RTIP ID# *(required)* RIV071254

TCWG Consideration Date: 8/27/2019

Project Description *(clearly describe project)*

The City of Indio (City), in cooperation with the California Department of Transportation (Caltrans) and, in cooperation with the County of Riverside (County) and the City of Indio (City), proposes to reconstruct and widen Monroe Street at Interstate 10 (I-10) to improve the operational performance of the Monroe Street interchange.

The project site is centrally located within the City of Indio at the crossroad of Interstate 10, Monroe Street, and the Coachella Valley Stormwater Channel. The Monroe Street interchange is located on I-10 at Post Mile (PM) R54.7, between PM R53.9, approximately 2 miles east of the Jefferson Street interchange and PM R55.5, approximately 1 mile west of the Jackson Street interchange. The current I-10/Monroe Street interchange configuration is a diamond-type interchange, with signal control at the on- and off-ramp termini. The project would reconstruct Monroe Street at the interchange, including the existing on- and off-ramps, the Monroe Street I-10 overcrossing (I-10 OC), and the bridge over the Coachella Valley Stormwater Channel (Channel Bridge). The project proposes to add an auxiliary lane in the eastbound direction between the Monroe Street and Jackson Street interchanges, and acceleration/deceleration lanes at the westbound Monroe Street on- and off-ramps and a deceleration lane at the eastbound Monroe Street off-ramp. The Monroe Street interchange is a major access point for existing development at the interchange area.

Existing. I-10 within the project limits is a 6-lane freeway with 3 mixed-flow lanes in each direction. Monroe Street is a 2-lane, north-south arterial with curbs, a striped median, and a sidewalk on the southbound side (see table below). The current I-10 / Monroe Street interchange is a diamond configuration with signal control at the ramp termini. The Monroe Street Overcrossing (Bridge #56-0611) is a 2-span, 47-foot-wide bridge.

Alternative 1 – No-Build. Under this alternative, no improvements would be made to the I-10/Monroe Street interchange. This alternative would not meet the project purpose and need, and therefore would not alleviate forecasted operational deficiencies, correct existing interchange geometric deficiencies, or accommodate multimodal travel through the interchange area.

Alternative 2 – Tight Diamond Interchange (TDI). This alternative would reconstruct the existing interchange in a tight diamond configuration. Improvements include widening Monroe Street (see table below), the I-10 OC, the Channel Bridge, and the I-10 ramps. Monroe Street at the I-10 OC and Channel Bridge would accommodate 2 through lanes in each direction and 2 left-turn lanes at each ramp intersection for access to I-10. Alternative 2 includes construction of a 6.5-foot-wide sidewalk and 10-foot-wide Class II, on-street bike/Low Speed Electric Vehicle (LSEV) path located on both sides of Monroe Street along the limits of improvement.

Alternative 4 – Diverging Diamond Interchange (DDI). This alternative would reconstruct the existing interchange in a DDI configuration. A DDI is a type of diamond interchange in which the northbound and southbound direction of travel cross to opposite sides between signalized crossover intersections. The DDI allows for two-phase operations at both signalized crossover intersections. The configuration of the DDI contributes to a safer intersection by reducing vehicle speeds and reducing the number of vehicle conflict points. Improvements include widening Monroe Street (see table below), the I-10 OC, the Channel Bridge, and the I-10 ramps. Separate bridge structures would be constructed for each direction of travel for the I-10 OC and the Channel Bridge. Monroe Street at the I-10 OC and Channel Bridge would accommodate two through lanes in each direction. Alternative 4 includes the construction of a 6.5-foot-wide sidewalk on both sides of Monroe Street along the limits of improvement. As the directions of travel cross over, pedestrians will cross to the inside of the interchange, and will be accommodated on a single 10-foot-wide path between the I-10 ramps. A 10-foot-wide, on street Class II bike / LSEV path is proposed on both sides of Monroe Street.

