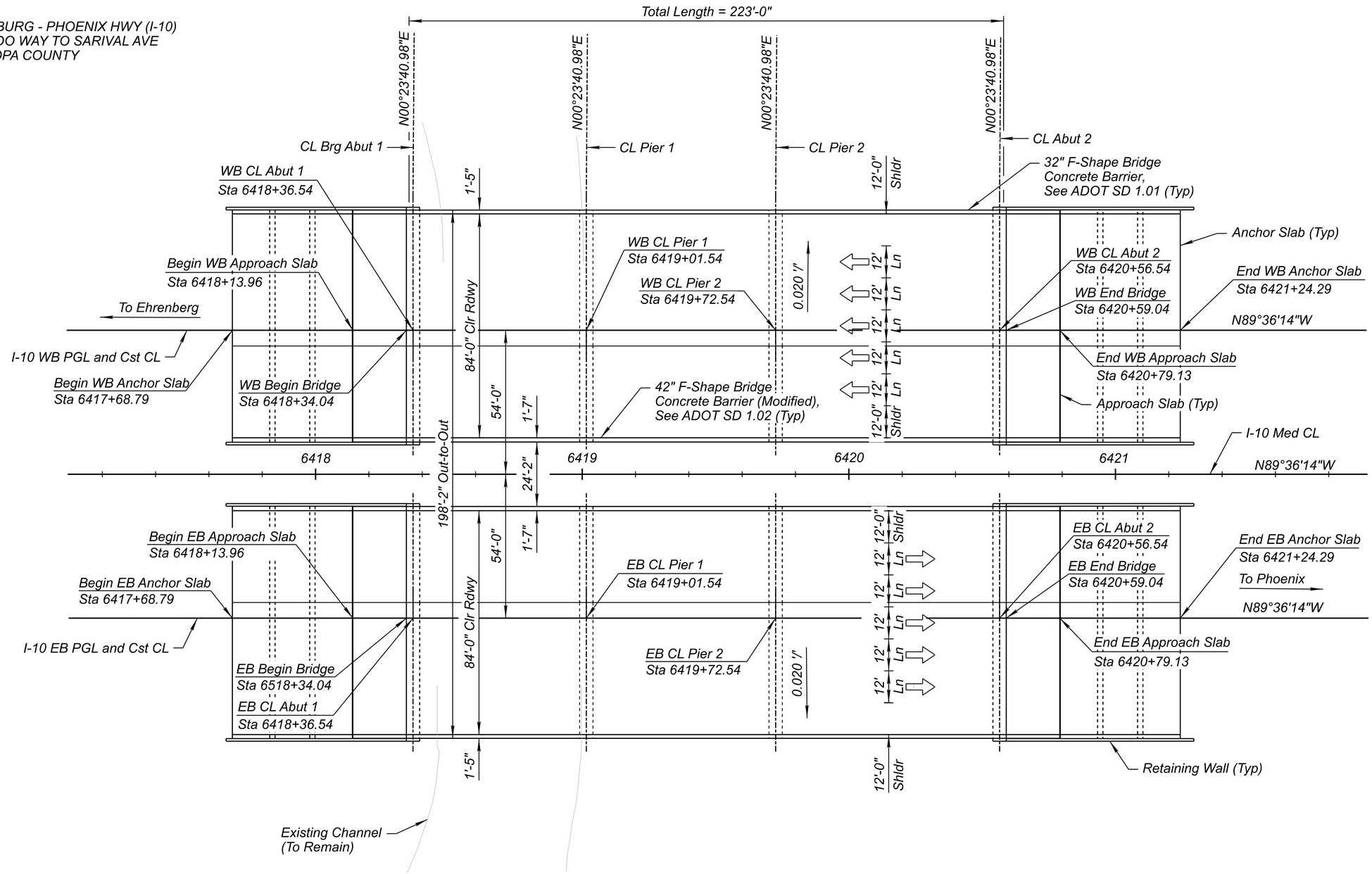
DRAWN	SYY	3/24	STA 6418+00 I-10 JACKRABBIT TRAIL TI OP BRIDGE ELEVATION	MILEPOST 121.67	LOCATION JACKRABBIT TRAIL TRAFFIC INTERCHANGE						DWG NO.
CHECKED	DJL	3/24		STRUCTURE NO. 1683	TRACS NO. F0486 01L		ADOT				___ OF ___

Kimley»Horn

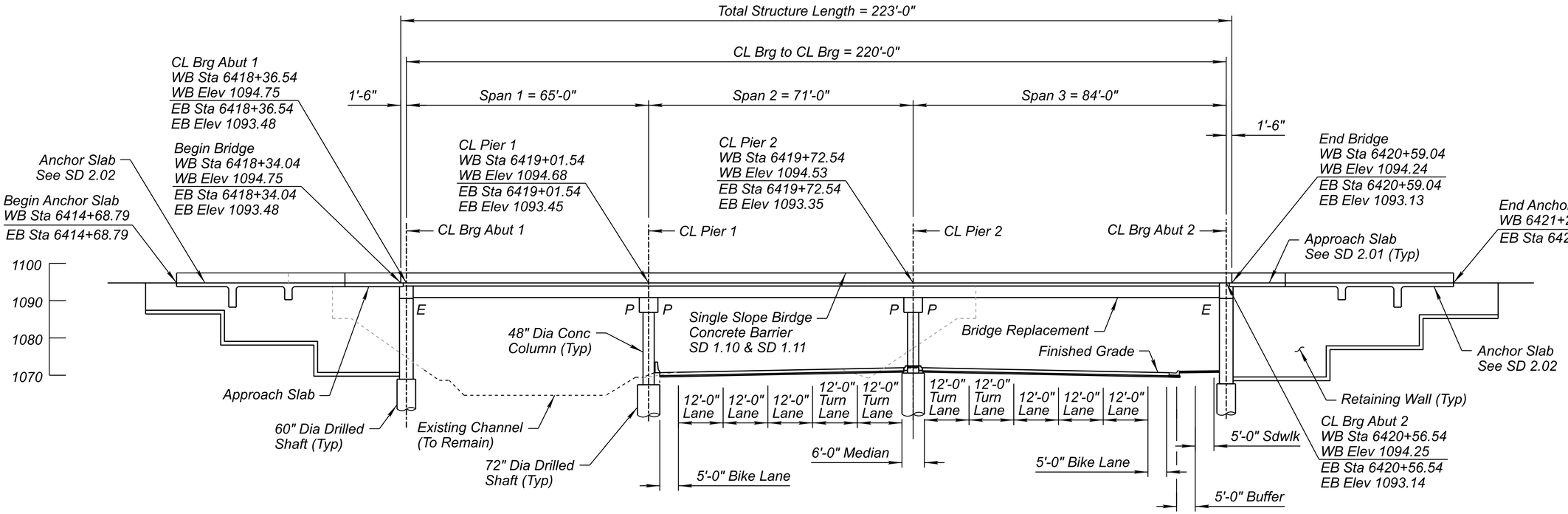
EHRENBURG - PHOENIX HWY (I-10)
VERRADO WAY TO SARIVAL AVE
MARICOPA COUNTY



PLAN

Alternative 3B - Shifted TDI With Bridge Replacement
Stations and Dimensions are along I-10 Construction Center Line
Skew: 0°0'0"
Scale 1" = 20'

FINAL **DCR** Review NOT FOR CONSTRUCTION OR RECORDING	NAME / DATE: DESIGN NLM 3/24; DRAWN SYY 3/24; CHECKED DJL 3/24	ARIZONA DEPARTMENT OF TRANSPORTATION, INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION, BRIDGE GROUP	ROUTE I-10	F.H.W.A. Arizona Division	STATE ARIZ.	PROJECT NO. 010 MA 121	FEDERAL ID NO. 010-B(222)T	SHEET NO. 1	TOTAL SHEETS 2	RECORD DRAWING
	Kimley»Horn © 2024 KIMLEY-HORN AND ASSOCIATES, INC.	STA 6418+00 I-10 JACKRABBIT TRAIL TI OP BRIDGE GENERAL PLAN	MILEPOST 121.67	LOCATION JACKRABBIT TRAIL TRAFFIC INTERCHANGE						DWG NO.
			STRUCTURE NO. 1683	TRACS NO. F0486 01L	ADOT					___ OF ___



ELEVATION

Alternative 3B- Shifted TDI With Bridge Replacement
Stations and Dimensions are along I-10 Construction Center Line
Scale: 1" = 15'

FINAL
DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

	NAME	DATE
DESIGN	NLM	3/24
DRAWN	SYY	3/24
CHECKED	DJL	3/24

Kimley»Horn

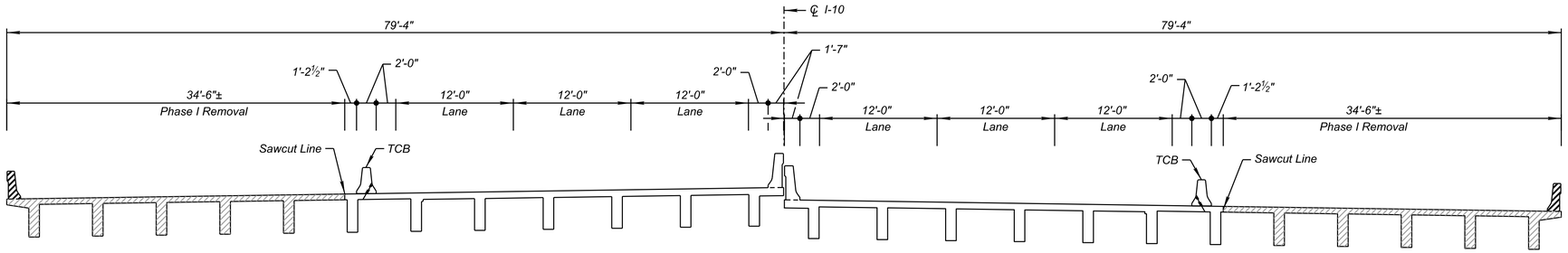
ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE GROUP

STA 6418+00
I-10 JACKRABBIT TRAIL TI OP BRIDGE
ELEVATION

ROUTE I-10
MILEPOST 121.67
STRUCTURE NO. 1683

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	010 MA 121	010-B(222)T	2	2	

LOCATION JACKRABBIT TRAIL TRAFFIC INTERCHANGE
DWG NO.
TRACS NO. F0486 01L
ADOT
___ OF ___



PHASE I

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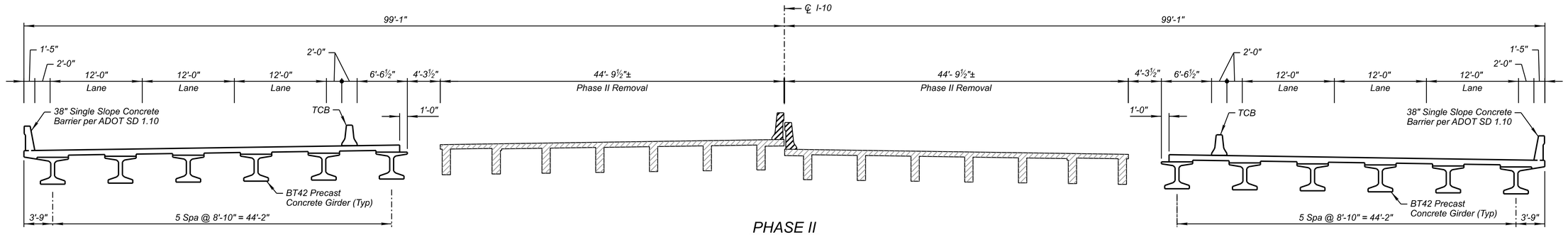

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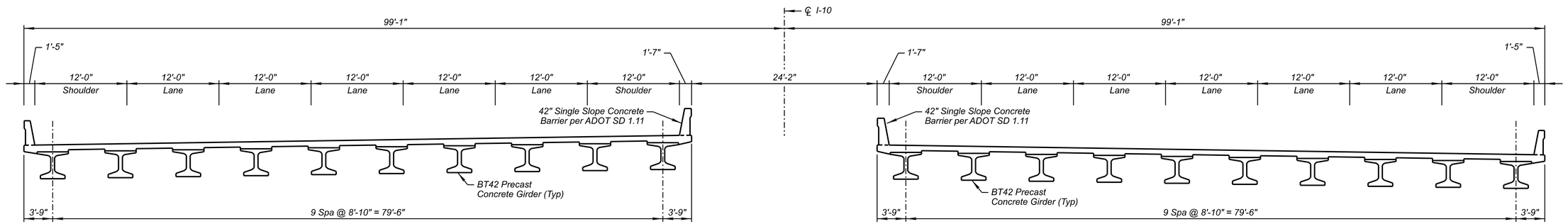

COMPLETE STRUCTURE

Scale: 1" = 7'-0"

PHASING EXHIBIT: MAINTAIN (3)-LANES AT ALL TIMES

FINAL
DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

	NAME	DATE
DESIGN	NLM	3/24
DRAWN	SYY	3/24
CHECKED	DJL	3/24

Kimley»Horn

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
PROJECT MANAGMENT GROUP

I-10 JACKRABBIT TRAIL TI OP BRIDGE
CONSTRUCTION PHASING

ROUTE -
MILEPOST
STRUCTURE NO.

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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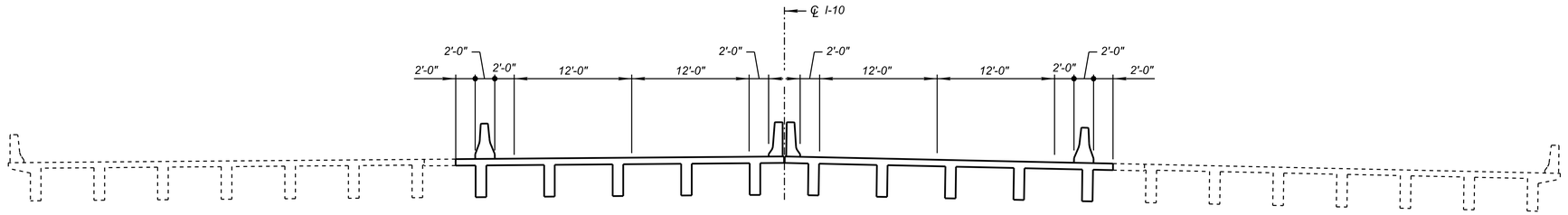
LOCATION JACKRABBIT TRAIL TRAFFIC INTERCHANGE
DWG NO.
TRACS NO. F0486 01L
ADOT
___ OF___



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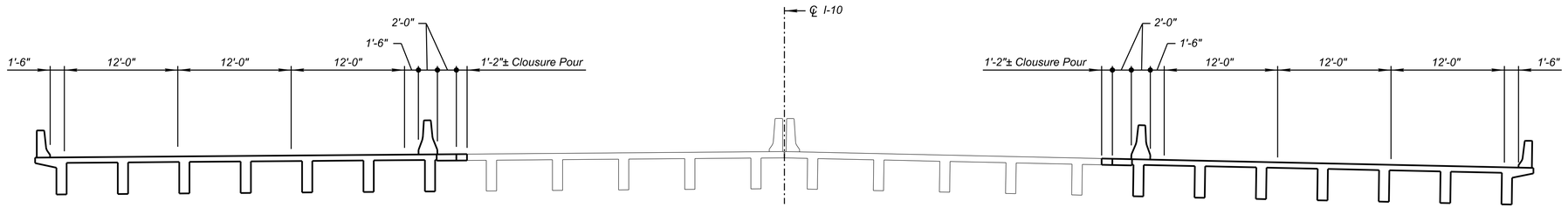
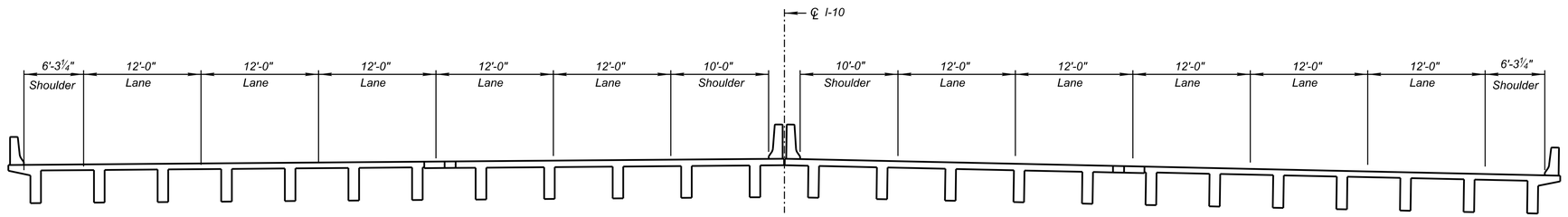


PHASE 2

Scale: 1" = 7'-0"



COMPLETE STRUCTURE

Scale: 1" = 7'-0"

PHASING EXHIBIT: BRIDGE EXTENSION ALTERNATIVES

FINAL **DCR** **Review** NOT FOR CONSTRUCTION OR RECORDING	NAME / DATE: DESIGN NLM 3/24; DRAWN SYY 3/24; CHECKED DJL 3/24	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION PROJECT MANAGMENT GROUP	ROUTE -	F.H.W.A. Arizona Division	STATE ARIZ.	PROJECT NO. 010 MA 121	FEDERAL ID NO. 010-B(222)T	SHEET NO. 1	TOTAL SHEETS 1	RECORD DRAWING
	Kimley»Horn © 2024 KIMLEY-HORN AND ASSOCIATES, INC.	I-10 JACKRABBIT TRAIL TI OP BRIDGE CONSTRUCTION PHASING	MILEPOST	LOCATION JACKRABBIT TRAIL TRAFFIC INTERCHANGE						DWG NO.
			STRUCTURE NO.	TRACS NO. F0486 01L	ADOT					___ OF___

APPENDIX H: Initial Drainage Memo

INITIAL DRAINAGE MEMO

Papago Freeway (Interstate 10): Jackrabbit Trail Traffic Interchange

Prepared for:

Arizona Department of Transportation
Infrastructure Development and Operations Division

Prepared by:

Kimley-Horn
7740 N. 16th Street
Suite 300
Phoenix, Arizona 85020

291764000
March 2024

INITIAL DRAINAGE MEMO

PAPAGO FREEWAY (INTERSTATE 10): JACKRABBIT TRAIL TRAFFIC INTERCHANGE

MARCH 2024

Prepared By:

Kimley»Horn

Contents

Figures

Appendices

1.0 INTRODUCTION

PROJECT LOCATION

The Papago Freeway is along the Interstate 10 (I-10) which is classified as a transcontinental interstate highway and stretches from Centennial to Phoenix. Jackrabbit Trail is located at Milepost 121.6 along I-10. Jackrabbit Trail is a north-south principal arterial roadway recently annexed into the City of Buckeye from the MCDOT transportation system in Maricopa County, Arizona. This project is located in the Arizona Department of Transportation (ADOT) Central District and is within the City of Buckeye (City) in Maricopa County Arizona.

BACKGROUND

This DCR describes the development, evaluation, and recommendation to reconstruct the existing traffic interchange (TI) at Jackrabbit Trail provide from Van Buren Street to McDowell Rd. Residential, industrial, and commercial development has increased the traffic on Jackrabbit Trail between Van Buren Street and Thomas Road, particularly at the I-10 freeway interchange.

PURPOSE

The purpose of this project is to reduce congestion, enhance regional mobility, improve movement of goods and services, and improve access to residential and commercial developments by increasing the capacity of Jackrabbit Trail and reconstructing the existing TI at I-10.

2.0 CONCEPT PLAN DEVELOPMENT

LOCAL WATERSHED

The natural topography of the upstream watershed is northwest to the southeast, with an average overland slope of 0.009 ft/ft. The upstream watershed extends from the Flood Control District of Maricopa County's (FCDMC) Flood Retarding Structure (FRS) #3 to the north and approximately one mile west. Flows emanating from the White Tank Mountains further west are cutoff by Tuthill Dike Wash approximately one mile west of the Jackrabbit Trail alignment.

FLOODPLAIN LOCATIONS

The project is in Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona and incorporated areas, Panel Numbers 04013C2130L. The FIRM Panel is included as **Figure 3**.

Zone "X" (shaded) is defined by FEMA as follows:

> Areas of 0.2% annual chance flood; areas of 1% annual flood chance with average depths of less than 1 foot or with drainage areas 1 square mile; and areas protected by levees from 1% annual chance flood.

Zone "A" is defined by FEMA as follows:

> Areas subject to inundation by the 1% annual chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown.

Zone “AE” is defined by FEMA as follows:

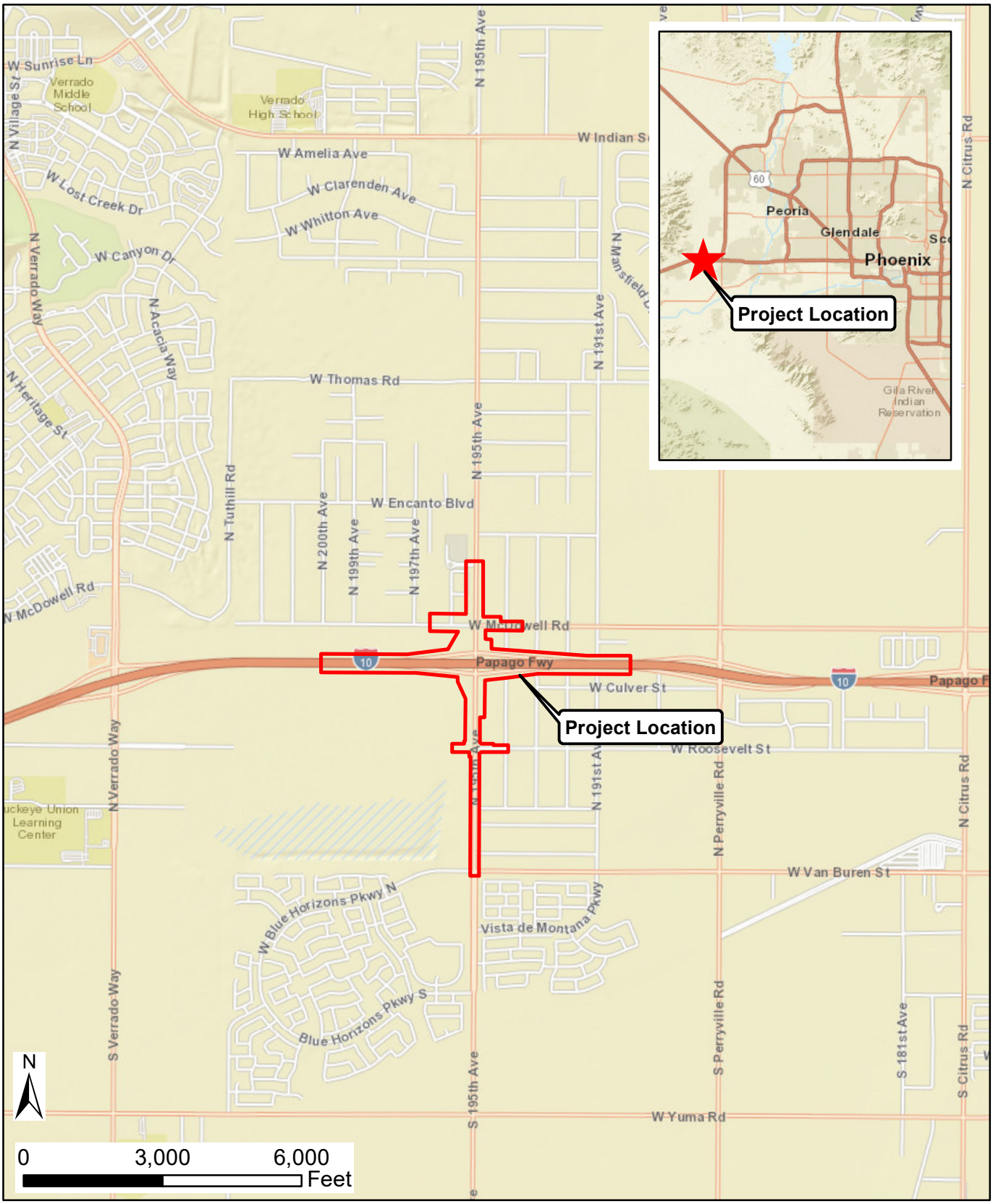
> Areas subject to inundation by the 1% annual chance flood event, Base Flood Elevations (BFEs) or flood depths are shown.

The project will likely alter the flood zones both along the existing White Tanks FRS #3 Outfall Channel, and along westbound on and offramps. These alterations will require approval from FCDMC and FEMA via the Conditional Letter of Map Revision and Letter of Map Revision (CLOMR/LOMR) application process.

PREVIOUS DRAINAGE STUDIES

Several reports were reviewed to develop an understanding of the drainage patterns and infrastructure in the project limits. Below is a list and summary of each study reviewed.

- Letter of Map Revision 13-09-2406P, March 2014.
    - Defined hydrology and hydraulics for the White Tanks FRS #3 Outfall Channel.
- Loop 303 corridor/White Tanks Area Drainage Master Plan (ADMP) Update, February 2005, URS.
    - This ADMP determined the amount of offsite runoff impacting I-10 north and south of the freeway. Offsite hydrology was completed using HEC-1.



Kimley»Horn Expect More. Experience Better.	I-10 and Jackrabbit TI	Buckeye, AZ
	Figure 1: Location Map	

Kimley»Horn Expect More. Experience Better.	1-10 And Jackrabbit TI	Buckeye, AZ
	Figure 2: Aerial Map	

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2130L

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 2130 OF 4425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2130	L
BUCKEYE, TOWN OF	040039	2130	L
GOODYEAR, CITY OF	040046	2130	L

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C2130L

MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

Legend

Project Location

Existing Base Flood Elevations (BFE)

FEMA Floodmap

Zone A

Zone AE

FLOODWAY, Zone AE

N

0 500 1,000 2,000 Feet

Vertical Datum: NAVD88

Spatial Projection: NAD 1983
State Plane Arizona Central FIPS 0202

WHITE TANKS FRS NO.3

1121 1117 1114 1110 1105 1101 1098 1095 1092 1084 1073 1071 1069 1064 1067 1061

1090 1089 1088 1082 1076

I-10

CITY OF BUCKEYE
040039

ROOSEVELT ST

VAN BUREN ST

JACKRABBIT TRAIL

WHITE TANKS FRS NO. 3
OUTFALL CHANNEL

LOMR 13-09-2406P
eff. 3/14/2014

LOMR 19-09-1715P
eff. 12/10/2021

	DRAWING NAME FIRM PANEL	PROJECT NO. 291764000		I-10 AND JACKRABBIT TI FEMA FIRM PANEL MAP	SCALE(H):1"= 1000' SCALE(V): DESIGNED BY: ER DRAWN BY: ER CHECKED BY: GSB DATE: 09/2023	Kimley»Horn	NO.	REVISION	BY	DATE / APPR.

Engineering, Planning and Environmental Consultants
7740 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

3.0 ON-SITE DRAINAGE

EXISTING ON-SITE DRAINAGE FEATURES

Jackrabbit Trail slopes to the south under I-10 and has no curb and gutter along both sides of the road. Runoff drains off the road onto adjacent parcels or into the FCDMC White Tanks FRS #3 Outfall Channel to the west. The service ramps at the TI do not have curb and gutter. Roadway runoff from the ramps sheet flows off the road and into roadside ditches that slope towards the FCDMC channel. The eastbound onramp drains into a culvert inlet on the south side of the ramp, across Jackrabbit Trail, and into the FCDMC channel. The eastbound offramp sheet flows into the channel. The westbound onramp sheet flows into the channel. The westbound offramp drains into a culvert on the north side of the ramp, across Jackrabbit Trail, and into the FCDMC channel.

DESIGN CRITERIA

The Rational Method was used to determine peak flows per the ADOT Highway Drainage Design Manual and the ADOT Hydrology Manual. A minimum time of concentration of 10-minutes was used. The ADOT Roadway Design Guidelines (RDG) classifies I-10 as a Class 1 highway. Class 1 highways are required to meet the 50-year storm event for cross culverts and off-site flows. However, the only off-site flows crossing I-10 for this project are contained in the FCDMC White Tanks FRS #3 Outfall Channel, and therefore will be subject to 100-year analyses of the preferred Alternative.

Improvements in Jackrabbit Trail follow the Town of Buckeye Stormwater Drainage System Design Manual (August 2007). Major arterials such as Jackrabbit Trail are required to convey the 10-year storm without flooding more than one lane in each direction. Additionally, the 100-year storm event is conveyed in the right-of-way with a maximum depth of 12 inches.

PROPOSED ON-SITE JACKRABBIT TRAIL TI DRAINAGE FEATURES

The profile of Jackrabbit Trail will slope to the south as it does in the existing condition. Curb and gutter will be installed along Jackrabbit Trail and along portions of the service ramps. Catch basins will be installed mainly along the east side of Jackrabbit Trail to discharge into temporary retention basins on vacant parcels. Along the west side of Jackrabbit Trail, catch basins will be install with outlet pipes discharging directly into the FCDMC channel where feasible. Runoff from the infield areas and from portions of the service ramps will be conveyed in roadside ditches towards Jackrabbit Trail. Runoff from the ditches will be captured in area inlets and discharge into the FCDMC channel. All infrastructure is sized for the ultimate condition of Jackrabbit Trail and the I-10 mainline. Refer to **Figure 4** for on-site drainage maps.

Peak flows in the proposed condition were determined using the Rational Method. Refer to **Table 1** for proposed runoff summary. Drainage areas are preliminary as final grading at the TI will be complete with final design. Refer to **Appendix A** for calculations.

Table 1. Jackrabbit Trail Runoff Summary

Location	Drainage Area [ac]	Runoff 10-Year [cfs]	Runoff 100-Year [cfs]
Jackrabbit Trail			
DA-05	0.51	2.45	3.85
DA-10	0.46	2.21	3.48
DA-15	0.38	1.82	2.87
DA-20	0.37	1.78	2.80
DA-25	0.29	1.39	2.19
DA-30	0.52	2.50	3.93
DA-35	0.48	2.30	3.63
DA-40	1.68	8.06	12.70
DA-45	0.42	2.02	3.17
DA-50	0.72	3.46	5.44
DA-55	0.91	4.37	6.88
DA-60	0.37	1.78	2.80
DA-65	1.89	9.07	14.28
DA-70	0.47	2.26	3.55
DA-75	0.33	1.58	2.49
DA-77	0.43	2.06	3.25
DA-80	0.23	1.10	1.74
DA-180	0.64	3.07	4.84
DA-185	1.20	5.76	9.07
DA-190	0.88	4.22	6.65
DA-195	1.08	5.18	8.16
DA-200	0.69	3.31	5.22
DA-205	0.54	2.59	4.08
DA-210	0.55	2.64	4.16
DA-215	0.09	0.43	0.68
DA-220	0.42	2.02	3.17
DA-225	0.47	2.26	3.55
DA-230	0.50	2.40	3.78
DA-235	0.28	1.34	2.12
DA-240	0.50	2.40	3.78
DA-245	0.78	3.74	5.90
DA-250	0.13	0.62	0.98
DA-255	0.41	1.97	3.10
DA-265	0.87	4.18	6.58
DA-270	0.83	3.98	6.27

Table 2. (Con't)

Location	Drainage Area [ac]	Runoff 10-Year [cfs]	Runoff 100-Year [cfs]
I-10 Ramps			
DA-85	0.40	1.46	2.30
DA-90	0.31	1.13	1.78
DA-95	0.32	1.17	1.84
DA-100	0.38	1.39	2.19
DA-105	0.63	2.30	3.63
DA-110	3.47	11.74	18.50
DA-115	0.98	3.58	5.64
DA-120	0.38	1.39	2.19
DA-125	0.56	2.05	3.22
DA-130	0.48	1.75	2.76
DA-135	0.56	2.05	3.22
DA-140	3.58	12.12	19.09
DA-145	0.47	1.72	2.71
DA-150	0.43	1.57	2.48
DA-155	1.15	4.20	6.62
DA-160	0.38	1.39	2.19
DA-165	0.35	1.28	2.01
DA-170	0.35	1.28	2.01
DA-175	0.50	1.83	2.88

Final detailed grading for the TI will be completed during final design. Therefore, inlet hydraulics have not been completed for this memo. Pavement runoff in Jackrabbit Trail within the ADOT ROW will be captured before discharging into City limits. A preliminary hydraulic analysis was completed to confirm this. The analysis assumed that all pavement runoff in Jackrabbit Trail will reach ADOT limits and be captured in one set of inlets on each side of the street. This is conservative as there will be several inlets upstream of the ADOT limits. Jackrabbit Trail is designed to convey the 10- and 100-year storm events per the City requirements. Refer to **Appendix A**.

The retention basin at the northeast corner of the TI is sized to retain the 100-year, 2-hour storm event for the runoff generated along the westbound offramp for the ultimate condition. The retention basin footprint is maximized to fit within ADOT right-of-way. Refer to Appendix A for retention calculations. Percolation rates and potential drywells will be determined with final design.

FIRST FLUSH REQUIREMENTS

ADOT Post-Construction Best Management Practices (BMP) Manual for Water Quality discusses suggestions and practices for stormwater runoff quality. The document states that this manual shall be applied when runoff outfalls within a quarter mile of an Outstanding Arizona Water, impaired water, or directly into another municipal separate storm sewer (MS4). Because this project is not near any major watercourse, the project will not require permanent stormwater treatment. Runoff at the Tis and along Jackrabbit Trail will discharge to retention basins that will store the 100-year storm events or to the FCDMC channel.

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY
AND OPERATIONS DIVISION

SCHEMATIC PLAN

STATE HIGHWAY
EHRENBURG - PHOENIX HIGHWAY
INTERSTATE 10

KEY MAP
NOT TO SCALE

I-10
JACKRABBIT TRAIL TI
PROJECT NO. 010 MA 121 F0486 01L

MIDPOINT OF PROJECT

Central Zone
State Plane Coordinates

X=972,000
Y=475,000

DESIGN DATA

2022 AADT = 14,000
2050 AADT = 31,000

Design Speed

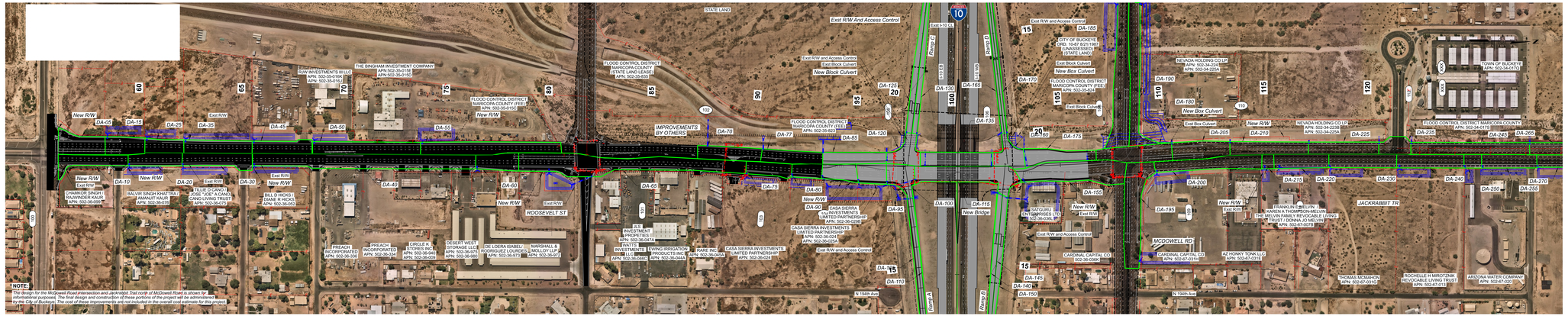
I-10 Mainline	*= 65 MPH*
Jackrabbit Tr	*= 55 MPH*
Jackrabbit Tr Ramps	
Entrance at Gore	*= 55 MPH*
Exit at Gore	*= 60 MPH*
Main Body	*= 50 MPH*
Terminus	*= 35 MPH*

LENGTH OF PROJECT

Jackrabbit Trail Cst CL
Sta 55+43.50 to 106+36.23 =5092.73'
Gross and Net Length =5092.73' = 0.96 Mile

LEGEND

Proposed Traffic Signals	*New Access Ctrl*
PCCP Pavement	*Exst Access Ctrl*
AC Pavement	*Exst Right-of-Way*
Concrete Sidewalk/ Median	*New Right-of-Way*
Exst Bridge	*TCE*
Proposed Bridge	*Drainage Easement*
Proposed Landscape Median	*Exst FMS*
Proposed Drainage Areas	*New 7-way Micro-duct*
	Proposed Drainage Infrastructure



NOTE:
The design for the McDowell Road intersection and Jackrabbit Trail north of McDowell Road is shown for informational purposes. The final design and construction of these portions of the project will be administered by the City of Buckeye. The cost of these improvements are not included in the overall cost estimate for this project.

Drainage Area Information							Hydrology				
Drainage Area	Longitudinal Slope, S (ft/ft)	Rational Coefficient	Flowpath Length (ft)	Area [ac]	FCDMC Resistance Coefficient Type	Kb	I [in/hr]	T [min]	Q [cfs]
DA-05	0.010	0.95	1	0.51	A	0.042	5.1	5.0	2.45
DA-10	0.010	0.95	1	0.46	A	0.042	5.1	5.0	2.21
DA-15	0.010	0.95	1	0.38	A	0.043	5.1	5.0	1.82
DA-20	0.010	0.95	1	0.37	A	0.043	5.1	5.0	1.78
DA-25	0.010	0.95	1	0.29	A	0.043	5.1	5.0	1.39
DA-30	0.010	0.95	1	0.52	A	0.042	5.1	5.0	2.50
DA-35	0.010	0.95	1	0.48	A	0.042	5.1	5.0	2.30
DA-40	0.010	0.95	1	1.68	A	0.039	5.1	5.0	8.06
DA-45	0.010	0.95	1	0.42	A	0.042	5.1	5.0	2.02
DA-50	0.010	0.95	1	0.72	A	0.041	5.1	5.0	3.46
DA-55	0.010	0.95	1	0.91	A	0.040	5.1	5.0	4.37
DA-60	0.010	0.95	1	0.37	A	0.043	5.1	5.0	1.78
DA-65	0.010	0.95	1	1.89	A	0.038	5.1	5.0	9.07
DA-70	0.010	0.95	1	0.47	A	0.042	5.1	5.0	2.26
DA-75	0.010	0.80	1	0.33	A	0.043	5.1	5.0	1.58
DA-77	0.010	0.95	1	0.43	A	0.043	5.1	5.0	2.06
DA-80	0.010	0.95	1	0.23	A	0.044	5.1	5.0	1.10
DA-180	0.010	0.95	1	0.64	A	0.041	5.1	5.0	3.07
DA-185	0.010	0.95	1	1.20	A	0.040	5.1	5.0	5.76
DA-190	0.010	0.95	1	0.88	A	0.040	5.1	5.0	4.22
DA-195	0.010	0.95	1	1.08	A	0.040	5.1	5.0	5.18
DA-200	0.010	0.95	1	0.69	A	0.041	5.1	5.0	3.31
DA-205	0.010	0.95	1	0.54	A	0.042	5.1	5.0	2.59
DA-210	0.010	0.95	1	0.55	A	0.042	5.1	5.0	2.64
DA-215	0.010	0.95	1	0.09	A	0.047	5.1	5.0	0.43
DA-220	0.010	0.95	1	0.42	A	0.042	5.1	5.0	2.02
DA-225	0.010	0.95	1	0.47	A	0.042	5.1	5.0	2.26
DA-230	0.010	0.95	1	0.50	A	0.042	5.1	5.0	2.40
DA-235	0.010	0.95	1	0.28	A	0.043	5.1	5.0	1.34
DA-240	0.010	0.95	1	0.50	A	0.042	5.1	5.0	2.40
DA-245	0.010	0.95	1	0.78	A	0.041	5.1	5.0	3.74
DA-250	0.010	0.95	1	0.13	A	0.046	5.1	5.0	0.62
DA-255	0.010	0.95	1	0.41	A	0.042	5.1	5.0	1.97
DA-265	0.010	0.95	1	0.87	A	0.040	5.1	5.0	4.18
DA-270	0.010	0.95	1	0.83	A	0.041	5.1	5.0	3.98

*** Minimum Flow path used for Min TOC, Yielding Max Discharge per Area*

Drainage Area Information							Hydrology				
Drainage Area	Longitudinal Slope, S (ft/ft)	Rational Coefficient	Flowpath Length (ft)	Area [ac]	FCDMC Resistance Coefficient Type	Kb	I [in/hr]	T [min]	Q [cfs]
DA-85	0.010	0.95	1	0.40	A	0.042	3.8	10.0	1.46
DA-90	0.010	0.95	1	0.31	A	0.043	3.8	10.0	1.13
DA-95	0.010	0.95	1	0.32	A	0.043	3.8	10.0	1.17
DA-100	0.010	0.95	1	0.38	A	0.043	3.8	10.0	1.39
DA-105	0.010	0.95	1	0.63	A	0.041	3.8	10.0	2.30
DA-110	0.010	0.88	1	3.47	A	0.037	3.8	10.0	11.74
DA-115	0.010	0.95	1	0.58	A	0.040	3.8	10.0	1.58
DA-120	0.010	0.95	1	0.38	A	0.043	3.8	10.0	1.39
DA-125	0.010	0.95	1	0.56	A	0.042	3.8	10.0	2.05
DA-130	0.010	0.95	1	0.48	A	0.042	3.8	10.0	1.75
DA-135	0.010	0.95	1	0.56	A	0.042	3.8	10.0	2.05
DA-140	0.010	0.88	1	3.58	A	0.037	3.8	10.0	12.12
DA-145	0.010	0.95	1	0.47	A	0.042	3.8	10.0	1.72
DA-150	0.010	0.95	1	0.43	A	0.042	3.8	10.0	1.57
DA-155	0.010	0.95	1	1.15	A	0.040	3.8	10.0	4.20
DA-160	0.010	0.95	1	0.38	A	0.043	3.8	10.0	1.39
DA-165	0.010	0.95	1	0.35	A	0.043	3.8	10.0	1.28
DA-170	0.010	0.95	1	0.35	A	0.043	3.8	10.0	1.28
DA-175	0.010	0.95	1	0.50	A	0.042	3.8	10.0	1.83

*** Minimum Flow path used for Min TOC, Yielding Max Discharge per Area*

Starting Station	Ending Station	Basin Side	Length [ft]	Half-Street Roadway Width [ft]	Area [ac]	Rational Coefficient	Volume Required [ac-ft]	Volume Provided [ac-ft]	Allowable High Water Depth	Basin top Area [ft²]	Basin Bottom Area [ft²]	Percolation Rate [in/hr]	De-rating Factor	Discharge per Drywell [cfs]	No. of Dry Wells	Drain Down Time [hrs]
58+38	60+31	W	193	86	*0.38*	0.95	*0.07*	0.07	1.00	3,792	2,400	1.00	1.00			15
59+49	62+12	E	263	64	*0.39*	0.95	*0.07*	0.07	1.00	3,792	2,400	1.00	1.00			15
60+31	62+21	W	190	69	*0.30*	0.95	*0.05*	0.06	1.00	3,174	1,950	1.00	1.00			14
62+13	65+13	E	300	61	*0.42*	0.95	*0.08*	0.08	1.00	4,368	2,600	1.00	1.00			15
62+21	65+55	W	334	62	*0.48*	0.95	*0.09*	0.10	1.00	5,544	3,500	1.00	1.00			15
65+55	68+09	W	254	61	*0.36*	0.95	*0.06*	0.07	1.00	3,744	2,000	1.00	1.00			17
65+57	68+01	E	334	61	*0.47*	0.95	*0.08*	0.08	1.00	4,368	2,600	1.00	1.00			17
68+50	70+49	W	199	60	*0.27*	0.95	*0.05*	0.05	1.00	2,844	1,500	1.00	1.00			17
73+77	80+63	W	686	50	*0.91*	0.95	*0.16*	0.16	1.00	7,584	6,000	1.00	1.00			14
78+56	89+69	E	1,113	80	*1.89*	0.95	*0.34*	0.45	3.00	8,709	4,481	1.00	1.00	0.02	1.00	33
89+69	91+93	E	224	57	*0.33*	0.95	*0.06*	0.06	1.00	3,174	1,950	1.00	1.00			16
91+93	93+40	E	147	62	*0.23*	0.95	*0.04*	0.05	1.00	2,810	1,585	1.00	1.00			11
Roadway area combined into basin below					*3.88*	0.95	*0.70*									
Infiletr Area Combined into Basin Below					*2.02*	0.75	*0.29*									
93+40	102+60	E	920	74	*5.90*	0.88	*0.98*	1.74	3.00	28,766	21,738	1.00	1.00			24
Roadway area combined into basin below					*3.86*	0.95	*0.69*									
Infiletr Area Combined into Basin Below					*1.79*	0.75	*0.25*									
101+97	107+52	E	555	75	*5.66*	0.89	*0.95*	0.97	3.00	19,611	8,434	1.00	1.00			59
108+25	109+08	N	515	85	*0.99*	0.95	*0.18*	0.18	1.00	8,664	6,600	1.00	1.00			14
107+31	108+42	S	750	85	*1.28*	0.95	*0.23*	0.23	1.00	10,944	8,800	1.00	1.00			14
109+08	113+17	E	409	70	*0.66*	0.95	*0.12*	0.12	1.00	6,004	4,500	1.00	1.00			14
114+85	115+43	E	58	70	*0.09*	0.95	*0.02*	0.02	1.00	1,104	600	1.00	1.00			15
115+43	118+11	E	268	68	*0.42*	0.95	*0.08*	0.08	1.00	4,160	2,600	1.00	1.00			15
118+11	121+43	E	332	66	*0.50*	0.95	*0.09*	0.09	1.00	4,500	3,124	1.00	1.00			15
121+43	124+70	E	327	67	*0.50*	0.95	*0.09*	0.09	1.00	4,500	3,124	1.00	1.00			15
124+70	129+56	E	96	67	*0.13*	0.95	*0.02*	0.02	1.00	1,104	600	1.00	1.00			21
125+56	129+00	E	344	67	*0.38*	0.95	*0.07*	0.07	1.00	3,744	2,000	1.00	1.00			18
128+00	134+32	E	632	67	*0.97*	0.95	*0.17*	0.18	1.00	8,664	6,600	1.00	1.00			14

*Assumed Percolation rates used, all retention basins will drain down in 36 hours for final design

DRAFT FINAL
DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

Kimley»Horn
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ADOT

	NAME	DATE
DESIGN	TSS	3/24
DRAWN	KAS	3/24
CHECKED	TSS	3/24

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
PROJECT MANAGEMENT GROUP
ALTERNATIVE 3B TDI
Scale: 1"=100'

ROUTE	I-10	F.H.W.A. Arizona Division	STATE: ARIZ
SHEET			PROJECT NO.: 010 MA 121
LOCATION	I-10 & JACKRABBIT TRAIL TI		FEDERAL ID NO.: N/A
STRUCTURE NO.		TRACS NO.	SHEET NO.: TOTAL SHEETS: RECORD DRAWING
			SHEET OF

ADOT
ARIZONA DEPARTMENT OF TRANSPORTATION

4:51:24 PM 3/12/2024 Tamer.Chapdia K:\PHX_Roadway\Worksets\ADOT_CONNECT_PROJECTS_10.10_2617MA00-F0486_I-10_Jackrabbit_TI\dgn\108-Exhibits\DrainageOnsite\DrainageMap\R486_exh08_onsiteDrainageMap.dgn

4.0 OFF-SITE DRAINAGE

EXISTING OFF-SITE DRAINAGE FEATURES

The White Tanks FRS #3 Outfall Channel (FRS #4 Inflow Channel) serves as the outfall for FCDMC's FRS #3 approximately four miles to the north and drains into FRS #3 just south of the project. The natural topography of the upstream watershed is northwest to the southeast, with an average overland slope of 0.009 ft/ft. The upstream watershed extends from FRS #3 to the north and approximately one mile west. This area drains into the FCDMC channel. Flows emanating from the White Tank Mountains further west are cutoff by Tuthill Dike Wash approximately one mile west of the Jackrabbit Trail alignment.

PROPOSED OFF-SITE DRAINAGE FEATURES

The only off-site improvements proposed with this project are the extension of the existing box culverts along the FCDMC channel at the ramps and McDowell Road. McDowell Road improvements will also require some channel realignment for the small inflow channel into the FCDMC channel. The culvert extensions will require coordination with FCDMC and approval from FEMA via the CLOMR/LOMR application process.

5.0 REFERENCES

Arizona Department of Transportation, *Highway Drainage Design Manual, Volume 2 - Hydrology* revised 2014

Arizona Department of Transportation, Roadway Engineering Group, *Roadway Design Guidelines,* May 2012

Arizona Department of Transportation, *Post-Construction Best Management Practices Manual for Water Quality,* January 2016

Flood Control District of Maricopa County, *Drainage Design Manual for Maricopa County, Arizona – Hydrology,* revised 2013.

Flood Control District of Maricopa County, *Drainage Design Manual for Maricopa County, Arizona – Hydraulics,* revised 2013.

Flood Control District of Maricopa County, *Drainage Policies and Standards for Maricopa County, Arizona*, revised 2016.

Federal Highway Administration, *Hydraulic Engineering Circular No. 22, Urban Drainage Design Manual – Third Edition*, September 2009

National Oceanic and Atmospheric Administration, NOAA Atlas 14, Precipitation-Frequency Atlas of the United States, 2011

Appendix A – Hydrology & Hydraulics

Kimley»Horn

Rainfall Information

General Project Information			
Project	JackRabbit TI		
Project #	291764000		
Designed by	TWC	Date	8/2023

NOAA 14 Rainfall Depth Data [in]										
	Storm Event [yr]									
Duration	1	2	5	10	25	50	100	200	500	1000
5-min:	0.198	0.258	0.35	0.421	0.516	0.589	0.663	0.739	0.839	0.915
10-min:	0.302	0.393	0.534	0.641	0.785	0.896	1.01	1.12	1.28	1.39
15-min:	0.374	0.487	0.661	0.795	0.973	1.11	1.25	1.39	1.58	1.73
30-min:	0.503	0.656	0.891	1.07	1.31	1.5	1.68	1.88	2.13	2.32
60-min:	0.623	0.812	1.1	1.32	1.62	1.85	2.08	2.32	2.64	2.88
2-hr:	0.699	0.9	1.21	1.44	1.76	2.01	2.27	2.52	2.88	3.15
3-hr:	0.737	0.94	1.24	1.48	1.81	2.08	2.36	2.65	3.06	3.4
6-hr:	0.849	1.08	1.39	1.64	1.97	2.24	2.52	2.81	3.22	3.55
12-hr:	0.943	1.19	1.51	1.77	2.12	2.38	2.65	2.93	3.32	3.62
24-hr:	1.2	1.52	1.97	2.33	2.82	3.21	3.62	4.05	4.63	5.09
2-day:	1.28	1.64	2.15	2.56	3.14	3.6	4.08	4.58	5.29	5.85
3-day:	1.35	1.72	2.27	2.71	3.33	3.82	4.35	4.9	5.68	6.31
4-day:	1.42	1.81	2.39	2.85	3.52	4.05	4.62	5.22	6.07	6.76
7-day:	1.56	1.99	2.63	3.15	3.87	4.46	5.08	5.74	6.67	7.41
10-day:	1.69	2.16	2.85	3.41	4.18	4.8	5.46	6.15	7.12	7.89
20-day:	1.98	2.55	3.36	3.97	4.8	5.42	6.07	6.72	7.6	8.27
30-day:	2.3	2.96	3.9	4.61	5.57	6.3	7.05	7.8	8.82	9.6
45-day:	2.72	3.5	4.61	5.42	6.5	7.3	8.11	8.92	9.98	10.8
60-day:	2.96	3.82	5.02	5.9	7.03	7.87	8.7	9.52	10.6	11.4

NOAA 14 Rainfall Intensity [in/hr]										
	Storm Event									
Duration	1	2	5	10	25	50	100	200	500	1000
5-min:	2.38	3.10	4.20	5.05	6.19	7.07	7.96	8.87	10.07	10.98
10-min:	1.81	2.36	3.20	3.85	4.71	5.38	6.06	6.72	7.68	8.34
15-min:	1.50	1.95	2.64	3.18	3.89	4.44	5.00	5.56	6.32	6.92
30-min:	1.01	1.31	1.78	2.14	2.62	3.00	3.36	3.76	4.26	4.64
60-min:	0.62	0.81	1.10	1.32	1.62	1.85	2.08	2.32	2.64	2.88
2-hr:	0.35	0.45	0.61	0.72	0.88	1.01	1.14	1.26	1.44	1.58
3-hr:	0.25	0.31	0.41	0.49	0.60	0.69	0.79	0.88	1.02	1.13
6-hr:	0.14	0.18	0.23	0.27	0.33	0.37	0.42	0.47	0.54	0.59
12-hr:	0.079	0.099	0.126	0.148	0.177	0.198	0.221	0.244	0.277	0.302
24-hr:	0.050	0.063	0.082	0.097	0.118	0.134	0.151	0.169	0.193	0.212
2-day:	0.027	0.034	0.045	0.053	0.065	0.075	0.085	0.095	0.110	0.122
3-day:	0.019	0.024	0.032	0.038	0.046	0.053	0.060	0.068	0.079	0.088
4-day:	0.015	0.019	0.025	0.030	0.037	0.043	0.049	0.055	0.064	0.071
7-day:	0.009	0.012	0.016	0.019	0.023	0.027	0.030	0.034	0.040	0.044
10-day:	0.007	0.009	0.012	0.014	0.017	0.020	0.023	0.026	0.030	0.033
20-day:	0.004	0.005	0.007	0.008	0.010	0.011	0.013	0.014	0.016	0.017
30-day:	0.003	0.004	0.005	0.006	0.008	0.009	0.010	0.011	0.012	0.013
45-day:	0.003	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009	0.010
60-day:	0.002	0.003	0.003	0.004	0.005	0.005	0.006	0.007	0.007	0.008

Kimley»Horn

ADOT Rational Method Calculations

General Project Information			
Project #	JackRabbit DCR		
Designed by	TWC	Date	9/23
Design Storm Event		10	
Minimum T_c [min]		10	