NUMBER OF LANES BY ALTERNATIVE & ROAD SEGMENT			
Segment	**Number of Lanes**		
	Existing / No-Build	**Alternative 2**	**Alternative 4**
Monroe Street Through Lanes	2	4	4
Monroe Street Left-Turn Lanes	1	2	1
Monroe Street West-Bound On-Ramp Right	0	1	1
Monroe Street East-Bound On-Ramp Right	1	1	1
Monroe Street West-Bound Off-Ramp Termini	2	3	2
Monroe Street West-Bound On-Ramp	1	2	2
Monroe Street East-Bound Off-Ramp Termini	2	3	2
Monroe Street East-Bound On-Ramp	1	2	2

Common Build Alternative Features

Ramp Metering: According to the Caltrans Ramp Metering Design Manual (RMDM), dated February 2018, only the westbound I-10 on-ramp is planned for ramp metering. The proposed project includes ramp metering on both the I-10 westbound and eastbound on-ramps with two general purpose lanes per the Caltrans RMDM, without High Occupancy Vehicle Preferential Lane (HOVPL).

Parcel and Right-of-Way Impacts: Alternatives 2 and 4 would temporarily impact vacant land in the northwest, northeast and southwest quadrants. Alternatives 2 and 4 would impact planned (currently vacant) development sites north of the interchange along both sides of Monroe Street from the westbound I-10 ramps to Showcase Parkway, and in the southeast quadrant, south of the Coachella Valley Stormwater Channel. Right-of-way impacts are anticipated in the northeast and southeast quadrants. Due to the proposed improvements, Alternatives 2 and 4 would impact sites along both sides of Monroe Street from south of the Coachella Valley Stormwater Channel Bridge to Oleander Avenue, including minimum impacts to two gas stations, 76 Oil and Shell, along southbound Monroe Street in the southwest quadrant. The Coachella Valley Stormwater Channel would also require temporary right-of-way impacts due to new bridge construction, pier protection construction, and channel lining. Coordination with CVWD would be required throughout the project.

Auxiliary Lane: Alternatives 2 and 4 include an auxiliary lane in the eastbound direction between the Monroe Street on-ramp and the Jackson Street off-ramp. The auxiliary lane is approximately 2,650 feet long as measured from the on- and off-ramp convergent and divergent points parallel to I-10. The auxiliary lane is comprised of one standard 12-foot-wide lane with one standard 10-foot-wide shoulder.

Monroe Street On-Ramp Acceleration Lane and Off-Ramp Deceleration Lane: Alternatives 2 and 4 include acceleration and deceleration lanes at the westbound on- and off-ramps to improve traffic operations and to meet Caltrans ramp metering requirements. From the ramp convergence point, the westbound Monroe Street on-ramp acceleration lane length is 1,000 feet long parallel to I-10. From the ramp divergence point east, the westbound Monroe Street off-ramp deceleration lane length is 1,300 feet long parallel to I-10. Both build alternatives also include an eastbound off-ramp deceleration lane at Monroe Street. From the ramp divergence point west, the eastbound Monroe Street off-ramp deceleration lane length is 600-feet long parallel to I-10.

CV Link: Alternatives 2 and 4 would require realignment of CVAG's planned CV Link multiuse trail within the project limits to accommodate the widening of Monroe Street and provide the minimum vertical undercrossing clearance.

Type of Project *(use Table 1 on instruction sheet):* Reconfigure existing interchange

County	**Narrative Location/Route & Postmiles:** 08-RIV-10-R54.2/R55.6
Riverside	**Caltrans Projects – EA#** 0K730

Lead Agency: California Department of Transportation

Contact Person	**Phone#**	**Fax#**	**Email**
Shudeish Mahadev, Parsons	626-440-2125		Shudeish.Mahadev@Parsons.com

Hot Spot Pollutant of Concern *(check one or both)* **$PM_{2.5}$ X** **PM_{10} X**

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

Categorical Exclusion (NEPA)	**X** **EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	**Other**

Scheduled Date of Federal Action: 2019

NEPA Assignment – Project Type *(check appropriate box)*

Exempt	**Section 326 –Categorical Exemption**	**X** **Section 327 – Non-Categorical Exemption**

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	10/15/2009	1/1/2020	1/1/2021	6/1/2023
End	4/30/2020	4/30/2022	12/31/2022	6/31/2025

Project Purpose and Need (Summary): *(attach additional sheets as necessary)*

The purpose of this project is to:

- Increase capacity at the I-10/Monroe Street interchange to accommodate the forecast travel demand for the 2045 design year within the City of Indio;
- Accommodate multimodal travel consistent with the City of Indio's *General Plan* and regional plans; and

Improve operations by addressing existing interchange geometric deficiencies that include inadequate shoulder width; nonstandard curves, cross-falls, and profile grades; and seismically deficient and scour susceptible bridges over I-10 and Whitewater River. The project addresses the following needs, transportation deficiencies and problems:

- The existing interchange and associated intersections are expected to operate at unacceptable level of service by year 2045 due to forecasted growth in traffic volumes in relation to the current capacity of the interchange;
- Existing gaps in pedestrian and bicycle infrastructure across the interchange break the multi-modal connection between communities and businesses on either side of I-10; and
- Without the proposed improvements, and with anticipated daily traffic growth, the existing Monroe Street and corresponding I-10 ramps will experience increased delays and diminished operations within the interchange.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*

Light industrial and commercial developments adjacent to the interchange generate both auto and truck traffic. Residential developments near the intersection also generate auto traffic. The area south of I-10 is substantially built out, but the interchange is on the northern edge of the urban area, and undeveloped lands to the north of I-10 adjacent to Monroe Street will likely be developed in the future, increasing the volume of vehicles on Monroe Street and on the I-10 ramps.

Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility:

Based on traffic counts in 2018, truck percentages on the Monroe Street and Jackson Street Overpasses during morning and evening peak hours range from 1% to 2%; percentages during off-peak hours are expected to be

slightly higher than during the peak hours. Average daily truck traffic on Interstate 10 in the project area is about 27 percent of total vehicle volumes (Caltrans, 2018, 2016 Traffic Volumes on California State Highways), and this percentage is not expected to increase due to the project. Truck percentages in 2025 are expected to be similar to 2016 truck percentages. The project does not generate trips so No-Build and Build vehicle volumes are the same.

OPENING YEAR (2025) AM PEAK HOUR INTERSECTION OPERATIONS

Study Intersection		No Build Alternative		Build Alternative 2		Build Alternative 4	
		Delay	LOS	Delay	LOS	Delay	LOS
1	Monroe Street/Avenue 42	29	C	29	C	28	C
2	Monroe Street/Showcase Parkway	36	D	8	A	8	A
3	Monroe Street/I-10 Westbound Ramps	41	D	18	B	15	B
4	Monroe Street/I-10 Eastbound Ramps	18	B	14	B	23	C
5	Monroe Street/Oleander Avenue	12	B	12	B	14	B
6	Monroe Street/Avenue 44	21	C	20	B	23	C
7	Jackson Street/I-10 Westbound Ramps	9	A	9	A	8	A
8	Jackson Street/I-10 Eastbound Ramps	21	C	20	B	20	C
9	Jefferson Street/I-10 Westbound Ramps	6	A	6	A	5	A
10	Jefferson Street/I-10 Eastbound Ramps	9	A	9	A	9	A

Notes: 1. V/C ratio greater than 1.0 is consider LOS F.
2. Bold font indicates unacceptable operations.
Source: Fehr & Peers, 2019.

OPENING YEAR (2025) PM PEAK HOUR INTERSECTION OPERATIONS

Study Intersection		No Build Alternative		Build Alternative 2		Build Alternative 4	
		Delay	LOS	Delay	LOS	Delay	LOS
1	Monroe Street/Avenue 42	25	C	26	C	25	C
2	Monroe Street/Showcase Parkway	9	A	9	A	8	A
3	Monroe Street/I-10 Westbound Ramps	19	B	17	B	10	B
4	Monroe Street/I-10 Eastbound Ramps	40	D	15	B	9	A
5	Monroe Street/Oleander Avenue	34	C	14	B	14	B
6	Monroe Street/Avenue 44	**87**	**F**	31	C	29	C
7	Jackson Street/I-10 Westbound Ramps	6	A	6	A	6	A
8	Jackson Street/I-10 Eastbound Ramps	**94**	**F**	**90**	**F**	**80**	**E**
9	Jefferson Street/I-10 Westbound Ramps	5	A	5	A	5	A
10	Jefferson Street/I-10 Eastbound Ramps	12	B	12	B	12	B

Notes: 1. V/C ratio greater than 1.0 is consider LOS F.
2. Bold font indicates unacceptable operations.
Source: Fehr & Peers, 2019.