Drainage Area Information					Hydrology				
Drainage Area	Longitudinal Slope, S_l [ft/ft]	Rational Coefficient	Flowpath Length [ft]	Area [ac]	FCDMC Resistance Coefficient Type	Kb	I [in/hr]	T_c [min]	Q [cfs]
DA-85	0.010	0.95	*1*	*0.40*	*A*	*0.042*	*3.8*	*10.0*	*1.46*
DA-90	0.010	0.95	*1*	*0.31*	*A*	*0.043*	*3.8*	*10.0*	*1.13*
DA-95	0.010	0.95	*1*	*0.32*	*A*	*0.043*	*3.8*	*10.0*	*1.17*
DA-100	0.010	0.95	*1*	*0.38*	*A*	*0.043*	*3.8*	*10.0*	*1.39*
DA-105	0.010	0.95	*1*	*0.63*	*A*	*0.041*	*3.8*	*10.0*	*2.30*
DA-110	0.010	0.88	*1*	*3.47*	*A*	*0.037*	*3.8*	*10.0*	*11.74*
DA-115	0.010	0.95	*1*	*0.98*	*A*	*0.040*	*3.8*	*10.0*	*3.58*
DA-120	0.010	0.95	*1*	*0.38*	*A*	*0.043*	*3.8*	*10.0*	*1.39*
DA-125	0.010	0.95	*1*	*0.56*	*A*	*0.042*	*3.8*	*10.0*	*2.05*
DA-130	0.010	0.95	*1*	*0.48*	*A*	*0.042*	*3.8*	*10.0*	*1.75*
DA-135	0.010	0.95	*1*	*0.56*	*A*	*0.042*	*3.8*	*10.0*	*2.05*
DA-140	0.010	0.88	*1*	*3.58*	*A*	*0.037*	*3.8*	*10.0*	*12.12*
DA-145	0.010	0.95	*1*	*0.47*	*A*	*0.042*	*3.8*	*10.0*	*1.72*
DA-150	0.010	0.95	*1*	*0.43*	*A*	*0.042*	*3.8*	*10.0*	*1.57*
DA-155	0.010	0.95	*1*	*1.15*	*A*	*0.040*	*3.8*	*10.0*	*4.20*
DA-160	0.010	0.95	*1*	*0.38*	*A*	*0.043*	*3.8*	*10.0*	*1.39*
DA-165	0.010	0.95	*1*	*0.35*	*A*	*0.043*	*3.8*	*10.0*	*1.28*
DA-170	0.010	0.95	*1*	*0.35*	*A*	*0.043*	*3.8*	*10.0*	*1.28*
DA-175	0.010	0.95	*1*	*0.50*	*A*	*0.042*	*3.8*	*10.0*	*1.83*

** Minimum Flow path used for Min TOC, Yielding Max Discharge per Area

Kimley»Horn

ADOT Rational Method Calculations

General Project Information			
Project #	JackRabbit DCR		
Designed by	TWC	Date	9/23
Design Storm Event	100		
Minimum T_c [min]	10		

Drainage Area Information					Hydrology				
Drainage Area	Longitudinal Slope, S_l [ft/ft]	Rational Coefficient	Flowpath Length [ft]	Area [ac]	FCDMC Resistance Coefficient Type	Kb	I [in/hr]	T_c [min]	Q [cfs]
DA-85	0.010	0.95	*1*	*0.40*	*A*	*0.042*	*6.1*	*10.0*	*2.30*
DA-90	0.010	0.95	*1*	*0.31*	*A*	*0.043*	*6.1*	*10.0*	*1.78*
DA-95	0.010	0.95	*1*	*0.32*	*A*	*0.043*	*6.1*	*10.0*	*1.84*
DA-100	0.010	0.95	*1*	*0.38*	*A*	*0.043*	*6.1*	*10.0*	*2.19*
DA-105	0.010	0.95	*1*	*0.63*	*A*	*0.041*	*6.1*	*10.0*	*3.63*
DA-110	0.010	0.88	*1*	*3.47*	*A*	*0.037*	*6.1*	*10.0*	*18.50*
DA-115	0.010	0.95	*1*	*0.98*	*A*	*0.040*	*6.1*	*10.0*	*5.64*
DA-120	0.010	0.95	*1*	*0.38*	*A*	*0.043*	*6.1*	*10.0*	*2.19*
DA-125	0.010	0.95	*1*	*0.56*	*A*	*0.042*	*6.1*	*10.0*	*3.22*
DA-130	0.010	0.95	*1*	*0.48*	*A*	*0.042*	*6.1*	*10.0*	*2.76*
DA-135	0.010	0.95	*1*	*0.56*	*A*	*0.042*	*6.1*	*10.0*	*3.22*
DA-140	0.010	0.88	*1*	*3.58*	*A*	*0.037*	*6.1*	*10.0*	*19.09*
DA-145	0.010	0.95	*1*	*0.47*	*A*	*0.042*	*6.1*	*10.0*	*2.71*
DA-150	0.010	0.95	*1*	*0.43*	*A*	*0.042*	*6.1*	*10.0*	*2.48*
DA-155	0.010	0.95	*1*	*1.15*	*A*	*0.040*	*6.1*	*10.0*	*6.62*
DA-160	0.010	0.95	*1*	*0.38*	*A*	*0.043*	*6.1*	*10.0*	*2.19*
DA-165	0.010	0.95	*1*	*0.35*	*A*	*0.043*	*6.1*	*10.0*	*2.01*
DA-170	0.010	0.95	*1*	*0.35*	*A*	*0.043*	*6.1*	*10.0*	*2.01*
DA-175	0.010	0.95	*1*	*0.50*	*A*	*0.042*	*6.1*	*10.0*	*2.88*

** Minimum Flow path used for Min TOC, Yielding Max Discharge per Area

Kimley»Horn

COB Rational Method Calculations

General Project Information			
Project #	JackRabbit DCR		
Designed by	TWC	Date	9/23
Design Storm Event		10	
Minimum T_c [min]		5	

Drainage Area Information					Hydrology				
Drainage Area	Longitudinal Slope, S_l [ft/ft]	Rational Coefficient	Flowpath Length [ft]	Area [ac]	FCDMC Resistance Coefficient Type	Kb	I [in/hr]	T_c [min]	Q [cfs]
DA-05	0.010	0.95	*1*	*0.51*	*A*	*0.042*	*5.1*	*5.0*	*2.45*
DA-10	0.010	0.95	*1*	*0.46*	*A*	*0.042*	*5.1*	*5.0*	*2.21*
DA-15	0.010	0.95	*1*	*0.38*	*A*	*0.043*	*5.1*	*5.0*	*1.82*
DA-20	0.010	0.95	*1*	*0.37*	*A*	*0.043*	*5.1*	*5.0*	*1.78*
DA-25	0.010	0.95	*1*	*0.29*	*A*	*0.043*	*5.1*	*5.0*	*1.39*
DA-30	0.010	0.95	*1*	*0.52*	*A*	*0.042*	*5.1*	*5.0*	*2.50*
DA-35	0.010	0.95	*1*	*0.48*	*A*	*0.042*	*5.1*	*5.0*	*2.30*
DA-40	0.010	0.95	*1*	*1.68*	*A*	*0.039*	*5.1*	*5.0*	*8.06*
DA-45	0.010	0.95	*1*	*0.42*	*A*	*0.042*	*5.1*	*5.0*	*2.02*
DA-50	0.010	0.95	*1*	*0.72*	*A*	*0.041*	*5.1*	*5.0*	*3.46*
DA-55	0.010	0.95	*1*	*0.91*	*A*	*0.040*	*5.1*	*5.0*	*4.37*
DA-60	0.010	0.95	*1*	*0.37*	*A*	*0.043*	*5.1*	*5.0*	*1.78*
DA-65	0.010	0.95	*1*	*1.89*	*A*	*0.038*	*5.1*	*5.0*	*9.07*
DA-70	0.010	0.95	*1*	*0.47*	*A*	*0.042*	*5.1*	*5.0*	*2.26*
DA-75	0.010	0.95	*1*	*0.33*	*A*	*0.043*	*5.1*	*5.0*	*1.58*
DA-77	0.010	0.95	*1*	*0.43*	*A*	*0.042*	*5.1*	*5.0*	*2.06*
DA-80	0.010	0.95	*1*	*0.23*	*A*	*0.044*	*5.1*	*5.0*	*1.10*
DA-180	0.010	0.95	*1*	*0.64*	*A*	*0.041*	*5.1*	*5.0*	*3.07*
DA-185	0.010	0.95	*1*	*1.20*	*A*	*0.040*	*5.1*	*5.0*	*5.76*
DA-190	0.010	0.95	*1*	*0.88*	*A*	*0.040*	*5.1*	*5.0*	*4.22*
DA-195	0.010	0.95	*1*	*1.08*	*A*	*0.040*	*5.1*	*5.0*	*5.18*
DA-200	0.010	0.95	*1*	*0.69*	*A*	*0.041*	*5.1*	*5.0*	*3.31*
DA-205	0.010	0.95	*1*	*0.54*	*A*	*0.042*	*5.1*	*5.0*	*2.59*
DA-210	0.010	0.95	*1*	*0.55*	*A*	*0.042*	*5.1*	*5.0*	*2.64*
DA-215	0.010	0.95	*1*	*0.09*	*A*	*0.047*	*5.1*	*5.0*	*0.43*
DA-220	0.010	0.95	*1*	*0.42*	*A*	*0.042*	*5.1*	*5.0*	*2.02*
DA-225	0.010	0.95	*1*	*0.47*	*A*	*0.042*	*5.1*	*5.0*	*2.26*
DA-230	0.010	0.95	*1*	*0.50*	*A*	*0.042*	*5.1*	*5.0*	*2.40*
DA-235	0.010	0.95	*1*	*0.28*	*A*	*0.043*	*5.1*	*5.0*	*1.34*
DA-240	0.010	0.95	*1*	*0.50*	*A*	*0.042*	*5.1*	*5.0*	*2.40*
DA-245	0.010	0.95	*1*	*0.78*	*A*	*0.041*	*5.1*	*5.0*	*3.74*
DA-250	0.010	0.95	*1*	*0.13*	*A*	*0.046*	*5.1*	*5.0*	*0.62*
DA-255	0.010	0.95	*1*	*0.41*	*A*	*0.042*	*5.1*	*5.0*	*1.97*
DA-265	0.010	0.95	*1*	*0.87*	*A*	*0.040*	*5.1*	*5.0*	*4.18*
DA-270	0.010	0.95	*1*	*0.83*	*A*	*0.041*	*5.1*	*5.0*	*3.98*

** Minimum Flow path used for Min TOC, Yielding Max Discharge per Area

Kimley»Horn

COB Rational Method Calculations

General Project Information			
Project #	JackRabbit DCR		
Designed by	TWC	Date	9/23
Design Storm Event		100	
Minimum T_c [min]		5	

Drainage Area Information					Hydrology				
Drainage Area	Longitudinal Slope, S_l [ft/ft]	Rational Coefficient	Flowpath Length [ft]	Area [ac]	FCDMC Resistance Coefficient Type	Kb	I [in/hr]	T_c [min]	Q [cfs]
DA-05	0.010	0.95	*1*	*0.51*	*A*	*0.042*	*8.0*	*5.0*	*3.85*
DA-10	0.010	0.95	*1*	*0.46*	*A*	*0.042*	*8.0*	*5.0*	*3.48*
DA-15	0.010	0.95	*1*	*0.38*	*A*	*0.043*	*8.0*	*5.0*	*2.87*
DA-20	0.010	0.95	*1*	*0.37*	*A*	*0.043*	*8.0*	*5.0*	*2.80*
DA-25	0.010	0.95	*1*	*0.29*	*A*	*0.043*	*8.0*	*5.0*	*2.19*
DA-30	0.010	0.95	*1*	*0.52*	*A*	*0.042*	*8.0*	*5.0*	*3.93*
DA-35	0.010	0.95	*1*	*0.48*	*A*	*0.042*	*8.0*	*5.0*	*3.63*
DA-40	0.010	0.95	*1*	*1.68*	*A*	*0.039*	*8.0*	*5.0*	*12.70*
DA-45	0.010	0.95	*1*	*0.42*	*A*	*0.042*	*8.0*	*5.0*	*3.17*
DA-50	0.010	0.95	*1*	*0.72*	*A*	*0.041*	*8.0*	*5.0*	*5.44*
DA-55	0.010	0.95	*1*	*0.91*	*A*	*0.040*	*8.0*	*5.0*	*6.88*
DA-60	0.010	0.95	*1*	*0.37*	*A*	*0.043*	*8.0*	*5.0*	*2.80*
DA-65	0.010	0.95	*1*	*1.89*	*A*	*0.038*	*8.0*	*5.0*	*14.28*
DA-70	0.010	0.95	*1*	*0.47*	*A*	*0.042*	*8.0*	*5.0*	*3.55*
DA-75	0.010	0.95	*1*	*0.33*	*A*	*0.043*	*8.0*	*5.0*	*2.49*
DA-77	0.010	0.95	*1*	*0.43*	*A*	*0.042*	*8.0*	*5.0*	*3.25*
DA-80	0.010	0.95	*1*	*0.23*	*A*	*0.044*	*8.0*	*5.0*	*1.74*
DA-180	0.010	0.95	*1*	*0.64*	*A*	*0.041*	*8.0*	*5.0*	*4.84*
DA-185	0.010	0.95	*1*	*1.20*	*A*	*0.040*	*8.0*	*5.0*	*9.07*
DA-190	0.010	0.95	*1*	*0.88*	*A*	*0.040*	*8.0*	*5.0*	*6.65*
DA-195	0.010	0.95	*1*	*1.08*	*A*	*0.040*	*8.0*	*5.0*	*8.16*
DA-200	0.010	0.95	*1*	*0.69*	*A*	*0.041*	*8.0*	*5.0*	*5.22*
DA-205	0.010	0.95	*1*	*0.54*	*A*	*0.042*	*8.0*	*5.0*	*4.08*
DA-210	0.010	0.95	*1*	*0.55*	*A*	*0.042*	*8.0*	*5.0*	*4.16*
DA-215	0.010	0.95	*1*	*0.09*	*A*	*0.047*	*8.0*	*5.0*	*0.68*
DA-220	0.010	0.95	*1*	*0.42*	*A*	*0.042*	*8.0*	*5.0*	*3.17*
DA-225	0.010	0.95	*1*	*0.47*	*A*	*0.042*	*8.0*	*5.0*	*3.55*
DA-230	0.010	0.95	*1*	*0.50*	*A*	*0.042*	*8.0*	*5.0*	*3.78*
DA-235	0.010	0.95	*1*	*0.28*	*A*	*0.043*	*8.0*	*5.0*	*2.12*
DA-240	0.010	0.95	*1*	*0.50*	*A*	*0.042*	*8.0*	*5.0*	*3.78*
DA-245	0.010	0.95	*1*	*0.78*	*A*	*0.041*	*8.0*	*5.0*	*5.90*
DA-250	0.010	0.95	*1*	*0.13*	*A*	*0.046*	*8.0*	*5.0*	*0.98*
DA-255	0.010	0.95	*1*	*0.41*	*A*	*0.042*	*8.0*	*5.0*	*3.10*
DA-265	0.010	0.95	*1*	*0.87*	*A*	*0.040*	*8.0*	*5.0*	*6.58*
DA-270	0.010	0.95	*1*	*0.83*	*A*	*0.041*	*8.0*	*5.0*	*6.27*

** Minimum Flow path used for Min TOC, Yielding Max Discharge per Area

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Half Street Volume Calculations

General Project Information			
Project #	JackRabbit DCR		
Designed by	TWC	Date	Mar-24
Design Storm Event [yr]	100		
Duration [hr]	2		

Starting Station	Ending Station	Basin Side	Length [ft]	Half-Street Roadway Width [ft]	Area [ac]	Rational Coefficient	Volume Required [ac-ft]	Volume Provided [ac-ft]	Allowable High Water Depth	Basin top Area [ft^2]	Basin Bottom Area [ft^2]	Percolation Rate [in/hr]	De-rating Factor	Discharge per Drywell [cfs]	No. of Dry Wells	Drain Down Time [hrs]
58+38	60+31	W	193	86	*0.38*	0.95	*0.07*	0.07	1.00	3,792	2,400	1.00	1.00			15
59+49	62+12	E	263	64	*0.39*	0.95	*0.07*	0.07	1.00	3,792	2,400	1.00	1.00			15
60+31	62+21	W	190	69	*0.30*	0.95	*0.05*	0.06	1.00	3,174	1,950	1.00	1.00			14
62+13	65+13	E	300	61	*0.42*	0.95	*0.08*	0.08	1.00	4,368	2,600	1.00	1.00			15
62+21	65+55	W	334	62	*0.48*	0.95	*0.09*	0.10	1.00	5,544	3,000	1.00	1.00			15
65+55	68+09	W	254	61	*0.36*	0.95	*0.06*	0.07	1.00	3,744	2,000	1.00	1.00			17
65+57	68+91	E	334	61	*0.47*	0.95	*0.08*	0.08	1.00	4,368	2,600	1.00	1.00			17
68+50	70+49	W	199	60	*0.27*	0.95	*0.05*	0.05	1.00	2,844	1,500	1.00	1.00			17
73+77	80+63	W	686	50	*0.91*	0.95	*0.16*	0.16	1.00	7,584	6,000	1.00	1.00			14
78+56	89+69	E	1,113	80	*1.89*	0.95	*0.34*	0.45	3.00	8,709	4,481	1.00	1.00	0.02	1	33
89+69	91+93	E	224	57	*0.33*	0.95	*0.06*	0.06	1.00	3,174	1,950	1.00	1.00			16
91+93	93+40	E	147	62	*0.23*	0.95	*0.04*	0.05	1.00	2,810	1,885	1.00	1.00			11
Roadway area combined into basin below					*3.88*	0.95	*0.70*									
Infield Area Combined into Basin Below					*2.02*	0.75	*0.29*									
93+40	102+60	E	920	74	*5.90*	0.88	*0.98*	1.74	3.00	28,766	21,738	1.00	1.00			24
Roadway area combined into basin below					*3.86*	0.95	*0.69*									
Infield Area Combined into Basin Below					*1.79*	0.75	*0.25*									
101+97	107+52	E	555	75	*5.66*	0.89	*0.95*	0.97	3.00	19,611	8,434	1.00	1.00			59
108+25	109+08	N	515	85	*0.99*	0.95	*0.18*	0.18	1.00	8,664	6,600	1.00	1.00			14
107+31	108+42	S	750	85	*1.28*	0.95	*0.23*	0.23	1.00	10,944	8,800	1.00	1.00			14
109+08	113+17	E	409	70	*0.66*	0.95	*0.12*	0.12	1.00	6,004	4,500	1.00	1.00			14
114+85	115+43	E	58	70	*0.09*	0.95	*0.02*	0.02	1.00	1,104	600	1.00	1.00			15
115+43	118+11	E	268	68	*0.42*	0.95	*0.08*	0.08	1.00	4,160	2,600	1.00	1.00			15
118+11	121+43	E	332	66	*0.50*	0.95	*0.09*	0.09	1.00	4,500	3,124	1.00	1.00			15
121+43	124+70	E	327	67	*0.50*	0.95	*0.09*	0.09	1.00	4,500	3,124	1.00	1.00			15
124+70	125+56	E	86	67	*0.13*	0.95	*0.02*	0.02	1.00	1,104	600	1.00	1.00			21
125+56	128+00	E	244	67	*0.38*	0.95	*0.07*	0.07	1.00	3,744	2,000	1.00	1.00			18
128+00	134+32	E	632	67	*0.97*	0.95	*0.17*	0.18	1.00	8,664	6,600	1.00	1.00			14

Existing Retention Basin could be utilized; after existing volume is confirmed

Retention Basin Off McDowell Road

Drainage Area is combination of desert landscape, infield, and road areas

APPENDIX I: Draft Americans with Disabilities Act Compliance and Feasibility Report

PROJECT I-10 JACKRABBIT TRAIL TI 010 MA 121 F0486 01L
FEDERAL AID NO. 010-B(222)T
INITIAL DESIGN CONCEPT REPORT (DCR) AND ENVIRONMENTAL DOCUMENT
ADOT CENTRAL DISTRICT/ MARICOPA COUNTY

DRAFT ADA COMPLIANCE AND FEASIBILITY REPORT

September 15, 2023

PREPARED BY

Kimley»Horn

PREPARED FOR

ADOT Intermodal Transportation

ARIZONA DEPARTMENT OF TRANSPORTATION
PROJECT MANAGEMENT GROUP

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

INTRODUCTION

Project I-10 JACKRABBIT TRAIL TI 010 MA 121 F0486 01L
Jackrabbit Trail Traffic Interchange (TI) upgrade provides ADA compliance along Jackrabbit Trail from West Palm Lane down to West Blue Horizon Pkwy North / West Van Buren St. The proposed project is in the Arizona Department of Transportation's (ADOT's) Central District within Maricopa County in south-central Arizona. The approximate length of project is 1.25 miles. The Project Manager is Raj Christian (Phone: (602) 371-4560).

All Americans with Disabilities Act (ADA) features within ADOT right-of-way (ROW) will be impacted by this project. All ADA features within the project limits were evaluated for compliance with the 2010 ADA Standards for Accessible Design (2010 Standards).

There are 33 ADA features within the project limits of which none are listed in the ADOT Feature Inventory System (FIS). Of the 33 ADA features within the project limits, 18 are not in compliance with the 2010 ADA standards. A summary of the non-compliant locations and locations which need to be evaluated for compliance is included in this listing. These locations should be inspected post-construction to determine whether the feature exists and if it is ADA compliant. A summary of the total compliant and non-compliant features is shown in the table below.

Table 1: ADOT FIS Summary of ADA Features

Feature Type	Compliant	Non-Compliant	Total
Sidewalk	2	0	2
Crosswalks	0	0	0
Curb Ramps	2	0	2
Driveways	11	18	29
Pedestrian Traffic Island Crossings	0	0	0
Accessible Pedestrian Signals	0	0	0
Handrail	0	0	0
Obstructions/Needs	0	0	0
Total	15	18	33

A total of 33 improvements are proposed with this project. A summary of all action items proposed to be implemented is shown in the table below.

Table 2: Summary of All Action Items

Proposed Action Item – Driveways	Total Proposed Improvements	Total Constructed Improvements
Driveway will be reconstructed with this project	29	
Proposed Action Item – Sidewalks		
Sidewalk will be reconstructed with this project	2	
Proposed Action Item – Curb ramps		
Curb ramp will be reconstructed with this project	2	
Total	33	

1. SIDEWALKS

There are two sidewalks within the project limits. The two sidewalks are in front of the entrance to Public Storage/Jackrabbit Java. The action items for sidewalks are summarized in the table below.

Table 3: Sidewalk Action Items

Asset ID	Location	Beginning STA	Compliance Evaluation		DCR Proposed Action	Final Proposed Action	Construction Action
			From FIS Report	From Field Survey			
XXXSW01	Desert West Storage	75+39.51 (Rt)	Not in FIS Database	Compliant	Sidewalk will be reconstructed with this Project		
XXXSW02	Desert West Storage	76+96.57 (Rt)	Not in FIS Database	Compliant	Sidewalk will be reconstructed with this Project		

2. CROSSWALKS

There are no crosswalks within the project limits.

3. CURB RAMPS

There are two curb ramps within the project limits. The two curb ramps are in front of the entrance of Desert West Storage complex. The action items for sidewalks are summarized in the table below.

Table 4: Curb Ramp Action Items

Asset ID	Location	Beginning STA	Compliance Evaluation		DCR Proposed Action	Final Proposed Action	Construction Action
			From FIS Report	From Field Survey			
XXXCR01	Desert West Storage	75+65.83 (Rt)	Not in FIS Database	Compliant	Curb ramp will be reconstructed with this Project		
XXXCR02	Desert West Storage	76+31.21 (Rt)	Not in FIS Database	Compliant	Curb ramp will be reconstructed with this Project		

4. DRIVEWAYS

There are 29 driveways within the project limits, none of which are listed in the ADOT FIS. 18 locations are non-compliant, 11 are compliant but will be reconstructed. The action items for driveways are summarized in the table below:

Table 5: Driveway Action Items

Asset ID	Location	Beginning STA	Compliance Evaluation		DCR Proposed Action	Final Proposed Action	Construction Action
			From FIS Report	From Field Survey			
XXXDW01	Wadsworth Golf Construction	67+65.91 (Lt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW02	Wadsworth Golf Construction	68+10.16 (Lt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		
XXXDW03	Wadsworth Golf Construction	70+32.13 (Lt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW04	Preach Inc.	71+04.25 (Rt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		

Asset ID	Location	Beginning STA	Compliance Evaluation		DCR Proposed Action	Final Proposed Action	Construction Action
			From FIS Report	From Field Survey			
XXXDW05	Carquest Auto Parts	71+75.62 (Lt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		
XXXDW06	Circle K	72+88.04 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW07	Carquest Auto Parts	73+32.74 (Lt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW08	Circle K	74+09.09 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW09	Circle K	75+02.56 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW10	Desert West Storage	75+92.16 (Rt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		
XXXDW11	AZ ATV Adventures	78+05.35 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW12	Salsitas Mexican Restaurant	79+01.86 (Rt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		
XXXDW13	Intersection W Roosevelt St and Jackrabbit Trail	81+87.23 (Lt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		
XXXDW14	Sprinkler World of Arizona Inc.	83+25.84 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		

Asset ID	Location	Beginning STA	Compliance Evaluation		DCR Proposed Action	Final Proposed Action	Construction Action
			From FIS Report	From Field Survey			
XXXDW15	Sunstate Equipment	84+57.65 (Rt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		
XXXDW16	Ewing Outdoor Supply	86+52.54 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW17	Rare Inc.	87+38.36 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW18	Chevron	103+59.65 (Rt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		
XXXDW19	Chevron	104+85.74 (Rt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		
XXXDW20	Homes Direct of Buckeye	106+06.43 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW21	Brazos Trailer Sales of Arizona	110+94.23 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW22	Waddell's Longhorn	113+41.80 (Rt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		
XXXDW23	Waddell's Longhorn	114+62.25 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW24	Dollar General	115+31.48 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		

Asset ID	Location	Beginning STA	Compliance Evaluation		DCR Proposed Action	Final Proposed Action	Construction Action
			From FIS Report	From Field Survey			
XXXDW25	Belly's Mexican Food Truck	117+44.96 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW26	Belly's Mexican Food Truck	118+20.60 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW27	West Palm Lane	119+80.91 (Lt)	Not in FIS Database	Compliant	Driveway will be reconstructed with this Project		
XXXDW28	West Palm Lane	123+05.22 (Lt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		
XXXDW29	Arizona Water Company	125+39.52 (Rt)	Not in FIS Database	Cross Slope > 2%	Driveway will be reconstructed with this Project		

5. PEDESTRIAN ISLAND CROSSINGS

There are no pedestrian island crossings within the project limits.

6. ACCESSIBLE PEDESTRIAN SIGNAL LOCATIONS

There are no accessible pedestrian signal locations within the project limits.

7. HANDRAIL LOCATIONS

There is no handrail within the project limits.