OPENING YEAR (2025) ROAD SEGMENT AVERAGE DAILY TRAFFIC	
Eastbound Road Segment	**Opening Year (2025)**
Mainline Between Jefferson Street Ramps	52,920
Jefferson Street On-Ramp	2,880
Jefferson Street On-Ramp to Monroe Street Off-Ramp	42,690
Monroe Street Off-Ramp	6,400
Monroe Street On-Ramp	3,710
Monroe Street On-Ramp to Jackson Street Off-Ramp	39,990
Jackson Street Off-Ramp	6,110
Jackson Street On-Ramp	2,710
Jackson Street On-Ramp to Golf Center Parkway Off-Ramp	36,600
Golf Center Parkway Off-Ramp	6,070
Mainline East of Golf Center Parkway Off-Ramp	34,910
Westbound Road Segment	
Mainline East of Golf Center Parkway Off-Ramp	39,160
Golf Center Parkway On-Ramp	6,070
Golf Center Parkway On-Ramp to Jackson Street Off-Ramp	41,450
Jackson Street Off-Ramp	2,670
Jackson Street On-Ramp	6,410
Jackson Street On-Ramp to Monroe Street Off-Ramp	44,140
Monroe Street Off-Ramp	3,610
Monroe Street On-Ramp	6,280
Monroe Street On-Ramp to Jefferson Street Off-Ramp	47,370
Jefferson Street Off-Ramp	4,090
Mainline Between Jefferson Street Ramps	53,240
Overcrossing	
Monroe Street	29,520
Jackson Street	25,100

OPENING YEAR (2025) FREEWAY PEAK-HOUR TRAFFIC				
Freeway Segment	**Opening Year**			
	Eastbound		**Westbound**	
	AM	**PM**	**AM**	**PM**
Between Jefferson Street Ramps	3,140	3,770	3,710	3,710
Jefferson Street On-Ramp to Monroe Street Off-Ramp	3,360	4,040	4,160	3,960
Monroe Street On-Ramp to Jackson Street Off-Ramp	3,160	3,740	3,670	3,860
Jackson Street On-Ramp to Golf Center Parkway Off-Ramp	2,900	3,400	3,090	3,580

RTP Horizon Year / Design Year: Build / No Build LOS, AADT, % and # trucks, truck AADT of proposed facility:

Based on 2018 traffic counts, truck volumes on the Monroe Street and Jackson Street Overpasses during morning and evening peak hours range from 1% to 2%; percentages during off-peak hours are expected to be slightly higher than during the peak hours. Average daily truck traffic on Interstate 10 in the project area is about 27 percent of total vehicle volumes (Caltrans, 2018, *2016 Traffic Volumes on California State Highways*), but this percentage is not expected to increase due to the project. Truck percentages in 2045 are expected to be similar to 2016 truck percentages. The project does not generate trips so No-Build/Build truck volumes are the same.

DESIGN YEAR (2045) AM PEAK HOUR INTERSECTION OPERATIONS

	Study Intersection	No Build Alternative		Build Alternative 2		Build Alternative 4	
		Delay	LOS	Delay	LOS	Delay	LOS
1	Monroe Street/Avenue 42	**256**	**F**	31	C	30	C
2	Monroe Street/Showcase Parkway	**119**	**F**	12	B	12	B
3	Monroe Street/I-10 Westbound Ramps	**164**	**F**	19	B	12	B
4	Monroe Street/I-10 Eastbound Ramps	**121**	**F**	17	B	11	B
5	Monroe Street/Oleander Avenue	**80**	**E**	21	C	21	C
6	Monroe Street/Avenue 44	**125**	**F**	25	C	26	C
7	Jackson Street/I-10 Westbound Ramps	45	D	45	D	42	D
8	Jackson Street/I-10 Eastbound Ramps	**87**	**F**	**82**	**F**	**78**	**E**
9	Jefferson Street/I-10 Westbound Ramps	11	B	6	A	6	A
10	Jefferson Street/I-10 Eastbound Ramps	10	A	9	A	9	A

Notes: 1. V/C ratio greater than 1.0 is consider LOS F.
2. Bold font indicates unacceptable operations.
Source: Fehr & Peers, 2019.