8. OBSTRUCTIONS & ADA FEATURES NEEDED

There is no obstructions nor additional ADA features needed within the project limits.

APPENDICES

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B - Cross Slope is > 2%
C - Gutter Slope is > 5%
D - Ramp Transition Not Flush at Top and Bottom (>1/2" Lip at Pavement)
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ADA Features Map
Project 010 MA 121 F0486 01L

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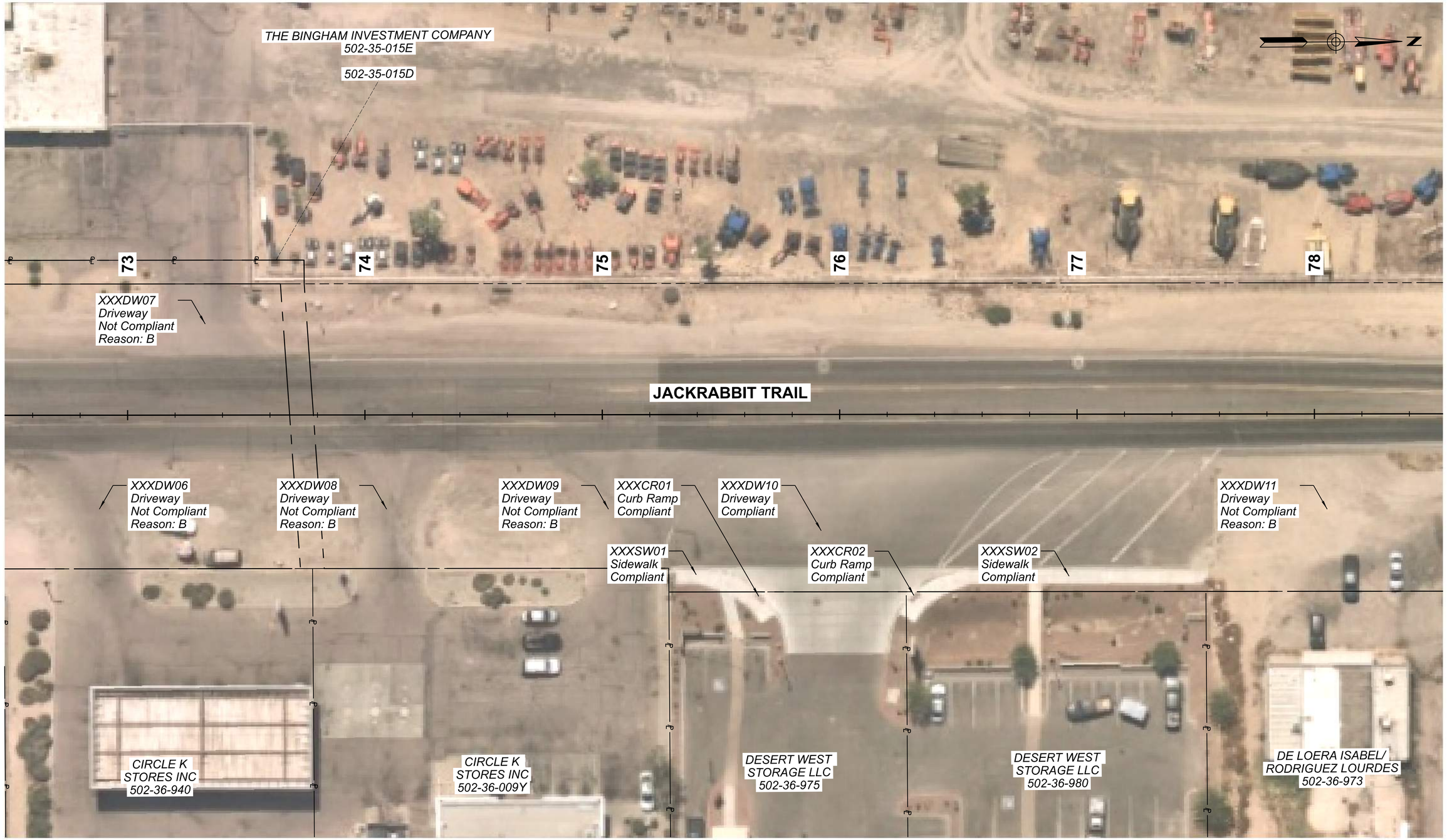

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THE BINGHAM INVESTMENT COMPANY
502-35-015E

502-35-015D

FLOOD CONTROL DISTRICT
MARICOPA COUNTY (FEE)
502-35-015C

FLOOD CONTROL DISTRICT
MARICOPA COUNTY (FEE)
502-35-823

N

79 80 81 82 83 84

XXXDW13
Driveway
Compliant

JACKRABBIT TRAIL

XXXDW12
Driveway
Compliant

W ROOSEVELT ST

XXXDW14
Driveway
Not Compliant
Reason: B

XXXDW15
Driveway
Compliant

MARSHALL &
MOLLOY LLP
502-36-972

JLS
INVESTMENT
PROPETIES
502-36-047A

WATTS INVESTMENTS
LLC
502-36-046C

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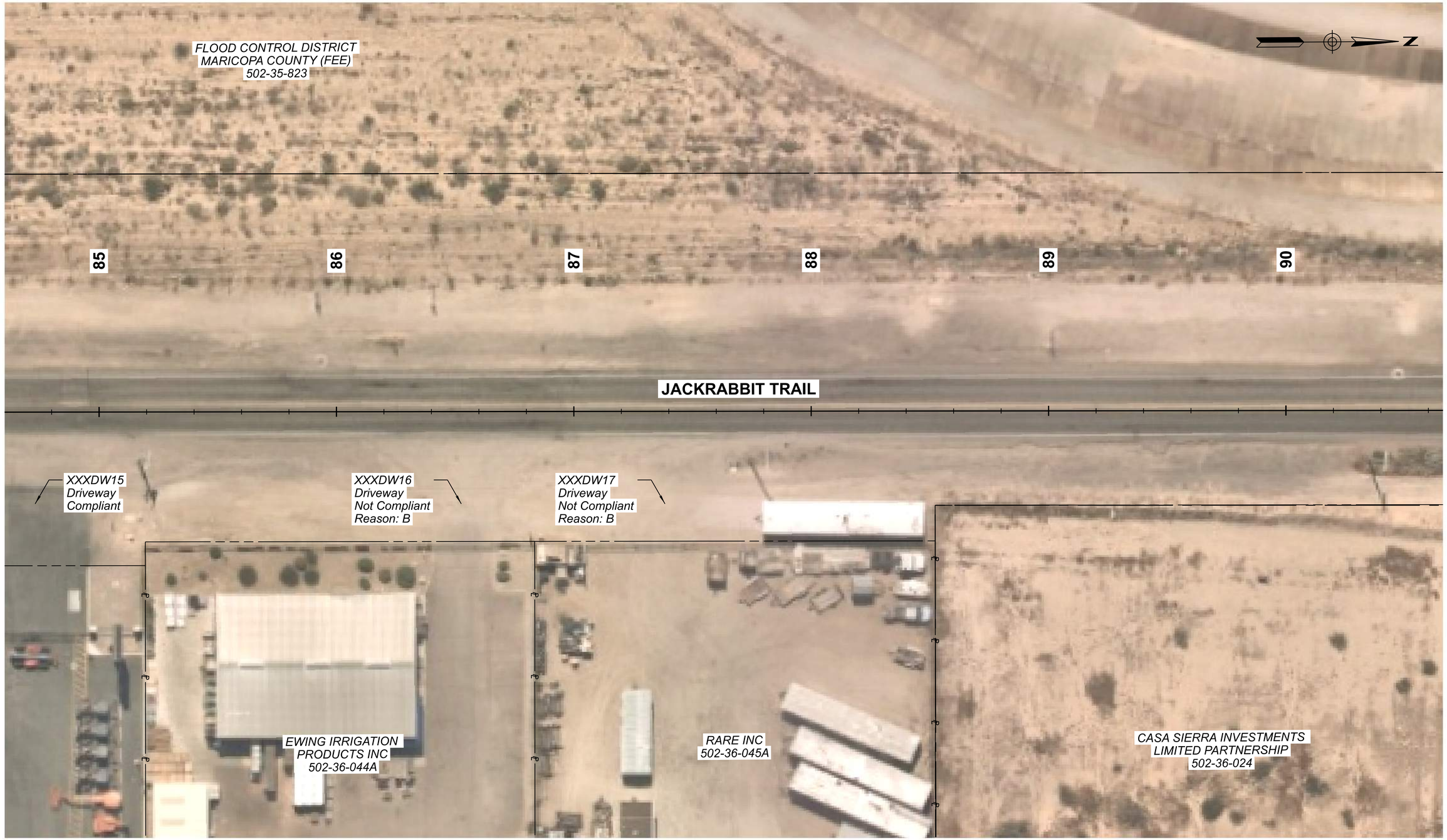

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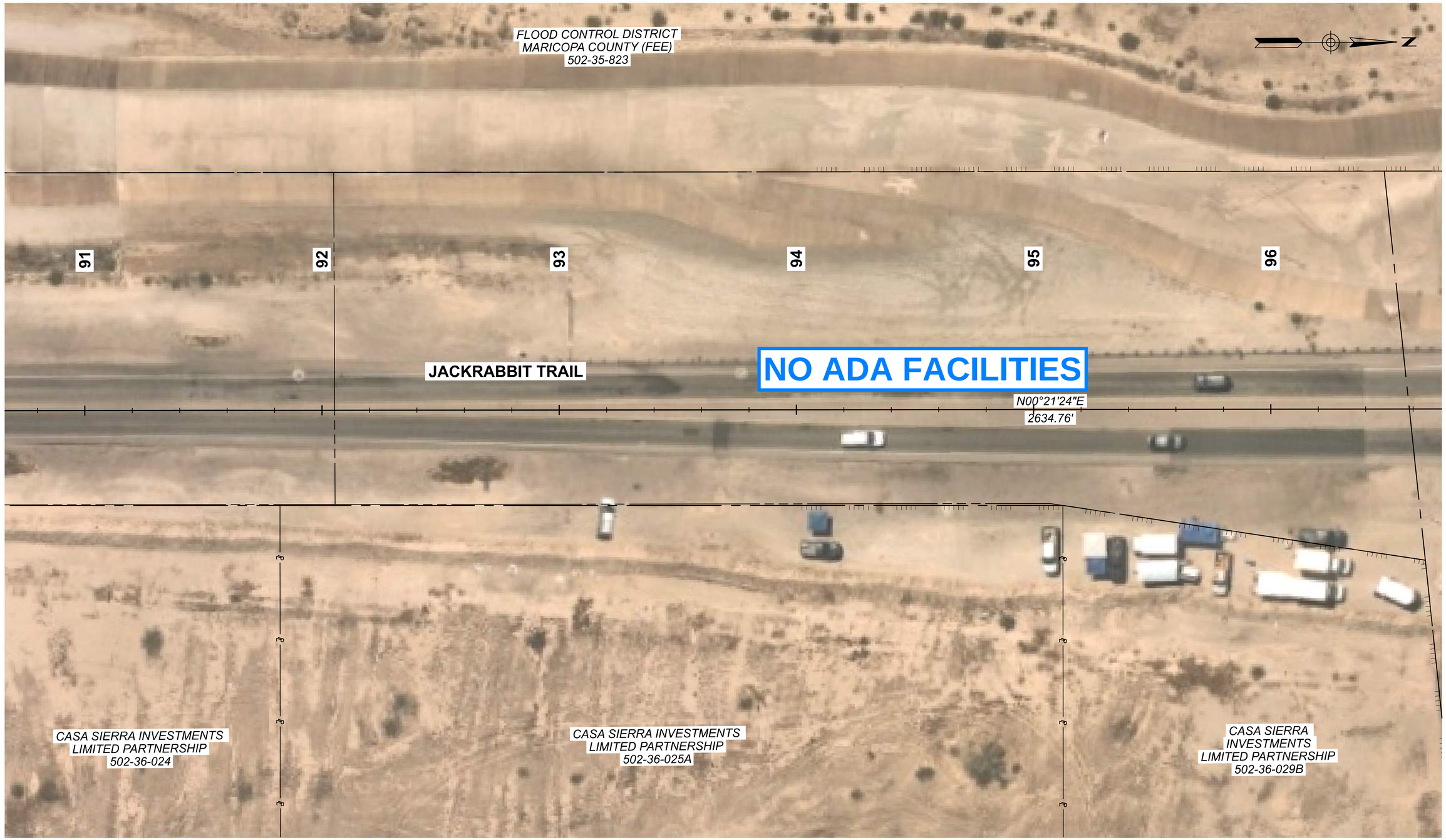

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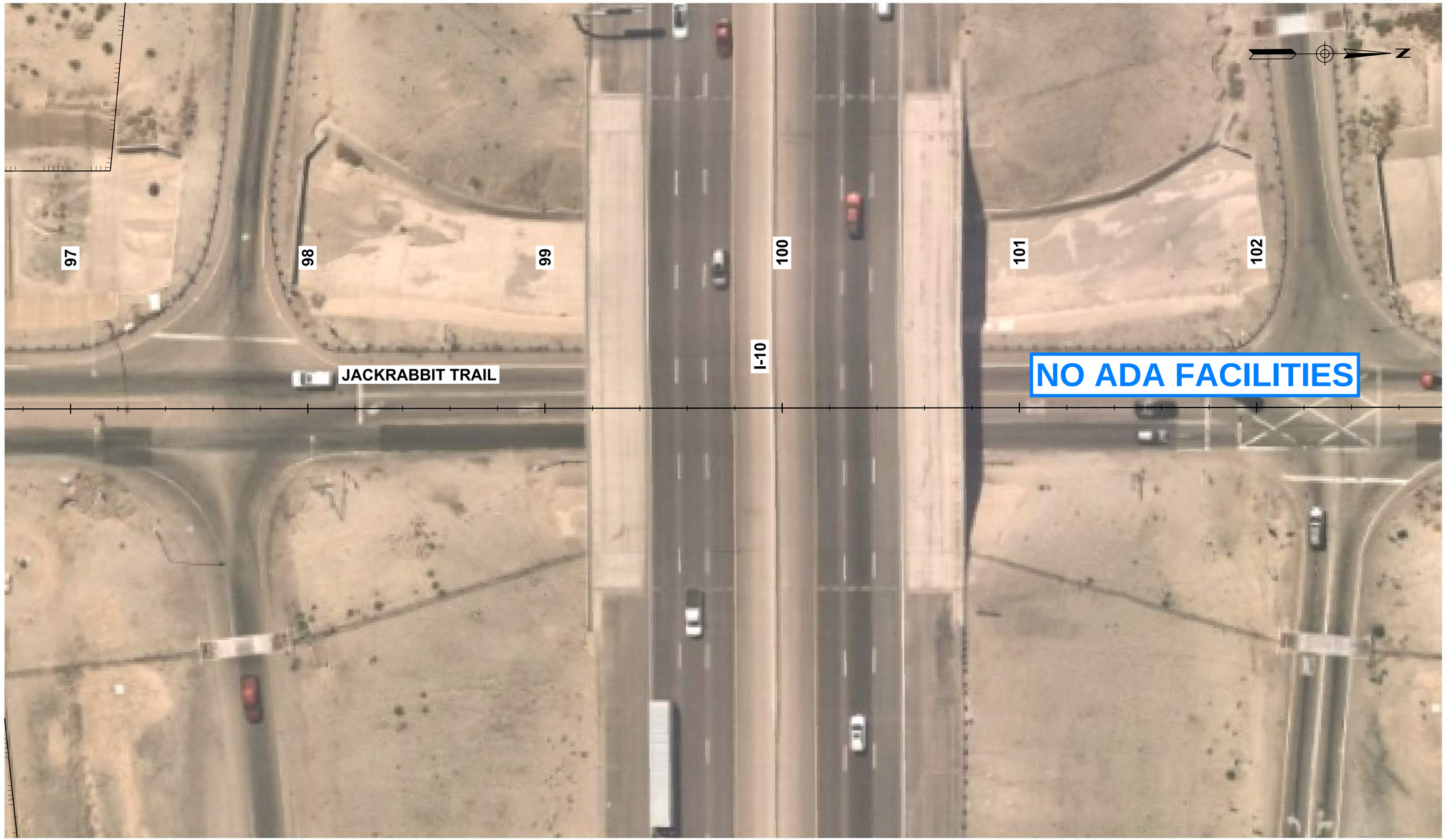

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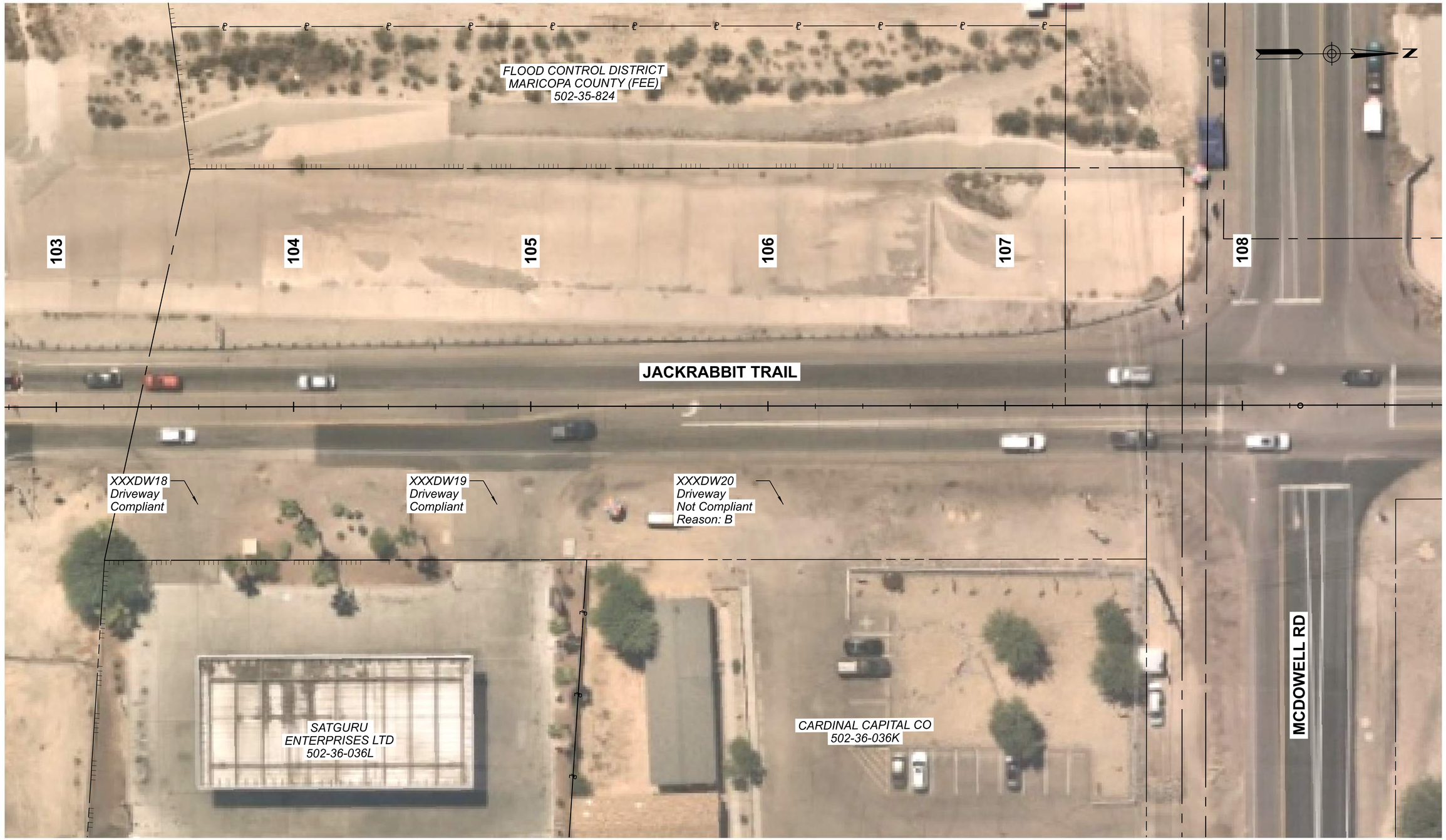

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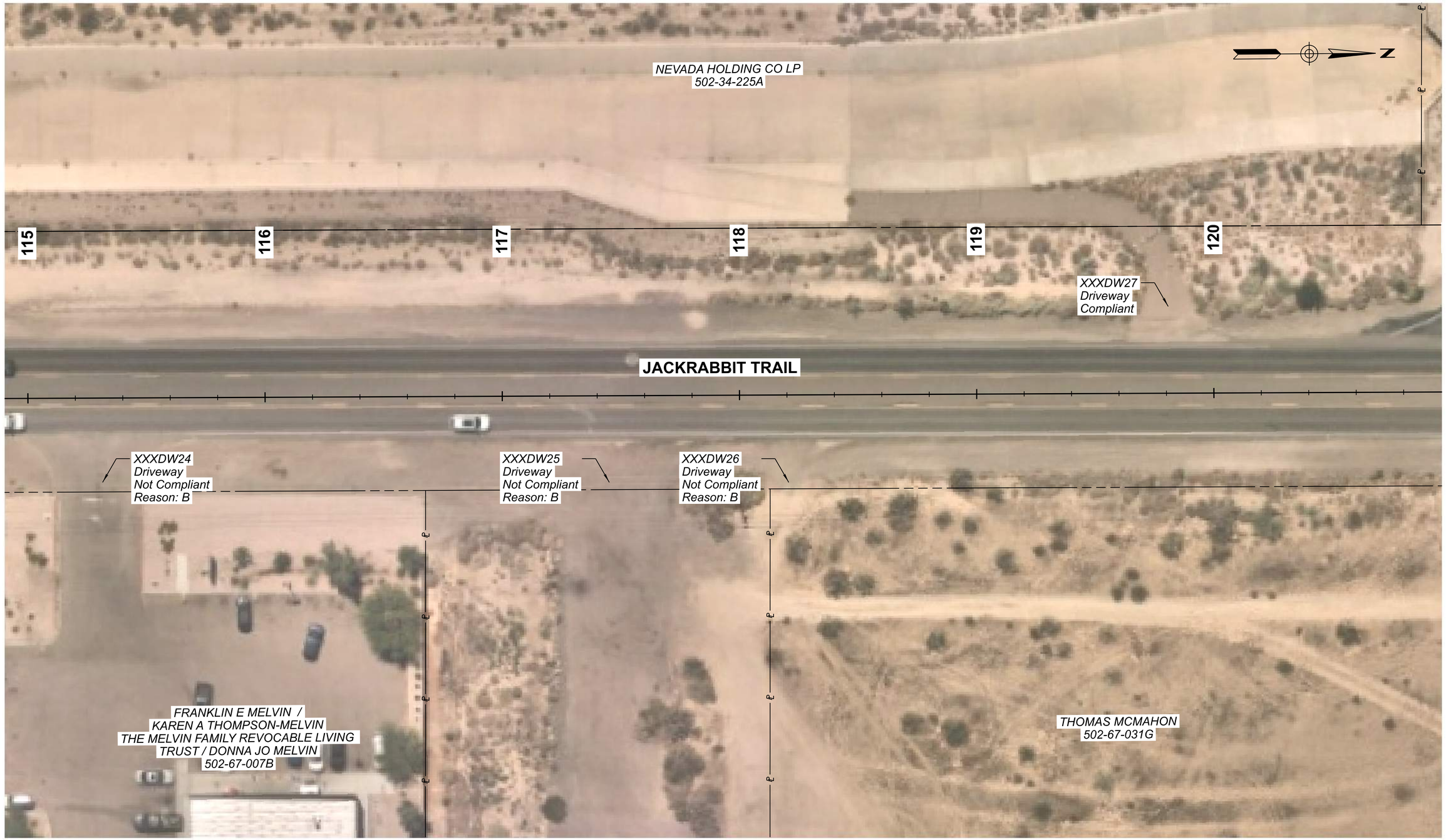
D - Ramp Transition Not Flush at Top and Bottom (>1/2" Lip at Pavement)
E - No Detectable Warning
F - Detectable Warning Grooves
G - Ramp Landing Flare is > 8.3%
H - No Marked Crosswalk
I - Poorly Marked Crossed
J - Curb Ramp Outside of Crosswalk Markings
K - Curb Ramp Landing Not 48" or More Within Crosswalk
L - Top Rail is > 38"
M - Reach Distance to Push Button is > 10"
N - Running Slope is > 5%
O - Width of Level Area is < 36"
P - Height of Pedestrian Push Button is > 54"



LEGEND

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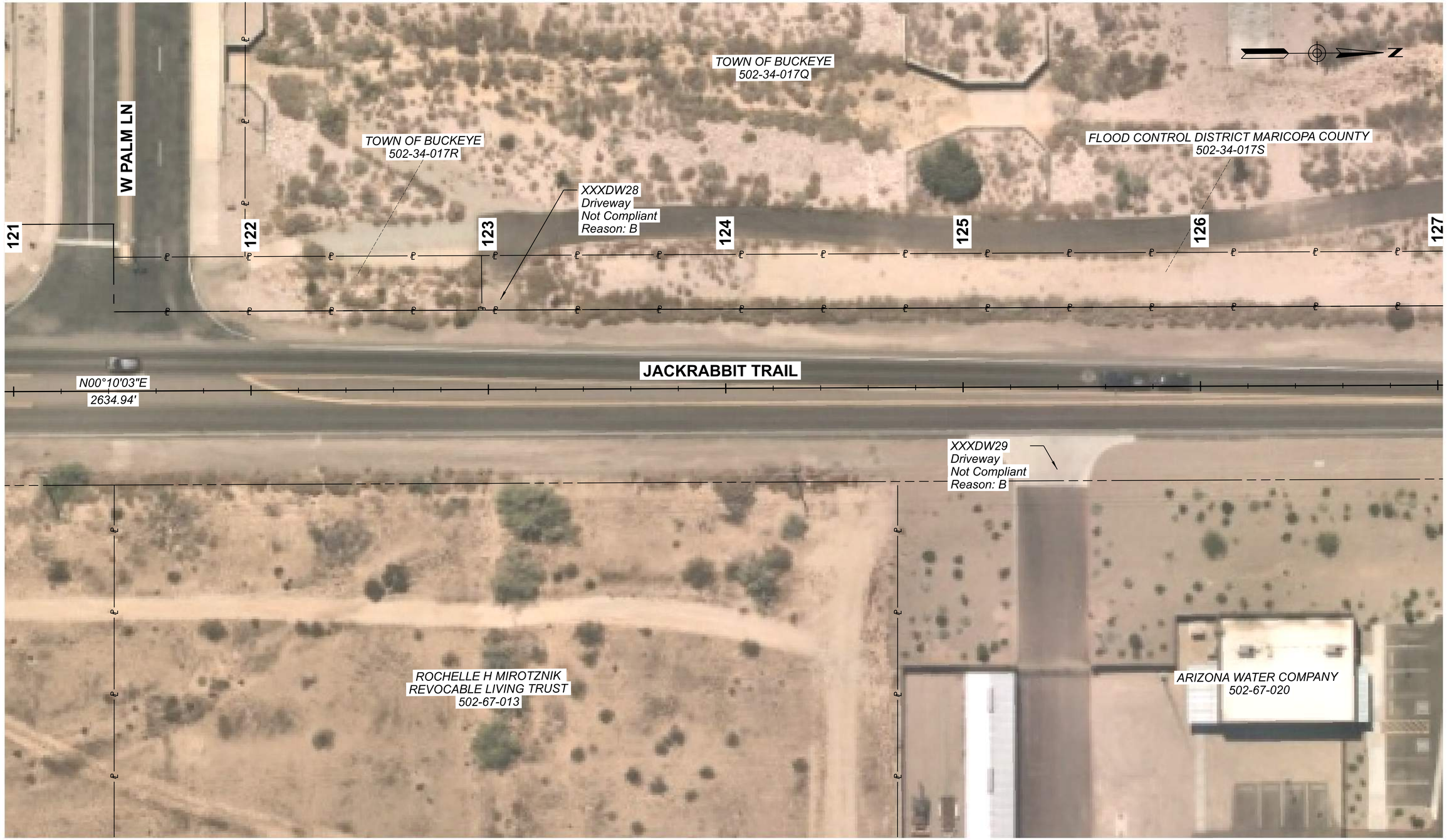
ADA Features Map
Project 010 MA 121 F0486 01L



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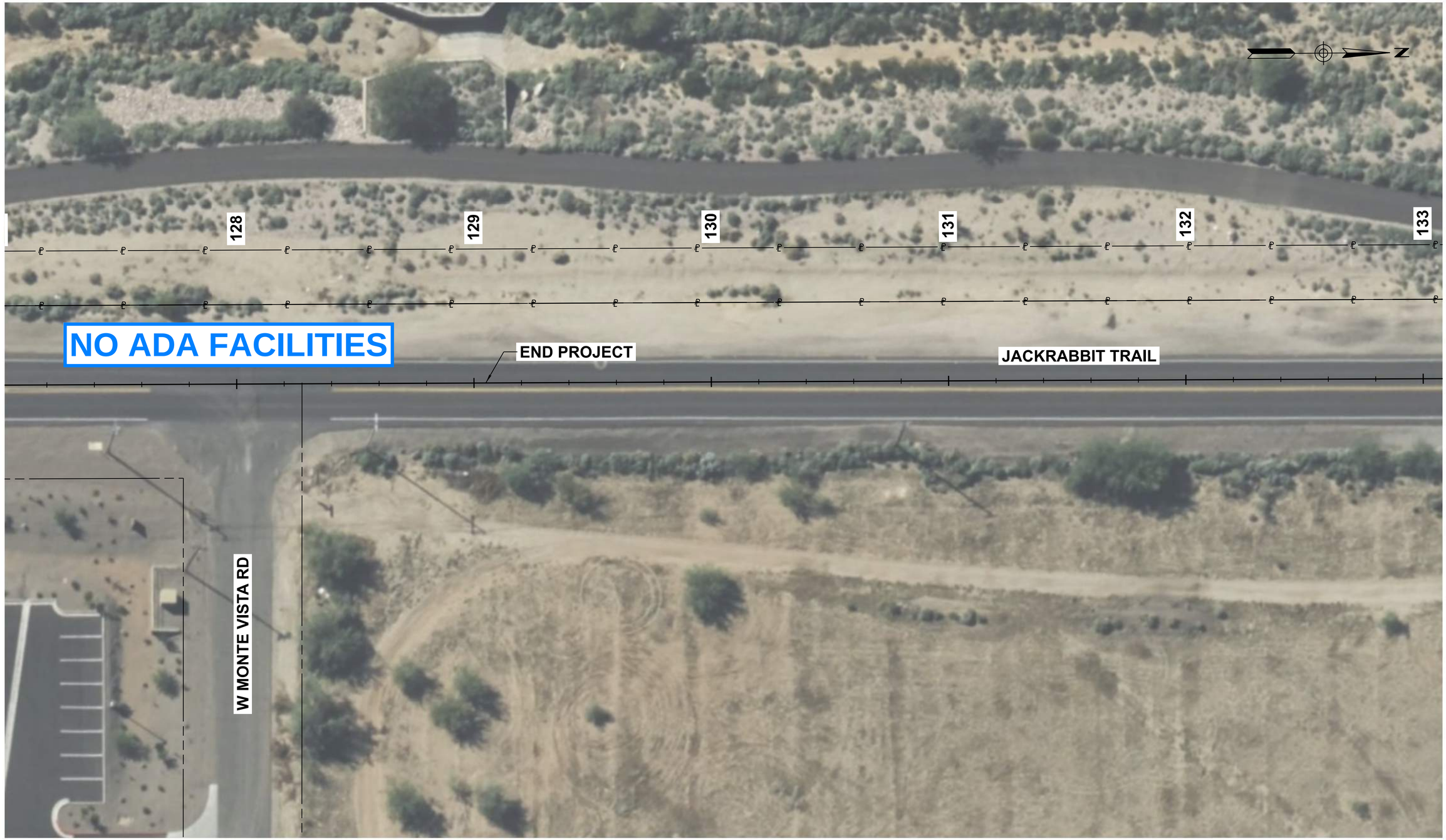

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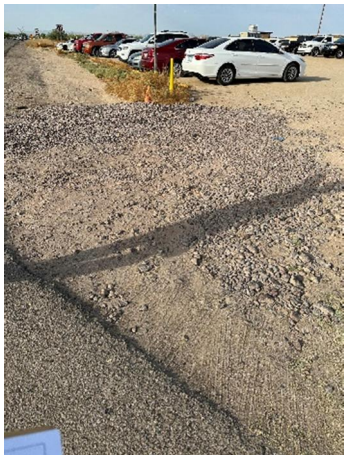
Kimley»Horn

ADA Features Map
Project 010 MA 121 F0486 01L



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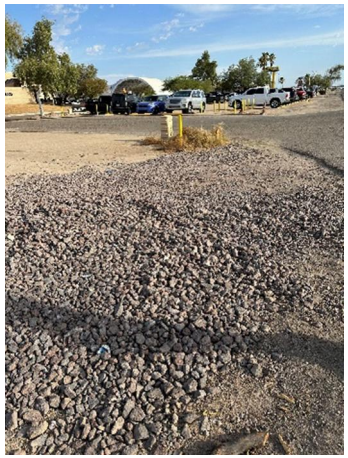

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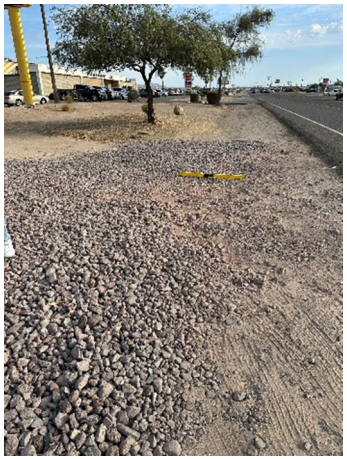

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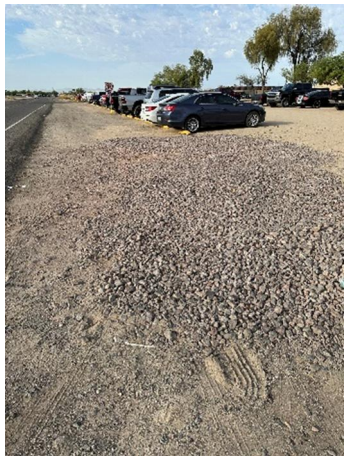

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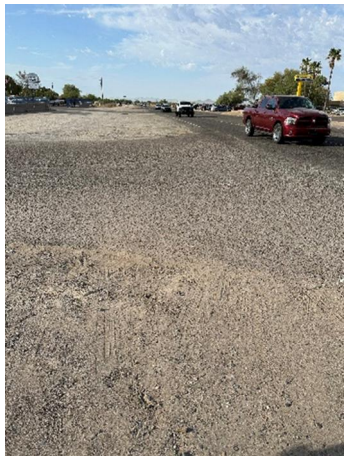

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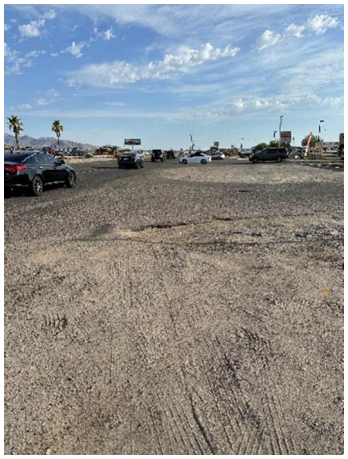

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XXXDW29-2

APPENDIX J: Public Meeting Summary Report

I-10/Jackrabbit Trail Traffic Interchange Study

January 23, 2024 Public Meeting Summary Report

March 2024

Prepared by HDR Engineering, Inc.
20 East Thomas Road
Suite 2500
Phoenix, AZ 85012

ADOT

Pursuant to Title VI of the Civil Rights Act of 1964, the Americans with Disabilities Act (ADA) and other nondiscrimination laws and authorities, the Arizona Department of Transportation (ADOT) does not discriminate on the basis of race, color, national origin, sex, age, or disability. Persons that require a reasonable accommodation based on language or disability should contact Nancy Becerra at 623.695.7411 or ngbecerra@azdot.gov. Requests should be made as early as possible to ensure the State has an opportunity to address the accommodation.

De acuerdo con el Título VI de la Ley de Derechos Civiles de 1964, la Ley de Estadounidenses con Discapacidades (ADA por sus siglas en inglés) y otras normas y leyes antidiscriminatorias, el Departamento de Transporte de Arizona (ADOT) no discrimina por motivos de raza, color, origen nacional, sexo, edad o discapacidad. Las personas que requieran asistencia (dentro de lo razonable) ya sea por el idioma o discapacidad deben ponerse en contacto con Nancy Becerra al 623.695.7411 o por correo electrónico al ngbecerra@azdot.gov. Las solicitudes deben hacerse lo más antes posible para asegurar que el Estado tenga la oportunidad de hacer los arreglos necesarios.

TABLE OF CONTENTS

APPENDICES

1. INTRODUCTION

The Arizona Department of Transportation (ADOT), in coordination with the Maricopa Association of Governments and the city of Buckeye, initiated preliminary design for improvements at the Interstate 10 (I-10)/Jackrabbit Trail traffic interchange. Planned improvements include:

- Reconstructing the existing traffic interchange and adding traffic signals
- Widening the interchange ramps to provide additional turn lanes
- Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail
- Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street

The project is not currently programmed for construction. This project is included in the Regional Strategic Transportation Infrastructure Investment Plan. Funding for construction is identified in Proposition 479, the extension of the half-cent sales tax in Maricopa County, which will be presented to voters in the Nov. 2024 election.

1.1. Title VI Accommodations

The public outreach effort was conducted in compliance with the Title VI Environmental Justice guidelines approved for the project in the ADOT Public Involvement Plan, on record with ADOT Communications.

2. PUBLIC MEETING

ADOT held a virtual public meeting on Jan. 23, 2024 at 6 p.m. The purpose of the meeting was to present the recommended design concept for the I-10/Jackrabbit Trail traffic interchange and provide an opportunity for the public to ask questions and make comments. A total of 112 people attended the virtual public meeting. All questions and comments provided at the virtual public meeting, as well as the responses, were recorded and included in Appendix C – Public Comments.

The public meeting was hosted online through Zoom. Participants could also call into the meeting if they did not have the ability to participate online. The meeting featured a presentation by the project team, followed by a question-and-answer period. Online participants were provided information on how to ask questions and provide comments and could submit written questions online through the Zoom Q&A feature. Participants could ask questions or make comments via phone by pressing *6 to raise their hand or utilizing the hand raise feature through Zoom. The public meeting offered live, simultaneous interpretation in Spanish.

Project team members from ADOT, Kimley-Horn and HDR served as presenters during the meeting. Speakers included:

- Nancy Becerra, ADOT
- Olivier Mirza, ADOT
- Taylor Ehrick, Kimley-Horn
- Randy Policar, HDR

Additional project team staff were present to assist in facilitating the online meeting and Q&A. Participants were notified that project-related comments and questions could also be submitted during the public comment period through Feb. 7, 2024, via email, telephone, mail or online. Participants were notified that all project-related materials, including the presentation, were available online.

The Title VI Nondiscrimination Notice to the Public slide was read in English and Spanish to all attendees, as well as how to take the Title VI self-ID survey.

2.1. Public Meeting Notification

2.1.1. Project Website

ADOT hosts a project website at azdot.gov/I10Jackrabbit, which was updated prior to the public meeting in Jan. 2024. The website provided an overview of the study, including a map of the project area, the public meeting date and instructions on how to participate in the public meeting, and information on how to ask questions or make comments. All materials related to the public meeting were posted on the project website, including:

- Public meeting presentation PDF
- Public meeting recording in English and Spanish
- I-10/Jackrabbit Trail fact sheet

Copies of the public meeting materials posted to the website are included in Appendix B.

2.1.2. Direct Mailers

A direct mailer was sent to 4,430 residential and business addresses in the study area within one mile of the project limits, which provided information on the study, how to join the virtual public meeting, and how to provide comments. The mailer (in English and Spanish) was distributed between Jan. 6-8. The mailers were sent to the following postal codes within the study area:

- 85326-R010
- 85326-H068
- 85326-PBOX
- 85396-R002
- 85396-R027
- 85396-R048

A copy of the direct mailer can be found in Appendix A.

2.1.3. Social Media

ADOT placed several posts on its social media accounts (Facebook and Twitter/X) between Jan. 3 and Jan. 16, 2024, to provide notice of the public meeting and the comment period. The social media posts were placed on the following dates:

- Jan. 3, 2024- Facebook
- Jan. 9, 2024- Twitter/X
- Jan. 11, 2024- Facebook and Twitter/X
- Jan. 16, 2024- Facebook

A copy of the social media posts can be found in Appendix A.

2.1.4. GovDelivery/News Release

Information on the public meeting and comment period was distributed by ADOT Community Relations Staff beginning on Jan. 2, 2024, via a GovDelivery notice. The GovDelivery notice was sent to approximately 16,000 email addresses on the I-10 Papago Freeway (SR 85 to I-17 Split) and I-10/Jackrabbit Trail Traffic Interchange subscription list. Five additional GovDelivery notices were distributed to remind the public of the meeting and the comment period before the Feb. 7, 2024, deadline. In addition, a news release was distributed via GovDelivery to approximately 54,000 email addresses on Jan. 11, 2024. The GovDelivery distribution dates were:

- Jan. 2, 2024
- Jan. 9, 2024
- Jan. 11, 2024 (News Release)
- Jan. 16, 2024
- Jan. 22, 2024
- Feb. 1, 2024
- Feb. 6, 2024

A copy of the GovDelivery and News Release can be found in Appendix A.

2.2. Public Meeting Materials

A variety of public meeting materials were made available to the public online via the project website. These public meeting materials included:

- Meeting presentation
- Online comment form
- Title VI self-ID survey

A recording of the public meeting was posted on the project website.

Copies of the public meeting materials can be found in Appendix B. Copies of the public comment form can be found in Appendix D.

2.2.1. Presentation

The presentation can be found in Appendix B and covered the following topics:

- Purpose of the meeting
- Project limits
- Other projects in the area
- Project purpose and need
- Project background
- Draft recommended alternative
- Right-of-Way acquisitions
- Noise abatement
- No-Build alternative
- Project schedule
- How to provide questions and comments at the meeting, and after the meeting, through the end of the comment period.

3. PUBLIC COMMENTS

This section summarizes the comments received during the public-comment period from Jan. 6 through Feb. 7, 2024. In addition to providing attendees the opportunity to provide comments during the meeting, comments could also be submitted through the online comment form, mail, telephone and email. A total of 147 comments and questions were received through the following methods:

- Online comment form: 53
- Project information telephone line: 0
- Email: 22
- Questions/comments during the public meeting: 72
- Mail: 0

The public comments and questions and responses are included in Appendix C. The online comment form responses are included in Appendix D.

3.1. Public Comments

Comments and questions received during the public comment period and at the virtual public meeting included the following topics:

- Questions and concerns regarding right-of-way acquisitions
- Opposition to the acquisition of a family-owned Chevron station within the project area
- Questions about the construction timeline
- Questions about drainage in the area
- Questions about project funding
- Support for improving the intersection and addition of traffic signals

4. TITLE VI REPORTING

4.1. Self-ID Surveys

Meeting participants were asked to complete ADOT's Title VI self-ID survey for federal reporting purposes. Links to the English and Spanish versions of the self-ID surveys were placed in the meeting chat for ease of taking the survey. A total of 33 people completed the self-ID survey out of 112 attendees (excluding the panelists and ADOT), a 29 percent response rate.

Of the 33 self-identification survey responses, 3 participants (9 percent) identified as African American/Black, 1 participant (3 percent) identified as Hispanic/Latino, 1 participant identified as Native Hawaiian/Other Pacific Islander (3 percent) and 28 (84 percent) identified as White.

4.2. Title VI Meeting Summary

A Title VI public meeting summary report documenting ADOT's compliance with Title VI and Title II nondiscrimination and accommodations was submitted to the Civil Rights Office on Feb. 6, 2024.

Appendix A

Public Meeting Notifications

ADOT

SHARE

I-10/Jackrabbit Trail traffic interchange improvements to be presented by ADOT at Jan. 23 virtual public meeting

ADOT will hold a virtual public meeting on Jan. 23 to provide details and seek input on the recommended design for the I-10/Jackrabbit Trail traffic interchange to improve traffic flow and safety.

The virtual public meeting will be held:

- Tuesday, Jan. 23 from 6-7:30 p.m.
- REGISTER TO JOIN ONLINE: https://azdot.gov/JackrabbitMtg
  Call in number: 669.444.9171 Participant ID: 264911
  English Webinar ID: 951 5167 6868
  Spanish Webinar ID: 948 3052 6118

The meeting will include a presentation by the project team, followed by an opportunity for questions and comments from attendees. Following the meeting, the presentation will be available on the project website at http://azdot.gov/I10Jackrabbit.

Planned improvements include:

- Reconstructing the existing traffic interchange and adding traffic signals.
- Widening the interchange ramps to provide additional turn lanes.
- Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail to accommodate the new traffic interchange lane configuration.
- Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street.

Comments on the draft recommended alternative will be accepted through Feb. 7 in any of the following ways:

- Online Survey: azdot.gov/i10JackrabbitComments
- Email: NGBecerra@azdot.gov
- Phone: 623.695.7411
- Mail: ADOT Community Relations, 1655 West Jackson, MD 126F Phoenix, AZ 85007

Pursuant to Title VI of the Civil Rights Act of 1964, the Americans with Disabilities Act (ADA) and other nondiscrimination laws and authorities, the Arizona Department of Transportation (ADOT) does not discriminate on the basis of race, color, national origin, sex, age, or disability. Persons that require a reasonable accommodation based on language or disability should contact Nancy Becerra at 623.695.7411 or NGBecerra@azdot.gov. Requests should be made as early as possible to ensure the State has an opportunity to address the accommodation.

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Civil Rights/ADA | Derechos Civiles/ADA

For more information, visit azdot.gov

From: Arizona Department of Transportation <adot@info.azdot.gov>

ADOT

SHARE

Last chance to provide comments on the I-10/Jackrabbit Trail traffic interchange improvements

Wednesday, Feb. 7 is the last day to provide your comments on ADOT's I-10/Jackrabbit Trail traffic interchange draft recommended alternative to improve traffic flow and safety.

Learn more on the project webpage at http://azdot.gov/I10Jackrabbit.

Provide your comments through Feb. 7, in any of the following ways:

- Online Survey: azdot.gov/i10JackrabbitComments
- Email: NGBecerra@azdot.gov
- Phone: 623.695.7411
- Mail: 1655 West Jackson, MD 126F, Phoenix, AZ 85007

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ADOT

SHARE

Learn about I-10 Jackrabbit Trail interchange improvements at Jan. 23 ADOT public meeting

ADOT will hold a virtual public meeting on Jan. 23 to provide details and seek input on the recommended design for the I-10/Jackrabbit Trail traffic interchange to improve traffic flow and safety.

The virtual public meeting will be held:

- Tuesday, Jan. 23 from 6-7:30 p.m.
- REGISTER TO JOIN ONLINE: https://azdot.gov/JackrabbitMtg

  Call in number: 669.444.9171 Participant ID: 264911

  English Webinar ID: 951 5167 6868

  Spanish Webinar ID: 948 3052 6118

The meeting will include a presentation by the project team, followed by an opportunity for questions and comments from attendees. Following the meeting, the presentation will be available on the project website at http://azdot.gov/I10Jackrabbit.

Planned improvements include:

- Reconstructing the existing traffic interchange and adding traffic signals.
- Widening the interchange ramps to provide additional turn lanes.
- Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail to accommodate the new traffic interchange lane configuration.
- Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street.

Comments on the draft recommended alternative will be accepted through Feb. 7 in any of the following ways:

- Online Survey: azdot.gov/i10JackrabbitComments
- Email: NGBecerra@azdot.gov
- Phone: 623.695.7411
- Mail: ADOT Community Relations 1655 West Jackson, MD 126F, Phoenix, AZ 85007

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SUBSCRIBER SERVICES:
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Civil Rights/ADA | Derechos Civiles/ADA

For more information, visit azdot.gov

ADOT

SHARE

Missed our public meeting on the I-10/Jackrabbit Trail traffic interchange? View the presentation and provide your comments online

Learn more about ADOT's project to improve traffic flow and safety at the I-10/Jackrabbit Trail traffic interchange.

Visit http://azdot.gov/I10Jackrabbit to watch the presentation and provide your comments.

Comments on the draft recommended alternative will be accepted through Feb. 7, in any of the following ways:

- Online Survey: azdot.gov/i10JackrabbitComments
- Email: NGBecerra@azdot.gov
- Phone: 623.695.7411
- Mail: ADOT Community Relations, 1655 West Jackson, MD 126F, Phoenix, AZ 85007

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ADOT

SHARE

Jan. 23 virtual meeting set for draft of I-10/Jackrabbit Trail improvements

ADOT seeks public input about planned interchange reconstruction

The Arizona Department of Transportation will hold a virtual public meeting on Tuesday, Jan. 23, to provide information, gather comments and answer questions about designs to improve the Interstate 10 interchange at Jackrabbit Trail in the Buckeye area.

ADOT's virtual meeting is scheduled as follows:

- 6 to 7:30 p.m., Tuesday, Jan. 23
- Participants can register online at azdot.gov/JackrabbitMtg
- You also can use the call in number: 669.444.9171 Participant ID: 264911
- English Webinar ID: 951 5167 6868 Spanish Webinar ID: 948 3052 6118

Planned improvements include:

- Reconstructing the I-10/Jackrabbit Trail interchange and adding traffic signals.
- Widening on- and off-ramps and providing additional turn lanes.
- Widening Jackrabbit Trail to three lanes in each direction between McDowell Road and Van Buren Street.

The project to improve traffic flow and safety at the Jackrabbit Trail interchange is not currently funded for construction. This project is included in the Regional Strategic Transportation Infrastructure Investment Plan.

The virtual meeting will include a presentation by ADOT's project team and an opportunity for questions and comments from participants. Following the meeting the presentation will be available on the project's study website at azdot.gov/I10Jackrabbit.

Public comments about the draft recommended improvements at I-10 and Jackrabbit Trail can be submitted through Feb. 7 in the following ways: An online survey at azdot.gov/i10JackrabbitComments; by phone at 623.695.7411; by mail at ADOT Community Relations, 1655 West Jackson St., MD 126F, Phoenix, AZ 85007 and by email at NGBecerra@azdot.gov.

To plan your trip, get travel times or see ADOT cameras, download the AZ 511 app.

Visit us on social media on Facebook, Twitter, YouTube, Flickr or the ADOT blog.

SUBSCRIBER SERVICES: Civil Rights/ADA | Derechos Civiles/ADA

ADOT

SHARE

Reminder: Join ADOT for I-10/Jackrabbit Trail traffic interchange public meeting tomorrow, Jan. 23

ADOT will hold a virtual public meeting tomorrow, Jan. 23, to provide details and seek input on the recommended design for the I-10/Jackrabbit Trail traffic interchange to address traffic flow and safety.

The virtual public meeting will be held:

- Tuesday, Jan. 23 from 6-7:30 p.m.
- REGISTER TO JOIN ONLINE: https://azdot.gov/JackrabbitMtg

  Call in number: 669.444.9171 Participant ID: 264911

  English Webinar ID: 951 5167 6868

  Spanish Webinar ID: 948 3052 6118

The meeting will include a presentation by the project team, followed by an opportunity for questions and comments from attendees. Following the meeting, the presentation will be available on the project website at http://azdot.gov/I10Jackrabbit.

Planned improvements include:

- Reconstructing the existing traffic interchange and adding traffic signals.
- Widening the interchange ramps to provide additional turn lanes.
- Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail to accommodate the new traffic interchange lane configuration.
- Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street.

Comments on the draft recommended alternative will be accepted through Feb. 7 in any of the following ways:

- Online Survey: azdot.gov/i10JackrabbitComments
- Email: NGBecerra@azdot.gov
- Phone: 623.695.7411
- Mail: ADOT Community Relations 1655 West Jackson, MD 126F, Phoenix, AZ 85007

ADOT

SHARE

ADOT seeking public's input on I-10/Jackrabbit Trail traffic interchange improvements

Public encouraged to attend Jan. 23 virtual public meeting, provide comments through Feb. 7

ADOT will hold a virtual public meeting on Jan. 23 to provide details and seek input on the recommended design for the I-10/Jackrabbit Trail traffic interchange to improve traffic flow and safety.

The virtual public meeting will be held:

- Tuesday, Jan. 23 from 6-7:30 p.m.
- REGISTER TO JOIN ONLINE: https://azdot.gov/JackrabbitMtg
  Call in number: 669.444.9171 Participant ID: 264911
  English Webinar ID: 951 5167 6868
  Spanish Webinar ID: 948 3052 6118

The meeting will include a presentation by the project team, followed by an opportunity for questions and comments from attendees. Following the meeting, the presentation will be available on the project website at http://azdot.gov/I10Jackrabbit.

Comments on the draft recommended alternative will be accepted through Feb. 7 in any of the following ways:

- Online Survey: azdot.gov/i10JackrabbitComments
- Email: NGBecerra@azdot.gov
- Phone: 623.695.7411
- Mail: ADOT Community Relations, 1655 West Jackson, MD 126F, Phoenix, AZ 85007

I-10/Jackrabbit Trail Traffic Interchange

JOIN ADOT FOR A VIRTUAL PUBLIC MEETING ON JAN. 23, 2024

OVERVIEW

The Arizona Department of Transportation (ADOT) will host a virtual public meeting on Jan. 23 to present the preliminary design for the I-10/Jackrabbit Trail traffic interchange. Planned improvements include:

- Reconstructing the existing traffic interchange to include traffic signals.
- Widening the interchange ramps to provide additional turn lanes.
- Removing and reconstructing the existing bridges over Jackrabbit Trail to accommodate the new traffic interchange lane configuration.
- Widening Jackrabbit Trail to three lanes in each direction.

MEETING DETAILS

Jan. 23, 2024 | 6-7:30 p.m.
The project team will give a presentation about the design, followed by a Q&A session.
The meeting will be held virtually via Zoom.
REGISTER TO JOIN ONLINE: azdot.gov/JackrabbitMtg
JOIN BY PHONE: 669.444.9171 | Webinar ID: 951 5167 6868 I Participant ID: 264911
Can't Attend?
The meeting presentation will be posted to the project website.