DESIGN YEAR (2045) PM PEAK HOUR INTERSECTION OPERATIONS

	Study Intersection	No Build Alternative		Build Alternative 2		Build Alternative 4	
		Delay	LOS	Delay	LOS	Delay	LOS
1	Monroe Street/Avenue 42	**234**	**F**	33	C	35	C
2	Monroe Street/Showcase Parkway	**117**	**F**	11	B	11	B
3	Monroe Street/I-10 Westbound Ramps	**181**	**F**	17	B	17	B
4	Monroe Street/I-10 Eastbound Ramps	**166**	**F**	19	B	31	C
5	Monroe Street/Oleander Avenue	51	D	18	B	19	B
6	Monroe Street/Avenue 44	**196**	**F**	**100**	**F**	**103**	**F**
7	Jackson Street/I-10 Westbound Ramps	**95**	**F**	**91**	**F**	**86**	**F**
8	Jackson Street/I-10 Eastbound Ramps	**215**	**F**	**204**	**F**	**208**	**F**
9	Jefferson Street/I-10 Westbound Ramps	5	A	5	A	5	A
10	Jefferson Street/I-10 Eastbound Ramps	14	B	13	B	13	B

Notes: 1. V/C ratio greater than 1.0 is consider LOS F.
2. Bold font indicates unacceptable operations.
Source: Fehr & Peers, 2019.

DESIGN YEAR (2045) ROAD SEGMENT AVERAGE DAILY TRAFFIC	
Eastbound	**Design Year (2045)**
Mainline Between Jefferson Street Ramps	82,520
Jefferson Street On-Ramp	4,160
Jefferson Street On-Ramp to Monroe Street Off-Ramp	73,580
Monroe Street Off-Ramp	8,290
Monroe Street On-Ramp	7,440
Monroe Street On-Ramp to Jackson Street Off-Ramp	72,740
Jackson Street Off-Ramp	8,370
Jackson Street On-Ramp	3,420
Jackson Street On-Ramp to Golf Center Parkway Off-Ramp	67,790
Golf Center Parkway Off-Ramp	7,300
Mainline East of Golf Center Parkway Off-Ramp	72,190
Westbound	
Mainline East of Golf Center Parkway Off-Ramp	80,730
Golf Center Parkway On-Ramp	7,300
Golf Center Parkway On-Ramp to Jackson Street Off-Ramp	74,730
Jackson Street Off-Ramp	3,460
Jackson Street On-Ramp	7,400
Jackson Street On-Ramp to Monroe Street Off-Ramp	81,390
Monroe Street Off-Ramp	7,190
Monroe Street On-Ramp	6,950
Monroe Street On-Ramp to Jefferson Street Off-Ramp	81,670
Jefferson Street Off-Ramp	5,300
Mainline Between Jefferson Street Ramps	87,170
Overcrossing	
Monroe Street	38,600
Jackson Street	33,860

DESIGN YEAR (2045) FREEWAY PEAK-HOUR TRAFFIC				
Freeway Segment	**Design Year**			
	Eastbound		**Westbound**	
	AM	**PM**	**AM**	**PM**
Mainline Between Jefferson Street Ramps	5,050	5,850	5,520	6,220
Jefferson Street On-Ramp to Monroe Street Off-Ramp	5,700	6,750	6,020	6,490
Monroe Street On-Ramp to Jackson Street Off-Ramp	5,240	6,110	5,700	6,750
Jackson Street On-Ramp to Golf Center Parkway Off-Ramp	4,890	5,610	4,900	6,120

Describe potential traffic redistribution effects of congestion relief (*impact on other facilities*):

The project would not generate new vehicle trips and would not increase overall vehicle volumes or truck trips. By reducing congestion, the project could encourage some motorists to slightly alter their normal commute route and might encourage some commercial and industrial uses to slightly alter their normal routes for obtaining raw materials and delivering finished goods.

Comments/Explanation/Details (*attach additional sheets as necessary*)

The project is not a Project of Air Quality Concern (40 CFR 93.123(b)(1))

(i) New or expanded highway projects with significant number/increase in diesel vehicles?

- ✓ Not a new highway project
- ✓ Minor interchange improvements to relieve congestion (reducing delay and air pollutant emissions)
- ✓ No substantial change in traffic volumes or truck percentages

(ii) Affects intersections at LOS D, E, or F with a significant number of diesel vehicles?