QUESTIONS/COMMENTS

Project comments can be provided through Feb. 7 in the following ways:

- Online Comment Form: azdot.gov/i10JackrabbitComments
- Phone: 623.695.7411
- Email: NGBecerra@azdot.gov
- Mail: ADOT Communications, 1655 W. Jackson St., MD 126F, Phoenix, AZ 85007

MORE INFORMATION/EMAIL LIST

Visit azdot.gov/I10Jackrabbit for more information and to subscribe for email updates.

Intercambio de tráfico I-10/Jackrabbit Trail

ÚNASE A NUESTRA REUNIÓN PÚBLICA VIRTUAL ENERO 23, 2024

DESCRIPCIÓN GENERAL

El Departamento de Transporte de Arizona (ADOT) te invita a una reunión pública virtual el 23 de enero para presentar el diseño preliminar del intercambio de tráfico I-10/ Jackrabbit Trail.
Las mejoras planificadas incluyen:

- Reconstruir el intercambio de tráfico con semáforos.
- Ampliar las rampas de intercambio para proporcionar carriles de vuelta adicionales.
- Retirar y reconstruir los puentes existentes sobre Jackrabbit Trail para acomodar la nueva configuración de carriles de tráfico.
- Ampliar Jackrabbit Trail a tres carriles en cada dirección.

DETALLES DE LA REUNIÓN

Enero 23, 2024 | 6-7:30 p.m.
El equipo del proyecto hará una presentación sobre el diseño, seguida por una sesión de preguntas y respuestas.
La reunión tomará a cabo virtualmente por Zoom.
REGÍSTRESE PARA UNIRSE POR INTERNET: azdot.gov/JackrabbitMtg
ÚNETE POR TELÉFONO: 669.444.9171 | ID de la reunión: 948 3052 6118 | ID del participante: 264911
¿No puedes asistir?
La presentación se publicará en el sitio web del proyecto.

PREGUNTAS/COMENTARIOS

Comentarios sobre el proyecto se pueden proporcionar hasta el 7 de febrero:

- Formulario de comentarios: azdot.gov/i10JackrabbitComments
- Teléfono: 623.695.7411
- Correo electrónico: NGBecerra@azdot.gov
- Correo: ADOT Communications, 1655 W. Jackson St., MD 126F, Phoenix, AZ 85007

MÁS INFORMACIÓN

Visite azdot.gov/I10Jackrabbit para obtener más información y suscribirse para recibir actualizaciones del proyecto por correo electrónico.

23-839194
ADOT Tracs: 010 MA 121 F0486 01L

ADOT

Arizona Department of Transportation I 1655 W. Jackson St., MD 126F, Phoenix, AZ 85007

I-10/Jackrabbit Trail Interchange /Intercambio de Tráfico I-10/Jackrabbit Trail
JOIN US FOR A VIRTUAL PUBLIC MEETING ON JAN. 23, 2024
ÚNASE A NUESTRA REUNIÓN PÚBLICA VIRTUAL ENERO 23, 2024

Pursuant to Title VI of the Civil Rights Act of 1964, the Americans with Disabilities Act (ADA) and other nondiscrimination laws and authorities, ADOT does not discriminate on the basis of race, color, national origin, sex, age, or disability. Persons that require a reasonable accommodation based on language or disability should contact Nancy Becerra at 623.695.7411 or NGBecerra@azdot.gov. Requests should be made as early as possible to ensure the State has an opportunity to address the accommodation.

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Arizona DOT
@ArizonaDOT

ADOT would like your input on the recommended design for the I-10/Jackrabbit Trail traffic interchange (which will improve traffic flow and safety). Click the link for details on Tuesday, January 23rd's virtual public meeting: bit.ly/40Nk7bG

7:41 PM · Jan 9, 2024 · **5,090** Views

Arizona DOT
@ArizonaDOT

Jan. 23 virtual meeting set for I-10/Jackrabbit Trail improvements

ADOT seeks public input about planned interchange reconstruction

MORE: azdot.gov/news/jan-23-vi...

9:07 AM · Jan 11, 2024 · **3,270** Views

Arizona Department of Transportation
January 3 ·

Save the date!

Join the I-10/Jackrabbit Trail interchange Jan. 23, 6-7:30 p.m.virtual public meeting to learn about the recommended design to improve traffic flow and safety.

To register for the meeting and more information visit the project website at http://azdot.gov/I10Jackrabbit.

25 3 5

Like Comment Share

Most relevant

Arizona Department of Transportation
January 11 ·

ADOT will hold a virtual public meeting on Tuesday, Jan. 23, to provide information, gather comments and answer questions about designs to improve the Interstate 10 interchange at Jackrabbit Trail in the Buckeye area.

ADOT's virtual meeting is scheduled as follows:

6 to 7:30 p.m., Tuesday, Jan. 23
Participants can register online at azdot.gov/JackrabbitMtg
You also can use the call in number: 669.444.9171
Participant ID: 264911
English Webinar ID: 951 5167 6868 Spanish We...
See more

16 8 9

Like Comment Share

Arizona Department of Transportation
January 16 at 6:00 PM ·

We want to hear from you!

ADOT will hold a virtual public meeting on Jan. 23 to provide details and seek input on the recommended design for the I-10/Jackrabbit Trail traffic interchange to improve traffic flow and safety.

The meeting will include a presentation by the project team, followed by an opportunity for questions and comments from attendees.

The virtual public meeting will be held Tuesday, Jan. 23 from 6-7:30 p.m.
REGISTER TO JOIN ONLINE:
https://azdot.gov/JackrabbitMtg
Call in number: 669.444.9171 Participant ID: 264911
English Webinar ID: 951 5167 6868
Spanish Webinar ID: 948 3052 6118

Following the meeting, the presentation will be available on the project website at http://azdot.gov/I10Jackrabbit. See less

32 27 7

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Most relevant

Appendix B

Public Meeting Materials

I-10/ Jackrabbit Trail

Traffic Interchange Project

Virtual Public Meeting
January 23, 2024

I-10/Jackrabbit Trail Traffic Interchange Project

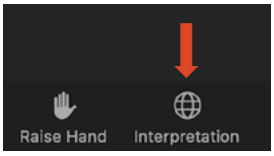
The meeting will begin shortly.

While you wait, we invite you to complete a voluntary survey to help ADOT understand who attends its public meetings and how the department can improve participation.
https://azdot.gov/i10JackrabbitSelf-id

La reunión comenzará a la brevedad.

Mientras espera, lo invitamos a completar una encuesta voluntaria para ayudar a ADOT a comprender quiénes asisten a sus reuniones públicas y cómo podrá mejorar la participación.
https://azdot.gov/i10JackrabbitSelf-idSpanish

Spanish Interpretation



- Spanish call-in number: 669.444.9171
- Webinar ID: 948 3052 611
- Zoom interpretation feature

- Para traducción a español utilice:
- La función de interpretación de Zoom
- Llame a 669.444.9171
- ID: 948 3052 611

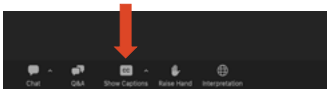
I-10/ Jackrabbit Trail

Traffic Interchange Project

Virtual Public Meeting
Jan. 23, 2024

I-10/Jackrabbit Trail Traffic Interchange project

- All participants have been muted to avoid background noise.
- Following the meeting presentation, we will take questions and comments online and by phone.
  - Instructions will be provided.
- To turn on closed captioning select that option from the menu.



ADOT'S NONDISCRIMINATION NOTICE TO THE PUBLIC

The Arizona Department of Transportation (ADOT) hereby gives public notice that it is the Agency's policy to assure full compliance with Title VI of the Civil Rights Act of 1964, Title II of the Americans with Disabilities Act of 1990 (ADA), and other related authorities in all of its programs and activities.

ADOT's Title VI and ADA Programs require that no person shall, on the grounds of race, color, national origin, or disability, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity.

Any person, who believes his/her Title VI or ADA rights have been violated, may file a complaint. Any such complaint must be in writing and filed with the ADOT Civil Rights Office within one hundred eighty (180) days following the date of the alleged discriminatory occurrence. For additional information about ADOT's Civil Rights programs and the procedures to file a complaint, contact ADOT Civil Rights Office via the information listed below:

ADOT Civil Rights Office 206 S. 17th Avenue, Mail Drop 155-A Phoenix, AZ 85007 602.712.8946 FAX 602.239.6257 CivilRightsOffice@azdot.gov	Danielle Valentine Title VI Program Coordinator DValentine@azdot.gov

AVISO PÚBLICO DE LA LEY DE NO-DISCRIMINACIÓN DE ADOT

El Departamento de Transporte del Estado de Arizona (ADOT) informa al público que la agencia tiene como regla asegurar el cumplimiento de el Título VI de la Ley de los Derechos Civiles de 1964, del Título II de la Ley de ciudadanos Americanos con Discapacidades de 1990 (ADA) y otras normas relacionadas con todos sus programas y actividades.

Los programas del Título VI y ADA de ADOT exigen que a ninguna persona se le excluya de participar, se le nieguen beneficios o de ninguna otra manera sea sujeta a discriminación en ningún programa o actividad de ADOT por motivo de raza, color, país de origen, o discapacidad.

Cualquier persona que crea que se han violado sus derechos bajo el Título VI o el ADA, puede presentar una queja. Esta queja debe presentarse por escrito a la Oficina de Derechos Civiles de ADOT dentro de ciento ochenta (180) días a partir de la fecha en que se alega que ocurrió la discriminación. Para recibir más información sobre los programas de Derechos Civiles de ADOT y los procedimientos para presentar una queja, por favor póngase en contacto con la Oficina de Derechos Civiles de ADOT con la información que aparece abajo:

ADOT Civil Rights Office 206 S. 17th Avenue, Mail Drop 155-A Phoenix, AZ 85007 602.712.8946 FAX 602.239.6257 CivilRightsOffice@azdot.gov	Danielle Valentine Title VI Program Coordinator DValentine@azdot.gov

AUXILIARY AIDS AND SERVICES

In compliance with Title II of the Americans with Disabilities Act (ADA), Section 504 of the Rehabilitation Act of 1973, the Arizona Department of Transportation (ADOT) does not discriminate against qualified individuals with disabilities on the basis of disability in its programs, services, and activities.

ADOT will make reasonable modifications to ensure that individuals with disabilities have an equal opportunity to enjoy ADOT's programs, services, and activities.

If you require an accommodation, please notify an ADOT staff member.

For additional information or questions about ADOT's External ADA Program, please contact the Civil Rights Office at 602.712.8946.

Purpose of Tonight's Meeting

Overview of I-10/Jackrabbit Trail Traffic Interchange (TI) project

Opportunity to ask questions and provide comments

ADOT

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Project Limits

- Jackrabbit Trail from south of McDowell Rd to north of Van Buren St
- I-10/Jackrabbit Trail traffic interchange

ADOT

Other Projects

1. Widen McDowell Rd and add signal at Jackrabbit Tr
2. Widen Jackrabbit Tr north of McDowell Rd
3. Add signal at Van Buren St/Jackrabbit Tr
4. Add signal at planned gas station north of Roosevelt St
5. Extend Roosevelt St west of Jackrabbit Tr and add signal at Jackrabbit Tr

City Projects: Jason Harris, 623.204.5312

Other Projects: John Willett, 623.349.6282

Project Purpose, Need, and Goals

Purpose and Need

- Traffic congestion is causing delays and safety concerns
- Future growth will make congestion worse without improvements
- Project's purpose is:
  - Reduce congestion
  - Promote safety
  - Enhance mobility
  - Improve access

Project Goals

- Improve traffic safety, capacity, and operations
- Develop improvements that satisfy the project purpose and need
- Obtain public input on the Draft Recommended Alternative

ADOT

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Project Background

- Update of previous study done by the Maricopa County Department of Transportation
- Conducted more detailed analysis of traffic operations, right-of-way impacts, and costs
- Evaluated two interchange types:
  - Diverging Diamond Interchange
  - Tight Diamond Interchange (existing)
- Improving existing Tight Diamond Interchange most beneficial:
  - Better traffic operations
  - Minimizes right-of-way impacts
  - Avoids drainage channel impacts
  - More cost-effective

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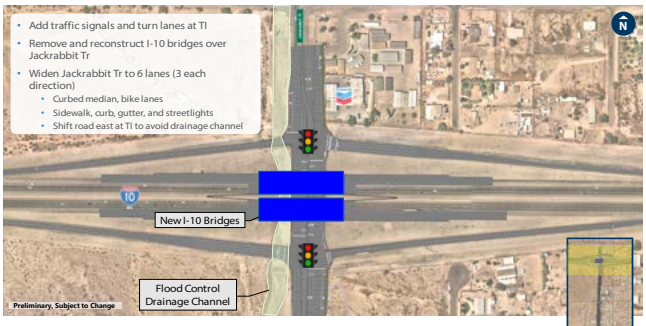
Draft Recommended Alternative

- Add traffic signals at TI
- Remove and reconstruct I-10 bridges over Jackrabbit Tr
- Provide more turn lanes at TI
- Widen Jackrabbit Tr to 6 lanes (3 each direction)
  - Curbed median
  - Bike lanes
  - Sidewalk, curb, and gutter
  - Streetlights
  - Shift road east at TI to avoid drainage channel west of Jackrabbit Tr



I-10/Jackrabbit Trail Traffic Interchange

ADOT

Jackrabbit Trail: I-10 to Roosevelt St

- Widen Jackrabbit Tr to 6 lanes (3 each direction)
  - Curbed median
  - Bike lanes
  - Sidewalk, curb, and gutter
  - Streetlights
  - Shift road east at TI to avoid drainage channel
- Reconstruct driveways
- Coordinate with developer project adding signal at planned gas station north of Roosevelt St
- Coordinate with City project extending Roosevelt St and installing signal at Jackrabbit Tr

ADOT

Jackrabbit Trail: Roosevelt St to Fillmore St

- Widen Jackrabbit Tr to 6 lanes (3 each direction)
  - Curbed median
  - Bike lanes
  - Sidewalk, curb, and gutter
  - Streetlights
- Reconstruct driveways

ADOT

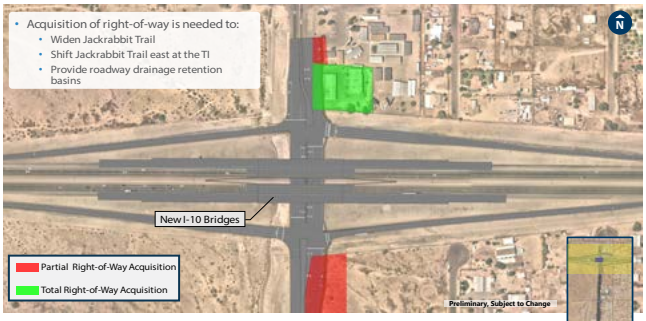
Jackrabbit Trail: Fillmore St to Van Buren St

- Widen Jackrabbit Tr to 6 lanes (3 each direction)
  - Curbed median
  - Bike lanes
  - Sidewalk, curb, and gutter
  - Streetlights
- Reconstruct driveways
- Coordinate with City project installing signal and improving intersection at Van Buren St

ADOT

Jackrabbit Trail Right-of-Way Acquisitions

- Acquisition of right-of-way is needed to:
  - Widen Jackrabbit Trail
  - Shift Jackrabbit Trail east at the TI
  - Provide roadway drainage retention basins
  - Reconstruct driveways
- Anticipated to impact 28 parcels of varying usage types:
  - 27 partial right-of-way acquisitions
  - 1 total right-of-way acquisition



I-10/Jackrabbit Trail Traffic Interchange

ADOT

Jackrabbit Trail: I-10 to Roosevelt St

- Acquisition of right-of-way is needed to:
  - Widen Jackrabbit Trail
  - Shift Jackrabbit Trail east at the TI
  - Provide roadway drainage retention basins
  - Reconstruct driveways

ADOT

Jackrabbit Trail: Roosevelt St to Fillmore St

- Acquisition of right-of-way is needed to:
  - Widen Jackrabbit Trail
  - Provide roadway drainage retention basins
  - Reconstruct driveways

ADOT

Jackrabbit Trail: Fillmore St to Van Buren St

- Acquisition of right-of-way is needed to:
  - Widen Jackrabbit Trail
  - Provide roadway drainage retention basins
  - Reconstruct driveways

Right-of-Way Acquisition Process

- Once the Design Concept Report is finalized and funding for design is in place, the project will move into the final design phase.
- During the final design, potential right-of-way impacts and access changes will be further refined and finalized.
- Affected property owners will then be contacted to initiate the right-of-way acquisition process.
- All acquisitions and relocations will be performed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970.
- Contact Stacie McKenzie in the Right-of-Way office at smckenzie@azdot.gov or 602.712.7167 for more information.

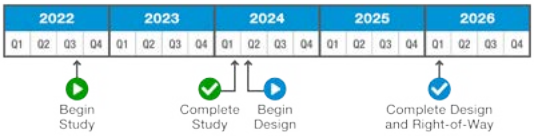
Noise Abatement Measures

- A noise analysis was performed for this project as a part of environmental analysis, following federal and ADOT regulations and policies
- Anticipated noise levels within the project limits warrant consideration of noise abatement measures
- No final mitigation recommendations at this time as proposed solutions will be re-evaluated in near future with new widening project on I-10

No-Build Alternative

- Represents the existing transportation system with no improvements except ongoing maintenance
- Provides a base against which social, environmental, and economic impacts of improvement alternatives can be measured
- Does not satisfy the project's purpose, need, and goals
- Not recommended for further consideration

Anticipated Project Schedule



Funding for construction is anticipated to become available if Proposition 479, the extension of the regional half-cent sales tax for transportation, passes in the November 2024 election

How to Ask a Written Question

Thank you for attending

For more information about the project, to make a comment or to sign up for the mailing list, visit
http://azdot.gov/I10Jackrabbit

How to provide comments through February 7, 2024:

Online Survey: azdot.gov/i10JackrabbitComments

Email: NGBecerra@azdot.gov

Phone: 623.695.7411

Mail: Nancy Becerra, ADOT Community Relations
1655 West Jackson, MD 126F
Phoenix, AZ 85007

I-10/Jackrabbit Trail Traffic Interchange

OVERVIEW

The Arizona Department of Transportation (ADOT), in coordination with the Maricopa Association of Governments and the city of Buckeye, has initiated preliminary design for improvements at the I-10/Jackrabbit Trail traffic interchange.

Planned improvements include:

- Reconstructing the existing traffic interchange to include traffic signals.
- Widening the interchange ramps to provide additional turn lanes.
- Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail.
- Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street.

A Design Concept Report (DCR) was previously developed for the Jackrabbit Trail corridor by Maricopa County Department of Transportation. ADOT is currently developing an updated DCR and environmental evaluation based on updated current and projected traffic volumes that account for surrounding development at the interchange. The project is not currently programmed for construction. This project is included in the Regional Strategic Transportation Infrastructure Investment Plan. Funding for construction is identified in Proposition 479, the extension of the half-cent sales tax in Maricopa County, which will be presented to voters in the Nov. 2024 election.

PROJECT SCHEDULE

- The project is currently in the preliminary design phase.
- Preliminary design is expected to be completed in spring 2024.

STAY INFORMED

- Visit the project website at azdot.gov/I10Jackrabbit for more information and to subscribe for project updates by email.

CONTACT US

- **Phone:** ADOT Community Relations Project Manager: 623.695.7411
- **Email:** Nancy Becerra at NGBecerra@azdot.gov
- **Mail:** ADOT Communications, 1655 W. Jackson St., MD 126F, Phoenix, AZ 85007

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24-845120

ADOT

ADOT Tracs: F0486

Intercambio de tráfico I-10/Jackrabbit Trail

DESCRIPCIÓN GENERAL

El Departamento de Transporte de Arizona (ADOT) te invita a una reunión pública virtual el 23 de enero para presentar el diseño preliminar del intercambio de tráfico I-10/Jackrabbit Trail.

Las mejoras planificadas incluyen:

- Reconstruir el intercambio de tráfico con semáforos.
- Ampliar las rampas de intercambio para proporcionar carriles de vuelta adicionales.
- Remover los puentes existentes y construir nuevos puentes sobre Jackrabbit Trail.
- Ampliar Jackrabbit Trail a tres carriles en cada dirección al sur de McDowell Road y norte de Van Buren Street.

El Departamento de Transporte del Condado de Maricopa desarrolló previamente un Informe de Concepto de Diseño (DCR) para el área de Jackrabbit Trail. Actualmente, ADOT está desarrollando un DCR actualizado y una evaluación ambiental basada en los volúmenes de tráfico actuales y proyectados que tienen en cuenta el desarrollo del area. El proyecto no está programado para su construcción. Este proyecto está incluido en el Plan Estratégico Regional de Inversiones en Infraestructuras de Transporte. El financiamiento para la construcción se identifica en la Proposición 479, la extensión del impuesto a las ventas de medio centavo en el condado de Maricopa, que se presentará a los votantes en las elecciones de noviembre de 2024.

CRONOGRAMA DEL PROYECTO

- El proyecto se encuentra actualmente en la fase de diseño preliminar.
- Se espera que el diseño preliminar se termine en la primavera de 2024.

MANTENTE INFORMADO

- Visite azdot.gov/I10Jackrabbit para obtener más información y suscribirse para recibir actualizaciones del proyecto por correo electrónico.

CONTÁCTANOS:

- **Teléfono:** 623.695.7411
- **Correo electrónico:** NGBecerra@azdot.gov
- **Correo:** ADOT Communications, 1655 W. Jackson St., MD 126F, Phoenix, AZ 85007

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24-845120

ADOT

ADOT Tracs: F0486

Appendix C

Public Comments

	Public Meeting Question/ Comment	Response
1	Where's the question survey found?	Self ID Survey The Self ID survey is available at: azdot.gov/i10JackrabbitSelf-id The online comment form is available at: azdot.gov/i10JackrabbitComments
2	What happens to the Chevron and mobile home sale lot?	Chevron is currently identified as a full acquisition based on the draft recommended and the home sale lot is identified as a partial acquisition. Potential right-of-way impacts and access changes have been identified as part of this study and will be further refined during final design. Affected property owners will be contacted before and during the right-of-way acquisition process in the Final Design stage of the project. Right-of-way plans will be developed based on the final design plans and property appraisals will be prepared for the affected properties and property owners will be contacted at that time.
3	Will Jackrabbit be closed during construction?	The intent is to maintain traffic along Jackrabbit and I-10 during construction, however there may be occasional nightly or weekend closures of Jackrabbit Trail at I–10 for existing bridge removal and erecting the new bridge girders.
4	How long will construction take?	Once the environmental clearance is issued, final design and Right of Way acquisition is completed and construction funds are available, the project will advertise for construction. Right now, the anticipated possible construction date is second quarter of 2026. The project is not currently funded for construction however once funded, the duration is expected to be 15 - 18 months.
5	Is Jackrabbit Trail the only remaining un-signalized interchange remaining on the I10 corridor in Maricopa County?	There are a few other traffic interchanges that are not signalized on I-10 west of Jackrabbit Trail.
6	Is the current study available online for public review?	Yes. the study is available on the project website at azdot.gov/I10Jackrabbit
7	Are the 28 ROW acquisitions all residential in property?	The right of way acquisitions include business properties as well. Once the Preferred Alternative is approved and funding for design is in place, then the project is anticipated to move into the final design phase in 2024. Right-of-way plans will be developed, and property appraisals will be prepared for the affected properties. Once the environmental clearance is issued, ADOT ROW will be able to engage in property valuation discussions with the owners. If you have questions about the right of way process please contact Stacy McKenzie, ADOT Right of Way Project Coordinator, at smckenzie@azdot.gov or 602-712-7167.

	Public Meeting Question/ Comment	Response
8	Is there a contingency plan to move forward with the project, even if the sales tax initiative isn't approved?	Yes, there are funds available to proceed with final design of the project.
9	What is the anticipated completion assuming construction starts 1st quarter of 2026?	Construction is expected to take 15 - 18 months.
10	When construction begins what is the timeline for completion?	Construction is expected to take 15 - 18 months.
11	If Prop 479 passes, when do you expect this Project to be completed? Estimation only	Right now, the anticipated possible construction date is the second quarter of 2026. The project is not currently funded for construction however once funded, the duration is expected to be 15 - 18 months.
12	I live on Monte Vista, just north of McDowell Rd. It has been a superhighway I. The past when previous construction was going on. Can we please get speed bumps on Monte Vista Rd?	Monte Vista Road is outside this project's limit and is under the county's jurisdiction.
13	So, the 1/2 sales tax must pass in 2024 to build the project and what happens if the sales tax does not pass?	MAG is the designated metropolitan planning organization that oversees the regional transportation plan and regional funding and would need to reevaluate the Regional Transportation Plan.
14	Will the land where the chevron is being acquired become a drainage basin?	At this current time, there will be some drainage, but the usage of that property has not been finalized at this time.

	Public Meeting Question/ Comment	Response
15	What can be done to expedite the design to coincide with the construction funding that would come available with the passage of Prop 479? Residents would want to see this completed sooner than 2027.	There are federal processes for the environmental, utility and for the Right of Way acquisition process to be followed that take time. The project cannot be advertised for construction before these clearances are issued.
16	How important would it be for a TI & improvements to be built at Dean Road?	There is no study or plans at this time for this interchange.
17	For coordination with adjacent developments, when will proposed ROW and basin sizing be finalized or ready to share?	Final design will start in the middle of 2024 and we expect to finalize the proposed right of way and basin sizing in 2025.
18	Will landscape design be coordinated with Buckeye and the city general signage plan? Like Verrado?	Yes, the landscaping will be coordinated with City of Buckeye and will follow ADOT landscape design guidelines.
19	Will the City of Buckeye participate and give funds towards this project?	At this time there is no funding participation on behalf of the city of Buckeye.
20	What will happen to The Circle K- you mention a planned gas station at Fillmore?	There will be a new Circle K at Fillmore and the existing one will be converted to something else.

	Public Meeting Question/ Comment	Response
21	Please explain why one diamond is favored over the other.	The traffic analysis evaluated two interchange alternatives: a tight diamond interchange (known as a TDI) and a diverging diamond interchange (known as a DDI). Other interchange types were not evaluated because they would have significant adverse impacts on existing facilities and properties near the interchange. The existing traffic interchange is currently a TDI, but the improvements contemplated would upgrade the Interchange to provide traffic signals and several more lanes of traffic on Jackrabbit Trail and the I-10 freeway ramp approaches Jackrabbit Trail. An improved TDI was found to be more favorable than converting the interchange to a DDI since DDI's do not operate properly when in very close proximity to a major intersection such as McDowell.
22	In the meantime, can we remove the stop signs that were added and only made things worse?	The stop signs were added to improve the traffic conditions, so they need to remain until we make the signal improvements at the interchange.
23	What is the construction phasing schedule?	The project is not currently funded for construction however once funded, the duration is expected to be 15 - 18 months.
24	Will construction on Yuma be completed to allow for an additional traffic?	We will need to defer that question to the City of Buckeye.
25	Will City of Buckeye move forward with the traffic signal at Van Buren and Jackrabbit prior to the traffic interchange at I 10?	As of this time, those projects are slated to move forward prior to ADOTs I-10/Jackrabbit project.
26	When Buckeye was named fastest growing city in America, why wasn't infrastructure looked at then? This should've been done several years ago.	Improvements are based on the projected traffic modeling data from MAG, which have been updated.
27	How effective do you think adding traffic lights at McDowell will be in helping to reduce traffic congestion?	The traffic signals will be coordinated with the signals at the Jackrabbit TI and are expected to meet satisfactory levels of service.