- ✓ Improves operations at local intersections with existing/projected LOS of D, E, and F, but these intersections do not have a significant number or percentage of diesel vehicles.

(iii) New bus and rail terminals and transfer points?—Not Applicable

(iv) Expanded bus and rail terminals and transfer points?—Not Applicable

(v) Affects areas identified in PM_{10} or $PM_{2.5}$ implementation plan as site of violation?

- ✓ Not identified in a PM_{10} or $PM_{2.5}$ implementation plan as an area of potential violation

See also Figures 1, 2, and 3 attached.

Figure 1 – Project Area

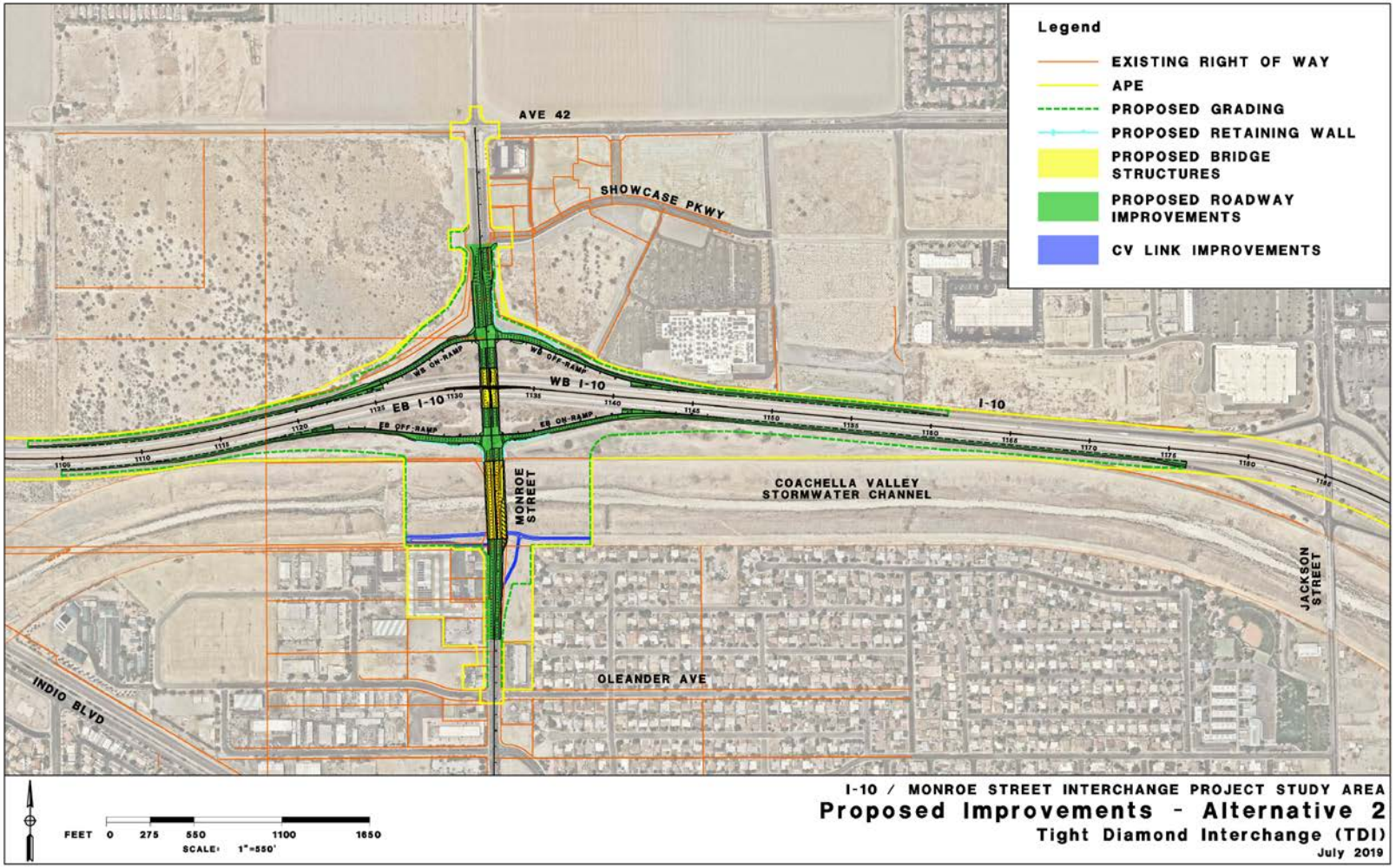

Figure 2 – Alternative 2

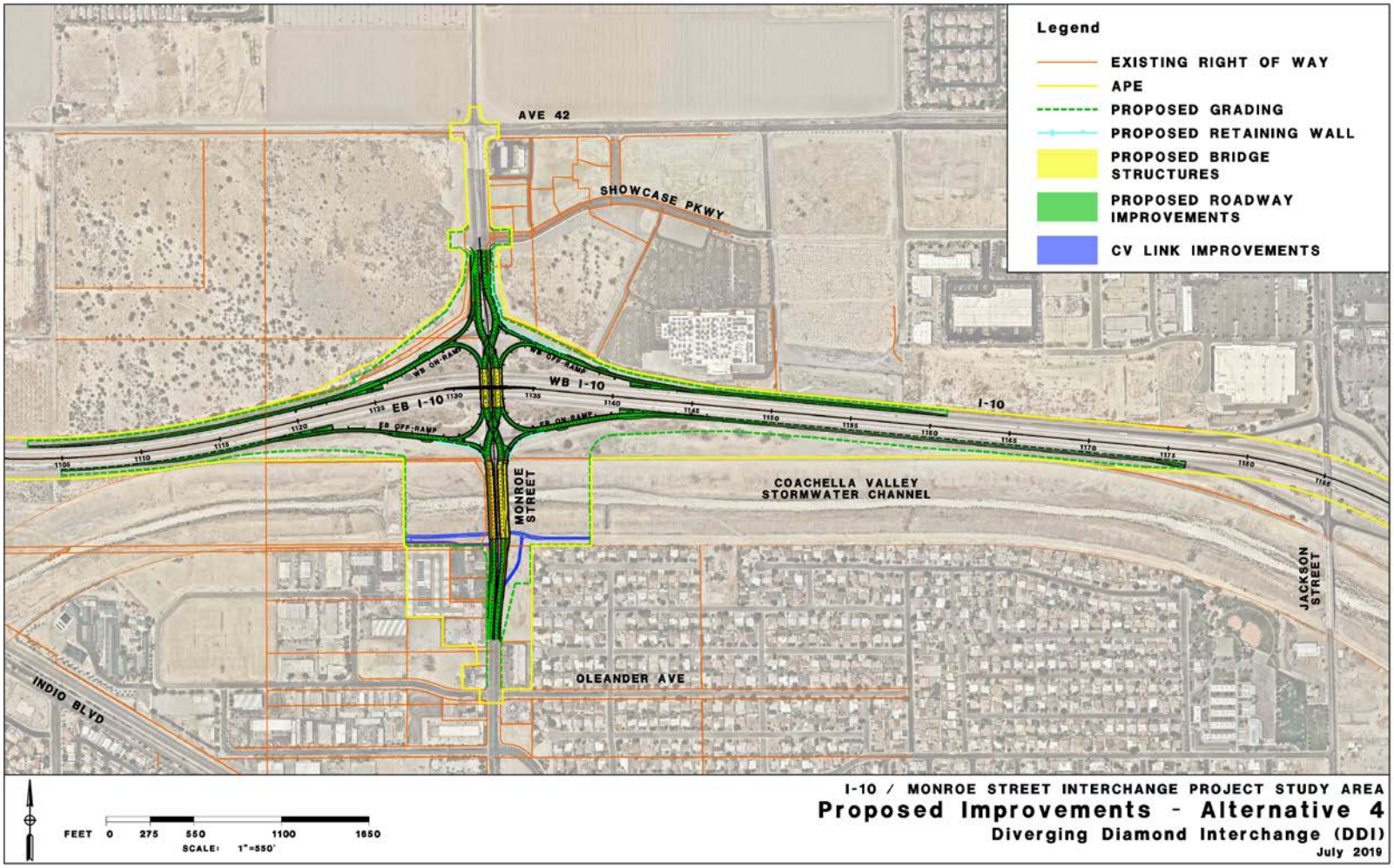

Figure 3 – Alternative 4