	Public Meeting Question/ Comment	Response
28	It was mentioned tearing down and reconstructing the I-10 bridge. does that mean that section will be re-routed off the freeway and traffic goes north or south at other on off ramps in the area such as Perryville or Verrado?	The current concept is to maintain traffic on I-10 and to build the bridges in phases.
29	Miller and Watson left I-10 severely impacted for 2+ years. Does your plan consider I-10 traffic.	Construction will minimize impacts to I-10 traffic. The intent is to maintain traffic along Jackrabbit and I-10 during construction, however there will be the occasional nightly or weekend closures of Jackrabbit Trail at the I–10 for existing bridge removal and erecting the new bridge girders.
30	Why does the project stop south of Jackrabbit & McDowell intersection?	South of McDowell there is a new City of Buckeye project that goes north to Thomas and is being designed and funded by Buckeye.
31	Wow, that is just plain not true. The stop signs have helped a lot.	Thank you for your feedback.
32	Is the wash to the West of Jackrabbit going to be cleaned up...North of 10?	That wash is under the jurisdiction of the Flood Control District of Maricopa County, and we would defer to the FCDMC for that response
33	Evening, the chevron has been in the community for 25 years. Why is the family-owned gas station being taken out.	The recommended improvements would result in cutting off access to that property which is why it has been identified as a full acquisition.

	Public Meeting Question/ Comment	Response
34	Will stormwater basins be within drainage easements, or within the new ROW? If within easement, is there potential for them to be put underground in the future as land is developed?	The new development may place their retention underground - that will be their decision.
35	Before the project begins; will McDowell Road become a through Road from Jackrabbit to Verrado?	As of this time the city of Buckeye does have a planned project to extend McDowell Road to Verrado Way.
36	Will ADOT project account for any of the power pole relocations along McDowell or is that under City purview?	Relocations along McDowell fall under the city project.
37	I just joined the chat. How will construction affect the Chevron on the Northeast Corner of Jack Rabbit and I-10?	Chevron is currently identified as a full acquisition based on the draft recommended alternative. Potential right-of-way impacts and access changes that have been identified as part of this study will be further refined during final design. Affected property owners will be contacted before and during the right-of-way acquisition process in the Final Design stage of the project. Right-of-way plans will be developed based on the final design plans and property appraisals will be prepared for the affected properties and property owners will be contacted at that time.
38	Buckeye doesn't want to provide any funding.	The City will provide some funding for the project.
39	Will this presentation be available online? If so, where can we find it.	Yes, a recording of the presentation will be posted to azdot.gov/I10Jackrabbit.
40	Is jackrabbit north of the freeway considered for widening/lights?	Jackrabbit Trail north of the freeway will be widened in coordination with the city project.

	Public Meeting Question/ Comment	Response
41	Is there an existing intersection in the valley that looks like the proposed design?	Two DDIs were just constructed on I-10 at Watson and Miller roads in Buckeye. A DDI was also constructed on I-17/Happy Valley Road and in Tucson at I-10 and Houghton Road. The existing I-10/Jackrabbit Trail interchange is a TDI, as are the nearby I-10/Perryville Road and I-10/ Verrado Way interchanges. TDIs are the most common type of traffic interchange on freeways in the Valley
42	can we consider using a standard form of intersection exits and entrances that we have used for decades like Estrella parkway. the new forms of intersections like miller road are too confusing for new drivers, Senior citizens, and unfortunately DWI be more likely to go the wrong way it can be very confusing.	A DDI typically has fewer potential vehicle-to-vehicle conflict points than a TDI but conversely has more potential pedestrian-to-vehicle crossing conflict points than a TDI. In general, both types of interchanges meet safety criteria. The recommended improvements meet all current design safety requirements.
43	The Governor & others have proposed clawing back the $5 million appropriated for the design phase. What happens if the Legislature claws back the design funding?	This was the Governor's recommendation on what projects to cut budgets on, however this still has to go to the State Legislature to vote on before it goes into effect. So things can change, until then we are proceeding with the preliminary design and then into the final design stage until we hear otherwise.
44	We have four commercial lots at the NWC of Van Buren and Jackrabbit. Currently, we are in the Site Plan Design with the City of Buckeye review and approval phase followed by DRB. Should we continue or is it possible your design could alter our approval at a later date?	Project should continue with their proposed project as the necessary improvements would be the same whether constructed by developer or ADOT (which ever project is first).

	Public Meeting Question/ Comment	Response
45	I believe I heard jack rabbit to Verrado is planned. City of ADOT control? Timing information?	McDowell Road from Jackrabbit to Verrado is a City Project.
46	Does the city of Buckeye have plans to extend Roosevelt to Verrado?	Please contact John Willett- 623-349-6282 jwillett@buckeyeaz.gov for more information.
47	Has the final design consultant been selected? if not, when will that be advertised?	The final design consultant has not been selected. This project has the option to continue the existing contract for preliminary design into final design.
48	Will the current Circle K be demolished and a new one built or what is going to happen to that Circle K?	This property is identified as a partial acquisition so what will happen with the remaining property will be up to the property owner.
49	When will the Roosevelt Street construction to Verrado Way happen?	Per the city of Buckeye: The extension at Roosevelt is in final design and expected to be completed sometime this fall.
50	For Buckeye, any timing information regarding ROW acquisition north of McDowell?	Per City of Buckeye: The ROW acquisition process along the north side of McDowell Road should commence in the next few months.
51	What is the schedule for the expansion of Roosevelt between Verrado and Jackrabbit?	Per the City of Buckeye: The extension at Roosevelt is in final design and expected to be completed sometime this fall.
52	Also, I know this isn't about Verrado Way, but is there a plan to at least widen those off ramps with all the new businesses and traffic happening? Costco, a mall, hospitals, apartments, other businesses.	At the current time there are no plans to widen the Verrado Way interchange ramps. The city is aware of the congestion at that location and future needs. The city is beginning conversations with ADOT regarding future improvements.

	Public Meeting Question/ Comment	Response
53	Will the slides you presented tonight be available on your website?	Yes, the presentation is currently posted to the website (http://azdot.gov/I10Jackrabbit) and a recording of tonight's meeting will be posted in the next few days.
54	Is the city of Buckeye also eventually planning to enlarge Jackrabbit to three lanes between Thomas and Indian School?	Yes, that is the city's ultimate goal to widen that road. This is not included in the Jackrabbit Trail widening from McDowell to Thomas Rd
55	Why 2025 for McDowell Road from Jackrabbit to Verrado Way?	The city has to complete the design and construction of that project. The city is wrapping up the design. The city doesn't want to push back construction.
56	Would all 4 ramps at Jackrabbit go under construction at the same time?	The intent would be to phase construction of the ramps so that no more than two ramps would be closed at the same time.
57	If construction will take up to 4 years, can we replace existing stop signs at I-10 interchange with traffic lights to improve flow?	ADOT did evaluate putting in temporary signals at the interchange and our modeling indicated that the traffic operations would worsen with temporary signals.
58	For John (Buckeye), are there any current plans available by the City for north of McDowell available to the public?	No, they are not available yet.
59	What is proposed for how many lanes will be installed for the Roosevelt improvements west of Jackrabbit?	The city's project will ultimately be two lanes in each direction. There will be an interim project configuration.
60	TY! This was informative.	Thank you for joining us!
61	Thank you and good luck with design.	Thank you for joining us tonight!
62	Overall project estimated cost?	Project costs will be developed as part of the project and will be based on the recommended improvements.

	Public Meeting Question/ Comment	Response
63	Do you plan to host anymore meetings like this leading to the vote?	We plan to have another meeting at the 60% design phase.
64	Will future meetings be zoom?	We will determine the best approach for the next meeting as we get closer.
65	Thank you, the meeting was very informative.	Thank you for joining us!
66	Since the Flood Control District canal veers west and goes behind Bingham Equipment and no longer follows Jackrabbit, why is all the right of way acquisition being considered only on the east side, which affects residential properties?	The right of way is based on the new centerline of the roadway and protecting the Flood Control Channel as a regional facility.
67	Just to conclude nothing will be done to improve the flow at jackrabbit and I-10 until 2025?	There are no planned improvements prior to construction of this project.
68	Thank you to everyone for the information.	Thank you for joining us!
69	Thanks to everyone for hosting this webinar!	Thank you for joining us!
70	Thank you for sharing this and taking the time to answer everyone's questions.	Thank you for joining us!
71	More and more construction adding up to more traffic. Can you please try to work on something for us???	What we have in place today at the interchange is the best we can do for now but we are constrained with interim options for traffic control due to the flood control channel on the west side of Jackrabbit Trail.

	Public Meeting Question/ Comment	Response
72	Will there be stop lights put in at Perryville and McDowell to help with this?	Yes, the development project on the NW and SW corner of the intersection will be putting in a traffic signal at that intersection in the next few months.

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	Date Received	E-mail Question/Comment	Response
1	1/11/2024	Will the plans for improvement of I10/Jackrabbit interchange include opening McDowell between Jackrabbit and Verrado Way? That would ease traffic through residential area of Verrado.	Thank you for contacting the Arizona Department of Transportation (ADOT). Your comments are important to us and have been shared with the appropriate members of our team. ADOT's intent is to maintain traffic along Jackrabbit Trail and I-10 during construction, however there may be occasional nightly or weekend closures of Jackrabbit Trail at I–10 for existing bridge removal and erecting the new bridge girders. As part of the project, we will be reviewing these issues and working with the stakeholders to develop a plan for construction. A construction contractor would need to submit any proposed construction-related restrictions and closures to ADOT and the city of Buckeye for review and approval and would need to provide alternative access wherever possible.
2	1/12/2024	Where in the Prop 479 list does this project most likely get funded/ constructed?	The I-10 and Jackrabbit Trail is shown in Phase I of the Regional Strategic Transportation Infrastructure Investment Plan (RSTIIP), funded at $33m. These details can be found on page 350 of the following link. Transportation Policy Committee 9/20/23 Agenda Packet (azmag.gov).

	Date Received	E-mail Question/Comment	Response
3	1/16/2024	Is the McDowell and Jackrabbit intersection part of this study?	ADOT's project limits do not extend into the McDowell Intersection. The ADOT I-10/ Jackrabbit Trail Traffic Interchange project would only widen Jackrabbit Trail to three lanes in each direction from the area south of McDowell Road to north of Van Buren Street. There are however several other nearby projects underway that are separate from this ADOT project along Jackrabbit Trail. The City of Buckeye plans to widen McDowell Road to a 6-lane divided roadway, widen Jackrabbit Trail to a 6-lane divided roadway between McDowell Road and Thomas Road, and add traffic signals on Jackrabbit Trail at McDowell Road and at Thomas Road. The City of Buckeye also plans to improve the Jackrabbit Trail and Van Buren Street Intersection and add a traffic signal there. For additional information on these projects, you may contact Jason Harris with the City at 623-204-5312.

	Date Received	E-mail Question/Comment	Response
4	1/19/2024	I am very excited about the Jackrabbit Trail improvements planned. We deal with so much traffic congestion, it'll be a relief when it's ready, even though that is years away. Progress is progress. One of the main topics I am hoping will be discussed in the public meeting is traffic control. There is an elementary school on Perryville Rd & Thomas and I am concerned on how traffic on the I-10 during construction will affect it. I am also interested on the construction phasing of the project and the level of communication between ADOT and the neighboring cities. For example, when the Watson Rd Diamond interchange was under construction, it created massive traffic delays. Detours on city roads were also difficult since there are few roads that provide East-West access. It felt like the City of Buckeye did poor planning on their part and had nearby roads also under construction. Overall, it was a feeling of being trapped in our neighborhood that I am hoping to avoid.	Thank you for contacting the Arizona Department of Transportation (ADOT). Your comments are important to us and have been shared with the appropriate members of our team. ADOT's intent is to maintain traffic along Jackrabbit Trail and I-10 during construction, however there may be occasional nightly or weekend closures of Jackrabbit Trail at I–10 for existing bridge removal and erecting the new bridge girders. As part of the project, we will be reviewing these issues and working with the stakeholders to develop a plan for construction. A construction contractor would need to submit any proposed construction-related restrictions and closures to ADOT and the city of Buckeye for review and approval and would need to provide alternative access wherever possible.
5	1/23/2024	I am associated with the commercial property currently being entitled through the City of Buckeye located at the immediate SE corner of I-10 and JR Trail. I would like to send the property owners of the 12-acre parcel a copy of the audio or zoom video from last night's public virtual meeting. Would you be able to send me a link to that information, please? Or please let me know who to contact about my request. Thanks	A recording of the presentation should be available by early next week on the project page. You have been added to the mailing list and will receive an update when the recording is uploaded. In the following weeks we will also send a notice when the meeting summary is posted online. The meeting summary will include all of the questions and answers provided during the meeting. A PDF of the powerpoint presentation, including the script is currently available on the project webpage at https://azdot.gov/i10jackrabbit
6	1/24/2024	I am following the above project and was wondering if you could provide me with the preliminary design consultant firm and contact person for the project? Have a good day!	Project Manager reached out directly

	Date Received	E-mail Question/Comment	Response
7	1/25/2024	Are the minutes available from the 1-10 Jackrabbit available yet?	A recording of the presentation should be available by early next week on the project page. You have been added to the mailing list and will receive an update when the recording is uploaded. In the following weeks we will also send a notice when the meeting summary is posted online. The meeting summary will include all of the questions and answers provided during the meeting. A PDF of the powerpoint presentation, including the script is currently available on the project webpage at https://azdot.gov/i10jackrabbit
8	1/29/2024	1) As the CEO of Cardinal Capital Co I would like to be included in the zoom/inperson meeting announcements concerning this JRT and I-10 interchange project. 2) This plan will severely impact my properties by taking so much land and easements from the east side of JRT and widening the road (McDowell) between the properties. What solutions do you have to this dilemma? Money will not help if the land that remains is too small to develop for the future. On the SEC, we just put in a new septic tank. The flood zone seems to meander both east and west. I would like to see the data that explains why it is less expensive to take the eastside land than to repair the flood control zone on the west. Thank you in advance for the information,	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team. A recording of the virtual public meeting as well as the presentation provided are available on the project webpage at azdot.gov/i10jackrabbit. Potential right-of-way impacts and access changes have been identified as part of this study and will be further refined during final design. Affected property owners will be contacted before and during the right-of-way acquisition process in the Final Design stage of the project. Right-of-way plans will be developed based on the final design plans and property appraisals will be prepared for the affected properties and property owners will be contacted at that time. If you have questions about the right of way process please contact Stacie McKenzie, ADOT Right of Way Project Coordinator, at smckenzie@azdot.gov or 602-712-7167.

	Date Received	E-mail Question/Comment	Response
9	2/1/2024	I watched the Zoom meeting last week presented by ADOT and the City of Buckeye and have a few questions. 1. It was stated that traffic would be maintained in all directions on the I-10 and Jackrabbit during construction. I would be interested the MOT when it becomes available keeping traffic moving while replacing the bridge and building a 6 lane section of Jackrabbit. 2. The intersection improvements at McDowell and Van Buren are the City's projects and the remainder are ADOT contracts. Would ADOT be receptive to completing the City's projects while constructing Jackrabbit in order avoid separate construction disruption twice, once by the State and once by the City. 3. Will there be left turn lanes on SB Jackrabbit into side streets and the gas station? Will the Super K gas station be restricted to right-in right-out traffic. Thank you for your time	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Please find the responses to your questions included below. The Maintenance of Traffic (MOT) plans will be finalized during the final design phase. Preliminary MOT concepts have been developed and it is anticipated that 3 lanes in each direction will be maintained along I-10. At least 1 lane in each direction along Jackrabbit Trail will be maintained throughout the majority of construction. Short term closures of Jackrabbit Trail may be needed for bridge construction activities. The City projects and State projects are funded from different sources and are thus programmed separately. As a result, the projects are on different delivery schedules to meet the requirements of the different funding sources. At this time, a southbound left turn lane is anticipated at the proposed Gas Station between Roosevelt Street and I-10, at Roosevelt Street and at Van Buren Street. The locations of median breaks and left-turn lanes will be finalized during the final design process.

	Date Received	E-mail Question/Comment	Response
10	2/3/2024	I am writing with regard to the I10/Jackrabbit project to widen Jackrabbit Trl and add traffic lights at certain intersections. While I am happy to see roadway improvements are coming, I do have concerns about the preliminary plan as presented. In addition to the signal lights at the TI with I10, your plan includes signal lights at Van Buren and Roosevelt Streets, and at an empty, unimproved lot that aligns with Latham St (if that street went through to Jackrabbit). It is only at these signaled intersections that left turn lanes are provided, restricting access to Melvin, Taylor, and Fillmore Streets to northbound Jackrabbit or from 191st Ave. It is my opinion that this is putting the health and welfare of the residents of these streets at risk as this also restricts first responder access. In a crisis requiring first responders, every second matters. If our first responders are blocked from utilizing the most direct route, precious time is wasted that could make all the difference in the outcome of that crisis. I urge you to reconsider providing left turn access at Melvin, Taylor, and Fillmore Streets from southbound Jackrabbit Trl as well. My husband and I have lived on the corner of Jackrabbit Trl and Taylor St in the Orangewood Farms community for 23 yrs. This used to be a quiet neighborhood with minor traffic but in the past 10 +/- years that has changed dramatically with Buckeye's rapid growth. The traffic noise has increased to the point that we no longer enjoy sitting on our front porch or opening doors and/or windows on pleasant days. This project proposes widening Jackrabbit to 6 lanes from Van Buren to Mc Dowell with all widening to push to the east. This brings the traffic closer to my home and will undoubtedly create an increase to the noise level. What plan is in place for noise abatement? I understand the push to the east is due to the Flood Control District's canal that runs along the west side of Jackrabbit but the canal veers to the west and does not affect Jackrabbit south of Roosevelt St. It is reasonable to believe that 4 lanes of traffic plus left turn lanes at Melvin, Taylor, and Fillmore streets from Van Buren to Fillmore Streets, widening to 6 lanes and curving slightly to the east as you approach I-10 would sufficiently alleviate traffic and lessen the negative impact on the residents of Orangewood Farms. Thank you for the opportunity to provide feedback and voice my concerns as an affected property owner.	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team for their consideration. The light signals at the Jackrabbit intersections with Van Buren St and Roosevelt St are not part of ADOT's project, for more information or to voice your comments on those projects please contact the city of Buckeye contacts Jason Harris, 623.204.5312 and/or John Willett, 623.349.6282. A noise analysis was performed for this project as a part of environmental analysis, following federal and ADOT regulations and policies. Anticipated noise levels within the project limits warrant consideration of noise abatement measures. No final mitigation recommendations are being made at this time as proposed noise abatement will be re-evaluated in the near future with the new widening project on I-10 between SR 85 and Citrus that includes this project's limits. You have been added to our project mailed list and will receive more information as it becomes available including details on future public meetings and opportunities to provide your input.

	Date Received	E-mail Question/Comment	Response
11	2/5/2024	My name is Matt Carlberg and I don't agree with the decision to take an entire business away from a small business owner. I have my own plumbing company and have chosen to support this Chevron for vears rather than the corporate giants. There is an entire dirt lot across the street that wouldn't hurt the family or business at all that ADOT could easily take possession of and widen the street there. This is a long standing business and the fact that ADOT would rather take away a family's livelihood than move around or compromise with is absolutely ridiculous. Doesn't make sense that of all land around Buckeye ADOT is trying to wipe out entirely this family business rather than work around to acknowledge the hard work this family has put in over the last 20 years.	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team. The project preliminary design would require the acquisition of the Chevron station as the improvements would eliminate direct access to the property from Jackrabbit Trail. Given the properties proximity to the intersection, all potential design configurations, including those that shift the roadway to the opposite side, would require the elimination of the driveway access to comply with safety and traffic standards. There are no other adjacent roads to the property, and removing the accesses along Jackrabbit Trail will necessitate a full property acquisition. Adequate access control is essential to the safe and efficient operation of traffic interchanges and the existing driveways are not in compliance with ADOT's Access Control Guidelines. At final design the owner will be contacted by a third party appraiser for an evaluation of the property. Once an evaluation has been completed an ADOT acquisition representative will be assigned to assist the owner with all qualified acquisition and relocation benefits the owner is due.

	Date Received	E-mail Question/Comment	Response
12	2/5/2024	I hope this message finds you well. My name is Anthony, and I am writing to express my strong opposition, alongside my family, to ADOT's proposed acquisition of the entire property housing Chevron on Jackrabbit Trail and the I-10. We believe that this plan represents an improper use of government authority. During the public meeting on January 23rd, ADOT acknowledged that there is no specific government purpose for acquiring the entire property and that the decision is primarily driven by access issues. We find this approach to be callous planning. While we understand the importance of addressing access concerns, we firmly believe that there are alternative solutions that can preserve access without jeopardizing the entire property and its business. The property in question is owned and operated by a family that has played a vital role in our community for many years. We stand wholeheartedly with them in opposing this action. Forcing the family to relinquish their property and business solely to comply with an ADOT access policy seems unnecessary and heartless. It is crucial for ADOT to collaborate with the property owner to find a solution that accommodates both the agency's project requirements and the family's legacy.	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team. The project preliminary design would require the acquisition of the Chevron station as the improvements would eliminate direct access to the property from Jackrabbit Trail. Given the properties proximity to the intersection, all potential design configurations, including those that shift the roadway to the opposite side, would require the elimination of the driveway access to comply with safety and traffic standards. There are no other adjacent roads to the property, and removing the accesses along Jackrabbit Trail will necessitate a full property acquisition. Adequate access control is essential to the safe and efficient operation of traffic interchanges and the existing driveways are not in compliance with ADOT's Access Control Guidelines. At final design the owner will be contacted by a third party appraiser for an evaluation of the property. Once an evaluation has been completed an ADOT acquisition representative will be assigned to assist the owner with all qualified acquisition and relocation benefits the owner is due.

	Date Received	E-mail Question/Comment	Response
13	2/5/2024	I've heard recently that ADOT plans to take over the Chevron property at 1419 N Jackrabbit Trail in Buckeye. Visiting this gas station has often been the highlight of my day. I will go out of my way to go inside rather than just pay at the pump so I can hi to the friendly employees. I choose to use this gas station over others because its family owned & I prefer to support local/family run businesses over all others. I know this has been family ran for many years. They are so proud of this property & what they're turned it in to. This is also one of very few gas stations out this way near my home. Removing this gas station will be a huge inconvenience to myself, my family, & many many other people. Please reconsider the need for your new turn lane & leave this station where it is.	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team. The project preliminary design would require the acquisition of the Chevron station as the improvements would eliminate direct access to the property from Jackrabbit Trail. Given the properties proximity to the intersection, all potential design configurations, including those that shift the roadway to the opposite side, would require the elimination of the driveway access to comply with safety and traffic standards. There are no other adjacent roads to the property, and removing the accesses along Jackrabbit Trail will necessitate a full property acquisition. Adequate access control is essential to the safe and efficient operation of traffic interchanges and the existing driveways are not in compliance with ADOT's Access Control Guidelines. At final design the owner will be contacted by a third party appraiser for an evaluation of the property. Once an evaluation has been completed an ADOT acquisition representative will be assigned to assist the owner with all qualified acquisition and relocation benefits the owner is due.

	Date Received	E-mail Question/Comment	Response
14	2/5/2024	I am writing to express my strong opposition to ADOT's proposal to acquire the entire property where the Chevron station is situated at the intersection of Jackrabbit Trail and the I-10. My family and I firmly believe that this plan constitutes an unjustified exercise of government authority. During the public meeting held on January 23rd, ADOT acknowledged that it lacks a governmental purpose for acquiring the property and is solely motivated by access concerns. This approach reflects callous planning, disregarding the longstanding presence of the Chevron station and its significance to the community. We believe there are alternative solutions that can address access issues without resorting to such drastic measures. The Chevron property has been owned and operated by a family deeply embedded in our community for many years. It would be unjust and heartless to forcibly take away their property and livelihood simply to comply with ADOT's access policy. This business has served our community for over two decades, and we implore ADOT to explore alternative design options that would allow the property to be preserved. We urge ADOT to collaborate with the property owner in finding a solution that respects their family legacy and preserves their late-husband and late-father's contributions to our community.	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team. The project preliminary design would require the acquisition of the Chevron station as the improvements would eliminate direct access to the property from Jackrabbit Trail. Given the properties proximity to the intersection, all potential design configurations, including those that shift the roadway to the opposite side, would require the elimination of the driveway access to comply with safety and traffic standards. There are no other adjacent roads to the property, and removing the accesses along Jackrabbit Trail will necessitate a full property acquisition. Adequate access control is essential to the safe and efficient operation of traffic interchanges and the existing driveways are not in compliance with ADOT's Access Control Guidelines. At final design the owner will be contacted by a third party appraiser for an evaluation of the property. Once an evaluation has been completed an ADOT acquisition representative will be assigned to assist the owner with all qualified acquisition and relocation benefits the owner is due.

	Date Received	E-mail Question/Comment	Response
15	2/5/2024	During the public meeting held on January 23rd, it was disclosed that ADOT lacks a government purpose for acquiring the entire property and is solely motivated by access issues. We understand the importance of ADOT's projects but believe there are alternative solutions that can preserve both the business and the project's momentum. With over two decades of history, the gas station on Jackrabbit Trail is a legacy left by a late-husband and late-father, and we urge ADOT to consider alternative design options that can coexist with the preservation of this property. We kindly request ADOT to collaborate with the property owner to explore alternative solutions that allow the project to move forward without depriving the family of their cherished legacy. Your consideration and cooperation in finding an amicable resolution to this matter are greatly appreciated.	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team. The project preliminary design would require the acquisition of the Chevron station as the improvements would eliminate direct access to the property from Jackrabbit Trail. Given the properties proximity to the intersection, all potential design configurations, including those that shift the roadway to the opposite side, would require the elimination of the driveway access to comply with safety and traffic standards. There are no other adjacent roads to the property, and removing the accesses along Jackrabbit Trail will necessitate a full property acquisition. Adequate access control is essential to the safe and efficient operation of traffic interchanges and the existing driveways are not in compliance with ADOT's Access Control Guidelines. At final design the owner will be contacted by a third party appraiser for an evaluation of the property. Once an evaluation has been completed an ADOT acquisition representative will be assigned to assist the owner with all qualified acquisition and relocation benefits the owner is due.

	Date Received	E-mail Question/Comment	Response
16	2/6/2024	My name is Jeff Frye, my family and I adamantly oppose ADOT's plan to acquire the entire property where the Chevron is currently located on Jackrabbit Trail and the I-10. ADOT has no government purpose for this property, based on the public meeting on January 23rd, thus making this improper use of government authority. Looking at the area, there are other ways for ADOT to move forward with their project, while saving that business. The property that is being pursued using improper government authority, is owned by a family that is important to our community. We will stand with them 100% and fight against this proposal. The business has been family owned for over two decades and tearing the business away from their family is unnecessary, not to mention gutless and heartless. I am positive with the collective intelligence employed by ADOT, other design alternatives can be achieved. We urge you to work with the property owners to find a solution and not destroy this family's legacy that will be passed onto future generations.	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team. The project preliminary design would require the acquisition of the Chevron station as the improvements would eliminate direct access to the property from Jackrabbit Trail. Given the properties proximity to the intersection, all potential design configurations, including those that shift the roadway to the opposite side, would require the elimination of the driveway access to comply with safety and traffic standards. There are no other adjacent roads to the property, and removing the accesses along Jackrabbit Trail will necessitate a full property acquisition. Adequate access control is essential to the safe and efficient operation of traffic interchanges and the existing driveways are not in compliance with ADOT's Access Control Guidelines. At final design the owner will be contacted by a third party appraiser for an evaluation of the property. Once an evaluation has been completed an ADOT acquisition representative will be assigned to assist the owner with all qualified acquisition and relocation benefits the owner is due.

	Date Received	E-mail Question/Comment	Response
17	2/7/2024	I am sure you are getting flooded with hundreds of emails and calls about this intersection, and if anyone is aware as to why, I am sure you are. That being said, as a citizen that often uses this intersection multiple times a day, this intersection has become completely over capacity. Updating with the new temporary stop signs did significantly reduce the collisions, many fatal, that were a multiple weekly occurrence. However, myself and many others I know greatly support the construction of a new interchange, understanding full well that it could take well over a year to complete. Our population is not going down anytime soon, only increasing at an overwhelming rate and it is better to rip off the Band-Aid now before it becomes a more severe problem in the future. Thank you for taking the time and doing everything you can with the infrastructure capabilities you have.	The project preliminary design would require the acquisition of the Chevron station as the improvements would eliminate direct access to the property from Jackrabbit Trail. Given the properties proximity to the intersection, all potential design configurations, including those that shift the roadway to the opposite side, would require the elimination of the driveway access to comply with safety and traffic standards. There are no other adjacent roads to the property, and removing the accesses along Jackrabbit Trail will necessitate a full property acquisition. Adequate access control is essential to the safe and efficient operation of traffic interchanges and the existing driveways are not in compliance with ADOT's Access Control Guidelines.

	Date Received	E-mail Question/Comment	Response
18	2/7/2024	I have lived in the West Valley for 20+ years and met Hardev Girn of the Jackrabbit Chevron when he first opened the gas station. He was a customer of my bank and saw him almost daily until his passing. Then his wife and son from there on. The Chevron is more than a gas station-it is the legacy of a man who saw Buckeye as his family's future. It is the legacy of an immigrant family that should not be lost. There are multiple ways that expansion can happen in the great City of Buckeye without having another heartbreak on this family. I believe that the story of how the City respected their journey in the American dream can have a bigger impact than the act of Eminent Domain. So I ask that Buckeye's City planners and developers ask themselves if there isn't a solution that can be made that doesn't cause the family additional heartache. Please reconsider and find a way to have expansion and growth without taking away the foundation of the Girn household. Sincerely,	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team. The project preliminary design would require the acquisition of the Chevron station as the improvements would eliminate direct access to the property from Jackrabbit Trail. Given the properties proximity to the intersection, all potential design configurations, including those that shift the roadway to the opposite side, would require the elimination of the driveway access to comply with safety and traffic standards. There are no other adjacent roads to the property, and removing the accesses along Jackrabbit Trail will necessitate a full property acquisition. Adequate access control is essential to the safe and efficient operation of traffic interchanges and the existing driveways are not in compliance with ADOT's Access Control Guidelines. At final design the owner will be contacted by a third party appraiser for an evaluation of the property. Once an evaluation has been completed an ADOT acquisition representative will be assigned to assist the owner with all qualified acquisition and relocation benefits the owner is due.

	Date Received	E-mail Question/Comment	Response
19	2/7/2024	My name is Tilea Moore and I have been a resident of the area for over 20 years. We have raised four children here and just love and adore our little community. While still a rural area compared to other cities in the valley, Buckeye has just over 100k residents. We have watched this area grow from nothing to its current state of families and businesses in those 20 years. I am writing to voice my concerns regarding ADOT's plan to acquire the Chevron property, conveniently located right off the I-1- freeway and Jackrabbit Trail. This little store has been a staple in our community for decades. I prefer to support family owned and operated businesses, our way of supporting our neighbors. My family and I have made thousands of visits to this gas station over the years. The owners are kind and have worked hard to provide goods and services to its patrons. The staff is always friendly and always smiling. They enjoy serving our community as much as we appreciate them offering their convenience and services to customers. I feel that ADOT should give more consideration to alternatives that do not involve destroying a familys' business and livelihood. It's far easier to change development plans in the early stages than it is to re-locate a developed property, such as the Chevron. It has underground tanks to hold the gas. They've built this business not only for themselves but their community. The government should be directing their planning and development AROUND homes and businesses. They should not be allowed to destroy something that took years to build. We will stand behind and support Chevron and any homes or businesses that suffer the same fate in our community.	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team. The project preliminary design would require the acquisition of the Chevron station as the improvements would eliminate direct access to the property from Jackrabbit Trail. Given the properties proximity to the intersection, all potential design configurations, including those that shift the roadway to the opposite side, would require the elimination of the driveway access to comply with safety and traffic standards. There are no other adjacent roads to the property, and removing the accesses along Jackrabbit Trail will necessitate a full property acquisition. Adequate access control is essential to the safe and efficient operation of traffic interchanges and the existing driveways are not in compliance with ADOT's Access Control Guidelines. At final design the owner will be contacted by a third party appraiser for an evaluation of the property. Once an evaluation has been completed an ADOT acquisition representative will be assigned to assist the owner with all qualified acquisition and relocation benefits the owner is due.

	Date Received	E-mail Question/Comment	Response
20	2/7/2024	I'm a resident of Buckeye and live very close to where the construction and project will be. I would like to know if there will be another online meeting to ask more questions about the project. I was unable to log in the day of, but I did see the video afterwards. ADOT mentioned raise medians but did not mentioned the overall design of them. The raise median that was added south of Perryville near the bridge of i10 does not have any landscape design. It's just plain dirt. Also don't you think that raise medians might conduct more panhandling? Unless it has a landscape design that prevents people from standing and waving signs. Also in the meeting they also said that the i-10 bridge over jackrabbit will get reconstructed. Does this mean that the i-10 is going to get wider with more lanes added? When the 303 was finalized ADOT did not continue the diamond-carpool lane all the way through at least to Verrado. The diamond lane ends just a little before the 303 ramp that merges to the I-10 and this is a major issue. The traffic gets stuck because the carpool ends and the 303 traffic enters westbound. What about the horses in this area? Would you be putting signs for drivers to be cautious with the horse riders? People ride horses from McDowell to Van Buren on Jackrabbit road. What is planned for that?	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. The median designs, including potential landscaping or hardscaping, as well as signing will be further evaluated during the final design phase of the project. However, there are no specific accommodations for equestrian use currently planned. This project will not be adding additional lanes along I-10. The new bridges will be built to accommodate additional lanes in the future. There is another ADOT project under development that will be adding an HOV lane along I-10, between SR 85 and Citrus Road. You have been added to our project mailing list and will receive more information as it becomes available including details on future public meetings and opportunities to provide additional input.

	Date Received	E-mail Question/Comment	Response
21	2/7/2024	I have reviewed the majority of the video and looked at the PDF. While I think it's a good idea, I believe something needs to be done in the meantime. It would be beneficial to put in temporary lights while this is in the pre-construction phases. There is way too much back up and traffic issues currently since the STOP signs were put in. Prior to those signs, it was a little difficult for traffic to make left turns exiting the freeway but the traffic flowed decently from Yuma to McDowell. The 4 way stop at Van Buren, the freeway underpass STOP signs and the 4 way at McDowell back traffic up way too far. It makes it difficult to get kids to school on time and since we drop off at two different schools, we have to leave our house very early and the kids are at school 30 minutes before they need to. Temporary traffic lights will at least allow traffic to flow in larger sections and allow cars to keep moving. The other option is to remove the installed stop signs and go back to the way it was until construction starts.	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team for their consideration. The city of Buckeye implemented four-way stop signs at the interchange ramp intersections to help ease traffic congestion and promote safety as an interim solution until the interchange can be reconstructed. Unfortunately, with McDowell Road and the Flood Control drainage channel being so close to the interchange, options are limited on other interim improvements that can be made. You have been added to our project mailed list and will receive more information as it becomes available including details on future public meetings and opportunities to provide your input.
22	2/8/2024	When I-10 between Verrado Way and MC-85 was widened a few years ago, local traffic was a nightmare as the parallel roads are not designed or built to accommodate large volumes of traffic. This resulted in miles-long back-ups On the I-10, Yuma Road and Indian School road, which terminates in the Verrado Development. The proposed Project has the same earmarks for disruption. I certainly hope AZDOT has a better plan for accommodating the large volumes of traffic, especially the Westbound traffic and its deleterious effects in us trying to get home. There were Zero efforts by AZDOOT, Goodyear, Buckeye or Maricopa County to provide better traffic control on Indian School to alleviate the large increase in volume due to the I-10 widening Project. With Indian School Road being under construction for the last two-plus years with no end in sight is no longer an effective reliever. I would hope Project Planners do a much better job anticipating these problems than they did last time. As we like to say in the biz: "Hope is not a Project Plan.".	Thank you for contacting ADOT and your interest in the I-10/ Jackrabbit Trail Traffic Interchange. Your comments are important to us and have been shared with the appropriate members of our team. You have been added to our project mailing list and will receive more information as it becomes available including details on future public meetings and opportunities to provide additional input.

Appendix D

Online Comment Form

Date	Comment/Question	Response
1/2/2024	During bridge demolition, will AZDOT be reducing traffic in each direction? Or, would it be better to allow eastbound traffic only in the morning, and westbound traffic only after 11 AM, and to divert the westbound morning traffic onto surface streets in the morning, and eastbound traffic after 11 AM? It would be so much better if the expansions of Yuma Road, Verrado Way, Jackrabbit, and Perryville into 3 lane roads each direction were completed before this project begins. The amount of traffic on the Verrado Bridge is already incredible, and will only be increasing as more retail shops are opened on the south side near Costco. I would also say that a traffic light should be installed on Verrado at the Costco entrance prior to this project, to safely allow the Costco traffic in and out during this project since Verrado traffic will be impacted/increased due to diversions during this project.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form.The intent is to maintain traffic along Jackrabbit and I-10 during construction, however there will be the occasional nightly or weekend closures of Jackrabbit Trail at the I–10 for existing bridge removal and erecting the new bridge girders. For comments related to the Verrado and Costco intersection please contact the city of Buckeye at jwillett@buckeyeaz.gov.
1/2/2024	Please improve the flow of traffic and safety of the area by installing stop lights at the intersection of Jackrabbit and I-10. Or possibly redesign the intersection to a diverging diamond like what has been done at the Miller and Watson exits.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. The overarching goals for this project are to improve safety, capacity and functionality to meet existing and future traffic demands at the I-10/Jackrabbit Trail Interchange. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street.
1/2/2024	I don't see anything to indicate that safety is a consideration in this development. Any development done here needs to include proven safety countermeasures for people walking and people riding bicycles. Speed studies should be done before and after development to insure that widening and adding lanes are not promoting speeding.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. The overarching goals for this project are to improve safety, capacity and functionality to meet existing and future traffic demands at the I-10/Jackrabbit Trail Interchange. As part of the project, we will be working with the stakeholders to achieve these goals.

Date	Comment/Question	Response
1/2/2024	Can you please just add lights and less stop signs. Make the lights timed right and everyone will be happy. Nothing fancy, just lights. No round about, diverging diamonds or anything like that. We just want to have traffic less backed up and don't want a 3 year long project when all we need is a light.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/2/2024	Jackrabbit needs 2 lanes from Van Buren to Indian School Rd, with Stop lights at each of those intersections, as well as at the freeway intersections. The exits at the I-10 and Jackrabbit need to add additional lanes for turning left and right.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.

Date	Comment/Question	Response
1/2/2024	Please put in lights! Turn lanes in each directing would also be nice with multiple lanes in each direction due to all the warehouses going in. Thanks for letting us provide input!	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/2/2024	Thank you for considering and taking on the much needed project to reduce much traffic.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team.
1/2/2024	Pretty simple answer , you only need look at I- 10 /Watson Road and I -10 /Miller Rd. that's what you need to do at jackrabbit Road diverging diamonds are the best thing to alleviate traffic back ups and have good traffic flow	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.

Date	Comment/Question	Response
1/2/2024	Please do this! We need a system with lights and more space.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/2/2024	Can we at least get temporary traffic lights now? It's going to take a long time before work actually begins on permanent lights.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. The city of Buckeye recently implemented four-way stop signs at the interchange ramp intersections to help ease traffic congestion and promote safety as an interim solution until the interchange can be reconstructed. Unfortunately, with McDowell Road and the Flood Control drainage channel being so close to the interchange, options are limited on other interim improvements that can be made.

Date	Comment/Question	Response
1/3/2024	I think it's a great idea to improve the Jackrabbit and I-10 interchange! Please move forward with it as soon as possible. I've lived in Buckeye since 2007 and have seen how challenging that interchange can be even with minor traffic. Now that housing and businesses have grown significantly in the area (greatly increasing the number of vehicles), it is a mess. I regularly use that interchange to get onto the freeway to go east, and exit the freeway there to go back to my home. Traffic backups ate bad and accidents are becoming increasingly common. With the development of the new Vestar shipping center project to the north of I-10 and Costco to the south of I-10 (just to the west) there will be even more pressure on the Jackrabbit exit as people navigate the region on McDowell and Roosevelt Road to along the freeway with those roads opening up soon as well.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/3/2024	Will the interchange be the main corador for the expected increase in semitrucks? What are the plans for adjacent roads?	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Jackrabbit Trail is not designated as a truck route. Semi-truck usage of Jackrabbit Trail will be dependent on surrounding land uses and proposed development. The proposed widening of Jackrabbit Trail will provide more lanes to accommodate trucks as well as cars. ADOT does not have any imminent plans for changes to the adjacent traffic interchanges along I-10 (at Verrado Way and Perryville Road). For planned improvements along local roads, please reach out to the City of Buckeye and City of Goodyear.

Date	Comment/Question	Response
1/4/2024	I hope the freeway work is done at the same time, because the bottleneck at Perryville causes so much back up before Jackrabbit.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. The project is not currently funded for construction. Once construction begins, the intent is to maintain traffic along Jackrabbit and I-10 during construction, however there may be occasional nightly or weekend closures of Jackrabbit Trail at I–10 for existing bridge removal and erecting the new bridge girders.
1/4/2024	I personally love the cloverleaf that is now the Miller exit! The Watson one is a little zigzag like and can be dangerous. But it has tremendously helped the flow of traffic! Unfortunately, you won't be able to please everyone no matter what you do!	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.

Date	Comment/Question	Response
1/5/2024	Roundabouts, more cost effective and keeps flow of traffic at all times instead of lights at intersections.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/5/2024	What is the delay this intersection has needed update for 5 years now and with the coming mall opening in 2025 it is going to be a bigger disaster then it is now?	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. The final design will start in the summer. Currently construction funds have not been identified yet, but expected to available by the Middle of 2026.

Date	Comment/Question	Response
1/5/2024	Upgrades to 4 lanes and traffic signals needed	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/5/2024	In my opinion, adding traffic lights at the Jackrabbot/I-10 on and off rams without also adding a traffic light at Jackrabbit and McDowell is just dumb. There's too much traffic at that intersection to leave it as a 4-way stop.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.

Date	Comment/Question	Response
1/5/2024	Put traffic lights in at the ramps.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/10/2024	where will traffic Travelling on I-10 in both directions be directed to if your are going to demolish the bridge? I live in the houses between Jackrabbit and Perryville and can only fear that all the daily freeway traffic will only cause major congestion until the bridge is completed.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. The intent is to maintain traffic along Jackrabbit and I-10 during construction, however there may be occasional nightly or weekend closures of Jackrabbit Trail at I–10 for existing bridge removal and erecting the new bridge girders.
1/10/2024	Can assistance be given to the City of Goodyear to complete the Indian School work between Cotton Lane and Perryville Rd. so there is a way to avoid the Jackrabbit intersection before construction starts and you trap the residents with two projects. What a waste of fuel/time and the dangers of two projects at the same time. There are many more people living in the northeast Buckeye area now. Indian School has been under construction since I moved here 3 years ago.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. ADOT does not have control over improvements to roadways owned by the City of Goodyear. To get additional information regarding the City's planned roadway improvements in the area, please reach out to the City of Goodyear directly.
1/12/2024	Bout F in time, idiots! Stop signs? Really???	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team.

Date	Comment/Question	Response
1/14/2024	From the limited info I can see from the Facebook page, it seems like the focus is mainly south of I-10 on JRT. North of I-10 needs attention too and will only get worse as the communities along JRT and into Verrado continue to grow. Traffic is already horrible at JRT/McDowell at many times of the day.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. The segment north of I-10, starting from McDowell intersection is the City of Buckeye project. Please reach out to the City for information regarding the work nort of I-10.
1/14/2024	Please do not copy the Watson interchange. It is a mess, and dangerous.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.

Date	Comment/Question	Response
1/14/2024	With growth in this area, widening the road and adding street light is just common sense. The way it is now, feels like we are living in the 1950's. Let's get with the times and upgrade our streets with lights, not stop signs. To include all of jackrabbit not just some sections!!!!!!	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/14/2024	Something similar or the same as to the of ramp of Watson and miller ramp exit	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.

Date	Comment/Question	Response
1/15/2024	Please get rid of those stop signs and install a light!	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/16/2024	Support each of the 4 outlined improvements, long overdue and a traffic nightmare as it currently stands.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.

Date	Comment/Question	Response
1/16/2024	OMG. Azdot can't seem to organize it's thinking on these projects. First you disrupt I-10 in the west valley for 2 years for a widening project that still hasn't gone far enough. Now you want to shut it down for another two years for the Jack Rabbit interchange. Then you'll do the L101 and I-10 for another two years. Then you will need to address the Verrado Way I-10 exit as the shopping and population grows. Absolutely ridiculous!	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team.
1/20/2024	Plan needs to consider how Perryville Rd, Thomas and Indian School Rd will impacted by this plan! Traffic control is non-existent on all three roads. Four way stops are extremely overtaxed by increased traffic flow, as evidenced by recent closures of westbound I-10. I suggest traffic lights @ Thomas & Jackrabbit and Indian School & Perryville before any work on improving Jackrabbit freeway bridge!	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. ADOT plans to keep the existing number of lanes along I-10 at Jackrabbit open during construction. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.

Date	Comment/Question	Response
1/23/2024	As you are well aware, this interchange is in great news for improvement and reconstruction. It needs to be signalized, and widened, due to the high traffic count.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/23/2024	Lights on jackrabbit it's to dark. Fix up the area off the high away. Jackrabbit	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team.
1/24/2024	What is the estimated time of completion? 2027?	The project is not currently funded for construction. This project is included in the Regional Transportation Plan update and funding for construction is identified in Proposition 479, the extension of the half-cent sales tax in Maricopa County, which will be presented to voters in the November 2024 election. If the proposition passes, construction is estimated to begin in Fall 2026 and construction to be completed early 2028.

Date	Comment/Question	Response
1/26/2024	I approve and support ADOT's I-10/Jackrabbit Trail Traffic Interchange Project.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/28/2024	I-10 and Jackrabbit Interchange needs to be upgraded ASAP! Please keep it simple and avoid the idiotic designs that were recently built at Watson and Miller Rds! Also need Jackrabbit Rd, North of the interchange up to Indian School Rd to be widened to at least two lanes in each direction. Traffic volume has increased 10 fold in this area over the past few years. McDowell Rd from Jackrabbit East to Loop 303 also needs to be widened to at least two lanes in each direction. These old one lane roads all in terrible condition and are outdated with today's increase traffic demand.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
1/29/2024	It would have been nice to receive the notice before the meeting date. I received it on the 28th and the meeting was on the 23rd. Good ol ADOT.	We regret to hear you're mailer was delayed. All meeting notifications were scheduled to be delivery the week of Jan. 8 through the USPS. You're email has been added to our mailing list to inform you about project updates as they become available.

Date	Comment/Question	Response
1/29/2024	What is estimated time frame and travel restrictions? Still hungover from verrado to 85 expansion ,how about a little time in between!	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. The project is not currently funded for construction. Once construction begins, the intent is to maintain traffic along Jackrabbit and I-10 during construction, however there may be occasional nightly or weekend closures of Jackrabbit Trail at I–10 for existing bridge removal and erecting the new bridge girders.
2/1/2024	The intersections at I10 and Watson Rd & I10 and Miller Road are the worst traffic change that has been made. There are twice as many lights as the normal interchanges and the traffic does not flow as well. They are a complete waste of taxpayer money. Please do not make Jackrabbit Trail the same type of intersection.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
2/1/2024	I'm disappointed the evaluation did not include the possibility of a single point urban interchange. Why was it not included? The area around this intersection and all intersections in the southwest valley will only continue to grow and should be designed for more traffic volume than current models predict.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. The project included a traffic analysis that evaluated existing and future traffic conditions and compared how well various improvements would reduce traffic congestion. The proposed improvements are anticipated to significantly reduce traffic congestion at the interchange.

Date	Comment/Question	Response
2/1/2024	We reside near cross-streets McDowell / Jackrabbit (north side of I-10). Sure would appreciate a wall to cut down the freeway noise. It's excessively loud due to all of the ever--increasing traffic volume. Please please please consider this for our neighborhood.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. A noise analysis was performed for this project as a part of environmental analysis, following federal and ADOT regulations and policies. Anticipated noise levels within the project limits warrant consideration of noise abatement measures. No final mitigation recommendations are being made at this time as proposed noise abatement will be re-evaluated in the near future with the new widening project on I-10 between SR 85 and Citrus that includes this project's limits.
2/5/2024	I am the owner of Jackrabbit Java on the east side of Jackrabbit Trail. I see that there will be a median down Jackrabbit all the way down to Van Buren with no turn lanes or breaks in the median to turn into any of the businesses on the east side of Jackrabbit. Many of iur customers come from the 10 (driving south on Jackrabbit) and north of the 10 and would not be able to access iur businesses from that direction. This will severely negatively impact all of our businesses. It would be beneficial to the city of Buckeye to make businesses more accessible, not less accesible as we are all tax payers of the city of Buckeye. Please consider either making the median a turn lane down the middle, or adding turn lanes/breaks in the median to access our businesses on the east side of Jackrabbit. Thank you.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. The median designs, including potential landscaping or hardscaping, as well as signing will be further evaluated during the final design phase of the project.

Date	Comment/Question	Response
2/6/2024	The lack of turn lanes at residential streets restricts first responder access which could alter the outcome in a crisis situation. Not only does it put peoles welfare at risk, traffic from the residents of these streets will not be able to exit I-10 at Jackrabbit and take a direct route home, they will be forced to use Roosevelt or Van Buren and enter the neighborhood from 191st Ave, putting additional unnecessary traffic through the White Tanks community. Additionally, it is my opinion 6 lanes of traffic is not necessary between Van Buren and Fillmore Streets. 4 lanes with a turn lane for residents is a reasonable improvement for this stretch.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. The median designs, including potential landscaping or hardscaping, as well as signing will be further evaluated during the final design phase of the project.
2/6/2024	This intersection should be changed to a diverging diamond just like Watson and miller.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. A Divergent Diamond interchange at this particular location will not function properly because of its proximity to a major intersection, McDowell Rd and Jackrabbit. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
2/6/2024	Please start this ASAP. I am so excited for this interchange to finally be fixed. It can take 10-20 minutes get through those 3 stops signs at the overpass. I also love the lanes and the additional lights at Roosevelt and Van Buren. Thank you so much for listening to our needs and advocating for this change.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team.

Date	Comment/Question	Response
2/6/2024	I would see no reason not to proceed with the project as the west valley continues to grow at a rapid rate.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team.
2/6/2024	We have been waiting years for this intersection to be updated to handle the excess flow of traffic created by The City of Buckeye. Many years ago we attended an ADOT presentation at Verrado High School, this intersection was addressed by ADOT then and nothing ever happened. I have a glimmer of hope, but know it depends on funding.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team.
2/6/2024	1. Prior to initiating this project, other routes out of the West Valley need to be established; ie: complete Bethany Home Road from Jackrabbit to Perryville Road. Place temporary traffic signals instead of 4-way stop signs on all east/west roads west of the 303. In the morning, current traffic wait times just from Jackrabbit to Perryville on either Camelback or Indian School Roads can easily exceed 20 minutes. This is similar heading eastbound on these roads at the end of the work day. Drivers already disobey traffic laws and drive on the sides of the road in the dirt or in the middle turn lane for the entire mile in order to decrease wait times. I am sure these types of behaviors will increase if changes are not made to accommodate for even more traffic. This is already unacceptable and will be worsened with this project, which also needs to be timely. 2. This project should not take months and months to complete. This should be incentivized for rapid yet safe completion. Builders have been allowed to continue to build new communities in this area with no plans for traffic and now we are in a crisis situation.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. During the final design phase, we will work with city to minimize impacts to existing traffic as we further design the traffic control for this project.

Date	Comment/Question	Response
2/6/2024	This is necessary for the growth.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team.
2/6/2024	Would ensure that the larger view of impacts both north and south on Jackrabbit Tr be part of the consideration or the traffic congestion problems will just be moved to the next bottleneck just off the highway.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. The segment north of I-10 is being designed/constructed by the City of Buckeye, please contact the city for projects north of McDowell Rd and South of Van Buren.
2/7/2024	Pls widen the road so there are more lanes and add a stop light. Not a round about.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.

Date	Comment/Question	Response
2/7/2024	I am all for making this intersection safer and easier to navigate. Having Stop Signs every 50 feet, slight exaggeration, is not conducive to go traffic flow. You can expect to spend 15 minutes or more to turn left to get to or home in Blue Horizon. My request would be also as a Homeowner who will be navigating with Trucks from all the Logistics Centers in our vicinity, please be sure those Companies pay their share of this expense and maintenance over the years.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.
2/8/2024	Sounds like a great improvement. Just wish it could happen sooner	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team.

Date	Comment/Question	Response
2/9/2024	I think we need to make it like Watson. It gets way too packed in the morning and afternoon. Most of the time we have to wait 30 minutes because of that stop sign. It's not common that it's empty.	Thank you for completing the I-10/Jackrabbit Trail Traffic Interchange Study comment form. Your comments are important to us and have been shared with the appropriate members of our team. A Divergent Diamond interchange at this particular location will not function properly because of its proximity to a major intersection, McDowell Rd and Jackrabbit. Planned improvements include: Reconstructing the existing traffic interchange and adding traffic signals. Widening the interchange ramps to provide additional turn lanes. Removing and reconstructing the existing I-10 bridges over Jackrabbit Trail. Widening Jackrabbit Trail to three lanes in each direction south of McDowell Road and north of Van Buren Street. For more details please visit the project webpage at azdot.gov/I10Jackrabbit.